

Instructions—Parts List



STAINLESS STEEL, AUTOMATIC

Hydra-Mastic Spray Gun, less tip

306830E

ENG

**For automatic “AIRLESS” circulating and non-circulating systems.
For professional use only.**

3000 psi (21.0 MPa, 210 bar) Maximum Working Pressure

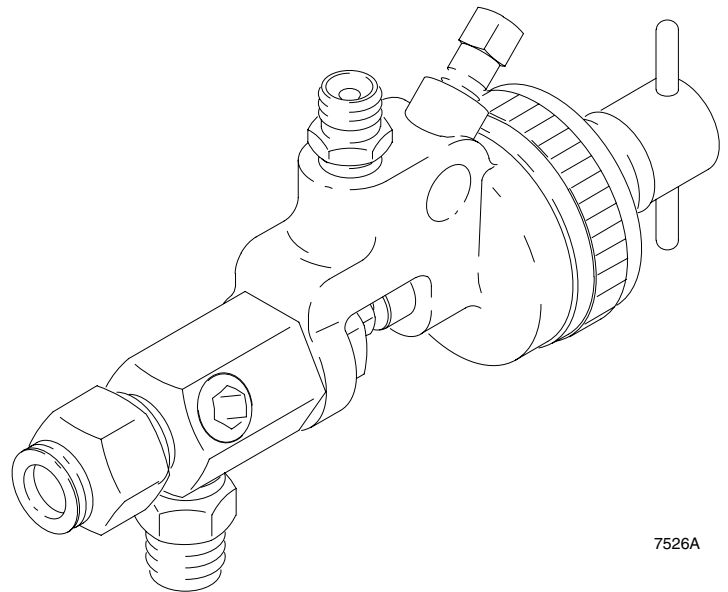
Model 206660, Series D

Model 901410, Series A



Important Safety Instructions

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



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Symbols

Warning Symbol



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

Caution Symbol



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

WARNING



SKIN 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 surgical treatment.**
- Do not point the 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 system.
- Follow the **Pressure Relief Procedure** on page 8 whenever you: are instructed to relieve pressure; stop dispensing; clean, check, or service the equipment; and install or clean the 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 a 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 the hazardous fluid according to all local, state, and national guidelines.
- Wear appropriate protective clothing, gloves, eyewear, and respirator.

⚠ WARNING



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 **Grounding** on page 5.
- Provide fresh air ventilation to avoid the buildup of flammable fumes from solvent or the fluid being sprayed.
- Extinguish all the open flames or pilot lights 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 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.
- If there is any static sparking while using the equipment, **stop spraying immediately**. Identify and correct the problem.



EQUIPMENT MISUSE HAZARD

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

- This equipment is for professional use only.
- Read all the instruction manuals, tags, and labels before operating the equipment.
- Use the equipment only for its intended purpose. If you are uncertain about usage, call your Graco distributor.
- Do not alter or modify this equipment. Use only genuine Graco parts and accessories.
- Check the equipment daily. Repair or replace worn or damaged parts immediately.
- Do not exceed the maximum working pressure of the lowest rated system component. These dispensing valves have a **3000 psi (21.0 MPa, 210 bar) Maximum Working Pressure**.
- Use fluids that are compatible with the equipment wetted parts. See the **Technical Data** section of all the equipment manuals. Read the fluid manufacturer's warnings.
- Route the hoses away from traffic areas, sharp edges, moving parts, and hot surfaces. Do not expose Graco hoses to temperatures above 180°F (82°C) or below -40°F (-40°C).
- Wear hearing protection when operating this equipment.
- Comply with all applicable local, state, and national fire, electrical, and other safety regulations.



MOVING PARTS HAZARD

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

- Keep clear of all moving parts when starting or operating the pump.
- Before servicing the equipment, follow the **Pressure Relief Procedure** on page 8 to prevent the equipment.

