Instructions – Parts List

Parts

Delta Spray™ HVLP Spray Gun

308741N

100 psi (0.7 MPa, 7 bar) Maximum Working Fluid Pressure
100 psi (0.7 MPa, 7 bar) Maximum Working Air Pressure
40 psi (280 kPa, 2.8 bar) Maximum Compliant Inbound Air Pressure

U.S. Patent 6,019,293
Taiwan Patent 199585
Taiwan Patent 199601

This manual contains important warnings and information.
READ AND KEEP FOR REFERENCE.

INSTRUCTIONS

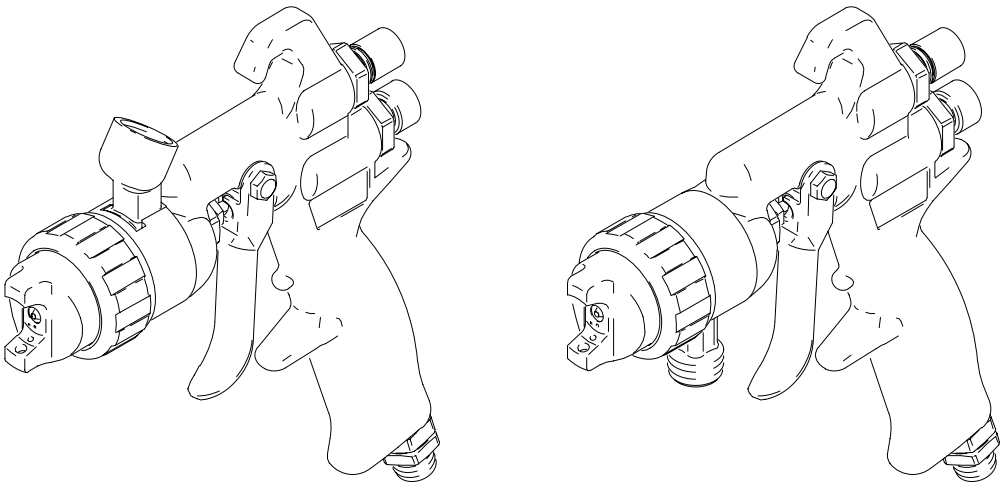


Table of Contents

PROVEN QUALITY. LEADING TECHNOLOGY.

CE Ex II 2 G

GRACO INC. P.O. BOX 1441 MINNEAPOLIS, MN 55440–1441

Symbols

Warning Symbol

⚠ WARNING

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

Caution Symbol

⚠ CAUTION

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

⚠ WARNING

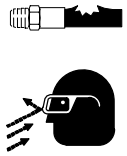
INSTRUCTIONS

EQUIPMENT MISUSE HAZARD

Equipment misuse can cause the equipment to rupture, malfunction or start unexpectedly 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.
- Use this equipment only in low pressure, air spray systems.
- Do not exceed the maximum working pressure of the lowest rated system component. This equipment has a **100 psi (0.7 MPa, 7 bar) maximum working fluid and air pressure**.
- Route the hoses away from the traffic areas, sharp edges, moving parts, and hot surfaces. Do not expose Graco hoses to temperatures above 180°F (82°C) or below –40°F (–40°C).
- Wear hearing protection when operating this equipment.
- Use fluids or solvents that are compatible with equipment wetted parts. See the **Technical Data** section of all equipment manuals. Read the fluid and solvent manufacturer's warnings.
- Methylene Chloride with formic or propionic acid is not recommended as a flushing or cleaning solvent with this gun or any other device with nylon or aluminum components as it can damage these parts.
- Comply with all applicable local, state and national fire, electrical and other safety regulations.

⚠ WARNING



PRESSURIZED EQUIPMENT HAZARD

Spray from the gun, hose leaks or ruptured components can splash fluid in the eyes or on the skin and cause serious injury.

- Do not stop or deflect fluid leaks with your hand, body, glove or rag.
- Follow the **Pressure Relief Procedure** on page 12 when: you are instructed to relieve pressure; stop spraying; clean, check or service the equipment; and install or clean fluid nozzles.
- Do not point the spray gun at anyone or at any part of the body.
- 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.

FIRE AND EXPLOSION HAZARD

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

- Provide fresh air ventilation to avoid the buildup of flammable fumes from solvent or the fluid being sprayed.
- Extinguish all open flames or pilot lights in the spray area.
- Electrically disconnect all equipment in the spray area.
- Keep the spray area free of debris, including solvent, rags and gasoline.
- Do not turn on or off any light switch in the spray area while operating or if fumes are present.
- Do not smoke in the spray area.
- Do not operate a gasoline engine in the spray area.

TOXIC FLUID HAZARD

Hazardous fluids 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. Read the fluid manufacturer's warnings.
- Store hazardous fluid in an approved container. Dispose of hazardous fluid according to all local, state and national guidelines.
- Dress appropriately for your application. Wear the appropriate protective clothing, gloves, eyewear, and respirator.

Selection Charts

TERMS:

Light Fluid: Up to 18 seconds with No. 2 Zahn cup (20 centipoise)

Medium Fluid: 19 to 28 seconds with No. 2 Zahn cup (20–64 centipoise)

Heavy Fluid: Greater than 28 seconds with No. 2 Zahn cup (greater than 64 centipoise) -- 2.8 Volatile Organic Compounds, High-solid Polyurethanes, Heavy Waterborne Enamels

NOTE: See pages 24–27 for further part number information.

HVLP Spray Gun Assemblies

Pressure Feed Guns

Gun Assy.	Includes:			Orifice Size	Pattern Length†	Material Usage:	
	Needle/ Nozzle Kit	Air Cap					
Part No.	Part No.	Part No.	Type	in. (mm)	in. (mm)	Viscosity	Flow oz./min. (l/min.)
239559	239600	192321	pressure	0.030 (0.762)	15 (381)	light	4–10 (0.12–0.30)
239560	239601	192321	pressure	0.042 (1.067)	16 (406)	light-medium	8–14 (0.24–0.42)
239561	239602	192321	pressure	0.055 (1.397)	16 (406)	medium	12–18 (0.36–0.54)
239562	239603	192322	pressure	0.070 (1.778)	17 (432)	medium-heavy	16–20 (0.48–0.60)
239563	239604	192322	pressure	0.086 (2.184)	17 (432)	heavy	18–22 (0.54–0.66)
239564	239605	192323	pressure	0.110 (2.790)	18 (457)	heavy	20–24 (0.60–0.72)
239565*	239606*	192321	pressure	0.042 (1.067)	16 (406)	light-medium	8–14 (0.24–0.42)
239566*	239607*	192321	pressure	0.055 (1.397)	16 (406)	medium	12–18 (0.36–0.54)
239567*	239598	192322	pressure	0.070 (1.778)	17 (432)	medium-heavy	16–20 (0.48–0.60)

Gravity Feed Guns

Gun Assy.	Includes:			Orifice Size	Pattern Length†	Material Usage:	
	Needle/ Nozzle Kit	Air Cap					
Part No.	Part No.	Part No.	Type	in. (mm)	in. (mm)	Viscosity	Flow oz./min. (l/min.)
239574	239592	192329	gravity	0.055 (1.397)	14 (356)	light-medium	3–5 (0.09–0.15)
239575	239593	192329	gravity	0.070 (1.778)	16 (406)	light-medium	4–6 (0.12–0.18)

* Stainless steel needle/tip

† Measured with gun nozzle 10 in. (254 mm) from target surface

Selection Charts

HVLP Spray Gun and Pressure Cup Assemblies

Gun and Cup Assy. Part No.	Includes:	
	Gun Part No.	Cup and Regulator Part No. 1 qt. (0.95 liter)
239568	239560	239802
239569	239561	239802
239570	239562	239802
239571	239563	239802

HVLP Spray Gun and Gravity Cup Assemblies

Gun and Cup Assy. Part No.	Includes:	
	Gun Part No.	Cup Part No. 16 oz. (474 cc)
239579	239574	239714
239580	239575	239714

Optional HVLP Air Caps

Air Cap Part No.	Pattern Type	Pattern Length† in. (mm)
196107	Shading/SAP	6 (152)

† measured with gun nozzle 10 in. (254 mm) from target surface

Selecting the Proper Needle/Nozzle Kit

The spray gun's needle/nozzle kits range in size to provide different fluid flow rates.

As a general guideline, use the fluid nozzle that will give the required flow with the needle fully triggered at the lowest fluid pressure.

For low flow rates or light viscosity fluid, select the smaller nozzle sizes.

For high flow rates or high viscosity fluid, select the larger nozzle sizes.

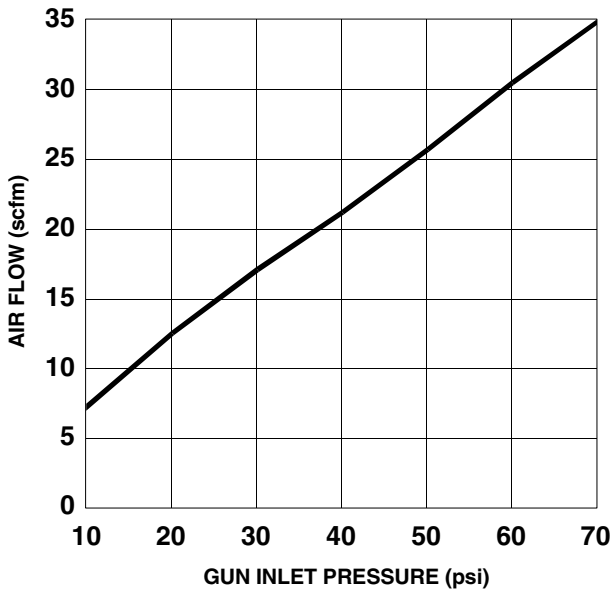
NOTE:

- To help select the proper needle/nozzle size, a fluid pressure gauge may be connected temporarily to the gun fluid inlet to determine the fluid pressure. See **Accessories**, page 28.
- See page 17 for troubleshooting information.

Air Flow and Atomizing Pressure

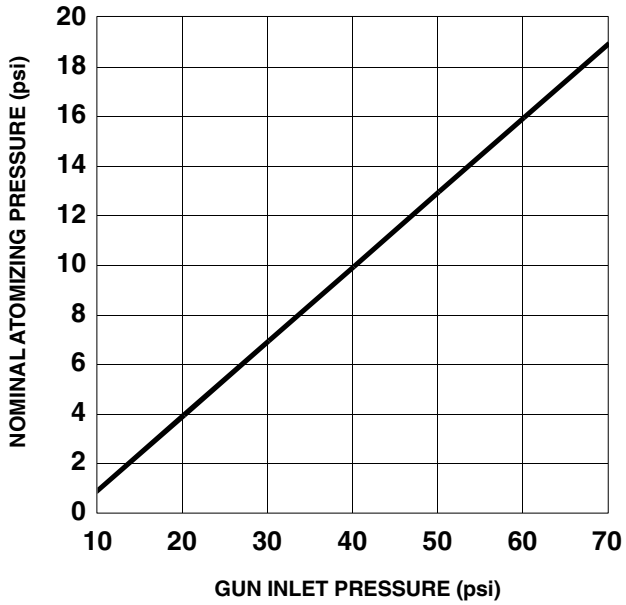
NOTE: All tests were completed with the 0.055 in. (1.397 mm) nozzle, large pattern air cap, and the pattern adjustment valve fully open.

