Instructions – Parts List

Parts

CIRCULATING, HIGH PRESSURE

Automatic Air–Assisted Spray Gun

308780

Rev.J

4000 psi (28 MPa, 280 bar) Maximum Working Fluid Pressure
100 psi (0.7 MPa, 7 bar) Maximum Working Air Pressure

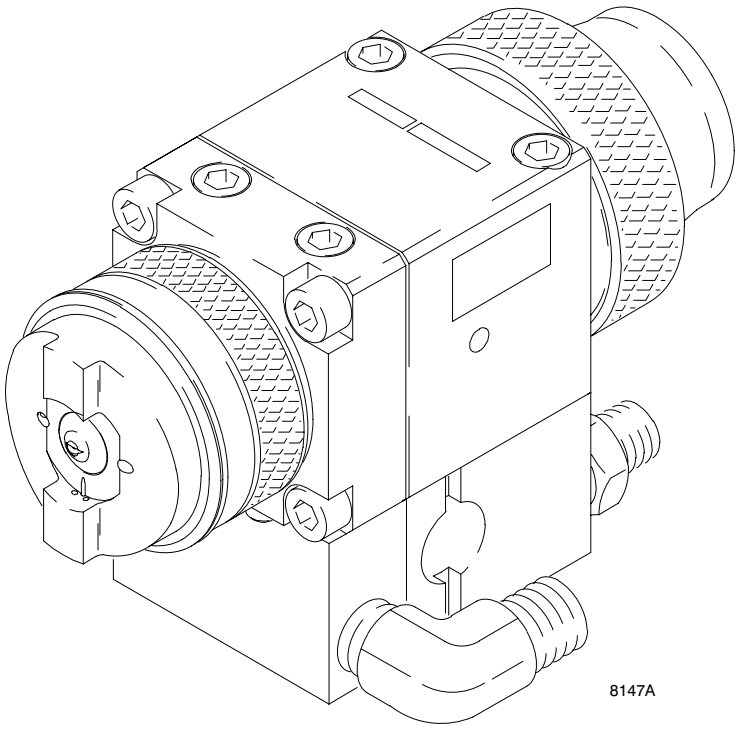
Part No. 239780, Series B
Standard Spray Gun
Includes GG5 series tip of choice

Part No. 239787, Series B
Acid Catalyzed Fluid Spray Gun
Includes GG5 series tip of choice

Part No. 239788, Series B
HVLP Spray Gun
Includes GG5 series tip of choice

Part No. 241088, Series B
Spray Gun with
AA Reverse–A–Clean® (RAC) assembly
Includes 242 series tip of choice

Part No. 239784, Series B
Hi–Flow Spray Gun
without air cap and spray tip



Part No. 239780 Gun shown mounted on Part No. 239891 Manifold

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

PROVEN QUALITY. LEADING TECHNOLOGY.

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

CE Ex II 2 G

Table of Contents

Symbols

Warning Symbol

⚠ WARNING

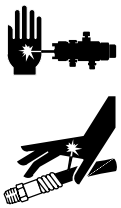
This symbol alerts you to the possibility of serious injury or death if you do not follow the instructions.

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



INJECTION HAZARD

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

- Fluid injected into the skin might look like just a cut, but it is a serious injury. **Get immediate medical attention.**
- Do not point the spray gun at anyone or at any part of the body.
- Do not put hand or fingers over the spray tip.
- Do not stop or deflect fluid leaks with your hand, body, glove, or rag.
- Do not “blow back” fluid; this is not an air spray gun.
- Check the gun diffuser operation weekly.
- Follow the **Pressure Relief Procedure** on page 8 whenever you: are instructed to relieve pressure; stop spraying; clean, check, or service the equipment; or install or clean the spray tip.
- Tighten all the fluid connections before operating the equipment.
- Check the hoses, tubes, and couplings daily. Replace worn, damaged, or loose parts immediately. Permanently coupled hoses cannot be repaired; replace the entire hose.

TOXIC FLUID HAZARD

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

- 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.
- Wear the appropriate protective clothing, gloves, eyewear and respirator.

⚠ WARNING

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 the equipment daily. Repair or replace worn or damaged parts immediately.
- Do not exceed the maximum working pressure of the lowest rated system component. This equipment has a **4000 psi (28 MPa, 280 bar) maximum working pressure and a 100 psi (0.7 MPa, 7 bar) maximum incoming 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).
- Use only Graco approved hoses. Do not remove hose spring guards, which help protect the hose from rupture caused by kinks or bends near the couplings.
- Use fluids or solvents that are compatible with the equipment wetted parts. See the **Technical Data** section of all the equipment manuals. Read the fluid and solvent manufacturer's warnings.
- Wear hearing protection when operating this equipment.
- Comply with all applicable local, state and national fire, electrical and other safety regulations.

FIRE AND EXPLOSION HAZARD

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

- Ground the equipment and the object being sprayed. See **Ground the System** on page 7.
- Provide fresh air ventilation to avoid the buildup of flammable fumes from solvent or the fluid being sprayed.
- Eliminate all ignition sources such as pilot lights, cigarettes and plastic drop cloths (static arc hazard). Do not plug or unplug power cords or turn lights on or off in the spray area.
- Electrically disconnect all the equipment in the spray area.
- Keep the spray area free of debris, including solvent, rags, and gasoline.
- Do not operate a gasoline engine in the spray area.
- If there is any static sparking while using the equipment, **stop spraying immediately**. Identify and correct the problem.

Installation

Ventilate the Spray Booth

⚠ WARNING

TOXIC FLUID HAZARD
To prevent hazardous concentrations of toxic and/or flammable vapors, spray only in a properly ventilated spray booth.
Never 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.

Configure the Gun and Manifold

(Order Manifold separately, see page 24)

The gun is supplied with an internal fluid plug (5). See Fig. 1. To use the gun in a circulating system, remove the internal plug. In a non-circulating system, leave the plug in place to minimize flush time.

In a circulating system, apply anti-seize lubricant 222955 to the threads and mating faces of the manifold (101) and the elbows (107), supplied unassembled. Install the elbows (107) in both fluid ports of the manifold (101). Connect the fluid supply line to one elbow and the fluid return line to the other. The manifold fluid ports are reversible.

In a non-circulating system, apply anti-seize lubricant 222955 to the threads and mating faces of the manifold (101), a plug (109), and an elbow (107), supplied unassembled. Install an elbow (107) in one fluid port of the manifold (101), and a plug (109) in the other port. Install the internal plug (5) in the gun fluid port on the same side as the manifold plug. Connect the fluid supply line to the manifold elbow (107). See Fig. 1.

Non–Circulating Setup Shown (cutaway view)

△1 Remove when used in circulating systems

△2 Replace with an elbow (107) when used in circulating systems

△3 Install filter in the fluid inlet port

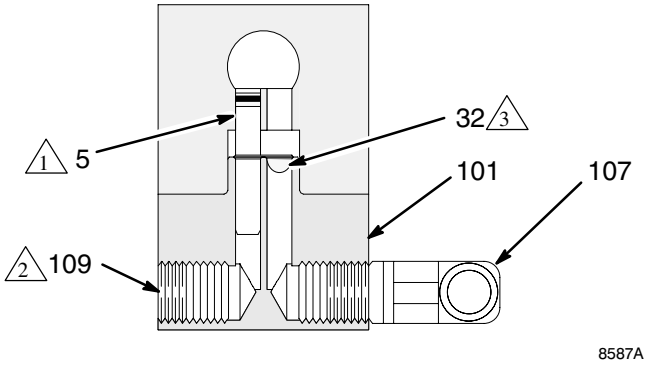


Fig. 1

The gun is supplied with an internal fluid filter (32). Install the filter in the gun port being used as the fluid inlet (see Fig. 1).

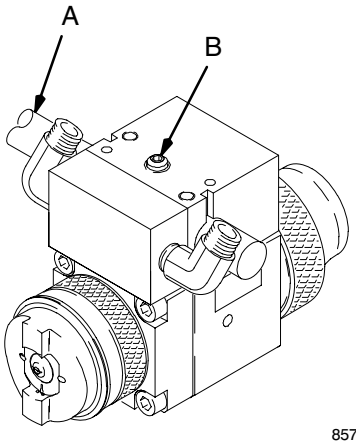
NOTE: The gun can operate without the filter. If you are using highly viscous fluid and the filter causes an unacceptable pressure drop, remove the filter.

Install the gun on the manifold, using the four screws (17). Thread the screws by hand, then torque alternately and evenly to 65 in-lb (7.3 N•m).

Installation

Mount the Gun

To mount the gun on a reciprocating arm [0.5 in. (13 mm) diameter maximum], insert the bar (A) through the hole in the manifold as shown in Fig. 2. Secure the gun to the bar by tightening the mounting screw (B). The tip of the gun should be 8 to 10 in. (200 to 250 mm) from the surface of the object being sprayed.



KEY

A Mounting Bar
B Mounting Screw

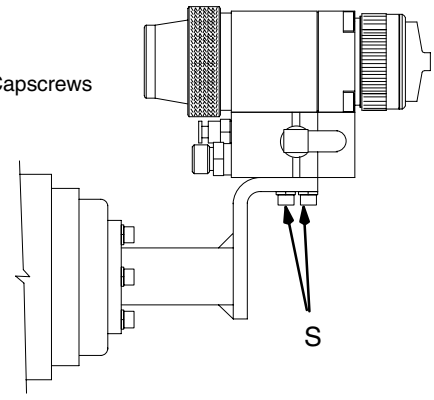
8579A

Fig. 2

To mount the gun on a stationary support, see Fig. 3. Also refer to the **Mounting Hole Layout** on page 31. Attach the gun to the support with two M5 x 0.8 capscrews (S). The screws must be long enough to engage the threaded holes in the gun manifold to a depth of 1/4 in. (6 mm). The tip of the gun should be 8 to 10 in. (200 to 250 mm) from the surface of the object being sprayed.

KEY

S M5 x 0.8 Capscrews



8159A

Fig. 3

Air Line and Accessory Recommendations

1. Install an air/water separator and an air line filter to ensure a clean, dry air supply to the gun. Dirt and moisture in the line can ruin the appearance of your finished piece.

2. *For manifolds 239891 and 240214,* the gun cylinder, fan, and atomization air must be supplied and regulated separately. *For manifold 243952,* only one supply line is required for both atomization and fan air.

   Install an air pressure regulator on each gun air supply line.

   A minimum of 50 psi (0.34 MPa, 3.4 bar) air pressure must be supplied to the cylinder for proper operation. Set the atomization air as needed for complete atomization of the entire pattern. The tip size is the primary controller of the pattern size. Use the fan air only as needed to slightly adjust the pattern size.

   NOTE: When using the higher flow diffuser (239806) and needle (239807), up to 70 psi (0.49 MPa, 4.9 bar) may be required to the cylinder for proper operation.