Installation

Grounding

 **WARNING**

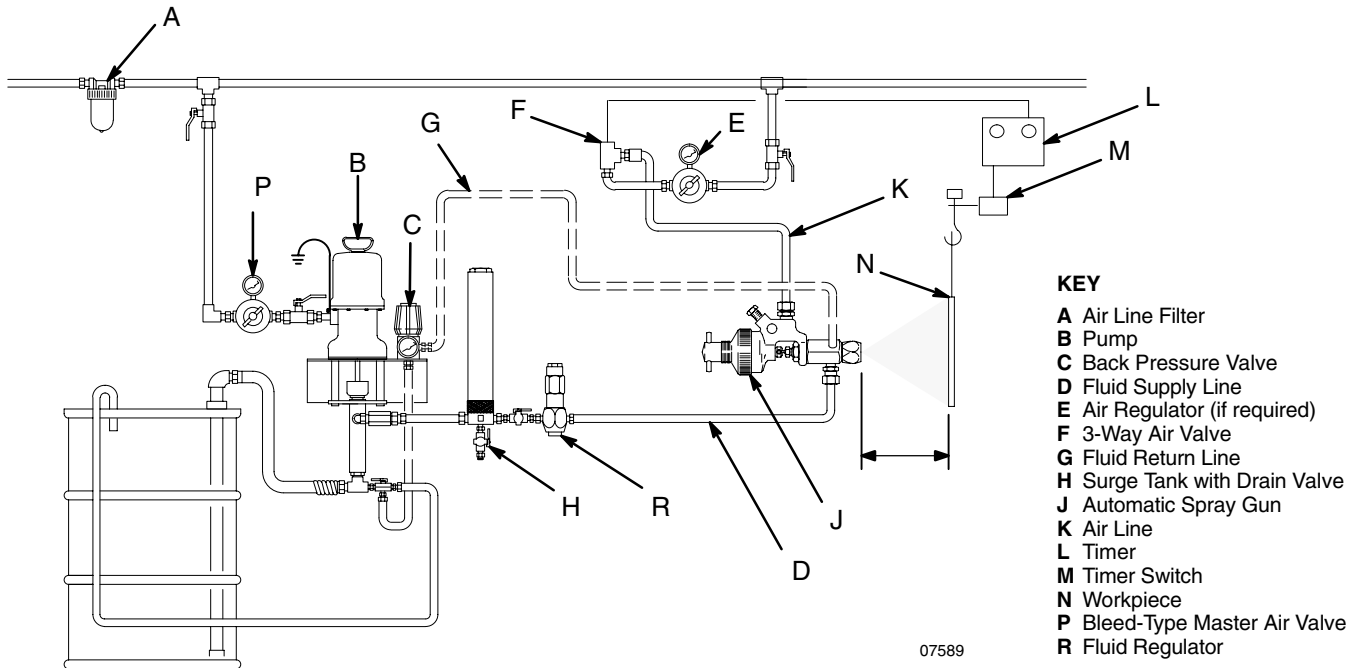


FIRE AND EXPLOSION HAZARD
Before operating, ground the system as explained below. Also read the section **FIRE AND EXPLOSION HAZARD** on page 4.

- *Pump*: use ground wire and clamp as instructed in your separate pump instruction manual.
- *Air compressors and hydraulic power supplies*: ground according to manufacturer's recommendations.
- *Air and fluid hoses connected to the pump*: use only grounded hoses with a maximum of 500 feet (150 m) combined hose length to ensure grounding continuity.
- *Spray gun*: obtain grounding through connection to a properly grounded fluid hose and pump.
- *Fluid supply container*: according to local code.
- *Object being sprayed*: according to local code.
- *All solvent pails* used when flushing, 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.

Installation

Typical Installation



The Typical Installation drawing shown above is only a guide for selecting required and optional accessories for an automatic airless spray system. Contact your Graco representative for assistance in designing a system to meet your particular needs.

