

INSTRUCTIONS-PARTS LIST



307-656

Rev A

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

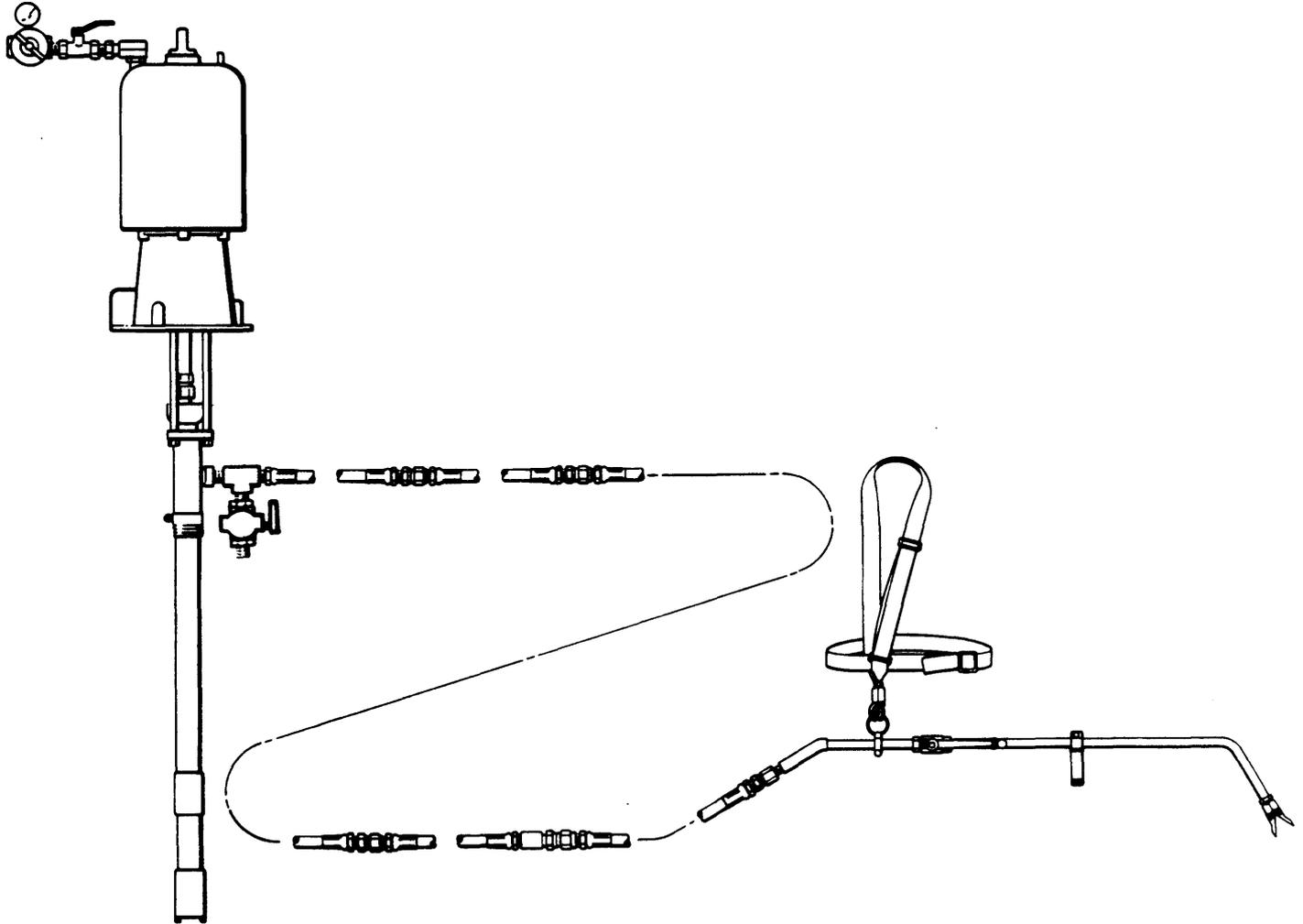
22:1 Ratio Senator

AIRLESS MASTIC SPRAYER

2200 psi (154 bar) MAXIMUM WORKING PRESSURE

Model 218-690, Series A

Includes 22:1 Ratio Senator Pump, Airless Mastic Pole Gun,
225 ft (68 m) Mastic Hose and Air Regulator.



