

# Instructions–Parts List



AIR OPERATED, SINGLE COMPONENT DISPENSE VALVE

## 1K Ultra–Lite™

308876L

EN

*For dispensing a wide variety of single component sealants and adhesives.*

*4000 psi (28 MPa, 276 bar) Maximum Fluid Working Pressure  
120 psi (0.84 MPa, 8.4 bar) Maximum Air Inlet Pressure*

See page 2 for Table of Contents

### Part No. 965766

Stainless Steel Wetted Parts, Machine Mount Valve

### Part No. 965767

Aluminum Wetted Parts, Hand–held Valve with internal air switch

### Part No. 965768

Aluminum Wetted Parts, Hand–held Valve with electric switch for remote operation

### Part No. 965786

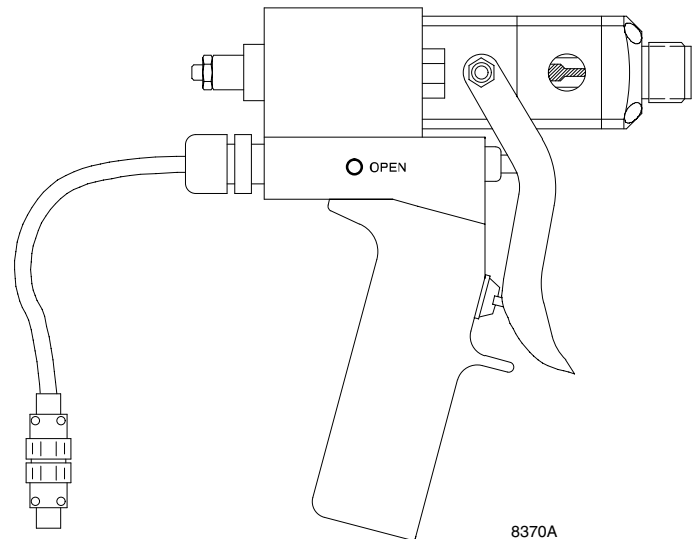
Aluminum Wetted Parts, Automatic Machine Mount Valve

### Part No. 243482

Stainless Steel Wetted Parts, Precision Swirl Orbiter Mounted with Nozzle Accessory

### Part No. 243666

Stainless Steel Wetted Parts, PrecisionFlo® Control Valve Machine Mount Valve



Model 965768 shown



#### Important Safety Instructions

Read all warnings and instructions in this manual.  
Save these instructions.

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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



## SKIN INJECTION HAZARD

Spray from the valve, hose leaks, or ruptured components can inject fluid into your body and cause extremely serious injury, including the need for amputation. Fluid splashed 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 surgical treatment.**
- Do not point the valve at anyone or at any part of the body.
- Do not stop or deflect leaks with your hand, body, glove or rag.
- Be sure the valve trigger safety operates before dispensing.
- Lock the valve trigger safety when you stop dispensing.
- If the nozzle clogs while dispensing, fully release the trigger immediately.
- Follow the **Pressure Relief Procedure** on page 8 whenever you: are instructed to relieve pressure; stop dispensing; clean, check, or service the equipment; and install or clean the nozzle.
- Tighten all 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.
- Use only Graco approved hoses. Do not remove any spring guard that is used to help protect the hose from rupture caused by kinks or bends near the couplings.

# WARNING



INSTRUCTIONS

## EQUIPMENT MISUSE HAZARD

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

- 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 usage, call your Graco distributor.
- Do not alter or modify this equipment. Use only genuine Graco parts and accessories.
- Check equipment daily. Repair or replace worn or damaged parts immediately.
- Do not exceed the maximum working pressure stated on the equipment or in the **Technical Data** for your equipment. Do not exceed the maximum working pressure of the lowest rated component in your system.
- Use fluids and solvents which are compatible with the equipment wetted parts. Refer to the **Technical Data** section of all equipment manuals. Read the fluid and solvent manufacturer's warnings.
- Do not use hoses to pull equipment.
- Route hoses away from 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).
- Comply with all applicable local, state, and national fire, electrical, and safety regulations.
- Never use 1,1,1-trichloroethane, methylene chloride, other halogenated hydrocarbon solvents or fluids containing such solvents in this equipment. Such use could result in a serious chemical reaction, with the possibility of explosion, which could cause death, serious injury, and/or substantial property damage.

# WARNING



## FIRE AND EXPLOSION HAZARD

Improper grounding, poor 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 being sprayed. Refer to **Grounding** on page 6.
- If there is any static sparking or you feel an electric shock while using this equipment, **stop dispensing immediately**. Do not use the equipment until you identify and correct the problem.
- Provide fresh air ventilation to avoid the buildup of flammable fumes from solvents or the fluid being dispensed.
- Keep the dispense area free of debris, including solvent, rags, and gasoline.
- Extinguish all open flames or pilot lights in the dispense area.
- Do not smoke in the dispense area.
- Do not turn on or off any light switch in the dispense area while operating or if fumes are present.
- Do not operate a gasoline engine in the dispense area.



## 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.
- Always wear protective eyewear, gloves, clothing and respirator as recommended by the fluid and solvent manufacturer.

# Features

- Adjustable forward travel to reduce material surge when valve opens
- Severe-Duty™ needle and seat for longer operating life
- Lubricated packings for longer seal life
- Lightweight construction reduces operator/machinery fatigue
- Compact size for small X–Y tables, working areas, and robots
- Handle kit provides easy conversion from automatic to manual usage
- Stainless steel housing to handle most materials

## 4 Control Configurations

1. 1/8 npt(f) ported manifold block
2. Direct solenoid mount with speed control
3. Handle kit with 4-way air valve
4. Handle kit with electric switch

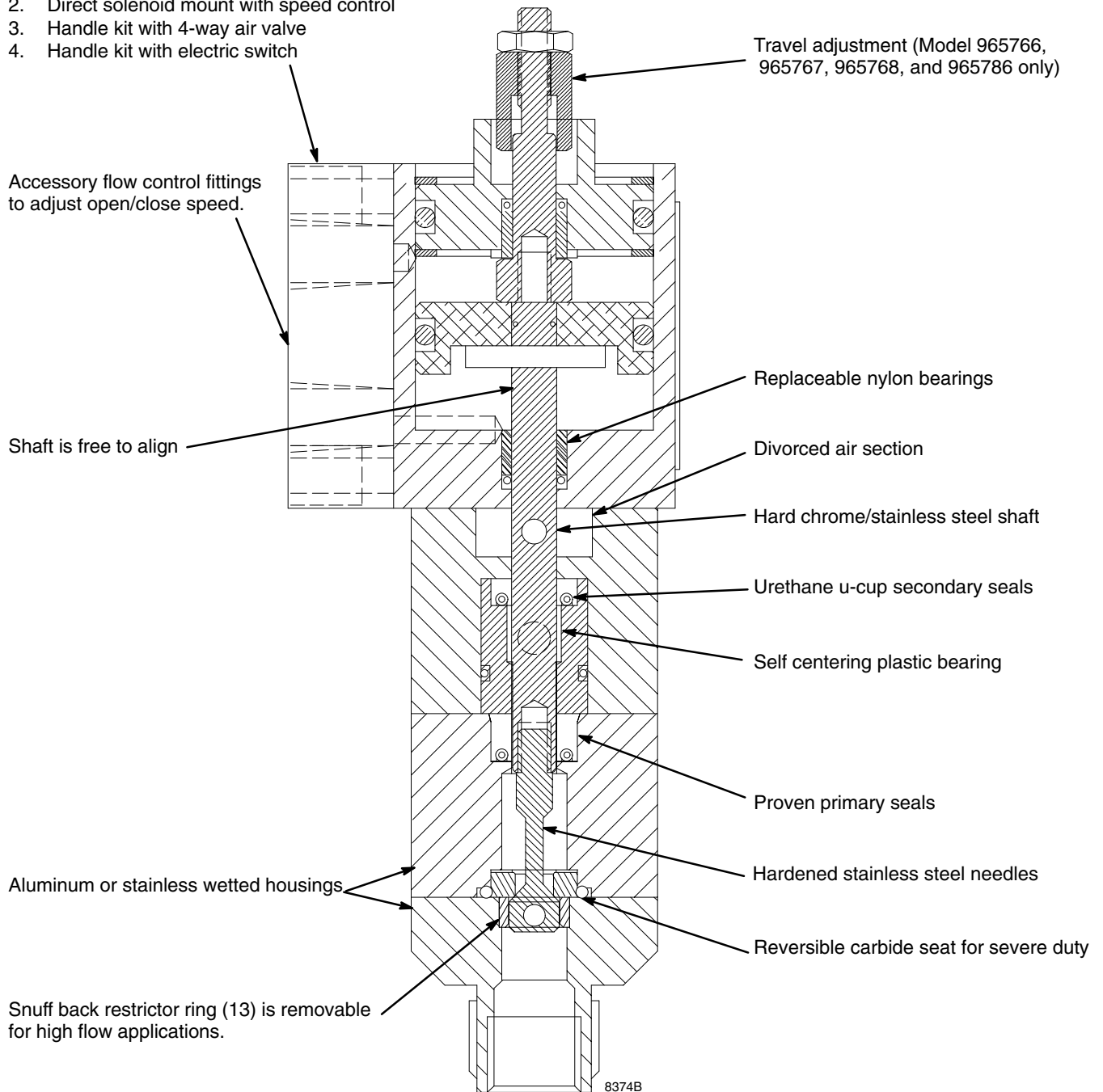


Fig. 1

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# Installation

## NOTES:

- Reference numbers and letters in parentheses in the text refer to the callouts in the figures and drawings.
- Accessories are available from your Graco representative. If you supply your own accessories, be sure they are adequately sized and pressure-rated to meet the system's requirements.