3. Install a bleed-type air shutoff valve on the main air line. Install an additional bleed-type valve on each pump air supply line, downstream of the pump air regulator, to relieve air trapped between this valve and the pump after the air regulator is shut off.

⚠ WARNING

The bleed-type air shutoff valve is required in your system to relieve air trapped between this valve and the pump after the air regulator is closed. Trapped air can cause the pump to cycle unexpectedly, which could result in serious injury.

4. Install a bleed-type air shutoff valve on each gun air supply line, downstream of the gun air regulator, to shut off air to the gun.

5. *For manifolds 239891 and 240214,* connect a separate air supply line to the gun atomizing air inlet (D) and cylinder air inlet (C). Connect an air supply line to the fan air inlet (E) if desired. See Fig. 4. *For manifold 243952,* only one supply line is required for both atomization and fan air.

NOTE: The gun atomizing and fan air inlets are 1/4–18.6 npsm compound male thread that is compatible with 1/4–18 npsm and R1/4–19 bsp female swivel connectors. The cylinder air inlet accepts 1/4 in. (6.3 mm) O.D. tubing.

Installation

Fluid Line and Accessory Recommendations

⚠ WARNING

INJECTION HAZARD
To reduce the risk of property damage or serious injury, including injection, which could be caused by component rupture or unrelieved fluid pressure,

- A fluid drain valve(s) is required in your system to assist in relieving fluid pressure in the displacement pump, hose and gun; triggering the gun to relieve pressure may not be sufficient.
- A fluid pressure regulator must be installed in the system if the pump's maximum working pressure exceeds the gun's maximum fluid working pressure (see the front cover).

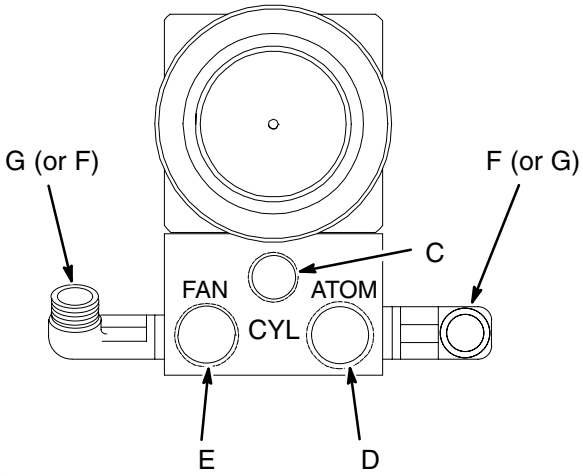
1. Install a fluid filter and drain valve(s) close to the pump's fluid outlet.
2. Install a fluid pressure regulator to control fluid pressure to the gun.

NOTE: Some applications require fine-tuned control of fluid pressure. You can control fluid pressure more accurately with a fluid pressure regulator than by regulating the air pressure to the pump.

3. Install a fluid shutoff valve to shut off the fluid supply to the gun.
4. Install an in-line fluid filter, part no. 210500, on the gun fluid inlet (F) to avoid clogging the spray tip with particles from the fluid. See Fig. 4.
5. Connect the grounded fluid hose to the gun fluid inlet (F) or optional in-line filter.
6. ***In a circulating system,*** connect a grounded fluid hose to the gun fluid outlet (G).

   In a non-circulating system, remove the gun fluid outlet fitting (G) and plug the outlet port with the pipe plug (109) supplied.

Part No. 239891 Manifold Shown



KEY

C Cylinder Air Inlet: accepts 1/4 in. (6.3 mm) O.D. tubing
D Atomization Air Inlet: 1/4–18.6 npsm
E Fan Air Inlet: 1/4–18.6 npsm
F Fluid Inlet: 1/4–18 nptf or #5 JIC (1/2–20 unf)
G Fluid Outlet (circulating gun only): 1/4–18 nptf or #5 JIC (1/2–20 unf)

8576A

Fig. 4

Installation

Ground the System

⚠ WARNING

FIRE AND EXPLOSION HAZARD
Improper grounding could cause static sparking, which could cause a fire or explosion. To reduce the risk of property damage or serious injury, follow the grounding instructions below.

The following grounding instructions are minimum requirements for a 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.

1. **Pump:** Ground the pump by connecting a ground wire and clamp between the fluid supply and a true earth ground as instructed in your separate pump instruction manual.

2. **Air compressors and hydraulic power supplies:** Ground them according to the manufacturer recommendations.

3. **Air, fluid, and hydraulic hoses connected to the pump:** Use only electrically conductive hoses with a maximum of 500 feet (150 m) combined hose length to ensure grounding continuity. Check the electrical resistance of your air and fluid hoses at least once a week. If the total resistance to ground exceeds 29 megohms, replace the hose immediately.

   NOTE: Use a meter that is capable of measuring resistance at this level.

4. **Spray gun:** Ground the gun by connecting it to a properly grounded fluid hose and pump.

5. **Fluid supply container:** Ground it according to local code.

6. **Object being sprayed:** Ground it according to local code.

7. **All solvent pails used when flushing:** Ground them 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.

Operation

How the Automatic Air-Assisted Spray Gun Operates

The air-assisted spray gun combines airless and air spraying concepts. The spray tip shapes the fluid into a fan pattern, as does a conventional airless spray tip. Air from the air cap further atomizes the fluid and completes the atomization of the paint tails into the pattern to produce a more uniform pattern.

The fan air can be used if necessary to slightly adjust the pattern size. Note that the air-assisted spray gun differs from an air spray gun in that increasing the fan air reduces the pattern width. To increase the pattern width, less fan air or a larger size tip must be used.

Safety

⚠ WARNING

INJECTION HAZARD
Remember, this is not an air spray gun. For your safety be sure to read and follow the Warnings on pages 2 and 3 and throughout the text of this instruction manual.

Keep the wallet sized warning card, provided with the gun, with the operator of this equipment at all times. The card contains important treatment information should an injection injury occur. Additional cards are available at no charge from Graco.

Pressure Relief Procedure

⚠ WARNING

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 spraying,
- check or service any of the system equipment,
- or install or clean the spray tip.

1. Shut off the power to the pump.
2. Close the bleed-type master air valve (required in the system).
3. Trigger the gun to relieve the fluid pressure.
4. Open the pump drain valve (required in the system) to help relieve fluid pressure in the displacement pump. In addition, open the drain valve connected to the fluid pressure gauge (in a system with fluid regulation) to help relieve fluid pressure in the hose and gun. Triggering the gun to relieve pressure may not be sufficient. Have a container ready to catch the drainage.
5. Leave the drain valve(s) open until you are ready to spray again.
6. If you suspect that the spray tip or hose is completely clogged or that pressure has not been fully relieved after following the steps above, very slowly loosen the hose end coupling and relieve pressure gradually, then loosen the coupling completely. Now clear the tip or hose obstruction.

Operation

Install a Spray Tip

⚠ WARNING

INJECTION HAZARD
To reduce the risk of an injection injury, follow the **Pressure Relief Procedure** on page 8 before removing or installing a spray tip.

Relieve the pressure as instructed on page 8.

Models 239780, 239787, and 239788: Install the spray tip (9) into the air cap (30), then install this assembly into the air cap retainer (8). Screw the complete assembly onto the gun.

NOTE: Part No. 239784 Hi-Flow Gun does not include an air cap (30) or spray tip (9).

Model 241088: Install the RAC housing (11) and RAC spray tip (9) in the RAC air cap assembly (30). Screw the air cap assembly onto the gun. See the parts drawing on page 23.

The air cap and spray tip position determines the direction of the spray pattern. Rotate the air cap (the spray tip rotates with it) as needed for the desired spray pattern direction. See Fig. 5.

NOTE: A pin in the fluid housing mates with a groove in the air cap to orientate the air cap and spray tip in either a horizontal or vertical spray position.

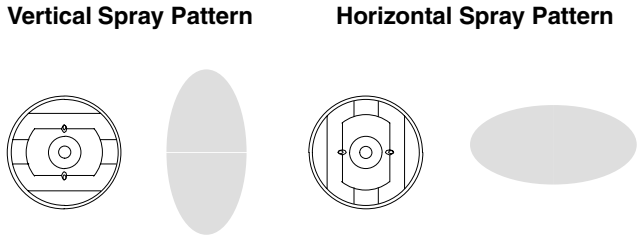


Fig. 5

Adjust the Spray Pattern

⚠ WARNING

INJECTION HAZARD
To reduce the risk of component rupture and serious injury, including injection, do not exceed the gun's maximum fluid working pressure (see the front cover) or the maximum working pressure of the lowest rated component in the system.

1. Set the fluid pressure at 300 psi (2.1 MPa, 21 bar) with the fluid regulator.
2. Trigger the gun to check the atomization; do not be concerned about the pattern shape yet.
3. Increase the fluid pressure just to the point where a further increase in fluid pressure does not significantly improve fluid atomization.
4. Turn on the atomizing air and set the air pressure at about 10 psi (70 kPa, 0.7 bar). Check the spray pattern, then adjust the air pressure until the tails are completely atomized and pulled into the spray pattern. See Fig. 6. Do not exceed 100 psi (0.7 MPa, 7 bar) air pressure to the gun.

   For a narrower pattern, supply air to the gun fan air inlet (or open the fan adjustment valve on manifold 243952). The tip size is the primary controller of the pattern size. Use the fan air only as needed to slightly adjust the pattern size.

Fig. 6

Operation

Apply the Fluid

The spray gun has a built-in lead and lag operation. When triggered, the gun begins emitting air before the fluid is discharged. When the trigger actuation air is stopped, the fluid stops before the air flow stops. This helps assure the spray is atomized and prevents fluid buildup on the air cap and tip.

Adjust the system control device, if it is automatic, so the gun starts spraying just before meeting the workpiece and stops as soon as the workpiece has passed. Keep the gun a consistent distance, 8 to 10 inches (200 to 250 mm), from the surface of the object being sprayed.

Clean the Spray Gun and System Daily

⚠ WARNING

INJECTION HAZARD
To reduce the risk of an injection injury or splashing fluid in the eyes or on the skin:

- Follow the **Pressure Relief Procedure** on page 8 before cleaning, removing, or installing a spray tip and whenever you are instructed to relieve pressure.
- Do not wipe fluid buildup off the gun or spray tip until pressure is relieved.

⚠ CAUTION

To avoid damaging the gun:

- Never immerse the gun in solvent as this could damage packings and allow solvent in the air passages.
- Do not use metal tools to clean holes in the air cap or spray tip.

⚠ CAUTION

This gun is not adjustable. To ensure proper shutoff, screw the piston cap (27) onto the housing (1) until it bottoms out.

NOTE: Clean the front of the tip frequently during the day to help reduce buildup.

