INSTRUCTIONS - PARTS LIST 684-027

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

LINE X

Air Powered

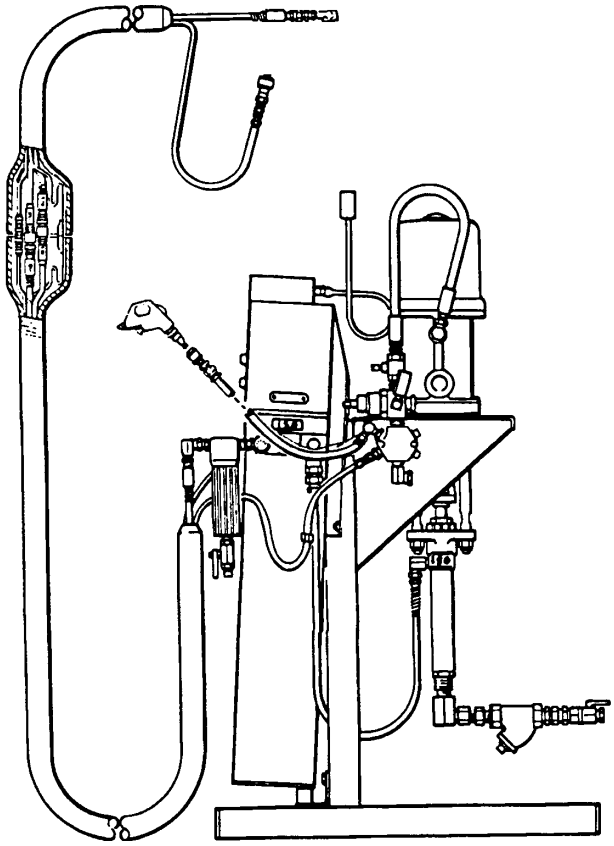
LX2000 SPRAYER

3000 PSI (207 bar) MAXIMUM WORKING PRESSURE
240 Volt, 1 or 3 Phase, 50/60 Hertz

Delivery
7.5 lb/min at 48°F temperature rise
(3.88 Kg/min at 27°C temperature rise)

Power Requirements
Electrical: 240 Volt Maximum
208 Volt Minimum
Single phase:
37 Amps with 315' (91.4m) hose
Three phase:
27 Amps with 315' (91.4m) hose

Compressed Air: 80-120 psi
(5.6-8.3 bar)
30 CFM (0.84 m^3/min)



Model 973-005 includes:
- Heater and heated hose controls
- President plural component pump
- Pump stand
- 50' (15m) 3/8" ID heated hose
- 15' (4.6m) 1/4" ID heated whip hose
- (2) 1:1 55 gallon feed pumps
- (1) Helix agitator

WARNING

Reactive Chemical Hazard
Graco Inc. does not manufacture or supply any of the reactive chemical materials 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 the user should determine all facts relating to the materials used, including any of the 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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INTRODUCTION

For your personal safety and optimum equipment performance, all users of this equipment must thoroughly read and understand all warnings and instructions in each component manual before using this manual, 973-005, as a guide for installing and operating a complete LX2000 Sprayer. Each component manual contains “fine tuning” information and pertinent safety information which is essential for optimum equipment performance.

This manual also contains instructions for installing and using several recommended accessories. If any recommended accessory is not used, just move on to the next section of the manual. If you are using other similar accessories, refer to the instructions received with that equipment. Graco accessories are listed on the back cover.

Terms

RES and **ISO** refer to the foam chemicals Resin and Isocyanate, respectively.

Ambient Temperature is the surrounding air temperature.

ATC is the Automatic Temperature Compensator feature of the heater. See manual 308-219 for further information.

WARNING: Alerts user to avoid or correct conditions that could cause bodily injury.

CAUTION: Alerts user to avoid or correct conditions that could damage or destroy equipment.

NOTE: Identifies helpful procedures and information.

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 equipment generates very high fluid pressure. Spray from the 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 or on the skin can cause serious damage.

NEVER point the spray gun at anyone or at any part of the body.
NEVER put hand or fingers over the spray tip. NEVER try to "blow back" paint; this is NOT an air spray system.

ALWAYS have the tip guard in place on the spray 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 stop or deflect leaks with your hand or body.

Be sure 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 in 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.*

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

Safety Latch
Whenever you stop spraying, even for a moment, always set the gun safety latch in the closed or "safe" position, making the gun inoperative. Failure to set the safety latch can result in accidental triggering of the gun/valve.

Trigger Guard
Always have the trigger guard in place on the gun when spraying to reduce the risk of accidentally triggering the gun if it is dropped or bumped.

Nozzle Safety

Use extreme caution when cleaning or changing nozzles. If the spray gun clogs while spraying, engage the gun safety latch 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 gun safety latch/knob is engaged.

Pressure Relief Procedure
To reduce the risk of serious bodily injury, including fluid injection, splashing fluid or solvent in the eyes or on the skin, or injury from moving parts or electric shock, always follow this procedure whenever you shut off the sprayer, when checking or servicing any part of the spray system, when installing, cleaning or changing spray tips, and whenever you stop spraying.

1. Engage the spray gun trigger safety latch
2. Turn off the air to the feed pumps.
3. Turn off the air to the proportioning pump.
4. Close the gun manifold needle valves.
5. Disengage the trigger safety latch, trigger the gun, to relieve pressure, and engage the trigger safety again.
6. Open both fluid filter drain valves, having a container ready to catch the draining fluid.
7. If you are working on any part of the heater, shut off the main electrical power to the heater.

EQUIPMENT MISUSE HAZARD

General Safety

Any misuse of the spray equipment or accessories, such as overpressurizing, modifying parts, using incompatible fluids and chemicals, 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.

Read and follow the fluid and solvent manufacturers recommendations regarding the use of protective clothing and equipment.

System Pressure

This system has a 3000 PSI (207 bar) MAXIMUM WORKING PRESSURE. Be sure that all spray equipment and accessories are rated to withstand the maximum working pressure of this heater.

DO NOT exceed the maximum working pressure of any component or accessory used in the system.

Be sure that all spray equipment and accessories are rated to withstand the maximum working pressure of this system.

NEVER install any fluid shut off device at the fluid outlet of either heater or filter. Shutting off the fluid at the outlet causes high back pressure which can cause component rupture and result in serious bodily injury.

Fluid Compatibility

BE SURE that all fluids and solvents 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.

HOSE SAFETY

The operating and safety features of the heater used in this system are designed to be used in this system are designed to be used only with Graco heated hoses. Models **218-613** and **218-614**. NEVER attempt to connect other hoses to this heater.

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 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 spray to be emitted from the coupling.

Never use the hose until the couplings are properly insulated and the hose abrasion cover is in place.

Never operate the hose when it is coiled. Do so causes excessive heat buildup which can result in hose rupture and cause serious bodily injury; including injection, and property damage.