NOTE: Reference numbers and letters in parentheses in the text refer to the callouts in the Typical Installation, Figures, and Parts Drawing.

Ventilate the Spray Booth

⚠ WARNING

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 running.

Mount the Gun

Mount the gun on a 0.50 in. (12.7 mm) diameter rod (Y) on a mounting fixture or a spray machine. See Fig. 1 and the **Typical Installation**. The tip of the gun should be 12 in. (305 mm) from the surface of the workpiece (N).

Connect the Air Lines

Clean all lines and connections of dirt, burrs, etc. and blow them out with clean air before connecting them to the system. The air supply line (K) should contain an air filter (A) to remove harmful dirt and moisture from the compressed air.

Use a normally closed 3-way air solenoid valve (F) to control the spray gun (J). Attach a grounded air supply line (K) from the 3-way valve to the 1/4 npsm(m) air inlet adapter (6) of the Gun. See Fig. 1.

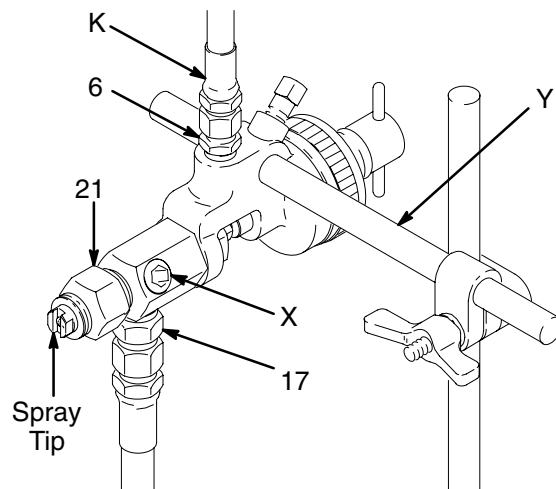


Fig. 1

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Installation

Connect the Fluid Lines

Connect a grounded fluid line (D) from the pump to the 1/4 npsm fluid inlet adapter (17) of the gun. You should install a fluid pressure regulator (R) to control fluid pressure to the gun. A regulator enables you to control fluid pressure more accurately than by regulating air pressure to the pump.

In a circulating system, connect a return line (G) from the 3/8 npt circulating port (X) to the back pressure valve (C). The back pressure valve ensures regulated pressure to all spray guns in the system.

System Accessories

WARNING

Two accessories are required in your system: a bleed-type master air valve (P) and a fluid drain valve (H). These accessories help reduce the risk of serious injury including fluid injection, splashing in the eyes or on the skin, and injury from moving parts if you are adjusting or repairing the pump.

The bleed-type master air valves required only with air-powered pumps. It relieves air trapped between this valve and the pump after the air regulator is shut off. Trapped air can cause the pump to cycle unexpectedly. Locate the valve close to the pump.

The fluid drain valve assists in relieving fluid pressure in the displacement pump, hose, and gun; triggering the gun to relieve pressure may not be sufficient.

Flush the System

WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 8. Use the lowest possible fluid pressure during flushing to reduce the risk of fluid injection, static sparking, and splashing in the eyes or on the skin.

Before flushing, be sure the entire system and flushing pails are properly grounded. Refer to **Grounding** at left. **Relieve the pressure** and remove the spray tip from the gun. Start the pump and flush the system with a compatible solvent as explained in the instructions for your pump. Check the system under pressure for leaks; if any are found, **relieve the pressure** and repair the leaks. Pressurize the system again and make sure the leaking has stopped.

Installing or Changing the Spray Tip

WARNING

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

Relieve the pressure and close the air valves. Unscrew the tip retainer (21) and install the tip, then tighten the retainer. See Fig. 1. Be sure the gasket (19) is installed between the tip and valve seat (23) to prevent leaking. See Fig. 2, page 9. If you are using a tip filter accessory kit, remove the tip retainer (21) and gasket (19) and install the kit with your tip.

