

Instructions – Parts List



2:1 RATIO

Standard Pumps

307679N

240 psi (1.7 MPa, 16.8 bar) Maximum Fluid Working Pressure
120 psi (0.8 MPa, 8.4 bar) Maximum Air Input Pressure

55 gallon (200 liter) Drum Size, with UHMWPE Packings Model 218556, Series C

With Model 218554 Stainless Steel Displacement Pump

15 gallon (57 liter) Drum Size, with UHMWPE Packings Model 223777

With Model 223775 Stainless Steel Displacement Pump

U.S. Patent No. 4,681,516
France Brevet No. 86-07085
Other U.S. and Foreign Patents Pending



Read warnings and instructions.
See page 2 for **Table of Contents**.

WARNING

Reactive Chemical Hazard

Graco, Inc. does not manufacture or supply any of the reactive chemicals that may be used in this equipment and is not responsible for their effects. Because of the vast number of chemicals that could be used and their varying chemical reactions, before using this equipment, the buyer and user should determine all facts relating to the materials used, including any potential hazards involved. Particular inquiry and investigation should be made into potential dangers relating to toxic fumes, fires, explosions, reaction times, and exposure of human beings to the individual components or their resultant mixtures. Graco assumes no responsibility for loss, damage, expense, or claims for bodily injury or property damage, direct or consequential, arising from the use of such chemical components.

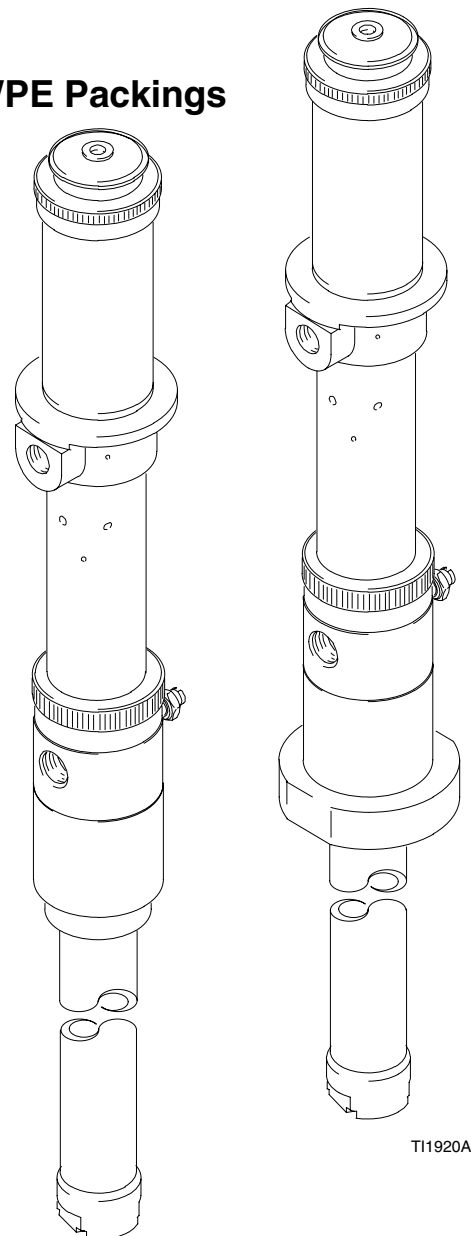


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Symbols

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 corresponding 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 uncertain about usage, 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 system component. Refer to the **Technical Data** on page 23 for the maximum working pressure of this equipment.
- 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 exceed the maximum working pressure of the lowest rated system component. This equipment has a **240 psi (1.7 MPa, 16.8 bar) maximum working pressure**.
- 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



PRESSURIZED EQUIPMENT HAZARD

Spray from the gun/valve, hose leaks, or ruptured components can splash fluid in the eyes or on the skin and cause serious injury.

- Do not stop or deflect leaks with your hand, body, glove or rag.
- Follow the **Pressure Relief Procedure** on page 7 whenever you: are instructed to relieve pressure; stop spraying; clean, check, or service the equipment; and install or clean the spray tip.
- Tighten all fluid connections before operating the equipment.
- Check the hoses, tubes, and couplings daily. Replace worn, damaged, or loose parts immediately. Permanently coupled hoses cannot be repaired; replace the entire hose.



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 7 to prevent the equipment from starting unexpectedly.



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. Refer to **Grounding** on page 4.
- 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.
- 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.

Installation

Grounding

In a low pressure air spray system, static sparking is generally not a problem. However, some simple precautions should be taken to reduce the risk. Check your local electrical code for detailed grounding instructions for your area and type of equipment, and be sure to ground all of this spray/dispensing equipment.

1. *Pump:* use a ground wire and clamp. See Fig. 1.
2. *Air compressor:* follow manufacturer's recommendations.
3. *Fluid hoses:* use only grounded hoses with a maximum of 500 ft (150 m) combined hose length to ensure grounding continuity.
4. *Spray gun or dispensing valve:* grounding is obtained through connection to a properly grounded fluid hose and pump.
5. *Object being sprayed:* according to your local code.
6. *Fluid supply containers:* according to your local code.
7. *All solvent pails used when flushing,* according to your local code. Use only metal pails, which are conductive, placed on a grounded surface. Do not place the pail on a nonconductive surface, such as paper or cardboard, which interrupts the grounding continuity.
8. *To maintain grounding continuity when flushing or relieving pressure,* always hold a metal part of the spray gun/dispensing valve firmly to the side of a grounded metal pail, then trigger the gun/valve.

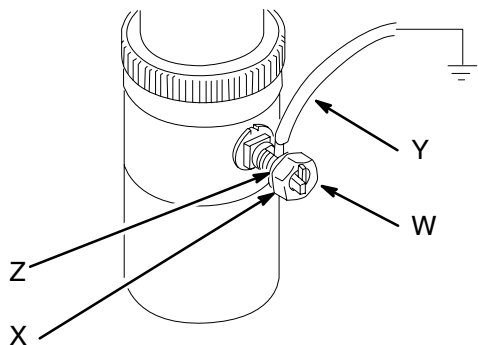


Fig. 1

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To ground the pump:

To ground the pump, loosen the grounding lug locknut (W) and washer (X). Insert one end of a 12 gal. (1.5 mm²) minimum ground wire (Y) into the slot in lug (Z) and tighten the locknut securely. See Fig. 1. Connect the other end of the wire to a true earth ground. See the **Accessories** section on page 22 to order a ground wire and clamp.

Flushing

The pump is tested with lightweight oil, which is left in to protect the pump parts. If the fluid you are pumping may be contaminated by the oil, flush out the oil with a compatible solvent before using the pump. Follow instructions below.

Before flushing, be sure the entire system and flushing pails are properly grounded. Refer to **Grounding** at left. Follow the **Pressure Relief Procedure** on page 7. Always use the lowest possible fluid pressure, and maintain firm metal-to-metal contact between the gun/valve and the pail during flushing to reduce the risk of injury from fluid splashing or static sparking.