1. Relieve the pressure as instructed on page 8.
2. Clean the outside of the gun with a soft cloth dampened with compatible solvent.
3. To avoid damaging the spray tip and air cap, clean them with a compatible solvent and soft brush. To clean the air cap passages, use a soft brush or other soft tool, with an air blow gun.
4. If using the internal filter and/or an in-line filter, remove and clean it thoroughly in a compatible solvent.
5. Clean the system's fluid filter and air line filter.

Check the Diffuser-seat Operation Weekly

⚠ WARNING

INJECTION HAZARD
The gun diffuser-seat breaks up spray when the gun is sprayed without the spray tip installed, such as during flushing. This reduces the risk of an injection injury. Check the diffuser-seat operation weekly.

1. Relieve the pressure as instructed on page 8.
2. Remove the air cap and spray tip.
3. Start the pump and operate it at its lowest pressure.
4. Trigger the gun into a grounded metal waste container. If the fluid coming from the gun is not diffused into an irregular stream, replace the diffuser-seat immediately.

Operation

Flush the Gun Daily

⚠ WARNING

INJECTION HAZARD
To reduce the risk of an injection injury, follow the **Pressure Relief Procedure** on page 8 before cleaning, removing, or installing a spray tip and whenever you are instructed to relieve pressure.

⚠ WARNING

To reduce the risk of serious injury, including splashing fluid in the eyes or on the skin, or static electric discharge when flushing:

- Be sure the entire system, including flushing pails, are properly grounded.
- Remove the spray tip.
- Maintain metal to metal contact between the gun and the flushing pail.
- Use the lowest possible pressure.

NOTE:

- Flush the pump and gun before the fluid can dry in it.
- If it is available, the flushing procedure provided in the pump or sprayer manual should be used instead of this procedure.

1. Relieve the pressure as instructed on page 8.
2. Shut off the gun fan and atomizing air.
3. Remove the air cap and spray tip. Clean the parts.
4. Supply a compatible solvent to the gun fluid inlet.
5. Start the pump and operate it at its lowest pressure.
6. Trigger the gun into a grounded metal waste container until all the material is removed from the gun passages.
7. Relieve the pressure as instructed on page 8.
8. Disconnect the solvent supply.

Troubleshooting

⚠ WARNING

INJECTION HAZARD
To reduce the risk of an injection injury, follow the **Pressure Relief Procedure** on page 8 before checking or servicing any of the system equipment and whenever you are instructed to relieve pressure.

NOTE:

- Check all possible remedies in the troubleshooting charts before disassembling the gun.
- Some improper patterns are caused by the improper balance between air and fluid. Refer to **Spray Pattern Troubleshooting,** on page 15.

General Troubleshooting

Problem	Cause	Solution
Fluid leakage through venting holes.	Worn o-rings (31) or needle assembly (14).	Replace o-rings or needle assembly.
Air leakage through venting hole.	Worn o-ring (23) or gasket (15).	Check and replace parts as needed.
Air leakage from back of gun.	Worn o-rings (22, 23).	Replace o-rings.
Air does not trigger.	Piston stem is disconnected from the main body of the piston assembly (20).	Replace piston assembly (20).
	Gasket (15) oriented incorrectly.	Rotate gasket 90° so passages in gasket align with passages in gun.
Air does not shut off.	Piston assembly not seating properly.	Clean/service piston assembly. Replace worn or swollen o-rings.
	Swollen o-ring (22).	Replace o-ring.
	Worn piston stem o-rings (25, 26).	Replace o-rings.
	Bottom gasket (16) failed.	Replace gasket.
Fluid leakage from front of gun.	Fluid needle (14) dirty, worn, or damaged.	Clean or replace fluid needle.
	Dirty or worn diffuser-seat (10).	Clean or replace the diffuser-seat and gasket (13). The gasket must be replaced whenever you remove the diffuser-seat from the gun. To improve sealing when spraying lightweight materials and sealing life when spraying acid catalyzed materials, use Part No. 239808 Needle, available with 1/8 in. ball only, and Part No. 224855 Diffuser-Seat. See the parts list on page 20.
Fluid is present at the air cap holes.	Spray tip seal is leaking.	Verify that the air separator (11) and the retainer (8), or the RAC air cap assembly (30, Model 241088), are tight. If so, replace the spray tip (9).
	Diffuser-seat (10) is insufficiently tightened or gasket (13) is missing or worn from multiple uses.	Tighten diffuser-seat and replace gasket (13). The gasket must be replaced whenever you remove the diffuser-seat from the gun.

Troubleshooting

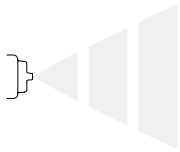
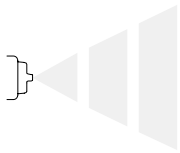
General Troubleshooting (continued)

Problem	Cause	Solution
Fluid needle will not trigger.	Loose or missing fluid needle stop (21) or setscrew (19).	Replace stop (21) or tighten setscrew (19).
	Broken fluid needle (14).	Replace fluid needle (14).
	Air leaking around piston (20).	Replace o-ring (22) or piston assembly (20).
	Swollen piston o-ring (22).	Replace o-ring (22). Do not immerse piston in solvent.
	Insufficient air pressure on the trigger.	Increase the air pressure or clean the air line.
	Spray tip (9) is plugged.	Clean the spray tip and air cap (30).
	Internal fluid filter (32) is plugged.	Clean or replace the filter (32).
	Plug (5) is in the incorrect fluid port.	Move the plug to the fluid port consistent with the manifold plumbing, unless you are using the gun in a circulating system. If you are, all fluid ports in the gun and on the manifold should be open.
Fluid does not shut off.	Interference between fluid gasket (13) and needle assembly (14) due to overtightening of diffuser-seat (10).	Remove diffuser-seat. Replace fluid gasket (13) and torque diffuser-seat to 65 in-lb (7.3 N•m).
	Worn o-ring (25).	Replace o-ring.
	Piston cap (27) not fully tightened.	Tighten piston cap until it bottoms out.
	Spring (28) not in place.	Check spring position.
	Swollen piston o-ring (22).	Replace o-ring (22). Do not immerse piston in solvent.

Notes

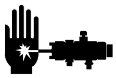
Troubleshooting

Spray Pattern Troubleshooting

Problem	Cause	Solution
Fluttering spray. 	Insufficient fluid supply.	Adjust fluid regulator or fill fluid supply tank.
	Air in paint supply line.	Check, tighten siphon hose connections, bleed air from paint line.
Spitting spray. 	Worn diffuser-seat (10) or needle (14) ball.	Inspect diffuser-seat and needle for wear. Replace if necessary. The gasket (13) must be replaced whenever you remove the diffuser-seat from the gun.
		To improve sealing when spraying lightweight materials and sealing life when spraying acid catalyzed materials, use Part No. 239808 Needle, available with 1/8 in. ball only, and Part No. 224855 Diffuser-Seat. See the parts list on page 20.
	Dirty spray tip (9) or air cap (30).	Clean.
	Swollen piston o-ring (22).	Replace o-ring. Do not immerse piston in solvent.
Irregular pattern.	Fluid build-up or spray tip partially plugged.	Clean spray tip. See page 10.
	On defective side of pattern, air horn holes are partially or totally plugged.	Clean air horn holes with solvent and soft brush. See page 10.
Pattern pushed to one side, same side of air cap gets dirty.	Air horn holes partially or totally plugged.	Clean air horn holes with solvent and soft brush. See page 10.

Service

⚠ WARNING



INJECTION HAZARD
To reduce the risk of an injection injury, follow the **Pressure Relief Procedure** on page 8 before checking or servicing any of the system equipment and whenever you are instructed to relieve pressure.

NOTE:

- Follow the **Service Notes** in Figs. 7 and 8 when reassembling the gun.
- Gun repair kits are available. See page 20. Reference numbers marked with an asterisk (12*) in the service procedures are included with the 241480 Air Seal Repair Kit. Reference numbers marked with a symbol (4†) in the service procedures are included with the 239895 Fluid Repair Kit.

Disassembly

1. Relieve the pressure as instructed on page 8.
2. Unscrew the four screws (17) and remove the gun from the manifold.
3. *Models 239780, 239787, 239788, and 239784:* Unscrew the air cap retainer (8). Remove the air cap (30), spray tip (9), and air separator (11) with o-ring (12). See Fig. 7.

   NOTE: Part No. 239784 Hi-Flow Gun does not include an air cap (30) or spray tip (9).

   Model 241088: Unscrew the air cap (30). Remove the RAC spray tip (9) and RAC housing (11). See the parts drawing on page 23.
4. Inspect the tip seal (9a) in place. If damaged, replace the tip seal.
5. Remove the cap (27) from the piston housing (1). Remove the springs (28 and 29).
6. Using the supplied wrench (38), loosen the fluid needle setscrew (19). Remove the needle stop (21).
7. Remove the diffuser-seat (10).

⚠ CAUTION

Be sure to keep the needle straight when removing it from the gun. If the needle is bent it must be replaced.

8. Pull the needle assembly (14) straight out the front of the gun. Remove the o-rings (31) from the fluid needle.
9. Remove the gasket (13). This gasket may come out with the needle assembly.

