

Instructions



AIR POWERED, 240 Volt, 1 or 3 Phase, 50/60 Hz

FOAM-CAT[®] 200 SPRAYER 307542 rev.G

1500 psi (10.5 MPa, 105 bar) Maximum Working Pressure



Read warnings and instructions.
See page 4 for warnings.

Model 226991 Includes:

- Foam-Cat Heater and Heated Hose Controls
- President Plural Component Pump
- Pump Stand
- 50 feet (15 m), 3/8 inch I.D. Heated Hose
- 15 feet (4.6 m), 1/4 inch I.D. Heated Whip Hose
- Spray Gun with 0.083 inch (2.11 mm) Diameter Nozzle Kit

Model 230965

- Same as Model 226991 Sprayer except does not include the 50 foot or the 15 foot heated hose.

Delivery

15 lb/min. at 48° F temperature rise
(6.75 kg/min. at 27° C temperature rise)

Power Requirements

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

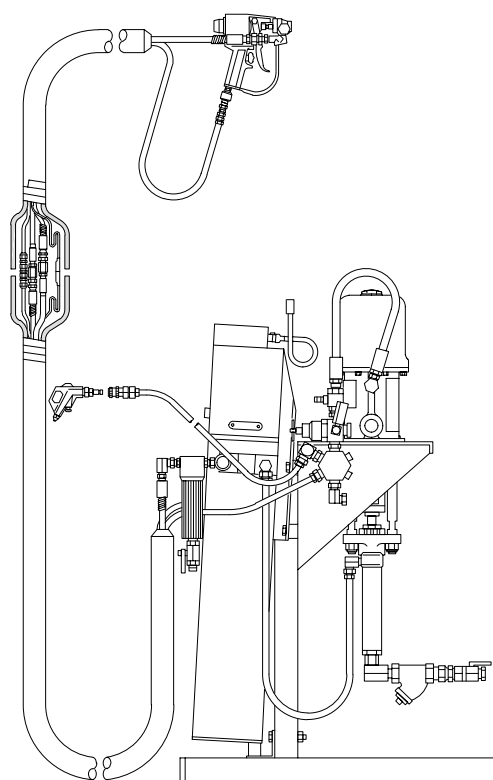
Generator (Optional): See Heater Manual 308219 for size.

Compressed Air: 80–120 psi (560–830 kPa,
5.6–8.3 bar) 30 CFM (0.84 m³/min)

15 lb/min at 48° F temperature rise
(6.75 kg/min at 27° C temperature rise)

Certification

The heater and heated hoses
are CSA certified.



4369B

PROVEN QUALITY. LEADING TECHNOLOGY.



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Notes

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Symbols

Warning Symbol



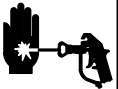
This symbol alerts you to the possibility of serious injury or death if you do not follow the instructions.

Caution Symbol



This symbol alerts you to the possibility of damage to or destruction of equipment if you do not follow the instructions.

WARNING



INJECTION HAZARD

Spray from the spray gun, hose leaks or ruptured components can inject fluid into your body and cause extremely serious injury, including the need for amputation. Splashing fluid in the eyes or on the skin can also cause serious injury.

- Fluid injected into the skin might look like just a cut, but it is a serious injury. **Get immediate medical attention.**
- Do not point the spray gun at anyone or any part of the body.
- Do not put hand or fingers over the spray tip.
- Do not stop or deflect fluid leaks with your hand, body, glove or rag.
- Do not “blow back” fluid; this is not an air spray system.
- Be sure the spray gun trigger safety operates before operating the gun.
- Lock the spray gun trigger safety when you stop spraying.
- Follow the **Pressure Relief Procedure** on page 14 when you are instructed to relieve pressure, stop spraying, check, clean or service any system equipment, or install or change spray nozzles.
- Tighten all fluid connections before each use.
- Check the hoses, tubes and couplings daily. Replace worn or damaged parts immediately. Permanently coupled hoses cannot be repaired.
- Handle and route hoses and tubes carefully. Keep hoses and tubes away from moving parts and hot surfaces. Do not use the hoses to pull equipment. Do not expose Graco hoses to temperatures above 180°F (82°C) or below -40°F (-40°C).



MOVING PARTS HAZARD

Moving parts, such as the air motor piston can pinch or amputate fingers.

- Do not operate the equipment with the air motor plates removed.
- Keep your body and tools clear of any moving parts when starting or operating the equipment.

WARNING



FIRE, EXPLOSION AND ELECTRIC SHOCK HAZARD

Improper grounding, poor air ventilation, open flames, or sparks can cause a hazardous condition and result in fire or explosion and serious injury.

- Electrically ground the equipment and the object being sprayed. See **Electrically ground the spray system** on page 12.
- Do not use the heater with flammable liquids, such as those having flash points below 200°F (93°C).
- Never wrap the heat tape in the heated hose around the hoses. Follow all hose assembly instructions to prevent strain on the heat tape.
- Do not expose the heater to rain.
- Do not operate the heater with any covers removed.
- Shut off the heater and heated hose circuit breakers before installing, checking or repairing any part of the heater or heated hoses.
- Provide fresh air ventilation to avoid the buildup of flammable fumes from solvent or the fluid being sprayed.
- Extinguish all the open flames or pilot lights within the spray area.
- Electrically disconnect all the equipment within the spray area.
- Keep the spray area free of debris, including solvent, rags, and gasoline.
- Do not turn on or off any light switch within the spray area while operating or if fumes are present.
- Do not smoke within the spray area.
- Do not operate a gasoline engine within the spray area.
- If there is any static sparking while using the equipment, **stop spraying immediately**. Identify and correct the problem.
- Comply with all applicable local, state and national fire, electrical and other safety regulations.



TOXIC FLUID HAZARD

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

- Know the specific hazards of the fluid you are using..
- Store hazardous fluid in an approved container. Dispose of hazardous fluid according to all local, state and national guidelines.
- Wear the appropriate protective clothing, gloves, eyewear and respirator.
- Graco does not manufacture or supply any of the reactive chemical components that may be used in this equipment and is not responsible for their effects. Graco assumes no responsibility for loss, damage, expense or claims for personal injury or property damage, direct or consequential, arising from the use of such chemical components.

WARNING



INSTRUCTIONS

EQUIPMENT MISUSE HAZARD

Equipment misuse can cause the equipment to rupture, malfunction, or start unexpectedly and result in serious injury, including fluid injection, splashing fluid in the eyes or on the skin, and injury from ruptured parts.