⚠ WARNING

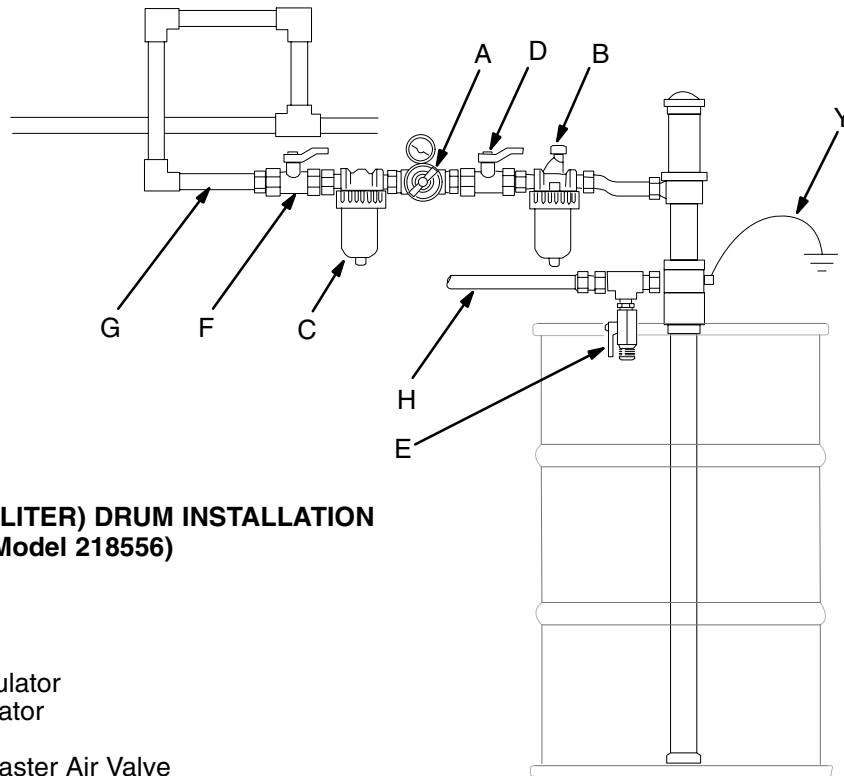
To reduce the risk of static sparking or splashing fluid in the eyes or on the skin, follow the **Pressure Relief Procedure** on page 7 before flushing. Hold a metal part of the gun/valve firmly to the side of a grounded metal pail and use the lowest possible fluid pressure during flushing.

For your safety, read the warning section **Fire or Explosion Hazard** on page 3 before flushing, and follow all recommendations given.

If you are pumping fluid which dries, hardens, or sets up, flush the system with a compatible solvent as often as necessary to prevent a buildup of dried fluid in the pump or hoses.

If the pump is being used to supply a circulating system, allow the solvent to circulate through the entire system until the pump and system is thoroughly flushed.

Installation

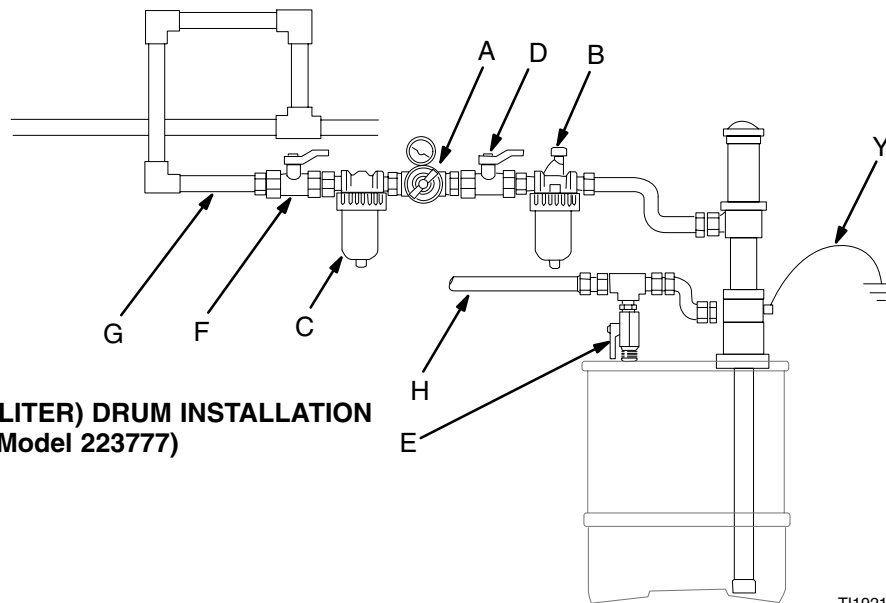


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55 GALLON (200 LITER) DRUM INSTALLATION (Model 218556)

KEY

- A** Pump Air Regulator
- B** Air Line Lubricator
- C** Air Line Filter
- D** Bleed-Type Master Air Valve
(required, for pump)
- E** Fluid Drain Valve (required)
- F** Bleed-Type Master Air Valve
(to isolate air line accessories)
- G** Grounded Air Hose
- H** Grounded Fluid Hose
- Y** Ground Wire
(required, see page 3 for installation instructions)



TI1921A

15 GALLON (57 LITER) DRUM INSTALLATION (Model 223777)

Installation

NOTE: Reference numbers and letters in parentheses in the text refer to the callouts in the figures and the parts drawings.

Mounting the Pump

Mount the pump to suit the type of installation planned. See the **Installation** drawings on page 5. Also refer to the **Dimensions** on page 23.

System Accessories

The **Installation** shown on page 5 is only a guide for selecting and installing system components and accessories. Contact your Graco distributor for assistance in designing a system to suit your particular needs.

See page 22 for accessories available from Graco. To ensure maximum pump performance, be sure that all accessories used are adequately sized and pressure-rated to meet the system's requirements.

WARNING

Two accessories are required in your system: a bleed-type master air valve (D) and a fluid drain valve (E). These accessories help reduce the risk of serious bodily injury including splashing in the eyes or on the skin, and injury from moving parts if you are adjusting or repairing the pump.

The bleed-type master air valve relieves air trapped between this valve and the pump after the pump is shut off. Trapped air can cause the pump to cycle unexpectedly and result in serious bodily injury, including amputation. Locate the valve close to the pump.

The fluid drain valve assists in relieving fluid pressure in the displacement pump, hose, and gun/dispensing valve when shutting off the pump. Triggering the gun/valve to relieve pressure may not be sufficient, especially if there is a clog in the hose or gun/valve.

Air Line Accessories

Install the following accessories in the order shown in the Typical Installation, using adapters as necessary:

An air line lubricator (B) provides automatic air motor lubrication.

A bleed-type master air valve (D) is required in your system to relieve air trapped between it and the air motor when the valve is closed (see the **WARNING** at left). Be sure the bleed valve is easily accessible from the pump, and is located **downstream** from the air regulator.

An air regulator (A) controls pump speed and outlet pressure by adjusting the air pressure to the pump. Locate the regulator close to the pump, but **upstream** from the bleed-type master air valve (D).

An air line filter (C) removes harmful dirt and moisture from the compressed air supply.

A second bleed-type air valve (F) isolates the air line accessories for servicing. Locate upstream from all other air line accessories.

Fluid Line Accessories

A fluid drain valve (E) is required in your system to relieve fluid pressure in the hose and gun (see the **WARNING** at left).

Connect the Hoses

Connect a grounded air supply hose (G) to supply air to the pump's 1/4 npt(f) air inlet. Connect a grounded fluid hose (H) to the 1/2 npt(f) fluid outlet.

Operation

Pressure Relief Procedure

WARNING



INJECTION HAZARD

Fluid under high pressure can be injected through the skin and cause serious injury. To reduce the risk of an injury from injection, splashing fluid, or moving parts, follow the **Pressure Relief Procedure** whenever you:

- are instructed to relieve the pressure,
- stop spraying/dispensing,
- check or service any of the system equipment,
- or install or clean the spray tip/nozzle.