Air Flow



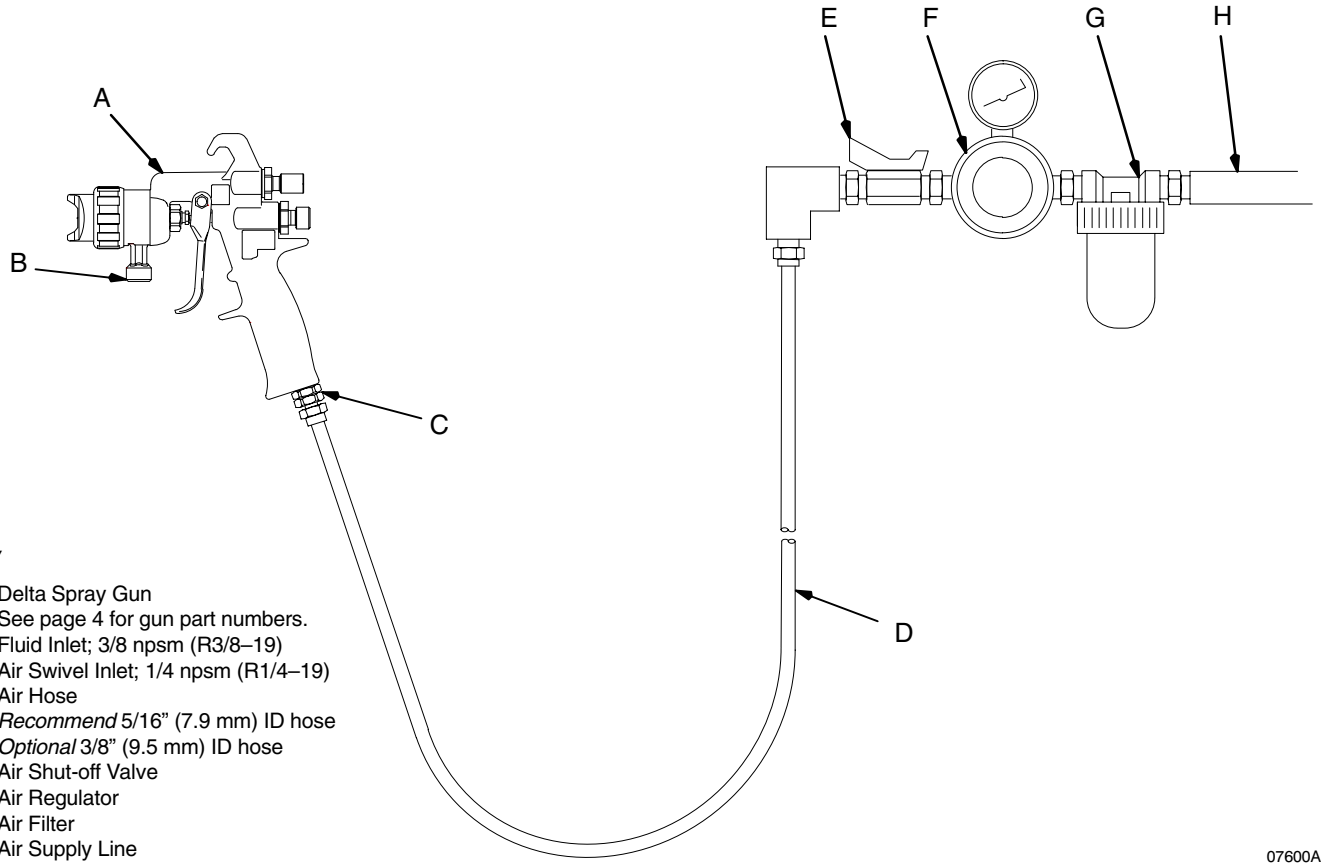
Atomizing Air Pressure

(inlet pressure versus atomizing pressure)



Gun Inlet Pressure psi (kPa, bar)	**Nominal Atomizing Pressure** psi (kPa, bar)
10 (70, 0.7)	1 (7, 0.1)
20 (140, 1.4)	4 (28, 0.2)
30 (210, 2.1)	7 (48, 0.4)
40 (280, 2.8)	10 (70, 0.7)
50 (345, 3.4)	13 (91, 0.9)
60 (410, 4.1)	16 (111, 1.1)
70 (480, 4.8)	19 (132, 1.3)

Typical Installation



KEY

A Delta Spray Gun
See page 4 for gun part numbers.
B Fluid Inlet; 3/8 npsm (R3/8–19)
C Air Swivel Inlet; 1/4 npsm (R1/4–19)
D Air Hose
Recommend 5/16" (7.9 mm) ID hose
Optional 3/8" (9.5 mm) ID hose
E Air Shut-off Valve
F Air Regulator
G Air Filter
H Air Supply Line

07600A

The Delta Spray HVLP spray gun was designed to produce the highest quality finish with today's fluids as well as the Low V.O.C. (volatile organic compound) fluids of tomorrow.

This spray gun can spray most coatings or finishes currently being used for automotive, industrial, aerospace, marine, wood, plastic and architectural applications, while easily operating from any paint delivery system, including cups, pressure pots, or remote pumps for production line operation.

The spray gun typically utilizes 40 psi (280 kPa, 2.8 bar) inbound air pressure to produce high quality paint finishes at 10 psi (70 kPa, 0.7 bar) atomizing air pressure.

The air regulator must have a minimum air flow capacity of 30 scfm at 100 psi (0.7 MPa, 7 bar) air pressure. Refer to the **Pressure Drop Charts**, page 11.

Ventilate the Spray Booth

⚠ WARNING

To prevent hazardous concentrations of toxic and/or flammable vapors, spray only in a properly ventilated spray booth. Do not operate the spray gun unless ventilation fans are operating.

Check and follow all of the National, State and Local codes regarding air exhaust velocity requirements.

Check and follow all local safety and fire codes.

Setup

1. Connect the Air Line

NOTE:

- You must install an air pressure regulator (F) on the gun air line to control air pressure to the gun. See Fig. 2.
- *If your regulated air source does not have a filter,* install an air filter (G) on the air line to ensure a dry, clean air supply to the gun. Dirt and moisture can ruin the appearance of your finished workpiece. See Fig. 2.
- Use a 5/16 inch (7.9 mm) I.D. air hose to minimize excessive pressure drop in the hose. See the **Pressure Drop Chart** on page 11 for the expected pressure drops through a 25 ft. (7.625 m) hose.

A. Connect the air hose (D) to the 1/4 npsm gun air inlet (C).

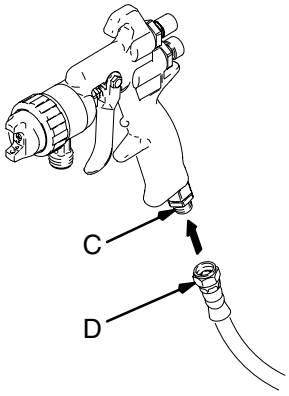


Fig. 1 7033A

B. Connect the other end of the air hose (D) to a regulated air supply line (H).

NOTE: Fig. 2 shows the filter (G) air regulator (F), and air shut-off valve (E) on the air supply line.

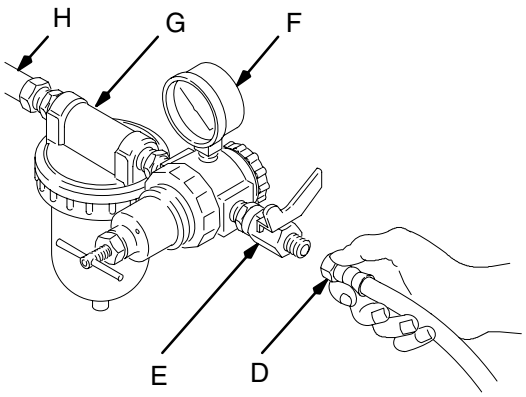


Fig. 2 01990

2. Connect the Fluid Hose

NOTE:

- Before connecting the fluid line, blow it out with air and flush it with solvent. Use solvent which is compatible with the fluid to be sprayed.
- Install a fluid regulator (L) on the fluid line to control fluid pressure to the gun. See Fig. 4.
- Filter the fluid line of coarse particles and sediment to avoid clogging the fluid nozzle and causing finishing defects.

A. Connect the fluid hose (J) to the gun fluid inlet (B) 3/8–18 npsm [R 3/8–19] compound thread.

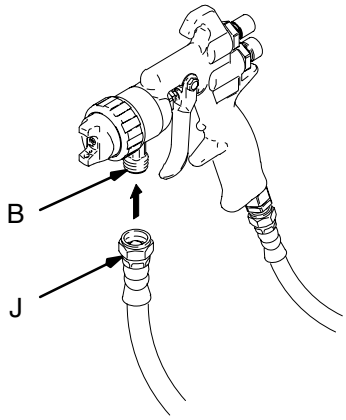


Fig. 3 7034A

B. Connect the other end of the fluid hose (J) to a regulated fluid supply line (K).

NOTE: Fig. 4 shows the fluid regulator (L) and fluid shut-off valve (M) on the fluid supply line (K).

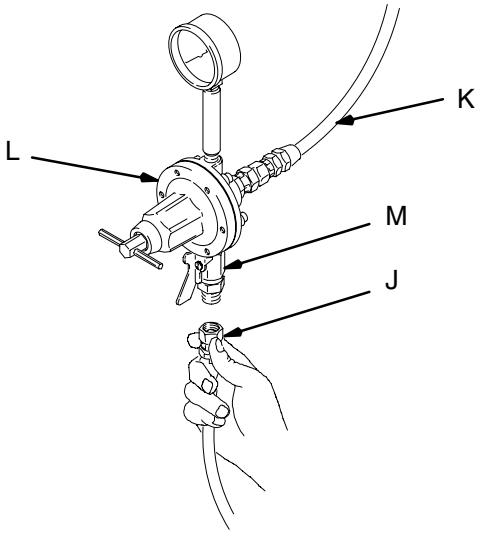


Fig. 4 7016A

Setup

3. Flush the Spray Gun.

Before putting any paint through the spray gun, flush the gun out with a solvent that is compatible with the fluid to be sprayed, using the lowest possible fluid pressure and a grounded metal container.

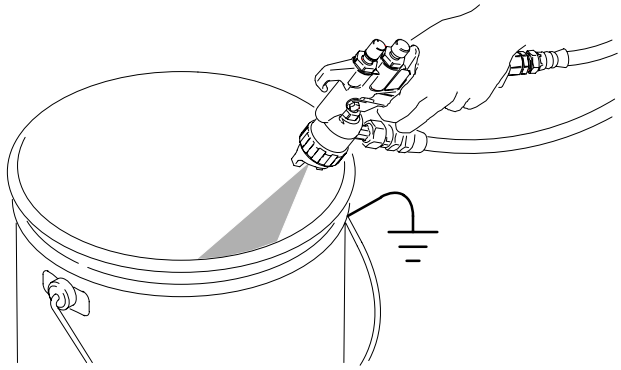


Fig. 5 7035A

⚠ WARNING

PRESSURIZED EQUIPMENT HAZARD
To reduce the risk of a serious injury whenever you are instructed to relieve pressure, follow the **Pressure Relief Procedure** on page 12.