The spray tip position determines the direction of pattern width. To adjust the pattern, loosen the tip retainer (21) and position the tip so the groove is horizontal for a horizontal pattern and vertical for a vertical pattern. Tighten the retainer.

Operation

Pressure Relief Procedure

WARNING



SKIN INJECTION HAZARD

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 any part of the system.

1. Shut off the power to the pump.
2. Close the bleed-type master air valve (required with air powered pumps).
3. Actuate the gun to relieve pressure.
4. Open the pump drain valve (required in your system) to help relieve fluid pressure in the displacement pump. Actuating 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.

Operation

Check the tightness of the spray tip retaining nut (21).

Before each day's operation, lubricate the exposed portion of the needle (22) and the piston (13) with a lubricant compatible with the fluid to be sprayed. After lubricating, cover the exposed portions of the needle and piston with a piece of plastic to prevent fluid build-up on these parts. Any spray build-up could damage the valve packings (16 and 24). See Fig. 2.

Use a fluid filter to remove particles and sediment that could clog the tip.

Set the actuating mechanism (timer) so that the gun will start spraying before meeting the workpiece and stop spraying just after the workpiece has passed.

Set the actuating air to at least 50 psi (345 kPa, 3.4 bar) and start the pump. Adjust the pump speed and pressure to obtain the proper pump atomization – always use the lowest pump speed necessary to get the results you want. The spray tip orifice size and angle determines coverage and pattern. Do not try to get more coverage by increasing the pump pressure – use a larger tip instead.

NOTE: In a circulating system, adjust the back pressure valve to provide constant system back pressure for all guns while maintaining the proper pressure for fluid circulation. Refer to the **Typical Installation** on page 6.