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 recouple high pressure hose or mend it with tape or any other device. A repaired hose cannot contain the high pressure fluid.

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).

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 proper 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 sprayer and all other spray equipment used or located in the spray area. CHECK your local electrical code for detailed 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 instructed at the right.
2. *Air hoses:* use only grounded air hoses.
3. *Fluid hoses:* use only grounded fluid hoses.
4. *Heater:* by wiring to a positively grounded power supply. In a mobile installation, be sure the truck or trailer is grounded to a true earth ground. The Ground Fault Interrupter on the hose control panel of the heater will not function unless the heater is positively grounded, and therefore would not sense a fault in the heat tape, which could result in static sparking.
5. *Air compressor or hydraulic power supply:* follow manufacturer's recommendations.
6. *Spray gun:* grounding is obtained through connection to a properly grounded fluid hose and pump.
7. *Object being sprayed:* according to your local code
8. *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.
9. To maintain grounding continuity when flushing or relieving pressure: always hold a metal part of the gun/valve firmly to the side of a grounded metal pail, then trigger the gun/valve.

Electrical Wiring
All electrical wiring should be performed only by trained and qualified personnel, in compliance with all local codes and regulations.

Flushing Safety
Reduce the risk of fluid injection injury, static sparking, or splashing, follow the Pressure Relief Procedure and remove the spray tip (spray guns or spray valves only) before flushing. Hold a metal part of the gun firmly to the side of a metal pail and use the lowest possible fluid pressure during flushing.

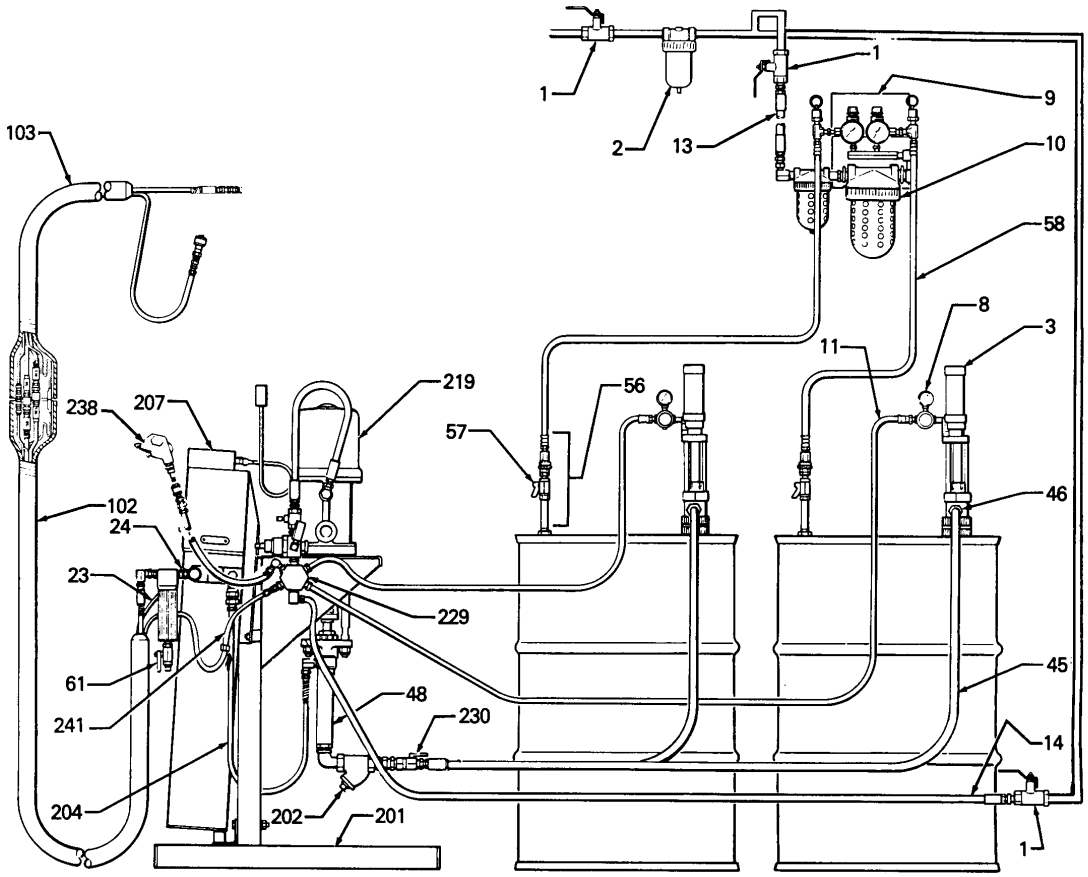
MOVING PARTS HAZARD

Moving parts can pinch or amputate your fingers or other body parts. KEEP CLEAR of moving parts when starting or operating the sprayer. Follow the **Pressure Relief Procedure**, below, before checking or servicing the sprayer to prevent it from starting accidentally.

IMPORTANT

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

TYPICAL INSTALLATION DRAWING



The Typical Installation drawing above is only a guide to show all the components and recommended accessories for LX2000 Sprayer Model 973-005, and the correct routing of all air and fluid hoses. For assistance in getting up a system to suit your needs, contact your Graco representative.

LX2000 Sprayer Component Manuals & Recommended Accessory Manuals

Manual No.	Description
306-989	Plural Component Pump
306-982	Air Motor
307-944	Displacement Pump
307-552	1:1 Ratio Feed Pumps
307-551	Pump Stand
308-219	Heater
307-544	Heated Hose
307-548	Air Dryer
307-692	Solvent Flush Kit
307-273	Fluid Filter
306-861	Check Valve

KEY

1	Master Air Valve	58	Dry Air Hose, Air Dryer
2	Air Line Filter	61	Drain Valve, Heater
3	Feed Pump	102	Heated Hose
8	Air Regulator or Air Valve	103	Heated Whip Hose
9	Air Dryer	201	Pump Stand
10	Air Dryer Ring	202	Y-Line Strainer
11	Air Hose, Feed Pump Kit	204	Fluid Hose, Disp Pump to heater
13	Main Air Supply to Dryer	207	Heater
23	Control Box Cable, Heater	219	Proportioning Pump
24	Fluid Outlet, Heater	229	Air Manifold
45	Feed Hose, Feed Pump to Disp. Pump	230	Intake Valve, Disp. Pump
46	Fluid Outlet, Proportioning Pump, (one of two)	238	Air Blow Gun
48	Displacement Pump	241	Main Air Supply to Hose
56	Drum Fittings, Air Dryer	242	Solvent Flush Kit
57	Shutoff Valve, Drum Fittings		

REFERENCE NUMBERS

Reference numbers in parentheses in the text refer to the parts shown in the Typical Installation drawing, Figures 1 thru 27, and/or the Parts Drawing.

Parts information for reference numbers 1 thru 61 can be found in separate manuals accompanying the sprayer or accessories.