- This equipment is for professional use only.
- Read all instruction manuals, tags, and labels before operating the equipment.
- Use the equipment only for its intended purpose. If you are uncertain about the usage, call your Graco distributor.
- Do not alter or modify this equipment. Use only genuine Graco parts and accessories.
- Check the equipment daily. Repair or replace worn or damaged parts immediately.
- Do not exceed the maximum working pressure of the lowest rated system component. The lever amplification of the secondary pump enables very high fluid pressures to be achieved. To reduce the risk of over pressurizing the equipment, a relief valve is provided on the secondary pump side which is factory set at **1500 psi (103 bar) maximum working pressure**. Do not tamper with this valve adjustment.
- Do not lift pressurized equipment.
- Do not install any fluid shutoff device at the fluid outlet of either heater or filter. Shutting off the fluid at the outlet causes high back pressure.
- Use at least 50 feet (15.2 m) of fluid hose between the fluid outlet and any fluid control device such as a shutoff valve, regulator or spray gun.
- The operating and safety features of this heater are designed to be used only with Graco Foam-Cat® Heated Hoses, Models 218613, 218614, 947514, 947515 and 948723. Never connect other hoses to this heater.
- Do not use the hose until the couplings are properly insulated and the hose abrasion cover is in place.
- Do not operate the hose when it is coiled. A coiled hose causes excessive heat buildup which can result in hose rupture.
- Route the hoses away from the traffic areas, sharp edges, moving parts, and hot surfaces. Do not expose Graco hoses to temperatures above 180°F (82°C) or below -40°F (-40°C).
- Do not use the hoses to pull the equipment.
- Use fluids or solvents that are compatible with the equipment wetted parts. See the **Technical Data** section of all the equipment manuals. Read the fluid and solvent manufacturer's warnings.
- Fluid hoses must have spring guards on both ends to protect them from rupture caused by kinks or bends near the couplings.
- Do not pressurize a supply drum that will not withstand 5.5 psi (0.38 bar) working pressure.
- Do not use a damaged drum of ISO or RES with the Air Dryer.
- Comply with all applicable local, state and national fire, electrical and other safety regulations.

Introduction

Before you use this equipment

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, 307542, as a guide for installing and operating a complete Foam-Cat® 200 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, see the instructions supplied with that equipment.

Terms

RES is the polyurethane foam chemical Resin.

ISO is the polyurethane foam chemical, Isocyanate.

Ambient Temperature is the surrounding air temperature.

ATC is the Ambient Temperature Compensator feature of the Foam-Cat® Heater. See manual 308219 for more information.

If you are using a generator to power your system

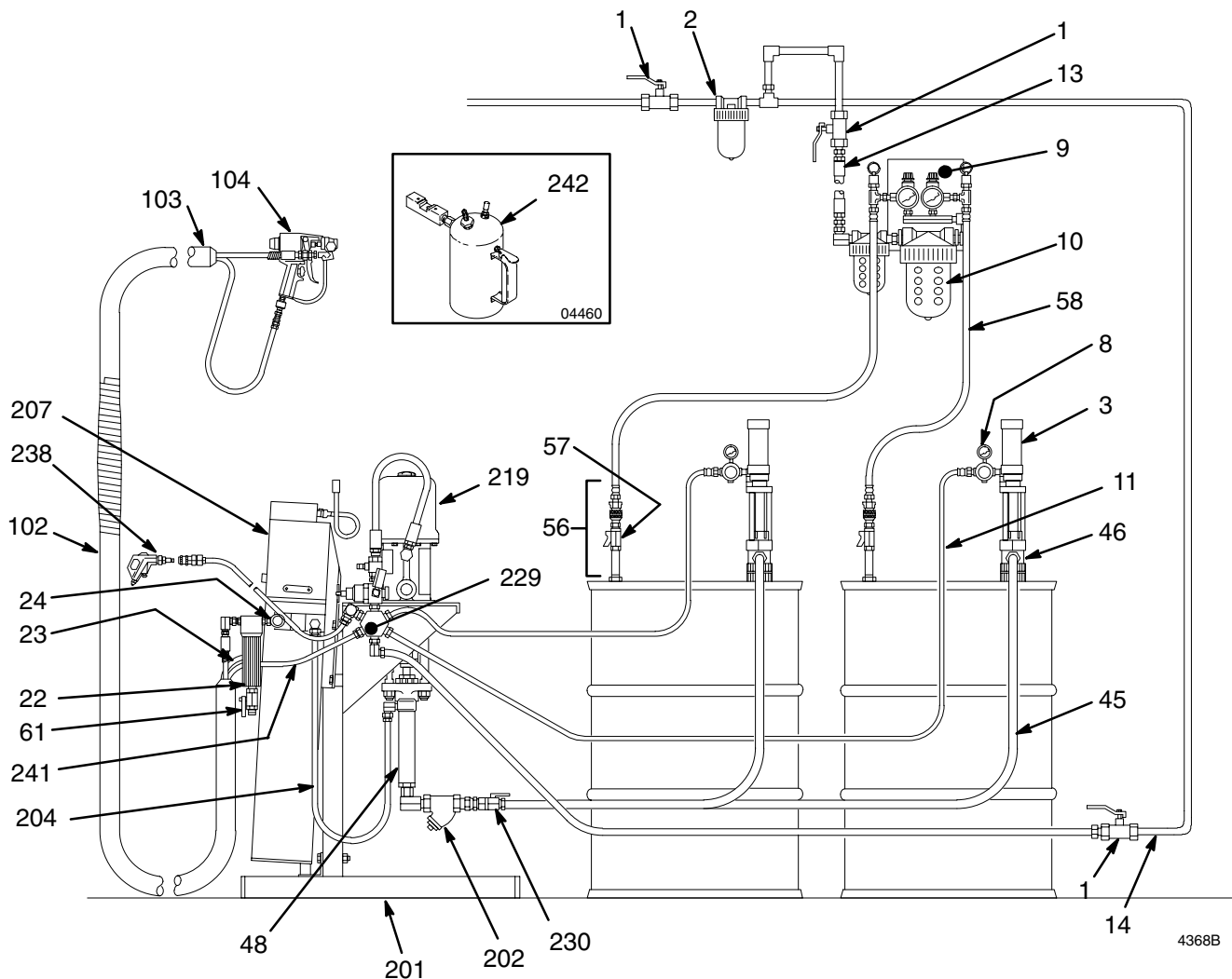
See the Foam-Cat Heater manual, 308219, to determine the correct size.

Component manuals and recommended accessory manuals

Manual No.	Description
306989	Plural Component Pump
307273	Fluid Filter
307430	Displacement Pump
307552	1:1 Ratio Feed Pumps ¹
307551	Pump Stand
307548	Air Dryer ¹
307546	Foam-Cat Gun
307544	Foam-Cat Heated Hose
308167	Regulator
308219	Foam-Cat Heater

¹ Accessory component, order separately.

Installation



KEY

- | | | | |
|------------------------------|---------------------------------|---|-------------------------------------|
| 1 Master Air Valve | 22 Fluid Filter | 58 Dry Air Hose, Air Dryer | 207 Heater |
| 2 Air Line Filter | 23 Control Box Cable, Heater | 61 Drain Valve, Heater | 219 Proportioning Pump |
| 3 Feed Pump | 24 Fluid Outlet, Heater | 102 Heater Hose | 229 Air Manifold |
| 8 Air Regulator Or Air Valve | 45 Feed Hose, Feed Pump | 103 Heated Whip Hose | 230 Intake Valve, Displacement Pump |
| 9 Air Dryer | 46 Fluid Outlet, Feed Pump | 104 Foam-Cat Gun | 241 Main Air Supply to Hose |
| 10 Air Dryer Ring | 48 Displacement Pump | 201 Pump Stand | 242 Solvent Flush Kit |
| 11 Air Hose, Feed Pump Kit | 56 Drum Fittings, Air Dryer | 202 Y-Line Strainer | |
| 13 Main Air Supply To Dryer | 57 Shutoff Valve, Drum Fittings | 204 Fluid Hose, Displacement Pump to Heater | |
| 14 Main Air Supply Hose | | | |

Fig. 1

The Typical Installation

The Typical Installation in Fig. 1 shows all the components and the minimum recommended accessories for a Foam-Cat® Sprayer, Model 226991, and the correct routing of all air and fluid hoses.