4. Relieve the Pressure.

5. Position the Air Cap

Rotate the air cap as needed to achieve the desired spray pattern direction. To create a round pattern, turn the pattern air off by turning the pattern adjustment knob (13a) fully clockwise. Refer to Fig. 12, page 11.

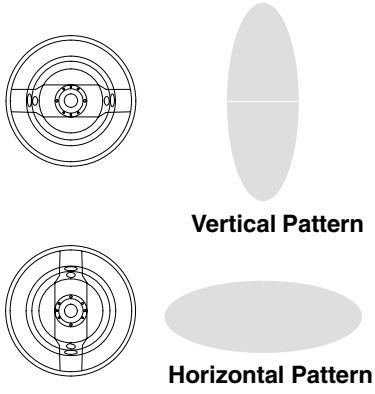


Fig. 6 02020

6. Adjust the Spray Pattern

⚠ WARNING

COMPONENT RUPTURE HAZARD
Do not exceed the **100 psi (0.7 MPa, 7 bar) maximum fluid and air pressure** of this gun. Higher pressures can cause parts to rupture and result in serious injury.

Follow these steps to establish the correct fluid flow and air flow:

A. Turn the fluid adjustment knob (21) counterclockwise until no restriction of the trigger movement is felt, then turn out another half turn. When the knob is turned far enough, the trigger should be able to touch the gun handle when the gun is triggered.

⚠ WARNING

PRESSURIZED EQUIPMENT HAZARD
To avoid injury, never open the fluid adjustment knob (21) beyond the one half turn indicated in **Adjust the Spray Pattern**.

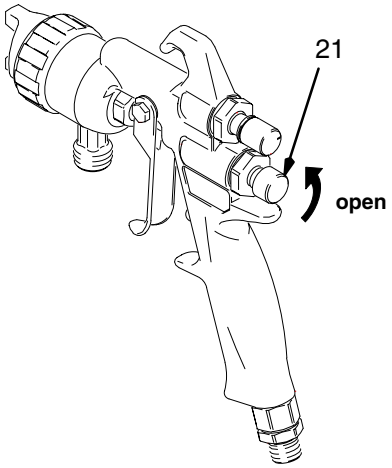


Fig. 7 7036A

Setup

6. Adjust the Spray Pattern *(continued)*

B. Adjust the fluid flow using the fluid pressure regulator (L) installed in the gun fluid line. Typical industrial flow rates will vary with regulator pressures from 5 to 30 psi (34 to 210 kPa, 0.3 to 2.1 bar).

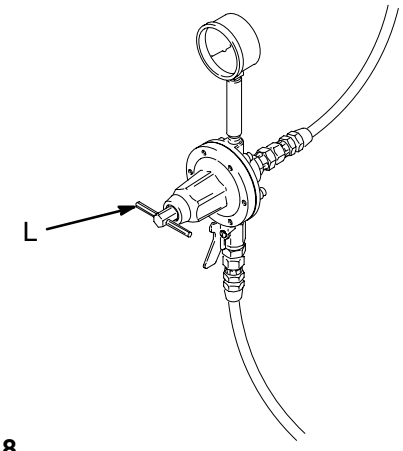


Fig. 8

C. Hold the gun parallel to the floor and adjust the fluid pressure to yield a 1 to 6 inch (25.4 to 152.4 mm) straight fluid stream before the stream falls off.

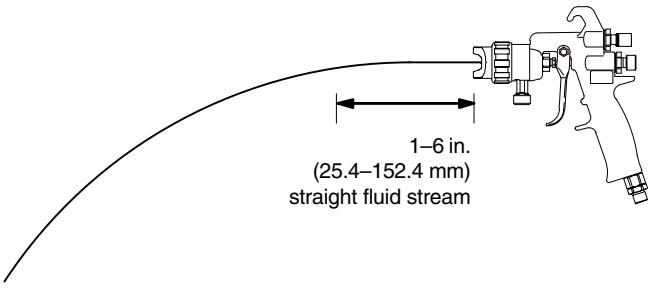


Fig. 9

Fluid Velocity of Fluid Nozzles at the Same Flow Rate

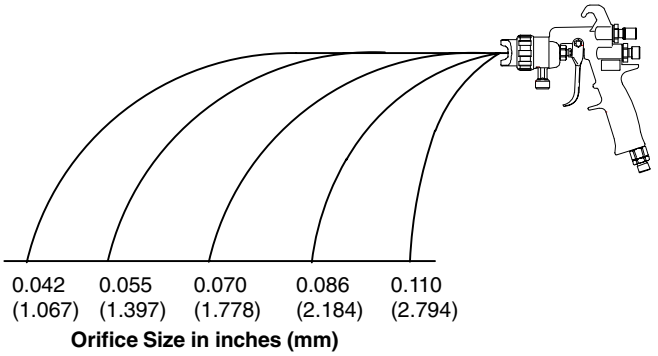


Fig. 10

NOTE: A larger fluid nozzle at a reduced fluid pressure will maintain the same flow rate, but slow down the fluid stream (velocity). When air is applied, this allows the air to act on the fluid longer and improve the atomization.

D. If further fluid flow restriction is needed at the gun, turn the fluid adjustment knob (21) clockwise to reduce the volume of fluid output by limiting the needle travel.

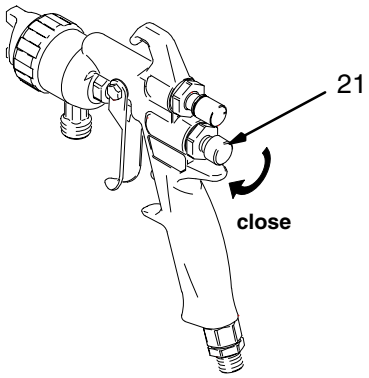


Fig. 11

⚠ WARNING

PRESSURIZED EQUIPMENT HAZARD
To avoid injury, never open the fluid adjustment knob (21) beyond the one half turn indicated in **Adjust the Spray Pattern**, page 9.

⚠ CAUTION

Restricting the trigger and fluid needle travel by continuously spraying with the fluid adjustment knob closed (turned clockwise), will cause accelerated abrasive wear on the fluid needle and wear on the trigger/air valve shaft interface.

For the best results, use the gun fluid regulator to adjust the fluid flow or use a different size needle/nozzle/air cap combination.

6. Adjust the Spray Pattern *(continued)*

NOTE:

- If the fluid adjustment knob is turned in all the way the gun will emit only air.

- *For continuous spraying,* turn the fluid adjustment knob (8) counterclockwise until no restriction of the trigger movement is felt. When the knob is turned out far enough, the trigger should be able to touch the gun handle when the gun is triggered. For the typical fluid adjustment knob setting, turn the knob out 1/2 turn more. This setting provides maximum fluid flow and prevents premature wear on the fluid nozzle.

E. Open the pattern adjustment valve (25) by turning the knob fully counterclockwise to achieve a full fan pattern.

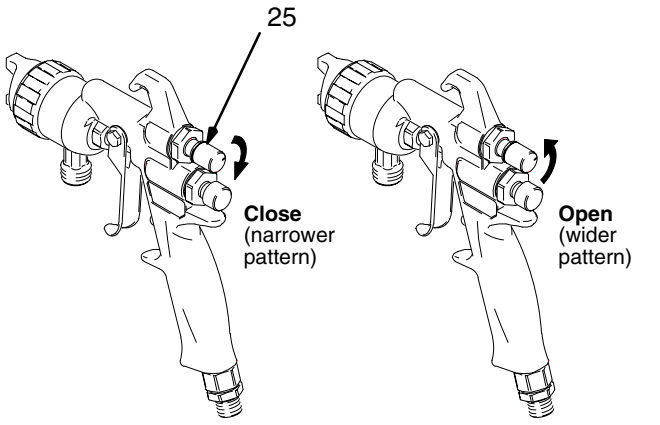


Fig. 12

F. Using the air pressure regulator (F), set the air supply pressure at about 50 psi (345 kPa, 3.4 bar). See the **Pressure Drop Chart** for regulator setting versus gun inlet pressure comparison.

If available, use the fluid manufacturer's recommendations to set the air line pressure for a high volume, low pressure, spray gun application.

NOTE: Local laws may limit the maximum pressure to 10 psi (70 kPa, 0.7 bar) at the air cap for HVLP compliance. The accessory Air Cap Verification Kit is available to measure the atomizing pressure at the air cap.

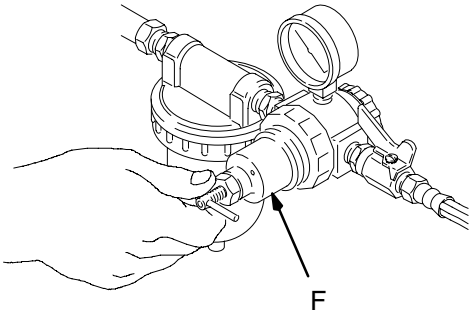


Fig. 13

Pressure Drop Chart

5/16 inch (7.9 mm) I.D. hose
Recommended hose size to minimize excessive pressure drop. Expected pressure drops measured using 25 ft. (7.625 m) long hose, with gun triggered.

Air Regulator Pressure Setting psi (kPa, bar)	Gun Inlet Pressure psi (kPa, bar)
18.5 (128, 1.3)	10 (70, 0.7)
34.0 (238, 2.3)	20 (140, 1.4)
48.0 (335, 3.3)	30 (210, 2.1)
62.5 (427, 4.3)	40 (280, 2.8)
76.5 (525, 5.3)	50 (345, 3.4)
90.5 (624, 6.3)	60 (410, 4.1)

G. Test the spray pattern and atomization while holding the gun about 6 to 8 inches (150 to 200 mm) from the test piece.

H. If the spray pattern is too wide with the pattern adjustment knob (13a) turned fully counterclockwise, turn the pattern adjustment knob clockwise until you have the desired pattern size.

NOTE: Turning the pattern adjustment knob fully clockwise will produce a round pattern.

I. Check the atomization quality again. Increase the gun air supply pressure with the air pressure regulator in 5 psi (34 kPa, 0.3 bar) increments until you obtain the desired atomization.

J. If after increasing the gun air supply pressure the atomization is still unacceptable, try installing a larger fluid nozzle size to reduce the fluid velocity. Refer to Fig. 10. Repeat steps 6-E to 6-I until you obtain the desired atomization.

Operation

Pressure Relief Procedure

⚠ WARNING

PRESSURIZED EQUIPMENT HAZARD
The system pressure must be manually relieved to prevent the system from starting or spraying accidentally. To reduce the risk of an injury from accidental spray from the gun, splashing fluid, or moving parts, 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. Turn off the air and fluid supply to the gun.
2. Trigger the gun into a grounded metal waste container to relieve air and fluid pressure.

Applying the Fluid

When using the HVLP spray gun, instead of a conventional air spray gun, you may need to use a slightly slower hand movement and make fewer passes with the gun to coat a part. This is due to the reduced spray velocity produced by lower HVLP air pressures, along with a larger fluid particle size because there is less air to blow off solvents than what is produced by conventional air spray. Take care to avoid runs or sags as you spray.

1. To achieve the best results when applying fluid, keep the gun perpendicular to the surface and maintain a consistent distance of approximately 6 to 8 inches (150 to 200 mm) from the object being sprayed. See Fig. 14.

