

INSTRUCTIONS-PARTS LIST



307-905

Rev. A

This manual contains **IMPORTANT**
WARNINGS AND INSTRUCTIONS
READ AND RETAIN FOR REFERENCE

SILICONE SEALER SYSTEMS

Model 222-135, Series A

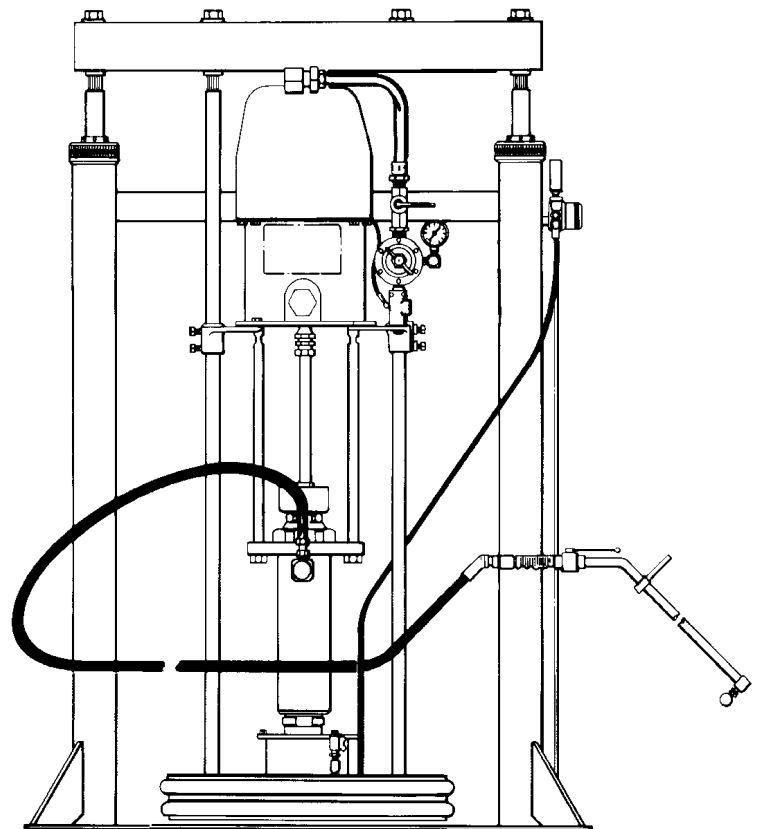
40:1 Ratio Bulldog® Pump

4000 psi (276 bar) MAXIMUM WORKING PRESSURE

Model 222-136, Series A

55:1 Ratio King® Pump

4950 psi (340 bar) MAXIMUM WORKING PRESSURE



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SAFETY WARNINGS

**FLUID UNDER HIGH PRESSURE CAN CAUSE SERIOUS INJURY.
FOR PROFESSIONAL USE ONLY. OBSERVE ALL WARNINGS.**

Read and understand all instruction manuals before operating equipment.

FLUID INJECTION HAZARD

General Safety

This equipment generates very high fluid pressure. Fluid emitted under high pressure from leaks or ruptured components can inject fluid through your skin and into your body and cause extremely serious bodily injury, including the need for amputation. Also, fluid injected or splashed into the eyes or on the skin can cause serious damage.

NEVER point the dispensing valve at anyone or at any part of the body. NEVER put hand or fingers over the nozzle.

ALWAYS follow the **Pressure Relief Procedure**, at right, before cleaning or removing the nozzle or servicing any system equipment.

NEVER try to stop or deflect leaks with your hand or body.

Be sure all equipment safety devices are operating properly before each use.

Medical Alert – Airless Spray Wounds

If any fluid appears to penetrate your skin, get **EMERGENCY MEDICAL CARE AT ONCE. DO NOT TREAT AS A SIMPLE CUT.** Tell the doctor exactly what fluid was injected.

Note to Physician: *Injection into the skin is a traumatic injury. It is important to treat the injury surgically as soon as possible. Do not delay treatment to research toxicity. Toxicity is a concern with some exotic coatings injected directly into the blood stream. Consultation with a plastic surgeon or reconstructive hand surgeon may be advisable.*

Dispensing Valve Safety

Do not remove or modify any part of the dispensing valve; this can cause a malfunction and result in serious bodily injury.

