



GRACO

First choice when  
quality counts.™

Rev. J  
Supersedes Rev. G  
and PCN H



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

INSTRUCTIONS

AIR-ASSISTED AIRLESS

## 10:1 Ratio Monark® Sprayers

950 psi (6.6 MPa, 66 bar) Maximum Fluid Working Pressure

95 psi (0.66 MPa, 6.6 bar) Maximum Air Working Pressure

### Model 230-998, Series B

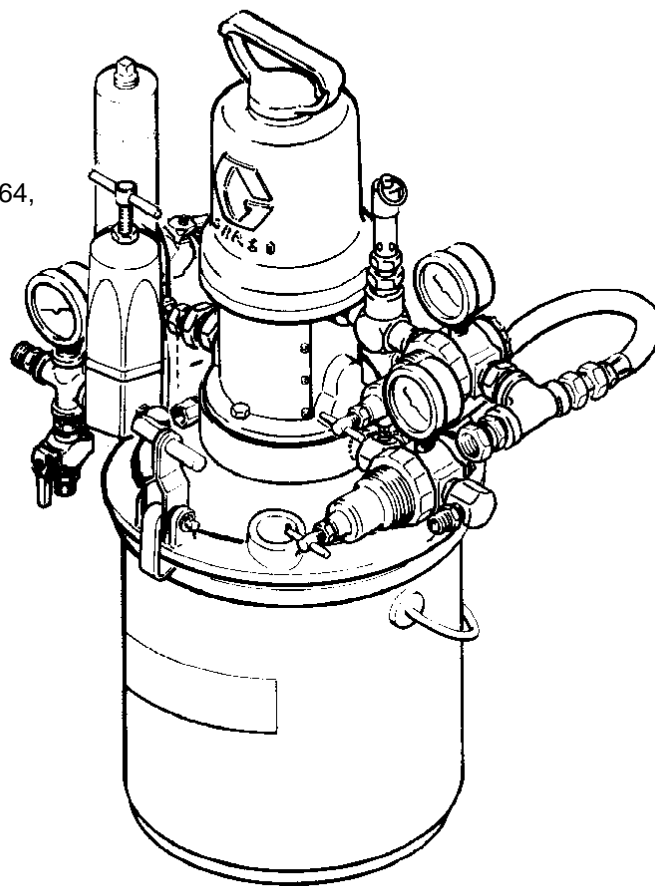
Includes pump and 5 gallon (19 liter) pail

### Model 231-015

Includes pump 230-998, hose, gun, and tip

### Model 230-978 Series B

Includes pump 230-998, fluid regulation kit 222-564,  
hose, gun, and tip



MODEL 230-978  
(GUN AND HOSES  
NOT SHOWN)

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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



INSTRUCTIONS

## EQUIPMENT MISUSE HAZARD

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

- This equipment is for professional use only.
- Read all instruction manuals, tags, and labels before operating the equipment.
- Use the equipment only for its intended purpose. If you are uncertain about usage, call your Graco distributor.
- Do not alter or modify this equipment. Use only genuine Graco parts and accessories.
- Check equipment daily. Repair or replace worn or damaged parts immediately.
- Do not exceed the maximum working pressure of the lowest rated system component. Refer to the **Technical Data** on page 14 for the maximum working pressure of this equipment.
- Use fluids and solvents which are compatible with the equipment wetted parts. Refer to the **Technical Data** section of all equipment manuals. Read the fluid and solvent manufacturer's warnings.
- Do not exceed the maximum working pressure of the lowest rated system component. This equipment has a **950 psi (6.6 MPa, 66 bar) maximum working pressure**.
- Do not use hoses to pull equipment.
- Route hoses away from traffic areas, sharp edges, moving parts, and hot surfaces. Do not expose Graco hoses to temperatures above 82°C (180°F) or below -40°C (-40°F).
- Wear hearing protection when operating this equipment.
- Do not lift pressurized equipment.
- Comply with all applicable local, state, and national fire, electrical, and safety regulations.