2. To obtain an even finish, use smooth, even strokes across the object being sprayed with 50% overlap.

3. Paint using parallel strokes. This spray gun applies all coatings evenly without cross coating.

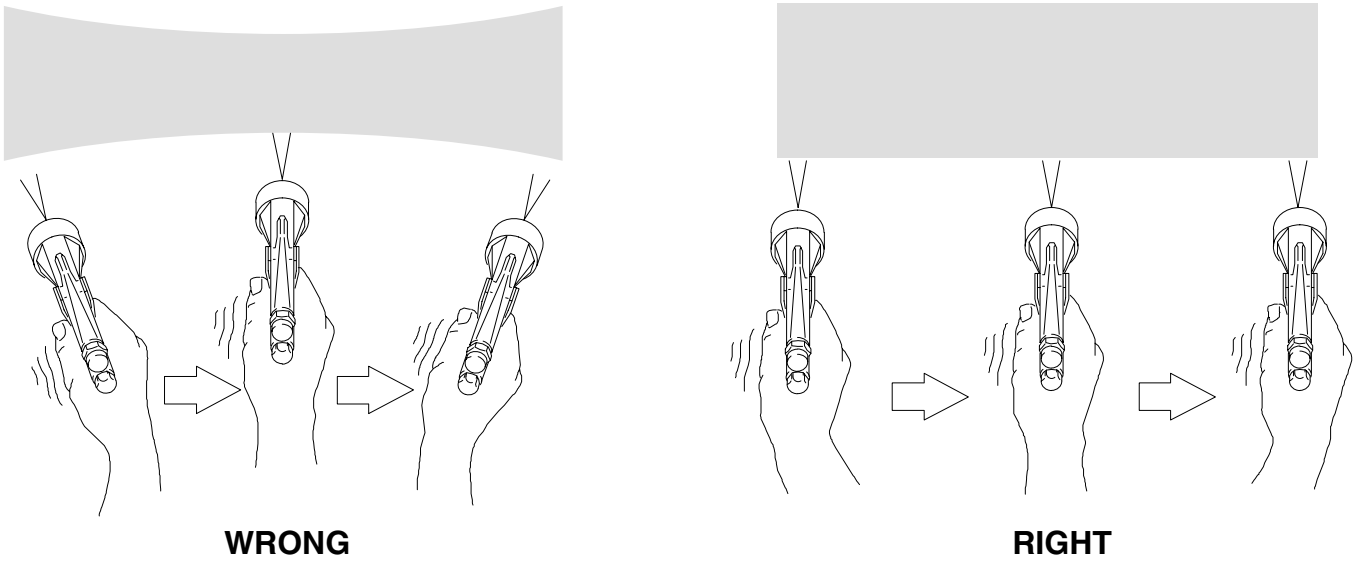


Fig. 14 07930

Daily Gun Care, Flushing, and Cleaning

⚠ WARNING

PRESSURIZED EQUIPMENT HAZARD
To reduce the risk of a serious injury whenever you are instructed to relieve pressure, follow the **Pressure Relief Procedure** on page 12.

⚠ CAUTION

Clean all parts with a non-conductive solvent, compatible with the fluid being sprayed. Conductive solvents can cause the gun to malfunction.

Methylene chloride with formic or propionic acid is not recommended as a flushing or cleaning solvent with this gun as it will damage aluminum and nylon components.

⚠ CAUTION

Solvent left in gun air passages could result in a poor quality paint finish. Do not use any cleaning method which may allow solvent into the gun air passages.

Do not point the gun up while cleaning it.

07042A

Do not wipe the gun with a cloth soaked in solvent; ring out the excess.

02027

Do not immerse the gun in solvent.

07041A

Do not use metal tools to clean the air cap holes as this may scratch them; scratches can distort the spray pattern.

02055

General System Maintenance

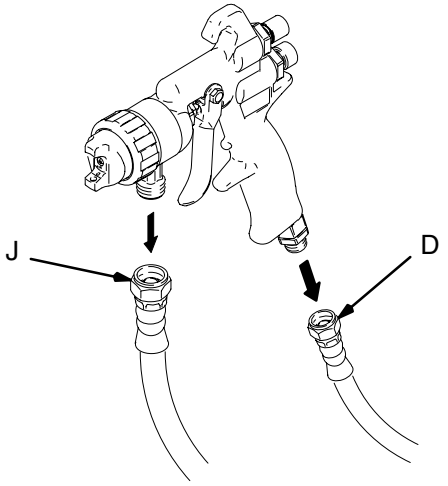
1. Relieve the pressure.
2. Clean the fluid and air line filters daily.
3. Check for any fluid leakage from the gun and fluid hoses. Tighten fittings or replace equipment as needed.
4. Flush the gun before changing colors and whenever you are done operating the gun.

Daily Gun Care, Flushing, and Cleaning

⚠ WARNING

PRESSURIZED EQUIPMENT HAZARD
To reduce the risk of a serious injury whenever you are instructed to relieve pressure, follow the **Pressure Relief Procedure** on page 12.

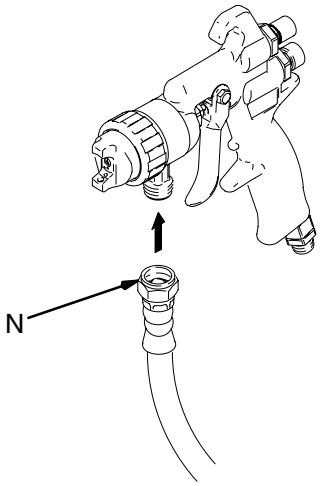
1. Relieve the pressure.
2. Disconnect the fluid supply hose (J) and air supply hose (D) from the gun.



7044A

Fig. 15

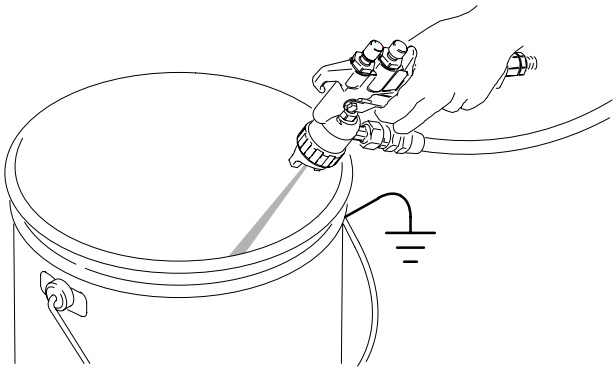
3. Connect the solvent supply hose (N) to the gun.



7109A

Fig. 16

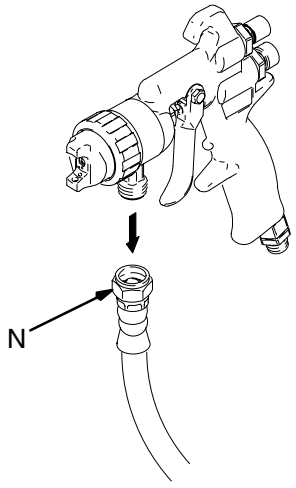
4. Point the gun down into a grounded metal container, and flush the gun with solvent until all traces of paint are removed from the gun passages.



7035A

Fig. 17

5. Turn off the solvent supply.
6. Relieve the pressure. Disconnect the solvent supply.
7. Disconnect the solvent (N) supply hose from the gun.



7044A

Fig. 18

Daily Gun Care, Flushing, and Cleaning

8. Remove the air cap retaining ring (15) and air cap (14).

9. Trigger the gun while you remove the fluid nozzle (12) from the gun with the gun tool (28).

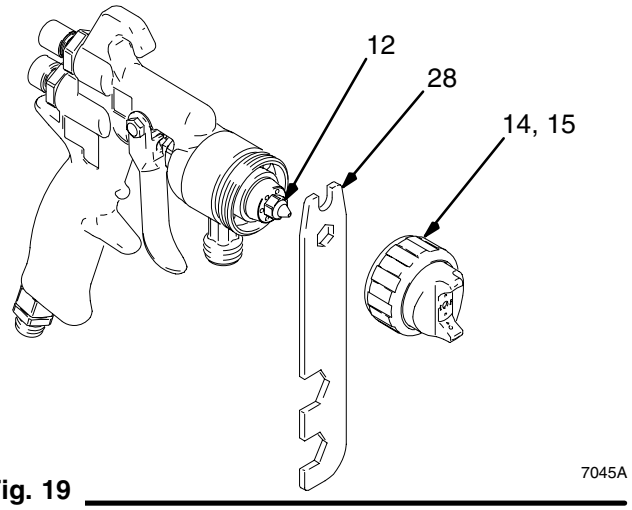


Fig. 19

⚠ CAUTION

Trigger the gun whenever you tighten or remove the nozzle. This keeps the needle seat away from the nozzle seating surface and prevents the seat from being damaged.

10. Clean the air cap retaining ring, air cap, and fluid nozzle with solvent.

11. Dip the end of a soft-bristle brush into a compatible solvent. Do not continuously soak the brush's bristles with solvent and do not use a wire brush.

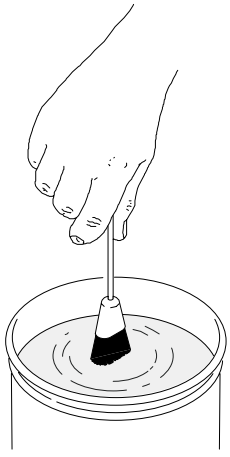


Fig. 20

12. With the gun pointed down, clean the front of the gun, using the soft-bristle brush and solvent.

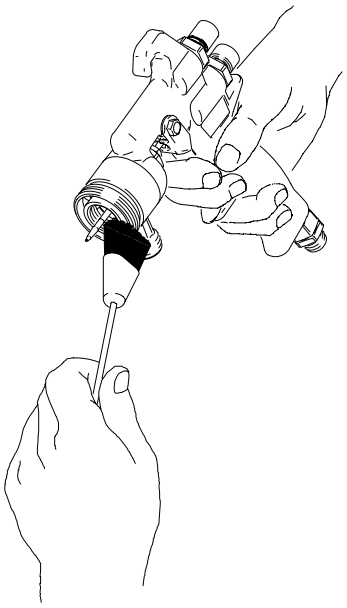


Fig. 21

13. Scrub the air cap retaining ring, air cap, and fluid nozzle with the soft-bristle brush. To clean out air cap holes, use a soft implement, such as a tooth-pick, to avoid damaging critical surfaces. Clean the air cap and fluid nozzle daily, minimum. Some applications require more frequent cleaning. Do not soak the air cap retaining ring in solvent for prolonged periods of time.

