

Instructions – Parts List



Foam-Cat® Foam Gun

307546T

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

Model 217373, Series E

Order a needle/nozzle kit separately. See page 5.

U.S. Patent No. 4,427,153
U.K. Patent No. 0,116,613
Patented Bréveté 1986 Canada
Other Foreign Patents Pending.



Read warnings and instructions.
See page 2 for **Table of Contents.**

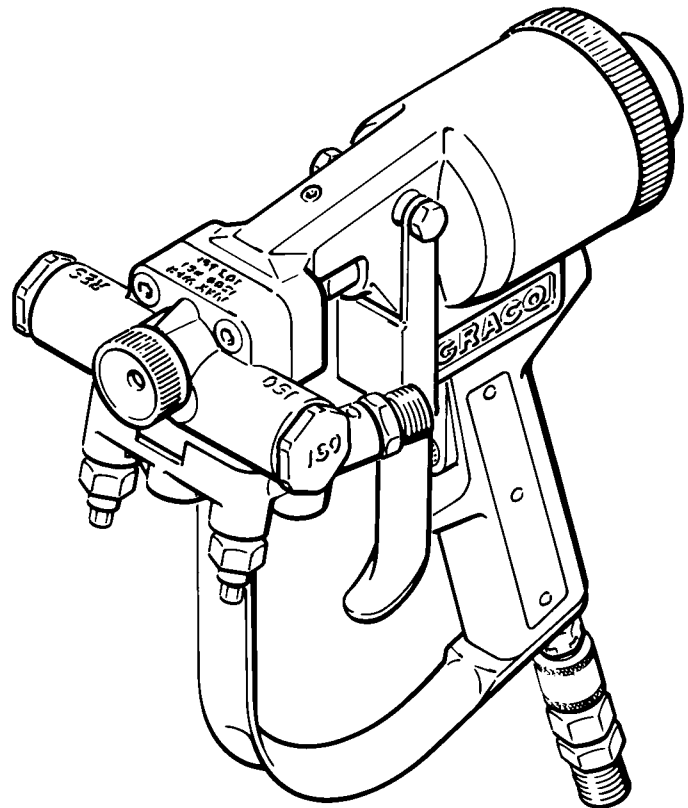


Table of Contents

Symbols	3	Foam Spraying Nozzles	17
Warnings	3	Foam Pouring Nozzles	17
Spray Nozzle Performance Chart	5	Maintenance	18
Pour Nozzle Performance Chart	5	Keeping the Gun Clean While Spraying	18
Installation	6	Fluid Buildup on Nozzle	18
Safety	7	Fluid Buildup on Needle	18
Grounding	7	Cleaning the Fluid Manifold	18
Optional O-rings	7	Shutdown	18
Installing a Needle/Nozzle Kit on a New Gun	8	Flushing	19
Connecting Hoses	10	Troubleshooting	20
Operation	11	Service	22
Pressure Relief Procedure	11	Needle Valves	22
Adjusting Cleanoff Air	12	Piston	23
Spray Pattern Adjustment	13	Check Valve	23
Effects of Fluid Temperature and Pressure	13	Air Valve	24
Observing the Effects of Varying Fluid Temperature and Pressure	13	Parts	26
About Surface Texture	13	Accessories	28
About Poured Foam Texture	13	Technical Data	29
Surface Texture Descriptions	14	Nozzle Kit Summary	29
Replacing the Needle/Nozzle Assembly	15	Graco Standard Warranty	30
Cleaning the Nozzle	17	Graco Information	30

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



FIRE AND EXPLOSION HAZARD

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



- Ground the equipment and the object. See **Grounding** on page 7.
- Provide fresh air ventilation to avoid the buildup of flammable fumes from solvent or the fluid being dispensed.
- Extinguish all the open flames or pilot lights in the dispense area.
- Keep the dispense area free of debris, including solvent, rags, and gasoline.
- Do not turn on or off any light switch in the dispense area while operating or if fumes are present.
- Do not smoke in the dispense area.
- Do not operate a gasoline engine in the dispense area.
- If there is any static sparking while using the equipment, **stop dispensing immediately**. Identify and correct the problem.



INJECTION HAZARD

Spray from the 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 gun at anyone or at any part of the body.
- Do not put hand or fingers over the gun nozzle.
- Do not stop or deflect fluid leaks with your hand, body, glove, or rag.
- Be sure the gun trigger safety operates before dispensing.
- Lock the gun trigger safety when you stop dispensing.
- If the nozzle clogs, stop dispensing, lock the gun trigger safety, and follow the instructions of page 17 to clean the nozzle.
- Keep the tip of the nozzle and the nozzle head free of foam buildup. Foam buildup on the nozzle can cause foam shots to be misdirected and splash foam in the eyes or on the skin.
- Follow the **Pressure Relief Procedure** on page 11 whenever you are instructed to relieve pressure; stop dispensing; clean, check, or service the equipment; and install or clean the nozzle.
- Tighten all the fluid connections before operating the equipment.
- Check the hoses, tubes, and couplings daily. Replace worn, damaged, or loose parts immediately. Permanently coupled hoses cannot be repaired; replace the entire hose.

WARNING



INSTRUCTIONS



EQUIPMENT MISUSE HAZARD

Equipment misuse can cause the equipment to rupture, malfunction, or start unexpectedly and result in a serious injury.

- This equipment is for professional use only.
- Read all the instruction manuals, tags, and labels before operating the equipment.
- Use the equipment only for its intended purpose. If you are uncertain about 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. See the front cover or the **Technical Data** for the maximum working pressure of your gun model.
- Route the hoses away from the traffic areas, sharp edges, moving parts, and hot surfaces.
- Do not use the hoses to pull the equipment.
- Use only Graco approved hoses. Do not remove hose spring guards, which help protect the hose from rupture caused by kinks or bends near the couplings.
- 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.
- Comply with all applicable local, state and national fire, electrical and other safety regulations.



PLURAL COMPONENT MATERIAL HAZARD

Before using this equipment, read the material manufacturer's warnings and determine all facts relating to the materials used, including any of the potential hazards relating to toxic fumes, fires, explosions, reactions times, and exposure of humans to the individual components or their resultant mixtures.

- Wear appropriate protective clothing, gloves, eyewear, face mask, and respirator.
- Know the specific hazards of the fluid you are using. Read the fluid manufacturer's warnings.
- 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.
- Store hazardous fluid in an approved container. Dispose of hazardous fluid according to all local, state, and national guidelines.



HOT MATERIAL HAZARD

Heated foam can cause severe burns and can cause equipment surfaces to become very hot. To avoid a burn or injury from the foam adhering to the skin:

- Wear protective gloves and clothing when operating the equipment in a heated system.
- Do not come in contact with the dispensed material until it has cooled and cured.
- Allow the equipment to cool thoroughly before servicing.
- If you are burned, get emergency medical care at once. Do not pull the foam from your skin.

Spray Nozzle Performance Chart

Nozzle Kit No.	Needle Diameter In. (mm)	DELIVERY		
		¹ Outlet Pressure psi (bar)	² Flow Rate lb/min (kg/min)	³ Pattern Diameter in. (mm)
217420	0.125 (3.18)	1200 (83)	52 (23.4)	20 (508)
		950 (66)	45 (20.3)	
		750 (53)	37 (16.7)	
217421	0.114 (2.90)	1200 (83)	41 (18.4)	18 (457)
		950 (66)	35 (15.8)	
		750 (53)	29 (13.1)	
217423	0.089 (2.26)	1000 (70) 750 (53)	19 (8.6) 15 (6.6)	17 (432)
217424	0.073 (1.85)	1000 (70) 750 (53)	10.5 (4.7) 8.5 (3.8)	12 (305)
217425	0.083 (2.11)	1000 (70) 750 (53)	15 (6.8) 12 (5.4)	16 (406)
217426	0.102 (2.59)	1200 (83)	29 (13.1)	17 (432)
		950 (66)	25 (11.3)	
		750 (53)	21.5 (9.7)	
217428	0.060 (1.52)	1200 (83)	8 (3.6)	9 (228)
		950 (66)	6 (2.7)	
		750 (53)	4 (1.8)	

Pour Nozzle Performance Chart

Nozzle Kit No.	Needle Diameter In. (mm)	DELIVERY	
		¹ Outlet Pressure psi (bar)	² Flow Rate lb/min (kg/min)
217427	0.187 (4.75)	700 (48)	16–20 (7–9)
220616	0.073 (1.85)	700 (48)	6–8 (2.7–3.6)

NOTES:

¹ Select a nozzle that will not exceed the maximum recommended flow rate of your foam spray system as the desired working pressure. Too high a flow rate may exceed the performance capabilities of the foam heater and other sprayer components, causing poor foam development and equipment problems.

² Flow rate test 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 85–95°F (29–35°C) for Pour Nozzle Kits 217427 and 220616
- heater and hose temperature of 115°F (43°C) for all Spray Nozzle Kits
- Pump outlet pressure as indicated in chart

³ At the recommended spraying distance:

- 18–24 in. (457–610 mm) for Pour Nozzle Kits 217427 and 220616
- 30 in. (762 mm) for all Spray Nozzle Kits

Installation

The Graco Foam-Cat® Gun has been designed and manufactured to withstand rugged use. However, the interior surfaces and cavities of the gun, and the needle and nozzle, do require care during installation, maintenance and service to avoid nicks and scratches.

The following tools are supplied with the gun:

- 3/16 in. hex, T-handle hex key wrench (48)
- 3/32 in. hex, T-handle hex key wrench (47)
- 7/16 in. x 1/2 in. open end wrench (53)
- Pin vise (51) for cleaning pin supplied with Needle/Nozzle Kits
- Nut driver (50)
- 1/4 in. open end wrench (52)

In addition, you will need to purchase an air valve hook (O) to service the air valve, a pressing tool (P) to service the piston (see **Accessories**, page 28), and a small adjustable wrench (A). See Fig. 1.

You will also need a solvent flushing system to clean the gun. See page 28 to order an accessory solvent flush kit.