Reference letters and numbers

Parts information for reference numbers 1 to 61 can be found in separate manuals accompanying the sprayer or accessories. These reference numbers do not correspond to those in the separate manuals.

Parts information for reference numbers 101 to 243 can be found on pages 14 and 15.

Installation

NOTE: For most steps, if no figure drawing is referenced see Fig. 1 to locate the parts mentioned in the step.

I. Mount the system.

1. Secure the sprayer stand (201) to the floor in suitable locations. See the mounting hole diagram in manual 307551.
2. Install a bleed-type master air shutoff valve (1), Part No. 113218, on the main air supply line to provide a remote shutoff point for all air-powered components, and a main line air filter (2), part no. 106148, 3/8" npt **or** part no. 106149, 1/2", to remove harmful dirt and moisture from the compressed air supply.
3. When operating the proportioning pump at the higher pressure ranges, replace the Y-strainer (202) with a higher capacity Y-Strainer, Part No. 101078. It's replacement filter is Part No. 180199.

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.

4. Install the 1:1 ratio feed pumps (3) in 55 gallon drums of ISO and RES. Order Part No. 226946 for the pumps, **or** Part No. 217381 for the Feed Pump Kit which includes an Air Dryer (106493), two 1:1 Fast-Flo pumps (226946), two feed hoses, three air hoses, and related fittings. Manual 307552 contains installation and operation information.
 - 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 Fig. 2.
 - b. Separate 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 Fig. 2.
 - c. We recommend installing an air regulator near the feed pump air inlet to control pump speed. Remove the air valve (7). Install the regulator and pin fitting using suitable adapters and thread sealant on the male threads. Order Part No. 206199 for an air regulator and gauge.

⚠ WARNING

COMPONENT RUPTURE HAZARD

To reduce the risk of a container rupture and serious injury:

- Never pressurize a drum or container that will not withstand 5.5 psi (0.38 bar) working pressure.
- Never use a damaged drum of ISO or RES with the Air Dryer.

5. Mount the Air Dryer (9) in a suitable location near the ISO and RES drums. Order Part No. 217341, if you did not order the Feed Pump Kit mentioned in Step 4. See the mounting hole diagram in manual 307548.
 - a. Fill the bowl of the desiccant dryer. Unscrew the ring (10) to remove the dryer bowl.
 - b. Remove the filter from the top of the bowl and fill the bowl with the desiccant crystals provided with the kit. Reinstall the filter and bowl.

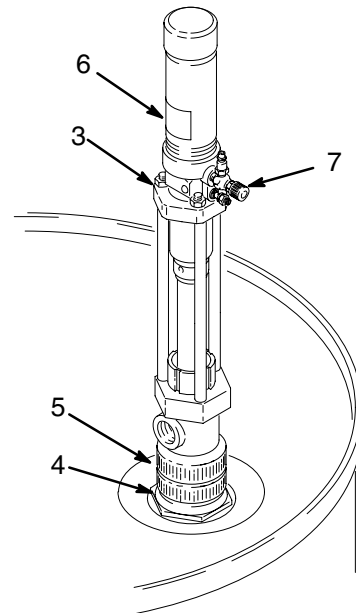


Fig. 2

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II. Connect the air hoses.

1. Connect an air supply hose (11) from the 1/4" npt quick disconnect coupler of each feed pump to the air manifold (229).
2. Connect an air supply hose (13) between the air inlet of the Air Dryer and the main air supply line.
3. Connect an electrically grounded 1/2 in. minimum ID main air supply line (14) to the air manifold (229). See manual 307544 for warnings and instructions.
4. Be sure all air hose connections are tight.

Installation

⚠ WARNING

COMPONENT RUPTURE HAZARD

To reduce the risk of overpressurizing the heater and pump, which can result in serious injury and equipment damage, follow these precautions:

- Do not install any fluid shutoff device as the fluid outlet of either heater or filter! See Ref 24, Fig. 5.
- Use at least 50 ft. (15.2 m) of fluid hose between the fluid outlet and any fluid control device such as a shutoff valve, regulator or spray gun.

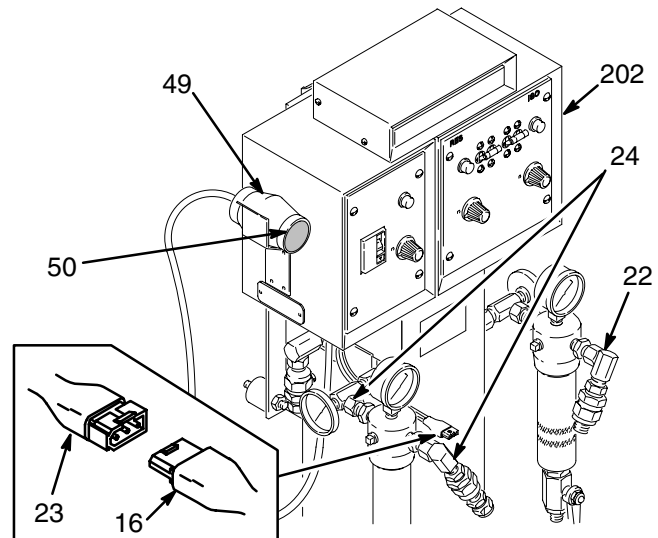


Fig. 5

01294

III . Install a needle/nozzle kit on the gun.

NOTE: This kit includes the parts shown in Fig. 3, except the pin vise (36) which holds the cleaning pin (37), and the nozzle retainer (30) which is part of the gun. The wrenches mentioned in the following instructions are provided with the gun.

KEY

- 30 Nozzle retainer
- 31 Nozzle
- 32 Packing nut
- 33 Packing
- 34 Needle
- 36 Pin vise
- 37 Cleaning pin

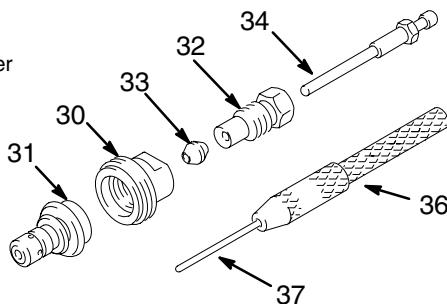


Fig. 3

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1. Use the 3/16" wrench (25) to remove one cap screw (26) from the fluid manifold (27) and two cap screws (26) from the nozzle housing (28). See Fig. 4.
2. Trigger the gun, and then pull the nozzle housing (28) straight off the gun body (29). See Fig. 4.