## Grounding

### **WARNING**



#### **FIRE AND EXPLOSION HAZARD**

To reduce the risk of fire, explosion, and serious injury, proper electrical grounding of every part of your system is essential. Read the warning section **Fire and Explosion Hazard** on page 4, and follow the grounding instructions below.



The following grounding instructions are minimum requirements for a basic dispensing system. Your system may include other equipment or objects which must be grounded. Check your local electrical code for detailed grounding instructions for your area and type of equipment. Your system must be connected to a true-earth ground.

- *Pump*: ground the pump by connecting ground wire and clamp as described in your separate pump instruction manual.
- *Air compressors and hydraulic power supplies*: ground the equipment according to the manufacturer's recommendations.
- *Fluid hoses*: use only grounded fluid hoses with a maximum of 500 feet (150 m) combined hose length to ensure grounding continuity. Check the electrical resistance of your fluid hoses at least once a week. If your hose does not have a tag on it which specifies the maximum electrical resistance, contact the hose supplier or manufacturer for the maximum electrical resistance limits, replace the hose immediately.
- *Dispensing valve*: ground the valve by connecting it to a properly grounded fluid hose and pump.

- *Fluid supply container*: ground according to your local code.
- *Flammable liquids in the spray area*: must be in approved, grounded containers. Do not store more than the quantity needed for one shift.
- *All solvent pails used when flushing*: ground according to local code. Use only metal pails, which are conductive. Do not place the pail on a non-conductive surface, such as paper or cardboard, which interrupts the grounding continuity.
- *To maintain grounding continuity when flushing or relieving pressure*, hold a metal part of the valve firmly to the side of a grounded metal pail, then trigger the valve.

## How to Use the Valve Trigger Safety

### **WARNING**



#### **SKIN INJECTION HAZARD**

To prevent accidental triggering of the gun and reduce the risk of a serious injury, including fluid injection or splashing in the eyes or on the skin, lock the gun trigger safety when you stop dispensing.

1. If you are using one of the hand-held versions of the valve, lock the valve trigger safety by turning the latch to a right angle with the gun body. See Fig. 2.
2. To unlock the valve trigger safety, push the latch out and turn it parallel with the gun body.

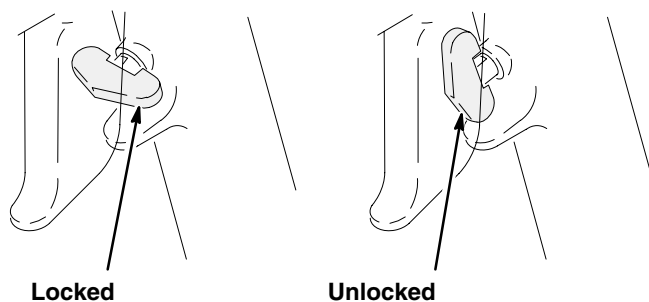


Fig. 2

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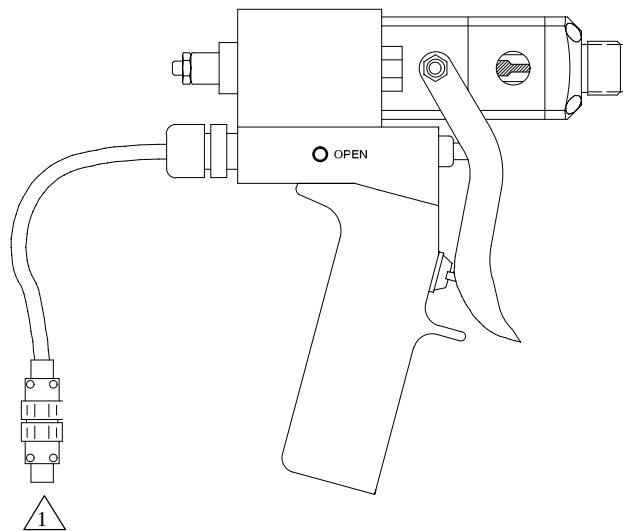
# Installation

## Connections

- The fluid inlet is 1/4 npt(f).
- The fluid outlet is 1/4 npt(f) or 3/4–16 unf(m).
- Air inlets are 1/8 npt(f).
- See **Accessories**, page 25, to order air control valves and tubing.

## Electric Switch Hand Held Valve

Install a remote 4-way air control valve to operate the valve. Connect an OPEN air signal air line to the 1/8 npt(f) port on the side of the valve. Connect a CLOSE air signal air line to the 1/8 npt(f) port on the opposite side of the valve. Wire the normally open valve switch to the system control.



## Machine Mount Valve

Install a remote 4-way air control valve to operate the valve. Connect an open air signal air line to the 1/8 npt(f) OPEN port. Connect a close air signal air line to the 1/8 npt(f) CLOSE port.

## Air Switch Hand Held Valve

This valve has a single air inlet and an internal 4-way spool valve, which directly operates the air piston. Connect the air line to the 1/8 npt(f) air inlet.

- △ 1 Solder to terminals in cable connectors as shown in Detail A.
- △ 2 Normally open, momentary contact switch.
- △ 3 Ground connection.

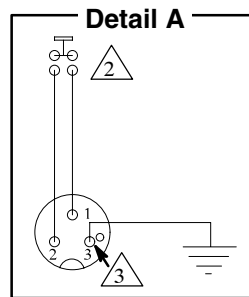


Fig. 3


Electric Switch Hand Held Valve shown

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# Operation

## WARNING

### COMPONENT RUPTURE HAZARD




To reduce the risk of over-pressurization, which can cause component rupture and serious injury, never exceed 3000 psi (21 MPa, 207 bar) fluid pressure, or 120 psi (0.84 MPa, 8.4 bar) air pressure to the valve.

## Pressure Relief Procedure

## WARNING

### SKIN INJECTION HAZARD



The system pressure must be manually relieved to prevent the system from starting or spraying accidentally. Fluid under high pressure can be injected through the skin and cause 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. Shut off the air to the dispense valve, if applicable.
2. Shut off the air to the supply pumps.
3. Close the bleed-type master air valve (required in your system).
4. Hold a metal part of the valve firmly to the side of a grounded metal pail, and trigger the dispense valve to relieve pressure.
5. Open the fluid drain valve (required in your system), having a grounded metal container ready to catch the drainage.
6. Leave the fluid drain valve open until you are ready to dispense again.

If you suspect that the dispense needle or hose is completely clogged, or that pressure has not been fully relieved after following the steps above, very slowly loosen the needle retaining nut or hose end coupling and relieve pressure gradually, then loosen completely. Now clear the needle or hose.

## Electric Switch Hand Held Valve

- Be sure the air supply lines are connected correctly to the OPEN and CLOSE valve air ports.
- To open or close the valve and maintain the open or closed status, a minimum of 40 psi (280 kPa, 2.8 bar) air pressure must be supplied and maintained at the OPEN or CLOSE port.
- The trigger only activates the electrical switch in the handle, which turns the remote solenoid on and off.
- Trigger the gun to turn the solenoid on. Release the trigger to turn the solenoid off.

## Machine Mount Valve

- Be sure the air supply lines are connected correctly to the OPEN and CLOSE valve air ports.
- To open or close the valve and maintain the open or closed status, a minimum of 40 psi (280 kPa, 2.8 bar) air pressure must be supplied and maintained at the OPEN or CLOSE port.

### To open the valve:

1. Apply air pressure to the OPEN air port on the valve, and remove air pressure from the CLOSE air port on the valve.
2. Maintain air pressure on the OPEN air port to keep the valve open.

### To close the valve:

1. Apply air pressure to the CLOSE air port on the valve, and remove air pressure from the OPEN air port on the valve.
2. Maintain air pressure to the CLOSE air port to keep the valve closed.



# Operation

## Air Switch Hand Held Valve

The valve operation is such that there are only two valve conditions: either fully open or fully closed.

The valve is opened and closed by the internal air control valve. Trigger the gun to open the valve. Release the trigger to close the valve.

## Shaft Stroke Adjustment (Models 965766, 965767, 965768, and 965786 only)

Adjust the shaft stroke to balance the valve between “snuff-back” and “push-out”.

- A long stroke will give maximum snuff-back but it may cause push-out when the valve opens.
- Shortening the stroke of the shaft will minimize the material pushed out when the valve opens and will also increase the material back pressure through the valve.

### To adjust the shaft stroke:

1. Loosen the hex nut (44) from the adjustment nut (43).
2. Adjust the nut (44) along the adjustment shaft (42) to the desired position.

- The valve is at full stroke when the hex nut (44) is at the end of the adjustment shaft (42).
  - Adjusting the nut (44) on the shaft (42) towards the valve, or clockwise, will reduce the stroke length.
  - Adjusting the nut away from the valve, or counterclockwise, will lengthen the stroke.
3. Tighten the hex nut (44) to the adjustment nut (43) to set the adjustment.