Parts information for reference numbers 101 thru 243 can be found on page 16.

INSTALLATION

1. Secure the sprayer stand (201) to the floor in a suitable location. Refer to the mounting hole diagram in manual 307-551.

2. Install a bleed-type master air shutoff valve (1) on the main air supply line to provide a remote shutoff point for all air-powered components, and a main line fir filter (2) to remove harmful dirt and moisture from the compressed air supply. See the Typical Installation on page 5 and the Accessories on the back cover.

   NOTE: The air to the spray gun must be very clean and dry to avoid contaminating the foam.

CAUTION

To avoid mixing the polyurethane foam chemicals and permanently damaging the hoses, all critical air and fluid connections are clearly labeled ISO or RES. Make only ISO to ISO and RES to RES connections.

3. Install the 1:1 ratio feed pumps (3) in 55 gallon drums of ISO and RES.
   a. Screw the bung adapter (4) and pump tightly into the drum cover. Then tighten the nut (5) firmly to complete the airtight seal. See Figure 1.
   b. Separate the two halves of the ISO/RES identification label (6) along the perforation. Clean the surface of the air motor with solvent and apply the appropriate label (RES or ISO). to identify the chemical being pumped. See Figure 1.
   c. We recommend installing an air regulator near the feed pump air inlet to control pump speed. To install, remove the air valve (8) and use suitable adapters and thread sealer on male threads to install the regulator and pin fitting.

4. Mount the Air Dryer (9) in a suitable location near the ISO and RES drums. See the Typical Installation on page 5. Refer to the mounting hole diagram in manual 307-548.

WARNING

Never pressurize a drum or container that will not withstand 7 psi (0.49 bar) working pressure to reduce the risk of container rupture and serious bodily injury. Never use a damaged drum of ISO or RES with the Air Dryer to reduce the risk of container rupture and serious bodily injury.

   a. Fill the bowl of the desiccant dryer. Unscrew the ring (10) to remove the dryer bowl. Refer to the Typical Installation. Remove the filter form the top of the bowl and fill the bowl with the desiccant crystals provided with the kit. Reinstall the filter and bowl.

5. Connect an air supply hose (11) from the 1/4" npt quick disconnect coupler of each feed pump to the air manifold (229). See the Typical Installation.

6. Connect an air supply hose (13) between the air inlet of the Air Dryer and the main air supply line. See the Typical Installation.

7. Connect a grounded 1/2" minimum ID main air supply line (14) to the air manifold (229). See the Typical Installation.

8. Be sure all air hose connections are tight.

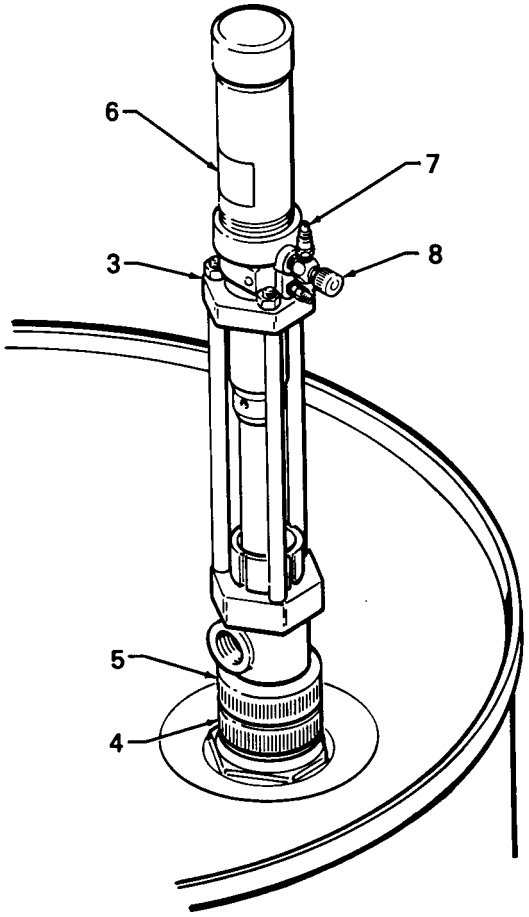


Figure 1

9. Each hose assembly is 50’ (15 m) long. A maximum combined length of 300’ (92 m) can be used, in addition to a 15’ (4.6 m) whip hose assembly.

   The whip hose assembly is smaller in diameter, which makes maneuvering the hose easier for the operator.

   The fluid hoses are marked ISO or RES and are oppositely coupled to prevent incorrect connection, which can cause fluid crossover and permanently damage to thehose. Refer to Figure 1.

Connecting the 50’ (15.2 M) Hoses

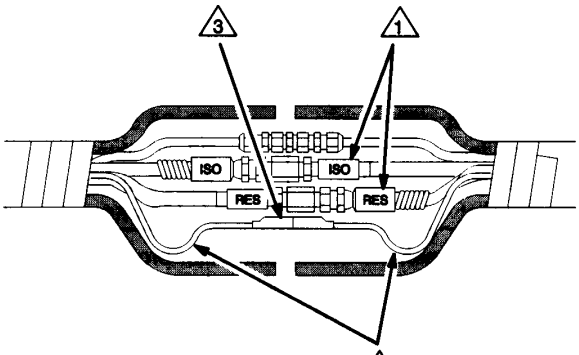
1. **Connect the corresponding fluid hoses** of each 50’ (15.2 m) assembly. See Figure 1.
2. **Gently bend the slack in the heat tape on both sides of the tape connectors** as shown in Figure 1.
3. **Couple the heat tape connectors.**

CAUTION

The bend in the heat tape helps prevent strain on the tape wires at the connectors, which can cause wires to pull loose from the connectors when the hose is moved or coiled.

Do not wrap the heat tape around the hoses as this also causes strain.

4. **Cut the uncoupled air hoses (B)** to a length that will be easy to couple to the next air hose. See Figure 2.
5. **Attach a coupling to the air hose.**
   a. Slide the male end of the sleeve (A) over the hose (B).
   b. Grease the barbed end of the stud (C) and push it into the hose until it seats properly.
   c. Tighten the sleeve onto the fitting until the sleeve bottoms on the fitting.



1 Connect RES and ISO hoses.
2 Bend the slack in heat tape.
3 Couple heat tape connector.

Figure 2

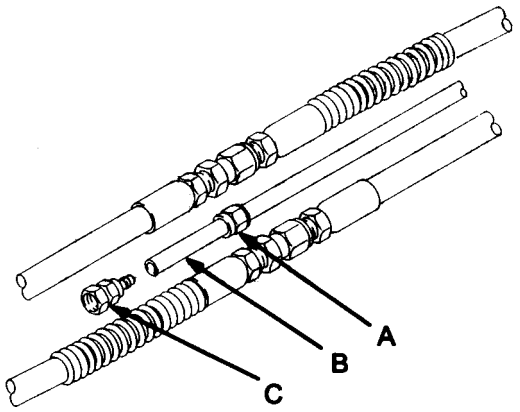


Figure 3

6. **Check the continuity of the heat tapes.**
   a. Use an ohmeter to check the electrical resistance of the two outer prongs of the connector (D) that attaches. to the heated hose control. See Figure 3. The resistance for the various lengths of coupled hose assemblies is given in the following coupled hose chart.