Nozzle Safety

Use extreme caution when cleaning or changing nozzles. If the nozzle clogs while dispensing, close the dispensing valve immediately. ALWAYS follow the **Pressure Relief Procedure** below, and then remove the nozzle to clean it.

NEVER wipe off build-up around the nozzle until pressure is fully relieved and the dispensing valve is closed.

Pressure Relief Procedure

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

1. Close the dispensing valve.
2. Turn off the air supply to the pump and ram.
3. Close the bleed-type master air valve (required in your system).
4. Shut off the ram director valve.
5. Hold a metal part of the dispensing valve firmly to the side of a grounded metal waste container and open the valve to relieve the fluid pressure.
6. Close the dispensing valve.
7. Open the pump drain valve (required in system), having a container ready to catch the drainage.
8. Leave the drain valve open until you are ready to dispense again.

If you suspect that the 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 obstruction.

EQUIPMENT MISUSE HAZARD

General Safety

Any misuse of the equipment or accessories, such as overpressurizing, modifying parts, using incompatible chemicals and fluids, or using worn or damaged parts, can cause them to rupture and result in fluid injection or other serious bodily injury, fire, explosion or property damage.

NEVER alter or modify any part of this equipment; doing so could cause it to malfunction and make it dangerous to operate.

CHECK all equipment regularly and repair or replace worn or damaged parts immediately.

Take precautions to avoid any fluid spill. See **HAZARDOUS FLUID HAZARD**, below.

Fluid Compatibility

BE SURE all fluids and solvents used are chemically compatible with the "Wetted Parts" shown in the **TECHNICAL DATA** in the component manuals supplied. Always read the fluid and solvent manufacturer's literature before using the fluid or solvent in this pump.

System Pressure

The 40:1 Ratio Bulldog Pump can develop 4000 psi (276 bar) **MAXIMUM FLUID WORKING PRESSURE** at 100 psi (7 bar) maximum incoming air pressure. NEVER exceed 100 psi (7 bar) air supply to the pump, or 150 psi (10.5 bar) to the ram.

The 55:1 Ratio King Pump can develop 4950 psi (340 bar) **MAXIMUM FLUID WORKING PRESSURE** at 90 psi (6 bar) maximum incoming air pressure. NEVER exceed 90 psi (6 bar) air supply to the pump, or 150 psi (10.5 bar) to the ram.

NEVER exceed the maximum working pressure of any component or accessory used in the system.

HAZARDOUS FLUID HAZARD

Improper handling of hazardous fluids or inhaling vapors can cause extremely serious bodily injury, even death, due to splashing in the eyes, ingestion, inhalation, or bodily contamination. Know what fluid you are pumping and its specific hazards. Store hazardous fluids in approved containers. Dispose of any waste fluid according to all Local, State and Federal regulations pertaining to the disposal of hazardous wastes. Observe all precautions when handling known or potentially hazardous fluids, including, but not limited to, the following.

1. Always wear appropriate, protective clothing and equipment, such as eye protection, respiratory protection, and gloves.
2. Provide for the safe piping and disposal of all exhaust air.
3. Provide proper ventilation in accordance with accepted industry standards and governmental regulations.

HOSE SAFETY

High pressure fluid in the hoses can be very dangerous. If the hose develops a leak, split or rupture due to any kind of wear, damage or misuse, the high pressure fluid emitted from it can cause a fluid injection injury or other serious bodily injury or property damage.

TIGHTEN all fluid connections securely before each use. High pressure fluid can dislodge a loose coupling or allow high pressure fluid to be emitted from the coupling.

NEVER use a damaged hose. Before each use, check the entire hose for cuts, leaks, abrasion, bulging cover, or damage or movement of the hose couplings. If any of these conditions exist, replace the hose immediately. **DO NOT** try to recouple high pressure hose or mend it with tape or any other device. A repaired hose cannot contain the high pressure fluid.

FIRE OR EXPLOSION HAZARD

Static electricity is created by the flow of fluid through the pump and hose. If every part of the equipment is not properly grounded, sparking may occur. Sparks can ignite vapors from solvents and the fluid being dispensed, dust particles and other flammable substances, whether you are dispensing indoors or outdoors, and cause a fire or explosion, serious bodily injury, and property damage. Sparks may also occur when plugging in or unplugging a power supply cord. Do not plug in or unplug any power supply cords in the dispensing area when there is any chance of igniting vapors still in the air.