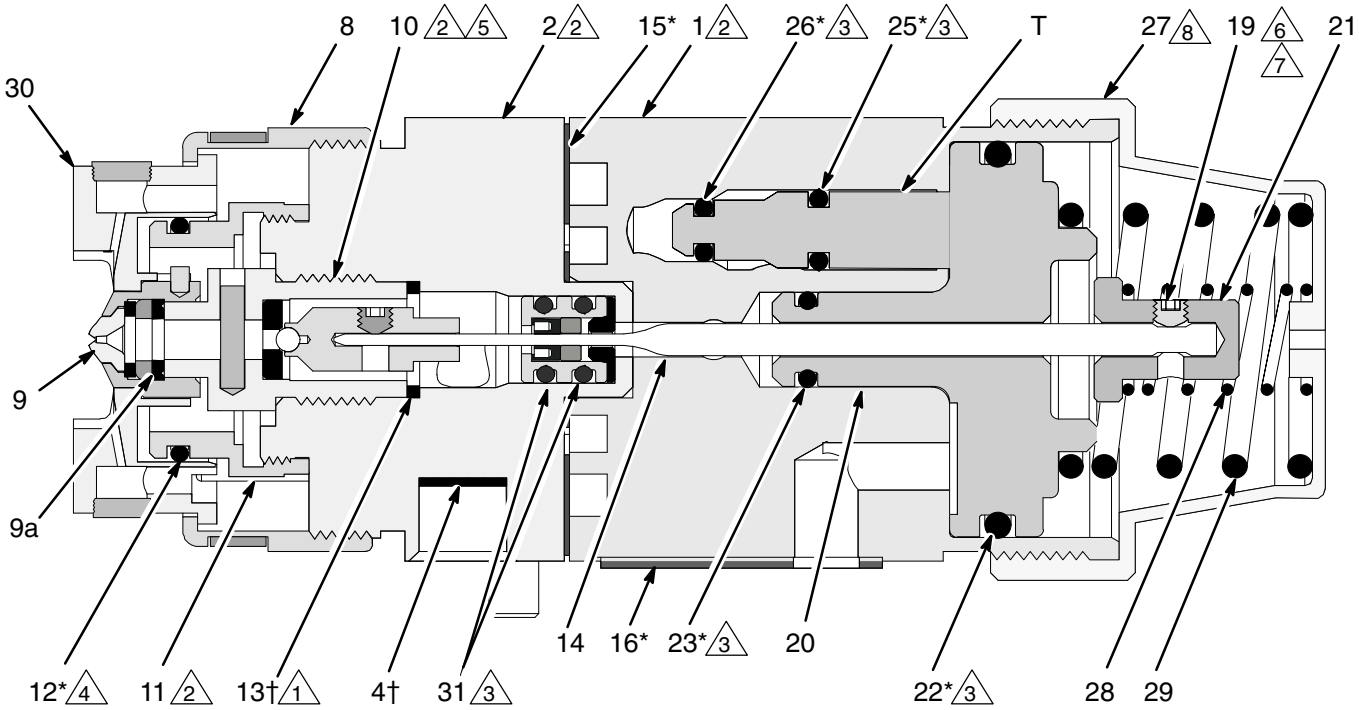
⚠ CAUTION

Install a new gasket (13) whenever you remove the diffuser-seat (10) from the gun. Failure to install a new gasket may result in fluid leaking into the air chamber.

10. Remove the four screws (18) holding the fluid housing (2) to the piston housing (1). Remove the gasket (15). Remove the gasket (16) from the bottom of the piston housing.
11. Using a pliers, pull the piston (20) out of the piston housing (1).
12. Remove the large o-ring (22) from the piston and the smaller o-ring (23) from the piston shaft. Remove the two o-rings (25, 26) from each of the piston stems (T). Check that the stems are solidly in place. If they are loose, replace the entire piston assembly (20).
13. Perform the following applicable step:

    a. *Non-circulating guns:* Remove the fluid outlet port plug (5), gasket (4), and filter (32) from the fluid housing (2). Remove the o-ring (6) and backup (7) from the plug.

    b. *Circulating guns:* Remove the gasket (4) and filter (32) from the fluid housing (2).
14. Clean all parts and replace any worn parts. When assembling, lubricate the threads with anti-seize lubricant.



8146A

Cutaway View;
Part No. 239780 Gun Shown

SERVICE NOTES:

1. Diffuser-seat gasket (13) must be replaced if diffuser-seat (10) is removed or replaced to avoid fluid leakage
2. Lubricate threads with anti-seize lubricant
3. Lubricate with light-weight oil
4. Do not lubricate
5. Torque to 65 in-lb (7.3 N•m)
6. Apply semi-permanent anaerobic sealant.
7. Torque to 4–5 in-lb (0.45–0.56 N•m)
8. Tighten cap (27) until it bottoms out

Fig. 7

Reassembly

1. *Non-circulating guns only:* Lubricate the backup (7†) and o-ring (6†) and install them on the fluid outlet port plug (5). Install the plug in the fluid outlet port of the fluid housing (2). See Fig. 8.

2. *All guns:* Reinstall the filter (32) in the fluid inlet port and the gasket (4) in the fluid housing (2).

3. Install the o-rings (22*, 23*) on the piston (20). Install two o-rings (25*, 26*) on each of the piston stems (T). Lubricate all the o-rings, the piston, and the piston stems.

4. Insert the piston (20) into the piston housing (1).

5. Remove the protective paper from the sticky side of the gasket (16*) and adhere the gasket to the bottom of the piston housing (1), making sure the three holes in the gasket are properly aligned with the matching holes in the housing.

6. Align the gasket (15*) as shown in the exploded view in Fig. 8. Place the gasket on the piston housing (1), then install the fluid housing (2). Torque the four screws (18) to 65 in-lb (7.3 N•m).

⚠ CAUTION

Install a new gasket (13†) whenever you remove the diffuser-seat (10) from the gun. Failure to install a new gasket may result in fluid leaking into the air chamber.

7. Install a new gasket (13†) in the fluid housing (2).

8. Install the o-rings (31) on the fluid needle assembly (14). Lubricate with light-weight oil.

⚠ CAUTION

Be sure to keep the needle straight when installing it in the piston housing. If the needle is bent it must be replaced.

9. Insert the needle assembly (14) into the front of the fluid housing (2). Push it straight back through the piston.

10. Lubricate the threads of the diffuser-seat (10). Screw it into the fluid housing (2) and torque to 65 in-lb (7.3 N•m).

11. Install the needle stop (21) on the needle. Coat the setscrew (19) with semi-permanent anaerobic sealant and install the screw into the needle stop. Torque to 4–5 in-lb (0.45–0.56 N•m). Pull on the needle to make sure it seats fully.

12. Install the springs (28, 29).

13. Lubricate the threads of the piston housing (1). Screw the cap (27) onto the housing until it bottoms out.

14. *Models 239780, 239787, 239788, and 239784:* Screw the air separator (11) onto the fluid housing. **Do not** lubricate the o-ring (12*) when installing it. Install the spray tip (9), air cap (30), and air cap retainer (8).

    NOTE: Part No. 239784 Sealant Gun does not include an air cap (30) or spray tip (9).

    Model 241088: Install the RAC housing (11) and RAC spray tip (9) in the RAC air cap assembly (30). Position the orange tip guard as desired and screw the air cap assembly onto the gun until it bottoms out. See the parts drawing on page 23.

15. Reinstall the gun on the manifold with the four screws (17). Torque to 65 in-lb (7.3 N•m).

Service

SERVICE NOTES:

△1 Diffuser-seat gasket (13) must be replaced if diffuser-seat (10) is removed or replaced to avoid fluid leakage

△2 Lubricate threads with anti-seize lubricant

△3 Lubricate with light-weight oil

△4 Do not lubricate

△5 Torque to 65 in-lb (7.3 N•m)

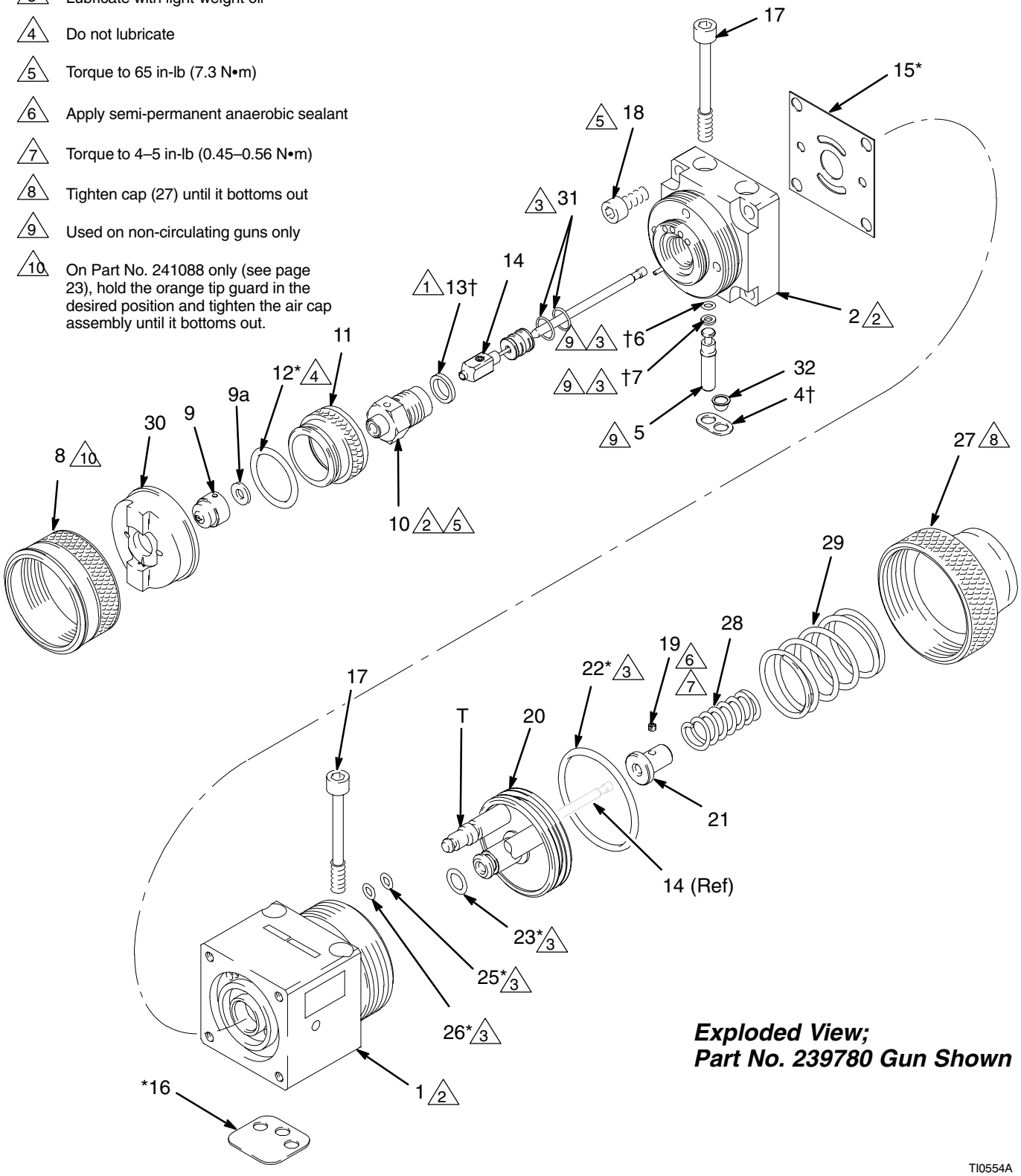
△6 Apply semi-permanent anaerobic sealant

△7 Torque to 4–5 in-lb (0.45–0.56 N•m)

△8 Tighten cap (27) until it bottoms out

△9 Used on non-circulating guns only

△10 On Part No. 241088 only (see page 23), hold the orange tip guard in the desired position and tighten the air cap assembly until it bottoms out.