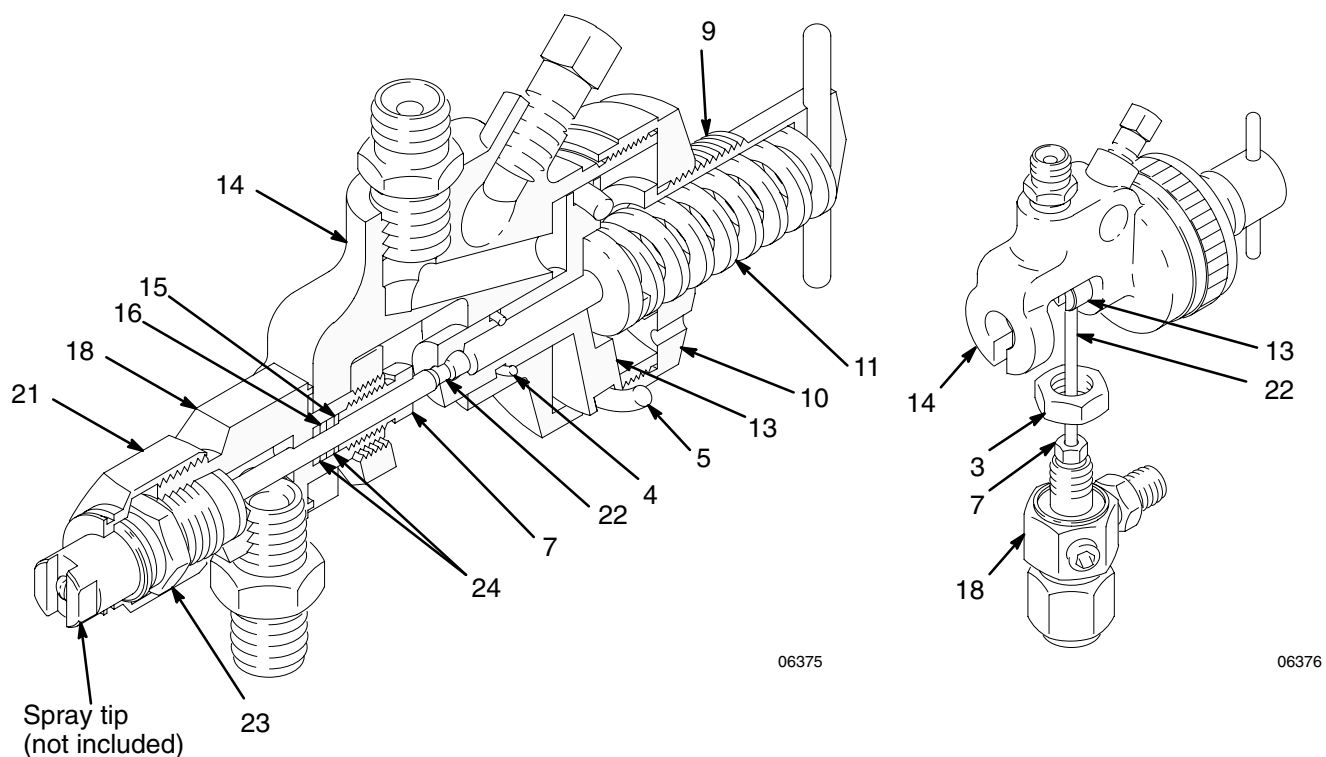


Fig. 2

Maintenance

Clean the Spray Gun and System Daily

WARNING

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

CAUTION

Be sure that the solvent you use is compatible with the fluid being sprayed, to avoid clogging the gun's fluid passages.

An important part in the care and maintenance of your automatic airless spray gun is proper flushing. Flush the gun daily with a compatible solvent until all traces of fluid are removed from the gun passages. **Relieve the pressure** and remove the spray tip before flushing.

Clean the outside surfaces of the gun by wiping with a soft cloth dampened with a compatible solvent.

CAUTION

Never immerse the entire gun in solvent. Immersing in solvent removes lubricants and tends to damage packings. Never use metal instruments to clean the hole in the spray tip. Metal instruments may damage the hole and distort the spray pattern.

To remove a hardened particle from the tip, **relieve the pressure**, remove the tip and blow air through the tip orifice from the front.

Soak the plugged tip in solvent and use a soft bristled brush to clean it.

Troubleshooting

WARNING

To reduce the risk of serious injury, always follow the **Pressure Relief Procedure** on page 8 before checking or servicing the spray gun.

Note: Check every possible problem and solution before disassembling the pump.

Problem	Cause	Solution
Uneven spray pattern	Fluid pressure too low.	Increase pressure to pump, or adjust fluid pressure regulator.
Tails or fingers in spray pattern.	Fluid pressure too low.	Increase pressure to pump, or adjust fluid pressure regulator.
	Fluid too viscous, or supply is low.	Decrease viscosity or refill supply.
	Tip orifice too small for fluid.	Change to larger tip.
Gun will not stop spraying.	Fluid pressure too high.	Reduce pressure to pump, or adjust fluid pressure regulator.
	Fluid needle binding.	Clean, repair.
	Piston packing binding.	Repair.
	Obstructed or worn needle or seat.	Clean or replace.
Gun will not spray.	Pump not operating.	Refer to separate pump manual.
	Fluid line clogged.	Clear.
	Fluid valve closed.	Open.
	Clogged spray tip or needle seat.	Clean.
	No trigger or actuator air pressure.	Check, clean all lines.
	Worn or dry piston packings.	Replace.
Distorted spray pattern.	Fluid pressure too low.	Increase pressure to pump, or adjust fluid pressure regulator.
	Clogged spray tip or needle seat.	Clean.
	Fluid build-up on tip or worn tip.	Clean, replace.