INDEX

Warnings.....	2
Pressure Relief Procedure.....	2
Typical Installation.....	4
Installation.....	4
Operation.....	5
Parts Drawing & List.....	6
Accessories.....	7
Warranty.....	Back Cover

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WARNING

**HIGH PRESSURE SPRAY 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 pole gun may contain very high fluid pressure. Spray from the pole gun, 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 can cause serious damage.

NEVER point the pole gun at anyone or at any part of the body. NEVER put hand or fingers over the spray tip,

ALWAYS have the tip guard in place on the pole gun when spraying.

ALWAYS follow the Pressure Relief Procedure, below, before cleaning or removing the spray tip or servicing any system equipment.

NEVER try to "blow back" paint; this is not an air spray gun.

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

Be sure equipment safety devices are functioning properly before each use.

Medical Treatment

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. For treatment instructions, have your doctor call the NATIONAL POISON CENTER NETWORK (412)681-6669

Pole Gun Safety Devices

Be sure all pole gun safety devices are functioning properly before each use. Do not remove or modify any part of the pole gun; this can cause a malfunction and result in serious bodily injury.

Safety Ring

Whenever you stop spraying, even for a moment, always fully close the gun's ON/OFF lever, and slip the safety ring over the lever, making the gun inoperative. Failure to set the safety ring can result in accidental dispensing of fluid.

EQUIPMENT MISUSE HAZARD

General Safety

Any misuse of the spray 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 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.

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

ALWAYS read and follow the fluid and solvent manufacturer's recommendations regarding the use of protective clothing and equipment.

Tip Guard

ALWAYS have the tip guard in place on the gun while spraying. The tip guard alerts you to the injection hazard and helps prevent accidentally placing your fingers or any part of your body close to the spray tip.

Spray Tip Safety

Use extreme caution when cleaning or changing spray tips. If the spray tip clogs while spraying, fully close the gun's ON/OFF lever and slip the safety ring over the lever immediately. ALWAYS follow the Pressure Relief Procedure and then remove the spray tip to clean it.

NEVER wipe off build-up around the spray tip until pressure is fully relieved and the pole gun safety ring is slipped over the ON/OFF lever.

Pressure Relief Procedure

To reduce the risk of serious bodily injury, including injection, always follow this procedure whenever you shut off the pump, when checking or servicing any part of the system, when installing or changing spray tips, and whenever you stop spraying.

1. Fully close the pole gun ON/OFF lever.
2. Slip the safety ring over the lever.
3. Close the pump air regulator.
4. Close the bleed-type master air valve (required in your system).
5. Hold a metal part of the pole gun firmly to the metal supply drum or grounded waste container, and open the ON/OFF lever to relieve pressure. Then close the valve and engage the safety ring.
6. Open the drain valve (required in your system), having a container ready to catch the drainage. Leave the drain valve open until you are ready to spray again.

If you suspect that the spray tip or hose is clogged or that fluid pressure is not fully relieved after following the steps above, VERY SLOWLY loosen the tip guard or hose end coupling and allow pressure to be relieved gradually, then remove completely. Now clear the tip or hose obstruction.

System Pressure

This 22:1 Ratio Senator II Pump develops 2200 psi (154 bar) MAXIMUM WORKING PRESSURE at 100 psi (6.9 bar) air pressure. Never exceed 100 psi (6.9 bar) air supply to the motor. NEVER exceed the stated maximum working pressure of the pump or of the lowest rated component in your system.

Be sure that all accessories you add to the spray system are properly rated to withstand the maximum air and fluid working pressures of this system.

Fluid Compatibility

BE SURE that all fluid and solvent used are chemically compatible with the wetted parts shown in the Technical Data on the back cover. Always read the fluid and solvent manufacturer's literature before using them in this sprayer.

FIRE OR EXPLOSION HAZARD

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

If you experience any static sparking or even a slight shock while using this equipment, **STOP SPRAYING IMMEDIATELY**. Check the entire system for positive grounding. Do not use the system again until the problem has been identified and corrected.

