



INSTRUCTIONS

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

SEVERE-DUTY, STAINLESS STEEL

10:1 Ratio Standard Pump

PAIL, WALL, AND CART MOUNT SYSTEMS

66 bar, 6.6 MPa (950 psi) MAXIMUM WORKING PRESSURE

Model 224-522, Series A
Basic Pump

*** Model 222-390, Series B**

Pail Mount System

Includes pump, pail mount kit, air/fluid regulator kit,
hose kit, air-assisted airless spray gun, and tip

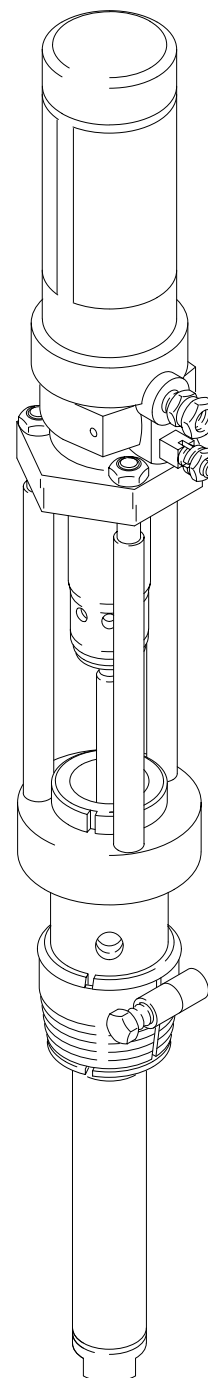
Model 222-393, Series B

Wall Mount System

Includes pump, wall mount kit, air/fluid regulator
kit, hose kit, air-assisted airless spray gun, and tip

Refer to page 2 for Table of Contents.

* Model 222-390 is CE certified.



Model 224-522
Basic Pump



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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 of the lowest rated system component. Refer to the **Technical Data** on page 27 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 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 180°F (82°C) or below -40°F (-40°C).
- 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



INJECTION HAZARD

Spray from the gun, 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 at anyone or at any part of the body.
- Do not put your hand or fingers over the spray tip.
- 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. Refer to the gun manual.
- Be sure the gun trigger safety operates before spraying.
- Lock the gun trigger safety when you stop spraying.
- Follow the **Pressure Relief Procedure** on page 9 if the spray tip 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.
- Use only Graco approved hoses. Do not remove the spring guard that is used to help protect the hose from rupture caused by kinks or bends near the couplings.



MOVING PARTS HAZARD

Moving parts 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 9 to prevent the equipment from starting unexpectedly.

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



TOXIC FLUID HAZARD

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

- Know the specific hazards of the fluid you are using.
- Store hazardous fluid in an approved container. Dispose of hazardous fluid according to all local, state and national guidelines.
- Always wear protective eyewear, gloves, clothing and respirator as recommended by the fluid and solvent manufacturer.

Setup

General Information

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

NOTE: Always use Genuine Graco Parts and Accessories, available from your Graco distributor. If you supply your own accessories, be sure they are adequately sized and pressure rated for your system.

Figures 2 and 3 are only examples for selecting and installing system components and accessories. Contact your Graco distributor for assistance in designing a system to suit your particular needs.

Prepare the Operator

All persons who operate the equipment must be trained in the safe, efficient operation of all system components as well as the proper handling of all fluids. All operators must thoroughly read all instruction manuals, tags, and labels before operating the equipment.

Prepare the Site

The pump requires 3.5 scfm (0.1 m³/min) of compressed air while operating at 6.7 bar, 0.67 MPa (95 psi) air pressure and 60 cycles per minute. Ensure that you have an adequate compressed air supply.

Refer to Figures 2 and 3. Bring a compressed air supply line (E) from the air compressor to the pump location. Be sure all air hoses are properly sized and pressure-rated for your system. Use only electrically conductive hoses.

Install a bleed-type shutoff valve (K) in the air line to isolate the air line components for servicing. Install an air line moisture trap and drain valve (J) to help remove moisture from the compressed air supply.

Keep the site clear of any obstacles or debris that could interfere with the operator's movement.

Have a grounded, metal pail available for use when flushing the system or draining the fluid filter.

Grounding

**WARNING**

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

1. *Pump:* use the ground wire and clamp (supplied). See Fig. 1. Loosen the grounding lug locknut (W) and washer (X). Insert one end of the ground wire (Y) into the slot in lug (Z) and tighten the locknut securely. Connect the other end of the wire to a true earth ground.

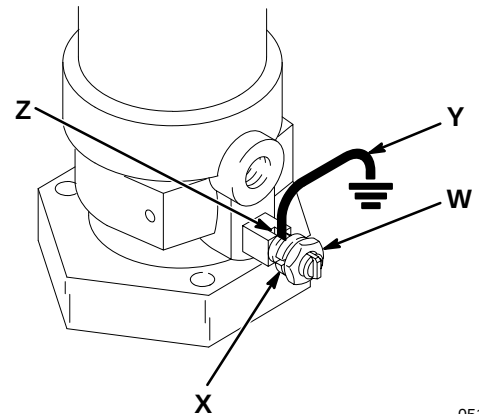


Fig. 1

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2. *Air and fluid hoses:* use only electrically conductive hoses.
3. *Air compressor:* follow manufacturer's recommendations.
4. *Spray gun:* ground through connection to a properly grounded fluid hose and pump.
5. *Fluid supply container:* follow your local code.
6. *Object being sprayed:* follow your local code.
7. *Solvent pails used when flushing:* follow 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,* hold a metal part of the spray gun firmly to the side of a grounded *metal* pail, then trigger the gun.

Setup

Supplied Components

Refer to Figs. 2 and 3.

WARNING

A red-handled bleed-type master air valve (F) and a fluid drain valve (G) are required, to help reduce the risk of serious injury, including fluid injection and splashing of fluid 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 air is shut off. Trapped air can cause the pump to cycle unexpectedly. Locate the valve close to the pump.

The fluid drain valve assists in relieving fluid pressure in the displacement pump, hose, and gun. Triggering the gun to relieve pressure may not be sufficient.

- **The red-handled bleed-type master air valve (F)** is required in your system to relieve air trapped between it and the air motor when the valve is closed (see the **WARNING** above). Be sure the bleed valve is easily accessible from the pump, and is located **downstream** from the pump air regulator (B).
- **The pump air regulator (B)** controls pump speed and outlet pressure by adjusting the air pressure to the pump. Locate close to the pump, but **upstream** from the bleed-type master air valve (F).
- **The pre-set safety valve (506)** prevents overpressurization of the spray gun by opening automatically if the incoming air pressure to the pump exceeds 6.6 bar, 0.66 MPa (95 psi).
- **The gun air regulator (C)** controls the air pressure to the spray gun (H).
- **The air line fitting (502) and coupler (503)**, connect the main air line to the air/fluid regulator. Disconnect the coupler from the pin fitting and screw it onto the end of your air supply hose. Do not reconnect the coupler to the pin fitting at this time.

Wall Mount System Setup (See Fig. 3)

Install the bung adapter plate (306) on the wall bracket, using the two hex screws (303) and nuts (304).

Mount the wall bracket (305) 1.5 m (5 ft) above the floor. Refer to wall bracket manual 306-783 for instructions. Be sure the wall is strong enough to support the weight of the equipment, fluid, and hoses, and withstand the stress caused during pump operation.

Remove the bung adapter (18) from the pump and screw it tightly into the bung adapter plate (306). Lower the pump (A) through the bung adapter. Tighten the screw on the bung adapter to hold the pump steady.

Apply thread sealant and screw the suction tube assembly (307) into the pump's fluid intake valve.

Setup Procedure for all Models (Refer to Figs. 2 or 3, as applicable)

System Accessories

Install an air line filter (D) in the main air line (E), to remove harmful dirt and moisture from the compressor air supplied to the pump and gun.

Near the pump's fluid outlet, install a tee and drain valve (G).

Hose and Gun Connections

The Hose Kit consists of the spray gun's air and fluid supply hoses. The fluid hose (401) has spring guards on both ends, and includes an in-line fluid filter (402) at the gun end. The hoses are tied together for ease of movement.

Connect the male end of the air hose (403) to the 1/4 npsm(f) swivel adapter (509) at the outlet of the gun air regulator (C), and connect the female end to the air inlet in the spray gun (H) handle.