Coupled Hose Length	Resistance Range
315’ (96 m)	11-15 olms
215’ (66 m)	20-25 ohms
115’ (35 m)	37-46 ohms
65’ (20 m)	65-80 ohms
50’ (15.2 m)	84-124 ohms

b. Between the middle and outer prong of the connector, the resistance should be more than 1 megohm. If it is less, there is a fault in one of the connectors (D) or the heat tapes, which will cause the Ground Fault Interrputer of the heater hose control to shut off electric power to the hose. If there is a fault, check each 50' (15.2 m) hose section individually and replace the faulty section.

c. Check the continuity of the middle wire of the connector (D) from one end of the coupled hoses to the other. The resistance should be less than 10 ohms.

d. Check the continuity of the whip hose between the two outer prongs and the outer and middle prongs of the exposed connector as instructed in steps 5a and 5b. The resistance between the outer prongs should be 300 to 400 ohms.

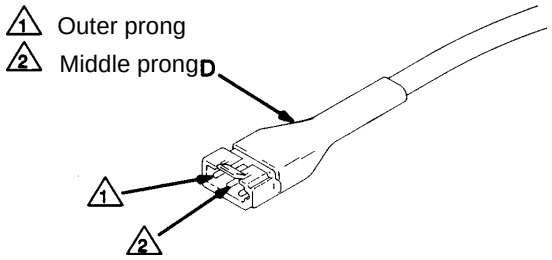


Figure 4

7. **Connect the whip hose to the main hose assembly.**

   a. Connect the corresponding fluid hoses.

   b. Connect the hose electrical connector to the control box cable.

   c. Connect the air hoses. Do not alter the air hose length at this connection. Loop it down from the gun as shown in Figure 5.

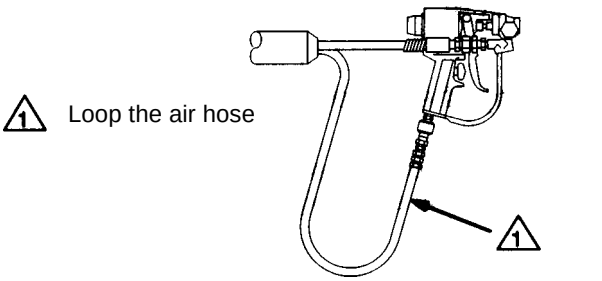


Figure 5

8. Check all hose connections to be sure they are securely tightened.

9. Connect the main hose(s) to the heater and the whip hose to the gun. Refer to the heater instruction manual, 308-219.

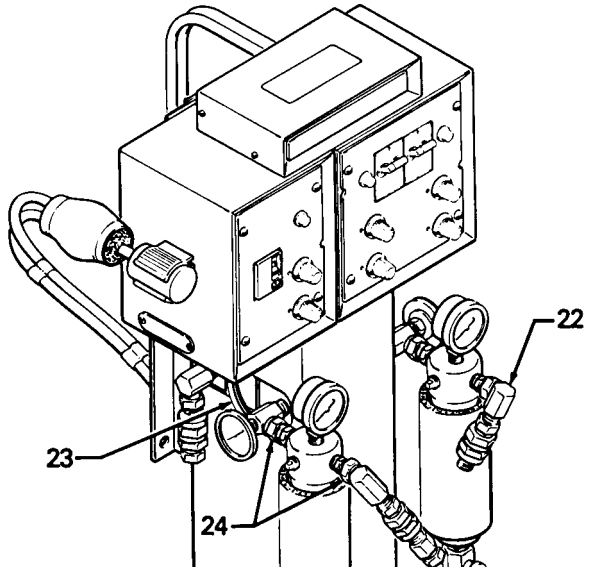


Figure 6

10. Connect the feed hose to the displacement pumps. Slide an identification band (ISO or RES) over the end of each feed hose (45). Connect a feed hose between the feed pump fluid outlet (46) and the 3/4" npt (f) fluid intake valve (202) of each displacement pump (48). Refer to the Typical Installation on page 5.
11. Remove the ATC Sensor (49) from the clamp (50) and locate it outside in air that is typical of the surface to be sprayed. The sensor has a 50' (4.6 m) cable. See Figure 6, page 8.

WARNING

The electrical wiring should be done only by trained and qualified personnel to reduce the risk of serious bodily injury and electric shock.

Observe all local codes and regulations regarding electrical wiring.

13. Wire the electrical service to the heater junction box. The electrical requirements for the heater are shown on the inside cover to the heater junction box.

    The heater is grounded through the electrical wiring to a grounding screw on the inside bottom of the junction box. The proportioning pump must also be grounded to provide adequate system electrical grounding. Refer to Step 14.

13. Ground the system.

WARNING

FIRE, EXPLOSION, AND ELECTRIC SHOCK HAZARD
Before operating the system, ground it as explained in your separate component manuals and local code. Also read the seciong FIRE, EXPLOSION, AND ELECTRIC SHOCK HAZARD.

The heated hose is grounded through connection to a properly grounded heater. In a mobile installation, be sure the truck or trailer is grounded to a true earth ground.

In Europe, the hose continuity must comply with VDC 0100.

To ground the pumps and sprayer:

a. Loosen the grounding lug locknut (55) and washer (52) located on the proportioning pump motor (48). Insert one end of a 12 ga (1.5 mm²) minimum ground wire (53) into the slot in the lug (54) and tighten the locknut securely. See Figure 6.
b. Connect the other end of the wire to a good ground such as a steel building column (check you local code).

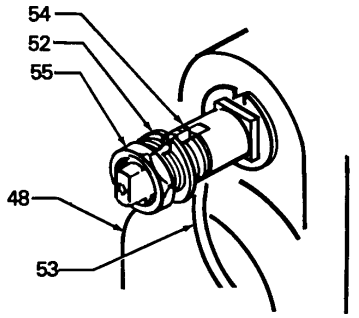


Figure 7

To ground the heater and heated hoses:

c. Wire the heater to a positively grounded power supply in a mobile installation, be sure the truck or trailer is connected to a true earthen ground.
d. Connect the heated hose to a properly grounded heater. The Ground Fault Interrupter on the hose control panel of the Foam-Cat Heater senses electrical continuity in the heated hoses; it cannot function unless the heater is positively grounded. In Europe, hose continuity must comply with VDE 0100.

14. Install the Air Dryer drum fittings (56) in the 3/4" vent port of the corresponding drum of fluid. Close the shut-off valve (57) and connect the corresponding dry air hoses (58). Use only the special pin fitting (59) and coupler (60) to connect the dry air hoses to the drum fittings. Do not use additional lengths of dry air hose. See Figure 6.