If you experience any static sparking or even a slight shock while using this equipment, **STOP DISPENSING IMMEDIATELY**. Do not use the system again until the cause of the problem is identified and corrected.

Grounding

To reduce the risk of static sparking, ground the pump and all other equipment used or located in the dispensing area. **CHECK** your local electrical code for detailed grounding instructions for your area and type of equipment. **GROUND ALL OF THIS EQUIPMENT.**

1. *Pump*: use a ground wire and clamp as shown in Fig 1.
2. *Fluid and air hoses*: use only grounded hoses with a maximum of 500 feet (150 m) combined hose length to ensure grounding continuity. Refer to **Hose Grounding Continuity**, above.
3. *Air Compressor*: according to manufacturer's recommendations.
4. *Dispensing valve*: obtain grounding through connection to a properly grounded fluid hose and pump.
5. Fluid supply container: according to local code.
6. *All solvent pails used when flushing*, according to local code. Use only metal pails, which are conductive. Do not place the pail on a non-conductive surface, such as paper or cardboard, which interrupts the grounding continuity.
7. *To maintain grounding continuity when flushing or relieving pressure*, always hold a metal part of the dispensing valve firmly to the side of a *grounded* metal pail, then open the dispensing valve.

MOVING PARTS HAZARD

Moving parts can pinch or amputate your fingers or other body parts. The piston in the air motor, located behind the air motor shield, moves when air is supplied to the motor. **NEVER** operate the pump with the air motor shield removed.

Keep fingers clear of the priming piston and intake valve while the pump is operating, to reduce the risk of hand or finger amputation or injury.

HANDLE AND ROUTE HOSES CAREFULLY. Do not pull on hoses to move equipment. Do not use fluids or solvents which are not compatible with the inner tube and cover of the hose. **DO NOT** expose Graco hose to temperatures above 180° F (82° C) or below -40° F (-40° C).

Hose Grounding Continuity

Proper hose grounding continuity is essential to maintaining a grounded dispensing system. Check the electrical resistance of your air and fluid hoses at least once a week. If your hose does not have a tag on it which specifies the maximum electrical resistance, contact the hose supplier or manufacturer for the maximum resistance limits. Use a resistance meter in the appropriate range for your hose to check the resistance. If the resistance exceeds the recommended limits, replace it immediately. An ungrounded or poorly grounded hose can make your system hazardous. Also, read **FIRE OR EXPLOSION HAZARD**, below.

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 (Z) of the grounding lug and tighten the locknut securely. Connect the clamp end of the ground wire to a true earth ground. See **ACCESSORIES** to order a ground wire and clamp.