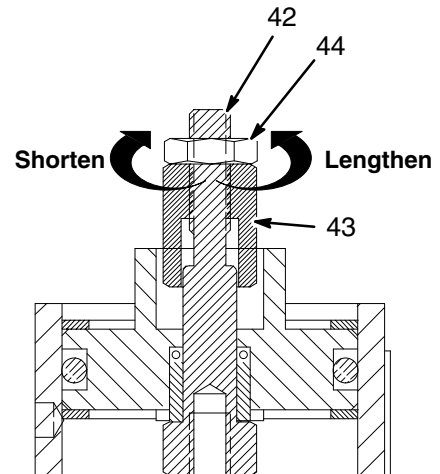


Fig. 4

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# Maintenance

## Preventative Maintenance

There is a grease filled secondary seal/bearing area on the valve shaft. Every 10,000 cycles, or twice each month, new grease should be flushed across this area. Each valve has two flush grease fittings. A small grease gun is provided with each valve.

### To grease the valve:

1. Remove the grease fitting from one side of the gun.
2. Pump grease (Part No. 115982) across the valve until clear grease comes out of the other side.
3. Reinstall the grease fitting.

# Troubleshooting

## WARNING



### SKIN INJECTION HAZARD

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 8.

1. **Relieve the pressure.**
2. Check all possible causes to the problem before disassembling the pump.


PROBLEM	CAUSE	SOLUTION
Valve does not open	Insufficient air pressure	Turn on or turn up air pressure.
	Air not exhausted from behind air cylinder piston	Use four-way, relieving-type air valve operator.
	Shaft adjustment too far closed	Adjust the shaft stroke as instructed on page 9.
Valve does not close (leaks)	Insufficient air pressure	Turn on or turn up air pressure.
	Air not exhausted from behind air cylinder piston	Use four-way, relieving-type air valve operator.
	Blockage between needle and seat	Remove and clean needle and seat.
	Bad or missing gasket between seat and housing	Replace gasket (38).
	Needle worn out	Replace needle and seat.
Higher than normal back-pressure	Nosepiece plugging up	Remove and clean.

# Service

(Models 965766, 965767, 965768, and 965786 only)

**⚠ WARNING**

**SKIN INJECTION HAZARD**  
To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 8.



## Disassembly

1. **Relieve all air and fluid pressure.**
2. Disconnect the valve from the system.
3. Remove the four nosepiece screws (15), and pull the nosepiece (40) away from the valve. Remove the snuff-back ring (41). See Fig. 5, page 14.
4. Use an 1/8 in. pin punch in the needle hole (A) to unscrew the needle (27). If the shaft (3) spins, insert a dowel pin in the shaft hole (B) to hold it steady, then unscrew the needle (27).
5. Remove the seat (25), gasket (38), and o-ring (39).
6. Remove the two fluid housing screws (23) and remove the fluid housing (26). Remove the primary fluid seal (22) from the fluid housing (26).
7. Pull the bearing/lube housing (19) from the air cylinder (1). Remove the bearing (21), bearing o-ring (16), and secondary fluid seal (20). Remove the grease fittings (18).
8. Remove the C-clip (12) from the back of the air cylinder (1). Push the shaft (3) into the air cylinder to dislodge the air cylinder cap (11). Remove the cap o-ring.
9. Remove the internal C-clip (12). Push the shaft (3) to dislodge the piston (10) assembly from the air cylinder (1).
10. Remove the adjustment nut (44) from the shaft (3).
11. Remove the adjustment shaft (42) from the shaft (3).

12. Remove the pin (7), o-ring (9), and piston o-ring (6).
13. Use a 1/4 in. pin punch to knock out the bearings (5) and o-rings (4).

## Air Switch Handle (if equipped)

1. Remove the trigger (56).
2. Loosen the set screw above the trigger safety. Pull off the handle (55).
3. Remove the four retaining screws (60). Pull the housing (50) and gasket (30) away from the air cylinder (1).

## Air Valve

1. Unscrew the stem guide (58).
2. Remove the trigger pin (59), o-ring (57), spool (49), spacers (51, 52), o-rings (46, 48) and spring (47).
3. Remove the bushing (53) from the housing (50) with the screw (54).
4. Remove the screws (60) and lock-washers (61) from the air cylinder (1).

## Electric Switch Handle (if equipped)

1. Disconnect the power from the gun.
2. The switch, housing, and cable are not repairable. Replace these parts as a complete assembly.
3. Remove the trigger (56).
4. Loosen the setscrew above the trigger safety. Pull off the handle (55).
5. Remove the four manifold retaining screws (60). Pull the housing (50) and gasket (30) away from the air cylinder (1).
6. Remove the bushing (53) from the housing (50) with the screw (54).
7. Remove the screws (60) and lock-washers (61) from the air cylinder (1).

# Service

(Models 965766, 965767, 965768, and 965786 only)

## Reassembly

### Air Cylinder Section

1. Lubricate the shaft o-rings (4) and the bearings (5) with grease supplied in the repair kit. Insert o-rings into the air cylinder (1) and air cap (11) cavities. See Fig. 5.
2. Press the bearings (5) flush into the air cylinder housing and air cap, trapping the o-rings (4).
3. Lubricate and reassemble the piston assembly; piston (10), o-ring (9), dowel pin (7), adjustment shaft (42), o-ring (6), and shaft (3). Use Loctite® Primer N7649 and Loctite® TL242, 243, or equivalent (“blue” Loctite) when assembling the adjustment shaft (42). Tighten the shaft to 15–20 in-lb (1.7–2.2 N•m). The shaft (3) should hang with some play to be self-aligning in the bearing.
4. Lubricate the air cylinder (1) ID with the grease supplied. Push the piston (10) assembly into the air cylinder.
5. Orient the air inlet manifold (2) (if used) as shown. Match the gasket openings to the air ports.

### Fluid Section

1. Lubricate the bearing (21), o-ring (16) and cup seal (20). Put the o-ring (16) on the bearing. Carefully insert the seal (20) into the bearing recess, with the lips of the o-ring facing into the bearing. Be careful not to damage the seal lips.
2. Push the bearing (21) seal end first into the housing (19). Be sure that the grease hole in the side of the bearing lines up with the grease ports in the housing (19).
3. Holding the bearing (21) in place, push the bearing assembly over the shaft (3).
4. Lubricate the main fluid seal (22) and its cavity in the housing (26). Carefully press the seal, lip-first, into the housing.
5. Push the housing (26) and seal (22) over the shaft (3) and up against the bearing housing.
6. Apply anti-seize lubricant (Loctite 56765 or equivalent) to the fluid housing screws (23) and loosely install the screws to retain the housings. Do not tighten the screws yet.
7. Insert the gasket (38) and seat (25). These items are reversible and can be installed in either direction.
8. Use Loctite Primer N7649 and Loctite TL242, 243, or equivalent (“blue” Loctite) when assembling the needle (27) and tighten to 15–20 in-lb (1.7–2.2 N•m).
9. Apply air pressure to the CLOSE port, or to the pneumatic trigger valve if installed. This will align the shaft, seal, and bearing. Tighten the fluid housing screws (23) oppositely and evenly to 40–45 in-lbs (4.5–5 N•m).
10. Install the nosepiece (40) with the PTFE o-ring (39), screw (15), and snuff-back ring (41), if used. The snuff-back ring has an internal bevel on one end which faces into the nosepiece. Tighten the nosepiece screws to 15–20 in-lbs (1.7–2.2 N•m).

# Service

(Models 965766, 965767, 965768, and 965786 only)