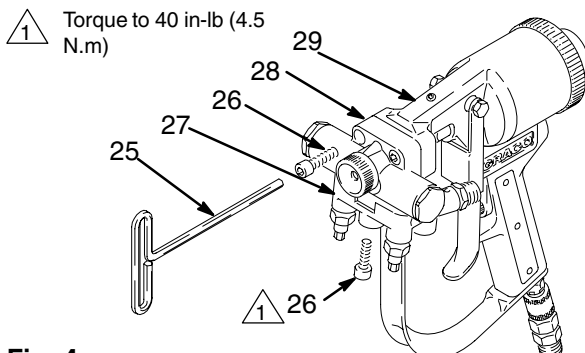


Fig. 4

04443

3. Use the 1/2" end of wrench (35) to remove the nozzle retainer (30) from the back of the nozzle housing (28). See Fig. 6.
4. Insert the nozzle (31), tapered end first, into the back of the housing. See Fig. 6.
5. Slide the packing nut (32), nozzle retainer (30), and packing (33) onto the needle (34). Screw the packing nut (32) into the nozzle retainer (30) until the top thread of the packing nut is flush with the back of the retainer. See Fig. 7.
6. Slide the needle assembly through the nozzle and into the nozzle housing assembly. See Fig. 6.
7. Adjust the needle so it protrudes 1-3/4 in. (44 mm) from the rear of the housing. See Fig. 8.
8. Screw the nozzle retainer (30) snugly into the back of the housing. Torque to 25-35 in-lb (2.8-3.9 N.m) using the 1/2" end of wrench (35). See Fig. 8.

⚠ CAUTION

Do not overtighten the nozzle retainer (30). This can compact the nozzle (31) and damage it, or cause it to seat improperly, resulting in spray pattern distortion.

9. Guide the needle of the nozzle assembly into the front opening (38) of the gun body (29). The socket of the piston rod (39) must face down. Tilt the nozzle assembly up and swing the ball of the needle (34) into the piston rod socket. See Fig. 9.
10. Push the nozzle assembly further into the front opening (38) until the back of the assembly meets the gun body. See Fig. 9.
11. Use the 3/16" wrench (25) to install the two top cap screws (26) firmly into the nozzle housing. Torque to 40 in-lb (4.5 N.m). See Fig. 4, page 10.

Installation

⚠ WARNING



INJECTION HAZARD

Be sure the trigger safety (40) is locked before proceeding, to reduce the risk of serious injury from injection. See Fig. 10.

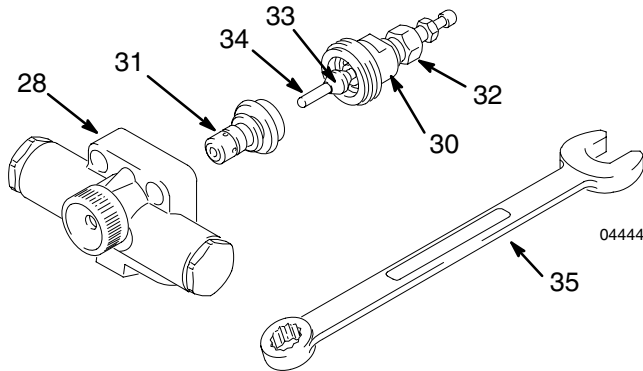


Fig. 6

- 1 Top thread of packing nut (32) must be flush with back of retainer (30).

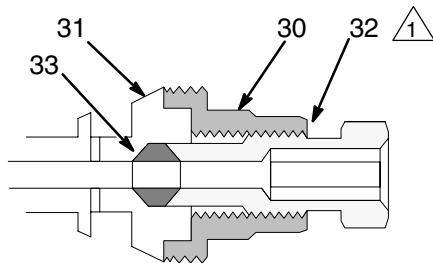


Fig. 7

- 1 Torque to 25–35 in-lb (2.8–3.9 N.m)

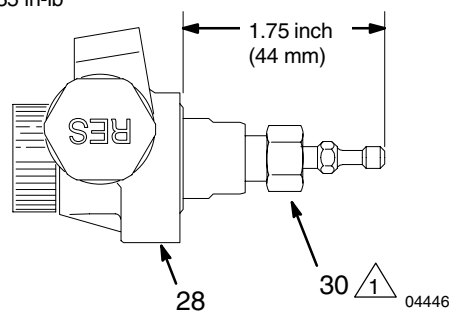


Fig. 8

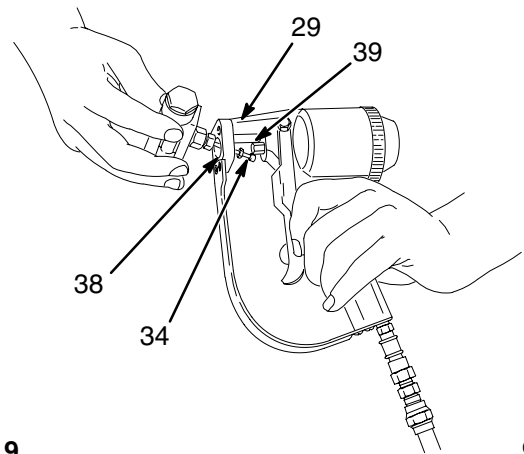
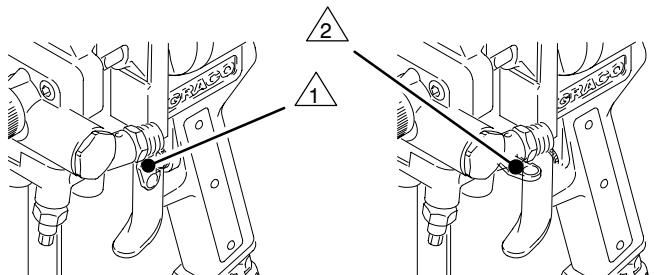


Fig. 9

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- 1 Unlocked trigger safety.
2 Locked trigger safety.



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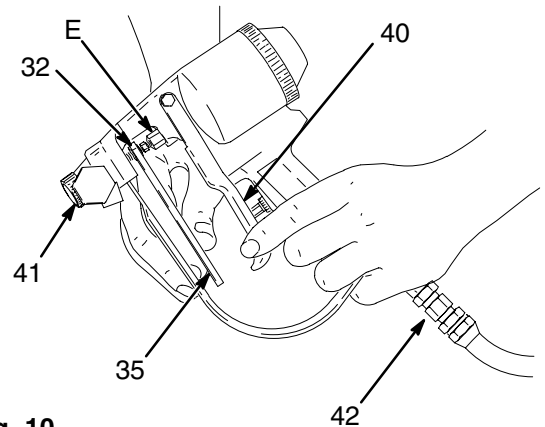


Fig. 10

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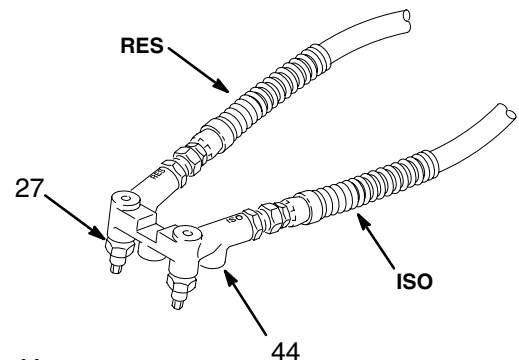


Fig. 11

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Installation

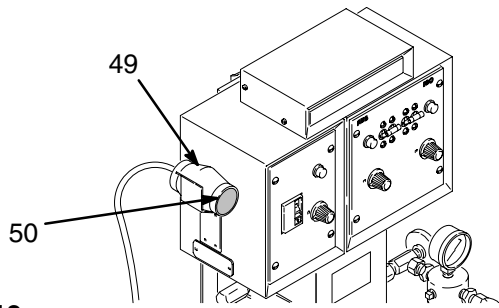


Fig. 12 01294

12. Screw on the air cap (41). Connect the air hose of the heated hose assembly to the inlet bushing (42) of the gun. See Fig. 10.
13. Use the 7/16" end of wrench (35) to adjust the packing nut (32) until it is *just snug*. Don't overtighten it! See Fig. 10.
14. Install the plastic shield (43) around the exposed part of the needle assembly (E) to keep foam overspray from collecting on the needle. See Fig. 10.