1. Shut off the air to the pump. If your pump has a restrictor valve, close it also.

2. Close the bleed-type master air valve (required in your system).
3. Hold a metal part of the gun/valve firmly to the side of a grounded metal pail, and trigger the gun/valve to relieve pressure.
4. Open the drain valve (required in your system), having a container ready to catch the drainage.
5. leave the drain valve open until you are ready to spray/dispense again.

If you suspect that the fluid nozzle or hose is completely clogged, or that pressure has not been fully relieved after following the steps above, very slowly loosen the hose end coupling and relieve pressure gradually, then loosen completely. Now clear the nozzle or hose.

Operation

Starting and Operating the Pump

WARNING

To reduce the risk of serious bodily injury, including splashing in the eyes or on the skin, and property damage, never exceed the maximum air and fluid working pressures of the lowest rated component in your system. Refer to the **Equipment Misuse Hazard** on page 2.

1. Mount the pump and connect to a fluid supply as explained in **Installation** on pages 4–6.
2. See the **Installation** on page 4. Be sure the air regulator (A) and bleed-type master air valve (D) are closed.
3. Hold a metal part of the spray gun/dispensing valve firmly to the side of a grounded metal pail and hold the trigger open. Then open the pump's bleed-type master air valve (D). Now slowly open the air regulator (A) until the pump starts.
4. Run the pump slowly until all the air is pushed out of the pump and hose. Always use the lowest pressure necessary to get the desired results. Higher pressures waste fluid and cause premature system wear.
5. After all the air is purged, release the gun/dispensing valve trigger. This pump will not stall on either stroke. It will continue to creep until the air supply is shut off.

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, refill the container and prime the pump and the lines with fluid, or flush and leave it filled with a compatible solvent. Be sure to eliminate all air from the fluid system.

Shutdown and Care of the Pump

For overnight shutdown, flush the pump and follow the **Pressure Relief Procedure** at left. Always stop the pump at the bottom of its stroke. Doing so helps prevent damage to the throat packings caused by buildup of dried fluid on the upper piston rod and corrosion of the rod due to moisture.

NOTE: The pump is at the bottom of its stroke when the air motor exhausts.

CAUTION

Water, even moist air, can cause your pump to corrode. To help prevent corrosion, NEVER leave the pump filled with water or air. After normal flushing, flush the pump again with mineral spirits or oil-based solvent, relieve pressure, and leave the mineral spirits in the pump. Be sure to follow the **Pressure Relief Procedure** at left.

Lubrication

If you are not using an accessory air line lubricator, manually lubricate the motor daily. Disconnect the air regulator, place about 15 drops of light machine oil in the pump air inlet, reconnect the regulator, and turn on the air supply to blow air into the motor.

Troubleshooting

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

Problem	Cause(s)	Solution(s)
Pump fails to operate	Dirty or worn air motor parts	Clean and service; see manual 307851.
	Restricted air line or inadequate air supply	Clear; increase air supply; check air pressure (see Technical Data on page 23).
	Insufficient air pressure, closed or clogged air valves	Increase air pressure; clear clogged fluid hose or valve*.
	Worn or damaged air or fluid valves or seals	Replace valves or seals.
Pump operates but output low on both strokes	Restricted or inadequate air supply	Clear; increase air supply; check air pressure (see Technical Data on page 23).
	Clogged fluid line, gun, etc.	Open; clear*.
	Exhausted fluid supply	Refill; purge all air from pump and fluid lines.
	Worn or damaged air or fluid valves or seals	Replace valves or seals.
Pump operates but output low on downstroke	Worn or damaged air or fluid valves or seals	Replace valves or seals.
	Intake valve held open	Clear; service if necessary.
Pump operates but low on upstroke	Worn or damages air or fluid valves or seals	Replace valves or seals.
	Piston valve held open	Clear; service if necessary.
Erratic or accelerated operation	Exhausted fluid supply	Refill; purge all air from pump and fluid lines.
	Broken air motor compression spring	Replace; see manual 307851.

*To determine if the fluid hose or gun/valve is obstructed, follow the **Pressure Relief Procedure** on page 7. Disconnect the fluid hose and place a container at the pump fluid outlet to catch any fluid. If the pump starts when the air is turned on, the obstruction is in the fluid hose or gun/valve.

[illegible]

Displacement Pump Service (Model 218554)



WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 7.

Before You Start

1. Repair Kit 223650 is available (see **Parts Lists** on pages 19 and 21). For the best results, use all the parts in the kit. Kit parts are marked with an asterisk, for example (204*).
2. Have all the necessary repair parts on hand. Recommended spare parts are marked with a checkmark in the parts list on pages 18–21 (for example, 201f✓).
3. Use a compatible solvent to clean parts. Inspect parts for wear or damage and replace as needed.
4. Flush the pump if possible. Stop the pump at the bottom of its stroke. Follow the **Pressure Relief Procedure Warning** on page 7.
5. Disconnect the air and fluid hoses. Remove the pump from its mounting. Clamp the pump in a vise.

Servicing the Displacement Pump

Disassembly (See Fig. 2)

1. Unscrew the air motor connecting ring. Lay the pump on its side and rotate the displacement pump until the ball on the connecting rod (212) comes free of the socket in the air motor piston rod. Separate the air motor from the displacement pump. Clamp the displacement pump outlet housing (215) in a vise.

NOTE: To service the air motor, refer to separate manual 307851, supplied.

2. Unscrew the intake valve housing (201c) from the outer displacement cylinder (207). Remove the pin (201e) and ball (201f✓) from the valve housing (201c). Screw the relief valve housing (201d) out of the intake valve housing and remove the spring (201b) and ball (201a). See Fig 2. Thoroughly clean all the parts, inspect for wear or damage and replace as necessary.
3. Using wrenches on the flats of the upper piston rod (211) and connecting rod (212), screw the connecting rod off the piston rod.
4. Remove the packing retainer (213) and the packing (214). Remove the o-ring (208). Push down on the upper piston rod (211), grasp the fluid piston (202) and pull the piston and piston rod out through the bottom of the pump. See Fig 2.
5. Screw the fluid piston (202) out of the piston valve housing (221) and remove the backup washer (223), seal (204), and ball (222✓). See Fig 2. Thoroughly clean all the parts, inspect them for wear or damage, and replace as necessary.
6. Unscrew the lower piston rod (205) from the displacement piston (217) and upper piston rod (211). Remove the backup washer (220), and seal (219). Thoroughly clean all the parts, inspect them for wear or damage, and replace as necessary.
7. Using a strap wrench, screw the bung adapter (216) off of the pump outlet housing (215).
8. Screw the outer displacement cylinder (207) and inner displacement cylinder (206) off the pump outlet housing (215). Check the inner surfaces of each cylinder for scoring or damage by running a finger over the surface or holding the part up to the light at an angle. Replace as necessary.
9. Screw the pump housing (210) out of the pump outlet housing (215). Remove the o-rings (208 and 209).