# ! WARNING



## INJECTION HAZARD

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

- Fluid injected into the skin might look like just a cut, but it is a serious injury. **Get immediate medical attention.**
- Do not point the gun at anyone or at any part of the body.
- Do not put your hand or fingers over the spray tip.
- Do not stop or deflect leaks with your hand, body, glove or rag.
- Do not “blow back” fluid; this is not an air spray system.
- Always have the tip guard and the trigger guard on the gun when spraying.
- Check the gun diffuser operation weekly. Refer to the gun manual.
- Be sure the gun trigger safety operates before spraying.
- Lock the gun trigger safety when you stop spraying.
- Follow the **Pressure Relief Procedure** on page 10 whenever you: are instructed to relieve pressure; stop spraying; clean, check, or service the equipment; and install or clean the spray tip.
- Tighten all fluid connections before operating the equipment.
- Check the hoses, tubes, and couplings daily. Replace worn, damaged, or loose parts immediately. Permanently coupled hoses cannot be repaired; replace the entire hose.
- Use only Graco approved hoses. Do not remove any spring guard that is used to help protect the hose from rupture caused by kinks or bends near the couplings.

# WARNING



## FIRE AND EXPLOSION HAZARD

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



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



## TOXIC FLUID HAZARD

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

- Know the specific hazards of the fluid you are using.
- Store hazardous fluid in an approved container. Dispose of hazardous fluid according to all local, state and national guidelines.
- Always wear protective eyewear, gloves, clothing and respirator as recommended by the fluid and solvent manufacturer.



# Installation

## Grounding

To reduce the risk of static sparking, ground the pump, object being sprayed, and all other spray/dispensing equipment used or located in the spray/dispensing area. Check your local electrical code for detailed grounding instructions for your area and type of equipment. Be sure to ground all of this spray/dispensing equipment:

1. *Pump*: loosen the grounding lug locknut (W) and washer (X). Insert one end of a 1.5 mm<sup>2</sup> (12 ga) minimum ground wire (Y) into the slot in lug (Z) and tighten the locknut securely. See Fig. 1. Connect the other end of the wire to a true earth ground. Order Part No. 237-569, Ground Wire and Clamp.
2. Air compressor: follow manufacturer's recommendations.
3. Air and fluid hoses: use only grounded hoses with a maximum of 500 ft (150 m) combined hose length to ensure grounding continuity.
4. Spray gun: grounding is obtained through connection to a properly grounded fluid hose and pump.

5. Object being sprayed: according to your local code.
6. Fluid supply container: according to your local code.
7. All solvent pails used when flushing, according to local code. Use only metal pails, which are conductive, placed on a grounded surface. Do not place the pail on a nonconductive surface, such as paper or cardboard, which interrupts the grounding continuity.
8. To maintain grounding continuity when flushing or relieving pressure, always hold a metal part of the spray gun firmly to the side of a grounded metal pail, then trigger the spray gun.

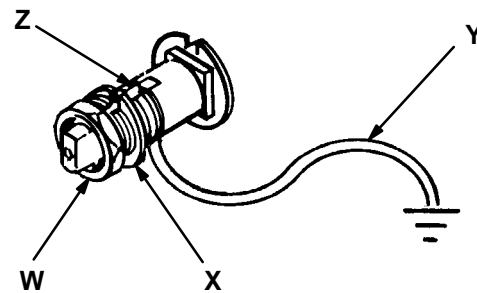


Fig. 1

# Installation

## NOTES:

- The reference numbers and letters in parentheses in the text refer to the callouts in the drawings.
- The accessories mentioned are available from your Graco distributor.
- The following manuals are supplied with your unit:

### Manual Component

307-595	10:1 Ratio Monark Pump
308-640	Air-Assisted Airless Spray Gun
308-167	Air Regulator
307-273	Fluid Filter
307-886	Fluid Regulator (Model 230-978 Sprayer only)

## WARNING

For your safety in installing, operating, and servicing this system, thoroughly read and follow all warnings and instructions given in this manual or in any other manuals supplied with this system or any accessories you add to the system. If a manual is missing or you need additional copies, copies are available from Graco at no charge.

### All Models (See Fig 2)

DO NOT install the spray tip in the gun yet.