Grounding

To reduce the risk of static sparking, ground the pump and all other spray equipment used or located in the spray area. **CHECK YOUR LOCAL ELECTRICAL CODE** for additional grounding instructions for your area and type of equipment. **BE SURE** to ground all of this spray equipment:

1. *Pump*: use a ground wire and clamp as explained in your separate pump instruction manual.

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 spray emitted from it can cause an injection injury or other serious bodily injury or property damage.

ALL FLUID SPRAY HOSES MUST HAVE SPRING GUARDS! (except certain mastic applications). The spring guards help protect the hose from kinks or bends at or close to the coupling which can result in hose rupture.

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

NEVER use a damaged hose. Before each use, check 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 repair a high pressure hose or mend it with tape or any other device. A repaired hose cannot contain the high pressure fluid.

MOVING PARTS HAZARD

The piston in the air motor, located behind the air motor plates or shield, moves when air is supplied to the motor. **Moving parts can pinch, cut, amputate your fingers or other body parts.** Therefore, **NEVER** operate the pump with the air motor plates or shield removed. **KEEP CLEAR** of moving parts when starting or operating the pump. Before checking or servicing the pump, follow the Pressure Relief Procedure on page 2 to prevent the pump from starting accidentally.

2. *Air hoses*: use only grounded air hoses.
3. *Fluid hoses*: use only grounded fluid hoses.
4. *Air compressor*: follow manufacturer's recommendations.
5. *Pole gun*: grounding is obtained through connection to a properly grounded fluid hose and pump.
6. *Object being sprayed*: according to your local code.
7. *All solvent pails used when flushing*, according to local code. Use only *metal pails*, which are conductive, placed on a grounded surface. Do not place the pail on a non-conductive surface, such as paper or cardboard, which interrupts the grounding continuity.
 - a. *To maintain grounding continuity when flushing or relieving pressure*, always hold a metal part of the gun firmly to the side of a grounded *metal pail*, then open the ON/OFF lever.

Rushing Safety

To reduce the risk of injection injury, static sparking or splashing follow the Pressure Relief Procedure on page 2, and remove the spray tip before flushing. Hold a metal part of the gun firmly to the side of a grounded *metal pail* and use the lowest possible fluid pressure during flushing.

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.

Hose Grounding Continuity

Proper hose grounding continuity is essential to maintaining a grounded spray 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 limit, replace it immediately. An ungrounded or poorly grounded hose can make your system hazardous. Also, read **FIRE OR EXPLOSION HAZARD, above**.

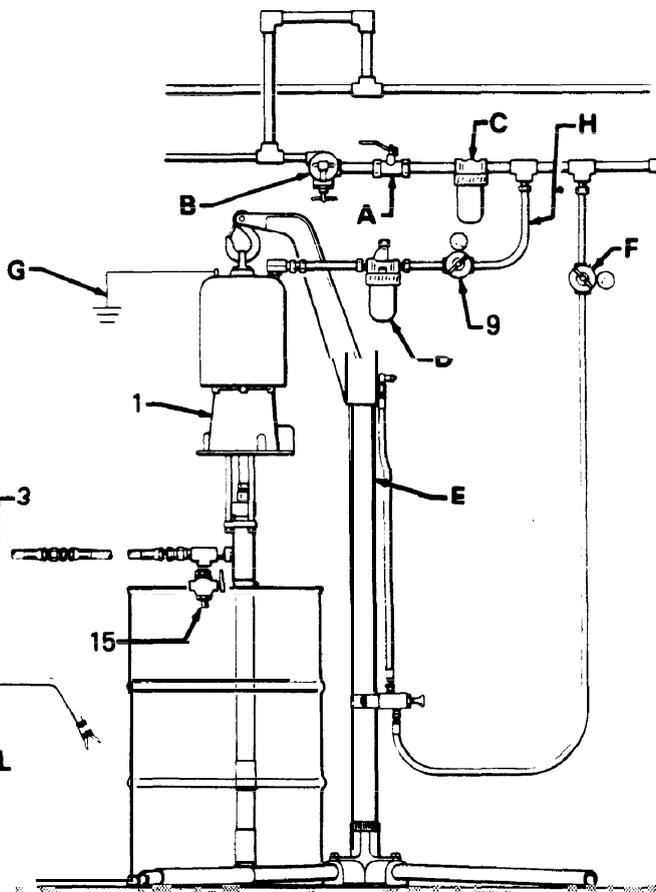
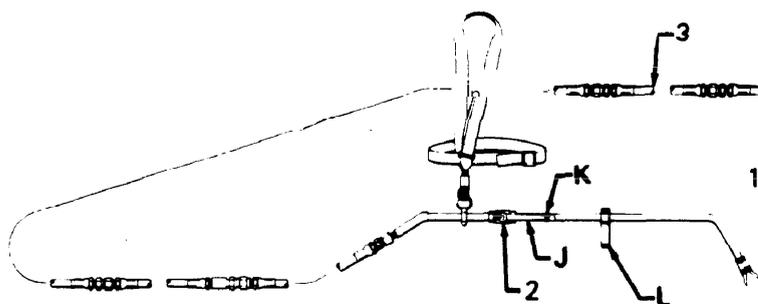
IMPORTANT