WARNING

The special air line pin fitting (59) and coupler (60) are designed to prevent accidentally coupling an unregulated air supply hose to the drum. Unregulated air can overpressurize the drum and cause it to rupture and cause serious bodily injury.

Never substitute a different type of coupler and fitting! Use original Graco parts.

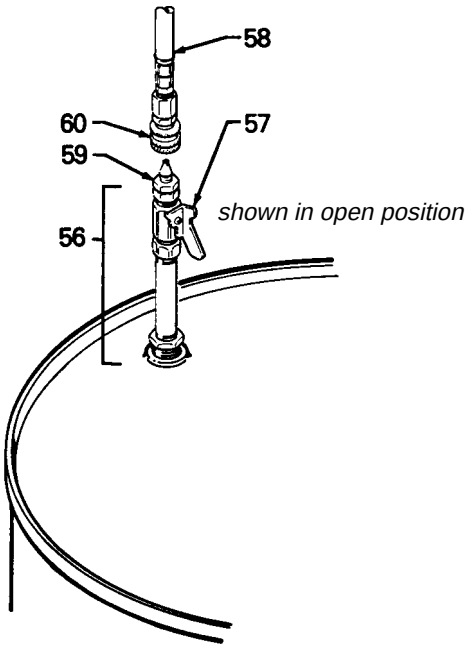


Figure 8

OPERATION

WARNING

Be sure the heater and heated hose circuit breakers (63) are shut off to reduce the risk of electric shock.

First Time Start-Up

1. Prime the sprayer and check for leaks at all fluid connections.
    a. Close the feed pump air inlet valves or regulators (8). See the Typical Installation on page 5.
    b. Close the heater drain valve (61). See the Typical Installation.
    c. Close the air valve (214) to the proportioning pump air motor. Refer to the Typical Installation on page 5.
    d. Fill the displacement pump wet-cup 2/3 full is IPO (ISO pump Oil, supplied).
    e. Open the proportioning pump fluid intake valves (230). Refer to the Typical Installation.
    f. Open the main air line shut-off valve (1). Refer to the Typical Installation.
    g. Adjust the Air Dryer (9). See Figure 8.

WARNING

To reduce the risk of overpressurizing the supply drum or container, which could rupture the drum and cause serious bodily injury and property damage, DO NOT operate the Air Dryer with any part removed.

Do not operate with the restrictor nipple (74) removed. These nipples limit the volume of air to the Air Dryer.

Do not operate with either pressure relief valve (66) removed. These valves relieve air pressure to the drums if it exceeds 5.5 PSI (9.38 bar).

Do not operate with the metal bowl guard (75) removed from the oil filter or desiccant dryer.

1) Set both air regulators (65) to the lowest pressure needed to provide adequate dry air to the supply drums. A setting of 2 PSI (0.14 bar) normally provides enough dry air to the drums.
2) Open the drum shut-off valves (57). Refer to the Typical Installation.
3) To lower the pressure on the gauge, turn the regulator knob counterclockwise and pull up on the pressure relief valve ring (66) until the pressure on the gauge is just below the desired setpoint. Release the ring then turn the knob to the desired pressure. See Figure 9.

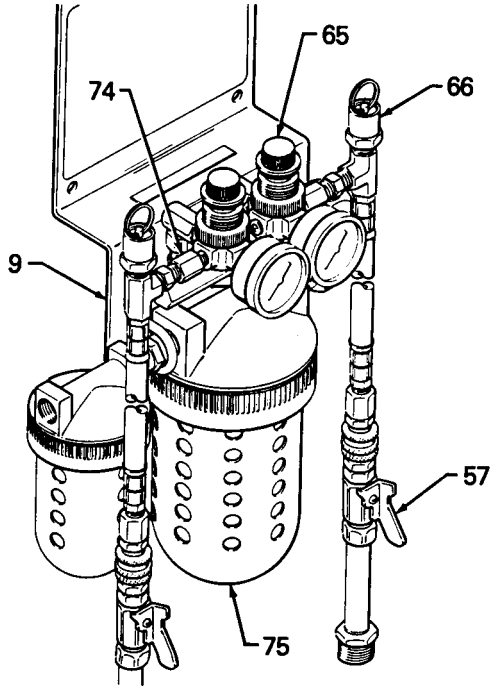


Figure 9

WARNING

If either pressure relief valve (66) is not operating properly, or if the drum pressure ever exceeds 5.5 PSI (0.38 bar), replace the valve immediately. A malfunctioning relief valve can allow the drum to overpressurize and rupture resulting in bodily injury and property damage. Therefore, *never* attempt to repair the valve.

4) Check the pressure relief valves daily.

   To check the relief valves, close the drum shut-off valves (57) and uncouple the air hoses (58) from the pin fitting.

   Increase the air pressure slowly. If pressure is not relieved by 5.5 PSI (0.38 bar), replace the valve.

NOTE: A minimum pressure of 1 PSI (0.07 bar) is needed to open the check valves (67).

h. Open the feed pump air valves (8). Refer to the Typical Installation.

NOTE: Do not reuse the purged material in both waste containers to avoid contaminating your supply drums with test fluid left in the components after factory testing.

i. Adjust the air pressure regulator (212) to the proportioning pump to 50 PSI (3 bar). See the Typical Installation on page 5.
j. Slowly open the air valve (114). This pressurizes the fluid in the sprayer. See the Typical Installation on page 5.
k. Check each fluid connection for leaks. If there are any leaks, relieve the fluid pressure as instructed below and tighten the connection.

WARNING

Pressure Relief Procedure
Always relieve the fluid pressure in the sprayer and hoses before checking or adjusting any part of the system or any component, to reduce the risk of serious bodily injury, including fluid injection, splashing in the eyes or on the skin, or injury from moving parts or electric shock.

1. Engage the spray gun trigger safety latch.
2. Shut off the air to the feed pumps.
3. Turn off the air to the proportioning pump.
4. Close the gun manifold needle valves.
5. Disengage the trigger safety latch, trigger the gun, to relieve pressure, and engage the trigger safety again.
6. Open both fluid filter drain valves, having a container ready to catch the draining fluid.
7. If you are working on any part of the heater, shut off the main electrical power to the

2. Insulate the hose connections.

   a. Wrap electrical tape securely around the fluid and air hose connectors only, so the shart metal edges of the connectors cannot damage the plastic connectors of the heat tapes. See Figure 5.

   b. Tape the heat tape connectors to the air and fluid hose connectors' leave the wires free to move slightly to prevent strain on the wires at the connectors. See Figure 6.