Exploded View;
Part No. 239780 Gun Shown

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Fig. 8

Parts

Use Only Genuine Graco Parts and Accessories

Part No. 239780, Series A
Standard Automatic Air-Assisted Spray Gun; Includes items 1–38

Part No. 239787, Series A
Automatic Air-Assisted Acid Catalyzed Fluid Spray Gun; Includes items 1–38

Part No. 239788, Series A
HVLP Automatic Air-Assisted Spray Gun; Includes items 1–38

Part No. 239784, Series A
Automatic Air-Assisted Hi-Flow Spray Gun, without air cap and spray tip; Includes items 1–8, 10–29, 31–38

Ref. No.	Part No.	Description	Qty.
1	194245	HOUSING, piston	1
2	239793	HOUSING, fluid; stainless steel; *Part Nos. 239780, 239787, and 239788*	1
	192440	HOUSING, fluid; stainless steel; *Part No. 239784 only*	1
4†☆	192443	GASKET, fluid; acetal homopolymer	2
5	192687	PLUG, fluid, internal; stainless steel	1
6†	114244	O-RING; fluoroelastomer	1
7†	114340	RING, backup; Teflon®	1
8	217526	RETAINER, air cap	1
9↙	GG5xxx	SPRAY TIP; customer's choice; includes item 9a	1
9a	183616	• SEAL, tip	1
10↙	224855	DIFFUSER-SEAT	1
	239806	DIFFUSER-SEAT; *Part No. 239784 only*	1
11	192447	SEPARATOR, air; acetal homopolymer	1
12*	107079	O-RING; Teflon®	1
13†☆	187521	GASKET, fluid; acetal homopolymer	2
14↙	239794	NEEDLE ASSEMBLY; 1/8 in. carbide ball; includes item 31; *Part Nos. 239780 and 239788*	1
	239807	NEEDLE ASSEMBLY; 3/16 in. carbide ball; includes item 31; *Part No. 239784 only*	1
	239808	NEEDLE ASSEMBLY; 1/8 in. plastic ball; includes item 31; *Part No. 239787 only*	1
15*	114133	GASKET; polyethylene	1
16*	114134	GASKET; polyethylene	1
17	114135	SCREW, cap, socket head; M5 x 0.8; 45 mm long	4
18	114136	SCREW, cap, socket head; M5 x 0.8; 20 mm long	4
19	114137	SCREW, set; 6–32; 1/8 in. long	1
20	240895	PISTON	1
21	192452	STOP, needle; stainless steel	1
22*	115066	O-RING; fluoroelastomer	1
23*	111450	O-RING; fluoroelastomer	1
25*	112319	O-RING; fluoroelastomer	2
26*	111504	O-RING; fluoroelastomer	2
27	192453	CAP, piston	1
28↙	114138	SPRING, compression	1
29↙	114139	SPRING, compression	1
30↙	239781	AIR CAP, standard	1
	239898	AIR CAP, compliant; *Part No. 239788 only*	1
31	111516	O-RING included with item 14	2
32	240948	FILTER, internal; 60–80 mesh; stainless steel (package of 10)	1
34▲	222385	CARD, warning; not shown	1
38	114141	TOOL, wrench, hex; not shown	1

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

☆ *Extra gaskets (4 and 13) are included as spares.*

* *These parts are included in Air Seal Repair Kit 241480, which may be purchased separately.*

† *These parts are included in Fluid Repair Kit 239895, which may be purchased separately.*

↙ *Keep these spare parts on hand to reduce down time.*

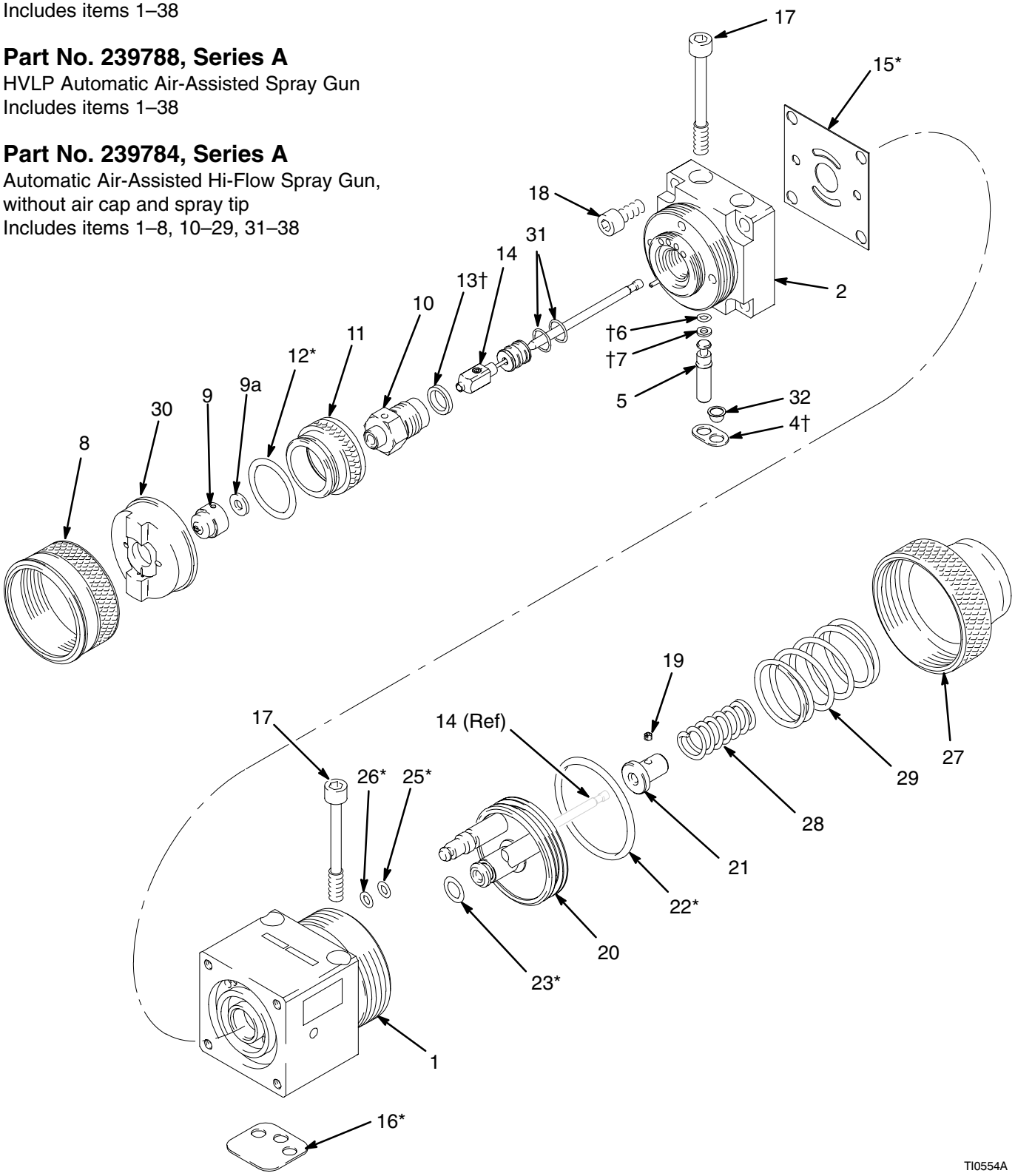
Parts

Part No. 239780, Series A
Standard Automatic Air-Assisted Spray Gun
Includes items 1–38

Part No. 239787, Series A
Automatic Air-Assisted Acid Catalyzed Fluid Spray Gun
Includes items 1–38

Part No. 239788, Series A
HVLP Automatic Air-Assisted Spray Gun
Includes items 1–38

Part No. 239784, Series A
Automatic Air-Assisted Hi-Flow Spray Gun,
without air cap and spray tip
Includes items 1–8, 10–29, 31–38



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Parts

Use Only Genuine Graco Parts and Accessories

Part No. 241088, Series A

Spray Gun with AA Reverse-A-Clean® (RAC) assembly
Includes 242 series tip of choice
Includes items 1–38

Ref. No.	Part No.	Description	Qty.
1	194220	HOUSING, piston	1
2	194168	HOUSING, fluid; stainless steel	1
4†☆	192443	GASKET, fluid; acetal homopolymer	2
5	192687	PLUG, fluid, internal; stainless steel	1
6†	114244	O-RING; fluoroelastomer	1
7†	114340	RING, backup; Teflon®	1
9✓	242xxx	AA RAC SPRAY TIP; customer's choice; includes item 9a	1
9a	193000	• FLUID SEAT	1
10✓	239173	DIFFUSER-SEAT	1
11	192096	HOUSING, AA RAC	1
13†☆	187521	GASKET, fluid; acetal homopolymer	2
14✓	239794	NEEDLE ASSEMBLY; 1/8 in. carbide ball; includes item 31	1
15*	114133	GASKET; polyethylene	1
16*	114134	GASKET; polyethylene	1
17	114135	SCREW, cap, socket head; M5 x 0.8; 45 mm long	4
18	114136	SCREW, cap, socket head; M5 x 0.8; 20 mm long	4
19	114137	SCREW, set; 6–32; 1/8 in. long	1
20	240895	PISTON	1
21	192452	STOP, needle; stainless steel	1
22*	115066	O-RING; fluoroelastomer	1
23*	111450	O-RING; fluoroelastomer	1
25*	112319	O-RING; fluoroelastomer	2
26*	111504	O-RING; fluoroelastomer	2
27	192453	CAP, piston	1
28✓	114138	SPRING, compression	1
29✓	114139	SPRING, compression	1
30	238701	AA RAC AIR CAP ASSEMBLY	1
31	111516	O-RING included with item 14	2
32	240948	FILTER, internal; 60–80 mesh; stainless steel (package of 10)	1
34▲	222385	CARD, warning; not shown	1
38	114141	TOOL, wrench, hex; not shown	1