Service

Needle, Seat, and Packings

WARNING

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

1. **Relieve the pressure.**
2. Remove the spray tip and flush the gun with a compatible solvent.
3. Disconnect the fluid hose(s).
4. Screw the locknut (3) off the head (18) and align the slot in the air piston (13) with the slot in the gun body (14). Swing the head out of the gun body and slide the needle out of the socket in the air piston.
5. Screw the packing nut (7) out and remove the packings (16 and 24), gland (15), and needle (22).
6. Remove the tip and seat (23) out of the housing. See Fig. 2.
7. Handle the needle and seat carefully and inspect them closely for wear or damage.
8. Reassemble the gun using new parts as necessary. Soak a new leather packing in light, compatible oil before installing it.

Air Piston, Spring, and Seals

WARNING

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

1. **Relieve the pressure.**
2. Remove the gun head as explained in the **Needle, Seat, and Packings** section.
3. Remove the air cylinder cap (10), take out the spring (11), and pull the piston (13) out.
4. Clean and inspect all parts. Check the piston o-rings (4 and 5) carefully.
5. Lubricate all parts with a light waterproof grease and reassemble the gun using new parts as necessary.

Packing Configurations

The standard packings are two UHMWPE packings (Part No. 181523) and one leather packing (Part No. 166258). If your usage requires different packings, refer to the following chart of available packing configurations.

Model No.	Leather Packings	UHMWPE Packings	PTFE Packings
206660 and 901410	(3) 166258 leather	(2) 181523 UHMWPE and (1) 166258 leather (standard)	(3) 168296 PTFE