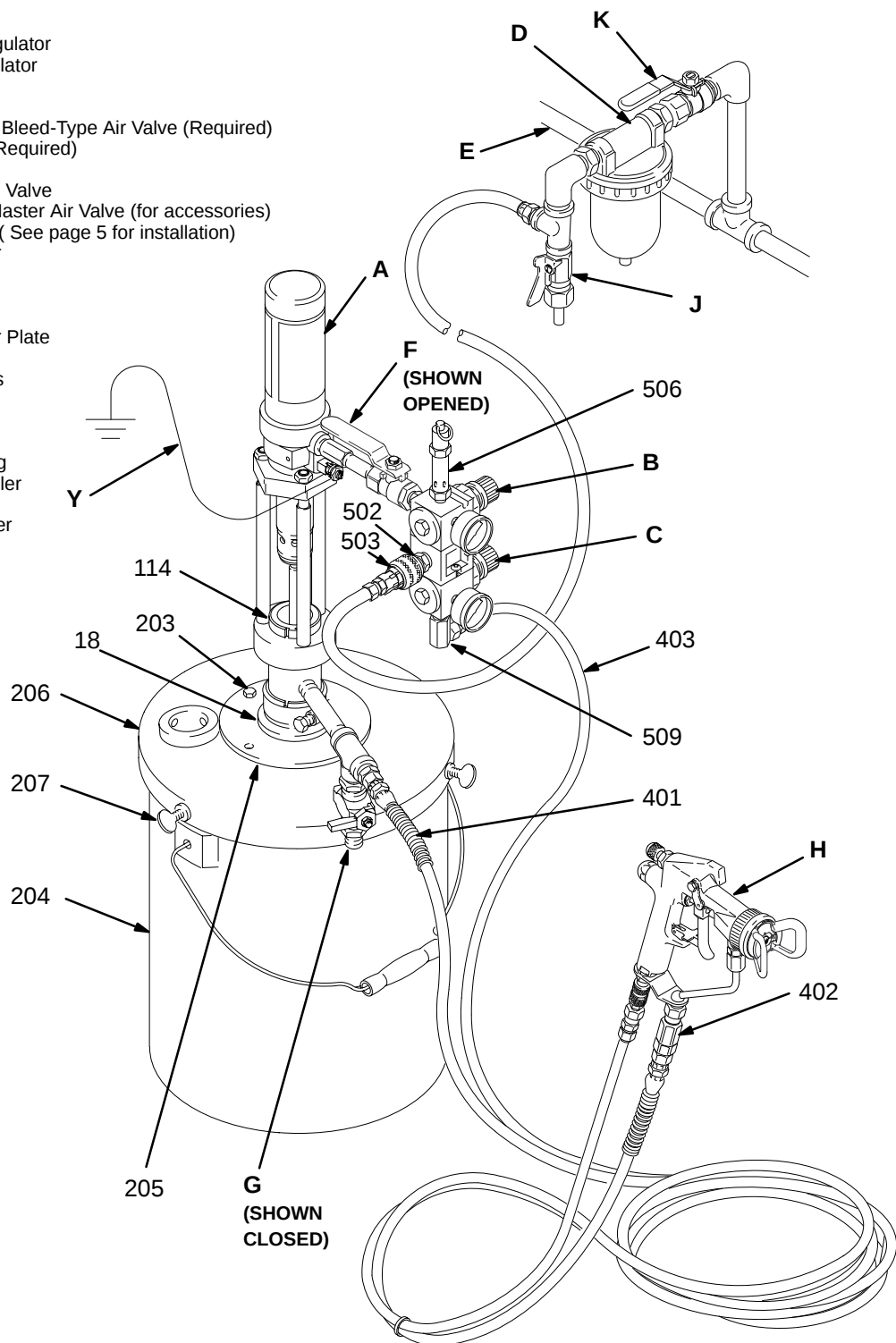
Connect the male end of the fluid hose (401) to the pump's fluid outlet, and connect the female end to the gun's fluid inlet. Do not install the spray tip in the gun at this time.

Setup

Typical Setup: Pail Mount System

KEY

A	Pump
B	Pump Air Regulator
C	Gun Air Regulator
D	Air Line Filter
E	Main Air Line
F	Red Handled Bleed-Type Air Valve (Required)
G	Drain Valve (Required)
H	Spray Gun
J	Air Line Drain Valve
K	Bleed-Type Master Air Valve (for accessories)
Y	Ground Wire (See page 5 for installation)
18	Bung Adapter
114	Wet-Cup
203	Hex Screws
204	Pail
205	Bung Adapter Plate
206	Pail Cover
207	Thumbscrews
401	Fluid Hose
402	Fluid Filter
403	Gun Air Hose
502	Air Line Fitting
503	Air Line Coupler
506	Safety Valve
509	Swivel Adapter



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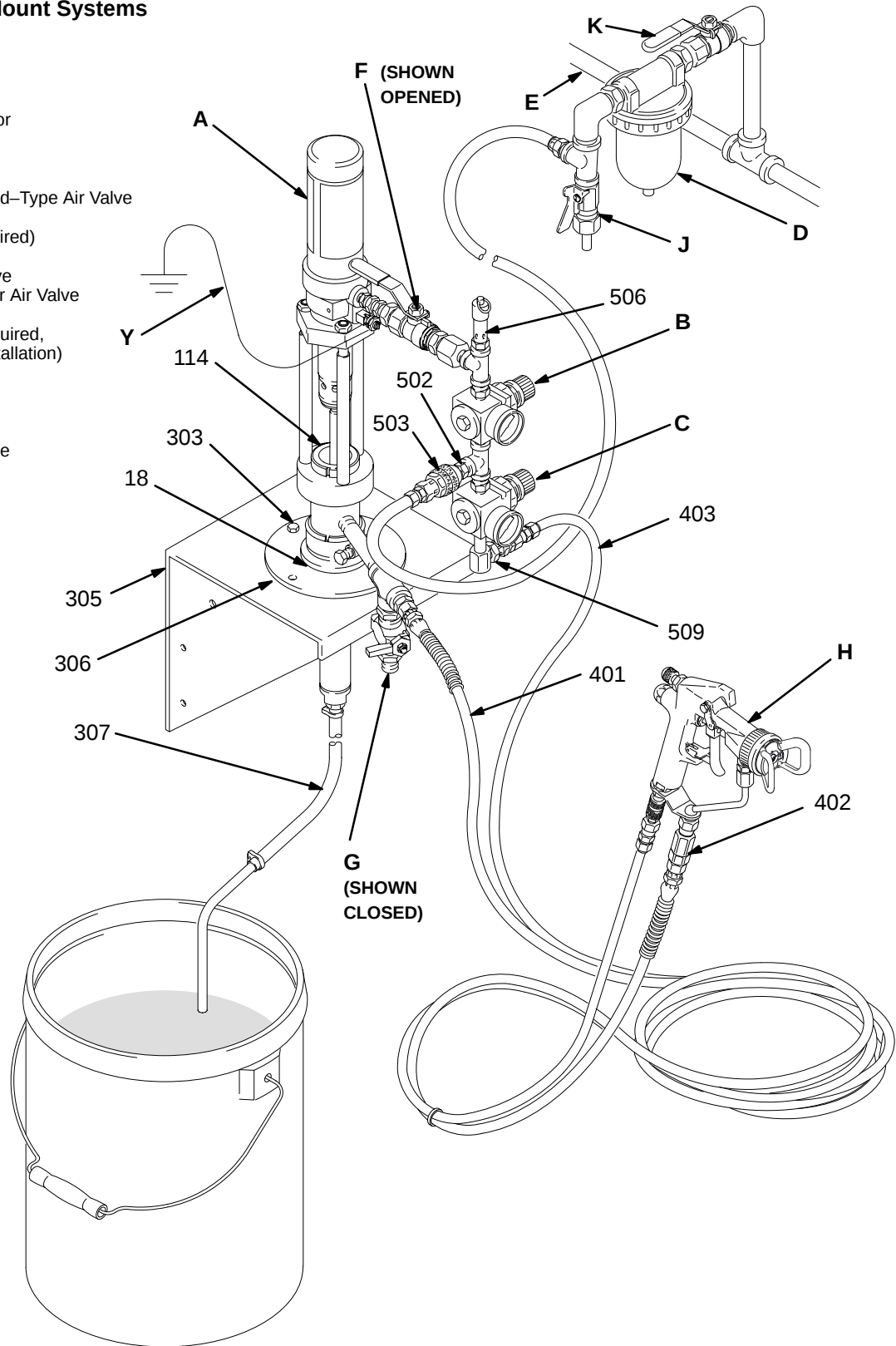
Fig. 2

Setup

Typical Setup: Wall Mount Systems

KEY

A	Pump
B	Pump Air Regulator
C	Gun Air Regulator
D	Air Line Filter
E	Main Air Line
F	Red Handled Bleed-Type Air Valve (Required)
G	Drain Valve (Required)
H	Spray Gun
J	Air Line Drain Valve
K	Bleed-Type Master Air Valve (for Accessories)
Y	Ground Wire (Required, see page 5 for installation)
18	Bung Adapter
114	Wet-Cup
303	Hex Screws
305	Wall Bracket
306	Bung Adapter Plate
307	Suction Tube
401	Fluid Hose
402	Fluid Filter
403	Gun Air Hose
502	Air Line Fitting
503	Air Line Coupler
506	Safety Valve
509	Swivel Adapter



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Fig. 3

Operation

Pressure Relief Procedure

WARNING



INJECTION HAZARD

The system pressure must be manually relieved to prevent the system from starting or spraying accidentally. 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,
- check or service any of the system equipment,
- or install or clean the spray tips.