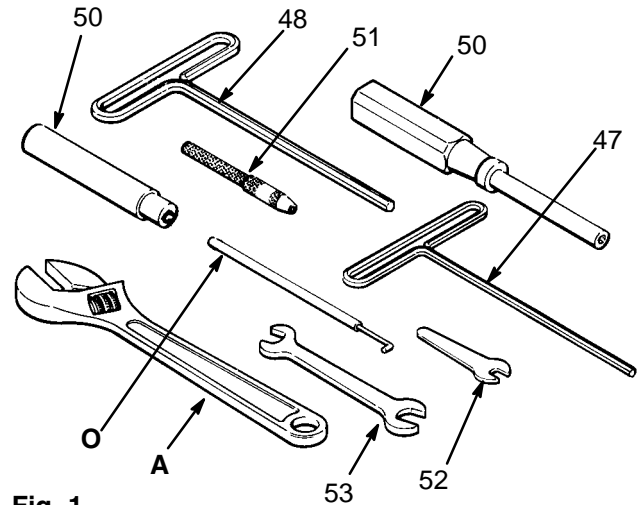


Fig. 1

Installation

Safety

For your safety, read all of the warnings and instructions in this manual, all system component manuals, and the chemical manufacturer's literature before installing or operating the equipment. The warnings, cautions and instructions are designed to help all operators use this equipment with safety and confidence.

This gun has a trigger safety latch. To engage the trigger safety latch (ON SAFE) and make the trigger inoperative, pull out on the trigger safety latch (B) and turn it so it is perpendicular to the gun body. To disengage the trigger safety latch (OFF SAFE) turn it so it is parallel to the gun body. See Fig. 2.

⚠ WARNING

To reduce the risk of serious bodily injury from injection of high pressure fluid, always engage the trigger safety latch (ON SAFE) whenever you stop spraying and close the needle valves (C) completely with the nut driver (50).

Grounding

When used with Graco Heated Hose, this gun is grounded through hose connections. For other types of hoses, be sure the hose you use is static grounded, or attach a grounding wire between a metal part of the gun and a true earth ground.

Optional O-rings

This gun is supplied with flouorocarbon o-rings (44) installed in the gun check valves, for use with methylene chloride solvent. A set of silicone o-rings (60) is also included (not installed) for use with DMF (Dimethyl Formamide) and Cellosolve® solvents.

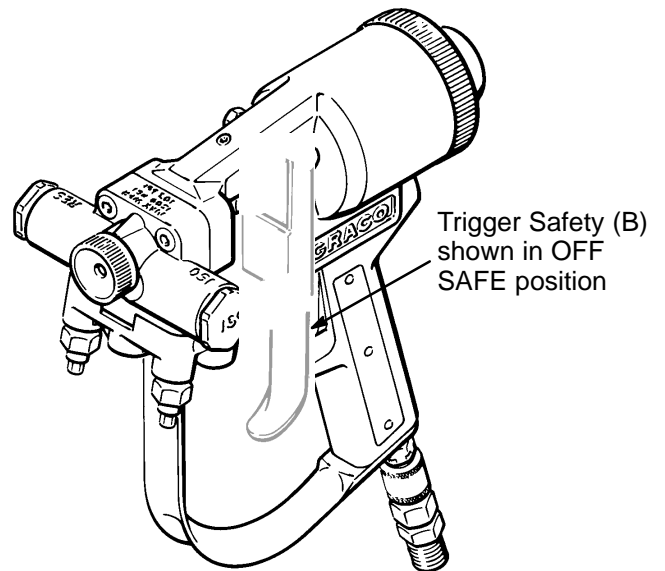
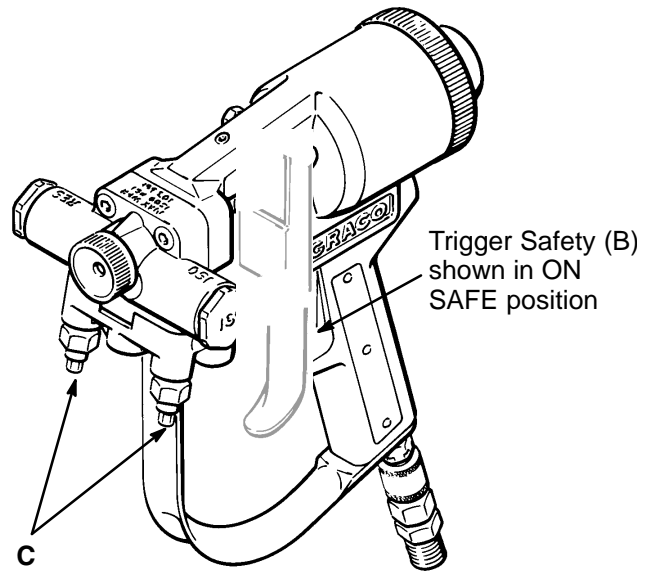


Fig. 2

Installation

Installing a Needle/Nozzle Kit on a New Gun

The needle/nozzle kit includes the parts shown in Fig. 3, except the pin vise (51) which holds the cleaning pin (H), and the nozzle retainer (23).

KEY

- 23 Nozzle Retainer
- 51 Pin vise
- D Needle
- E Nozzle
- F Packing
- G Packing Nut

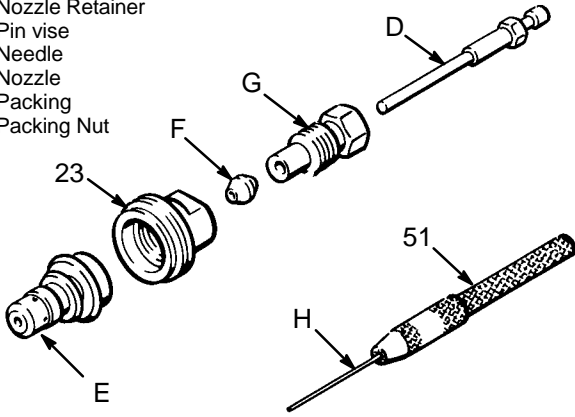


Fig. 3

To install the nozzle kit:

1. Use the 3/16 in. wrench (48) to remove the capscrew (7) from the fluid manifold (26) and to remove the two capscrews (7) from the nozzle housing (2). See Fig. 4.
2. Trigger the gun, then pull the housing straight off the gun body (1).
3. Use the 1/2 in. end of the wrench (53) to remove the nozzle retainer (23) from the back of the housing (2). Refer to Fig. 5.
4. Insert the nozzle (E), tapered end first, into the back of the housing. See Fig. 5.
5. Slide the packing nut (G), nozzle retainer (23), and packing (F) onto the needle (D). Screw the packing nut (G) into the nozzle retainer (23) until the top threads of the packing nut is flush with the back of the retainer. See Fig. 6.
6. Slide the needle assembly through the nozzle and into the nozzle housing. Refer to Fig. 6.

CAUTION

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

KEY

- 1 Gun body
- 2 Nozzle housing
- 7 Capscrew
- 26 Manifold
- 48 Wrench

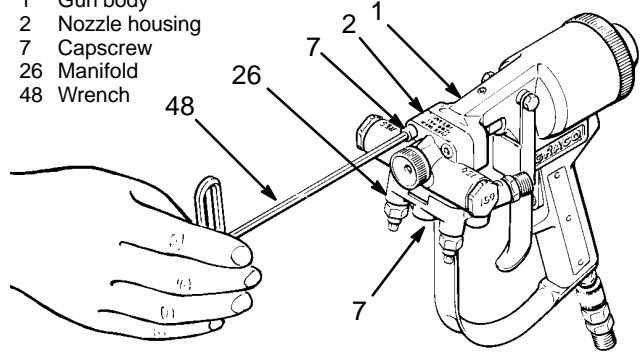


Fig. 4

KEY

- 2 Nozzle housing
- 23 Nozzle retainer
- 53 Wrench
- D Needle
- E Nozzle
- F Packing
- G Packing nut

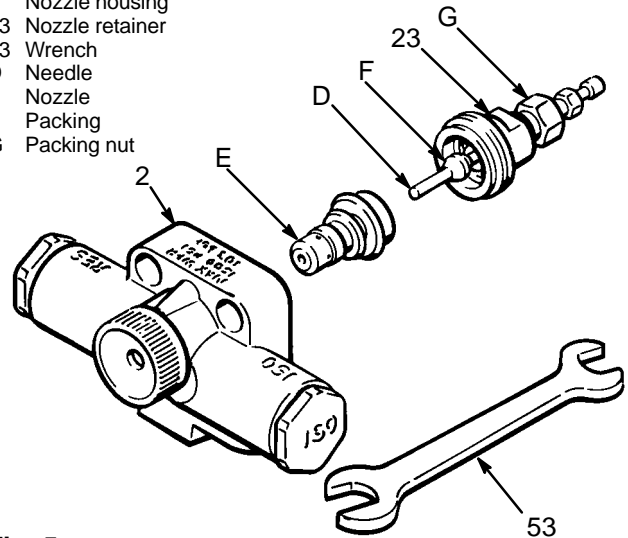
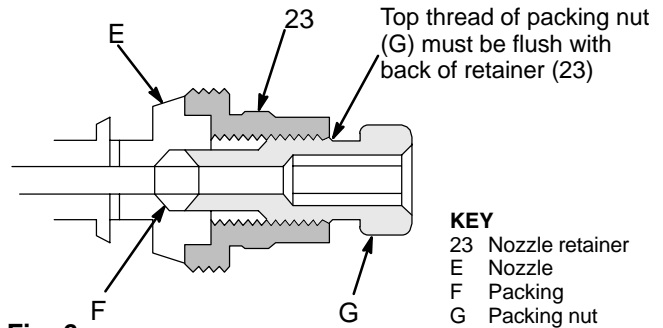


Fig. 5



KEY

- 23 Nozzle retainer
- E Nozzle
- F Packing
- G Packing nut

Fig. 6

Installation

- Adjust the needle so it protrudes 1-3/4 in. (44 mm) from the rear of the housing. See Fig. 7.