IV . Connect the fluid hoses to the spray gun manifold.

1. The manifold (27) has four inlet ports; two ports are plugged with steel plugs (44). Relocate the plugs to route the hoses straight down from the manifold, if desired. See Fig. 11.
2. Connect the fluid hoses to the corresponding inlets of the gun manifold.
3. Do not connect the manifold to the gun yet.

V . Connect the feed hose to the displacement pumps.

1. Slide an identification band (ISO or RES) over the end of each feed hose (45).
2. Connect a feed hose between the feed pump fluid outlet (36) and the 3/4 npt(f) fluid intake valve (202) of each displacement pump (48). See Fig. 1, page 8.

VI . Position the ATC Sensor.

1. Remove the **ATC Sensor (49)** from the clamp (50).
2. Locate the sensor *outside* in air that is typical of the surface to be sprayed. The sensor has a 15 ft. (4.6 m) cable. See Fig. 12.

VII . Wire and electrically ground the system.

 WARNING	
	FIRE, EXPLOSION AND ELECTRIC SHOCK HAZARD To reduce the risk of static sparking, which can cause a fire or explosion and result in serious injury, including electric shock, and property damage, always follow these precautions. • Read and follow the warnings in FIRE, EXPLOSION AND ELECTRIC SHOCK HAZARD on page 5.
• Provide electrical grounding continuity throughout the entire spray system. • Have a trained and qualified person perform all electrical wiring. • Comply with all applicable local, state and national fire, electrical and other safety regulations.	

1. 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.

NOTE: 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.

2. Electrically ground the **proportioning pumps and the feed pumps**. A ground wire and clamp (222011) comes with both pumps. The grounding lug for the proportioning pump is located on top of the pump stand. The grounding lug for the feed pumps is located at the base of the motor.
 - a. Loosen the grounding lug locknut (55) and washer (52). Insert one end the ground wire (53) into the slot in the lug (54) and tighten the locknut securely. See Fig. 13.
 - b. Connect the other end of the wire to a good ground such as a steel building column (check your local code).

Installation

3. Electrically ground the **heater and heated hoses**.
 - a. Wire the heater to a positively grounded power supply. In a mobile installation, be sure the truck or trailer is connected to a true earth ground.
 - b. 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, the hose continuity must comply with VDE 0100.
4. Use only electrically conductive **air hoses**.
5. Use only Foam-Cat® **Heated (fluid) Hoses**, Models 218613, 218614, which are electrically conductive.

NOTE: To ensure positive grounding and further reduce the risk of electric shock, redundant grounding is recommended. The long lines of the shielded-wire heated hose have a higher than normal capacitive leakage current to ground.

6. Obtain electrical grounding for the **spray gun** by connecting it to a properly grounded fluid hose and pump.
7. Electrically ground the following objects according to your local code.
 - The **object being sprayed**.
 - The **fluid supply container**.
 - **All solvent pails** used when flushing. 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.
8. **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 trigger the gun.

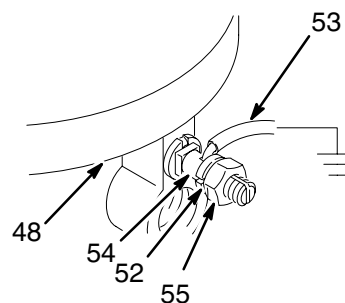


Fig. 13

0720

VIII . Install the air dryer drum fittings.

1. Install the drum fittings (56) in the 3/4 in. vent port of the corresponding drum of fluid.
2. Close the shutoff 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 Fig. 14.

! WARNING

COMPONENT RUPTURE HAZARD

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 over pressurize the drum and cause it to rupture and cause serious injury.

Do not substitute a different type of coupler and fitting! Use genuine Graco replacement parts.

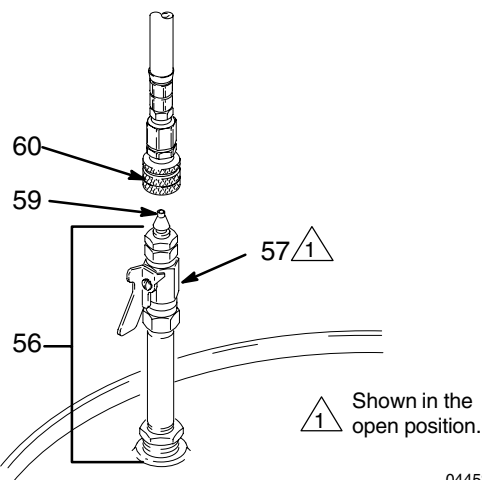
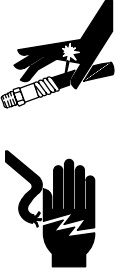


Fig. 14

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Operation - First Time Startup

Pressure Relief Procedure

⚠ WARNING	
	INJECTION AND ELECTRIC SHOCK HAZARDS To reduce the risk of a serious injury from fluid injection or electric shock, always relieve the fluid pressure in the sprayer and hoses and shut off the electric power before checking or adjusting the hoses or any other component.

1. Lock the spray gun trigger safety.
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. Unlock the trigger safety, trigger the gun to relieve pressure, and lock the trigger safety again.
6. If possible, allow the heater to cool before opening the drain valves. This prevents the Resin from frothing.
7. Open both fluid filter drain valves, having a container ready to catch the draining fluid.
8. If you are working on any part of the heater, shut off the main electrical power to the heater.
9. If you suspect that the spray tip/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 the coupling completely. Now clear the tip/nozzle or hose obstruction.

I. Prime the sprayer.

⚠ WARNING	
	ELECTRIC SHOCK HAZARD Be sure the heater and heated hose circuit breakers (63) are shut off to reduce the risk of electric shock. See Fig. 19, page 18.

NOTE: For each step, if no figure drawing is referred to, see Fig. 1, page 8, to locate the parts mentioned in the step.

1. Close the feed pump air inlet valves or regulators (8).
2. Close the heater drain valves (61).
3. Close the needle valves (64) of the spray gun manifold. See Fig. 15.

⚠ CAUTION
Do not overtighten the needle valves to avoid cracking the seals.