1. Lock the gun trigger safety.
2. Close the red-handled bleed-type master air valve (F, required in your system).
3. Unlock the gun trigger safety.
4. Hold a metal part of the gun firmly to the side of a grounded metal pail, and trigger the gun to relieve pressure.
5. Lock the gun trigger safety.
6. Open the drain valve (G, required in your system), having a container ready to catch the drainage.
7. Leave the drain valve open until you are ready to spray again.
8. *If you suspect that the spray tip or hose is completely clogged, or that pressure has not been fully relieved after following the steps above, **very slowly** loosen the tip guard retaining nut or hose end coupling and relieve pressure gradually, then loosen completely. Now clear the tip or hose.*

Packing Nut/Wet-Cup

Keep the packing nut/wet-cup (114) filled with Graco Throat Seal Liquid (TSL) to help prolong the packing life.

WARNING

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

The packing nut is torqued at the factory and is ready for operation. If it becomes loose and there is leaking from the throat packings, **relieve pressure**, then tighten the nut just tight enough to prevent leakage – no tighter. Do this weekly. Do not overtighten the packing nut.

Flush the Pump Before First Use

The pump is tested with lightweight oil, which is left in to protect the pump parts. If the fluid you are using may be contaminated by the oil, flush it out with a compatible solvent. See **Flushing** on page 10.

Using the Air-Assisted Airless Spray Gun

Before operating the equipment, read the instruction manual supplied with the gun.

Use the gun air regulator (C) to control the air pressure to the gun.

Adjust the air pressure to the pump to control the fluid pressure at the gun. For more precise fluid pressure control, install a fluid regulator.

Spray some test patterns before doing any finished work. Refer to the gun manual for detailed information on correct spraying technique.

Operation

Starting and Adjusting the Pump

Be sure the two air regulators (B and C) and the bleed-type master air valve (F) are closed. **DO NOT INSTALL THE SPRAYER TIP!**

Connect the air line coupler (503) to the pin fitting (502).

Open the gun air regulator (C). Hold a metal part of the spray gun (H) firmly to the side of a grounded metal pail and trigger the gun. Open the bleed-type master air valve (F) and slowly open the pump air regulator (B) until the pump starts. **Allow the pump to cycle slowly until all the air is pushed out of the fluid lines.** Release the gun trigger and engage the safety latch; the pump will stall against the pressure.

With the pump and lines primed, and with adequate air pressure and volume supplied, the pump will start and stop as the spray gun is triggered and released.

WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 9.

Relieve the pressure, then install the spray tip in the gun.

Use the pump air regulator (B) to control the pump speed and fluid pressure. Always use the lowest pressure necessary to achieve the desired results. Higher pressures waste fluid and cause premature wear of the pump packings and spray tip.

CAUTION

Do not allow the pump to run dry. It will quickly accelerate to a high speed, causing damage. If your pump is running too fast, stop it immediately and check the fluid supply. If the container is empty and air has been pumped into the lines, refill the container and prime the pump and the lines, or flush and leave it filled with a compatible solvent. Eliminate all air from the fluid system.

Shutdown and Care of the Pump

WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 9.

For overnight shutdown, stop the pump at the bottom of its stroke to prevent fluid from drying on the exposed displacement rod and damaging the throat packings. **Relieve the pressure.**

Always flush the pump before the fluid dries on the displacement rod. See **Flushing** below.

Flushing

WARNING



FIRE AND EXPLOSION HAZARD

Before flushing, read the section **FIRE OR EXPLOSION HAZARD** on page 4. Be sure the entire system and flushing pails are properly grounded. Refer to **Grounding** on page 5.

Flush the pump:

- Before the first use
- When changing colors or fluids
- Before fluid can dry or settle out in a dormant pump (check the pot life of catalyzed fluids)
- Before storing the pump.

Flush with a fluid that is compatible with the fluid you are pumping and with the wetted parts in your system. Check with your fluid manufacturer or supplier for recommended flushing fluids and flushing frequency.

Operation

CAUTION

Never leave water or water-base fluid in the pump overnight. If you are pumping water-base fluid, flush with water first, then with a rust inhibitor such as mineral spirits. Relieve the pressure, but leave the rust inhibitor in the pump to protect the parts from corrosion.

WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 9.

1. **Relieve the pressure.**
2. Remove the tip guard and spray tip from the gun. See the gun instruction manual.
3. Fill the pail (204) with solvent or place the suction tube (307) in a container of solvent.
4. Hold a metal part of the gun firmly to the side of a grounded *metal* pail.
5. Start the pump. Always use the lowest possible fluid pressure when flushing.
6. Trigger the gun.
7. Flush the system until clear solvent flows from the gun.
8. **Relieve the pressure.**
9. Clean the tip guard and spray tip separately, then reinstall them.
10. Clean the inside and outside of the pail (204) or suction tube (307).

Troubleshooting

Note: Check all other possible remedies before disassembling pump.

PROBLEM	CAUSE	SOLUTION
Pump fails to operate.	Packing nut too tight. Dirty or worn air motor. Inadequate air supply or restricted line. Clogged fluid hose, gun or tip. Dried fluid seizure of displacement rod.	Tighten just enough to prevent leakage – no tighter. Clean, service; see 307-456. Increase or clean. Clear. Disassemble and clean.
Pump operates but output low on both strokes.	Clogged fluid hose, gun or tip. Inadequate air supply or restricted line. Exhausted fluid supply. Worn or damaged piston packing.	Clear. Increase or clean. Refill. Service.
Pump operates but output low on downstroke.	Worn or damaged piston packing. Held open or worn fluid intake valve.	Service. Clear, service.
Pump operates but output low on upstroke.	Worn or damaged piston packing. Held open or worn fluid piston valve.	Service. Clear, service.
Erratic or accelerated operation.	Exhausted fluid supply. Broken air motor compression spring. Worn or damaged piston packing. Held open or worn fluid intake valve. Held open or worn fluid piston valve. Loose suction tube or intake nipple.	Refill. Service; see 307-456. Service. Clear, service. Clear, service. Apply thread sealant and tighten.

Service

Repair Notes

1. To service the air motor, disconnect it from the displacement pump as explained below, and refer to the air motor manual 307-456.
2. Packing Repair Kit 222-344 is available. Parts included in the kit are designated with an asterisk, for example, (103*). For best results, use all of the parts in the kit, even if the old parts look good. Lubricate the packings before installing.

Displacement Pump Service (See Figs. 4 & 5)

1. Flush the pump and stop it at the bottom of its stroke.

WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 9.

2. Before repairing the pump, **relieve the pressure**.
3. Disconnect the air and fluid hoses. Loosen the bung adapter screw (16) and lift the pump off its mounting.
4. Remove the three locknuts (4) from the tie rods (3). Remove the spring clip (6) and pin (5) holding the coupling (115) in the air motor (1). Unscrew the coupling from the air motor. Pull the air motor (1) off the displacement pump (2). See Fig.4.
5. Unscrew the tie rods (3) from the displacement pump (2).

Notes:

-  Torque to 13.5-20 N.m (10-15 ft-lb)
-  Apply sealant to threads

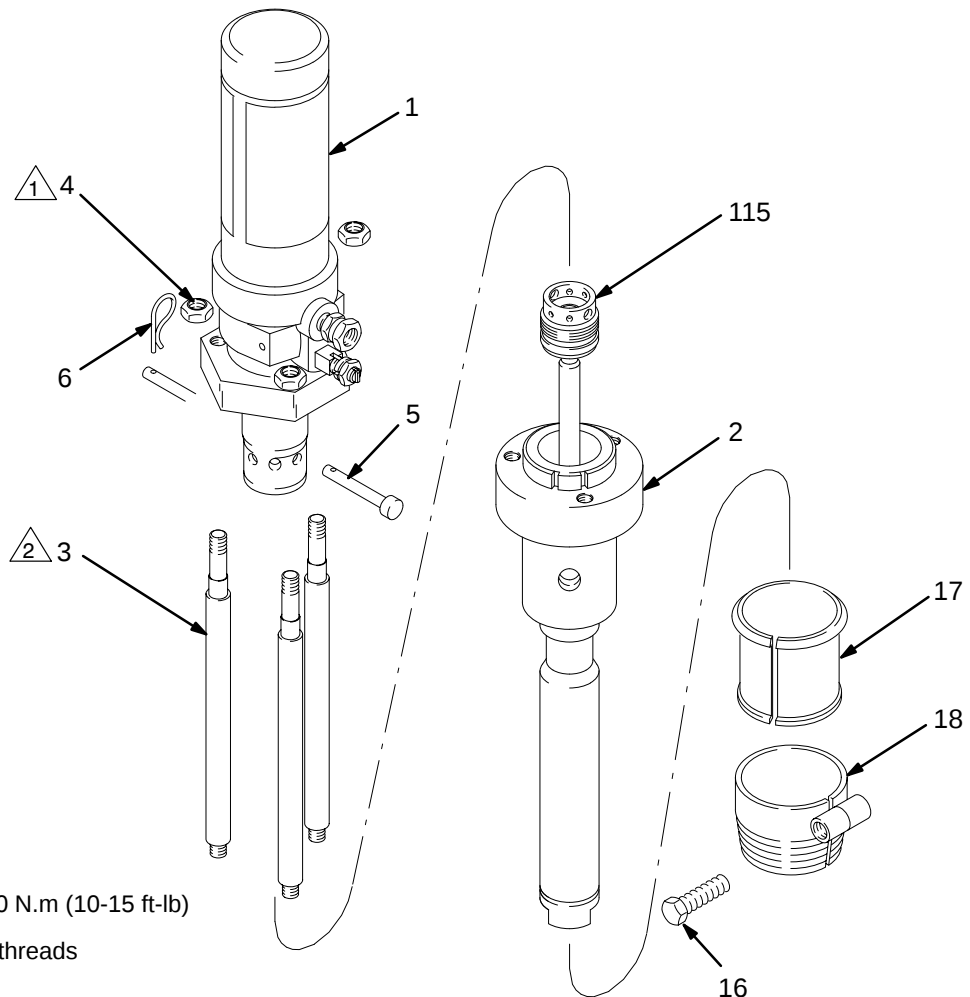


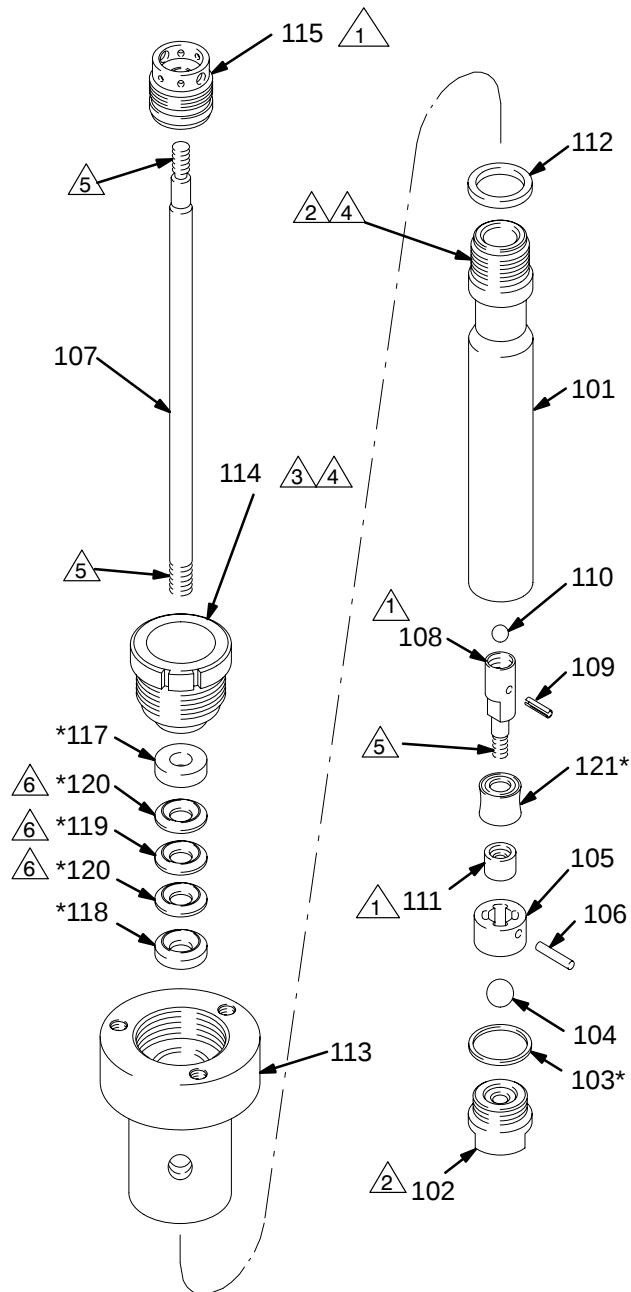
Fig. 4

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Service

6. Hold the pump upside down and unscrew the intake valve (102) from the pump cylinder (101). See Fig. 5. Remove the ball guide (105), ball (104), and ball stop pin (106) from the cylinder, being careful that they do not fall out. Remove the gasket (103). Clean all parts and inspect for wear or damage. Check the ball and seat for nicks.
7. Loosen, but do not remove the packing nut (114). Unscrew the coupling (115) from the displacement rod (107) and push the rod down until it clears the bottom of the cylinder (101). Pull the displacement rod out the bottom of the cylinder.
8. Unscrew the piston stud (108) from the displacement rod (107). Remove the piston nut (111) and piston packing (121). Drive the pin (109) out of the piston and remove the ball (110). Clean and inspect all parts for wear or damage.
9. Unscrew the cylinder (101) from the outlet housing (113). Inspect the inner surface of the cylinder and the outer surface of the displacement rod (107) for scoring which can damage the throat packings. Remove and inspect the o-ring (112).
10. Unscrew the packing nut (114) and remove the throat packings from the outlet housing (113). Clean and inspect all parts for wear or damage.
11. Lubricate the throat packings and install them in the outlet housing (113) one at a time as follows, *with the lips of the v-packings facing down*: male gland (118*), one UHMWPE v-packing (120*), the Teflon v-packing (119*), the other UHMWPE v-packing (120*), and the female gland (117*). Lubricate the threads of the packing nut (114) and loosely install it in the outlet housing. See Fig. 5.
12. Install the ball (110) in the piston stud (108). Press fit the ball stop pin (109) in the hole of the piston stud so it is flush with or below the stud's surface. Apply thread sealant to the displacement rod (107) threads and screw the piston stud (108) onto the rod. Torque to 10.2 – 13.5 N.m (90 – 120 in/lb).
13. Install the piston packing (121*) on the piston stud (108). Apply sealant to the threads of the piston stud (108) and screw the piston nut (111) onto the stud. Torque to 10.2 – 13.5 N.m (90 – 120 in/lb).
14. Lubricate the o-ring (112) and install it in the outlet housing (113). Lubricate the threads of the cylinder (101) and screw it into the outlet housing. Torque to 34-40 N.m (300 – 354 in/lb). Push the displacement rod (107) up into the pump cylinder from the bottom until it clears the packing nut (114).
15. Apply sealant to the threads of the displacement rod (107) and screw the coupling (115) onto the rod. Torque to 10.2 – 13.5 N.m (90 – 120 in/lb).
16. Torque the packing nut (114) to 7.0-9.5 N.m (5-7 ft-lb).
17. Install the pin (106) in the ball guide (105). Insert the ball guide into the pump cylinder (101) so the pin (106) is toward the top of the pump.
18. Install the gasket (103*) on the intake valve (102). Place the ball (104) on the seat of the intake valve, and screw the valve into the cylinder. Torque to 34-40 N.m (300 – 354 in/lb).
19. Screw the coupling (115) into the air motor (1). Line up the holes and secure with the pin (5) and spring clip (6). See Fig. 4.
20. Apply sealant to the threads of the tie rods (3) and screw the rods into the outlet housing (113). Mount the air motor (1) on the tie rods (3). Screw the locknuts (4) onto the tie rods loosely, then torque evenly to 13.5-20 N.m (10-15 ft-lb).
21. Reinstall the bung adapter (18) tightly into the pump mounting. Lower the pump through the bung adapter. Adjust the pump to the desired position and tighten the bung adapter screw (16) to hold it steady.
22. Reconnect the air and fluid hoses to the pump. Reconnect the grounding wire if it was disconnected during service.
23. Run the pump slowly to check for proper operation.

Service



- Note:**
- △1 Torque to 10.2 – 13.5 N.m (90 – 120 in/lb)
 - △2 Torque to 34 – 40 N.m (300 – 354 in/lb)
 - △3 Torque to 7.0 – 9.5 N.m (5 – 7 ft/lb)
 - △4 Lubricate threads
 - △5 Apply thread sealant
 - △6 Lips of V-packings must face down