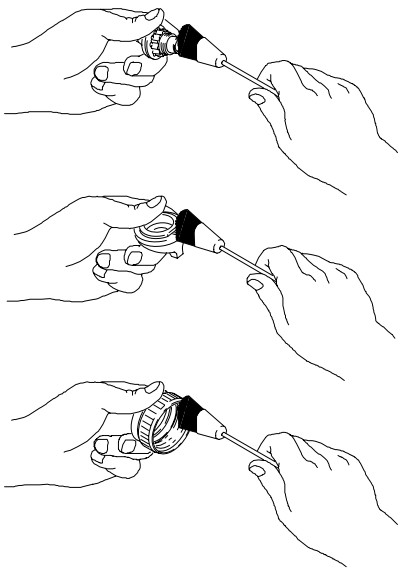
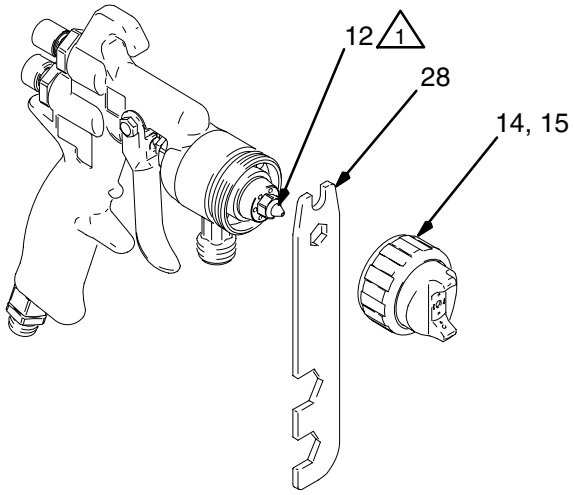


Fig. 22

Daily Gun Care, Flushing, and Cleaning

14. Trigger the gun while you install the fluid nozzle (12) with the gun tool (28). Tighten the nozzle securely to 125–135 in-lb (14–15 N•m) to obtain a good seal.
15. Install the air cap retaining ring (15) and air cap (14).



1 Torque to 125–135 in-lb (14–15 N•m)

7045A

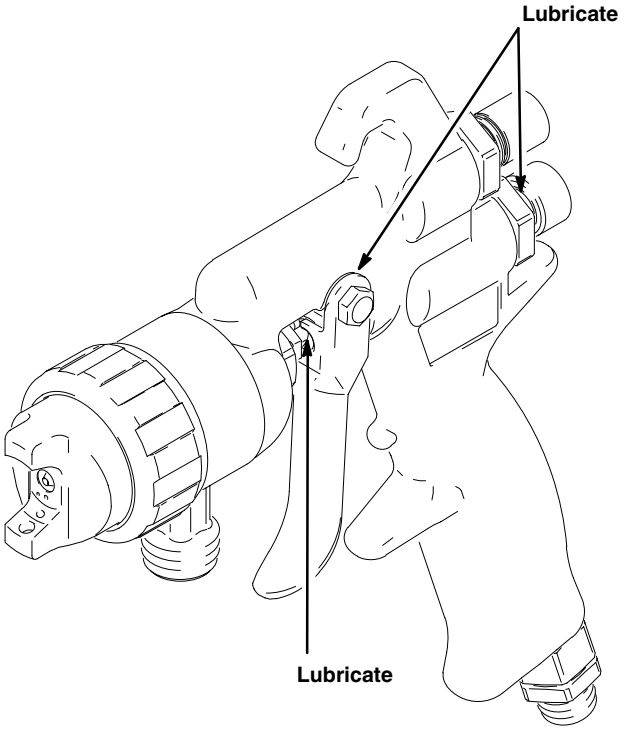
Fig. 23

16. Dampen a soft cloth with solvent and wring-out the excess. Point the gun down and wipe off the outside of the gun.

7047A

Fig. 24

17. After cleaning the gun, lubricate the following parts with lubricant 111265 daily:
    - Fluid adjustment knob threads
    - Trigger pivot pin
    - Fluid needle shaft



07032A

Fig. 25

Troubleshooting

⚠ WARNING

PRESSURIZED EQUIPMENT HAZARD
To reduce the risk of a serious injury, follow the **Pressure Relief Procedure** on page 12 before checking or repairing any part of the gun or system.

PROBLEM	CAUSE	SOLUTION
Fluid flow is fluttering while spraying	1. Fluid nozzle not tight enough	1. Tighten fluid nozzle to 125–135 in-lb (14–15 N•m).
	2. Fluid filter clogged	3. Check fluid filter.
	4. Fluid adjustment knob not properly set	5. Turn the fluid adjustment knob out for less feathering or use a larger size nozzle.
Fluid flow fades while spraying high viscosity fluids	1. Air hose size is too restricted for higher air flow being used	1. Use 5/16 in. (7.9 mm) I.D. air hose if the hose is 25 ft. (7.625 m) long. If longer hose is needed, use a 3/8 in. (9.5 mm) I.D. hose.
	2. Fluid pressure too low, causing fluid flow to reduce when gun is elevated	3. Raise fluid pressure at source or use a smaller fluid nozzle.
Pattern becomes off-set or heavy on ends	Air cap horn holes plugged or damaged	Clean air cap horn holes with non-metallic item such as a toothpick, or replace air cap.
Gun fluid pressure is too high with gun triggered	Using needle/nozzle kit with too small orifice	Use needle/nozzle kit with larger orifice
Using a low fluid pressure setting, the fluid flow is too high, making it necessary to restrict needle travel to reduce fluid flow	Using needle/nozzle kit with too large orifice	Use needle/nozzle kit with smaller orifice
Fluid system will not operate at low enough fluid pressure [below 10 psi (70 kPa, 0.7 bar)]	There is no fluid regulator, or air regulator on pressure pot is not sensitive enough at low pressures	Add low pressure fluid regulator, or add more sensitive low pressure air regulator on pressure pot.

Service

Items Needed for Service

- Gun Tool – provided
- Packing Installation Tool – provided
- Adjustable Wrench
- Screw Driver
- Lubricant part no. 111265; see **Accessories**, page 28, to order
- Compatible Solvent

Fluid Packings Replacement

⚠ WARNING

PRESSURIZED EQUIPMENT HAZARD
To reduce the risk of a serious injury, follow the **Pressure Relief Procedure** on page 12 before checking or repairing any part of the gun or system.

NOTE:
- Order Fluid Packing Kit 239640. The kit includes the spreader, u-cup, and spacer.
- Clean parts with a solvent that is compatible with the parts and the fluid being sprayed.
- Lightly lubricate the parts indicated in Fig. 28 with lubricant 111265.

1. Relieve the pressure.

2. Remove the air cap retaining ring (15) and air cap (14). See Fig. 26.

3. Trigger the gun while you remove the fluid nozzle (12) with the gun tool (28).

⚠ CAUTION

Trigger the gun whenever you tighten or remove the nozzle. This keeps the needle seat away from the nozzle seating surface and prevents the seat from being scratched.

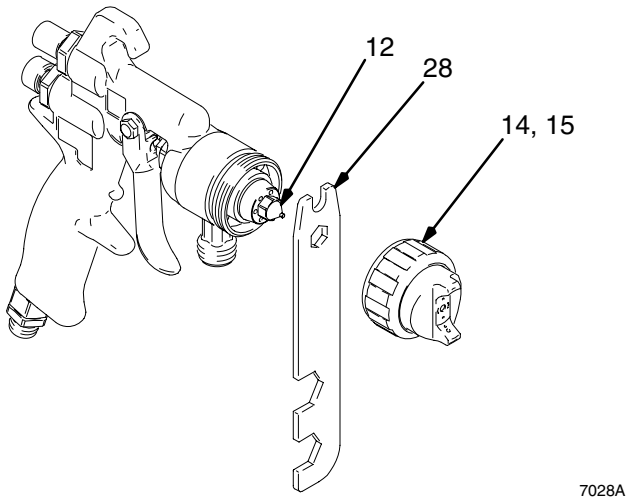


Fig. 26

4. Remove the fluid adjustment knob (21) and fluid spring (23). See Fig. 28.

5. Pull the fluid needle (13) out the back of the gun.

6. Remove the screw (11), pin (17), and trigger (10).

7. Remove the hex nut (9) with the gun tool (28).

8. Remove the spray housing (2a) and insert (4).

9. Unscrew the packing screw (8) from the insert (4) with the gun tool (28).

10. Use the back end of the fluid needle (13) to push the three fluid packings (5) out of the insert (4). Be careful not to damage the needle or insert. Discard the old fluid packings.

11. Check the fluid needle (13) for damage or excessive wear. Replace needle tip or entire needle if necessary.

12. Place the new fluid packings (5) and packing screw (8) onto the needle (13). See Fig. 27 for the orientation of the parts.

13. Insert the fluid needle (13) into the back of the insert (4) to install the fluid packings (5).

14. Tighten the packing screw (8) just enough to hold the packings (5) in the insert (4). The needle (13) must move freely. Remove the needle.

NOTE: To ensure proper alignment of the parts, follow the next steps in the order they are given.

15. Slide the insert (4) into the spray housing (2a). See Fig. 28. Align the housing with the slot and lip (A) on the gun and slide the insert into the gun body (1).

16. Tighten the hex nut (9) onto the insert (4) hand-tight, then loosen the nut about one turn so the insert (4) and spray housing sit loosely in the gun body.

17. Lubricate and install the fluid needle (13).

18. Lubricate the fluid adjustment knob threads (21), and install the fluid spring (23) and adjustment knob.

19. Install the trigger (10), pin (17), and screw (11). Torque the screw to 20–30 in-lb (2.3–3.4 N•m).

20. To avoid galling of the fluid nozzle seat in the insert (4), apply a thin film of lubricant to the seat. Trigger the gun while you install the fluid nozzle (12) with the gun tool (28). Torque the nozzle securely to 145–155 in-lb (16–17 N•m).

21. Tighten the hex nut (9) securely to 125–135 in-lb (14–15 N•m).

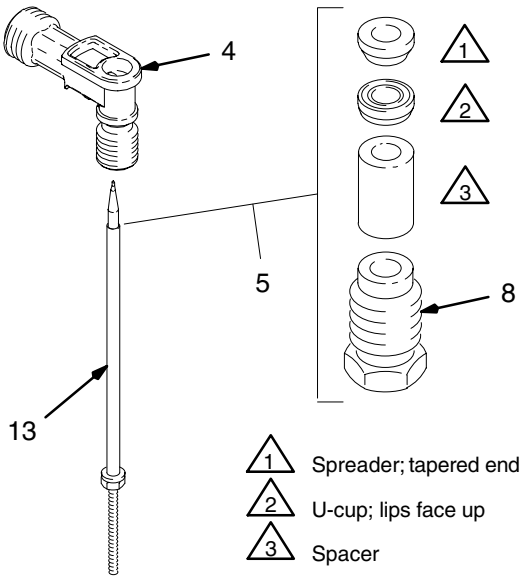
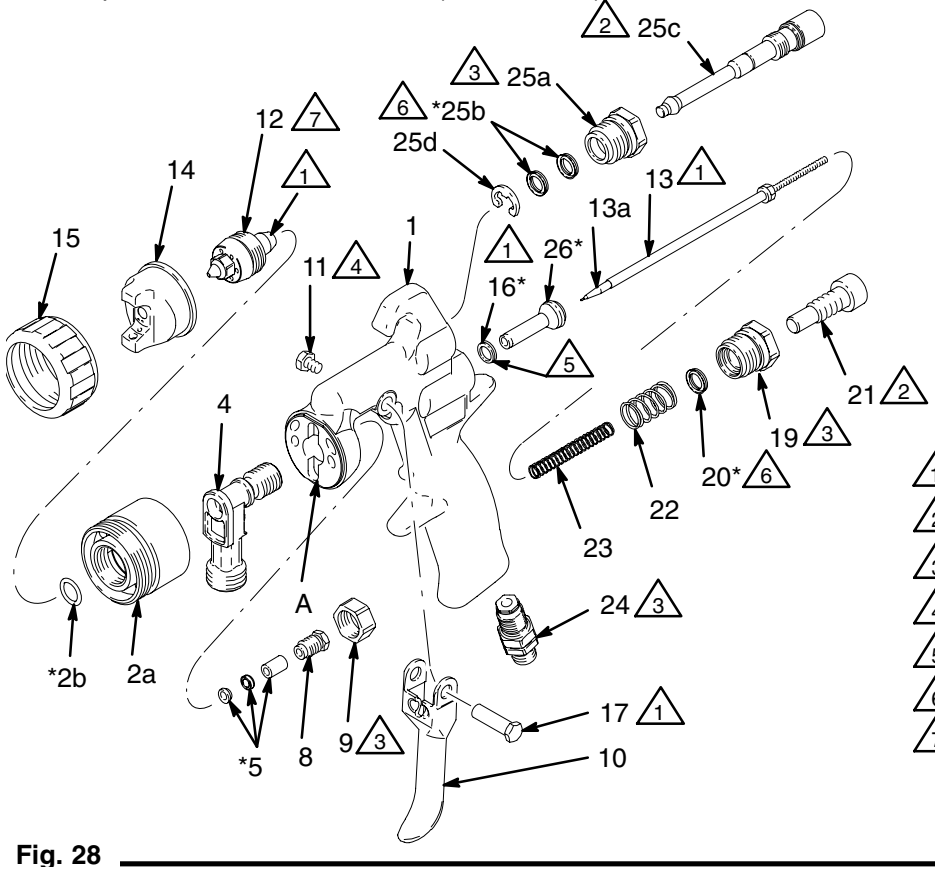