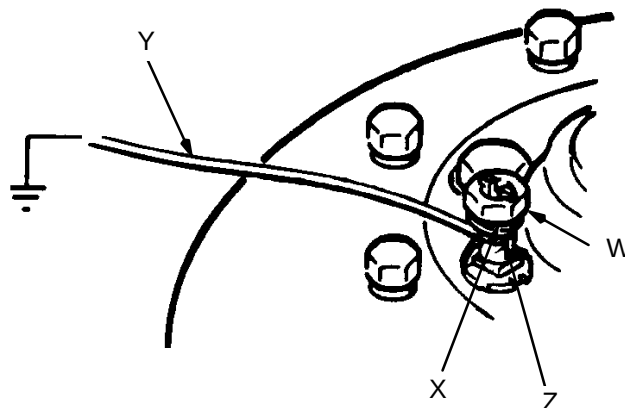


Fig 1 GROUNDING LUG

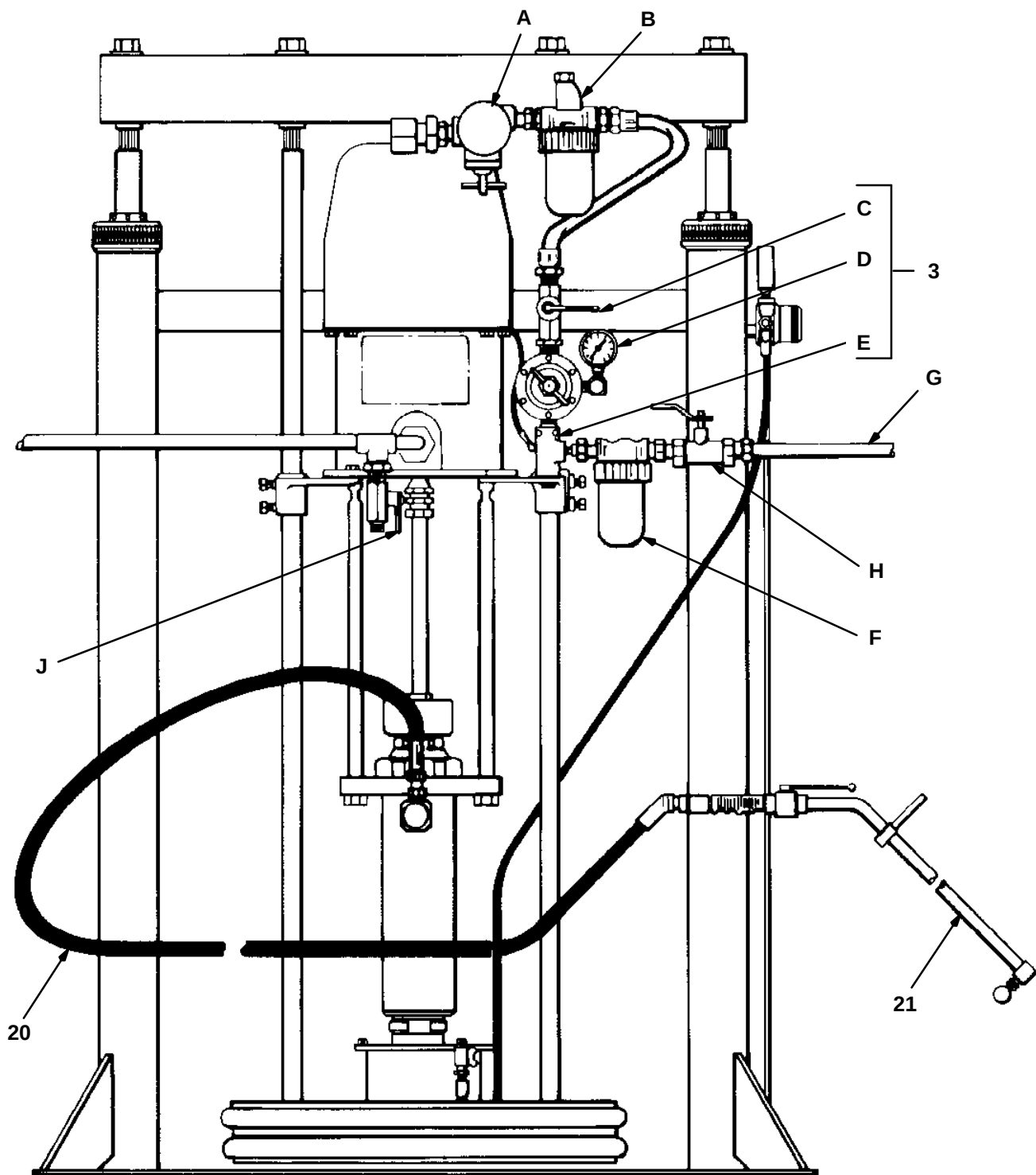
Flushing Safety

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 2 *before flushing*. Hold a metal part of the dispensing valve firmly to the side of a *grounded* metal pail and use the lowest possible fluid pressure during flushing to reduce the risk of fluid injection injury, static sparking and splashing.

IMPORTANT

United States Government safety standards have been adopted under the Occupational Safety and Health Act. These standards – particularly the General Standards, Part 1910, and the Construction Standards, Part 1926 – should be consulted.

TYPICAL INSTALLATION DRAWING



KEY

- | | | | |
|---|-----------------------------|----|--------------------------------------|
| A | Pump Runaway Valve | G | Main Air Line |
| B | Air Line Lubricator | H | Bleed-Type Master Air Valve |
| C | Bleed-Type Master Air Valve | J | Fluid Drain Valve |
| D | Pump Air Regulator | 3 | Air Control Kit (Includes C, D, & E) |
| E | Air Manifold | 20 | Fluid Hose |
| F | Air Line Filter | 21 | Dispensing Valve |

SYSTEM INSTALLATION

NOTE: Reference numbers and letters in parentheses refer to the **Typical Installation Drawing** and the **Parts Drawing**. The **Accessories** are shown on page 7.