Displacement Pump Service (Model 218554)

Reassembly (See Fig. 2)

1. Install the two o-rings (208* and 209*) on the pump housing (210). Screw the pump housing into the pump outlet housing (215) and tighten securely.
2. Apply sealant to the threads of the inner displacement cylinder (206) and screw it onto the pump outlet housing (215). Do the same with the outer displacement cylinder (207).
3. Screw the bung adapter (216) onto the outlet housing (215) with a strap wrench.
4. Install the seal (219*) on the displacement piston (217). See Fig 2. Install the backup washer (220) with the groove facing up toward the seal. Apply medium strength adhesive to the top threads of the lower piston rod (205) and screw the rod into the displacement piston (217). Torque to 20–25 ft-lb (27–34 N.m).
5. Install the seal (204*) on the fluid piston (202). Install the backup washer (223) with the groove facing down toward the seal. Apply sealant to the threads of the piston (202) and piston valve housing (221). Place the ball (222✓) on the piston seat, and screw the piston into the housing. Torque to 45–50 ft-lb (61–68 N.m).
6. Carefully insert the upper piston rod (211) into the bottom of the pump and push it all the way up until its top flats protrude from the pump housing (210). See Fig 2. Install the o-ring (208*) on the pump housing (210). Slide the packing (214*) onto the upper piston rod (211), with the lips of the packing facing up. Screw the packing retainer (213) onto the pump housing (210) and tighten securely.
7. Apply adhesive to the top threads of the upper piston rod (211). Using wrenches on the flats, screw the connecting rod (212) onto the upper piston rod.
8. Install the spring (201b) and ball (201a) on the relief valve housing (201d), and screw the valve into the intake valve housing (201c). Place the ball (201f✓) in the intake housing (201c), and install the stop pin (201e). Apply sealant to the threads of the intake valve housing (201c) and screw it into the outer displacement cylinder (207).
9. Lay the pump on its side and reconnect the ball of the connecting rod (212) with the socket in the air motor piston rod. Tighten the air motor connecting ring.
10. Reinstall the pump on its mounting. If the grounding wire was disconnected during service, reconnect it before operating the pump.

Displacement Pump Service (Model 218554)

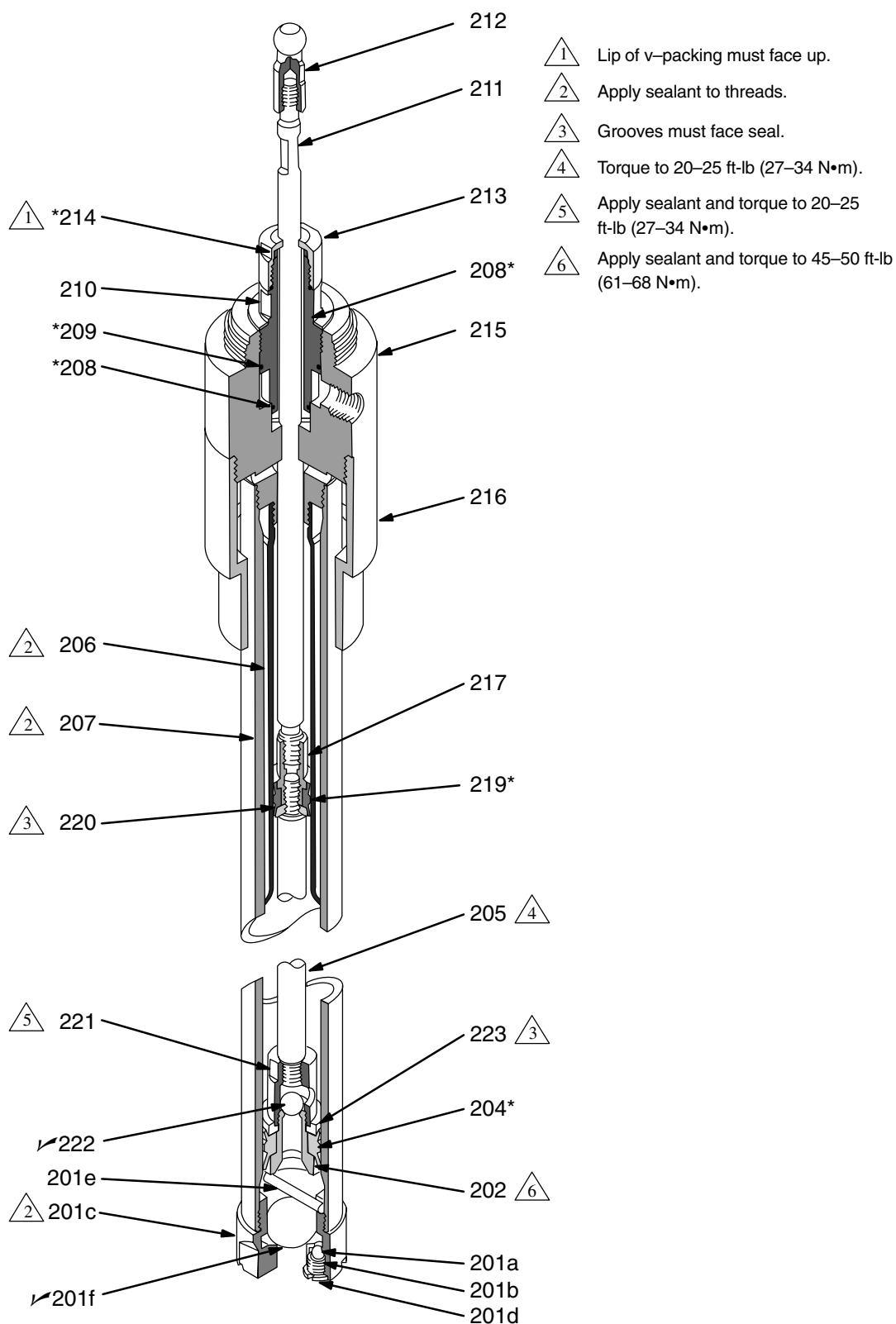


Fig. 2

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Displacement Pump Service (Model 223775)

WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 7.

Before You Start

1. Repair Kit 223650 is available (see **Parts Lists** on pages 19 and 21). For the best results, use all the parts in the kit. Kit parts are marked with an asterisk (e.g., 404*).
2. Have all the necessary repair parts on hand. Recommended spare parts are marked with a double asterisk in the parts list on page 21 (e.g., 401f**).
3. Use a compatible solvent to clean parts. Inspect parts for wear or damage and replace as needed.
4. Flush the pump if possible. Stop the pump at the bottom of its stroke. Follow the **Pressure Relief Procedure** on page 7.
5. Disconnect the air and fluid hoses. Remove the pump from its mounting. Clamp the pump in a vise.

Servicing the Displacement Pump

Disassembly (See Fig. 3)

1. Unscrew the air motor connecting ring. Lay the pump on its side and rotate the displacement pump until the ball on the connecting rod (412) comes free of the socket in the air motor piston rod. Separate the air motor from the displacement pump. Clamp the displacement pump outlet housing (415) in a vise.

NOTE: To service the air motor, refer to separate manual 307851, supplied.

2. Unscrew the intake valve housing (401c) from the outer displacement cylinder (407). Remove the pin (401e) and ball (401f) from the valve housing (401c). Screw the relief valve housing (401d) out of the intake valve housing and remove the spring (401b) and ball (401a). See Fig. 3. Thoroughly clean all parts, inspect for wear or damage, and replace as necessary.
3. Using wrenches on the flats of the upper piston rod (411) and connecting rod (412), screw the connecting rod off the piston rod.
4. Remove the packing retainer (413) and the packing (414). Remove the o-ring (408). Push down on the upper piston rod (411), grasp the fluid piston (402), and pull the piston and piston rod out through the bottom of the pump. See Fig. 3.
5. Screw the fluid piston (402) out of the piston valve housing (421) and remove the backup washer (423), seal (404), and ball (422). See Fig. 3. Thoroughly clean all parts, inspect them for wear or damage, and replace as necessary.
6. Unscrew the lower piston rod (405) from the displacement piston (417) and upper piston rod (411). Remove the backup washer (420) and seal (419). Thoroughly clean all parts, inspect them for wear, and replace as necessary.
7. Using a strap wrench, screw the bung adapter (416) off of the pump outlet housing (415).
8. Screw the outer displacement cylinder (407) and inner displacement cylinder (406) off the pump outlet housing (415). Check the inner surfaces of each cylinder for scoring or damage by running a finger over the surface or holding the part up to the light at an angle. Replace as necessary.
9. Screw the pump housing (410) out of the pump outlet housing (415). Remove the o-rings (408* and 409*).