## Air Valve (if equipped)

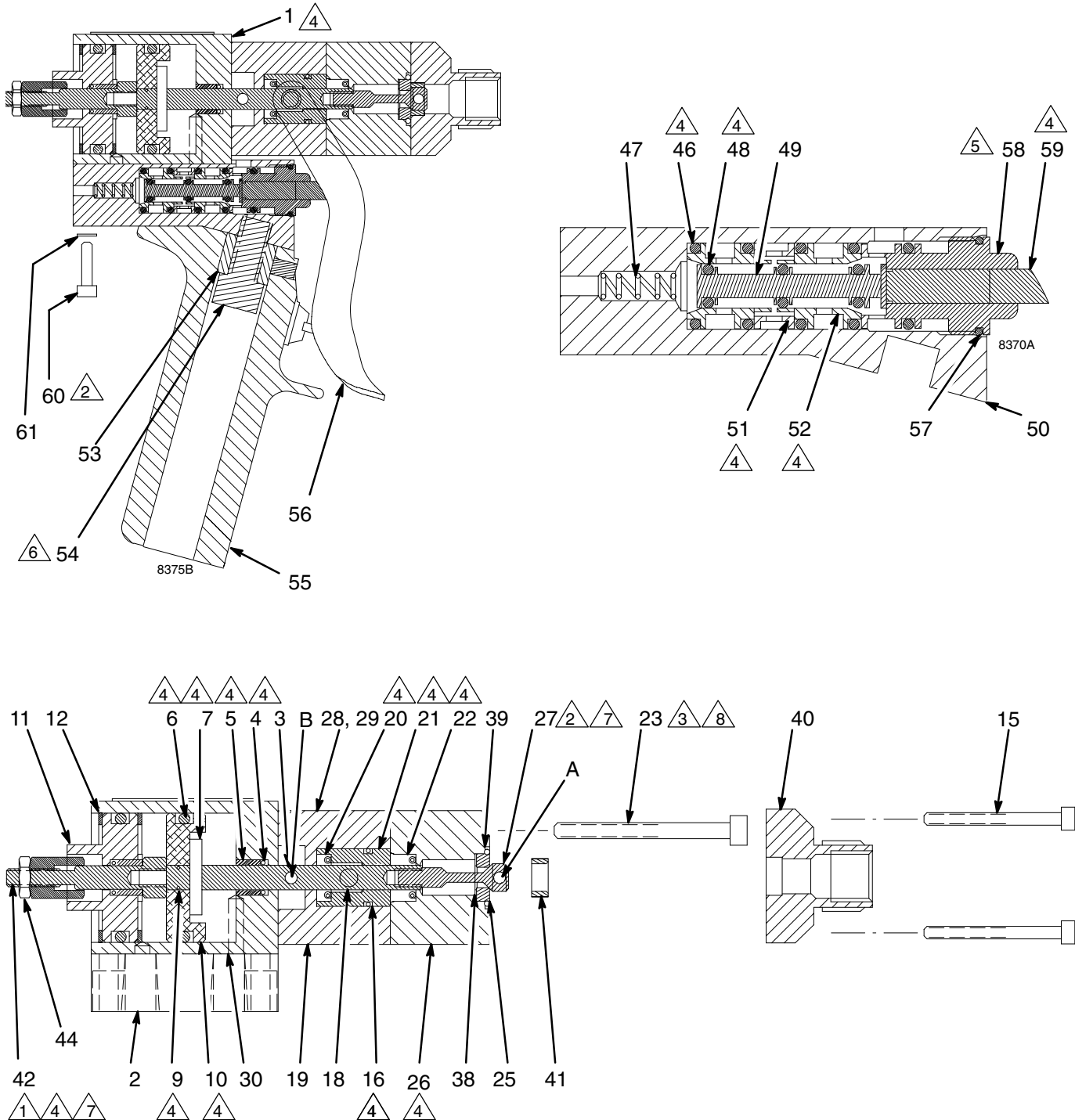
1. Insert the spring (51) into the housing (50).
2. Lubricate and install an o-ring (46) into the housing.
3. Install a spacer (52), internal bevel first, into the housing.
4. Lubricate and install two o-rings (46) and the spacer (51).
5. Lubricate and install a spacer (52) with the internal bevel out, and o-ring (46).
6. Lubricate and install o-rings (48) on the spool (49). Insert the spool with the nub facing out.
7. Lubricate the pin (59) and insert it into the guide (58). Screw the guide with o-ring (57) into the housing. Tighten it to 60–70 in-lbs (6.8–7.9 N•m).
8. Orient the gasket (30) to the holes on the air cylinder (1). Screw the air valve assembly to the cylinder with the screws (60) and lock-washers (61). Tighten the screws evenly to 15–20 in-lbs (1.7–2.2 N•m).
9. Screw the bushing (53) to the housing (50) with the screw (54). Tighten the screw to 140–150 in-lbs (15.8–16.9 N•m).
10. Attach the handle (55) with the setscrew.
11. Attach the trigger (56) with the grease fittings (18).
12. Test that the trigger safety works properly.

## Electric Switch

1. The switch, housing, and cable are not repairable. Replace these parts as a complete assembly.
2. The switch, housing, and cable assembly are not user serviceable and must be replaced as an assembly.

# Service

(Models 965766, 965767, 965768, and 965786 only)



- ① Tighten to 15–20 in-lb (1.7–2.2 N•m). The shaft should hang with some play to be self-aligning in the bearing.
- ② Tighten to 15–20 in-lbs (1.7–2.2 N•m).
- ③ Tighten oppositely and evenly to 40–45 in-lbs (4.5–5 N•m).
- ④ Lubricate with grease supplied in the repair kit.

- ⑤ Tighten to 60–70 in-lbs (6.8–7.9 N•m).
- ⑥ Screw the bushing (53) to the housing (50) with screw (54). Tighten to 140–150 in-lbs (15.8–16.9 N•m).
- ⑦ Apply Loctite Primer N7649 and Loctite TL242, 243, or equivalent (“blue” Loctite).
- ⑧ Apply anti-seize lubricant (Loctite 56765 or equivalent).

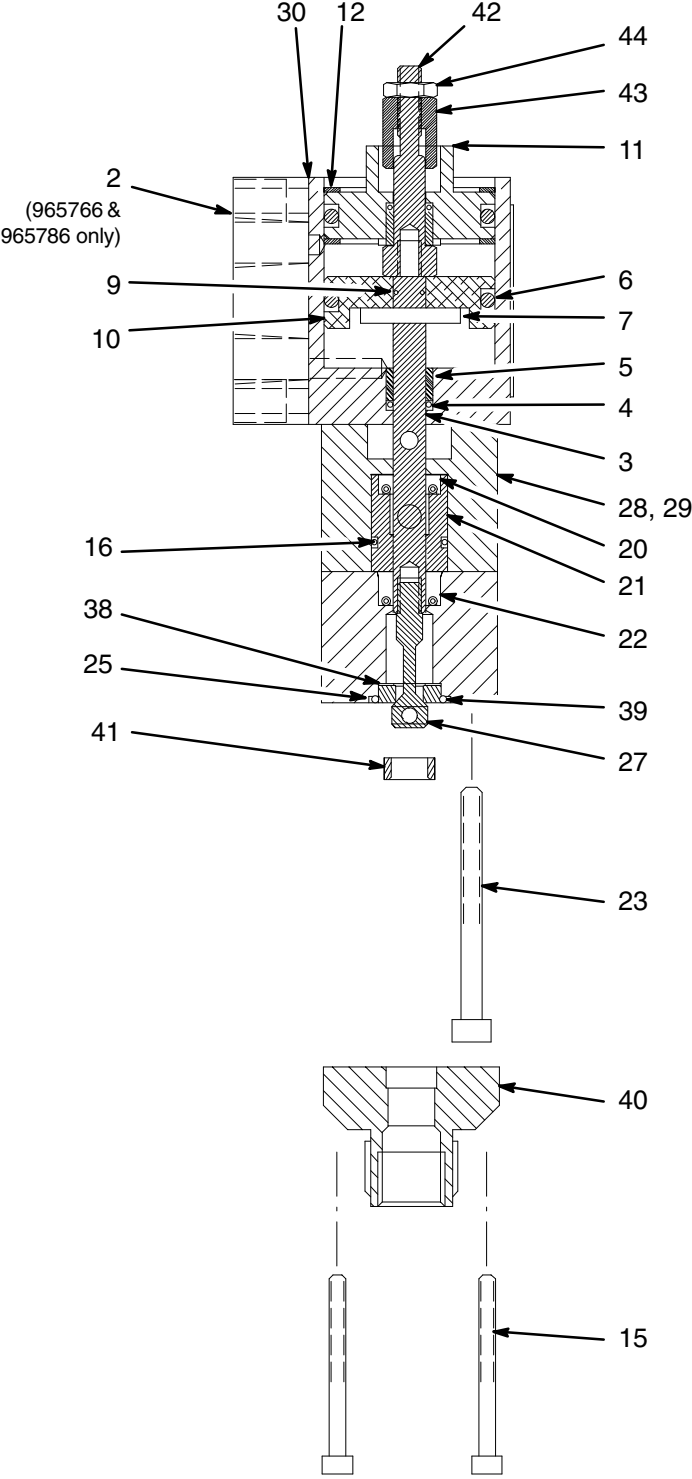
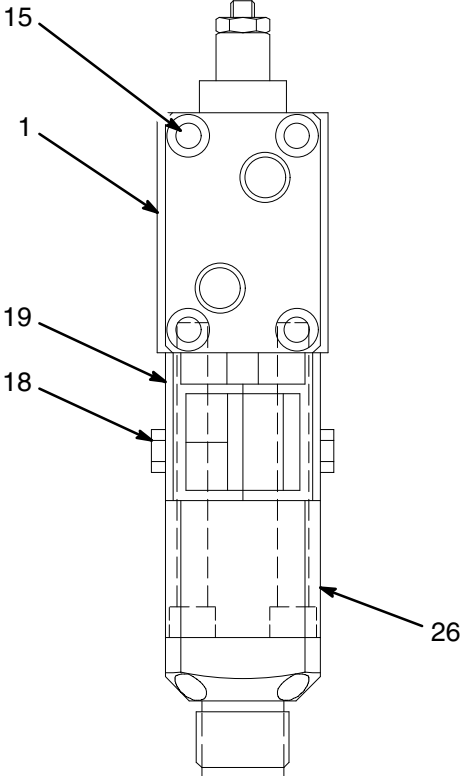
Fig. 5

8371A



# Parts

(Models 965766, 965767, 965768, and 965786 only)