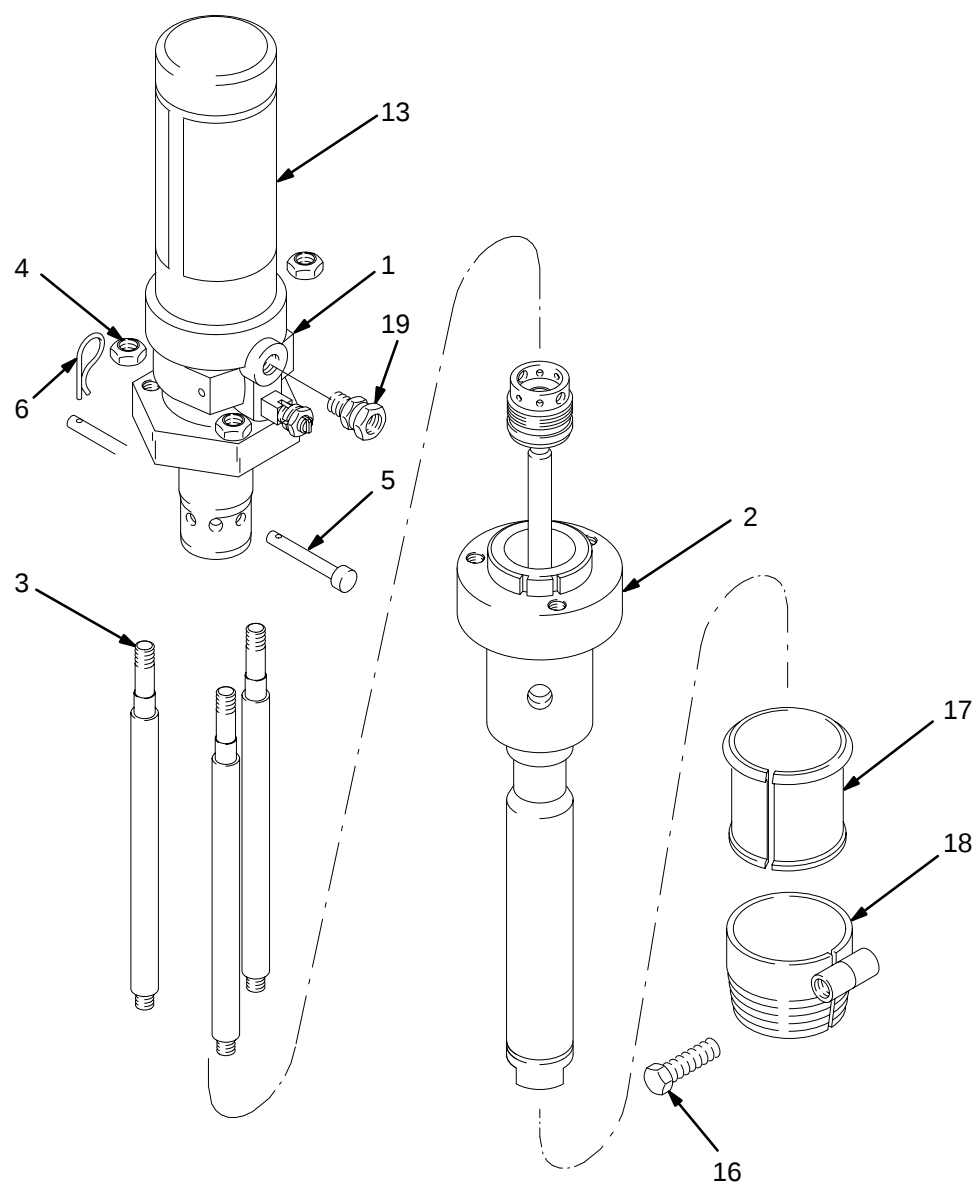
Fig. 5

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Parts

Model 224-522, Series A Basic Pump

Includes items 1-19



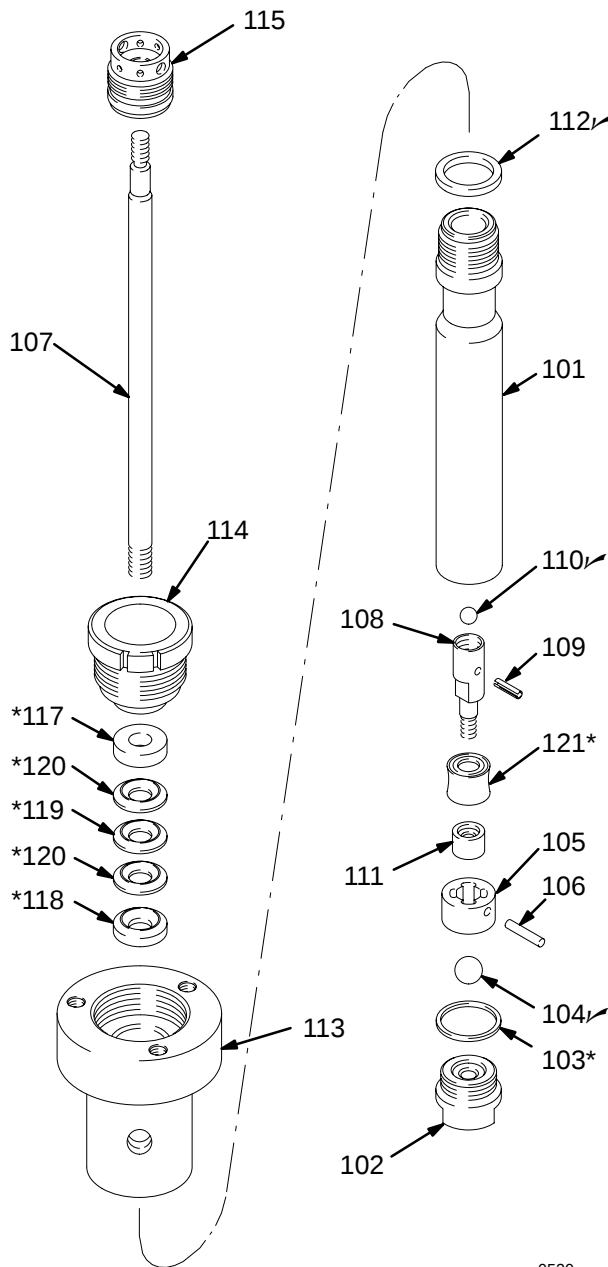
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Ref No.	Part No.	Description	Qty	Ref No.	Part No.	Description	Qty
1	224-520	AIR MOTOR KIT Includes items 13 and 19 See 307-456 for parts	1	6	180-166	CLIP, spring	1
2	224-521	DISPLACEMENT PUMP See page 17 for parts	1	9	172-477	TAG (not shown)	1
3	185-031	ROD, tie	3	13	187-208	LABEL, warning	1
4	104-541	NUT, lock; w/nylon insert; M8 x 1.25	3	16	104-587	CAPSCREW, hex hd; M8 x 1.25; 35 mm long	1
5	178-923	PIN, clevis	1	17	172-405	BUSHING, bung adapter	1
				18	210-877	ADAPTER, bung	1
				19	156-823	ADAPTER; 1/4 npt(m) x 1/4 npsm(f) swivel	1

Parts

Model 224-521, Series A Displacement Pump

Includes items 101-121



Ref No.	Part No.	Description	Qty
101	185-005	CYLINDER, pump	1
102	187-187	VALVE, intake	1
103*	103-341	GASKET; Teflon®	1
104✓	101-750	BALL; 13 mm (1/2") dia.; sst	1
105	176-760	GUIDE, ball	1
106	176-759	PIN, stop, ball	1
107	185-011	ROD, displacement	1
108	185-007	STUD, piston	1
109	110-038	PIN, spring, straight	1
110✓	102-119	BALL; 8 mm (5/16") dia.; sst	1
111	185-006	NUT, piston	1
112✓	107-571	O-RING; Viton®	1
113	222-257	HOUSING, outlet	1
114	185-009	NUT, packing	1
115	185-010	COUPLING, rod	1
117*	185-014	GLAND, female	1
118*	185-015	GLAND, male	1
119*	110-040	V-PACKING; Teflon®	1
120*	110-042	V-PACKING; UHMWPE	2
121*	110-257	PACKING, piston; UHMWPE	1

* These parts are included in Repair Kit 222-344, which may be purchased separately.