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

KEY

- A Bleed-type Master Air Valve
- B Pump Runaway Valve
- C Air Line Filter
- D Air Line Oiler
- E Pump Elevator
- F Elevator Regulator
- G Ground Wire
- H Grounded Air Supply Hose
- J Pole Gun ON/OFF Lever
- K Pole Gun Safety Ring
- L Pole Gun Grip
- 1 22:1 Senator Pump
- 2 Mastic Pole Gun
- 3 Grounded Fluid Hose
- 9 Pump Air Regulator
- 16 Fluid Drain Valve



INSTALLATION

NOTE: The reference numbers and letters in parentheses in the text refer to the callouts in the drawings and the parts list.

The accessories mentioned are shown on page 7.

WARNING

For your safety in installing, operating and servicing this system, thoroughly read and follow all warnings and instructions given in this manual and in any other manuals supplied with this system or any accessories you add to the system. If a Graco manual is missing or you need additional copies, copies are available at no charge from Graco Inc.

Manual	Component
307-718	Displacement Pump
307-717	22:1 Senator Pump
307-656	Airless Mastic Sprayer
307-655	Airless Mastic Pole Gun
307-692	Air Regulator Kit

Grounding

Be sure your entire system is properly grounded before spraying. Read the warning section FIRE OR EXPLOSION HAZARD on page 3 and ground the system as explained there.

System Accessories

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

Mount the pump as needed for your installation. Refer to the separate instruction manuals provided with your mounting equipment.

WARNING

A bleed-type master air valve (A) is required in your system to help reduce the risk of serious bodily injury, including injury from fluid injection, splashing in the eyes or moving parts, if you are adjusting or repairing any part of the system. This valve stops the air supply to the pump motor and relieves the air from the motor so the pump cannot cycle unexpectedly.

NOTE: Use thread sealer on all male threads except at swiveis which must remain free to move.

Install the air line accessories in the approximate order shown in the Typical Installation drawing. Install the bleed-type master air valve (A) within easy to reach of the pump. A pump runaway valve (B) installed on the air line senses when the pump is running too fast and automatically shuts off the air supply to the motor. An air line filter (C) removes harmful dirt and moisture from your compressed air supply. For automatic air motor lubrication, install an air line oiler (D) close to the pump air inlet. An air regulator and gauge kit (9) is supplied with the system.

Install the fluid drain valve (15) and related plumbing as shown in the Typical Installation. The drain valve is required to help relieve the fluid pressure in the pump and hose during shut down.

Install the union (5) after the drain valve plumbing. Then install the four 50 ft (15 m) lengths of hose, using a swivel union (6) between each hose. Install the adapter (7) and swivel (8), and then install the 2 5 ft (7.6 m) hose. Attach the pole gun to the hose.

DO NOT INSTALL A SPRAY TIP UNTIL THE SYSTEM IS PRIMED.

See instruction manual 307-655 for strapping on, adjusting, and operating the pole gun.

OPERATION

WARNING

For **your safety**, always follow the Pressure Relief Procedure on page 2 when shutting off the system, when you stop spraying, and before checking, servicing, installing cleaning or changing the spray tip or any part of the system.

WARNING

To reduce the risk of serious bodily injury, including fluid injection and splashing in the eyes, always read and follow these important steps when operating this pole gun.