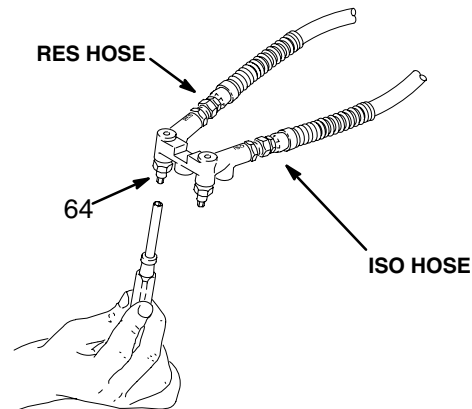


Fig. 15

04879

4. Fill the displacement pump packing nut 2/3 full with IPO (ISO Pump Oil), supplied.
5. Be sure the proportioning pump fluid intake valves (230) are open.
6. Open both main air line shutoff valves (1).

Operation - First Time Startup

⚠ WARNING

COMPONENT RUPTURE HAZARD

To reduce the risk of overpressurizing the supply drum or container, which could rupture the drum and cause serious injury and property damage follow these precautions.

- Do not operate the Air Dryer with any part removed.
- Do not operate with the restrictor nipple (14) removed. These nipples limit the volume of air to the Air Dryer.
- Do not operate with either pressure relief valves (12) removed. These valves relieve air pressure to the drums if it exceeds 5.5 psi (0.38 bar).
- Do not operate with the dryer bowl (A) removed from the oil filter or desiccant dryer.

II . Adjust the air dryer.

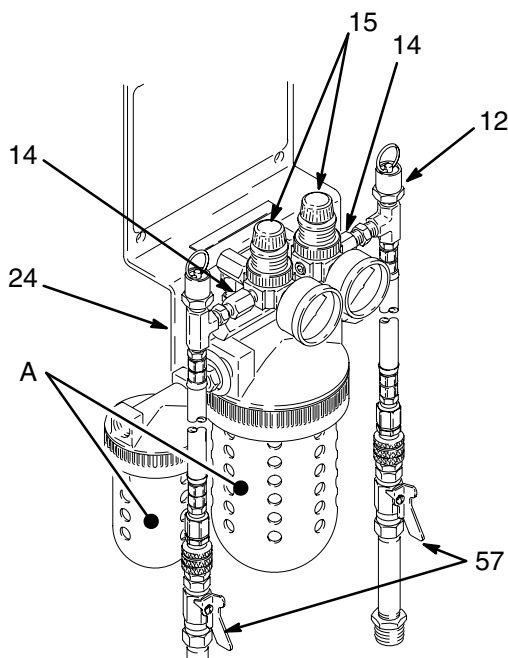


Fig. 16

04459

1. Set both air regulators (15) 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. See Fig. 16.
2. Open the drum shutoff valves (57). See Fig. 16.
3. To lower the pressure on the gauge, turn the regulator knob counterclockwise and pull up on the pressure relief valve ring (12) until the pressure on

the gauge is just below the desired setpoint. Release the ring and then turn the knob to the desired pressure. See Fig. 16.

⚠ WARNING

COMPONENT RUPTURE HAZARD

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 over pressurize and rupture, resulting in serious injury and property damage. Therefore, *never* attempt to repair the valve.

4. Check the pressure relief valves daily. To check, close the drum shutoff 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. See Fig. 16.

NOTE: A minimum pressure of 1 psi (0.07 bar) is needed to open the check valves (14).

III . Prime the hoses.

1. Open the feed pump air valves (8).
2. With the gun disconnected from the manifold, hold the manifold (27) so each outlet port is directly over a separate waste container as shown in Fig. 17.

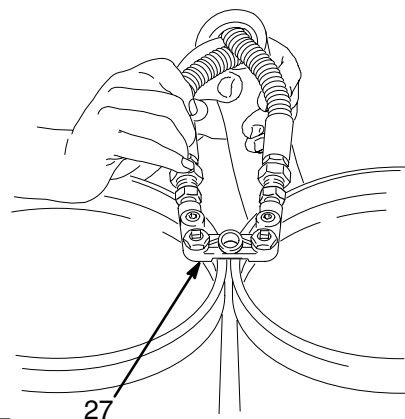


Fig. 17

04452

3. Open the manifold needle valves (64). See Fig. 15, page 14. Allow the material to flow out until all air is purged from the sprayer and the spitting stops.
4. Close the needle valves. Do not connect the manifold and the gun.
5. Throw away the purged material in both waste containers to avoid contaminating your supply containers with test fluid left in the components after factory testing.

Operation - First Time Startup

IV . Check each fluid connection for leaking.

 WARNING	
 	INJECTION AND ELECTRIC SHOCK HAZARDS To reduce the risk of a serious injury from fluid injection or electric shock, always follow the Pressure Relief Procedure on page 14 before checking or adjusting the hoses or any other component.

If there are any leaks, relieve the fluid pressure and tighten the connection.