The **Typical Installation Drawing** is only a guide to selecting and installing required and optional accessories. For assistance in designing a system to suit your needs, contact your Graco representative.

Position the ram/pump assembly on the truck so that the ram and pump air controls are easily accessible. The ram needs 8.4 ft (2.6 m) overhead clearance. Following the instructions in instruction manual 306–934, bolt the ram in place.

WARNING

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

The *bleed-type master air valve* (supplied) relieves air trapped between this valve and the pump after the air regulator 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 dispensing valve; opening the dispensing valve to relieve pressure may not be sufficient.

Install the air line accessories in the order shown in the **Typical Installation Drawing**. Using a suitable adapter, install a pump runaway valve (A) closest to the pump's air inlet, to automatically stop the pump if it is running too fast. A pump which runs too fast can seriously damage itself. Install an air line lubricator (B) for automatic air motor lubrication.

The pump air control kit (3), which is mounted on the mounting plate, includes a bleed-type master air valve (C), air regulator (D), air manifold (E), hose and mounting hardware.

Install an air line filter (F) in the main air line (G) to remove harmful dirt and moisture from the compressed air supply. Also install another bleed-type master air valve (H) to isolate the air accessories for servicing.

Install a fluid drain valve (J) and tee in the fluid line near the pump outlet. Connect the fluid hose (20) between the pump outlet and the dispensing valve (21).

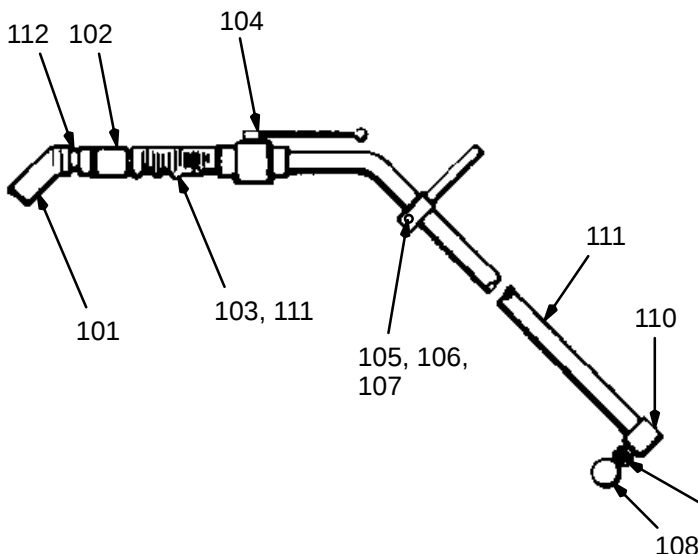
Connect the main air line (G) to the air inlet of the system.

OPERATION–SERVICE

Specific operating and service instructions are given in the manuals for the separate components.