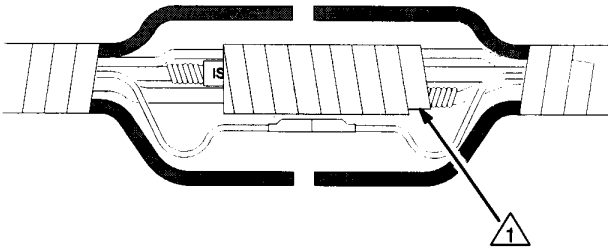
   c. Wrap the insulation tubing (E) around the hose connections, overlapping at the seam. See Figure 7. Wrap the tape (F) continuously around the tubing, beginning and ending about 2 inches (51 mm) past the slit in the insulation.

NOTE: Standard black electrical tape can be used if additional tape is needed to secure the tubing.

WARNING

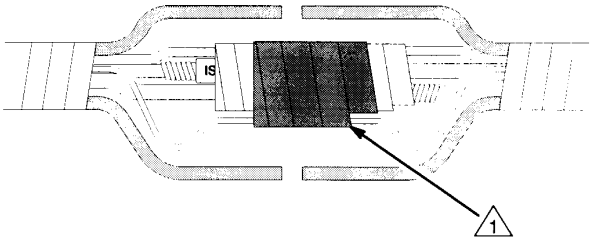
To reduce the risk of serious injury, including fluid injection or electric shock:

- Do not use the heated hoses for spraying without the insulation tubing in place (see step 12) and the abrasioncover installed (see step 13).
- Replace the insulation immediately if any portions of it are worn away.



1 Wrap hose connections with electrical tape

Figure 10



1 Tape heat tape connectors to hose connections with electrical tape

Figure 11

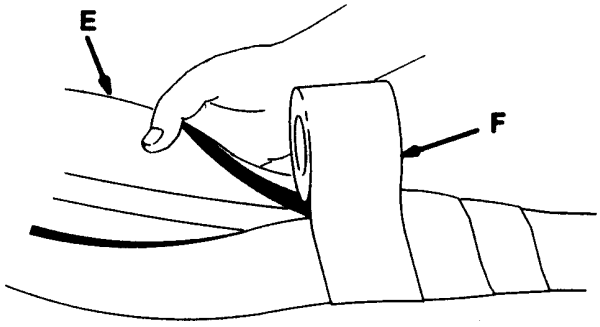


Figure 12

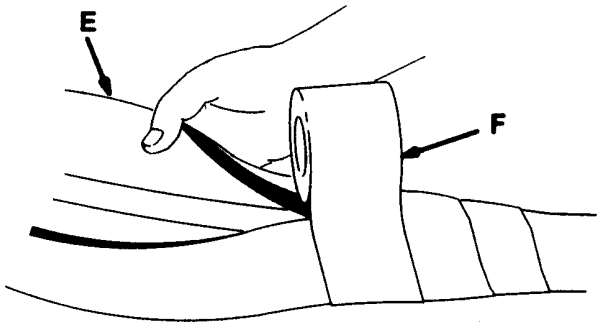


Figure 13

13. **To install the cover:**

    a. Lay the abrasion cover (G) and assembled heated hose (H) end to end. Refer to Figure 14.

    b. With the gun disconnected from the gun manifold (J) and the air hose disconnected from the gun, pull a couple of inches of the cover (G) over the manifold and hoses and tape the cover to the hoses.

    c. Push the cover (G) onto the hoses. See Figure 14. The cover will double over itself and be turned inside out as it slides over the hoses.

    d. Secure the other end of the cover (G) with tape.

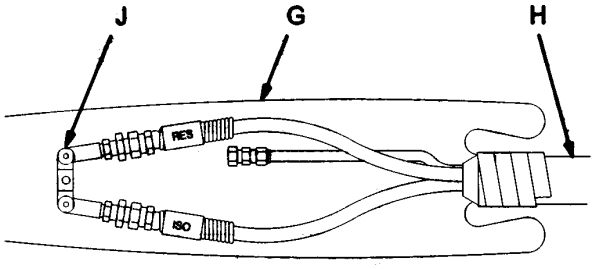


Figure 14

14. **Install hose abrasion cover before spraying.** The abrasion cover protects the heated hose from damage caused by rough surfaces. It also minimizes heat loss and protects the couplings from damage. Order part no. 070-411 and specify the total length of your hose times 1.25.

Routine Sprayer Operation

CAUTION

The heater and sprayer must be primed before turning on the heater to reduce the risk of equipment damage.

Refer to “First Time Startup” on pages 10 through 12 for priming procedure.

NOTE: The first time you operate the sprayer, follow these instructions carefully. Then, as you become familiar with this equipment, you will learn how to quickly adjust the fluid pressure and fluid temperature to obtain the best results for your spray application.

1. Open the main air supply valve (1).
2. Open the main air supply valve and the air valves (8) to the feed pumps (3). See the Typical Installation on page 5.
3. Adjust the air regulator (212) to the proportioning pump motor to 50 PSI (3 bar).
4. Slowly open the air valve (214) to the proportioning pump.
5. Start the heaters. See Figure 15.

WARNING

Never operate the heater with the ATC sensor cord unplugged from the heater junction box. If unplugged, the heater will overheat which can cause overpressurization and rupture and result in serious bodily injury.

    a. Turn all three ATC temperature range selectors (72, 77) to OFF.
    b. Set all three Temp Set dials (73) to 115°F (46°C).
    c. Turn the circuit breakers (63) to “I” for ON.
    d. Let the material heat for 15 minutes.
    e. Set the heated hose ATC (77) to MED.

NOTE: Graco recommends always using the hose ATC even if the heater ATC is not used.

f. The first time you use the heater, operate it without using the heater ATC (72). Check the temperature gauges regularly during the day and adjust the fluid temperature as needed. This will help you determine the right ATC range for the type of foam chemicals you are using.

g. The second day of operation, set both heater ATCs to MED. This range normally provides enough ambient temperature compensation.

NOTE: You will quickly learn what ATC range is the best for your foam chemicals. The chart in Figure 16 can help you determine how wide a range in temperature you need to maintain the proper fluid temperature and viscosity for good foam development.