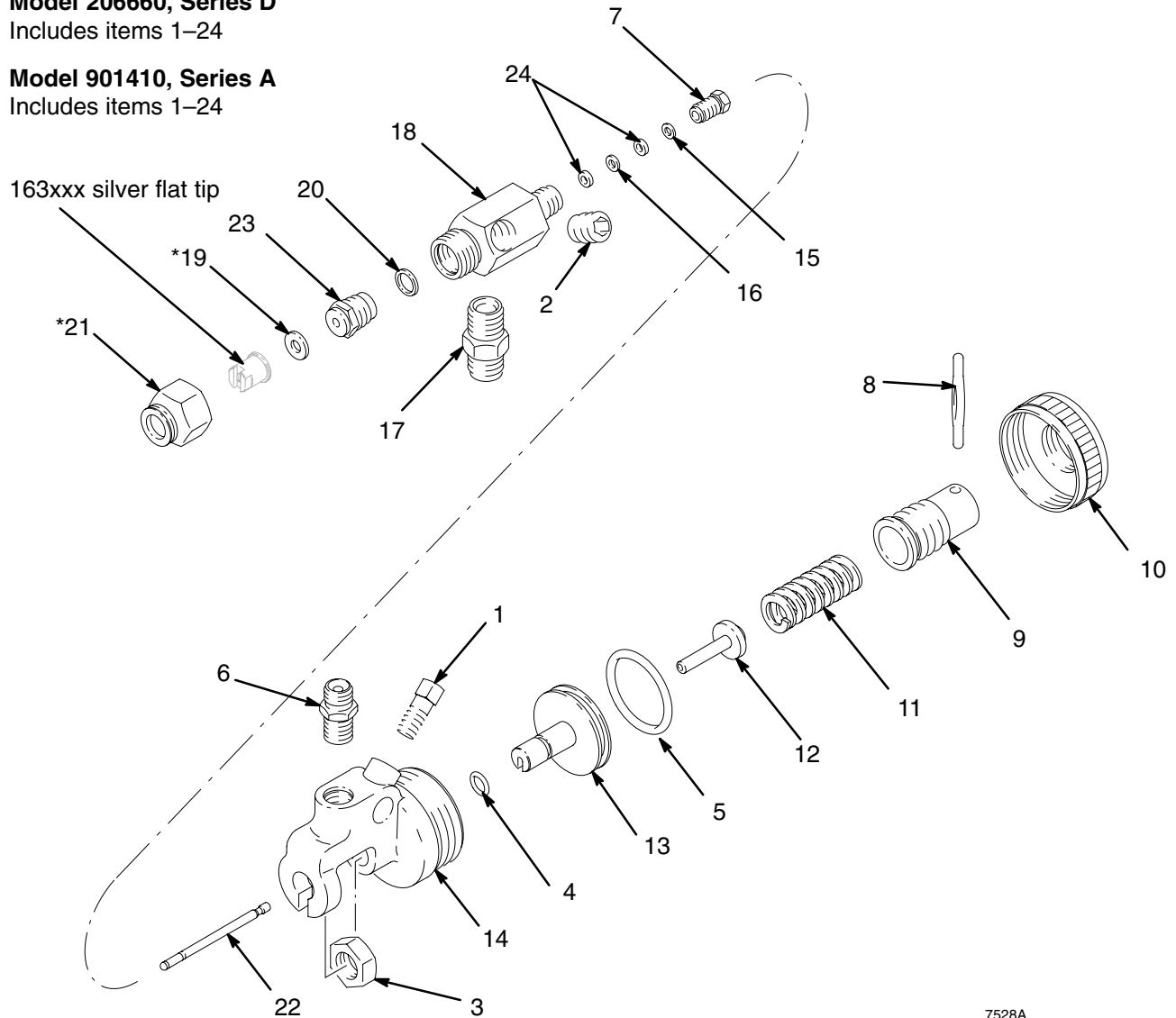
Parts

Model 206660, Series D

Includes items 1–24

Model 901410, Series A

Includes items 1–24



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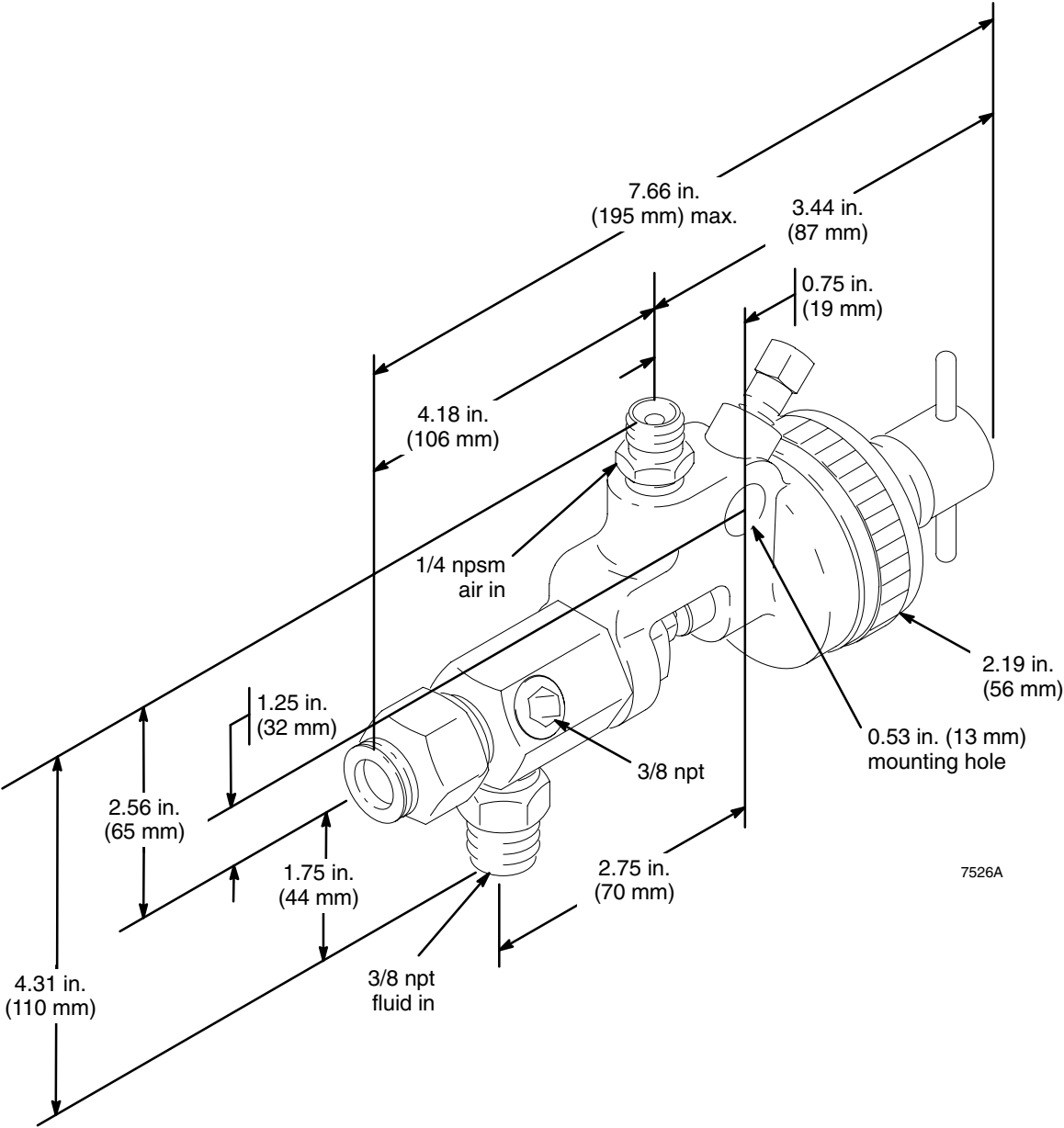
Ref. No.	Part No.	Description	Qty.	Ref. No.	Part No.	Description	Qty.
1	101554	SCREW, sq hd cup pt set; 3/8–16 x 3/4 in.	1	16	166258	PACKING, flat leather	1
2	101748	PLUG, pipe; 3/8 npt; SST	1	17	166469	NIPPLE, pipe; 3/8 npt; SST	1
3	102300	LOCKNUT, hex jam; 9/16–18	1	18	166470	HEAD, gun	1
4	155685	SEAL, o-ring; nitrile rubber	1	19*	166969	WASHER, nylon	1
5	156593	SEAL, o-ring; nitrile rubber	1	20	167730	GASKET, copper	1
6	162453	NIPPLE, pipe; 1/4 npt x 1/4 npsm	1	21*	171602	NUT, tip retainer	1
7	164313	NUT, packing; SST	1	22	220194	NEEDLE, fluid; chrome plated SST with carbide ball	1
8	164736	PIN, handle	1	23	207149	SEAT, valve; 416 SST; carbide; with diffuser (used on 206660)	1
9	164737	SCREW, adjusting	1		206987	SEAT, valve; 416 SST; carbide; without diffuser (used on 901410)	1
10	164738	CAP, air cylinder	1	24	181523	PACKING; UHMWPE	2
11	164739	SPRING, helical compression	1				
12	164740	GUIDE, spring	1				
13	164741	PISTON, air	1				
14	164745	BODY, gun	1				
15	166255	GLAND, fluid packing; SST	1				

* Recommended "tool box" spare parts. Keep these parts on hand to reduce down time.

Technical Data

Category	Data
Maximum Working Pressure	3000 psi (21.0 MPa, 210 bar)
Minimum Operating Pressure of Air Actuated Trigger	50 psi (345 kPa, 3.4 bar)
Air Inlet	1/4 npsm(m)
Fluid Inlet	3/8 npt(m)
Fluid Return	3/8 npt(f)
Wetted Parts	Acetal Homopolymer, Leather, Copper, Tungsten Carbide, 303 & 416 Stainless Steel, Ultra-High Molecular Weight Polyethylene

Dimensions



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Notes

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Graco Warranty

Graco warrants all equipment listed in this manual which is 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.

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, gas engines, 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

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Graco Information

TO PLACE AN ORDER, contact your Graco distributor, or call this number to identify the distributor closest to you:

1-800-328-0211 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.*

Original instructions. This manual contains English. MM 306830

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