Displacement Pump Service (Model 223775)

Reassembly (See Fig. 3)

1. Install the two o-rings (408* and 409*) on the pump housing (410). Screw the pump housing into the pump outlet housing (415) and tighten securely.
2. Apply sealant to the threads of the inner displacement cylinder (406) and screw it onto the pump outlet housing (415). Do the same with the outer displacement cylinder (407).
3. Screw the bung adapter (416) onto the outlet housing (415) with a strap wrench.
4. Install the seal (419*) on the displacement piston (417). See Fig. 3. Install the backup washer (420) with the groove facing up toward the seal. Apply medium strength adhesive to the top threads of the lower piston rod (405) and screw the rod into the displacement piston (417). Torque to 20–25 ft-lb (27–34 N•m).
5. Install the seal (404*) on the fluid piston (402). Install the backup washer (423) with the groove facing down toward the seal. Apply sealant to the threads of the piston (402) and piston valve housing (421). Place the ball (422✓) on the piston seat and screw the piston into the housing. Torque to 45–50 ft-lb (61–68 N•m).
6. Carefully insert the upper piston rod (411) into the bottom of the pump and push it all the way up until its top flats protrude from the pump housing (410). See Fig. 3. Install the o-ring (408*) on the pump housing (410). Slide the packing (414*) onto the upper piston rod (411), with the lips of the packing facing up. Screw the packing retainer (413) onto the pump housing (410) and tighten securely.
7. Apply adhesive to the top threads of the upper piston rod (411). Using wrenches on the flats, screw the connecting rod (412) onto the upper piston rod.
8. Install the spring (401b) and ball (401a) on the relief valve housing (401d), and screw the valve into the intake valve housing (401c). Place the ball (401f✓) in the intake housing (401c), and install the stop pin (401e). Apply sealant to the threads of the intake valve housing (401c) and screw it into the outer displacement cylinder (407).
9. Lay the pump on its side and reconnect the ball of the connecting rod (412) with the socket in the air motor piston rod. Tighten the air motor connecting ring.
10. Reinstall the pump on its mounting. If the grounding wire was disconnected during service, reconnect it before operating the pump.

Displacement Pump Service (Model 223775)

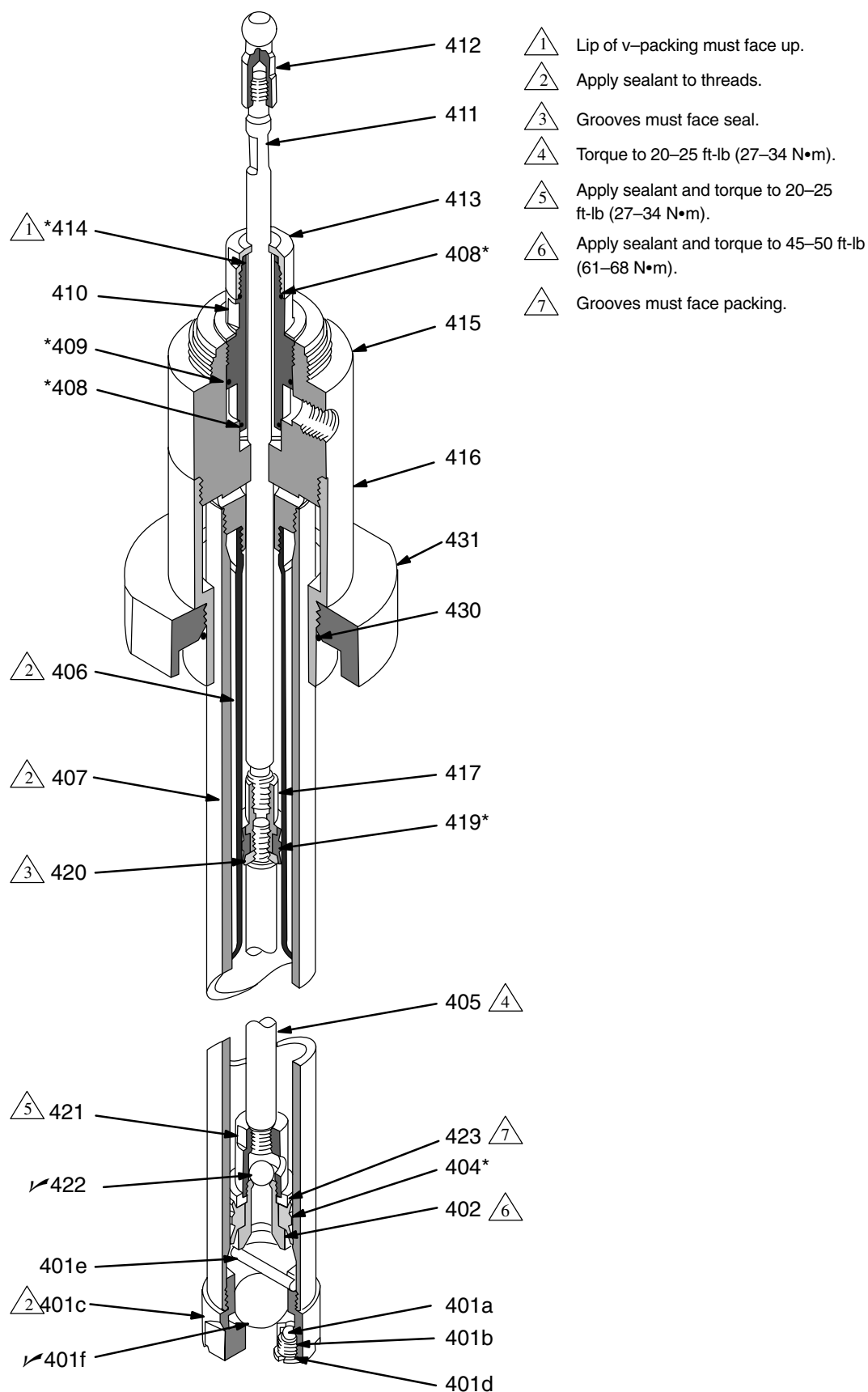


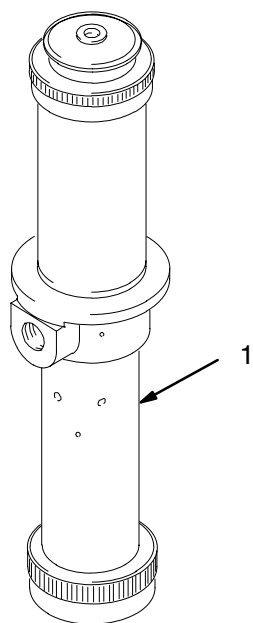
Fig. 3

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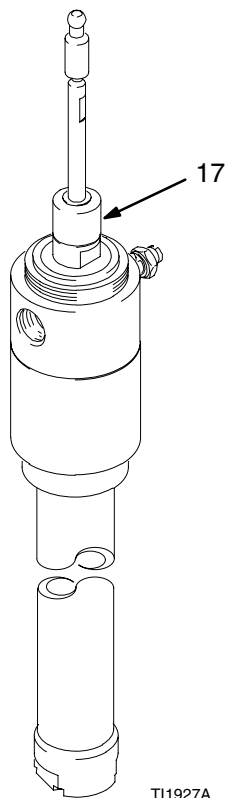
Parts