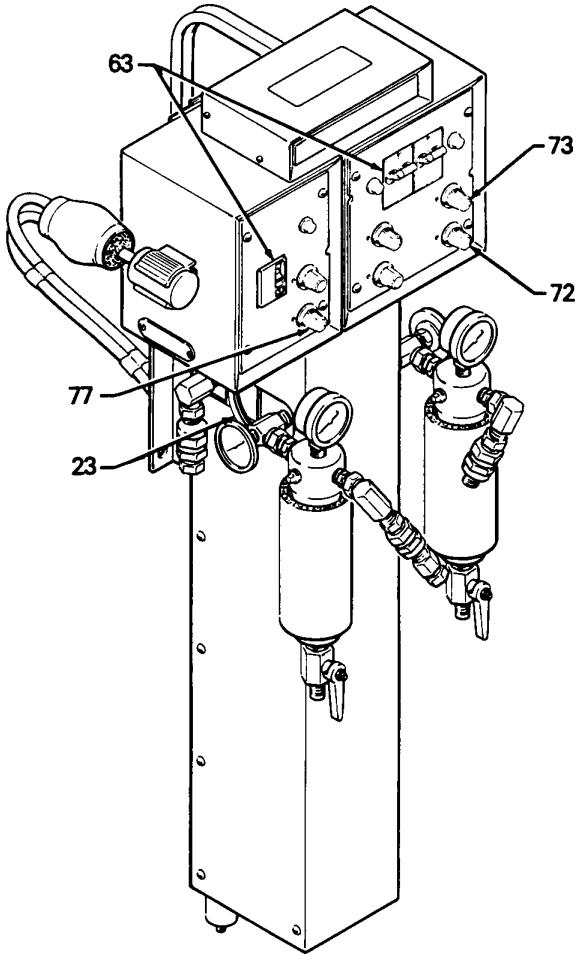


Figure 15

AMBIENT TEMP	* ATC SETTING			
	OFF	MIN	MED	MAX
60°F (15°C)	115°F (46°C)	120°F (49°C)	125°F (52°C)	135°F (57°C)
80°F (15°C)	115°F (46°C)	115°F (46°C)	115°F (46°C)	115°F (46°C)
100°F (38°C)	115°F (46°C)	112°F (44°C)	108°F (42°C)	95°F (35°C)

* With Temp Set at 115°F (46°C).

Figure 16

6. Spray the gun for several seconds, in cold weather, to warm the fluid nozzle.

CAUTION

Open the RES side needle valve first to prevent damage to the nozzle.

WARNING

Pressure Relief Procedure

Always relieve the fluid pressure in the sprayer and hoses before checking or adjusting any part of the system or any component, to reduce the risk of serious bodily injury, including fluid injection, splashing in the eyes or on the skin, or injury from moving parts or electric shock.

1. Engage the spray gun trigger safety latch.
2. Shut off the air to the feed pumps.
3. Turn off the air to the proportioning pump.
4. Close the gun manifold needle valves.
5. Disengage the trigger safety latch, trigger the gun, to relieve pressure, and engage the trigger safety again.
6. Open both fluid filter drain valves, having a container ready to catch the draining fluid.
7. If you are working on any part of the heater, shut off the main electrical power to the heater.

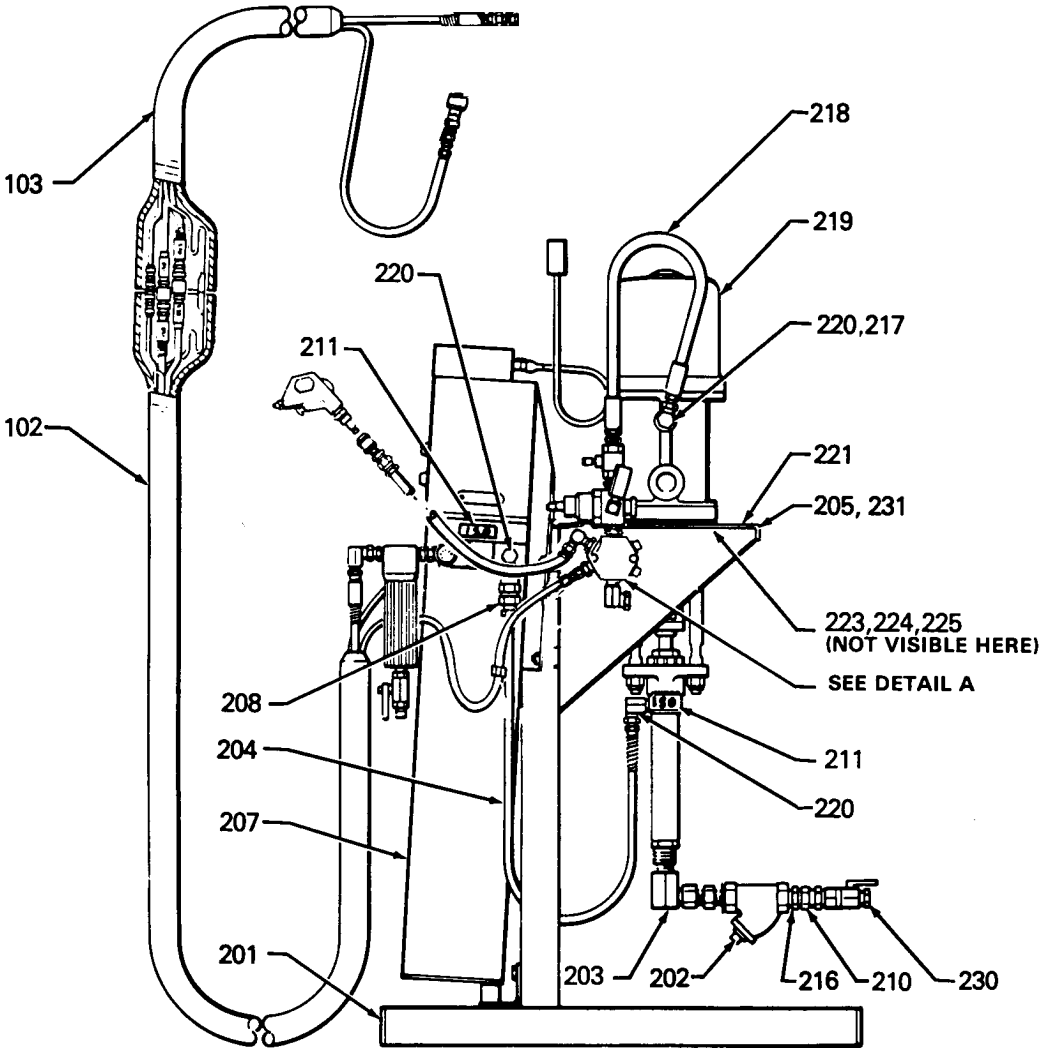
Maintenance

Keep the displacement pump wet-cup 2/3 full of IPO at all times to help protect the pump packings.

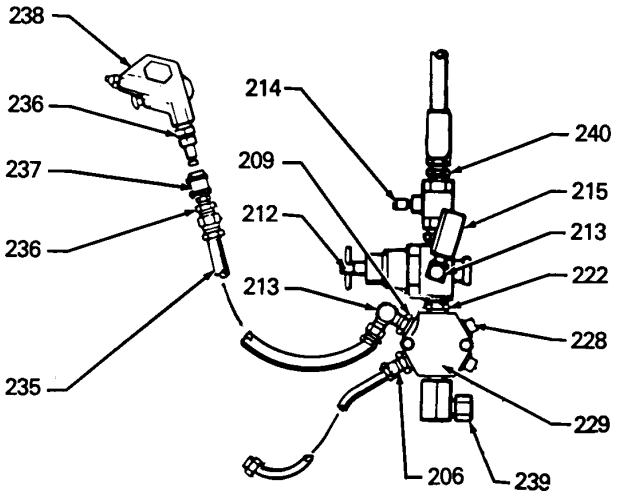
Refer to the separate instruction manual for each system component for routine maintenance and repair procedures.