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

☆ *Extra gaskets (4 and 13) are included as spares.*

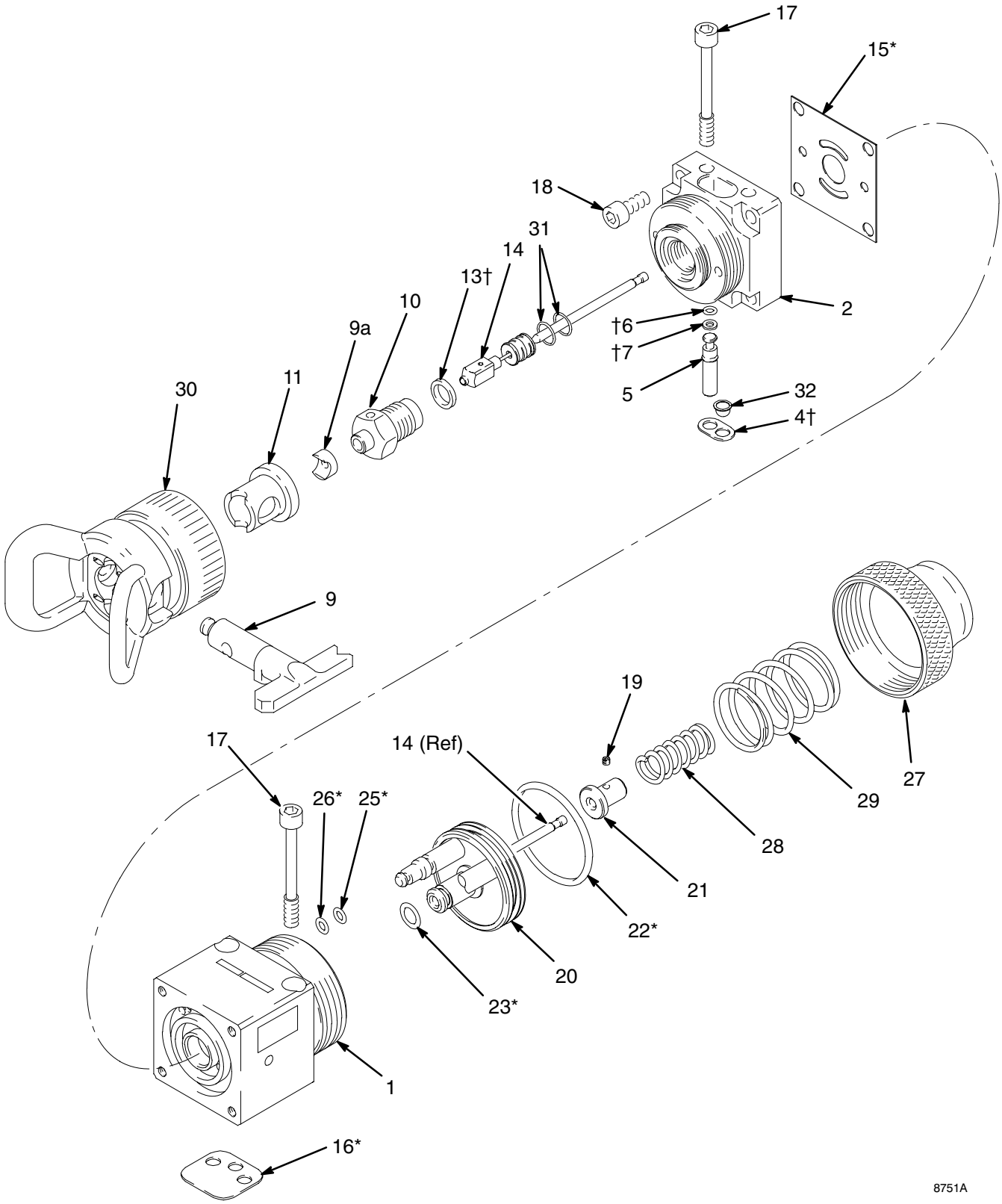
* *These parts are included in Air Seal Repair Kit 241480, which may be purchased separately.*

† *These parts are included in Fluid Repair Kit 239895, which may be purchased separately.*

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

Parts

Part No. 241088, Series A
Spray Gun with AA Reverse-A-Clean® (RAC) assembly
Includes 242 series tip of choice
Includes items 1–38



Parts

Use Only Genuine Graco Parts and Accessories

Part No. 239891, Series A

North America Manifold

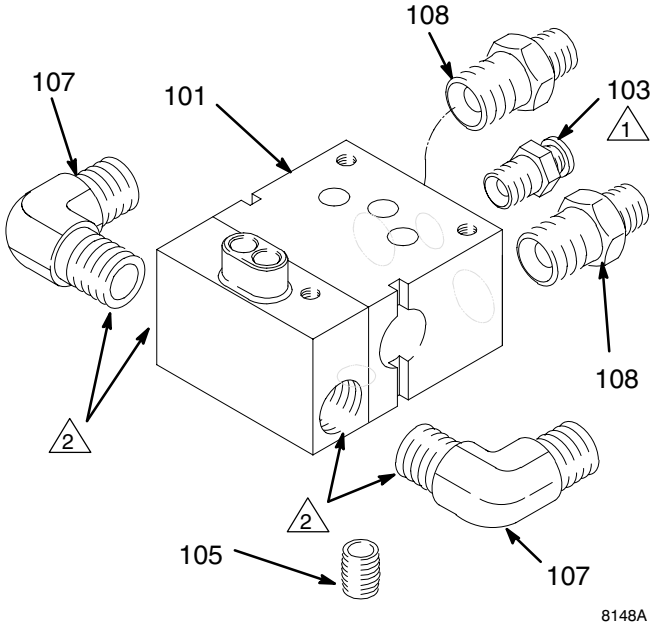
Part No. 240214, Series A

International Manifold

Ref. No.	Part No.	Description	Qty.
101	239892	MANIFOLD	1
103	113208	FITTING, tube, air inlet; 1/4 in. (6.3 mm) OD tube x 1/8 npt(m)	1
105	114246	SCREW, set; 5/16; 0.437 in. long	1
107	114342	ELBOW, fluid, male; 1/4 nptf(mbe); stainless steel; *Part No. 239891 only*	2
	114247	ELBOW, fluid, male; #5 JIC (1/2–20 unf) x 1/4 npt(m); stainless steel; *Part No. 240214 only*	2
108	180191	NIPPLE, air line; 1/4"–18.6 npsm x 1/4 npt	2
109	101970	PLUG, pipe; 1/4–18 ptf; stainless steel; not shown; supplied to plug fluid outlet port in non-circulating applications	1

1 Flats must be parallel to the surface of the manifold (101) to prevent interference with the gun.

2 Apply anti-seize lubricant 222955 to threads and mating faces of manifold (101) and any fittings and/or plugs used in the fluid ports.



Part No. 243952, Series A

North America Manifold with Fan Adjustment Valve

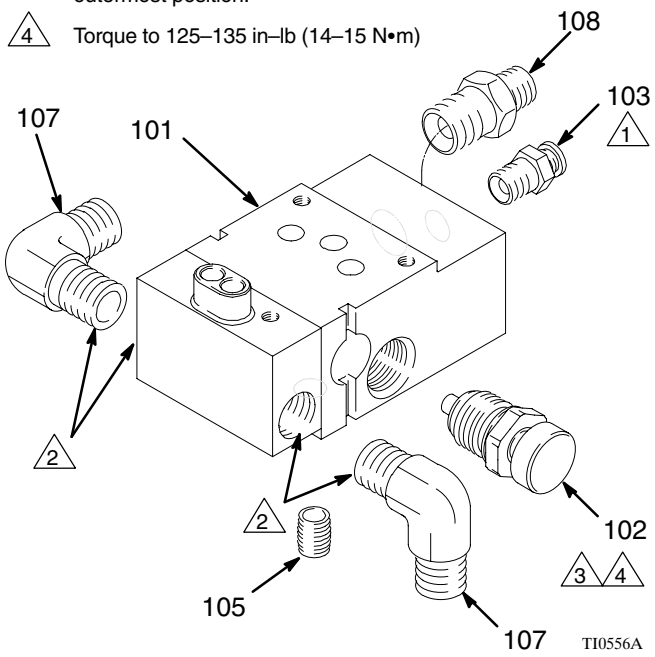
Ref. No.	Part No.	Description	Qty.
101		MANIFOLD; not available separately	1
102	244029	FAN ADJUSTMENT VALVE	1
103	113208	FITTING, tube, air inlet; 1/4 in. (6.3 mm) OD tube x 1/8 npt(m)	1
105	114246	SCREW, set; 5/16; 0.437 in. long	1
107	114342	ELBOW, fluid, male; 1/4 nptf(mbe); stainless steel	2
108	180191	NIPPLE, air line; 1/4"–18.6 npsm x 1/4 npt	1
109	101970	PLUG, pipe; 1/4–18 ptf; stainless steel; not shown; supplied to plug fluid outlet port in non-circulating applications	1

1 Flats must be parallel to the surface of the manifold (101) to prevent interference with the gun.

2 Apply anti-seize lubricant 222955 to threads and mating faces of manifold (101) and any fittings and/or plugs used in the fluid ports.

3 Install with valve turned fully counterclockwise to the outermost position.

4 Torque to 125–135 in–lb (14–15 N•m)



GG5 Series Tip and Air Cap Selection Charts

Air Cap

Application	Tip Used With	Typical Air Consumption	Part No.
Standard	All GG5 Series	3–6 scfm	**239781**
HVLP	All GG5 Series	4—8 scfm	**239898**

GG5 Series Spray Tips, for use with Standard Air Cap 239781 or HVLP Air Cap 239898

Orifice Size *inches (mm)*	Fan Width at 12" (300 mm) *Inches (mm)*	*Light to Medium Viscosity *fl oz/min (liters/min)*	*Heavy Viscosity *fl oz/min (liters/min)*	Part No.
0.009 (0.229)	4–5 (100–125)	7.0 (0.2)		**GG5209**
	6–7 (150–175)			**GG5309**
	8–9 (200–225)			**GG5409**
	10–11 (250–275)			**GG5509**
0.011 (0.279)	4–5 (100–125)	10.0 (0.3)		**GG5211**
	6–7 (150–175)			**GG5311**
	8–9 (200–225)			**GG5411**
	10–11 (250–275)			**GG5511**
	12–13 (300–325)			**GG5611**
0.013 (0.330)	4–5 (100–125)	13.0 (0.4)		**GG5213**
	6–7 (150–175)			**GG5313**
	8–9 (200–225)			**GG5413**
	10–11 (250–275)			**GG5513**
	12–13 (300–325)			**GG5613**
	14–15 (350–375)			**GG5713**
0.015 (0.381)	4–5 (100–125)	17.0 (0.5)		**GG5215**
	6–7 (150–175)			**GG5315**
	8–9 (200–225)			**GG5415**
	10–11 (250–275)			**GG5515**
	12–13 (300–325)			**GG5615**
	14–15 (350–375)			**GG5715**
	16–17 (400–425)			**GG5815**
0.017 (0.432)	6–7 (150–175)	22.0 (0.7)	17.0 (0.5)	**GG5317**
	8–9 (200–225)			**GG5417**
	10–11 (250–275)			**GG5517**
	12–13 (300–325)			**GG5617**
	14–15 (350–375)			**GG5717**
	16–17 (400–425)			**GG5817**
	18–19 (450–475)			**GG5917**
0.019 (0.483)	8–9 (200–225)	28.0 (0.8)	21.0 (0.6)	**GG5419**
	10–11 (250–275)			**GG5519**
	12–13 (300–325)			**GG5619**
	14–15 (350–375)			**GG5719**
0.021 (0.533)	8–9 (200–225)	35.0 (1.0)	27.0 (0.8)	**GG5421**
	10–11 (250–275)			**GG5521**
	12–13 (300–325)			**GG5621**

**Fluid output at 600 psi (4.1 MPa, 41 bar).*

Fluid output (Q) at other pressures (P) can be calculated by this formula: $Q = (0.041)\ (QT)\ (\#\overline{P}\ )$.

Where QT = Fluid output (fl oz/min) from the above table for the selected orifice size.

NOTE: Other tips are available on special work order. Allow 4 to 6 weeks for delivery.