Model 218556, Series C

With Stainless Steel Displacement Pump
(Includes items 1–21)

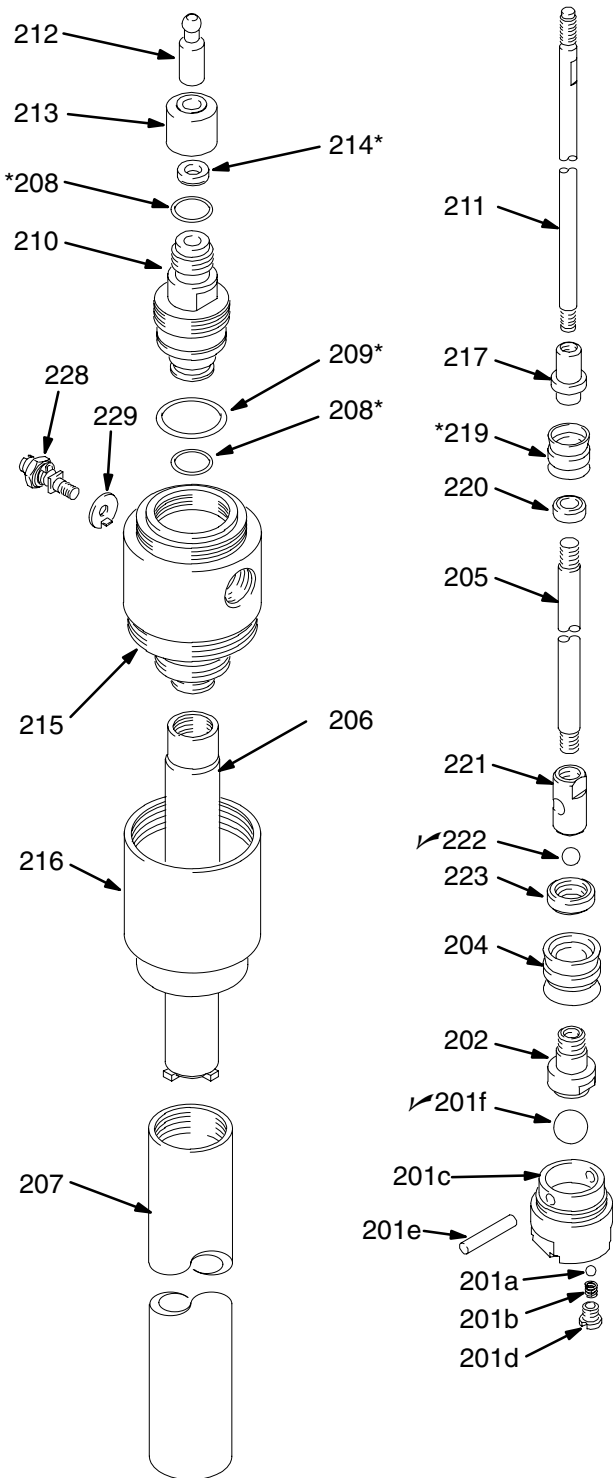


Ref. No.	Part No.	Description	Qty.
1	204722	MOTOR, air See manual 307851	1
17	218554	DISPLACEMENT PUMP ASSY.	1
20	172477	TAG, warning (not shown)	1
21	181387	LABEL, warning (not shown)	1



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Parts



Model 218554, Series B

With Stainless Steel Displacement Pump
(Includes items 201–229)

Ref. No.	Part No.	Description	Qty.
201	217191	VALVE, intake Includes items 201a–201f	1
201a	101956	.BALL; 1/4 in. dia.; sst	1
201b	106256	.SPRING, compression	1
201c	179941	.HOUSING, valve, intake	1
201d	179942	.HOUSING, valve, relief	1
201e	164250	.PIN, stop, ball	1
201f	101917	.BALL; 7/8 in. dia.; sst	1
202	180415	PISTON, fluid	1
204*	186399	SEAL, piston; UHMWPE	1
205	180413	ROD, piston, lower	1
206	180417	CYLINDER, displacement, inner; sst	1
207	198574	CYLINDER, displacement, outer; sst	1
208*	106553	PACKING, o-ring; Viton®	2
209*	107563	PACKING, o-ring; Viton®	1
210	180438	HOUSING, pump	1
211	180433	ROD, piston, upper	1
212	180440	ROD, connecting	1
213	180414	RETAINER, packing	1
214*	108831	V-PACKING, block; PTFE, polyacetal, polyester elastomer	2
215	180419	HOUSING, outlet, pump	1
216	180439	ADAPTER, bung	1
217	180416	PISTON, displacement	1
219*	186398	SEAL, piston; UHMWPE	1
220	180412	WASHER, backup	1
221	161791	HOUSING, valve, piston	1
222	101750	BALL; 1/2 in. dia.; sst	1
223	180411	WASHER, backup	1
228	104029	LUG, grounding	1
229	104582	WASHER, tab	1

*
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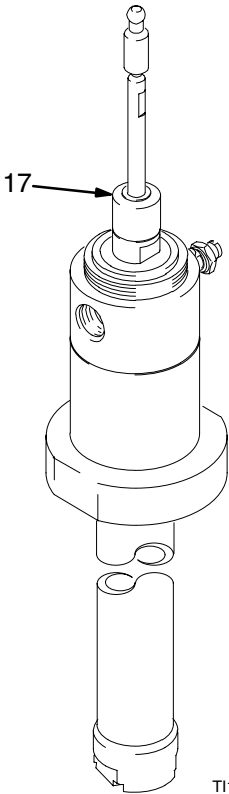
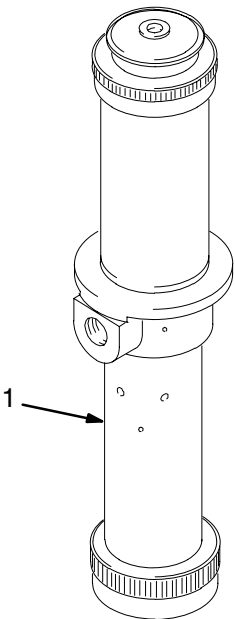
The replacements for these parts are available in Repair Kit 223650. Purchase this kit separately.

✓ Keep these spare parts on hand to reduce down time.