NOTES:

PARTS DRAWING



Detail A
Air Manifold Connections



PARTS LIST

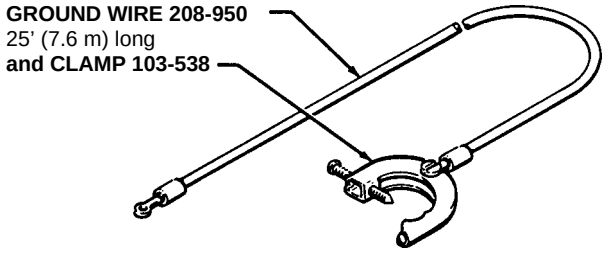
Basic Sprayer Components

REF NO.	PART NO.	DESCRIPTION	QTY
201	217-296	STAND, pump (see 307-551 for parts)	1
202	101-078	STRAINER, “Y”; 20 mesh screen, 3/4” npt (fbe) Includes items 202a	2
202a	180-199	. ELEMENT, filter, 20 mesh screen	1
203	160-327	ADAPTER, union, 90°; 3/4” npt(m) x 3/4” npt (f) swivel	2
204	217-378	HOSE, cpld 3/8” npt (mbe); 3/8” ID; spring guard one end, 2.5’ (780 mm) lg	2
205	180-236	PLATE, serial	1
206	155-571	BUSHING, pipe; 1/2” npt (m) x 1/4” npt (F)	1
207	217-399	HEATER, fluid, 15 lb/min (6.75 kg/min) (See 308-219 for parts)	1
208	206-831	CHECK VALVE, 3/8” npsm (f) swivel x 3/8” npt (m); See 306-861 for parts	1
209	162-449	NIPPLE, reducing; 1/2” to 1/4” npt	1
210	157-785	UNION, swivel, straight; 3/4” npsm (f) swivel x 3/4” npt (m)	2
211	178-600	LABEL, ISO/RES	2
212	104-267	REGULATOR, air; 0-125 PSI (0-10 bar) range; 1/2” npt (f) in/out; two 1/4” npt (f) gauge ports (see 308-167 for parts)	1
213	100-840	ELBOW, 90° street; 1/4” npt (mxf)	1
214	107-142	VALVE, shut-off, vented	1
215	100-960	GAUGE, pressure, air; 9-200 PSI (0-14 bar) range, 1/4” npt (m)	1
216	160-032	NIPPLE, 3/4” npt x 1-7/8” long	2
217	100-081	BUSHING, pipe; 1/2” npt (f) to 3/8” npt (f)	1
218	214-652	HOSE, air; cpld 3/8” npt (mbe) x 1.5’ (457 mm) long	1
219	208-851SP	PUMP, President Plural Component (see 306-989 for parts) Delete 222-012 and add 222-019 Pump Lowers (See 307-944 for parts)	1
220	155-699	ELBOW, street 90°; 3/8” npt (m x f)	3
221	178-471	PLATE, mounting	1
222	158-491	NIPPLE, 1/2” npt x 1-5/8” long	2
23	100-101	CAPSCREW, hex hd; 3/8” npt x 1” long	7
224	100-133	LOCKWASHER, spring; 3/8”	7
225	100-131	NUT, hex, 3/8” npt	4
226	100-333	CAPSCREW, hex head; 1/4” thd x 0.5” (13 mm)	2
227	100-016	LOCKWASHER, spring; 1/4”	2
228	100-737	PLUG, pipe; 1/2” npt	3
229	177-117	MANIFOLD, air; six 1/2” npt (f) ports	1
230	102-735	VALVE, ball; 3/4” npt (fbe)	2
231	102-556	RIVET, blind	2
232	217-374	OIL, pump, ISO; 1 pint (0.46 liter)	1
235	212-005	HOSE, air; 1/4” ID; cpld 1/4” npsm (f) swivel; 3’ 9” (1.1 mm)	1
236	100-030	BUSHING, hex; 1/4” x 1/8” npt	2
237	106-552	COUPLING, air line, quick disconnect	1
238	208-625	GUN, air blow	1
239	155-470	UNION, swivel, 90° 1/2” npt (m) x 1/2” npsm swivel	2
240	158-256	ADAPTER, union; 3/8” npsm (f) swivel x 1/2” npt (m)	1
241	200-118	HOSE, air, 2.6’ (762 mm) cpld 1/4-18 npt	1
242	218-669	SOLVENT FLUSH KIT (see 307-692)	1
243	100-509	PLUG, pipe, 1/4-18 npt (f)	1

See “How To Order Replacement Parts” on page 18.

ACCESSORIES

(Must be purchased separately)



AIR FILTER 106-148

250 psi (17.5 bar) MAXIMUM WORKING PRESSURE
Separates harmful moisture and contaminants from the compressed air supply. (See Manual 308-169).
1/2" npt (fbe)

AIR SHUT-OFF VALVE 103-344

500 psi (35 bar) MAXIMUM WORKING PRESSURE
Bleed type valve for shutting off main air supply to spray system. 3/4" size.

AIR DRYER KIT 217-341

150 psi (0.49 bar) MAXIMUM AIR INLET WORKING PRESSURE
Provides clean, dry air to two supply drums of polyurethane foam chemicals to prevent crystallization of isocyanate and Freon loss in Resin. (See manual 307-548).

1:1 RATIO FEED PUMPS 226-946
1:1 RATIO FEED PUMP KIT 217-381

180 psi (12 bar) MAXIMUM WORKING PRESSURE
These feed pumps, which have an airtight bung adapter, supply polyurethane foam chemicals from supply containers to proportioning pumps. The Feed Pump Kit includes an Air Dryer 217-394, two feed hoses, three air hoses and related fittings. (See manual 307-552).

ISO PUMP OIL

Helps protect displacement pump throat packings

217-374 1 pint (0.47 liter)
(See manual 307-767)

218-656 1 gallon (3.8 liter)
(See manual 307-767)

HOSE ABRASION COVER 070-411

Protects heated hose from damage caused by rough surfaces. Specify length needed times 1.125 when ordering.

AIR REGULATOR and GAUGE 206-199

(See manual 308-768 for air regulator only)
300 psi (21 bar) MAXIMUM WORKING PRESSURE
10-125 psi (1-9 bar) REGULATED PRESSURE RANGE
1/2" npt (f) inlet and outlet.

HOW TO ORDER REPLACEMENT PARTS

1. To be sure you receive the correct replacement parts, kit 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

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 or two thousand hours of operation from time 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 to an authorized Graco distributor for verification of the claim. 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 includes 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 production 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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