242 Series Tip Selection Chart

242 Series Spray Tips, for use with Spray Tip Housing 238701 and AA RAC Housing 192096

Orifice Size *inches (mm)*	Fan Width at 12" (300 mm) *Inches (mm)*	*Light to Medium Viscosity *fl oz/min (liters/min)*	*Heavy Viscosity *fl oz/min (liters/min)*	Part No.
0.011 (0.279)	8–10 (200–250)	10.0 (0.3)		**242311**
	10–12 (250–300)			**242411**
	12–14 (300–350)			**242511**
0.013 (0.330)	8–10 (200–250)	13.0 (0.4)		**242313**
	10–12 (250–300)			**242413**
	12–14 (300–350)			**242513**
	14–16 (350–400)			**242613**
0.015 (0.381)	8–10 (200–250)	17.0 (0.5)		**242315**
	10–12 (250–300)			**242415**
	12–14 (300–350)			**242515**
	14–16 (350–400)			**242615**
0.017 (0.432)	8–10 (200–250)	22.0 (0.7)	17.0 (0.5)	**242317**
	10–12 (250–300)			**242417**
	12–14 (300–350)			**242517**
	14–16 (350–400)			**242617**
0.019 (0.483)	8–10 (200–250)	28.0 (0.8)	21.0 (0.6)	**242319**
	10–12 (250–300)			**242419**
	12–14 (300–350)			**242519**
	14–16 (350–400)			**242619**
0.021 (0.533)	8–10 (200–250)	35.0 (1.0)	27.0 (0.8)	**242321**
	10–12 (250–300)			**242421**
	12–14 (300–350)			**242521**
	14–16 (350–400)			**242621**
0.023 (0.584)	10–12 (250–300)	40.0 (1.2)	34.0 (0.97)	**242423**
	14–16 (350–400)			**242623**
0.025 (0.635)	12–14 (300–350)	50.0 (1.5)	42.0 (1.2)	**242525**
	14–16 (350–400)			**242625**
0.027 (0.686)	10–12 (250–300)	58.5 (1.7)	50.0 (1.4)	**242427**
0.029 (0.736)	12–14 (300–350)	68.0 (1.9)	59.0 (1.7)	**242529**
0.031 (0.787)	12–14 (300–350)	78.0 (2.2)	69.0 (2.0)	**242531**
	14–16 (350–400)			**242631**

**Fluid output at 600 psi (4.1 MPa, 41 bar).*

Fluid output (Q) at other pressures (P) can be calculated by this formula: $Q = (0.041)(QT)(\#\overline{P}\ )$.

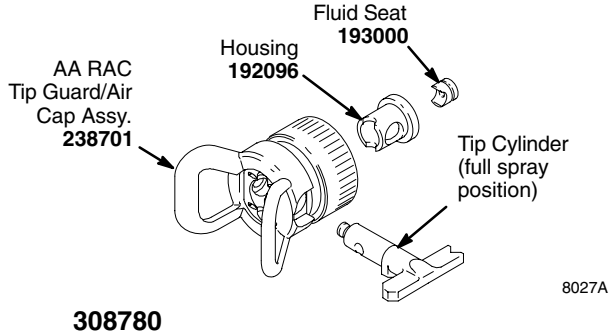
Where QT = Fluid output (fl oz/min) from the above table for the selected orifice size.

NOTE: Other tips are available on special work order. Allow 4 to 6 weeks for delivery.

AA Reverse-A-Clean (AA RAC™) Spray Tips

NOTE:

- AA RAC Spray Tips include a plastic fluid seat.
- The air separator (item 16) must be removed when using the AA RAC.
- AA RAC Conversion Kits are available. See page 28.



Sealer Application Tip and Air Cap Selection Charts

Air Cap

Multiple Orifice Stream Tips (for use with 220960 6–hole air cap)

Application	Tip Used With	Part No.
Streaming	C08187, C08224, 270 series	**220960**
Fan Spray	182X21 – 182X25	**217303**
Fan Spray	182X27 – 182X77	**218336**

Tips

Multiple Orifice Stream Tips (for use with 220960 6–hole air cap)

No. of Orifices	Orifice Size *inches (mm)*	Part No.
5	0.024 (0.610)	**C08187**
6	0.021 (0.533)	**C08224**

Tips

Multiple Orifice Stream Tips (for use with 220960 6–hole air cap)

Orifice Size *inches (mm)*	Part No.	Orifice Size *inches (mm)*	Part No.
0.025 (0.635)	**270025**	0.039 (0.991)	**270039**
0.027 (0.686)	**270027**	0.041 (1.041)	**270041**
0.029 (0.736)	**270029**	0.043 (1.092)	**270043**
0.031 (0.787)	**270031**	0.045 (1.143)	**270045**
0.033 (0.838)	**270033**	0.047 (1.194)	**270047**
0.035 (0.889)	**270035**	0.057 (1.448)	**270057**
0.037 (0.940)	**270037**	0.059 (1.500)	**270059**

Single Orifice Fan Pattern Spray Tips (for use with 217303 or 218336 air cap, as noted)

Orifice Size	Fan Width at 12" (300 mm)	Part No.	Air Cap Used With
0.021 (0.533)	8–10 (200–250)	**182421**	**217303**
	10–12 (250–300)	**182521**	
	12–14 (300–350)	**182621**	
	14–16 (350–400)	**182721**	
	16–18 (400–460)	**182821**	
0.023 (0.584)	8–10 (200–250)	**182423**	**217303**
	10–12 (250–300)	**182523**	
	12–14 (300–350)	**182623**	
	14–16 (350–400)	**182723**	
	16–18 (400–460)	**182823**	
0.025 (0.635)	8–10 (200–250)	**182425**	**217303**
	10–12 (250–300)	**182525**	
	12–14 (300–350)	**182625**	
	14–16 (350–400)	**182725**	
	16–18 (400–460)	**182825**	
0.027 (0.686)	8–10 (200–250)	**182427**	**218336**
	12–14 (300–350)	**182627**	

Orifice Size	Fan Width at 12" (300 mm)	Part No.	Air Cap Used With
0.029 (0.737)	8–10 (200–250)	**182429**	**218336**
	12–14 (300–350)	**182629**	
	14–16 (350–400)	**182729**	
0.031 (0.787)	8–10 (200–250)	**182431**	**218336**
	12–14 (300–350)	**182631**	
0.035 (0.889)	8–10 (200–250)	**182435**	**218336**
	10–12 (250–300)	**182535**	
	12–14 (300–350)	**182635**	
0.039 (0.991)	8–10 (200–250)	**182439**	**218336**
	10–12 (250–300)	**182539**	
	12–14 (300–350)	**182639**	
0.041 (1.041)	8–10 (200–250)	**182441**	**218336**
	10–12 (250–300)	**182541**	
	12–14 (300–350)	**182641**	
0.043 (1.041)	8–10 (200–250)	**182443**	**218336**
	10–12 (250–300)	**182543**	
	12–14 (300–350)	**182643**	

Accessories

Use Only Genuine Graco Parts and Accessories

GUN MANIFOLDS
Order separately; not included with gun
(See page 24 for Parts list)

Part No. 239891, Series A
North America Manifold

Part No. 240214, Series A
International Manifold

Part No. 243952, Series A
North America Manifold with Fan Adjustment Valve

Needle/Diffuser Options
Needles must be used only with the specified diffuser-seat to guarantee proper seating and life.

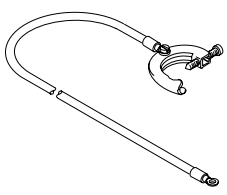
- **Standard viscosity/standard flow**
  - **Fluid Needle 239794,** 1/8 in. carbide ball
  - **Diffuser-Seat 224855**
- **High viscosity/high flow**
  - **Fluid Needle 239807,** 3/16 in. carbide ball
  - **Diffuser-Seat 239806**
- **Acid catalyzed materials/very low viscosity materials**
  - **Fluid Needle 239808,** 1/8 in. plastic ball
  - **Diffuser-Seat 224855**
- **Acid catalyzed materials/high flow**
  - **Fluid Needle 241468,** 3/16 in. plastic ball
  - **Diffuser-Seat 239806**
- **Acid catalyzed materials/higher viscosity/highly abrasive materials**
  - **Fluid Needle 241131,** 1/8 in. ruby ball
  - **Diffuser-Seat 224855**

Air Cap Verification Kit 239897

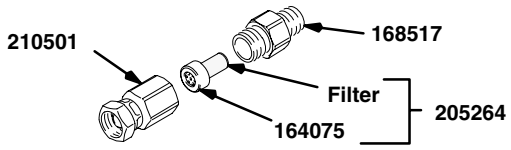
For air cap 239898 only, to determine air pressure behind the air cap. Do not use for actual spraying. To be compliant, atomizing air pressure must not exceed 10 psi (70 kPa, 0.7 bar).

Grounding Clamp and Wire 222011

12 ga, 25 ft (7.6 m) wire



In-line Fluid Filter 210500
5000 psi (35 MPa, 350 bar) Maximum Working Pressure
100 mesh. Fits onto the gun's fluid connector. 1/4–18 npsm. Includes the parts shown below.



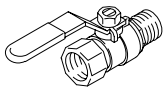
Brush 101892
For cleaning the gun.

High Pressure Ball Valves, Viton® Seals
5000 psi (34 MPa, 345 bar) Maximum Working Pressure
Can be used as fluid drain valve.

210657	1/2 npt(m)
210658	3/8 npt(m)
210659	3/8 x 1/4 npt(m)

Bleed-type Master Air Valve
300 psi (2.1 MPa, 21 bar) Maximum Working Pressure
Relieves air trapped in the air line between the pump air inlet and this valve when closed.

107141	3/4 npt(m x f) inlet & outlet
107142	1/2 npt(m x f) inlet & outlet

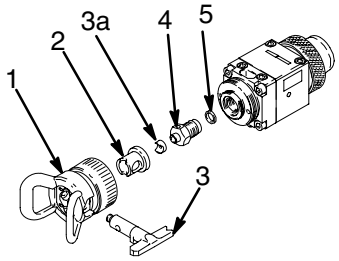


Conversion Kit 240463

To convert from a gun with standard spray tip, tip guard, and air cap to a part no. 241088 gun with the AA RAC assembly. See parts list and drawing below for parts included with kit.

Ref. No.	Part No.	Description	Qty.
1	238701	AA RAC AIR CAP ASSEMBLY	1
2	192096	RAC HOUSING	1
3	242XXX	TIP CYLINDER; tip of choice Includes item 3a	1
3a	193000	• FLUID SEAT	1
4	239173	DIFFUSER-SEAT	1
5	187521	GASKET, fluid; acetal homopolymer (black)	1

NOTE: Diffuser-seat (4) must be used with needles with 1/8 in. balls (239794, 239808, and 241131).