1. Keep your fingers, hand and body away from the spray tip, and nozzle.
2. Always follow the Pressure Relief Procedure on page 2 before checking; cleaning or changing a spray tip.
3. Do not wipe buildup off of the tip guard until pressure is fully relieved.
4. Always fully open or fully close the ON/OFF lever. Any other position will quickly damage the valve seat, and the ON/OFF ball valve may not be able to completely stop the flow of fluid when closed.

To open the pole gun ON/OFF lever (J), slip the safety ring (K) off the lever and pull the lever completely back, toward yourself. See Fig 2.

To close the pole gun ON/OFF lever (J), push the lever completely forward, toward the tip, and slip the safety ring (K) over the lever. See Fig 2.

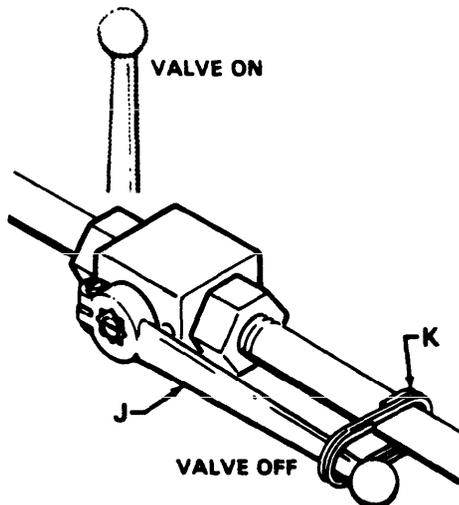


Fig 2

5. When this gun is pressurized, opening the ON/OFF lever releases high pressure fluid suddenly which causes the front end of the pole gun to pull up or "kickback". To reduce the effect of the kickback, **always** grasp the grip (L) firmly with one hand, be sure you have a good footing, and open the ON/OFF lever with your other hand. See the Typical Installation drawing, page 4.
6. Before starting the pump, be sure the ON/OFF lever is closed. Turn on the air to the pump to the minimum air pressure needed. Hold a metal part of the pole gun firmly to the metal supply drum, with the nozzle pointed back into the drum, and then open the ON/OFF lever. Run the pump slowly until the entire system is primed and all air has been pushed out of the pump and hoses. Close the pole gun ON/OFF lever and follow the Pressure Relief Procedure on page 2.
7. With the pressure fully relieved, install the spray tip.
8. Use the air regulator (9) to control pump speed, but do not exceed 100 psi (6.9 bar) air pressure to the pump. Higher air pressure will cause the pump to exceed its maximum recommended working pressure of 2200 psi (154 bar).
9. **Do not let the pump run dry!** A dry pump quickly accelerates, which can cause damage to the pump. If your pump is running too fast, stop it immediately. Refill the drum or change drums. Prime the system and be sure to get all air out of the system. The pump runaway valve (B) recommended in the Installation section senses when the pump is running too fast and stops the pump before it can damage itself.