PARTS DRAWING AND PARTS LIST

Ref No. 21
Part No 948–065
Dispensing Valve and Wand
Includes items 101 to 112



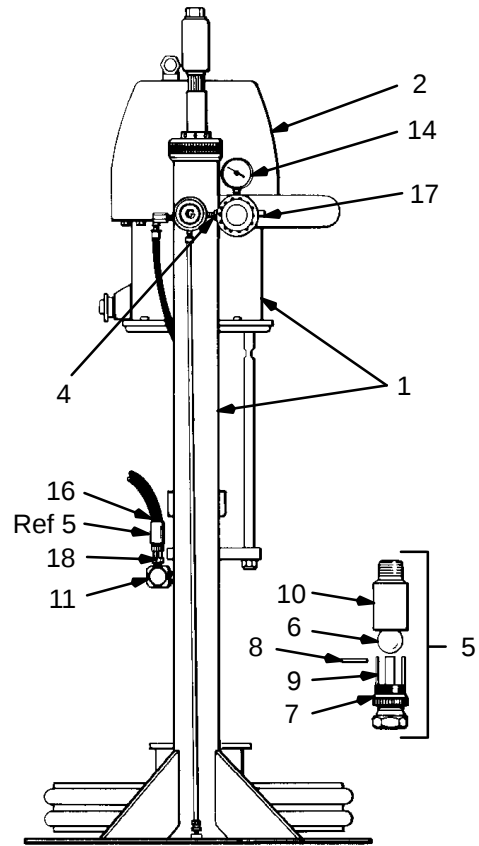
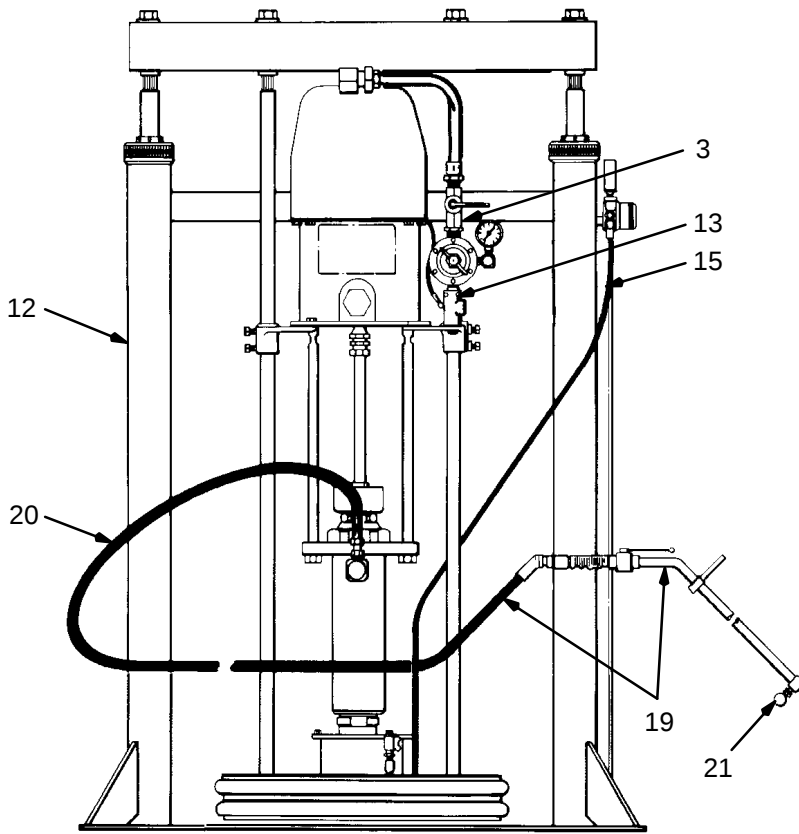
REF NO.	PART NO.	DESCRIPTION	QTY
101	105–281	UNION, swivel, 45°; 3/4 npt(m) x 3/4 nps(f) swivel	1
102	207–947	SWIVEL, straight; 1/2 npt(m) x 1/2 npt(f)	1
103	166–899	GRIP	1
104	512–216	VALVE, ball; 1/2 npt (fbs)	1
105	100–014	CAPSCREW, hex hd; 1/4–20 x 1.25" (32 mm) long	1
106	100–015	NUT, hex; 1/4–20	1
107	100–016	LOCKWASHER	1
108	623–865	NOZZLE	1
109	156–823	UNION, swivel; 45°; 1/4 npt(m) x 1/4 npt(f) swivel	1
110	162–667	ELBOW, street; 1/4 npt(m) x 1/2 npt(f)	1
111	623–866	TUBE	1
112	203–828	UNION, swivel; 1/2 npt(f) x 3/4 nps(f) swivel	1

Refer to "How to Order Replacement Parts" on the back cover.

PARTS DRAWING AND PARTS LIST

Model 222-135
40:1 Ratio Bulldog Silicone Sealer System
Includes items 1 to 33

Model 222-136
55:1 Ratio King Silicone Sealer System
Includes items 1 to 33



REF NO.	PART NO.	DESCRIPTION	QTY
1	222-137	PUMP & RAM ASSY, <i>Model 222-135 only</i> , Includes items 2-18	1
	222-138	PUMP & RAM ASSY, <i>Model 222-136 only</i> , Includes items 2-18	1
	220-448	·40:1 BULLDOG PUMP, <i>Model 222-135 only</i> , See 307-605 for parts	1
2	217-566	·55:1 KING PUMP, <i>Model 222-136 only</i> , See 307-605 for parts	1
	205-712	·AIR CONTROL KIT, <i>Model 222-135 only</i> , See 306-972 for parts	1
3	207-651	·AIR CONTROL KIT, <i>Model 222-136 only</i> , See 306-972 for parts	1
4	157-350	·NIPPLE; 3/8 npt x 1/4 npt	1
5	205-704	·CHECK VALVE, Includes items 6-10	1
6	101-190	·BALL, steel; 1" (25.4 mm) dia.	1
7	164-367	·O-RING; nitrile rubber	1
8	164-969	·PIN, ball stop	1
9	164-970	·HOUSING, valve	1
10	205-703	·BODY	1
11	178-160	·ELBOW; 1 npt (m x f)	1