8755A

Technical Data

Maximum working fluid pressure	4000 psi (28 MPa, 280 bar)
Maximum working air pressure	100 psi (0.7 MPa, 7 bar)
Maximum working fluid temperature	120° F (49° C)
Minimum air cylinder actuation pressure	*Part Nos. 239780, 239787, 239788, 241088:* 50 psi (0.34 MPa, 3.4 bar) *Part No. 239784:* 70 psi (0.49 MPa, 4.9 bar)
Weight	2.1 lb (965 g)
Wetted Parts	Stainless Steel, Carbide, Ultra High Molecular Weight Polyethylene, Chemically Resistant Fluoroelastomer, Delrin®, Teflon®, Polyimide

Teflon® and Delrin® are registered trademarks of the DuPont Company.

Triggering Speed

These values apply to a new gun with a 6 ft (1.8 m), 1/4 in. (6.3 mm) OD cylinder air line and a .019" tip. These values will vary slightly with use and with variations in equipment.

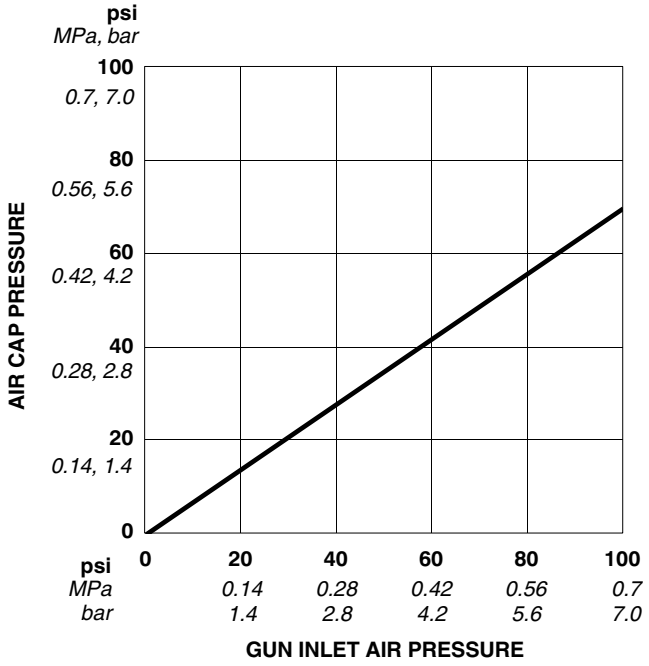
Models 239780, 239787, 239788, 241088 (1/8 inch ball)			
Cylinder air pressure psi (MPa, bar)	**Fluid pressure psi (MPa, bar)**	**msec to fully open**	**msec to fully close**
50 (0.34, 3.4)	600 (4.2, 42)	60	60
50 (0.34, 3.4)	1800 (12.4, 124)	60	60
50 (0.34, 3.4)	4000 (28, 280)	60	60

Model 239784 (3/16 inch ball)			
Cylinder air pressure psi (MPa, bar)	**Fluid pressure psi (MPa, bar)**	**msec to fully open**	**msec to fully close**
70 (0.49, 4.9)	600 (4.2, 42)	51	72
70 (0.49, 4.9)	1800 (12.4, 124)	56	73
70 (0.49, 4.9)	4000 (28, 280)	69	73

Technical Data

Air Cap Pressure vs Gun Inlet Air Pressure (for 239898 Air Cap only)

NOTE: Air Cap Verification Kit 239897 is available. See page 28.



Sound Data (dBa)

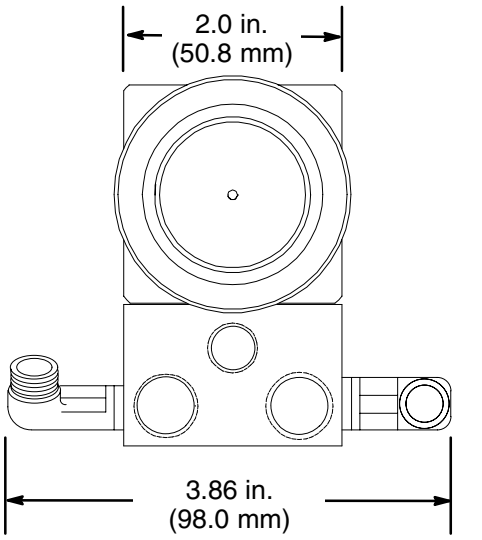
Air Cap Part No.	Operating Conditions	Fluid Pressure with .019" tip; psi (MPa, bar)	Fan Air Pressure psi (MPa, bar)	Atomizing Air Pressure psi (MPa, bar)	Sound Pressure dB(A)†	Sound Power dB(A)‡
239781	Rated Pressures	4000 (28, 276)	0	100 (0.7, 7)	91.75	91.90
			100 (0.7, 7)	100 (0.7, 7)	91.22	91.46
	Normal Operating Pressures	600 (4.2, 42)	0	30 (0.21, 2.1)	83.87	76.28
			30 (0.21, 2.1)	30 (0.21, 2.1)	84.41	78.65
239898	Rated Pressures	4000 (28, 276)	0	100 (0.7, 7)	90.81	90.46
			100 (0.7, 7)	100 (0.7, 7)	92.62	92.12
	Normal Operating Pressures	600 (4.2, 42)	0	30 (0.21, 2.1)	84.97	81.78
			30 (0.21, 2.1)	30 (0.21, 2.1)	85.72	83.15
238701	Rated Pressures	4000 (28, 276)	n/a	100 (0.7, 7)	87.16	86.46
	Normal Operating Pressures	600 (4.2, 42)	n/a	30 (0.21, 2.1)	82.12	79.12

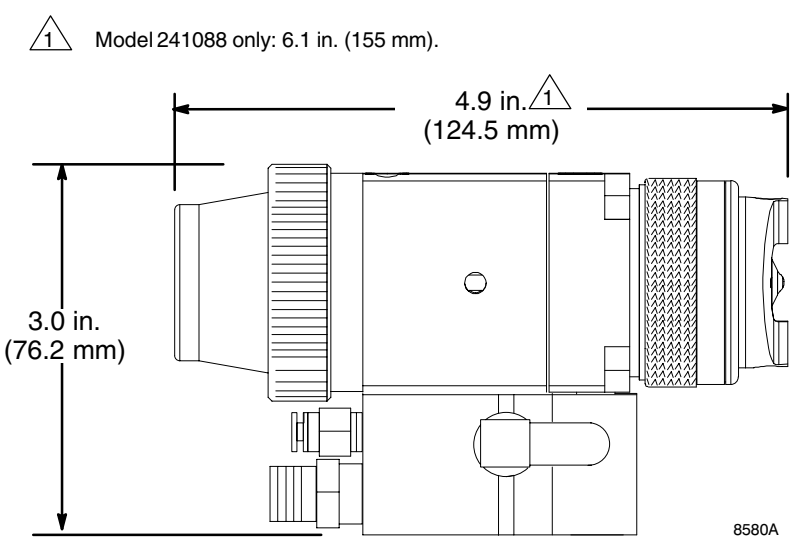
† *Sound pressure was measured at 1 meter from unit.*

‡ *Sound power was tested in accordance with ISO 9614–2.*

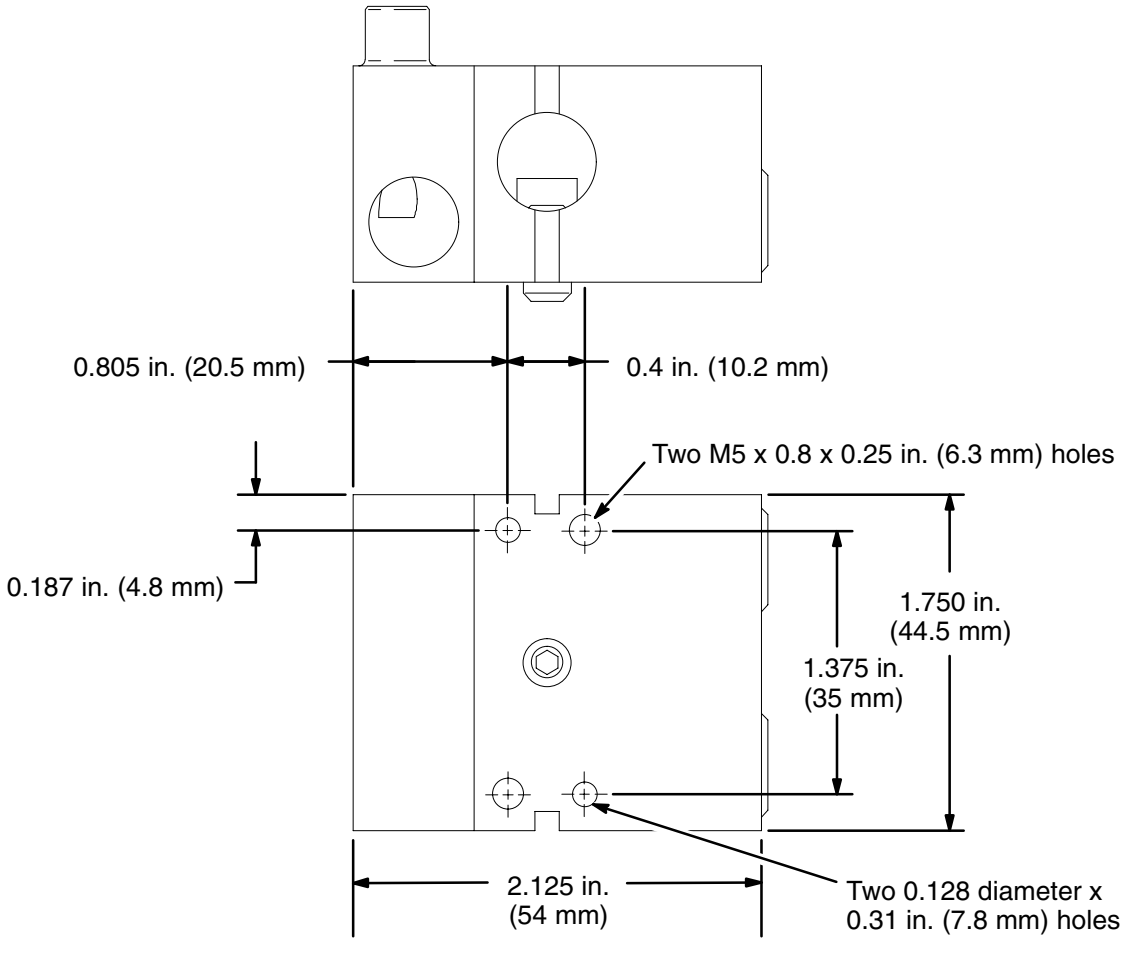
Dimensions

Part No. 239891 Manifold Shown





Mounting Hole Layout



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