Corrosion Protection

CAUTION

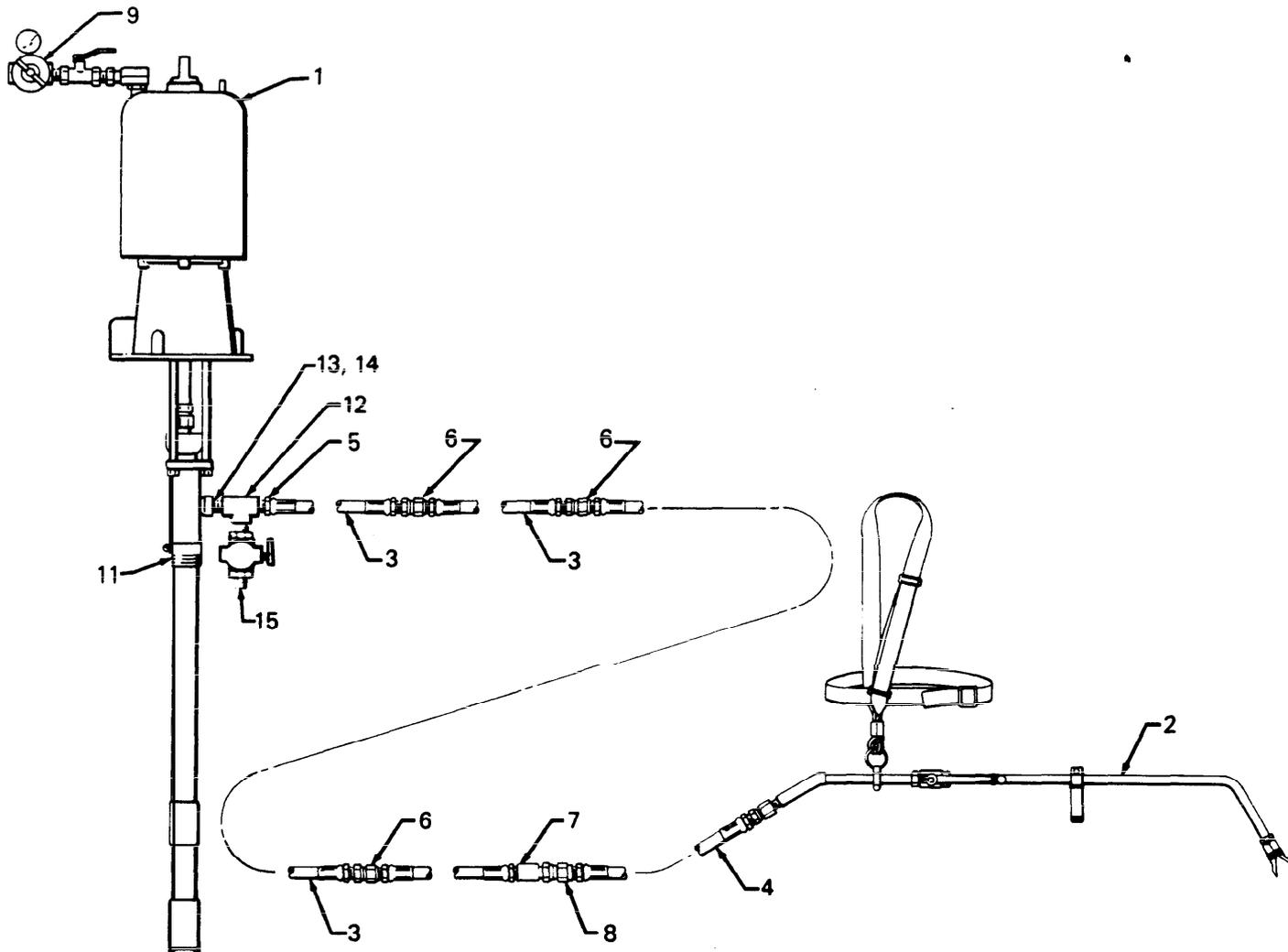
Water, or even moist air, can cause your pump to corrode. To help prevent corrosion, NEVER leave the pump filled with water or air. After normal flushing, flush the pump again with mineral spirits or oil-base solvent, relieve pressure and leave the mineral spirits in the pump. Be sure to follow all steps of the Pressure Relief Procedure on page 2.

SERVICE

Refer to your separate component instruction manuals for maintenance, troubleshooting and repair instructions.

PARTS DRAWING

Model 218-690, Series A
22:1 Ratio Senator
Airless Mastic System



REF PART NO. NO.	DESCRIPTION	QTY	REF PART NO. NO.	DESCRIPTION	QTY
1	218-611 22:1 Ratio Senator Pump Series A	1	218-691	AIR REGULATOR INSTALLATION KIT; See manual 306-972 for parts	1
2	218-688 MASTIC POLE GUN	1	11	203-156 CLAMP, pump	1
3	218-689 HOSE, Buna-N, 3/4" ID, coupled 3/4 npt(mbe); 50' (15 m) long	4	12	102-278 TEE, pipe, steel, 3/4 npt(m) x 3/4 npt(f)	1
4	214-963 HOSE, Buna-N, 1/2" ID, coupled 1/2 npt(mbe); 25' (7.6 m) long	1	13	107-245 UNION, straight; 3/4 npt(m) x 3/4 npsm(f) swivel	1
5	202-965 UNION, adapter, straight; 3/4 npsm(f) x 1" npt(m)	1	14	102-281 BUSHING, pipe; 3/4 npt(m) to 3/8 npt(f)	1
6	156-172 UNION, adapter, straight; 3/4 nps(f) swivel x 3/4 npt(f)	3	15	210-658 BALL VALVE; 3/8 npt(mbe)	1
7	168-595 ADAPTER, 3/4 npt(f) x 1/2 npt(m)	1	307 numbers in descriptions refer to separate instruction manuals.		
8	155-865 UNION, adapter, 1/2 npt(f) swivel x 1/2 npt	1	Order parts by name and series letter of the assembly for which you are ordering.		