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

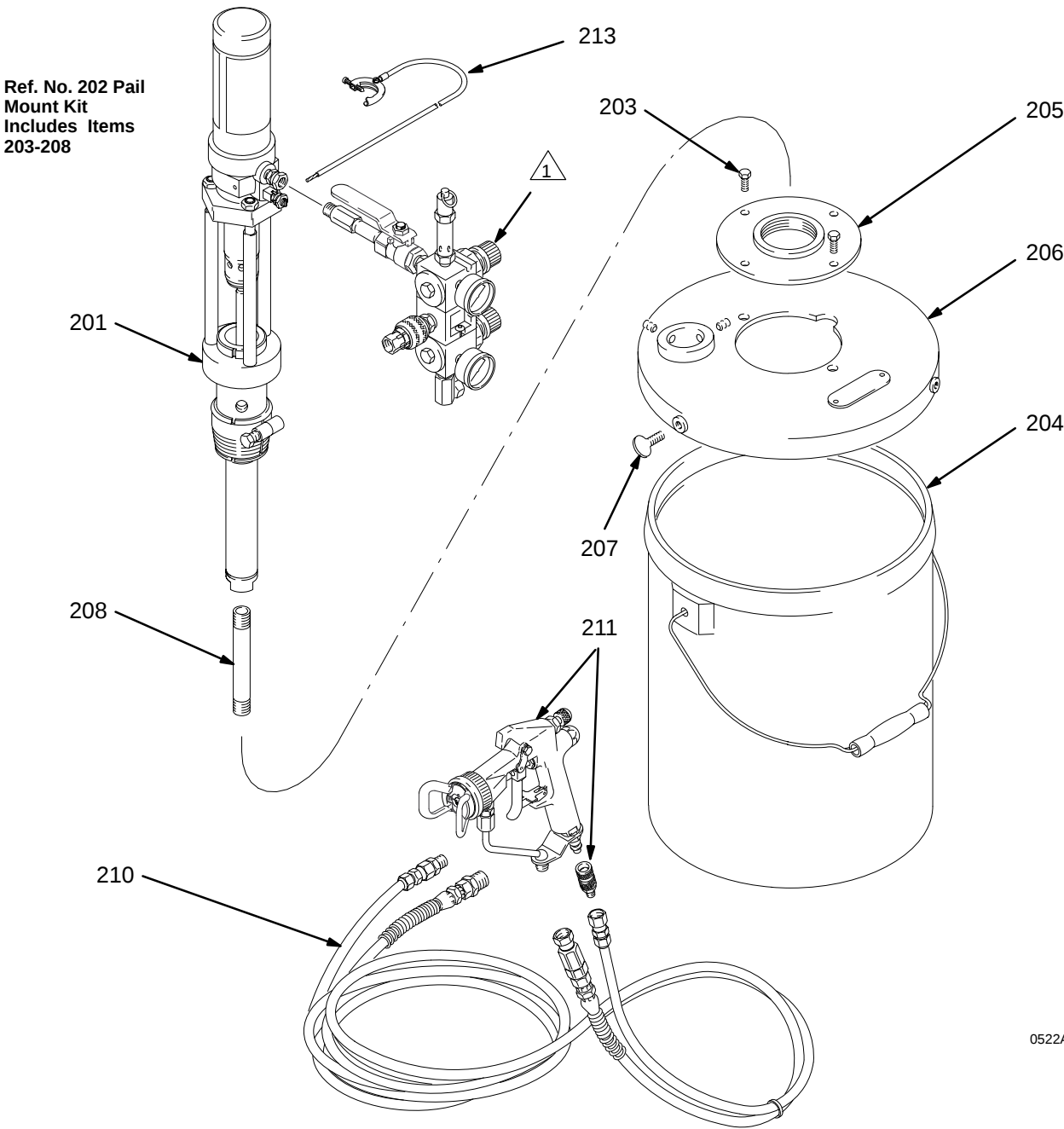
0520

Parts

Model 222-390 Pail Mount System

Includes items 201-213

 See page 19 for pail mount system air/fluid regulator parts.



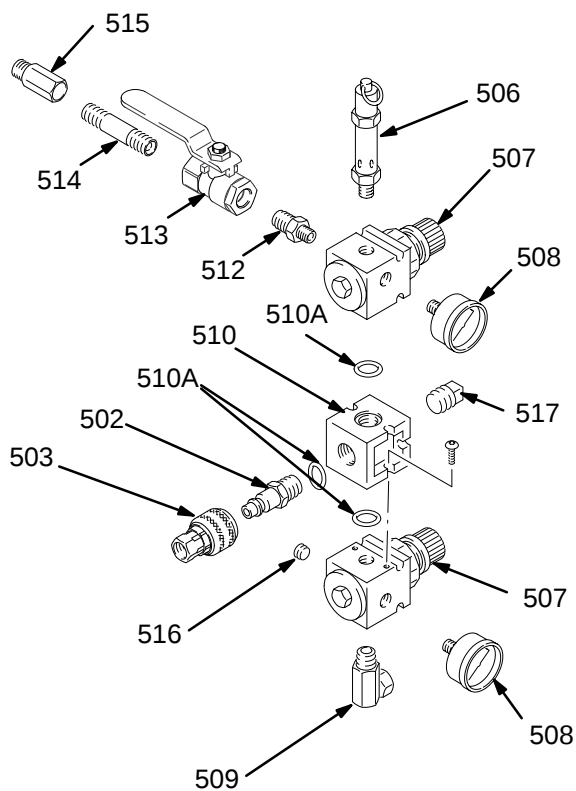
0522A

Ref No.	Part No.	Description	Qty	Ref No.	Part No.	Description	Qty
201	224-522	PUMP	1	207	100-220	. THUMBSCREW; 5/16 unc x 25 mm (1") long	3
202	222-250	KIT, pail mount	1	208	110-044	. NIPPLE, pipe; 3/8 npt; 127 mm (5") long	1
203	100-270	. CAPSCREW, hex hd; 1/4-20 unc x 16 mm (5/8") long	2	210	222-392	KIT, hose	1
204	101-108	. PAIL; 19 liter (5 gal.)	1	211	238-852	SPRAY GUN	1
205	160-754	. PLATE, adapter, bung	1	212	GG4-XXX	SPRAY TIP of choice (not shown)	1
206	205-786	. COVER, pail	1	213	237-569	WIRE ASSEMBLY, grounding	1
18	307-917						

Parts

Air/Fluid Regulator Parts for Pail Mount System

Includes items 502-517



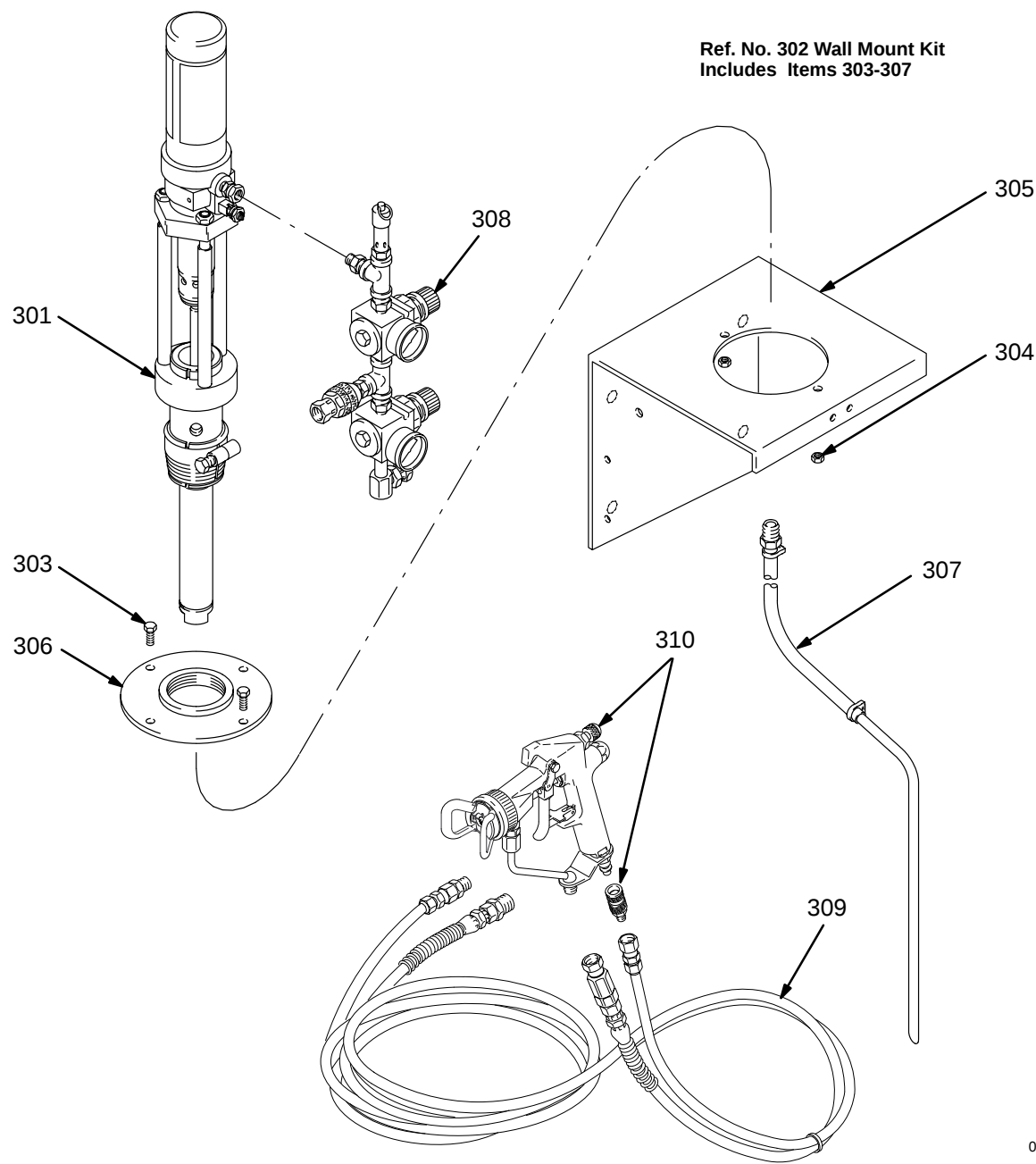
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Ref No.	Part No.	Description	Qty
502	169-971	FITTING, air; 3/8 npt(m)	1
503	208-536	COUPLER, quick disconnect	1
506	103-347	VALVE, safety	1
507	111-804	REGULATOR, air; 0-8.5 bar, 0.85 MPa (0-125 psi) adjustment range; 1/8 npt(f) inlet and outlet	2
508	108-190	GAUGE, pressure; 0-7 bar, 0-0.7 MPa (0-100 psi)	2
509	155-541	UNION, swivel, 90°; 1/4 npt (m x f)	1
510	111-805	BLOCK, diverter (includes item 510a)	1
510a	108-284	• O-RING	3
512	151-519	NIPPLE, reducing; 1/4 npt x 1/8 npt	1
513	113-329	VALVE, ball, vented; 1/4 npt(fbe)	1
514	100-124	NIPPLE, pipe; 1/4 npt; 63.5mm (2.5") long	1
515	162-753	ADAPTER; 1/4 npt (mxf)	1
516	104-765	PLUG, pipe, headless; 1/8 nptf	1
517	100-040	PLUG, pipe; 3/8 nptf	1