8371A



# Parts

## Model 965766

### Machine Mount Valve

Stainless steel wetted parts

## Model 965786

### Automatic Machine Mount Valve

Aluminum wetted parts

## Model 243482

### Orbiter Mounted Valve

Stainless steel wetted parts

## Model 243666

### PrecisionFlo Control Valve

Stainless steel wetted parts

Ref. No.	Part No.	Description	Qty.	Ref. No.	Part No.	Description	Qty.
1	626702	HOUSING, air cylinder	1	30*	626057	GASKET, air cylinder	1
2	626069	MANIFOLD, air control	1	31	104459	SCREW, 10–32 x 1.75	4
3	626068	SHAFT, air cylinder	1	35*	551186	GREASE, 3 oz. tube (not shown)	1
4*	156454	O-RING, 010 buna-n	2	36	115982	GUN, grease (not shown)	1
5*	551181	BEARING, air cylinder	2	37	551187	COUPLER, flush grease (not shown)	1
6*	154662	O-RING, 222 buna-n	2	38*†	171860	GASKET, seat	1
7*	552164	DOWEL PIN	1	39*†	104319	O-RING, 014 PTFE	1
9*	157628	O-RING, 006 buna-n	1	40	626732	NOSEPIECE, stainless steel; <i>Models 965766 and 243666 only</i>	1
10	626703	PISTON, air cylinder	1		626707	NOSEPIECE; aluminum; <i>Model 965786 only</i>	1
11	626704	CAP, air cylinder CAP, air cylinder; <i>Models 965766 and 965786 only</i>	1		195957	NOSEPIECE; stainless steel; <i>Model 243482 only</i>	1
	196018	CAP, air cylinder; <i>Models 243482 and 243666 only</i>	1	41*	626060	RING, snuff-back	1
12	552163	CLIP, internal 1.75	2	42‡	626708	SHAFT, adjustment <i>Models 965766 and 965786 only</i>	1
15	104371	SCREW, 10–32 x 0.375	4	43	626709	NUT, adjustment <i>Models 965766 and 965786 only</i>	1
16*†	103610	O-RING, 014 fluoroelastomer	1	44	100166	NUT, full hex, 10–32 <i>Models 965766 and 965786 only</i>	1
18	551188	FLUSH GREASE FITTING	2	45	102920	NUT, jam, 10–32 <i>Models 243482 and 243666 only</i>	1
19	626705	LUBE HOUSING	1				
20*†	551191	U-CUP, urethane/EPR	1				
21*	626064	BEARING, lube	1				
22*†	551190	U-CUP, Polymite™/EPR	1				
23✓	103926	SCREW, 1/4–20 x 2.25	2				
25*	185467	SEAT, C2 carbide	1				
26	626731	HOUSING, fluid; stainless steel; <i>Model 965766 and 243282 only</i>	1				
	626706	HOUSING, fluid; aluminum; <i>Model 965786 only</i>	1				
27*‡	626062	NEEDLE, hardened stainless steel	1				
28▲	188377	LABEL, skin injection hazard	1				
29▲	188378	LABEL, read instruction manual	1				

\* Included in Rebuild Kit 570268.

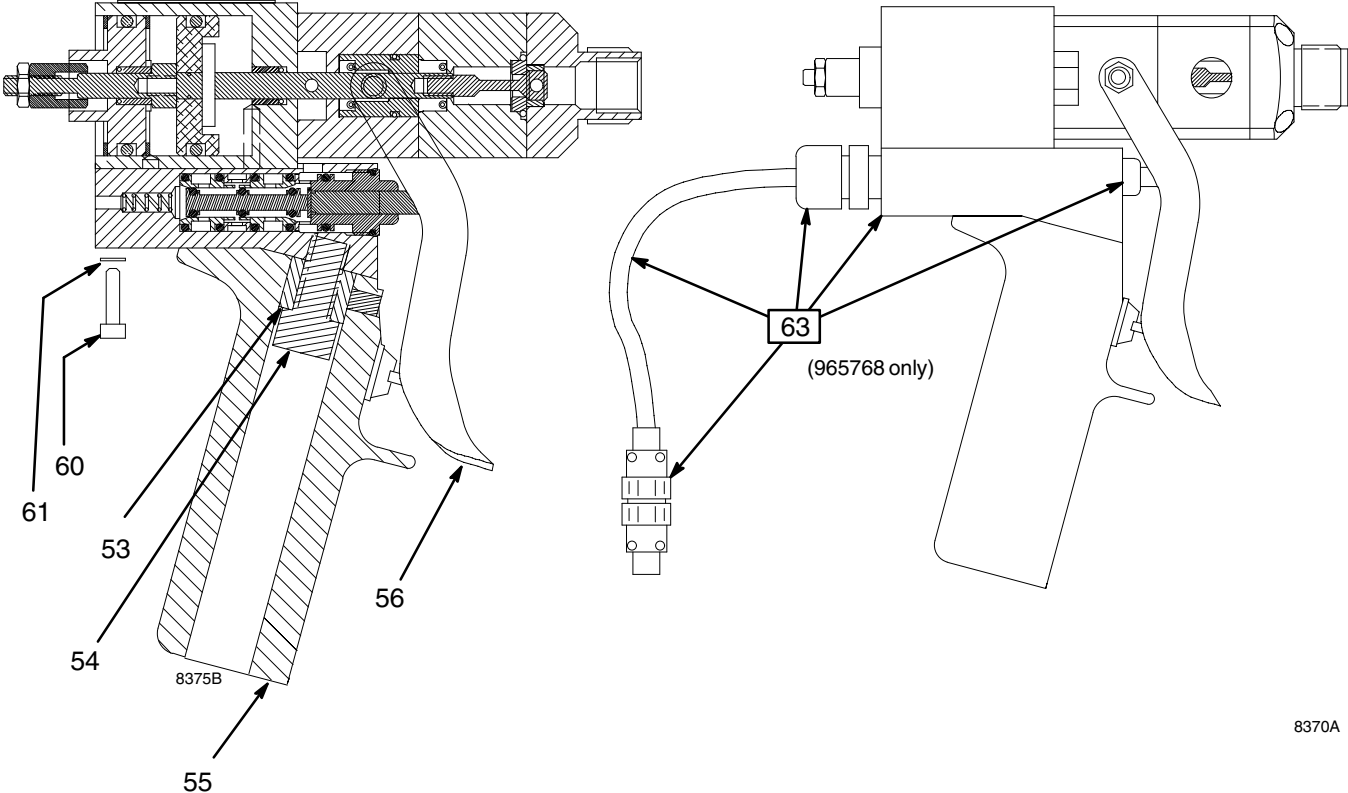
† Included in Section Seal Kit 570267.

▲ Replacement Instruction and Warning Labels are available at not cost.

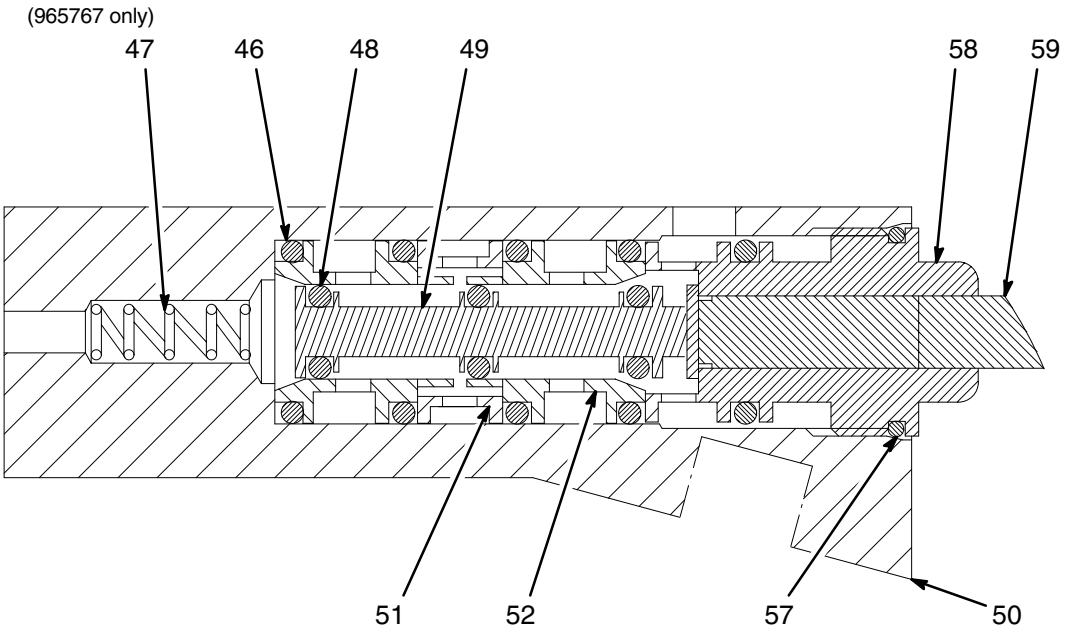
‡ Use Loctite Primer N7649 and Loctite TL242, 243, or equivalent (“blue” Loctite) when assembling this part.

✓ Use anti-seize lubricant (Loctite 56765 or equivalent) when assembling 965766 and 965786. Use Loctite TL242, 243, or equivalent (“blue” Loctite) when assembling 243482 and 243666.