Operation - General Startup Instructions

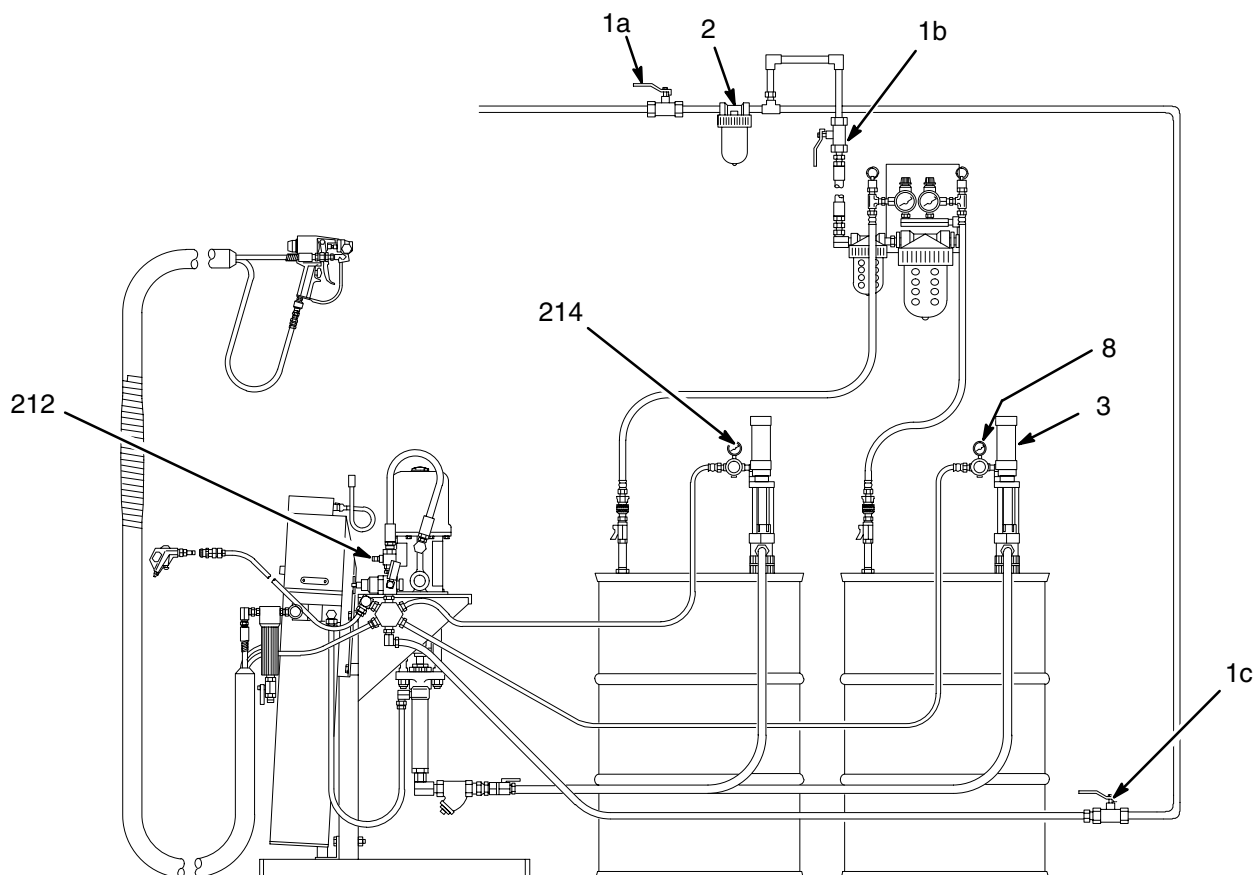


Fig. 18

⚠ WARNING



COMPONENT RUPTURE HAZARD

Never operate the hose when it is coiled. Doing so causes excessive heat buildup which can result in hose rupture and cause serious injury, including injection and property damage. The high heat can also cause poor foam development.

⚠ CAUTION

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

See **First Time Startup** on pages 14 through 16 for the 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 the fluid temperature to obtain the best results for your spray application.

NOTE: For each step, if no figure drawing is referred to, see Fig. 18.

I. Start the sprayer.

1. Open the main air supply valves (1a,1b,1c).
2. Open the air valves (8) to the feed pumps (3).
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.

Operation - General Startup Instructions

5. Start the heaters. See Fig. 19.
 - a. Set all three Temp Set dials (73) to “cal” position, approximately 120°F (49°C).
 - b. Turn the circuit breakers (63) to “I” for ON.
 - c. Let the material heat for 15 minutes.

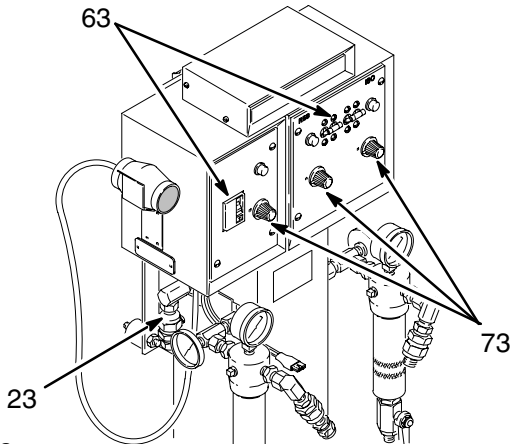


Fig. 19 01294

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.

7. Test the spray pattern. Aim the gun at a piece of scrap cardboard and trigger for 1 second to check the spray pattern. A good pattern should be round and well atomized, and it should harden with a fairly smooth surface. See the **Nozzle Performance Chart** for the proper size of pattern and spray distance for the nozzle being used.

NOTE: Release the gun trigger at least once a minute, while spraying, if you use a no-release triggering method. This is to actuate the mechanical purger and avoid material buildup on the nozzle tip and air cap.

NOZZLE PERFORMANCE CHART

Nozzle Kit No.	Needle Diameter In. (mm)	DELIVERY		
		Outlet Pressure psi (MPa, bar)	Flow Rate ¹ lb/min (kg/min)	Pattern Diameter ² In. (mm)
217424	0.073 (1.85)	1000 (7, 70) 750 (5.1, 51)	10.5 (4.7) 8.5 (3.8)	12 (305)
217425	0.083 (2.11)	1000 (7, 70) 750 (5.1, 51)	15 (6.6) 12 (5.5)	17 (432)

¹ Flow rate text conditions: 2.7 lb (1.22 kg) foam; ISO viscosity of 200 CPS (200 MPa-s) at 77°F (25°C); RES viscosity of 650 CPS (650 MPa-s) at 68°F (20°C); heater and hose temperature of 115°F (43°C); pump outlet pressure as indicated in chart.

² At the recommended 30 in. (762 mm) spraying distance.

8. Adjust the gun's clean-off air.

WARNING



INJECTION HAZARD

To reduce the risk of an injection injury, always follow the items in Step 8 carefully before adjusting the clean-off air.

- g. Regulate the air to the gun to 100 psi (7 bar).
- h. Back off the setscrew two turns as a test setting.
- i. If the air appears to affect the spray pattern, screw in the setscrew another turn. If build up behind the air cap occurs, back off the setscrew about 1/2 turn at a time.

- a. Lock the trigger safety (40).
- b. Close the needle valves (64).
- c. Unlock the trigger safety.
- d. Trigger the gun to relieve the fluid pressure.
- e. Lock the trigger safety again. See Fig. 20.
- f. Using a hex key wrench (71), screw in the set-screw (72) of the clean-out hole until no air or almost no air is escaping. See Fig. 20.

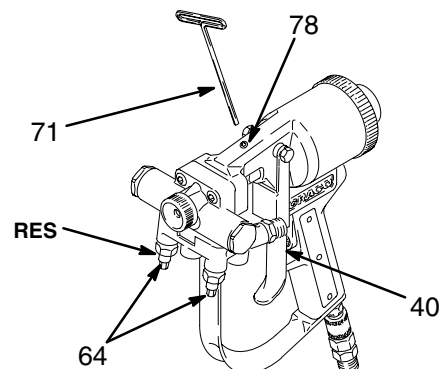


Fig. 20 04457

Operation - General Startup Instructions

II . Shutdown

 WARNING	
	INJECTION AND ELECTRIC SHOCK HAZARDS To reduce the risk of a serious injury from fluid injection or electric shock, always follow the Pressure Relief Procedure on page 14 before checking or adjusting the hoses or any other component.

1. At the end of each work day, stop the pump with the displacement rod in the *down* position.
2. Shut off the heat and main circuit breakers and relieve the fluid pressure.