Parts

Model 222-393 Wall Mount System

Includes items 301-311



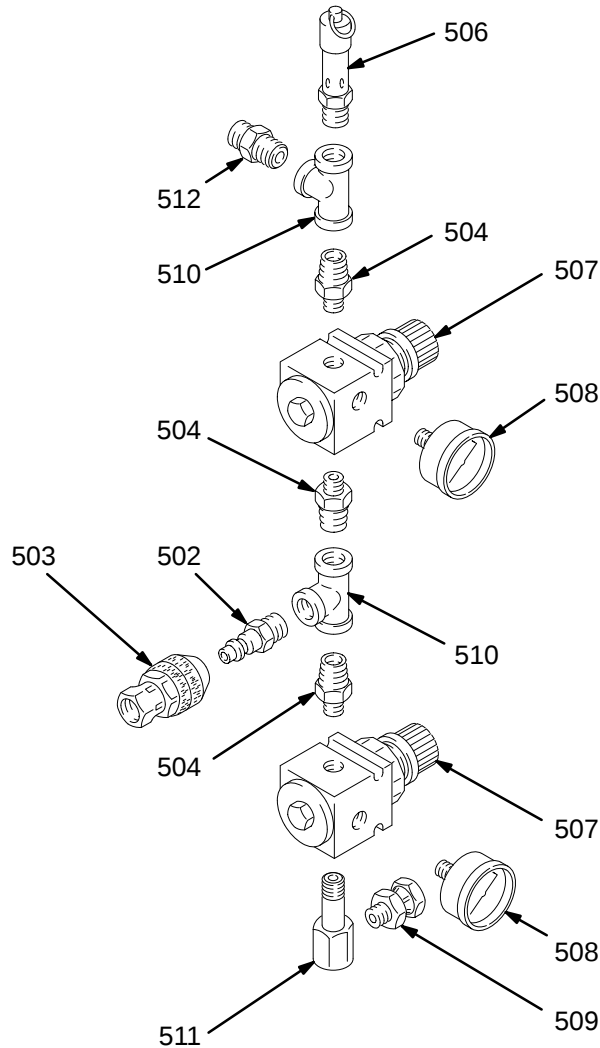
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Ref No.	Part No.	Description	Qty	Ref No.	Part No.	Description	Qty
301	224-522	PUMP	1	306	160-754	. PLATE, adapter, bung	1
302	222-251	KIT, wall mount	1	307	222-395	. TUBE, suction; 3/8 npt(m)	1
		Includes items 303-307		308	222-391	KIT, air/fluid regulator	1
303	100-270	. CAPSCREW, hex hd; 1/4-20 unc x 16 mm (5/8") long	2	309	222-392	KIT, hose	1
304	102-025	. NUT, hex; 1/4-20	2	310	238-852	SPRAY GUN	1
305	207-365	. BRACKET, mounting	1	311	GG4-XXX	SPRAY TIP of choice (not shown)	1
20	307-917	See 306-783 for parts					

Parts

222-391 Air/Fluid Regulator Kit for Wall Mount System

Includes items 502-512



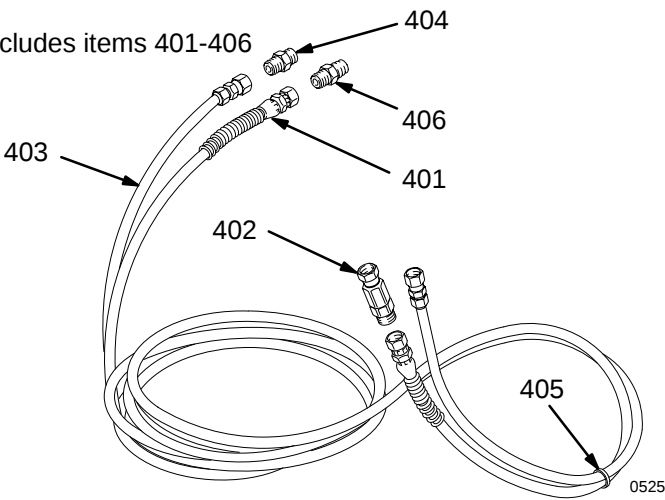
0526

Ref No.	Part No.	Description	Qty
502	169-970	FITTING, air; 1/4 npt(m)	1
503	208-536	COUPLER, quick disconnect	1
504	151-519	NIPPLE; 1/4 npt x 1/8 npt	3
506	103-347	VALVE, safety	1
507	110-341	REGULATOR, air; 0-7 bar, 0-0.7 MPa (0-100 psi) adjustment range; 1/8 npt(f) inlet and outlet	2
508	108-190	GAUGE, pressure; 0-7 bar, 0-0.7 MPa (0-100 psi)	2
509	208-434	ADAPTER; 1/8 npt(m) x 1/4 npsm(f) swivel	1
510	100-574	TEE; 1/4 npt(f)	2
511	160-701	ELBOW, street; 1/8 npt (m x f)	1
512	162-453	NIPPLE; 1/4 npsm x 1/4 npt	1

Parts

222-392 Hose Kit

Includes items 401-406



Ref No.	Part No.	Description	Qty
401	214-698	HOSE, fluid; 5 mm (3/16") ID; nylon; coupled 1/4 npsm (f) swivel; 7.6 m (25') long	1
402	210-500	FILTER, fluid, in-line; 100 mesh; 1/4 npsm(m) x 1/4 npsm(f) swivel	1
403	216-069	HOSE, air; 6 mm (1/4") ID; buna-N; coupled 1/4 npsm (f) swivel; 7.9 m (26') long	1
404	162-453	NIPPLE; 1/4 npt x 1/4 npsm	1
405	103-473	STRAP, tie	8
406	164-672	ADAPTER; 3/8 npt x 1/4 npsm (mbe)	1

Accessories

Use Genuine Graco Parts and Accessories

Pump Conversion Kits

To convert to a pail mount system, order:

- 222-250** Pail Mount Kit (Refer to item 202 on page 18 for parts; kit includes instructions.)
- 222-392** Hose Kit
- 238-852** Air-Assisted Airless Spray Gun

To convert to a wall mount system, order:

- 222-251** Wall Mount Kit (Refer to item 302 on page 20 for parts; kit includes instructions.)
- 222-391** Air/Fluid Regulator Kit (Refer to page 21)
- 222-392** Hose Kit
- 238-852** Air-Assisted Airless Spray Gun

Portable Base 205-054

Caster base makes pail mount system portable.

Pail Agitator 204-536

1/4 HP, air powered. Requires the following mounting parts (must be ordered separately):

- 160-023** Air Hose; buna-N; 6 mm (1/4" ID); 1/8 npt (mbe); 0.45 m (18 in.) long
- 100-547** Tee; 1/4 npt(f)
- 100-030** Reducing Bushing; 1/4 npt(m) x 1/8 npt(f)
- 156-971** Nipple; 1/4 npt

Drum Bung Unit

To mount the pump in a bung hole of a 200 liter (55 gal.) drum, order the following parts:

- 224-522** 10:1 Standard Pump
- 185-190** Extension Pipe
- 222-392** Hose Kit

Drum Cover Unit

To mount the pump on a 200 liter (55 gal.) drum, order the following parts:

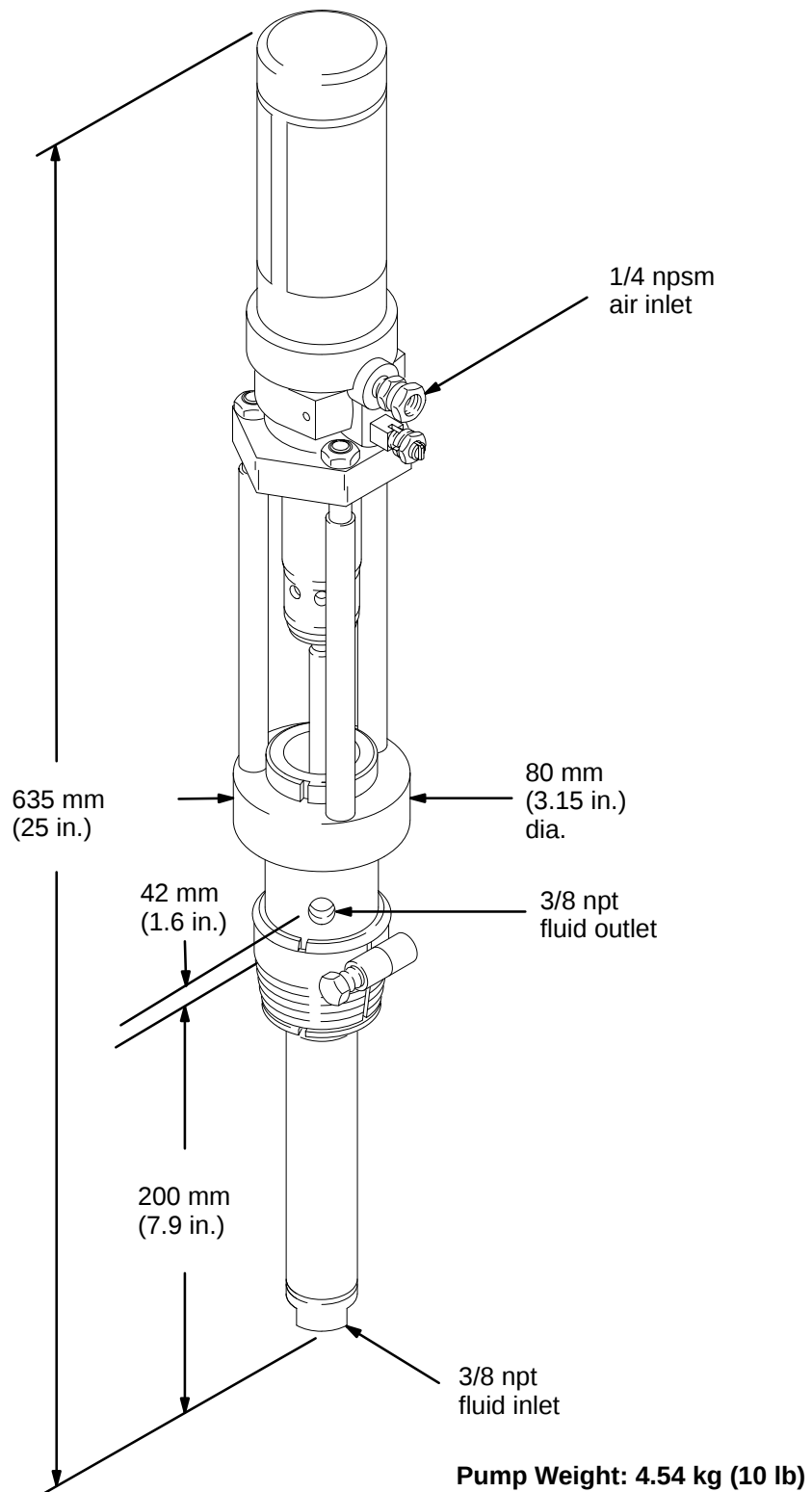
- 224-522** 10:1 Standard Pump
- 200-326** Drum Cover
- 160-754** Flange Adapter
- 100-270** Capscrews (2)
- 185-190** Extension Pipe
- 222-392** Hose Kit

Pump Extension Pipe 185-190

Screw into the pump intake to increase pump length for use with 200 liter (55 gal.) drums.

NOTES: _____

Dimensional Drawing



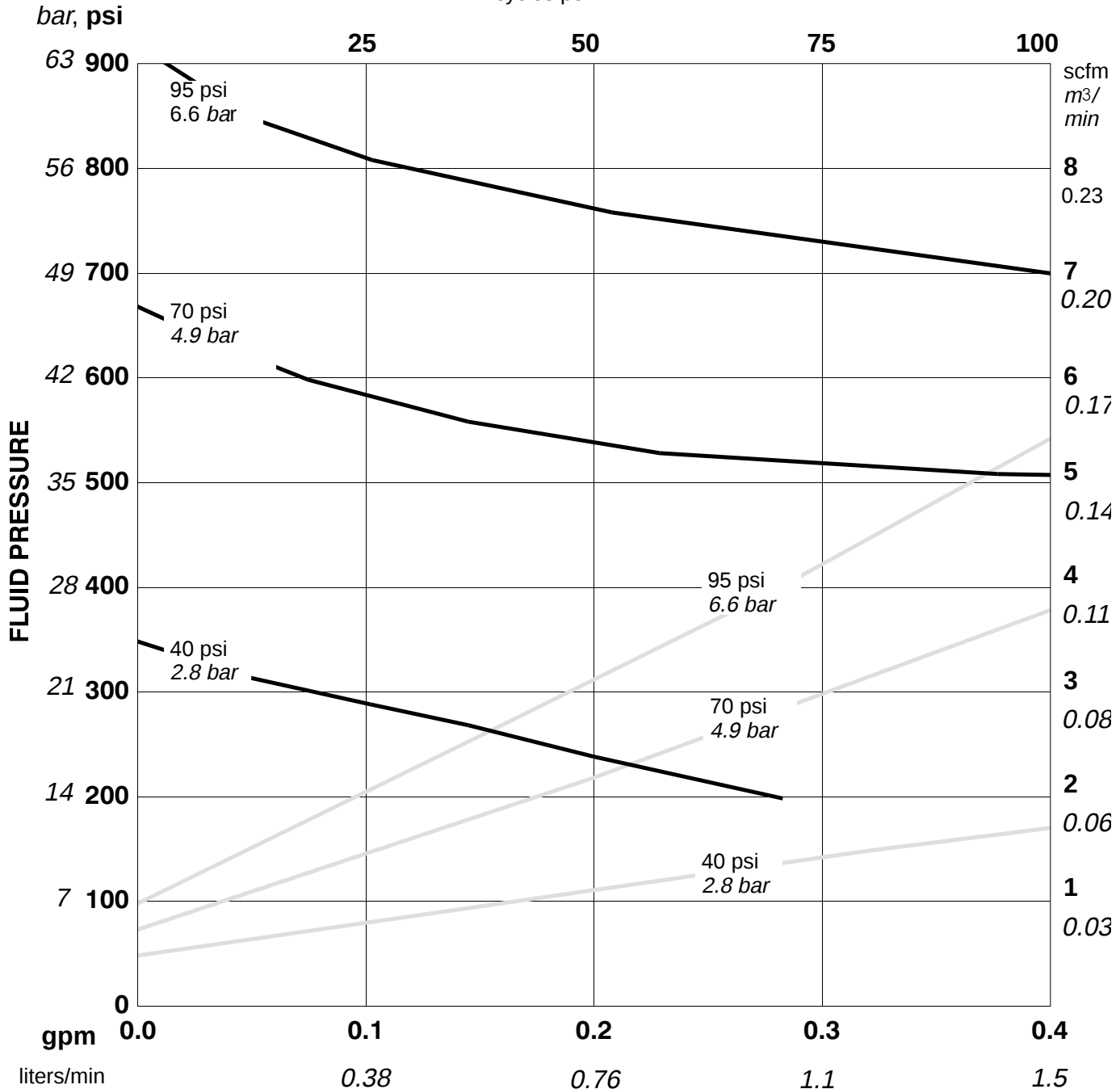
Performance Chart

KEY:

FLUID OUTLET PRESSURE – BLACK CURVES

AIR CONSUMPTION – GRAY CURVES

cycles per min



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

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

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 and read fluid outlet pressure.

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

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.

Technical Data

Maximum working pressure	66 bar, 6.6 MPa (950 psi)
Maximum incoming air pressure	6.5 bar, 0.65 MPa (95 psi)
Minimum incoming air pressure	1.7 bar, 0.17MPa (25 psi)
Ratio	10:1
Maximum recommended pump speed	100 cpm (1.5 liters/min [0.4 gpm])
Air consumption	See Performance Chart on page 26
Air inlet	1/4 npsm(f) swivel
Fluid inlet	3/8 npt(f)
Fluid outlet	3/8 npt(f)
Maximum Fluid Temperature (<i>Model 222-390</i>)	49 C (120 F)
Sound level at 95 psi, 25 cycles per minute (<i>Model 222-390</i>)	69 dBa
Sound power level at 95 psi, 25 cycles per minute (<i>Model 222-390</i>)	75 dBa
Weight (<i>Model 222-390</i>)	12.7 kgs (28 lbs)
Wetted parts	<i>Pump:</i> 316, 440, and 17-4 PH Stainless Steel, Chrome Plating, Teflon®, Ultra-High Molecular Weight Polyethylene, Viton® <i>Intake Nipple (Model 222-390):</i> 304 Stainless Steel <i>Intake Tube (Model 222-393):</i> 304 and 316 Stainless Steel, Nylon <i>Hoses:</i> Nylon

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Manual Change Summary

Summary

This manual was changed from Revision G to Revision J to make changes to air/fluid regulator parts for the pail mount system. See Page 19. The spray gun is changed for both pail mount and wall mount systems. See pages 18 and 20. A grounding wire is added to the pail mount system. See page 18.

Model 224-704 is obsolete and has been removed from this publication.

The Graco Warranty and Disclaimers

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. 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.

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