# Parts



8370A




8372A

# Service

(Models 243482 and 243666 only)

**⚠ WARNING**



**SKIN INJECTION HAZARD**  
To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 8.

## Disassembly

1. **Relieve all air and fluid pressure.**
2. Disconnect the valve from the system.
3. Remove the four nosepiece screws (15), and pull the nosepiece (40) away from the valve. Remove the snuff-back ring (41). See Fig. 5, page 14.
4. Use an 1/8 in. pin punch in the needle hole (A) to unscrew the needle (27). If the shaft (3) spins, insert a dowel pin in the shaft hole (B) to hold it steady, then unscrew the needle (27).
5. Remove the seat (25), gasket (38), and o-ring (39).
6. Remove the two fluid housing screws (23) and remove the fluid housing (26). Remove the primary fluid seal (22) from the fluid housing (26).
7. Pull the bearing/lube housing (19) from the air cylinder (1). Remove the bearing (21), bearing o-ring (16), and secondary fluid seal (20). Remove the grease fittings (18).
8. Remove the C-clip (12) from the back of the air cylinder (1). Push the shaft (3) into the air cylinder to dislodge the air cylinder cap (11). Remove the cap o-ring.
9. Remove the internal C-clip (12). Push the shaft (3) to dislodge the piston (10) assembly from the air cylinder (1).
10. Remove the pin (7), o-ring (9), and piston o-ring (6).
11. Use a 1/4 in. pin punch to knock out the bearings (5) and o-rings (4).

# Service

(Models 243482 and 243666 only)

## Reassembly

### Air Cylinder Section

1. Lubricate the shaft o-rings (4) and the bearings (5) with grease supplied in the repair kit. Insert o-rings into the air cylinder (1) and air cap (11) cavities. See Fig. 5.
2. Press the bearings (5) flush into the air cylinder housing and air cap, trapping the o-rings (4).
3. Lubricate and reassemble the piston assembly; piston (10), o-ring (9), dowel pin (7), o-ring (6), and shaft (3). Tighten the jam nut (45) to 15–20 in-lb (1.7–2.2 N•m). The shaft (3) should hang with some play to be self-aligning in the bearing.
4. Lubricate the air cylinder (1) ID with the grease supplied. Push the piston (10) assembly into the air cylinder.
5. Orient the air inlet manifold (2) (if used) as shown. Match the gasket openings to the air ports.

### Fluid Section

1. Lubricate the bearing (21), o-ring (16) and cup seal (20). Put the o-ring (16) on the bearing. Carefully insert the seal (20) into the bearing recess, with the lips of the o-ring facing into the bearing. Be careful not to damage the seal lips.
2. Push the bearing (21) seal end first into the housing (19). Be sure that the grease hole in the side of the bearing lines up with the grease ports in the housing (19).
3. Holding the bearing (21) in place, push the bearing assembly over the shaft (3).
4. Lubricate the main fluid seal (22) and its cavity in the housing (26). Carefully press the seal, lip-first, into the housing.
5. Push the housing (26) and seal (22) over the shaft (3) and up against the bearing housing.
6. Apply Loctite Primer N7649 and Loctite TL242, 243, or equivalent (“blue” Loctite) to the fluid housing screws (23) and loosely install the screws to retain the housings. Do not tighten the screws yet.
7. Insert the gasket (38) and seat (25). These items are reversible and can be installed in either direction.
8. Apply Loctite Primer N7649 and Loctite TL242, 243, or equivalent (“blue” Loctite) to needle (27) and tighten to 15–20 in-lb (1.7–2.2 N•m).
9. Apply air pressure to the CLOSE port, or to the pneumatic trigger valve if installed. This will align the shaft, seal, and bearing. Tighten the fluid housing screws (23) oppositely and evenly to 40–45 in-lbs (4.5–5 N•m).
10. Install the nosepiece (40) with the PTFE o-ring (39), screw (15), and snuff-back ring (41), if used. The snuff-back ring has an internal bevel on one end which faces into the nosepiece. Tighten the nosepiece screws to 15–20 in-lbs (1.7–2.2 N•m).

# Parts

(Models 243482 and 243666 only)

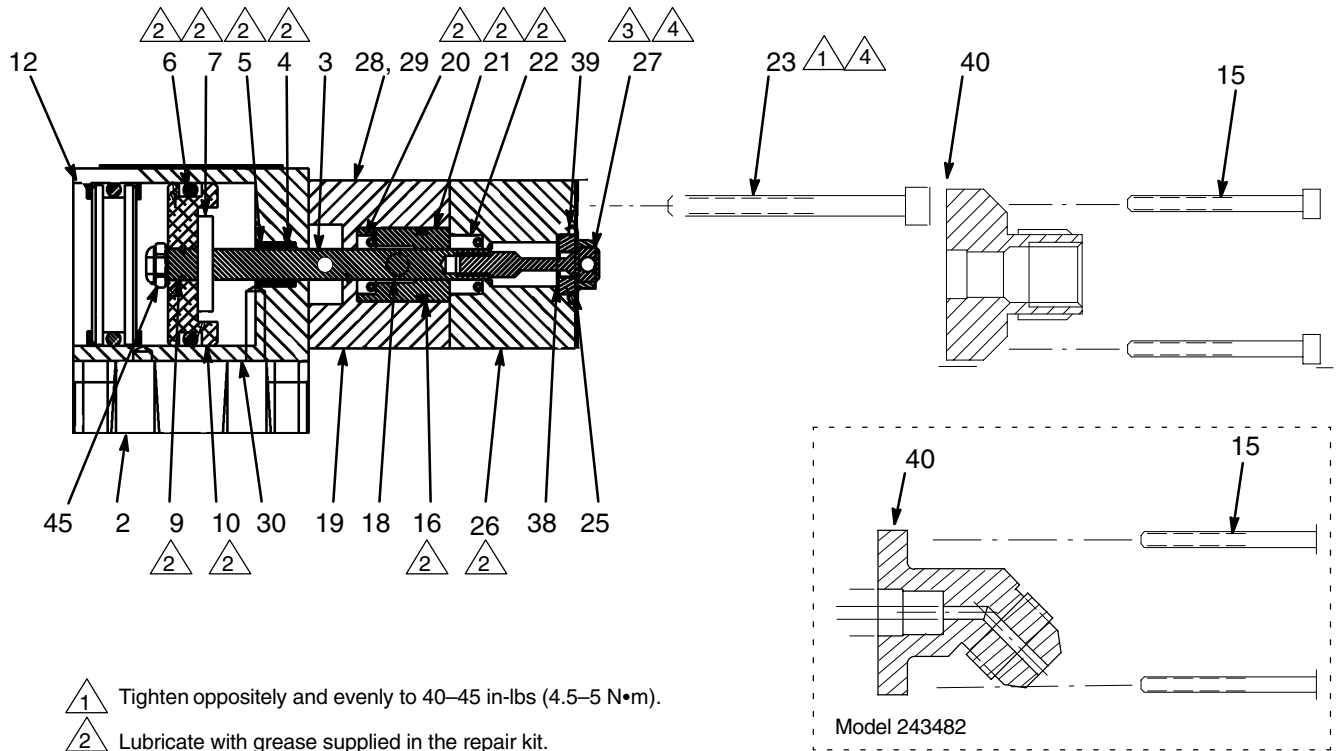
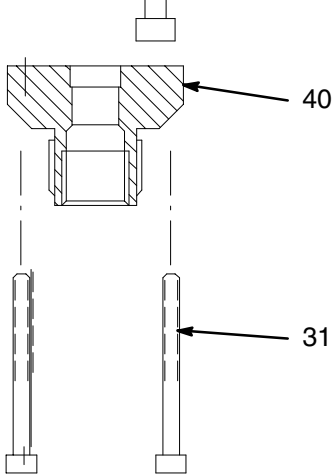
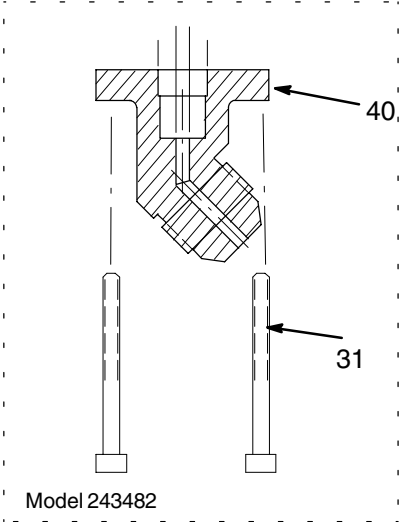
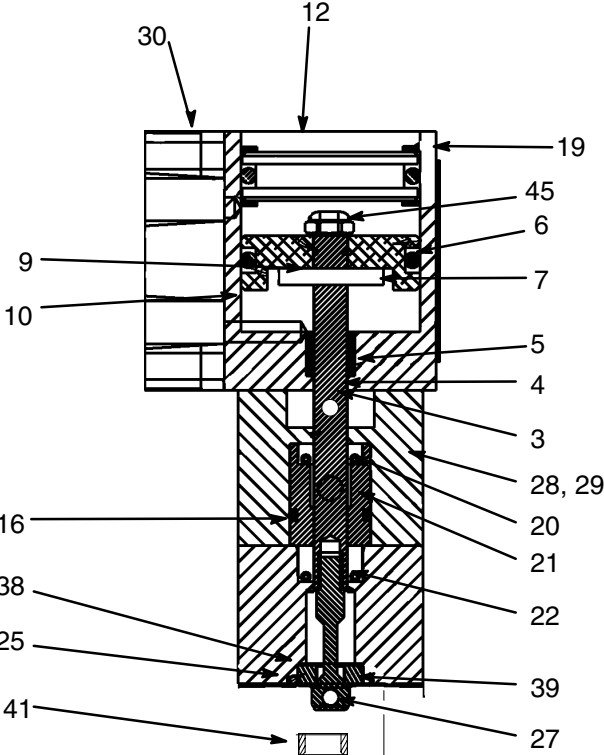
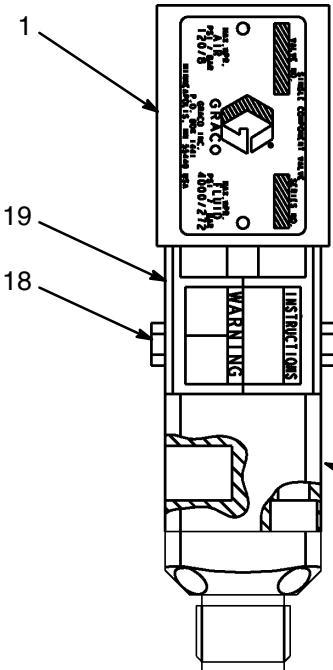