REF NO.	PART NO.	DESCRIPTION	QTY
12	207-279	·RAM, pneumatic, See 306-934 for parts	1
13	100-840	·ELBOW, street; 1/4 npt (m x f)	1
14	202-156	·REGULATOR, air; 0-250 psi (17.5 bar) range; 3/8 npt(f) inlet & outlet; See 307-204 for parts	1
15	200-115	·HOSE, air; neoprene; coupled 1/4 npt(mbe); 1/4" (6 mm) ID; 4 ft (1.2 m) long	1
16	156-172	·UNION, adapter; 3/4 npt(f) x 3/4 nps(f) swivel	1
17	155-495	·UNION, adapter, 90°; 3/8 npt(m) x 1/4 nps(f) swivel	1
18	158-555	·NIPPLE, reducing; 1 npt x 3/4 npt	1
19	222-139	HOSE & GUN KIT Includes items 20 & 21	1
20	512-215	·HOSE, fluid; buna-N; coupled 3/4 npt (mbe); 30 ft (9.1 m) long	1
21	948-065	·DISPENSING VALVE & WAND See page 5 for parts	1

Refer to "How to Order" Replacement Parts on the back cover.

306 & 307 numbers in descriptions refer to separate instruction manuals.

ACCESSORIES

Accessories must be purchased separately.
Use only **GENUINE GRACO PARTS AND ACCESSORIES**.

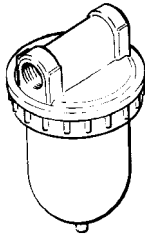
GROUNDING AIR SUPPLY HOSE, buna-N
175 psi (12.25 bar) MAXIMUM WORKING PRESSURE
0.75 in. (19 mm) ID, coupled 3/4 npt(mbe)

208-610	6 ft (1.8 m)
214-955	10 ft (3.1 m)
208-612	50 ft (15.2 m)

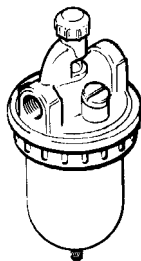
THROAT SEAL LIQUID (TSL)
Non-evaporating liquid for wet-cup

206-994	One 8 oz. (0.24 liter) plastic bottle
206-995	One 1 qt. (0.9 liter) plastic bottle
206-997	Twelve 1 qt. (0.9 liter) plastic bottles

AIR LINE FILTER 106-150
250 psi (17.5 bar) MAXIMUM WORKING PRESSURE
Removes harmful dirt and contaminants from the compressed air supply. 3/4 npt inlet and outlet.



AIR LINE LUBRICATOR 214-849
250 psi (17.5 bar) MAXIMUM WORKING PRESSURE
For automatic air motor lubrication; install close to air motor, downstream from regulators and filters. 3/4 npt, 16 oz. oil capacity.



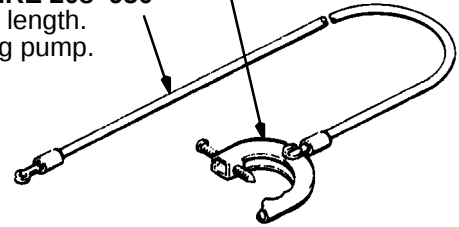
PISTOL GRIP FLO GUN 207-945
6000 psi (420 bar) MAXIMUM WORKING PRESSURE
For high pressure application of sealers. 1/2 npt (f) inlet.

HIGH PRESSURE SWIVELS, polyurethane seals
6000 psi (420 bar) MAXIMUM WORKING PRESSURE

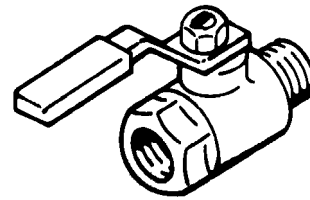
207-946	Straight, 3/8 npt(f) x 1/2 npt(f)
207-947	Straight, 1/2 npt(f) x 1/2 npt(m)
207-948	Zee, 1/2 npt(f) x 1/2 npt(m)

GROUNDING CLAMP 103-538

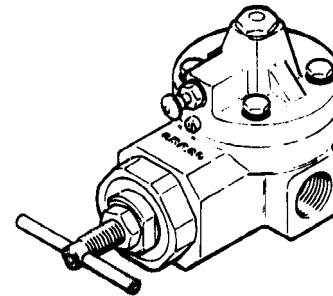
GROUND WIRE 208-950
25 Ft (7.6 m) length.
For grounding pump.