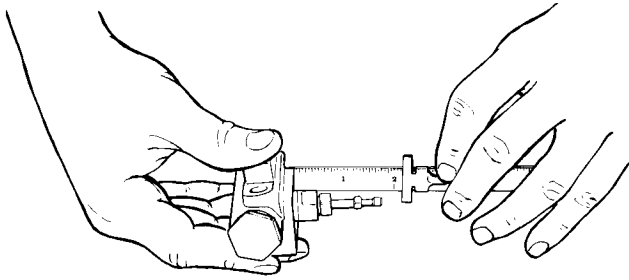
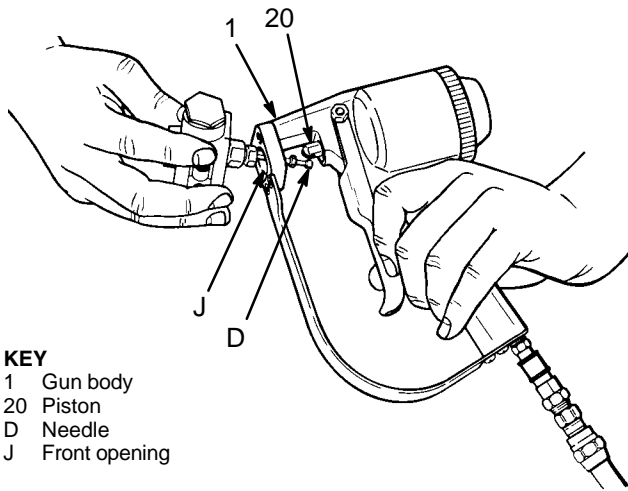


Fig. 7

- Screw the nozzle retainer (23) snugly into the back of the housing. Tighten using the open end wrench (53). Torque to 25-35 in-lb (2.8-3.9 N•m).
- Guide the needle of the nozzle assembly into the front opening (J) of the gun body (1). The piston (20) rod has a socket in the side of it which must face down. Tilt the nozzle assembly up and swing the ball of the needle (D) into the piston rod socket. See Fig. 8.



- KEY**
- 1 Gun body
 - 20 Piston
 - D Needle
 - J Front opening

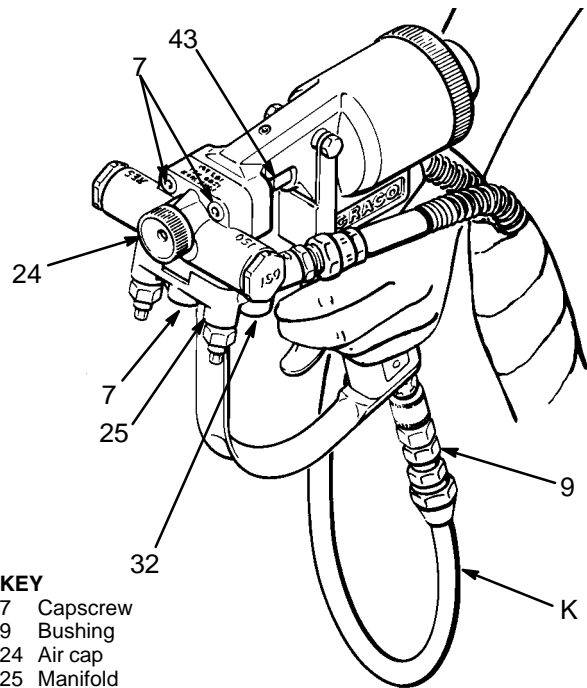
Fig. 8

- Push the nozzle assembly further into the front opening (J) until the back of the assembly meets the gun body. Refer to Fig. 8.
- Use the 3/16 in. wrench (48) to install the two capscrews (7) firmly into the nozzle housing. Torque to 40 in-lb (4.5 N•m). Refer to Fig. 9.

⚠ WARNING

To reduce the risk of serious bodily injury from fluid injection, be sure the trigger safety latch (B) is engaged (ON SAFE) before proceeding. Refer to Fig. 2 on page 7.

- Screw on the air cap (24). Connect an air line (K) to the inlet bushing (9) of the gun. See Fig. 9.



- KEY**
- 7 Capscrew
 - 9 Bushing
 - 24 Air cap
 - 25 Manifold
 - 32 Plug
 - 40 O-ring
 - K Air line

Fig. 9

Installation

13. Use the 7/16 in. end of wrench (53) to adjust the packing nut (G) until it is *just snug*. Don't over-tighten it. See Fig. 10.
14. Install the plastic shield (43) around the exposed part of the needle assembly to keep foam over spray from collecting on the needle. See Fig. 10.
15. Connect the fluid manifold (25) to the gun using the 3/16 in. wrench (48) to tighten the capscrew (7) firmly. Torque to 40 in-lb (4.5 N•m). See Fig. 10.

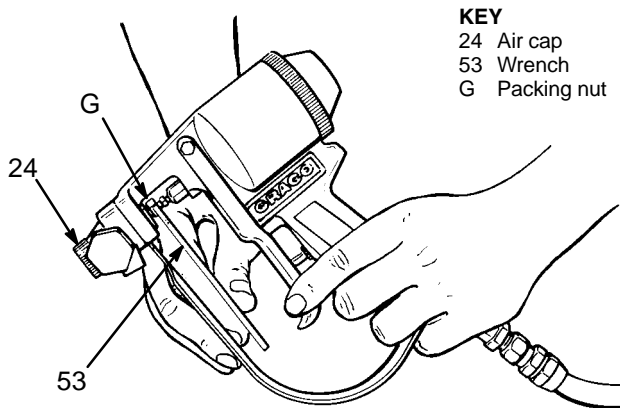


Fig. 10

Connecting Hoses

⚠ CAUTION

The Graco heated hoses and the fluid manifold (25) inlets are labeled ISO and RES. Be very careful to make only ISO to ISO and RES to RES connections. Crossing fluid can damage the hoses and gun. Refer to hose manual 307544.

1. The fluid hoses can be connected straight down from the manifold or straight back from it as shown in Fig. 10. Plug the manifold inlets that will not be used with steel plugs (32).
2. Connect the fluid hoses to the manifold inlets. Be sure the air hose (K) is connected to the gun. See Fig. 10.

Operation

Pressure Relief Procedure

WARNING



INJECTION HAZARD

The system pressure must be manually relieved to prevent the system from starting or dispensing accidentally. Fluid under high pressure can be injected through the skin and cause a serious injury. To reduce the risk of an injury from injection, splashing fluid, or moving parts, follow the **Pressure Relief Procedure** whenever you:

- are instructed to relieve the pressure,
- stop dispensing,
- check or service any of the system equipment,
- install or clean the nozzle.

1. Engage the spray gun trigger latch.
2. Shut off the air to the feed pumps.
3. Turn off the electric motor switch in a hydraulic system.
4. Turn off the air to the proportioning system in an air-powered system.
5. Close the gun manifold needle valves.
6. Disengage the trigger safety latch, trigger the gun to relieve pressure, and engage the trigger safety latch again.
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.

Operation

1. **Adjust cleanoff air** as instructed in the next column. Be sure the needle valves (C) are closed. See Fig. 11.
2. **Adjust the fluid temperature.** Most foam fluids are designed for spraying at 100° to 140°F (38° to 60°C). Adjust the heater and hose controls to the chemical manufacturer's recommended temperature. If no temperature is specified, start at 115°F (43°C).

Refer to manual 307543 for specific instructions on adjusting and operating the Foam-Cat Heater and Heated Hose Controls.

3. **Adjust the pump outlet pressure** to 1000 psi (70 bar). This is adequate for most spray applications. If more fluid flow is needed at that pressure, try using a larger fluid nozzle. Refer to the **Nozzle Performance Chart** on page 5. Increasing the fluid pressure could distort the spray pattern.
4. **Allow the fluid to heat thoroughly.** The Graco Heater and Heated Hose requires 15 minutes warm up time.
5. **Spray for several seconds** in cold weather to bring thoroughly warmed fluid to the gun. Release the gun trigger safety latch, open the needle valves (C), and aim the gun at a large piece of cardboard when testing spraying.

⚠ CAUTION

Open the RES side first to help prevent nozzle damage.

6. **Test for proper foam texture.** Trigger the gun in one second intervals to test the spray pattern. *A good spray pattern should be round and well atomized* and it should harden with a fairly smooth surface. Refer to the chart on page 4 for the proper size of pattern and spraying distance for the nozzle being used.
7. **Release the gun trigger at least once a minute** while spraying if you use a no-release triggering method. This actuates the mechanical purger and avoids fluid buildup on the nozzle tip and air cap.

⚠ CAUTION

Do not nick or scratch the nozzle tip as this could distort the spray pattern.

Adjusting Cleanoff Air

Each time the gun's trigger is released, the needle purges the nozzle and the cleanoff air blows the purged foam off the tip of the nozzle. Be sure the cleanoff air is properly adjusting to avoid a build up of foam on the nozzle or under the air cap.

⚠ WARNING

To reduce the risk of an injection injury, follow this procedure before adjusting the cleanoff air:

Engage the trigger safety (40), close the needle valves (64), disengage the trigger safety, and trigger the gun to relieve the fluid pressure. Engage the trigger safety again.

1. Screw in the air adjusting setscrew (19) using the 3/32 in. wrench (47), until no air or almost no air is escaping. See Fig. 11.
2. Regulate the air to the gun to 100 psi (0.7 MPa, 7 bar).
3. Back off the setscrew two turns as a test setting.
4. 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.

NOTE: Use the minimum amount of air needed to clean the nozzle. Too much air could affect the spray pattern.

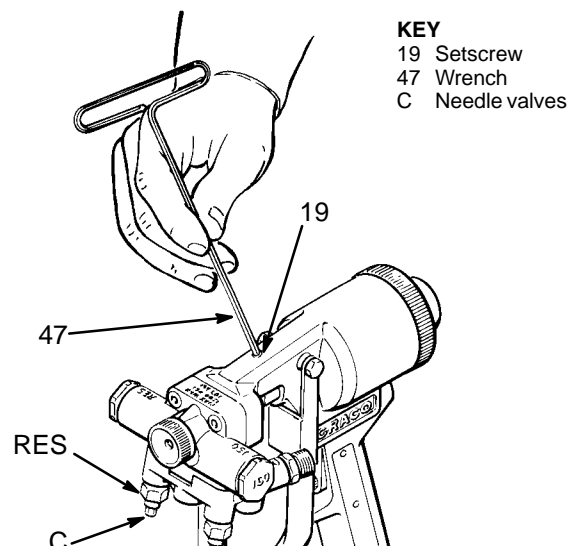


Fig. 11

Spray Pattern Adjustment

Effects of Fluid Temperature and Pressure

This section will help you determine how fluid temperature and pressure affect the spray pattern, and what adjustment can be made to correct a poor spray pattern. Since fluid temperature and pressure, and the nozzle, all affect the spray pattern, experimenting will help you learn how to control these variables.