Fig. 6

# Parts

(Models 243482 and 243666 only)



Model 243482

8371A

# Parts

## Model 965767

### Hand Held Valve with Pneumatic Trigger

Aluminum wetted parts

See page 16 for illustration of items 1–44. See page 18 for illustration of items 46–62.

Ref. No.	Part No.	Description	Qty.	Ref. No.	Part No.	Description	Qty.
1	626702	HOUSING, air cylinder	1	40	626707	NOSEPIECE, aluminum	1
3	626068	SHAFT, air cylinder	1	41*	626060	RING, snuff-back	1
4*	156454	O-RING, 010 buna-n	2	42‡	626708	SHAFT, adjustment	1
5*	551181	BEARING, air cylinder	2	43	626709	NUT, adjustment	1
6*	154662	O-RING, 222 buna-n	2	44	100166	NUT, full hex, 10–32	1
7*	552164	DOWEL PIN	1	46	106559	O-RING, No. 905 fluoroelastomer	5
9*	157628	O-RING, 006 buna-n	1	47	106561	SPRING	1
10	626703	PISTON, air cylinder	1	48	106560	O-RING, 007 fluoroelastomer	3
11	626704	CAP, air cylinder	1	49	178651	SPOOL, 4-way	1
12	552163	CLIP, internal 1.75	2	50	626056	HOUSING, air valve	1
16*†	103610	O-RING, 014 fluoroelastomer	1	51	178652	SPACER, u-shape	1
18	551188	FLUSH GREASE FITTING	2	52	178653	SPACER, air valve	2
19	626705	LUBE HOUSING	1	53	626055	BUSHING, handle	1
20*†	551191	U-CUP, urethane/EPR	1	54	551204	SCREW, 3/8–16 x 3/4	1
21*	626064	BEARING, lube	1	55	626075	HANDLE	1
22*†	551190	U-CUP, Polymite™/EPR	1	56	626083	TRIGGER	1
23✓	103926	SCREW, 1/4–20 x 2.25	2	57	106551	O-RING, 0.5 x 0.6 fluoroelastomer	1
25*	185467	SEAT, C2 carbide	1	58	178654	GUIDE, stem	1
26	626706	HOUSING, fluid; aluminum	1	59	626053	PIN, trigger	1
27*‡	626062	NEEDLE, hardened stain- less steel	1	60	119156	SCREW, 10–32 x 0.8125	4
28▲	188377	LABEL, skin injection haz- ard	1	61	100020	WASHER, lock, #10	2
29▲	188378	LABEL, read instruction manual	1	62	104765	PLUG, pipe, headless, 1/8 npt (not shown)	1
30*	626057	GASKET, air cylinder	1				
31	104459	SCREW, 10–32 x 1.75	4				
35*	115982	GREASE, 3 oz. tube (not shown)	1				
36	551189	GUN, grease (not shown)	1				
37	551187	COUPLER, flush grease (not shown)	1				
38*†	171860	GASKET, seat	1				
39*†	104319	O-RING, 014 PTFE	1				

\* Included in Rebuild Kit 570268.

† Included in Section Seal Kit 570267.

▲ Replacement Instruction and Warning Labels are available at no cost.

‡ Loctite Primer N7649 and Loctite TL242, 243, or equivalent ("blue" Loctite) should be used when installing this part.

✓ Anti-seize lubricant (Loctite 56765 or equivalent) should be used when installing this part.

# Parts

## Model 965768

### Hand Held Valve with Electric Switch

Aluminum wetted parts

See page 16 for illustration of items 1–44. See page 18 for illustration of items 53–63.

Ref. No.	Part No.	Description	Qty.	Ref. No.	Part No.	Description	Qty.
1	626702	HOUSING, air cylinder	1	36	551189	GUN, grease (not shown)	1
3	626068	SHAFT, air cylinder	1	37	551187	COUPLER, flush grease (not shown)	1
4*	156454	O-RING, 010 buna-n	2	38*†	171860	GASKET, seat	1
5*	551181	BEARING, air cylinder	2	39*†	104319	O-RING, 014 PTFE	1
6*	154662	O-RING, 222 buna-n	2	40	626707	NOSEPIECE, aluminum	1
7*	552164	DOWEL PIN	1	41*	626060	RING, snuff-back	1
9*	157628	O-RING, 006 buna-n	1	42‡	626708	SHAFT, adjustment	1
10	626703	PISTON, air cylinder	1	43	626709	NUT, adjustment	1
11	626704	CAP, air cylinder	1	44	100166	NUT, full hex, 10–32	1
12	552163	CLIP, internal 1.75	2	53	626055	BUSHING, handle	1
15	104371	SCREW, 10–32 x 0.375	4	54	551204	SCREW, 3/8–16 x 3/4	1
16*†	103610	O-RING, 014 fluoroelastomer	1	55	626075	HANDLE	1
18	551188	FLUSH GREASE FITTING	2	56	626083	TRIGGER	1
19	626705	LUBE HOUSING	1	60	119156	SCREW, 10–32 x 0.8125	4
20*†	551191	U-CUP, urethane/EPR	1	61	100020	WASHER, lock, #10	2
21*	626064	BEARING, lube	1	63	949706	SWITCH ASSEMBLY	1
22*†	551190	U-CUP, Polymite™/EPR	1				
23✓	103926	SCREW, 1/4–20 x 2.25	2				
25*	185467	SEAT, C2 carbide	1				
26	626706	HOUSING, fluid; aluminum	1				
27*‡	626062	NEEDLE, hardened stainless steel	1				
28▲	188377	LABEL, skin injection hazard	1				
29▲	188378	LABEL, read instruction manual	1				
30*	626057	GASKET, air cylinder	1				
31	104459	SCREW, 10–32 x 1.75	4				
35*	115982	GREASE, 3 oz. tube (not shown)	1				

\* Included in Rebuild Kit 570268.

† Included in Section Seal Kit 570267.

▲ Replacement Instruction and Warning Labels are available at not cost.

‡ Loctite Primer N7649 and Loctite TL242, 243, or equivalent ("blue" Loctite) should be used when installing this part.

✓ Anti-seize lubricant (Loctite 56765 or equivalent) should be used when installing this part.



# Accessories

## Plastic Tube Fittings to Connect Air Signals

Tube OD	1/8 NPT (M) Straight	1/8 NPT (M) 90° Swivel	Tube Tee
1/8 in.	598329	513826	551203
5/32 in.	104172	598140	514435
1/4 in.		597151	111167
Tube OD	1/4 NPT (M) Straight	1/4 NPT (M) 90° Swivel	
5/32 in.	598252	598327	
1/4 in.	104165	C19391	

## Plastic Tubing for Air Signal Lines

Part No.	Description
513063	1/8 in. O.D. Nylon
514607	5/32 in. O.D. Nylon
C12509	1/4 in. O.D. Nylon

## Air Signal Accessories

### 551201 Air Cylinder Speed Control 90° Fitting

1/8 npt(f) inlet, 1/8 npt(m) outlet

Mount on CLOSE port to control opening speed for soft start. Mount on OPEN port to control closing speed for less snuff-back.

### 104661 Quick Exhaust Valve

1/8 npt(f) inlet and outlet, 1/4 npt(f) exhaust

Used to speed up opening or closing action of the 1K Ultra-Lite Valve

### 104632 Pump Pilot Valve

1/2 npt (f) line ports, 1/8 npt(f) pilot port

3-way air piloted air valve to turn air powered proportioning pump on with hand gun signal.

## 4-Way Solenoids and Solenoid Accessories

### 626144 Manifold

To direct mount solenoid to 1K Ultra-Lite Valve.

### 551316 120 Volt ac Solenoid

For use with 626144 Manifold.

### 551317 24 Volt dc Solenoid

For use with 626144 Manifold.