ACCESSORIES (Must be purchased separately)

AIR LINE FILTER

250 psi (17.5 bar) MAXIMUM WORKING PRESSURE

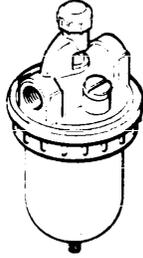
- 106-149 1/2 npt inlet & outlet
- 106-150 3/4 npt inlet & outlet



AIR LINE OILER

250 psi (17.5 bar) MAXIMUM WORKING PRESSURE

- 214-848 1/2 npt inlet & outlet
- 214-849 3/4 npt inlet & outlet

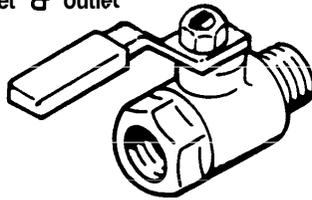


BLEED-TYPE MASTER AIR VALVE (REQUIRED)

300 psi (21 bar) MAXIMUM WORKING PRESSURE

Relieves air trapped in the air line between the pump air inlet and this valve when closed.

- 107-141 3/4 npt(m x f) inlet & outlet
- 107-142 1/2 npt(m x f) inlet & outlet



AIR REGULATOR 203-716

300 psi (21 bar) MAXIMUM INBOUND AIR PRESSURE

0-20 psi (0-1.4 bar) Regulated Pressure Range

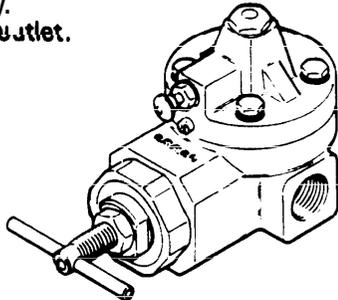
1/2 npt(m) inlet, 3/8 npt(m) outlet



PUMP RUNAWAY VALVE 215-362

Shuts off air to Dump 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.



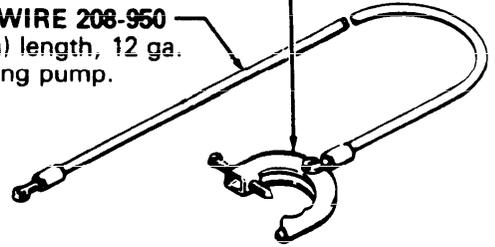
TSLT-HKQAT SEAL LIQUID

Non-evaporating liquid for wet cup.

- 206-995 1 quart (0.9 liter)
- 206-996 1 gallon (3.8 liter)

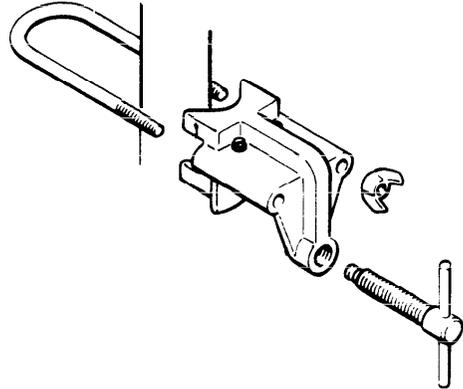
GROUNDING CLAMP 103-538

GROUND WIRE 208-950
25 ft (7.6 m) length, 12 ga.
For grounding pump.



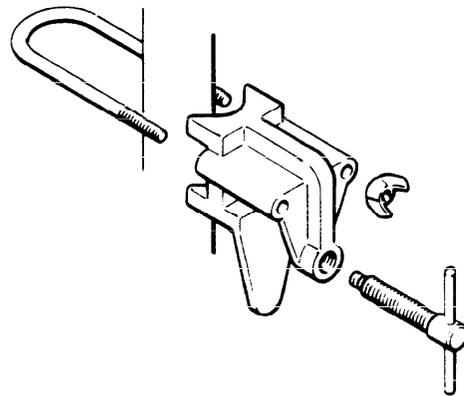
STURDI-CLAMP 218-702

For mounting Senator bung pump on closed head drum.