Changing the fluid temperature affects viscosity and reaction time of the fluid. Raising the temperature reduces the viscosity and produces a wider spray pattern with finer atomization; it has much the same effect as raising the fluid pressure.

As the fluid temperature gets too high, the pattern becomes square with less foam in the center. Too high a temperature can also cause the chemical reaction to occur before the foam hits the spraying surface, which causes an undesirable rough surface.

Observing the Effects of Varying Fluid Temperature and Pressure

It is helpful to observe the effects of varying the fluid pressure and temperature. Raising the fluid temperature has about the same affect as raising the fluid pressure.

1. With fluid temperature set at 115°F (43°C), test the spray pattern at 300 psi (2.1 MPa, 21 bar). Increase the pressure in 100 psi (0.7 MPa, 7 bar) increments up to 1000 psi (7 MPa, 70 bar). In the lower pressure range, the pattern will be narrow and coarse. As the pressure is raised, the pattern becomes wider and finer. When the pressure becomes too high, the pattern becomes square and light in the middle.

2. Now, lower the fluid pressure and raise the fluid temperature in 5° increments up to 135°. Notice that the spray pattern is affected much the same by fluid temperature as it is by fluid pressure.
3. To minimize over spray and fogging, always use the lowest fluid pressure possible to get the desired spray pattern.
4. The output pressure of both displacement pumps should be within 150 psi (1.1 MPa, 10.5 bar) of each other to keep the viscosity of the ISO and RES similar. To change the pressure in only one displacement pump, adjust the temperature.

To raise the fluid pressure, decrease the fluid temperature.

To lower the fluid pressure, increase the fluid temperature.

About Surface Texture

The quality of foam developed is reflected in its surface texture. There are several causes of poor surface texture, including improper equipment adjustments. Descriptions of surface textures and recommendations on how to adjust the equipment to improve the texture are on the following pages.

About Poured Foam texture

Poured foam should have no dark or soft spots. The surface should be relatively smooth with only small ripples. There should be no blow holes larger than 1/4 in. (6 mm) diameter.

Surface Texture Descriptions

Smooth Surface Texture

Description

Wavy texture.

Equipment Adjustments

None; has good surface texture.

Orange Peel Texture

Description

Fine texture; like the skin of an orange.

Equipment Adjustments

None; has good surface texture.

Coarse Orange Peel Texture

Description

Surface texture has nodules and valleys of similar size and shape.

Equipment Adjustments

More flow-out time needed before the rise and cream time.

Atomized material too coarse. Increase fluid pressure. If condition persists, increase fluid temperature.

Try holding the gun further away from the spray surface.

Popcorn Surface Texture

Description

Linear surface pattern; forms sharp valleys and overhangs.

Equipment Adjustments

More flow-out time needed before the rise and cream time.

Slow the foam reaction time by lowering fluid temperature; since this increases the viscosity of the chemicals, the fluid pressure must be raised to maintain good atomization.

This type of surface pattern can also be caused by spraying a second lift of foam on top of the first lift while it is still creaming and rising.

Isocyanate-Rich Surface Texture

Description

Foam is dark in color; does not become tack-free in the time specified by the chemical manufacturer. Caused by lack of resin in the foam.

Equipment Adjustments

1. Refill or replace the resin supply.
2. Clean or replace the resin feed pump.
3. Clean the intake filter of the resin proportioning pump.
4. Clean or repair the resin proportioning pump.

Resin-Rich Surface Texture

Description

Foam has appearance of white shaving cream; does not become tack-free in the time specified by the chemical manufacturer. Caused by lack of isocyanate in the foam.

Equipment Adjustments

1. Refill or replace the isocyanate supply.
2. Clean or replace the isocyanate feed pump.
3. Clean the intake filter of the isocyanate proportioning pump.
4. Resin temperature is too high. Resin is frothing in the nozzle. Reduce resin temperature.

Replacing the Needle/Nozzle Assembly

⚠ WARNING

PRESSURIZED EQUIPMENT HAZARD

To reduce the risk of serious bodily injury including fluid injection, splashing in the eyes or on the skin, follow the **Pressure Relief Procedure** whenever you:

- are instructed to relieve the pressure,
- stop spraying,
- check or service any of the system equipment,
- or install or clean the spray nozzle.

1. Have a solvent pail ready to clean the old parts.
2. Solvent flush the gun as instructed in **Flushing** steps 1–9 on page 19.
3. Disconnect the solvent manifold.
4. Remove the two capscrews (7) using the 3/16 in. wrench (48). See Fig. 12. With the air connected to the gun, hold the gun with the nozzle housing straight down and briefly trigger the gun to push the nozzle housing away from the gun body. Disconnect the air line.
5. Tilt the nozzle housing up and disengage the needle ball from the piston (20) rod. Remove the housing from the gun. See Fig. 13.
6. Pull the needle out from the rear of the nozzle assembly. Use the 1/2 in. end of the wrench (53) to unscrew and remove the nozzle retainer (23). Remove the air cap (24). Place all parts in the solvent. Refer to Fig. 5 on page 8.
7. Use your fingers or a soft tool such as pencil eraser to push on the front of the nozzle (E) and pop it out the rear of the housing. Place the nozzle in solvent, being careful to keep it separated from the other parts to avoid damage. See Fig. 14.

NOTE: If the nozzle impingers holes are blocked, refer to the section, **Cleaning the Nozzle** on page 17.

⚠ CAUTION

Do not use a sharp tool to remove the nozzle. Scratches on the edge of the nozzle may distort the spray pattern. Scratches or nicks on the raised surfaces prevent the nozzle from sealing properly in the nozzle housing. An improper seal can result in fluid crossover which clogs the gun passages.

- KEY**
- 7 Capscrew
 - 25 Manifold
 - 50 Nut driver
 - B Safety latch
 - C Needle valves

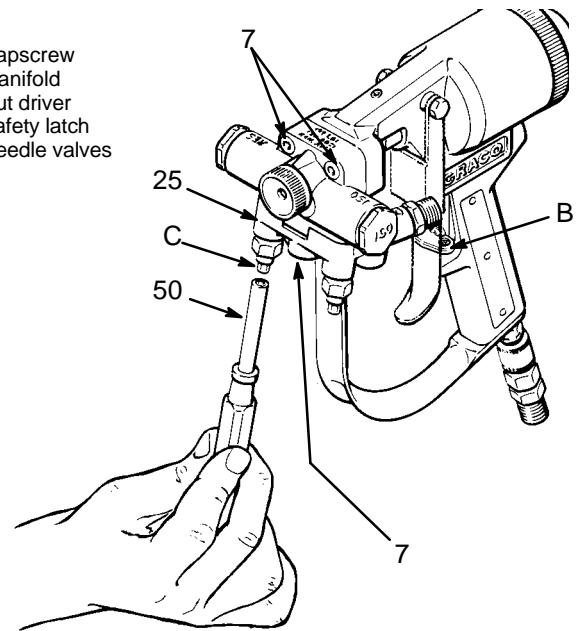
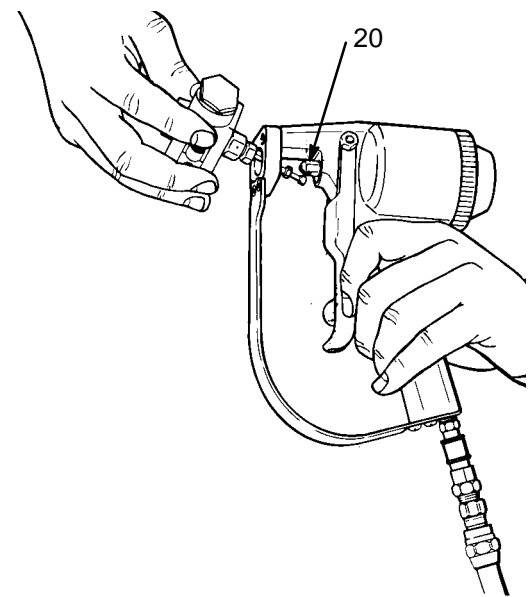
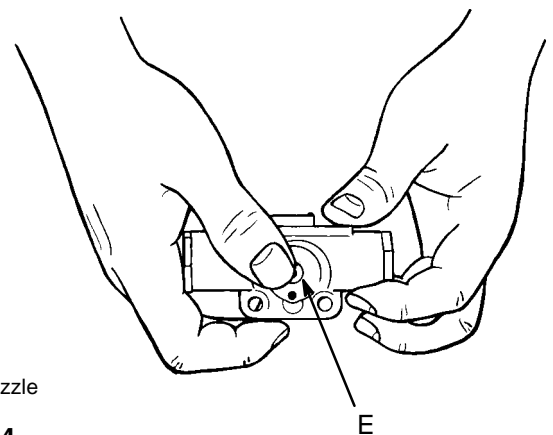


Fig. 12



- KEY**
- 20 Piston

Fig. 13



- KEY**
- E Nozzle

Fig. 14

Replacing the Needle/Nozzle Assembly

8. Check the interior surfaces of the nozzle housing (2). The tapered “steps” inside the nozzle housing must be free of fluid buildup. Soak the housing in solvent to soften the foam, then use a soft bristled brush to gently clean the interior surfaces.
9. Remove the check valve housings (45, 46) and strainers (34) from the nozzle housing and clean in solvent. Then reinstall the parts. See page 15.
10. Install the needle/nozzle assembly as instructed in steps 4–15 on pages 8–10.
11. Reconnect the foam manifold.