3. Disconnect the gun from the fluid manifold, flush the gun as instructed in manual 307546, and store the gun.

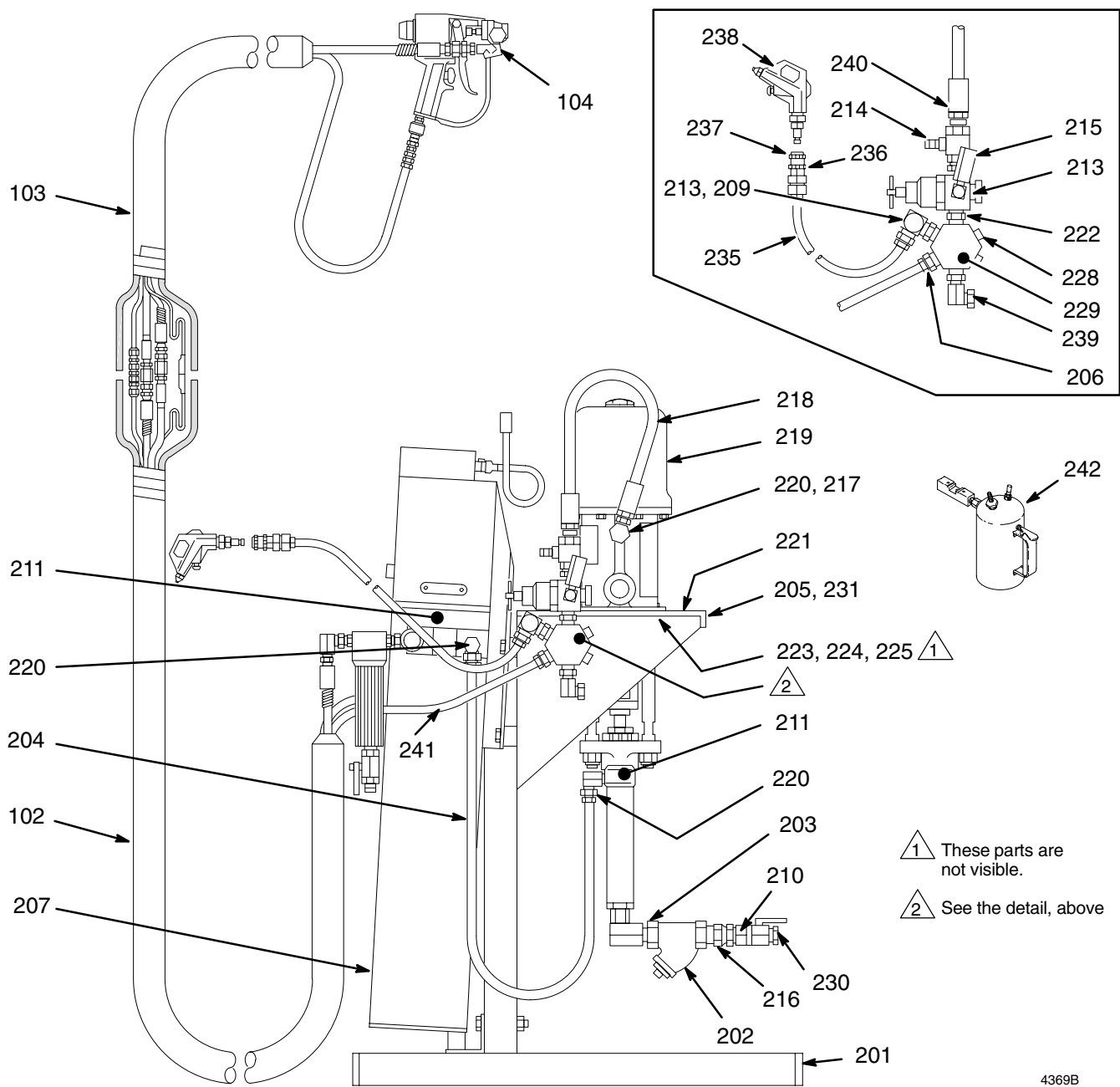
III . Maintenance

Keep the displacement pump packing nut 2/3 full of IPO at all times to help protect the pump packings.

 CAUTION
Trace amounts of IPO may get into the foam. Before using the IPO make sure that it will not affect the development and appearance of the foam.

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

Parts



Model 226991, Foam-Cat® 200
Includes items 101 to 105

Model 230965, Foam-Cat® 200
Includes items 101, 104 and 105

Ref No.	Part No.	Description	Qty	Ref. No.	Part No.	Description	Qty.
101	226990	FOAM SPRAYER (see items 201 to 243)	1	105✓	217425	NOZZLE KIT, gun; 0.083" (2.11 mm) dia. (not shown; see 307546 for parts and other available sizes)	1
102	218613	HOSE, heated	1				
103	218614	HOSE, heated, whip	1				
104	217373	GUN, foam	1				

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

Parts

Model 226990, Bare Heated Spray System

Includes items 201 to 243.

Ref No.	Part No.	Description	Qty	Ref No.	Part No.	Description	Qty
201	217296	STAND, pump (see 307551 for parts)	1	219	208851	PUMP, President Plural Component (see manual 306989 for parts)	1
202	101078	STRAINER, "Y"; 20 mesh screen; 3/4 npt(fbe); Includes item 202a	2	220	155699	ELBOW, street; 90°; 3/8 npt (mx) f	3
202a	180199	.ELEMENT, filter, 20 mesh screen (not shown)	1	221	178741	PLATE, mounting	1
203	160327	ADAPTER, union; 90°; 3/4 npt(m) x 3/4 npt(f) swivel	2	222	158491	NIPPLE, 1/2 npt x 1-5/8" long	1
204	217378	HOSE, cpld 3/8 npt(mbe); 3/8" ID; spring guard one end; 2.5 ft (780 mm)	2	223	100101	CAPSCREW, hex head, 3/8 npt x 1" long	7
205	150707	PLATE, serial	1	224	100133	LOCKWASHER, spring; 3/8"	7
206	155571	BUSHING, pipe; 1/2 npt(m) x 1/4 npt(f)	1	225	100131	NUT, hex, 3/8 npt	4
207	235259	HEATER, 15 lb/min (6.75 kg/min) (see 308219 for parts)	1	226	100333	CAPSCREW, hex head; (not shown) 1/4 thread x 0.5" (13 mm)	2
209	162449	NIPPLE, reducing; 1/2 to 1/4 npt	1	227	100016	LOCKWASHER, spring; 1/4"	2
210	157785	UNION, straight; 3/4 npsm(f) swivel x 3/4 npt(m)	2	228	100737	PLUG, pipe; 1/2 npt	2
211	178600	LABEL, ISO/RES	2	229	177117	MANIFOLD, air; six 1/2 npt(f) ports	1
212	104267	AIR REGULATOR, (not shown) 0-125 psi (0-10 bar) range; 1/2 npt(f) in/out; two 1/4 npt(f) gauge ports (see manual 308167 for parts)	1	230	108537	BALL VALVE, 3/4 npt(fbe)	2
213	100840	ELBOW, 90°, street, 1/4 npt(mx) f	2	231	102556	RIVET, blind	2
214	107142	SHUTOFF VALVE, vented	1	232✓	217374	OIL, pump, ISO; 1 pt (0.46 liter)	1
215	100960	AIR PRESSURE GAUGE, 0-200 psi (0-14 bar) range, 1/4 npt(m)	1	235	212005	HOSE, air; 1/4" ID; cpld 1/4 npsm(f) swivel; 3'9" (1.1 m)	1
216	160032	NIPPLE, 3/4 npt x 1-7/8" (47 mm)	2	236	100030	BUSHING, hex; 1/4 x 1/8 npt	2
217	100081	BUSHING, pipe, 1/2 npt to 3/8 npt	1	237	106552	COUPLING, air line, quick disconnect	1
218	214652	AIR HOSE, cpld 3/8 npt(mbe) x 1.5 ft (457 mm) long	1	238	208625	GUN, air blow	1
				239	155470	UNION, swivel 90°, 1/2 npt(m) x 1/2 npsm swivel	1
				240	158256	ADAPTER, union, 3/8 npsm(f) swivel x 1/2 pt	1
				241	200118	HOSE	1
				242	218669	KIT, solvent	1
				243	100509	PLUG, pipe, 1/4-18 npt(f) (not shown)	1

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

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