Fig. 27



Item 2 includes 2a–2b
Item 13 includes item 13a
Item 25 includes 25a–25d

1 Lightly lubricate
2 Lightly lubricate threads
3 Torque to 125–135 in-lb (14–15 N•m)
4 Torque to 20–30 in-lb (2.3–3.4 N•m)
5 U-cup lips face air valve assembly (26)
6 U-cup lips face away from nut (19/25a)
7 Torque to 145–155 in-lb (16–17 N•m)

*Parts included in Repair Kit 239–639

7584A

Fig. 28

22. To tighten the packing screw (8), turn the screw in until it touches the fluid packings (5), then tighten one full turn to pre-set the packings. Loosen the screw, then turn it in until it touches the packings again. Tighten the screw 1/12 turn more (equal to half the distance between points on the hex head).

23. Trigger the gun to test the needle movement. If the needle does not return after the trigger is released or is slow in returning, loosen the packing screw (8) slightly until the needle returns freely.

24. Install the air cap (14) and air cap retaining ring (15). Hand-tighten the ring.

25. Make sure the gun fluid packings are sealing properly by spraying solvent at low pressure before fully pressurizing the gun with the fluid to be sprayed.

    If the fluid packings leak, tighten the packing screw (8) slightly and retest until the packings and needle seal completely.

Complete Gun Packing Replacement

⚠ WARNING

PRESSURIZED EQUIPMENT HAZARD
To reduce the risk of a serious injury, follow the **Pressure Relief Procedure** on page 12 before checking or repairing any part of the gun or system.

NOTE:
- Gun Repair Kit 239639 is available. The kit includes an o-ring (2b), fluid packing kit (5), u-cups (16, 20, 25b), and air valve assembly (26).
- Clean parts with a solvent that is compatible with the parts and the fluid being sprayed.
- Lightly lubricate the parts indicated in Fig. 28 with lubricant 111265.

1. Relieve the pressure.

2. Remove the air cap retaining ring (15) and air cap (14). See Fig. 26, page 18.

3. Trigger the gun while you remove the fluid nozzle (12) with the gun tool (28).

⚠ CAUTION

Trigger the gun whenever you tighten or remove the nozzle. This keeps the needle seat away from the nozzle seating surface and prevents the seat from being scratched.

4. Remove the fluid adjustment knob (21) and fluid spring (23). See Fig. 28, page 19.

5. Pull the fluid needle (13) out the back of the gun.

6. Remove the screw (11), pin (17), and trigger (10).

7. Remove the hex nut (9) with the gun tool (28).

8. Remove the spray housing (2a) and insert (4). Remove the o-ring (2b) with a pick and install the new o-ring.

   To ease o-ring installation, place the insert (4) into the spray housing (2a) to plug the end. Install one end of the o-ring into the groove in the housing, then press the rest of the o-ring into place.

9. Unscrew the packing screw (8) from the insert (4) with the gun tool (28).

10. Use the back end of the fluid needle (13) to push the three fluid packings (5) out of the insert (4). Be careful not to damage the needle or insert. Discard the old fluid packings.

Service

11. Place the new fluid packings (5) and packing screw (8) onto the needle (13). See Fig. 27, page 19, for the orientation of the parts.

12. Insert the fluid needle (13) into the back of the insert (4) to install the fluid packings (5).

13. Tighten the packing screw (8) just enough to hold the packings (5) in the insert (4). The needle (13) must move freely. Remove the needle.

14. Unscrew the pattern adjustment valve assembly (25).

15. Remove the retaining ring (25d) and unscrew the pattern adjustment valve (25c).

16. Remove the u-cup seals (25b) from the pattern adjustment nut (25a). Be careful not to damage the seal surface or the nut's internal threads.

17. One at a time, install the new u-cup seals (25b) with the seal installation tool (29); the u-cup lips must face toward the tool as shown in Fig. 31.

18. Push each u-cup seal (25b) into the pattern adjustment nut (25a) until a definite snap is felt.

19. Lubricate the pattern adjustment valve (25c) threads and install the valve into the nut (25a). Install the retaining ring (25d), then back out the pattern adjustment valve as far as the retaining ring allows it to go.

20. Remove the fluid valve nut (19), air valve spring (22), and air valve assembly (26). Discard the air valve assembly. See Fig. 28, page 19.

21. Remove the u-cup (16) from the gun body. The threaded end of the needle (13) can be used to push out the u-cup. Be careful not to damage needle or sealing surface. See Fig. 29.

22. Place the new u-cup (16) on the seal installation tool (29), with the u-cup lips facing the tool as shown in Fig. 30.

23. Push the packing (16) into the back of the gun until a definite snap is felt.

24. Remove the u-cup seal (20) from the fluid valve nut (19). Be careful not to damage the seal surface or the nut's internal threads.

25. Install the new u-cup seal (20) with the seal installation tool (29); the u-cup lips must face toward the tool as shown in Fig. 31. This will help apply even pressure to the u-cup lips and avoid damaging them.

26. Push the u-cup seal (20) into the fluid valve nut (19) until a definite snap is felt.

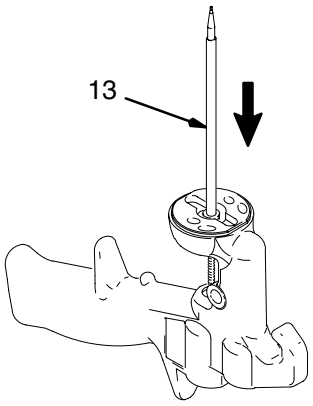


Fig. 29

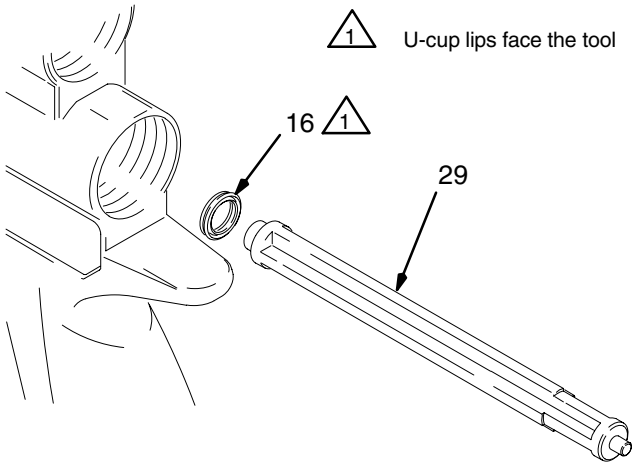


Fig. 30

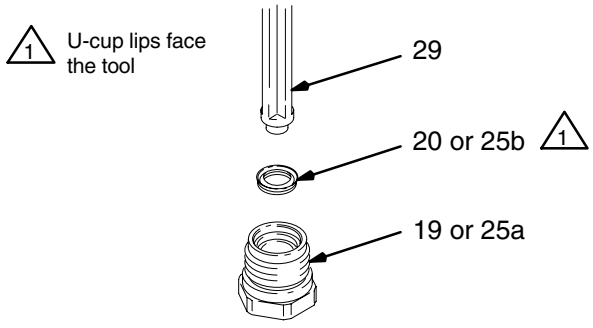


Fig. 31

Service

NOTE: To ensure proper alignment of the parts, follow the next steps in the order they are given.

27. Slide the insert (4) into the spray housing (2a), and install them onto the gun body (1). Align the housing with the slot and lip (A) on the gun body (1).

28. Tighten the hex nut (9) onto the insert (4) hand-tight, then loosen the nut about one turn so the insert (4) and spray housing sit loosely in the gun body.

29. Check the fluid needle (13) for damage or excessive wear. Replace needle tip or entire needle if necessary.

30. Lubricate the outside of the new air valve assembly (26) and place it on the fluid needle (13), against the nut (B). See Fig. 32. This helps align the entrance of the air valve stem into the inside diameter of the u-cup (16) without damaging the u-cup lip.

31. Install the fluid needle (13) and the air valve assembly (26) into the back of the gun.

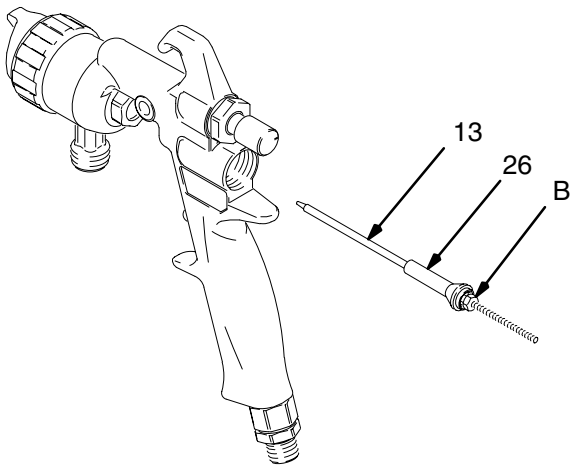


Fig. 32

32. Install the air valve spring (22). Point the gun down to center the spring (22) and tighten the fluid nut (19) to 125–135 in-lb (14–15 N•m).

33. Install the needle spring (23) and fluid adjustment knob (21).

34. Install the trigger (10), pivot pin (17), and screw (11). Torque the screw to 20–30 in-lb (2.3–3.4 N•m).

35. To avoid galling of the fluid nozzle seat in the insert (4), apply a thin film of lubricant to the seat. Trigger the gun while you install the fluid nozzle (12) with the gun tool (28). Torque the nozzle securely to 145–155 in-lb (16–17 N•m).

36. Tighten the hex nut (9) securely to 125–135 in-lb (14–15 N•m).

37. Install the pattern adjustment valve assembly (25). Torque the nut (25a) to 125–135 in-lb (14–15 N•m).

38. To tighten the packing screw (8), turn the screw in until it touches the fluid packings (5), then tighten one full turn to pre-set the packings. Loosen the screw, then turn it in until it touches the packings again. Tighten the screw 1/12 turn more (equal to half the distance between points on the hex head).