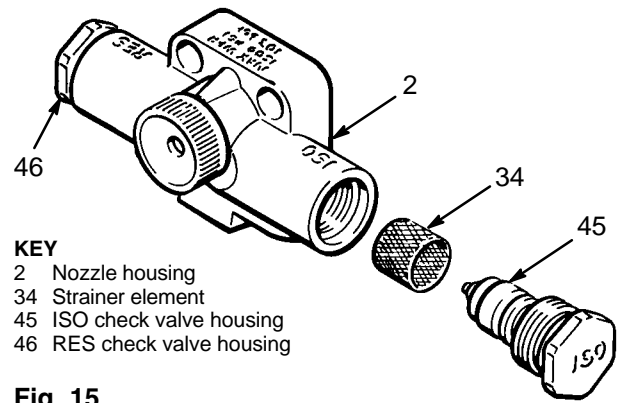


Fig. 15

Cleaning the Nozzle

Foam Spraying Nozzles

Nozzle Bore Dia. in. (mm)	Cleaning Pin Dia. in. (mm)	Cleaning Pin Part No.
0.125 (3.18)	0.033 (0.84)	106542
0.114 (2.90)	0.029 (0.75)	106543
0.102 (2.54)	0.026 (0.66)	106548
0.089 (2.26)	0.024 (0.61)	106545
0.073 (1.85)	0.018 (0.46)	106546
0.083 (2.11)	0.020 (0.51)	106547
0.060 (1.52)	0.018 (0.46)	106546

Foam Pouring Nozzles

0.187 (4.75)	0.029 (0.75)	106543
0.073 (1.85)	0.020 (0.51)	106547

- Solvent flush the gun as instructed in **Flushing**, steps 1–9 on page 19. Disconnect the solvent manifold.
- Remove the nozzle from the nozzle housing as instructed on page 15.
- Insert the correct impinger cleaning pin (H) in the pin vise (51) so that it protrudes about 1/2 in. (13 mm). Tighten the vise jaws.

CAUTION

Each needle/nozzle kit has a specially-sized impinger cleaning pin (H). Be sure to use the correct pin to avoid damaging the nozzle. Refer to the tables above.

- Clean the rear impinger holes (M) of the nozzle (E) first.** From the tip end of the nozzle, look through the nozzle while inserting the cleaning pin (H) into the *rear* impinger holes. See Fig. 16.

The rear impinger holes are directly on the centerline of the nozzle. Push the pin through the impinger hole and into the middle of the nozzle. *Don't push the pin all the way through or scratch the interior of the nozzle.* Clean each of the rear holes.

- Insert the needle (D) through the large end of the nozzle and push out any debris.
- Repeat Steps 4 and 5 to be sure the rear impinger holes are clean.

KEY

- 51 Pin vise
- D Needle
- E Nozzle
- H Cleaning pin
- M Rear impinger holes
- N Front impinger holes

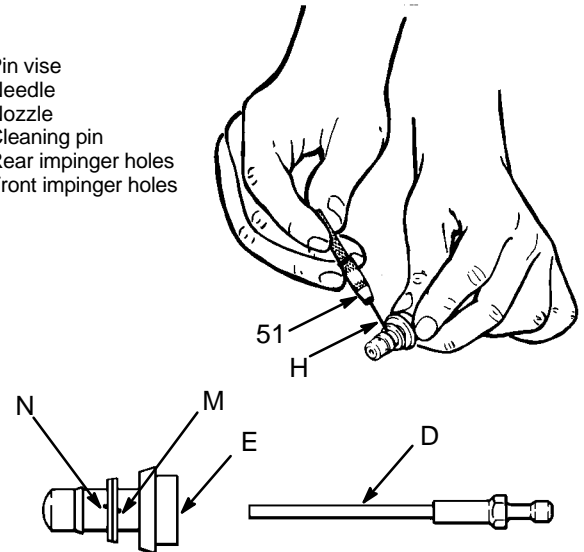


Fig. 16

- Now clean the front impinger holes (N).** On the spray nozzles these impinger holes *are not* on the centerline of the nozzle, but are just off center. On pour nozzles these holes *are* on the centerline. It is important that the pin be inserted at the same angle that the impinger hole is bored in order to clean it properly.

Look through the nozzle from the tip end. Insert the pin (H), pushing it through the impinger hole and into the center of the nozzle. *But do not push the pin all the way through which will scratch the interior of the nozzle.* See Fig. 16.

- Insert the needle (D) through the large end of the nozzle and push out any debris.
- Repeat Steps 7 and 8 to be sure the impinger holes are clean.

Maintenance

⚠ WARNING

PRESSURIZED EQUIPMENT HAZARD

To reduce the risk of serious bodily injury including fluid injection, splashing in the eyes or on the skin, follow the **Pressure Relief Procedure** whenever you:

- are instructed to relieve the pressure,
- stop spraying,
- check or service any of the system equipment,
- or install or clean the spray nozzle.

KEY
43 Needle shield
50 Nut driver
B Safety latch
C Needle valves

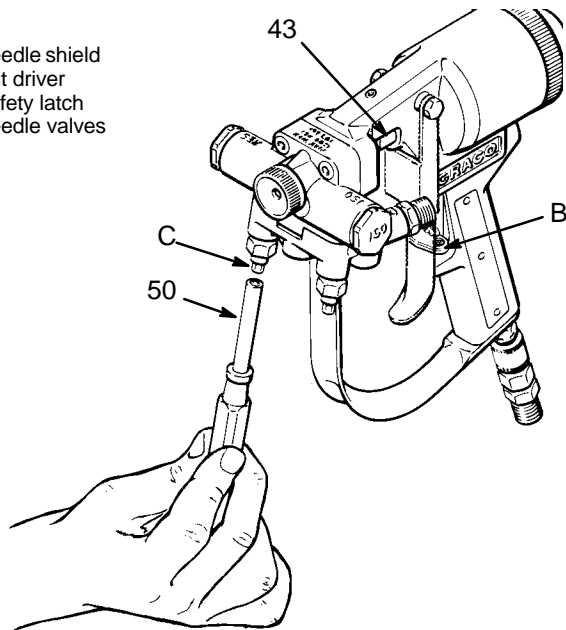


Fig. 17

Keeping the Gun Clean While Spraying

Coat it with grease or cover it with a plastic bag. Be sure the plastic shield (43) is in place around the exposed area of the needle. See Fig. 17.

Fluid Buildup on Nozzle

A build up of fluid on the nozzle and under the air cap can cause an irregular spray pattern. If that happens, follow the **Pressure Relief Procedure** on page 11. Then thoroughly clean the air cap and nozzle. Be sure that the cleanoff air is properly adjusted, also.

Fluid Buildup on Needle

If build up of fluid causes the needle (D) to stick, use the 1/4 in. open end wrench (52) on the hex of the needle and rotate to free it.

A dirty needle can be cleaned by buffing it lightly with bronze wool or very fine steel wool.

Cleaning the Fluid Manifold

Clean the manifold with solvent and a brush whenever it is removed from the gun to keep fluid from hardening on it.

Shutdown

⚠ WARNING

To reduce the risk of serious bodily injury from fluid injection or splashing fluid in the eyes or on the skin, engage the trigger safety latch (B) and close the needle valves (C) whenever you stop spraying. See Fig. 2, page 7.

For overnight shutdown:

1. Follow the **Pressure Relief Procedure** on page 11, and **Flushing**, steps 1–9 on page 19.
2. Disconnect the solvent manifold and store the gun.

Flushing

⚠ WARNING

PRESSURIZED EQUIPMENT HAZARD

To reduce the risk of serious bodily injury including fluid injection, splashing in the eyes or on the skin, follow the **Pressure Relief Procedure** whenever you:

- are instructed to relieve the pressure,
- stop spraying,
- check or service any of the system equipment,
- or install or clean the spray nozzle.

⚠ CAUTION

Thorough flushing of the nozzle and nozzle housing is essential each day to reduce fluid buildup which will quickly ruin the nozzle.

Graco recommends using a power flushing method, such as the Solvent Power Flush Kit, Part No. 218669. If you use this kit, refer to instruction manual 307692 for specific flushing procedure.

Use this flushing procedure when a Graco Solvent Flush Kit is not available.

1. Remove the foam manifold capscrew (7) using the 3/16 in. wrench (68), then disconnect the manifold. See Fig. 4, page 8.
2. Connect a solvent manifold to the gun; tighten the capscrew.
3. Open the needle valves (C).

⚠ WARNING

To reduce the risk of static sparking which could result in fire or explosion and serious bodily injury and property damage:

- Be sure all equipment used in the flushing operation is properly grounded.
- Never flush gun while standing on or near a surface where foam has been applied.

KEY

- C Needle valves
R Ground wire and clamp

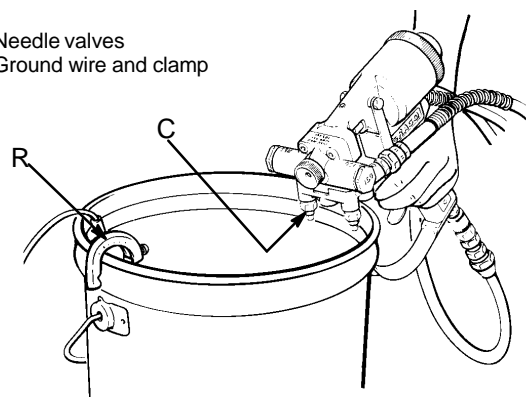
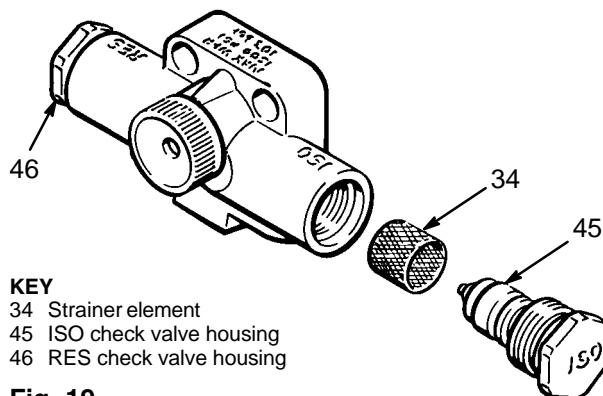


Fig. 18

4. Use the lowest possible pressure and hold the gun firmly to a grounded metal pail when flushing. See Fig. 18.
5. Flush the gun for 10 seconds.
6. Engage the trigger safety latch.
7. Turn off the solvent system.
8. Follow the **Pressure Relief Procedure** on page 11.