STURDI-CLAMP 203-156

For mounting bung pump to side of open drum.

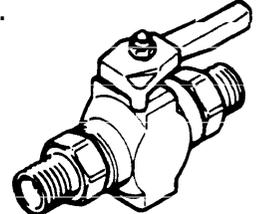


HIGH PRESSURE BALL VALVES, Viton Seals

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)



SWIVEL 207-947

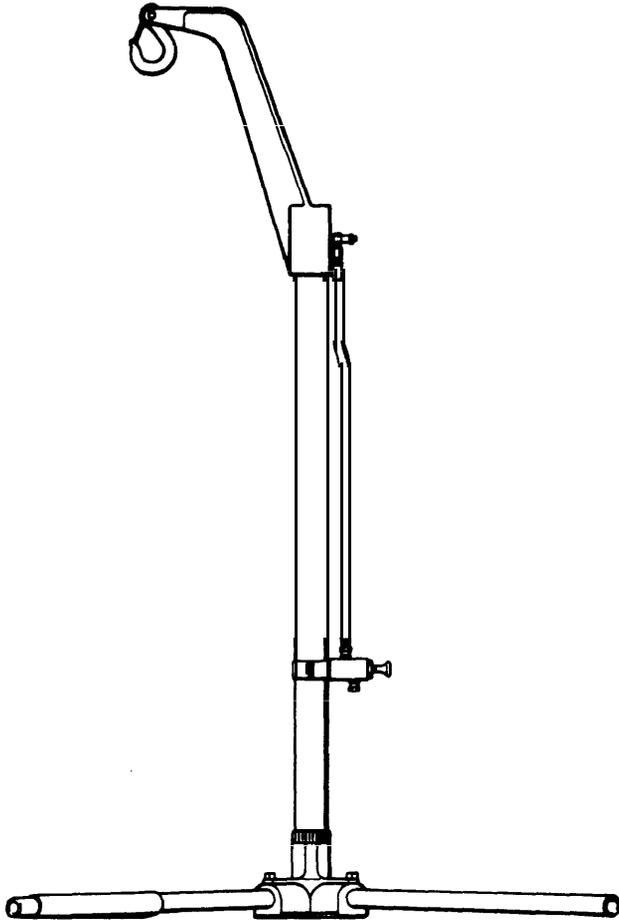
3000 psi (210 bar) MAXIMUM WORKING PRESSURE



AIR-OPERATED PUMP ELEVATOR 218-704

50 psi (3.4 bar) MAXIMUM AIR PRESSURE

100 lb (45 Kg) Maximum Lift Weight



GROUNDING MASTIC FLUID HOSE
2250 psi (155 bar) MAXIMUM WORKING PRESSURE

Hose No.	ID	Coupling Thread & Type	Inner Tube Material	Length
218-689	3/4 in.	3/4 npt(mbe)	Buna-N	50 ft (15.2 m)

3500 psi (240 bar) MAXIMUM WORKING PRESSURE
 Spring guards on both ends

Hose No.	ID	Coupling Thread & Type	Inner Tube Material	Length
214-962	1/2 in.	1/2 npt(mbe)	Buna-N	15 ft (4.6 m)
214-963	1/2 in.	1/2 npt(mbe)	Buna-N	25 ft (7.6 m)
214-964	1/2 in.	1/2 npt(mbe)	Buna-N	50 ft (15.2 m)

GROUNDING BUNA-N AIR SUPPLY HOSE
775 psi (12 bar) MAXIMUM WORKING PRESSURE

Part No.	ID	Length	Thd. Size
208-610	3/4" (19 mm)	6 ft (1.8 m)	3/4 npt(m)
205-548	3/4" (19 mm)	15 ft (4.5 m)	3/4 npt(m)
208-611	3/4" (19 mm)	25 ft (7.6 m)	3/4 npt(m)
208-612	3/4" (19 mm)	50 ft (15 m)	3/4 npt(m)

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 the costs of parts, labor and transportation.

DISCLAIMERS AND LIMITATIONS

~~THE TERMS OF THIS WARRANTY CONSTITUTE THE 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, ANY 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.

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