Parts

Model 223777, Series A

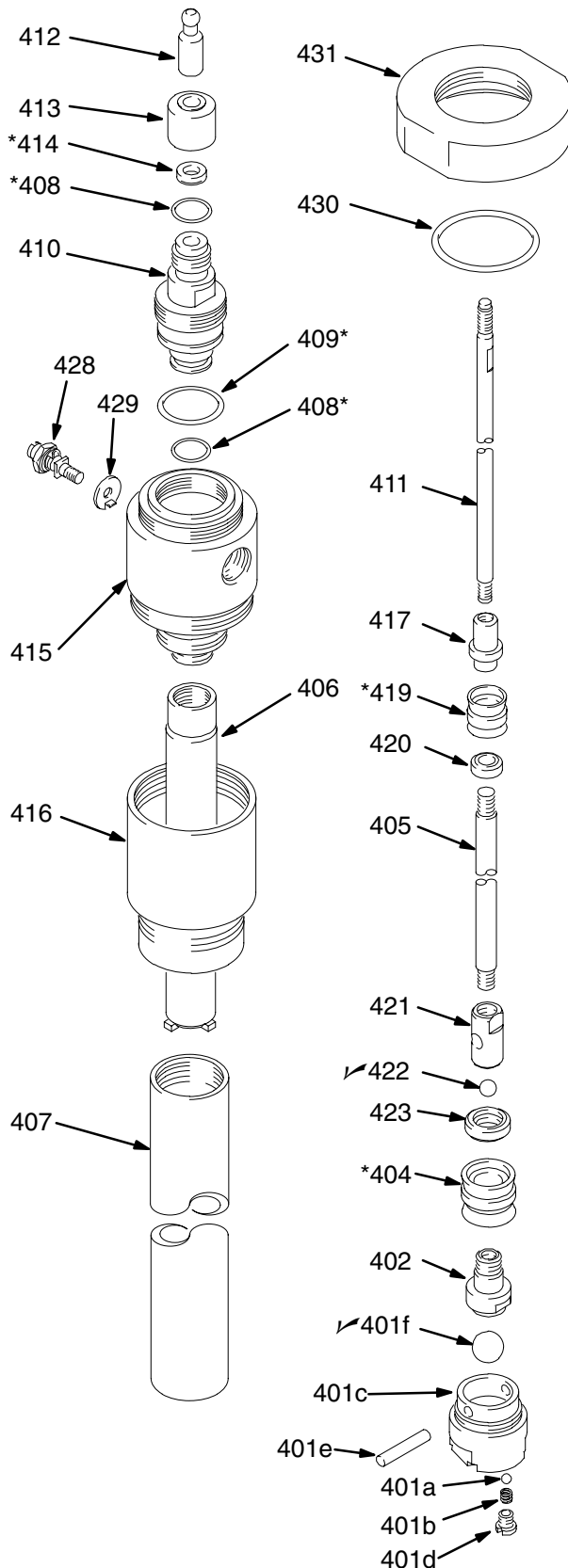
With Stainless Steel Displacement Pump
(Includes items 1–21)



TI1928A

Ref. No.	Part No.	Description	Qty.
1	204722	AIR MOTOR See manual 307851 for parts	1
17	223775	DISPLACEMENT PUMP ASSY See page 21 for parts	1
20	172477	TAG, warning (not shown)	1
21	181387	LABEL, warning (not shown)	1

Parts



Model 223775, Series A

Stainless Steel Displacement Pump
(Includes items 401–431)

Ref. No.	Part No.	Description	Qty.
401	217191	VALVE, intake Includes items 401a–401f	1
401a	101956	.BALL; 1/4 in. dia.; sst	1
401b	106256	.SPRING, compression	1
401c	179941	.HOUSING, valve, intake	1
401d	179942	.HOUSING, valve, relief	1
401e	164250	.PIN, stop, ball	1
401f✓	101917	.BALL; 7/8 in. dia.	1
402	180415	PISTON, fluid	1
404*	186399	SEAL, piston; UHMWPE	1
405	186394	ROD, piston, lower	1
406	180417	CYLINDER, displacement, inner; sst	1
407	198575	CYLINDER, displacement, outer; sst	1
408*	106553	PACKING, o-ring; Viton®	2
409*	107563	PACKING, o-ring; Viton®	1
410	180438	HOUSING, pump	1
411	180433	ROD, piston, upper	1
412	180440	ROD, connecting	1
413	180414	RETAINER, packing	1
414*	108831	V-PACKING, block; PTFE, polyacetal, polyester elastomer	2
415	180419	HOUSING, outlet, pump	1
416	186395	ADAPTER, bung	1
417	180416	PISTON, displacement	1
419*	186398	SEAL, piston; UHMWPE	1
420	180412	WASHER, backup	1
421	161791	HOUSING, valve, piston	1
✓422	101750	BALL; 1/2 in. dia.	1
423	180411	WASHER, backup	1
428	104029	LUG, grounding	1
429	104582	WASHER, tab	1
430	159846	O-RING; buna-N	1
431	186396	FLANGE, bung	1

* The replacements for these parts are available in
Repair Kit 223650. Purchase this kit separately.

✓ Keep these spare parts on hand to reduce down
time.

TI1924A

Accessories

Use Genuine Graco Parts and Accessories

Must be purchased separately.

Grounding Clamp 103538 Ground Wire 208950

25 ft (7.6 m) long
12 gauge (1.5 mm²)

Accessory Fluid Piston 188049 and Intake Valve Housing 188050

For metering applications requiring a positive displacement volume. These parts replace the standard fluid piston 180415 and intake valve housing 179941. Intake valve housing 188050 does not use a relief valve.

Bleed-Type Master Air Valve 107142

300 psi (2.1 MPa, 21 bar) Maximum Working Pressure
1/2 npt(m) inlet x 1/2 npt(f) outlet
Relieves air trapped in the air line between the pump air inlet and this valve when closed.

Air Line Filter 106149

250 psi (1.8 MPa, 17.5 bar) Maximum Working Pressure
1/2 npt(f) inlet and outlet

Air Line Lubricator 214848

250 psi (1.8 MPa, 17.5 bar) Maximum Working Pressure
8 oz. (0.24 liter) bowl capacity
1/2 npt(f) inlet and outlet

Air Regulator and Gauge 202156

300 psi (2.1 MPa, 21 bar) Maximum Working Pressure
0–200 psi (0–1.4 MPa, 0–14 bar) Regulated Pressure Range
3/8 npt(f) inlet and outlet

Fluid Drain Valve

500 psi (3.5 MPa, 35 bar) Maximum Working Pressure
Relieves fluid pressure in the hose and gun.

208630: 1/2 npt(m) x 3/8 npt(f); for non-corrosive fluids; carbon steel and PTFE

210071: 3/8 npt(m) x 3/8 npt(f); for corrosive fluids; stainless steel and PTFE

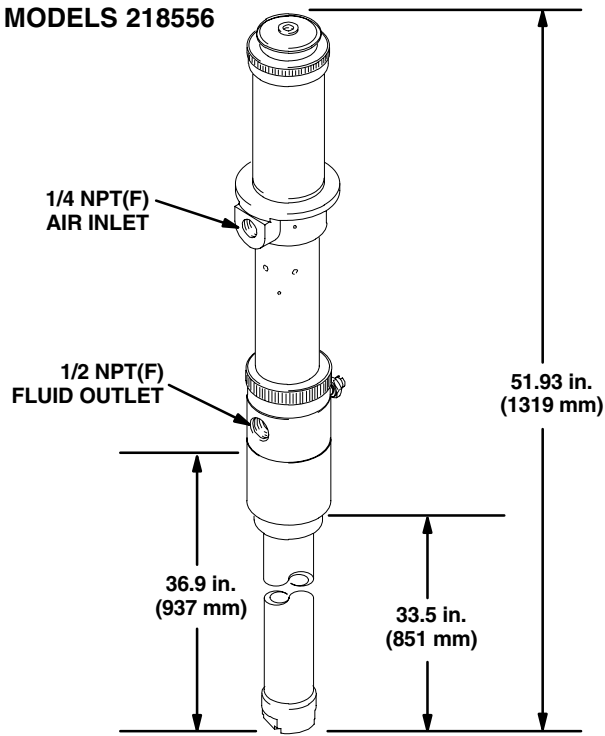
Technical Data

Category	Data
Maximum fluid working pressure	240 psi (1.7 MPa, 16.8 bar)
Air input pressure operating range	30–120 psi (0.2–0.8 MPa, 2–8.4 bar)
Pump cycles per 1 gallon (3.8 liters)	50
Maximum recommended pump speed for continuous operation	100 cycles/min
Air consumption	approx. 3 scfm (0.09 m ³ /min.) at 1 gpm (3.8 liters/min.) at 100 psi (0.7 MPa, 7 bar) air pressure
Maximum operating temperature of fluid pump	150° F (65.6° C)
Maximum operating temperature of air motor	150° F (65.6° C)
Air inlet size	1/4 npt(f)
Fluid outlet size	1/2 npt(f)
Weight	23 lb (10.4 kg)
Wetted parts	<i>Models 218556 and 223777: 302, 303, 304, 316, and 17–4 PH grades of stainless steel, Ultra–High Molecular Weight Polyethylene, Viton®, PTFE, Polyacetal, Polyester Elastomer</i>

Viton® is a registered trademark of the Du Pont Company.