KEY

- 34 Strainer element
45 ISO check valve housing
46 RES check valve housing

Fig. 19

9. Remove and clean the check valve housings (45 and 46) and strainers (34) in solvent. See Fig. 19.
10. Remove the solvent manifold and reconnect the foam manifold.

NOTE: Whenever the foam manifold is removed, clean it with solvent and a brush.

⚠ CAUTION

Use a solvent which is compatible with the check valve o-rings. See page 7.

Never immerse the entire gun in solvent.

These steps help prevent damage to the gun o-rings and seals.

Troubleshooting

WARNING

To reduce the risk of serious injury, whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 11.

- Relieve the pressure before checking or servicing the equipment.
- Check all possible problems and causes before disassembling the pump.

Problem	Cause	Solution
Coarse atomization	Fluid temperature too low.	Increase temperature.
Fingering in spray pattern	Fluid temperature too low.	Increase temperature; use smaller nozzle.
Square spray pattern with hollow center	Fluid temperature too high or fluid pressure too high.	Decrease temperature and/or reduce fluid pressure.
Triangular spray pattern with hollow center	Fluid temperature too high and a nozzle impinger hole blocked.	Decrease temperature; clean nozzle. See page 17.
Round spray pattern with hollow center	Too much fluid flow.	Reduce fluid pressure or temperature.
	Fluid buildup on walls of impinger holes.	Clean nozzle. See page 17.
Middle of spray pattern dense	Too little fluid flow.	Increase fluid flow and/or temperature.
	ISO check valve screen blocked.	Remove check valve and clean strainer. See step 9, page 16.
Air valve leaks	O-rings exposed to solvent.	Replace o-rings. See page 24. Do not immerse gun in solvent.
Split spray pattern	Nozzle impinger hole blocked.	Clean nozzle. See page 17.
Distorted, irregular spray pattern	Too much cleanoff air.	Reduce air. See page 12.
Light-colored foam	Too little ISO.	Check and clean check valve strainers. See step 9, page 16.
		Check and clean proportioning pump filter screens.
		Check and refill ISO fluid supply.
		Check proportioning pump ratios.
Dark-colored foam	Too little RES.	Check and clean check valve strainers. See step 9, page 16.
		Check and clean proportioning pump filter screens.
		Check and refill ISO fluid supply.
		Check proportioning pump ratios.

Troubleshooting

Problem	Cause	Solution
Gun operates slowly when triggered	Inbound air pressure too low.	Increase air, but do not exceed 120 psi (0.8 MPa, 8 bar), since damage to air valve o-rings may result.
	Air valve leaking air.	Check for worn, damaged, or over-compressed o-rings on valve spool and repair as needed. See pages 24.
	Center spacer (12) of air valve compressed.	Check; replace if compressed. See pages 24.
	Air leaking past piston at rear of gun.	Check piston o-rings and replace as needed. See page 23.
	Blocked air passages.	Check air passages for dried fluid foam and/or broken o-ring pieces; clean as needed.
	Foam over spray built up on needle.	Clean. See page 18.
Needle won't pull back when gun is triggered	Inbound air pressure too low.	Increase air, but do not exceed 120 psi (0.8 MPa, 8 bar), since damage to the air valve o-rings may result.
	Needle stuck in nozzle.	Use 1/4 in. open end wrench to rotate hex of needle to free. Clean. See page 18. Check and clean or replace nozzle.
	Piston o-ring (40) damaged, causing imbalance of pressure between front and rear chambers.	Check; repair. See page 23.

Service

WARNING

Follow the **Pressure Relief Procedure** on page 11, then disconnect the gun from the manifold before proceeding.

Needle Valves

NOTE: Repair Kit 217360 is available. See page 28.

1. Open the needle valves (C) completely – 3 1/2 turns.
2. Use a wrench (A) to unscrew the valve housing (28). Refer to Fig. 20.
3. Hold the valve housing with a wrench (A). Turn the (50) clockwise to free the needle valve stem (29). See Fig. 21.
4. Use a pick to remove the backup washer (31) and o-ring (17). See Fig. 22.
5. If needed, soak the valve housing (28) in solvent to remove fluid buildup.
6. Install the backup washer (31) on the stem and screw the stem into the valve housing (28) to “size” the washer. Unscrew the stem.
7. Install the o-ring (17) on the stem. See Fig. 22.
8. Holding the valve housing, screw the stem assembly into it. It will require a couple of turns before it starts to engage in the housing far enough to use the nut driver.

9. Continue screwing the stem into the housing (28) all the way to the shoulder.
10. Screw the housing into the manifold (26). Don't exceed 80 in-lb (9 N•m) of torque.
11. Finish screwing the stem in gently – it doesn't require much torque.

KEY
28 Valve housing
C Needle valve

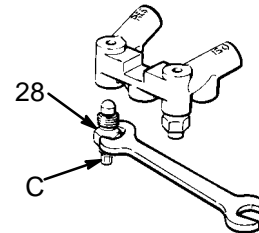


Fig. 20

KEY
29 Stem & seal assembly
50 Nut driver
A Wrench

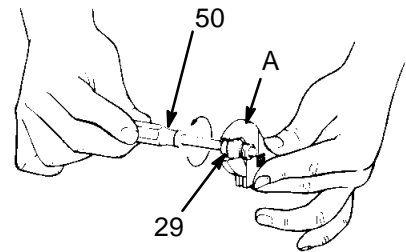


Fig. 21

KEY
17 O-ring
26 Manifold
28 Housing
29 Stem & seal assembly
31 Backup washer

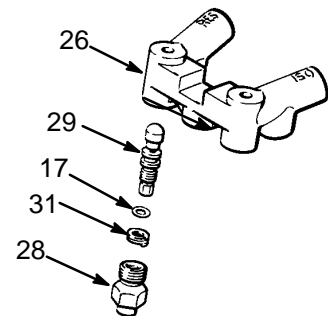


Fig. 22

Service

⚠ WARNING

Follow the **Pressure Relief Procedure** on page 11 before proceeding.

Piston (See Fig. 23)

1. Relieve pressure.
2. Remove the nozzle housing assembly as instructed in **Replacing the Needle/Nozzle Assembly** on page 15.
3. Remove the cylinder cap (21), o-ring (39), spring (15) and piston (20).
4. *If fluid crossover has occurred*, remove the bearing (22) to clean the piston passage as follows: insert the large end of the accessory pressing tool (P) through the front end of the gun and press out the piston rod bearing (22).
5. Replace the o-ring (41), then reinstall the bearing, if it was removed, through the rear of the gun. Use the small end of the pressing tool (P) to press it into place.
6. If the o-ring (40) around the piston shows signs of wear or damage, replace it. Then reinstall the piston, spring, o-ring and cylinder cap.

NOTE: The cylinder cap should fit snugly against the rear of the gun.

Check Valve (See Fig. 24)

1. Relieve pressure.
2. Unscrew the check valve housings (45, 46).
3. If the check valve assembly (61) cannot be removed easily, insert a pick (such as a dentist's pick) into the slot in the check valve housing and push the seat (36) out of the housing.

4. Clean all parts thoroughly, replacing parts as needed, and then reassemble.

KEY

- 15 Spring
- 20 Piston
- 21 Cylinder cap
- 22 Bearing
- 39 O-ring
- 40 O-ring
- 41 O-ring
- P Pressing tool

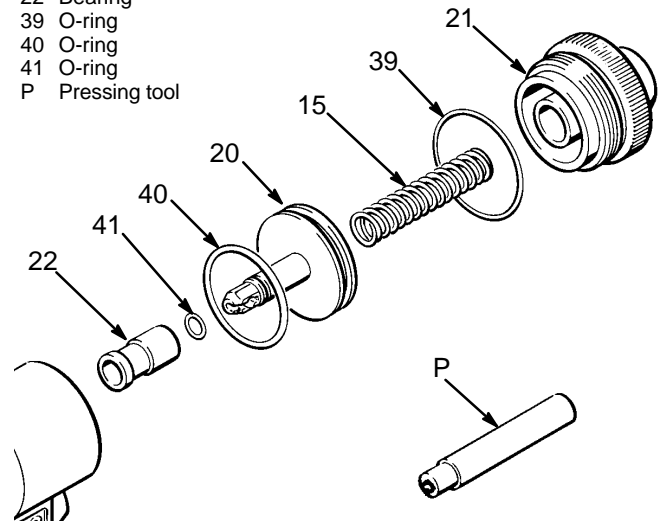
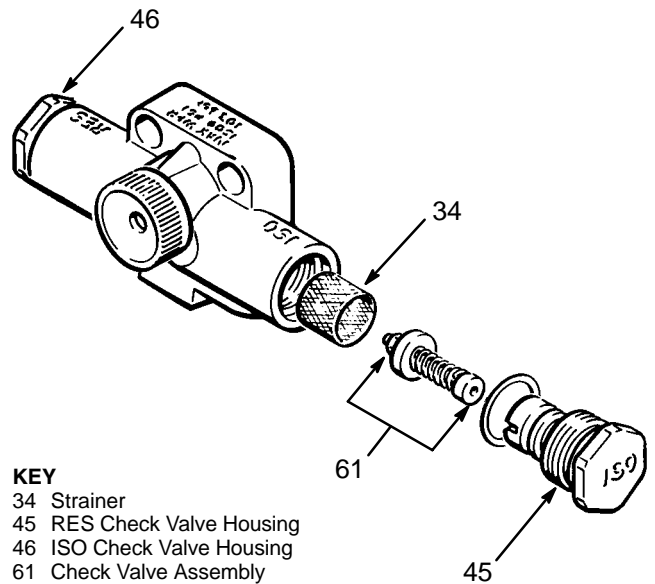


Fig. 23



KEY

- 34 Strainer
- 45 RES Check Valve Housing
- 46 ISO Check Valve Housing
- 61 Check Valve Assembly

Fig. 24

Service

Air Valve (See Fig. 25)

1. Relieve pressure.
2. Remove the nozzle housing assembly as instructed in **Replacing the Needle/Nozzle Assembly** on page 15.
3. Use the 1/2 in. end of wrench (53) on the flats of the stem guide (10) to unscrew it.
4. Use your fingers to pull out the valve pin (13).
5. To remove the valve spool (14) and spring (16) tilt the gun forward and tap the gun against your hand. The spring is very small – be careful not to lose it.