BLEED-TYPE MASTER AIR VALVE 107-141
300 psi (21 bar) MAXIMUM WORKING PRESSURE
Relieves air trapped in the air line between the air motor and this valve when closed. 3/4 npt (m x f).



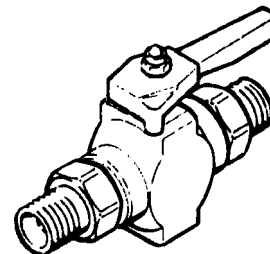
PUMP RUNAWAY VALVE 215-362
Shuts off air to the pump automatically if it senses that the pump is running too fast, a condition caused by a depleted fluid supply. 3/4 npt(f) inlet and outlet.



HIGH PRESSURE BALL VALVES, Viton® Seals
5000 psi (350 bar) MAXIMUM WORKING PRESSURE
Can be used as fluid drain valve.

210-657	1/4 npt(m)
210-658	3/8 npt(m)
210-659	3/8 x 1/4 npt(m)

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



HOW TO ORDER REPLACEMENT PARTS

1. To be sure you receive the correct replacement parts, kits or accessories, always give all of the information requested in the chart below.
2. Check the parts list to identify the correct part number; do not use the ref. no. when ordering.
3. Order all parts from your nearest Graco distributor.

6 digit Part Number	Qty	Part Description

TECHNICAL DATA

Model 222-135

Ratio 40:1
Maximum Pump Air Pressure 100 psi (7 bar)
Maximum Ram Air Pressure 150 psi (10.5 bar)
Maximum Working Pressure 4000 psi (276 bar)
Pump Air Inlet 3/4 npsm(f)
Ram Air Inlet 1/4 nps(f)
Fluid Outlet 3/4 nps(f)
Wetted Parts Refer to component manuals

Model 222-136

Ratio 55:1
Maximum Pump Air Pressure 90 psi (6 bar)
Maximum Ram Air Pressure 150 psi (10.5 bar)
Maximum Working Pressure 4950 psi (340 bar)
Pump Air Inlet 3/4 npsm(f)
Ram Air Inlet 1/4 nps(f)
Fluid Outlet 3/4 nps(f)
Wetted Parts Refer to component manuals

THE GRACO WARRANTY AND DISCLAIMERS

WARRANTY

Graco warrants all equipment manufactured by it 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. As purchaser's sole remedy for breach of this warranty, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment proven 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, 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 with Graco equipment of 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 for examination by Graco to verify 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.

DISCLAIMERS AND LIMITATIONS

THE TERMS OF THIS WARRANTY CONSTITUTE PURCHASER'S SOLE AND EXCLUSIVE REMEDY AND ARE IN LIEU OF ANY OTHER WARRANTIES (EXPRESS OR IMPLIED), INCLUDING WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND OF ANY NON-CONTRACTUAL LIABILITIES, INCLUDING PRODUCT LIABILITIES, BASED ON NEGLIGENCE OR STRICT LIABILITY. EVERY FORM OF LIABILITY FOR DIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES OR LOSS IS EXPRESSLY EXCLUDED AND DENIED. IN NO CASE SHALL GRACO'S LIABILITY EXCEED THE AMOUNT OF THE PURCHASE PRICE. ANY ACTION FOR BREACH OF WARRANTY MUST BE BROUGHT WITHIN TWO (2) YEARS OF THE DATE OF SALE.

EQUIPMENT NOT COVERED BY GRACO WARRANTY

GRACO MAKES NO WARRANTY, AND DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WITH RESPECT TO ACCESSORIES, EQUIPMENT, MATERIALS, OR COMPONENTS SOLD BUT NOT MANUFACTURED BY GRACO. These items sold, but not manufactured by Graco (such as electric motor, 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.

Factory Branches: Atlanta, Dallas, Detroit, Los Angeles, West Caldwell (N.J.)

Subsidiary and Affiliate Companies: Canada; England; Switzerland; France; Germany; Hong Kong; Japan

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