39. Trigger the gun to test the needle movement. If the needle does not return after the trigger is released or is slow in returning, loosen the packing screw (8) until the needle returns freely.

40. Install the air cap (14) and air cap retaining ring (15). Hand-tighten the ring.

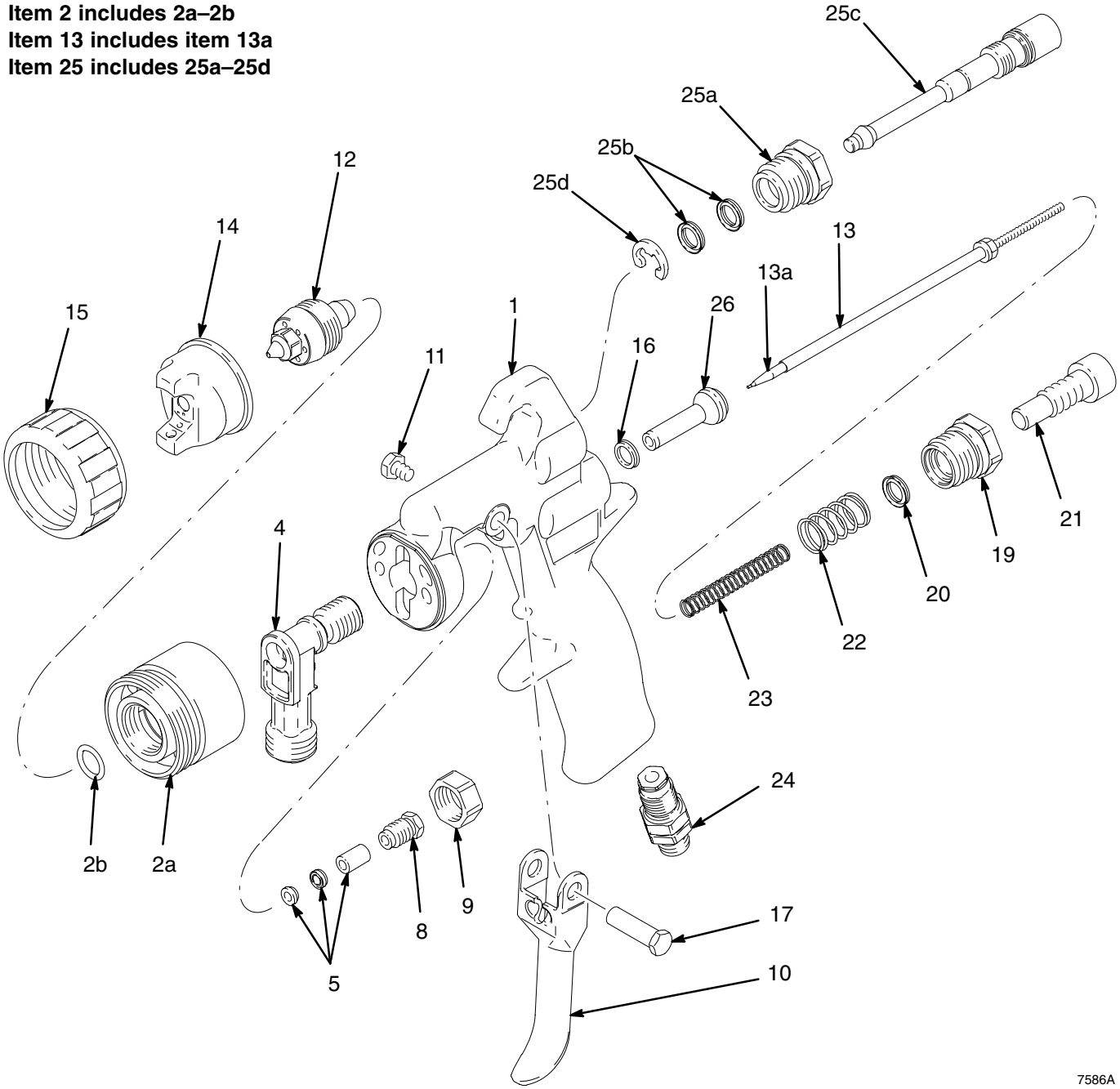
41. Make sure the gun fluid packings are sealing properly by spraying solvent at low pressure before fully pressurizing the gun with the fluid to be sprayed.

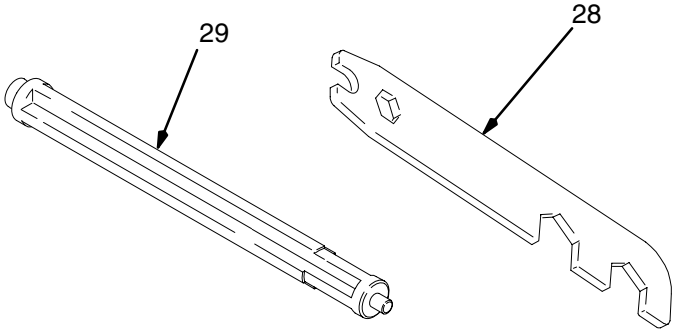
    If the fluid packings leak, tighten the packing screw (8) slightly and retest until the packings and fluid needle seal completely.

Notes

Parts

Item 2 includes 2a–2b
Item 13 includes item 13a
Item 25 includes 25a–25d





Parts

Part No. 239559 to 239567
Pressure Feed HVLP Spray Gun Assembly

Ref. No.	Part No.	Description	Qty.
1	239721	BODY, gun	1
2	239651	SPRAY HOUSING ASSY.; Includes items 2a–2b	1
2a		• HOUSING, spray; not sold separately	1
2b*	111316	• O-RING, CV75	1
4	191849	INSERT, fluid	1
5*	239640	KIT, fluid packing; Includes spreader, u-cup, and spacer	1
8	192352	SCREW, packing	1
9	192348	NUT, hex; 1/2–20 UNF	1
10	192271	TRIGGER	1
11	203953	SCREW, trigger lock	1
12☆		NOZZLE, fluid	1
13☆		NEEDLE ASSY.; Includes replaceable item 13a	1
13a☆		• TIP, needle	1
14☆		AIR CAP	1
15	192276	RING, air cap retaining	1
16*	188493	U-CUP	1
17	192272	PIN, pivot	1
19	192355	NUT, fluid valve	1
20*	110453	U-CUP	1
21	192266	KNOB, fluid adjustment	1
22	114069	SPRING, air valve	1
23☆		SPRING, needle	1
24	239655	SWIVEL, air	1
25	239653	PATTERN ADJUSTMENT VALVE ASSY.; Includes items 25a–25d	1
25a	192356	• NUT, pattern adjustment	1
25b*	110453	• U-CUP	2
25c	192353	• VALVE, pattern adjustment, HVLP	1
25d	114068	• RING, retaining	1
26*	240823	AIR VALVE ASSY.	1
28	192281	TOOL, gun	1
29	192282	TOOL, packing installation	1

☆ *See chart for part number.*

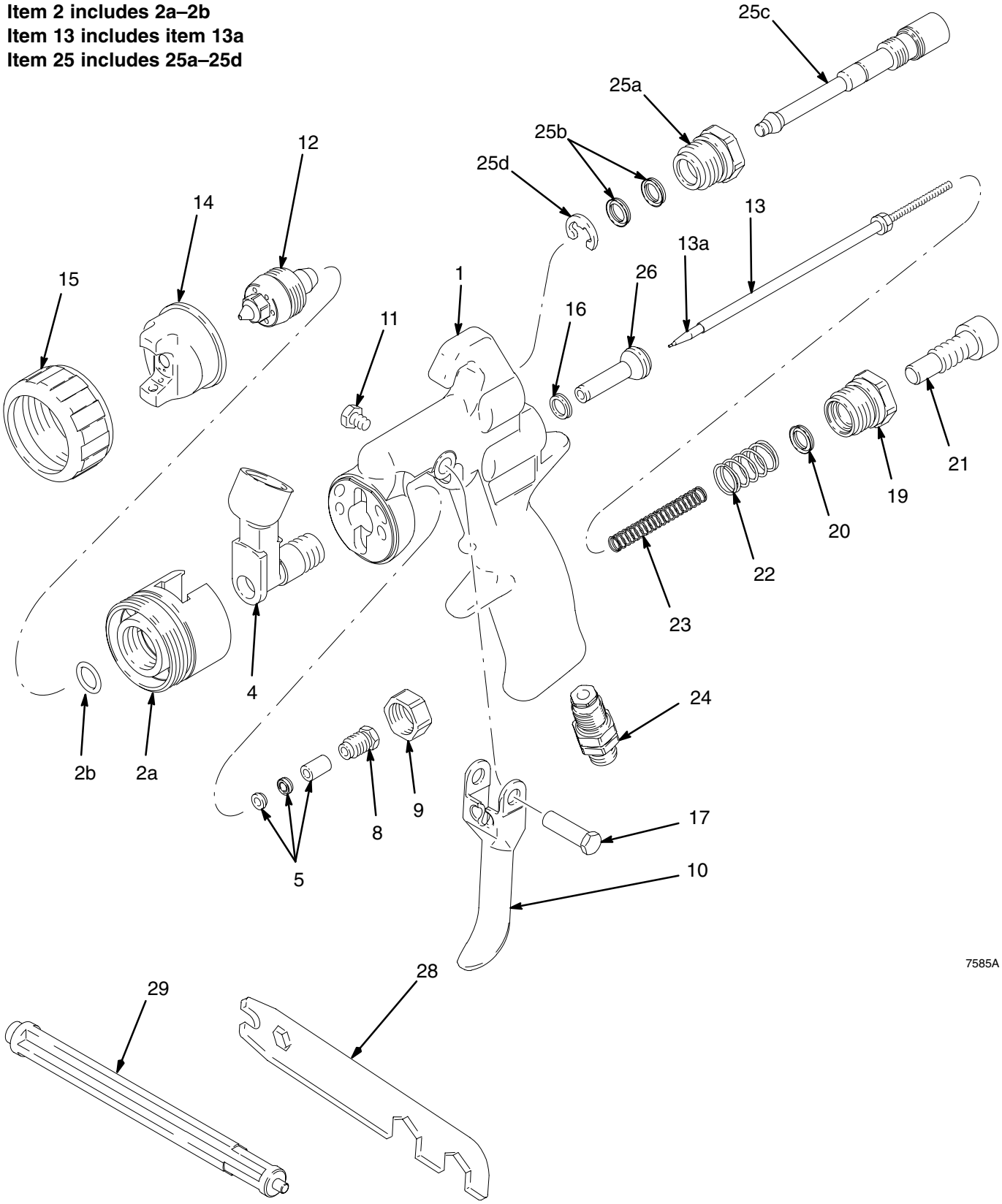
* *These parts are included in Repair Kit 239639, which may be purchased separately.*