NOTE: Use the accessory air valve hook (O) to pull out the air valve spacers (11,12). To use it, insert the hook into the valve, hook one of the holes in the spacer and pull it out.

6. Use the hook (O) to pull the first spacer (11A) out just 3/32 in. (2.8 mm). Push the spacer back into the valve and remove the tool. This action will free the first o-ring (18A). Use the hook to remove the o-ring.
7. Insert the hook (O) again and remove the first spacer. Notice the direction this spacer faces.
8. Remove the next o-ring (18B) with the hook.
9. Remove the next spacer (12) by shaking it out or using the hook if it is stuck.

10. Remove the next o-ring (18C) with the hook.
11. Remove the last spacer (11B) by shaking it out or using the hook if it is stuck. Again, notice the direction the spacer faces.
12. Use the hook to remove the last o-ring (18D).
13. If foam has backed up into the air valve cavity, remove the two setscrews (6, 33) on either side of the valve cavity and clean the holes with a soft wooden stick. Never use power tools!
14. Reassemble the air valve using all new o-rings which have been lubricated with lithium grease. Use the eraser end of a pencil to guide the o-rings into the cavity and make sure they seat flatly.
15. Install the first o-ring (18D) and then a spacer (11B) with the small diameter facing out.

CAUTION

The direction the first and last spacer face out is critical. Although they are identical spacers, the small diameters must face each other. See Fig. 24.

16. Install the next o-ring (18C), the U-shaped spacer (12), another o-ring (18B), the last spacer – with the small diameter facing in – and the last o-ring (18A).
17. Gently screw the stem guide (10) into the valve by hand. Then use the wrench to just snug the stem; this will stack the o-rings properly.

Service

⚠ CAUTION

Be careful not to wrench the stem guide (10) too tightly to avoid damage to the air valve.

18. Remove the stem guide and drop in the new spring (16), making sure it goes all the way into the hole in the back of the valve cavity.

19. Install the valve spool (14) and valve pin (13), then the stem guide (10). Tighten the stem guide until it is just snug; don't overtighten.

20. If the setscrews (6,33) were removed from either side of the valve cavity, reinstall them using PTFE tape on the threads.

21. Reinstall the trigger.

KEY

- 10 Stem guide
- 11 Spacer
- 12 U-shaped valve spacer
- 13 Pin
- 14 Spool
- 16 Spring
- 17 O-ring
- 18 O-ring
- 57 O-ring
- O Pick

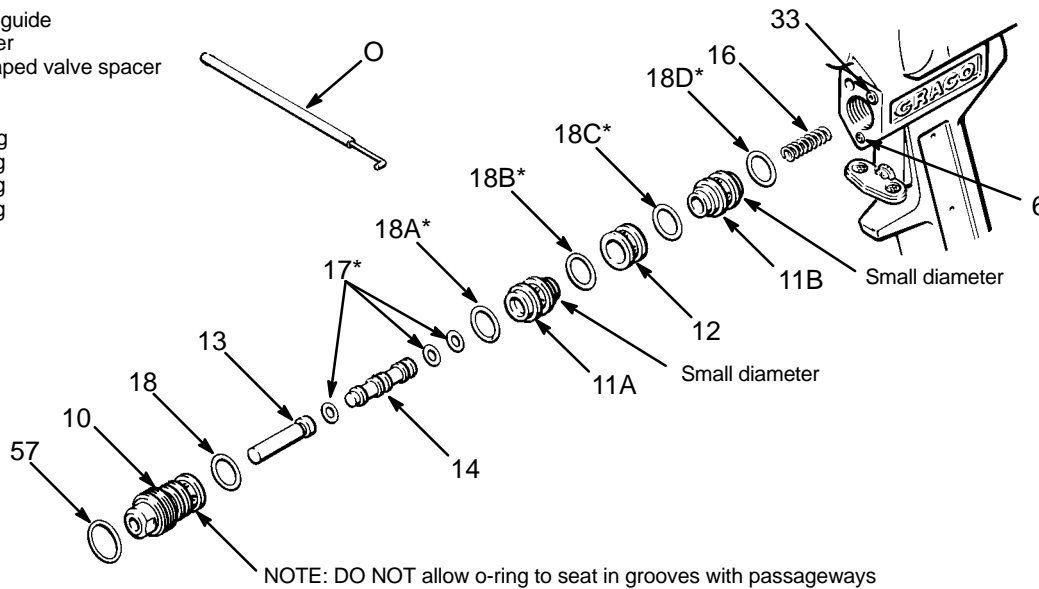
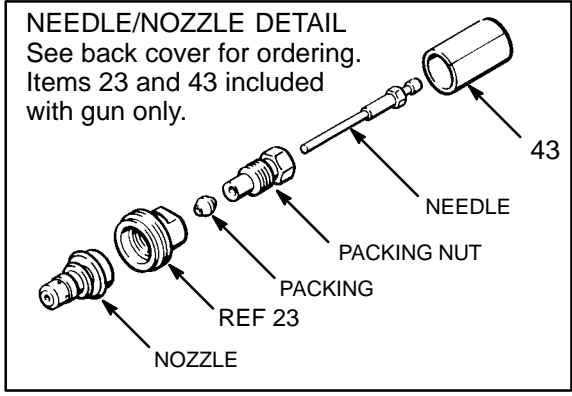


Fig. 25

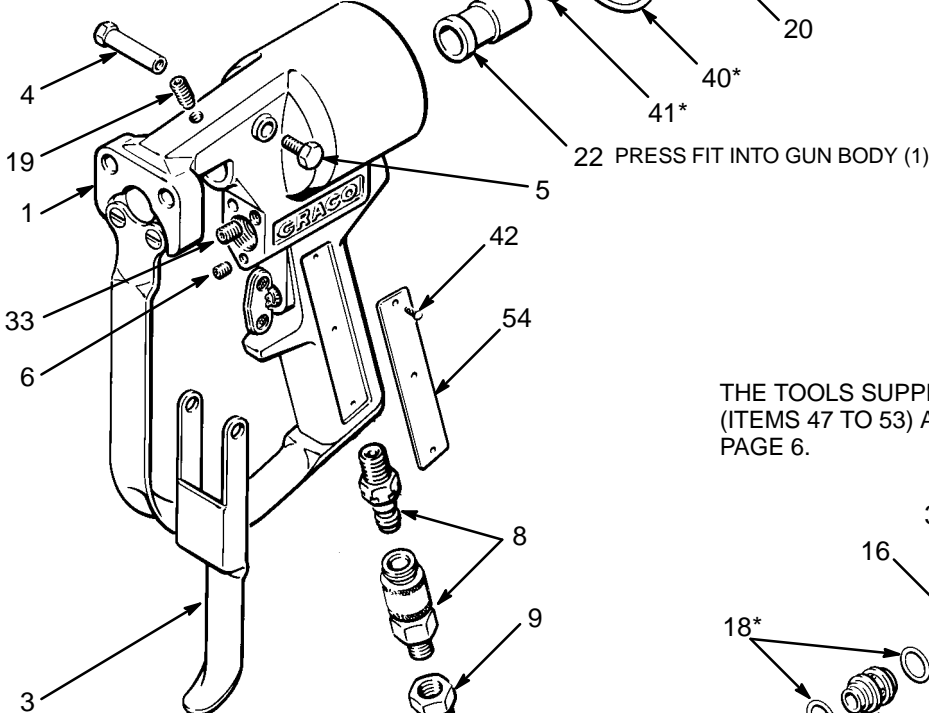
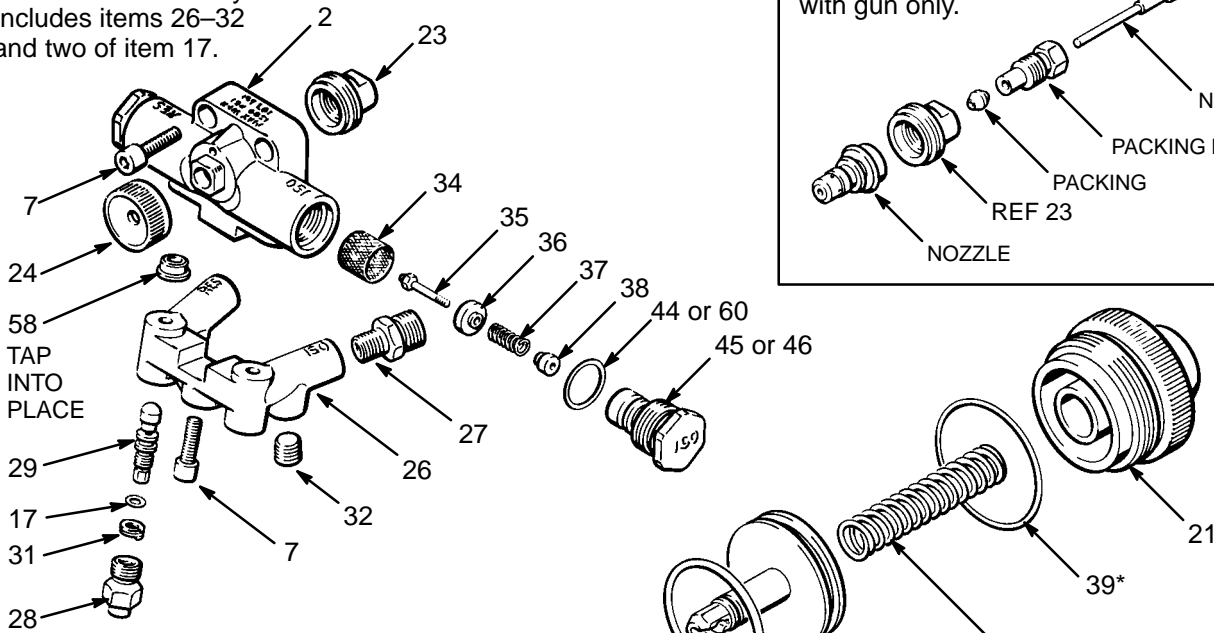
Parts

Ref 25 Manifold Assy.
Includes items 26–32
and two of item 17.