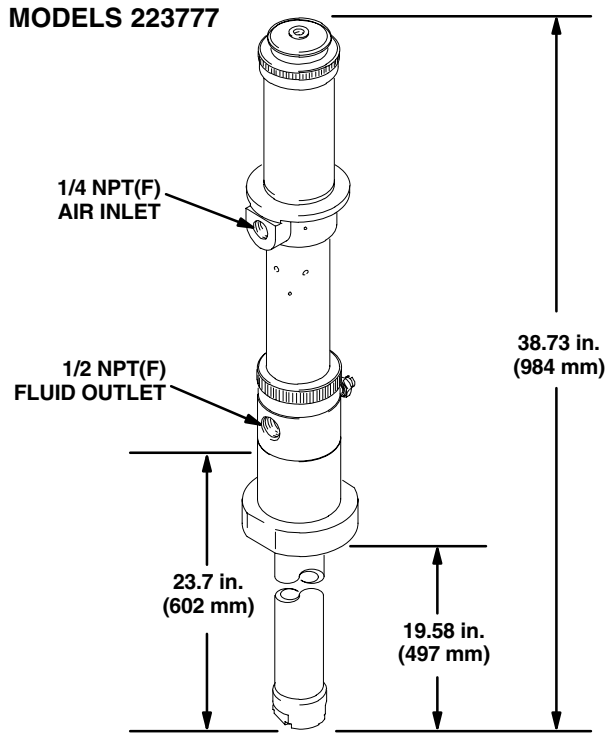
Dimensions

MODELS 218556



TI1920A

MODELS 223777

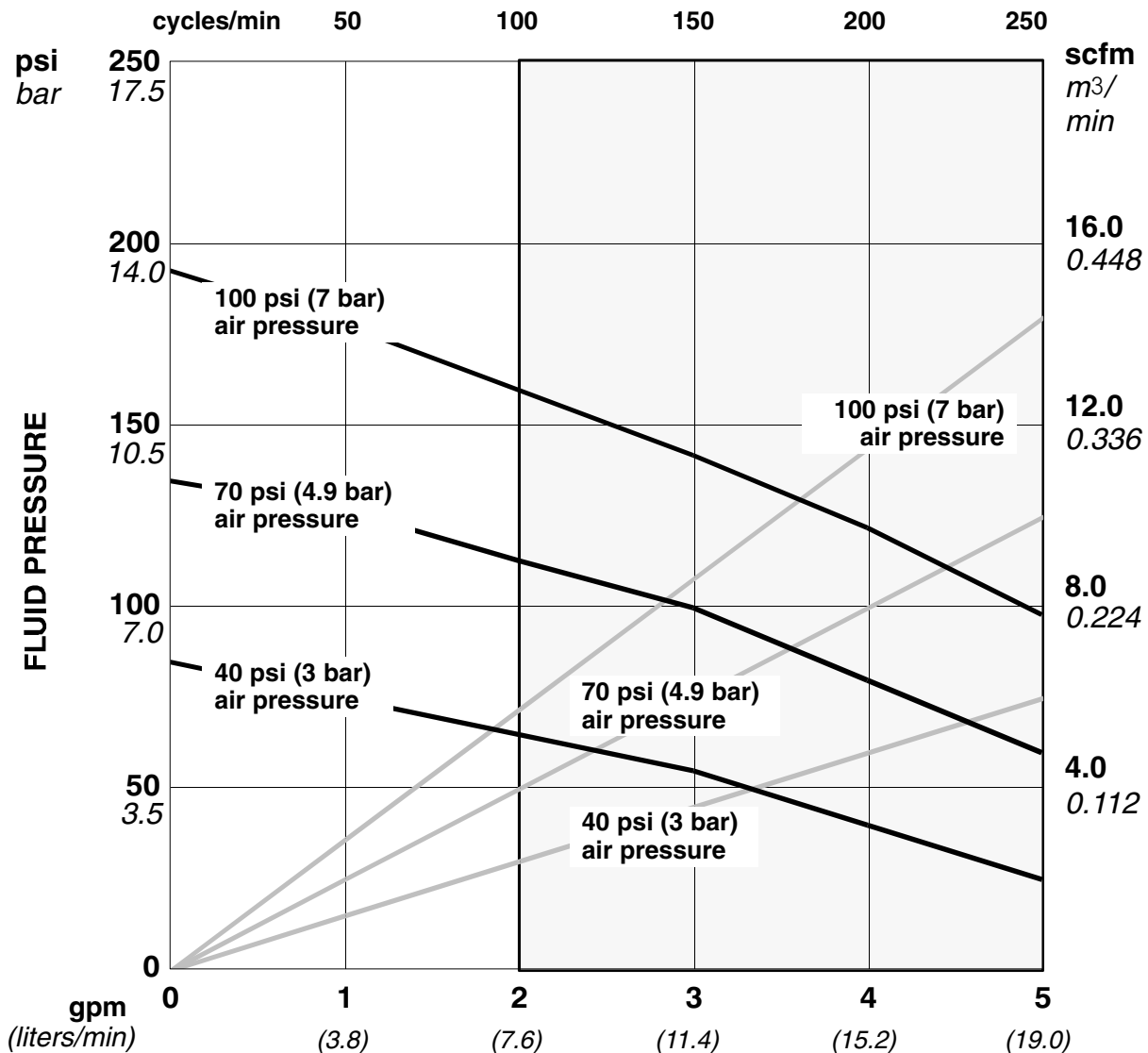


TI1920A

Performance Chart

KEY: Fluid Outlet Pressure – Black Curves
Air Consumption – Gray Curves

NOTE: Pump may be operated continuously to shaded area (100 cpm).



FLUID FLOW (TEST FLUID: NO. 10 WEIGHT OIL)

To find Fluid Outlet Pressure (psi/bar) at a specific fluid flow (gpm/lpm) and operating air pressure (psi/bar):

1. Locate desired flow along bottom of chart.
2. Follow vertical line up to intersection with selected fluid outlet pressure curve (black). Follow left to scale to read fluid outlet pressure.

To find Pump Air Consumption (scfm or m³/min) at a specific fluid flow (gpm/lpm) and air pressure (psi/bar):

1. Locate desired flow along bottom of chart.
2. Read vertical line up to intersection with selected air consumption curve (gray). Follow right to scale to read air consumption.

[illegible]

Graco Standard Warranty

Graco warrants all equipment listed in this manual which is 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.

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, gas engines, 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 Information

TO PLACE AN ORDER, contact your Graco distributor, or call one of the following numbers to identify the distributor closest to you:

1-800-367-4023 Toll Free

612-623-6921

612-378-3505 Fax

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Sales Offices: Minneapolis, Detroit
International Offices: Belgium, Korea, Hong Kong, Japan

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