Gun Part No.	Needle/ Nozzle Kit *Includes items 12–13*	Item 12 Nozzle	Item 13 Needle Assy. *Includes item 13a*	Item 13a Needle Tip	Item 14 Air Cap	Item 23 Spring	Orifice Size in. (mm)	Fluid Supply
239559	239600	192295	239643	192304	192321	114072	.030 (.762)	Pressure
239560	239601	192296	239644	192305	192321	114072	.042 (1.067)	Pressure
239561	239602	192297	239645	192306	192321	114072	.055 (1.397)	Pressure
239562	239603	192298	239646	192307	192322	114072	.070 (1.778)	Pressure
239563	239604	192299	239647	192308	192322	114072	.086 (2.184)	Pressure
239564	239605	192300	239648	192309	192323	114072	.110 (2.794)	Pressure
239565**	239606	192301	239649	192310	192321	110402	.042 (1.067)	Pressure
239566**	239607	192302	239650	192311	192321	110402	.055 (1.397)	Pressure
239567**	239598	192293	239641	192312	192322	110402	.070 (1.778)	Pressure

** These guns have a stainless steel needle tip, which is not recommended except for applications where it is necessary.

Parts

Item 2 includes 2a–2b
Item 13 includes item 13a
Item 25 includes 25a–25d



Parts

Part No. 239574 and 239575
Gravity Feed HVLP Spray Gun Assembly

Ref. No.	Part No.	Description	Qty.
1	239721	BODY, gun	1
2	239799	SPRAY HOUSING ASSY.; Includes items 2a–2b	1
2a		• HOUSING, spray, gravity; not sold separately	1
2b*	111316	• O-RING, CV75	1
4	191850	INSERT, fluid, gravity	1
5*	239640	KIT, fluid packing; Includes spreader, u-cup, and spacer	1
8	192352	SCREW, packing	1
9	192348	NUT, hex; 1/2–20 UNF	1
10	192271	TRIGGER	1
11	203953	SCREW, trigger lock	1
12☆		NOZZLE, fluid	1
13☆		NEEDLE ASSY.; Includes replaceable item 13a	1
13a☆		• TIP, needle	1
14	192329	AIR CAP	1
15	192276	RING, air cap retaining	1
16*	188493	U-CUP	1
17	192272	PIN, pivot	1
19	192355	NUT, fluid valve	1
20*	110453	U-CUP	1
21	192266	KNOB, fluid adjustment	1
22	114069	SPRING, air valve	1
23	114072	SPRING, needle	1
24	239655	SWIVEL, air	1
25	239653	PATTERN ADJUSTMENT VALVE ASSY.; Includes items 25a–25d	1
25a	192356	• NUT, pattern adjustment	1
25b*	110453	• U-CUP	2
25c	192353	• VALVE, pattern adjustment	1
25d	114068	• RING, retaining	1
26*	240823	AIR VALVE ASSY.	1
28	192281	TOOL, gun	1
29	192282	TOOL, packing installation	1

☆ *See chart for part number.*

* *These parts are included in Repair Kit 239639, which may be purchased separately.*

Gun Part No.	Needle/ Nozzle Kit *Includes items 12–13*	Item 12 Nozzle	Item 13 Needle Assy. *Includes item 13a*	Item 13a Needle Tip	Orifice Size in. (mm)	Fluid Supply
239574	239592	192287	239645	192306	.055 (1.397)	Gravity
239575	239593	192288	239646	192307	.070 (1.778)	Gravity

Accessories

Cleaning Brush 105749
For use in cleaning gun

Lubricant 111265
One 4 oz. (113 gram) tube sanitary (non-silicone) lubricant for fluid seals and wear areas.

Fluid Whip Hose Assembly 239622
100 psi (0.7 MPa, 7 bar) Maximum Working Pressure
Eases gun movement with increased hose flexibility. 4 ft. (1.22 m) long, 3/16 in. (4.76 mm) I.D., 3/8 npsm(fbe), nylon with polyurethane cover

Whip Hose Parts Breakdown

Part No.	Description
239630	FITTING ASSY, male
239629	FITTING ASSY, swivel
061345	TUBING; 1000 ft. (305 m) roll

Fluid Hose Assembly
100 psi (0.7 MPa, 7 bar) Maximum Working Pressure
3/16 in. (4.76 mm) I.D., 3/8 npsm(fbe), nylon with polyurethane cover

Part No.	Length
239633	15 ft. (4.58 m)
239634	25 ft. (7.63 m)

Fluid Hose Parts Breakdown

Part No.	Description
239629	FITTING ASSY, swivel
061345	TUBING; 1000 ft. (305 m) roll

Air Hose Assembly
100 psi (0.7 MPa, 7 bar) Maximum Working Pressure
5/16 in. (7.94 mm) I.D., 1/4 npsm(f) swivel, nitrile

Part No.	Length
239636	15 ft. (4.58 m)
239637	25 ft. (7.63 m)

Air Whip Hose Assembly 239631
100 psi (0.7 MPa, 7 bar) Maximum Working Pressure
Eases gun movement with increased hose flexibility. 4 ft. (1.22 m) long, 5/16 in. (7.94 mm) I.D., 1/4 npsm(f) swivel, nitrile

Air Hose Assembly 185353
100 psi (0.7 MPa, 7 bar) Maximum Working Pressure
Optional air hose for use when higher air flow is required. 25 ft. (7.625 m) long, 3/8 in. (9.53 mm) I.D., 1/4 npsm(f) swivel, buna-n

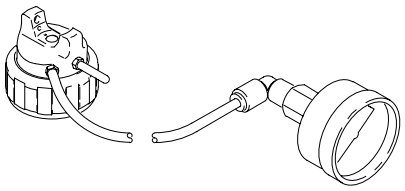
Air Control Valve Kit 243670
Install on the gun air inlet to control both the atomizing air and the pressure in the spray gun cup (if used). 1/4 npsm x 1/4–19 BSPT.

Air Pressure Verification Kit
For use in checking air cap atomizing or pattern air pressure at various supply air pressures. **Not to be used for actual spraying.**

Install the kit air cap on the gun. Turn on the air to the gun, then trigger the gun and read the air pressure on the gauge.

NOTE: To be “HVLP compliant”, the atomizing air pressure must not exceed 10 psi (70 kPa, 0.7 bar).

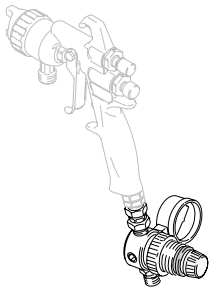
Part No.	Orifice in. (mm)
239609	0.030, 0.042, 0.055 (0.762, 1.067, 1.397)
239610	0.070, 0.086 (1.778, 2.184)
239611	0.110 (2.790)
239612	gravity



7637A

Gun Air Regulator Assy. 235119
0–100 psi (0–0.7 MPa, 0–7 bar) air regulator to control air pressure to gun.

NOTE: Installing the gun air regulator adds a pressure drop that could limit the air cap pressure.

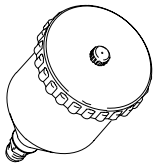


7614A

Non–Swiveling Air Inlet Fitting 195065
Replaces the standard gun swivel fitting to prevent gun from rotating during operation

Accessories

Gravity Cup
For use with gravity feed gun. Nylon cup, 304 stainless steel 3/8 npsm(f) fluid inlet fitting, fluid filter cartridge included.

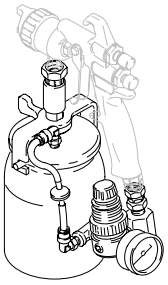


7636A

Part No.	Size
239714	16 oz. (474 cc)
239715	8 oz. (237 cc)

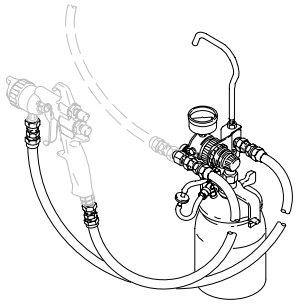
Gravity Cup Holder Bracket 192407
Fits both gravity cup sizes.

SST Pressure Cup Kit 239802 with single air regulator
1 qt. (0.95 liter) capacity, 304 stainless steel cup. Includes a pressure relief valve and a single air regulator and gauge.



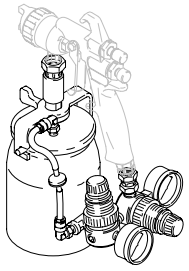
7611A

1 Quart Remote SST Pressure Cup 239804
1 qt. (0.95 liter) capacity, 304 stainless steel cup. Includes air pressure regulator and gauge, 4 ft. (1.2 m) length air and fluid hose with 1/4 npsm(f) swivel ends, pressure relief valve, and rigid hook handle.



7623A

SST Pressure Cup Kit 239803 with double air regulator
1 qt. (0.95 liter) capacity, 304 stainless steel cup. Includes a pressure relief valve, a 0–100 psi (0–0.7 MPa, 0–7 bar) air regulator for gun atomization, and a 0–15 psi (0–104 kPa, 0–1.0 bar) air regulator for the 1 qt. pressure cup supply air.



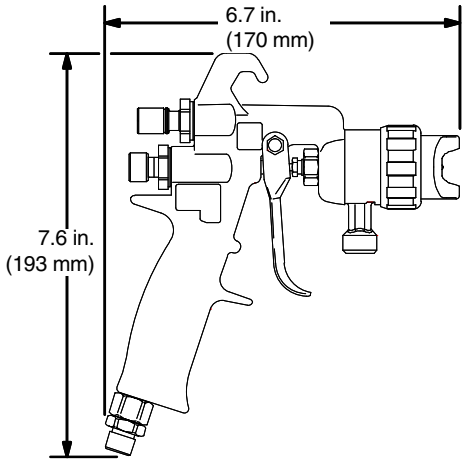
7612A

NOTE: Installing the pressure cup kit adds a pressure drop that could limit the air cap pressure.

Disposable Polyethylene Cup Liners
Paint and solvent resistant. 40 liners per box.

112490 1 Quart Cup Size
112491 2 Quart Cup Size

Dimensions



7048A

Technical Data

Category	Data
Maximum Working Fluid Pressure	100 psi (0.7 MPa, 7 bar)
Maximum Working Air Pressure	100 psi (0.7 MPa, 7 bar)
Maximum Compliant Inbound Air Pressure	40 psi (280 kPa, 2.8 bar)
Fluid and Air Operating Temperature Range	32° F to 140° F (0° C to 60° C)
Weight	17.1 oz. (484 g)
Air Inlet	1/4–18 npsm (R1/4–19) compound thread
Fluid Inlet	3/8–18 npsm (R3/8–19) compound thread
Wetted Parts	304 and 17–4 PH Stainless Steel, PEEK, Acetal, Ultra High Molecular Weight Polyethylene
Noise Data* Sound Pressure Sound Power	 84.4 Db(A) 94.0 Db(A)

* All readings were taken with the gun controls fully open and with 40 psi (280 kPa, 2.8 bar). Sound pressure was tested to CAGI–PNUEROP–1969. Sound power was tested to ISO 3744–1981.

Notes

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.

FOR GRACO CANADA CUSTOMERS
The parties acknowledge that they have required that the present document, as well as all documents, notices and legal proceedings entered into, given or instituted pursuant hereto or relating directly or indirectly hereto, be drawn up in English. Les parties reconnaissent avoir convenu que la rédaction du présente document sera en Anglais, ainsi que tous documents, avis et procédures judiciaires exécutés, donnés ou intentés à la suite de ou en rapport, directement ou indirectement, avec les procedures concernées.

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 Office: Minneapolis
International Offices: Belgium, Korea, Hong Kong, Japan

www.graco.com

PRINTED IN USA 308741 08/1997, Revised 01/2004