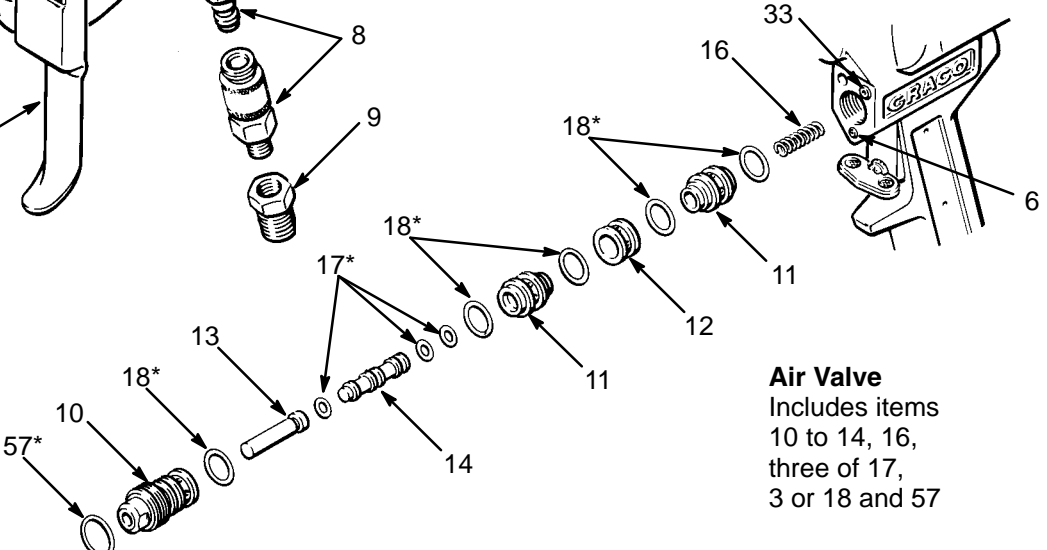
NEEDLE/NOZZLE DETAIL
See back cover for ordering.
Items 23 and 43 included
with gun only.



NOZZLE
REF 23
PACKING
PACKING NUT
NEEDLE
43



THE TOOLS SUPPLIED WITH THE GUN
(ITEMS 47 TO 53) ARE PICTURED ON
PAGE 6.



Air Valve
Includes items
10 to 14, 16,
three of 17,
3 or 18 and 57

Parts

Model 217373, Series E

Includes items 1 to 61

REF NO.	PART NO.	DESCRIPTION	QTY	REF NO.	PART NO.	DESCRIPTION	QTY
1	217459	BODY, gun	1	34✓	178585	ELEMENT, strainer; SST; 80 mesh	2
2	178663	HOUSING, nozzle	1	35	178660	STEM, check valve	2
3	178584	TRIGGER	1	36	178659	SEAT, check valve; Delrin®	2
4	178682	PIN, trigger	1	37	106562	SPRING, compression	1
5	203953	CAPSCREW, hex hd; 10–24 x 0.375 in.	1	38	178658	RETAINER, spring	1
6	102279	SETSCREW, soc hd; 8–32 x 0.188 in.	1	39*	106557	O-RING; Viton	1
7	101682	CAPSCREW, soc hd; 1/4–20 x 0.625 in.	3	40*	106556	O-RING; Viton	1
8✓	106552	COUPLER, air line	1	41*	106555	O-RING; Viton	1
9	100030	BUSHING; 1/8 npt(m) x 1/4 npt(f)	1	42	102817	SCREW, drive	3
10	178654	GUIDE, stem	1	43	178586	SHIELD	1
11	178653	SPACER, valve	2	44	110188	O-RING; flourocarbon; brown color; for methylene chloride solvents	2
12	178652	SPACER, valve, u-shaped	1	45	180964	HOUSING, check valve, ISO	1
13	178650	PIN, air valve	1	46	180965	HOUSING, check valve, RES	1
14	178651	SPOOL, valve	1	47	106571	WRENCH, hex; 3/32 in.	1
15	178671	SPRING, compression, piston	1	48	106572	WRENCH, hex; 3/16 in.	1
16	106561	SPRING, compression, air valve	1	50	106540	TOOL, nut driver	1
17*	106560	O-RING; Viton®	5	51	106550	WISE, pin	1
18*	106559	O-RING; Viton	5	52	107015	WRENCH, open end; 1/4 in.	1
19	106538	SETSCREW, soc hd; 10–32 x 0.5 in.	1	53	106539	WRENCH, open end; 7/16 in. x 1/2 in.	1
20	178649	PISTON	1	54	178587	PLATE, warning	1
21	178648	CAP, cylinder	1	55▲	178695	TAG, warning (not shown)	1
22	178647	BEARING, piston	1	57*	106551	O-RING; Viton	1
23	178646	RETAINER, nozzle	1	58	179716	GASKET, housing	2
24	178642	CAP, air	1	59	218756	O-RING KIT, check valve; includes items 44 and 60 (not installed)	1
25	221177	MANIFOLD ASSEMBLY; includes items 26–32 and two of 17	1	60	110189	.O-RING; silicone; rust colored; for DMF and Cellosolve® solvents	2
26	183598	.MANIFOLD, fluid	1	61	218627	CHECK VALVE ASSEMBLY; includes items 35–38	1
27	191872	.ADAPTER; 1/4 npsm(f) x 1/8 npt(m)	2				
28	178657	.HOUSING, valve	2				
29✓	218628	.STEM and SEAL ASSEMBLY	2				
31	106558	.WASHER, backup; PTFE	2				
32	100139	.PLUG, pipe, hdls; 1/8 npt(f)	2				
33	100002	SETSCREW, soc hd; 1/4–20 x 0.25 in.	1				

* These parts are included in Repair Kit 217360, which may be purchased separately.

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

▲ Replacement Danger and Warning labels, tags, and cards are available at no cost.

Accessories

Must be purchased separately.

Foam Flush Kit 218669

120 psi (0.8 MPa, 8 bar) Maximum Working Pressure
For solvent flushing the Foam-Cat gun.

Air Valve Hook 178583

Essential for removing air valve o-rings and spacers.

Pressing Tool 178581

For servicing piston.

Air Valve Repair Kit 217360

Part No.	Description	Qty.
106560	O-RING; Viton	3
106559	O-RING; Viton	5
106557	O-RING; Viton	1
106556	O-RING; Viton	1
106555	O-RING; Viton	1
106551	O-RING; Viton	1

Technical Data

Category	Data
Maximum working pressure	1500 psi (10.5 MPa, 105 bar)
Maximum air working pressure	120 psi (0.8 MPa, 8 bar)
Air inlet sizes	1/4 npt(m) with bushing; 1/8 npt(f) without bushing
Fluid inlet sizes	1/4 npsm(m) with adapter; 1/8 npsm(f) without adapter
Strainer element	80 mesh (177 micron)
Wetted parts	Stainless steel, Carbon steel, Brass, PTFE, Viton, Delrin, Fluorocarbon

Viton®, and Delrin® are registered trademarks of the DuPont Company.

Nozzle Kit Summary

Kit No. ¹	Needle		Nozzle Part No. ^{2, 3}	Packing Part No.	Packing Nut Part No. ³	Cleaning Pin	
	Diameter in. (mm)	Part No. ³				Part No.	Diameter in. (mm)
217420*	0.125 (3.18)	217364	178633	178624	178615	106542	0.033 (0.84)
217421*	0.114 (2.90)	217365	178634	178625	178616	106543	0.029 (0.75)
217423*	0.089 (2.26)	217367	178636	178627	178618	106545	0.024 (0.61)
217424*	0.073 (1.85)	217368	178637	178628	178619	106546	0.018 (0.46)
217425*	0.083 (2.11)	217369	178638	178629	178620	106547	0.020 (0.51)
217426*	0.102 (2.59)	217366	178635	178626	178617	106548	0.026 (0.66)
217428*	0.060 (1.52)	217371	178640	178631	178622	106546	0.018 (0.46)
217427†	0.187 (4.75)	217370	181515	178630	178621	106543	0.029 (0.75)
220616†	0.073 (1.85)	217368	183117	178628	178619	106547	0.020 (0.51)

* Use for foam spraying applications.

† Use for pouring applications.

NOTES:

- ¹ Each kit includes a needle, nozzle, packing, packing nut, and cleaning pin. Each part may be ordered separately or as a kit.
- ² Select a nozzle that will not exceed the maximum recommended flow rate of your foam spray system at the desired working pressure. Too high a flow may exceed the performance capabilities of the foam heater and other spray components, causing poor foam development and equipment problems.
- ³ The last three digits of the part no. are stamped on the needle, nozzle, and packing nut to help you identify the size.

Graco Standard Warranty

Graco warrants all equipment manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale by an authorized Graco distributor to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

This warranty does not cover, and Graco shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility of Graco equipment with structures, accessories, equipment or materials not supplied by Graco, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the claimed defect. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

THIS WARRANTY IS EXCLUSIVE, AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

Graco's sole obligation and buyer's sole remedy for any breach of warranty shall be as set forth above. The buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss) shall be available. Any action for breach of warranty must be brought within two (2) years of the date of sale.

Graco makes no warranty, and disclaims all implied warranties of merchantability and fitness for a particular purpose in connection with accessories, equipment, materials or components sold but not manufactured by Graco. These items sold, but not manufactured by Graco (such as electric motors, 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.

In no event will Graco be liable for indirect, incidental, special or consequential damages resulting from Graco supplying equipment hereunder, or the furnishing, performance, or use of any products or other goods sold hereto, whether due to a breach of contract, breach of warranty, the negligence of Graco, or otherwise.

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Graco Information

TO PLACE AN ORDER, contact your Graco distributor, or call one of the following numbers to identify the distributor closest to you:

1-800-367-4023 Toll Free

612-623-6921

612-378-3505 Fax

All written and visual data contained in this document reflects the latest product information available at the time of publication.

Graco reserves the right to make changes at any time without notice.

Sales Offices: Minneapolis, Detroit

International Offices: Belgium, Korea, Hong Kong, Japan

www.graco.com

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