### 551347 120 Volt ac Solenoid

Remote mount, 1/8 npt (f) ports

### 551348 24 Volt dc Solenoid

Remote mount, 1/8 npt(f) ports

### 551349 120 Volt ac Din Plug

With screw terminals for above solenoids

### 551350 24 Volt dc Din Plug

With screw terminals for above solenoids

## Optional Main Fluid Needle Packings (22)

Part No.	Description
551192	Urethane U-Cup with EPDM o-ring spreader
551193	Reinforced PTFE U-Cup with 302 stainless steel spreader

# Accessories

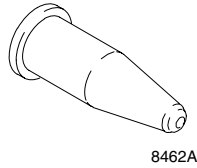
## Fluid Nozzles

Zinc-plated steel nozzles, 1/8 npt\*

Part No.	Orifice	Length
607665	0.125 in. (3.17 mm)	2 in. (51 mm)
161505	0.09 in. (2.28 mm)	2 in. (51 mm)
164799	0.055 in. (1.39 mm)	2-1/8 in. (54 mm)

\* Requires a 1/8 npt(f) bushing. Order 168683 Nozzle Bushing.

Nozzles for use with 188253 flange nut.



Part No.	Orifice	Length
C00005	0.187 in. (4.75 mm)	1.656 in. (42 mm)
C00007	0.093 in. (2.36 mm)	2 in. (51 mm)
C00008	0.250 in. (2.28 mm)	2 in. (51 mm)
C00009	0.172 in. (4.37 mm)	2 in. (51 mm)
C00010	0.062 in. (1.57 mm)	2 in. (51 mm)
C00011	0.375 in. (9.53 mm)	2 in. (51 mm)
C00012	0.156 in. (3.96 mm)	2 in. (51 mm)
C00013	0.046 in. (1.17 mm)	2 in. (51 mm)
C00014	0.031 in. (0.79 mm)	2 in. (51 mm)
C00015	0.156 in. (3.96 mm)	1.812 in. (46 mm)

## 512135 Plastic Fluid Nozzle

1/4 npt, 0.062 in. (1.57 mm) orifice, 2-1/2 in. (63.5 mm) long

## 168683 Nozzle Bushing

Zinc-plated steel, 1/8 npt

## Kits

### 949631 Conversion Kit

Pneumatic 4-way valve with housing, handle, and trigger and other parts necessary to convert 965766 or 965786 to a hand held valve.

### 949632 Conversion Kit

Electric switch style handle kit to convert 965766 or 965786 to a hand held valve.

### 570267 Seal Kit

With Polymite™ main packing (standard)

### 570268 Rebuild Kit

With Polymite™ main packing (standard)

### 570299 Seal Kit

With PTFE main packing (optional)

### 570300 Rebuild Kit

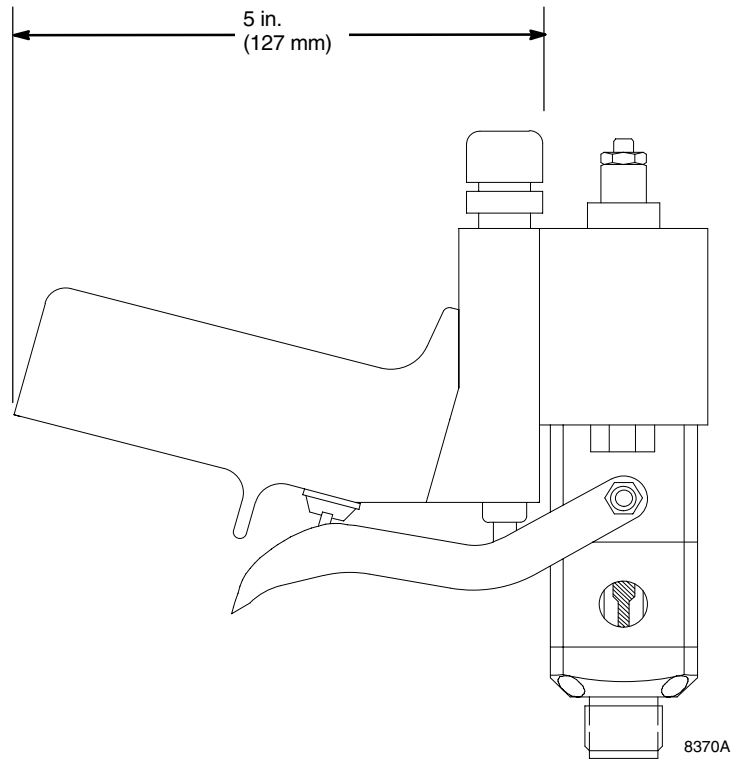
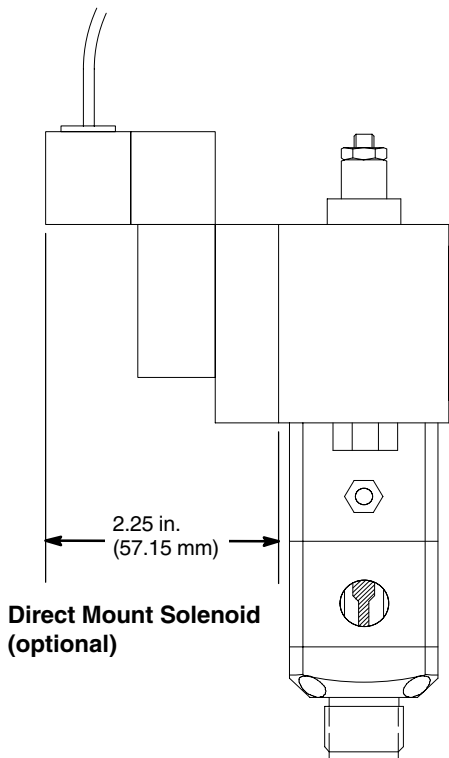
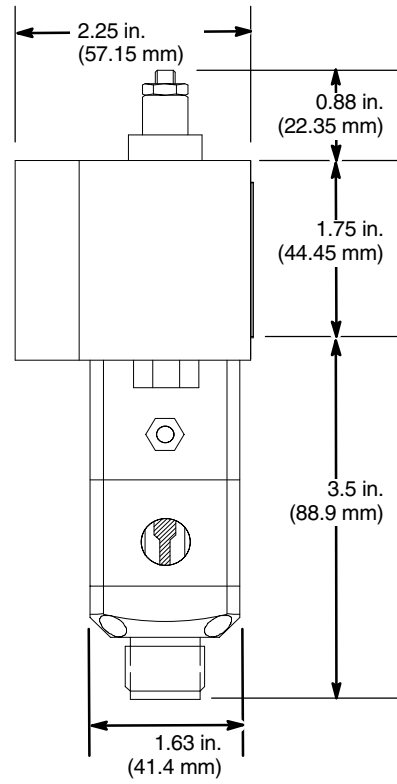
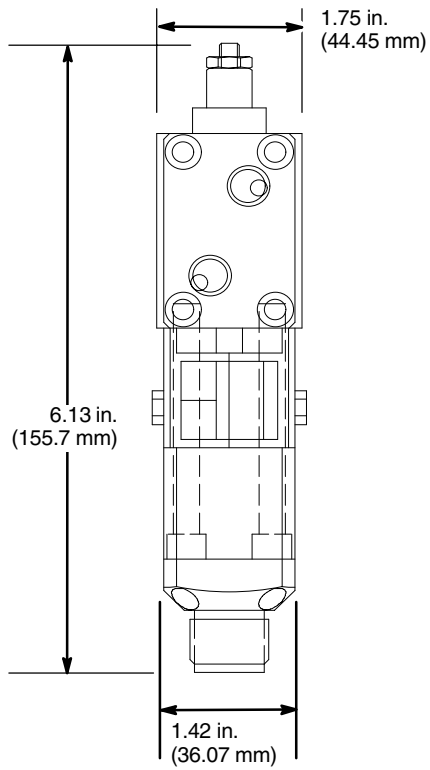
With PTFE main packing (optional)

# Technical Data

Category	Data
Maximum Fluid Pressure	4000 psi (28 MPa, 276 bar)
Maximum Cylinder Air Pressure	120 psi (0.84 MPa, 8.4 bar)
Air inlets (open and close ports)	1/8 npt(f)
Fluid Inlet	1/4 npt(f)
Fluid Outlet	1/4 npt(f) and 3/4–16 unf(m)
Fluid Viscosity Range	20 cps to 1 million cps
Snuffer Action Fluid Section	Isolation chamber with zerk fittings
Divorced Air Cylinder	Piston cylinder, EP o-rings
Weight	
Aluminum Valve	1.43 lb (0.65 kg)
Stainless Steel Valve	2.07 lb (0.94 kg)
Handle Kit	0.77 lb (0.35 kg)
Wetted Parts	
Aluminum Valve	aluminum, 303 stainless steel, 17–4 PH stainless steel, C2 carbide, hard chrome, ethylene propylene, Parker Polymite™, PTFE
Stainless Steel Valve	303 stainless steel, 17–4 PH stainless steel, C2 carbide, hard chrome, ethylene propylene, Parker Polymite™, PTFE
Severe-duty Components	
Shaft	Hard chrome over 303 stainless steel
Snuffer Needle	Hardened 440–C stainless steel
Seat	Reversible, solid C2 carbide inserts
Shaft Seal, standard	High density Parker Polymite™
Shaft Seal, optional	PTFE

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# Dimensions





# 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 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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**612-623-6921**

**612-378-3505 Fax**

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Original instructions. This manual contains English. MM 308876

**Graco Headquarters:** Minneapolis

**International Offices:** Belgium, China, Japan, Korea

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Revised 12 June 2012