Install an air line filter (H) in the main air line, to remove harmful dirt and moisture from the compressed air supply. Install a bleed-type master air valve (J) close to the pump air inlet, and downstream from the pump air regulator (K). Install a second bleed valve (L) upstream from all other accessories, to isolate the accessories for servicing. Connect an air supply hose between the main air supply line and the sprayer's air inlet swivel (1).

## CAUTION

To avoid contaminating the air supply to the gun, do not use an automatic air line lubricator; lubricate the motor manually, instead. See **OPERATION** on page 11.

## WARNING

The bleed-type master air valve (J), air relief valve (9), and fluid drain valve (E) are required in your system, to help reduce the risk of serious injury including fluid injection, splashing in the eyes or on the skin, overpressurization, or injury from moving parts if you are adjusting or repairing the pump.

The bleed-type master air valve relieves air trapped between this valve and the pump. Trapped air can cause the pump to cycle unexpectedly.

The air relief valve (supplied) opens automatically to relieve air pressure to the pump if the pressure exceeds a preset level. This valve prevents overpressurization of the spray gun.

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.

# Installation

## Assembling Sprayer Model 231–015 (See Fig 2)

Connect the gun air supply hose (71) between the air inlet (A) of the gun (70) and the nipple (14) at the outlet of the gun air regulator (B).

Connect the gun fluid supply hose (72) between the gun fluid inlet (C) and the ball valve (D) mounted in the side outlet of the fluid filter (25).

### **WARNING**

To reduce the risk of serious injury, never connect a fluid hose to the drain valve (E) mounted in the bottom outlet of the fluid filter (25). This valve is for use only as a drain valve, to relieve fluid pressure in the system during shutdown.

## Assembling Sprayer Model 230–978 (See Fig 2)

Remove the plug button (64) from the hole (F) in the pail cover (40).

Assemble the fluid regulation kit (75) as shown in Detail A and Detail B of Fig 2. Install the regulator mounting bracket (75k) on the regulator (75f), using the two screws (75p) and lockwashers (75q). Mount the assembled regulator kit on the pail cover with the capscrew (75l), washer (75m) and nut (75n). Connect the regulator hose (75h) between the nipple (75b) at the regulator inlet (G) and the ball valve (D) mounted in the side outlet of the fluid filter (25).

Connect the gun air supply hose (71) between the air inlet (A) of the gun and the nipple (14) at the outlet of the gun air regulator (B).

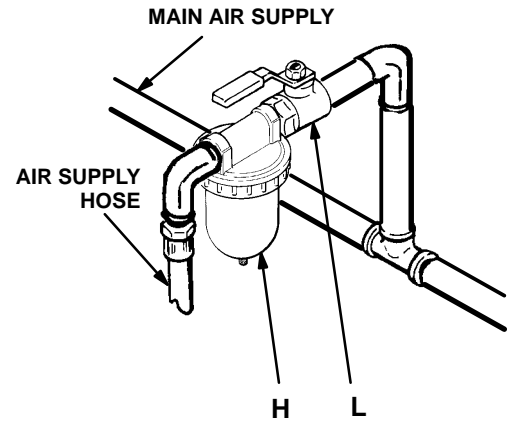
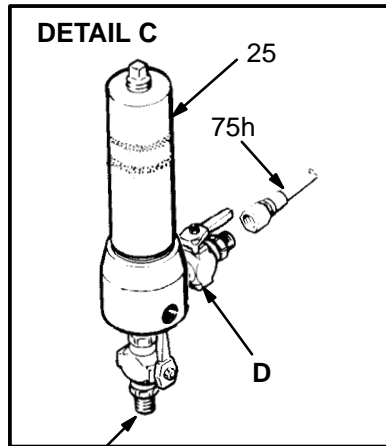
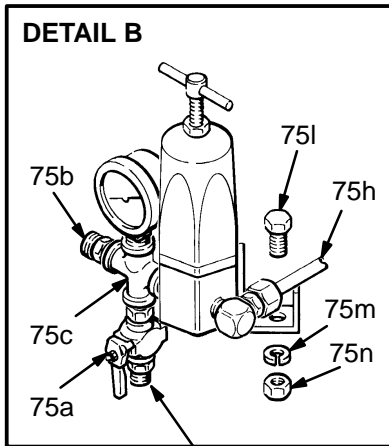
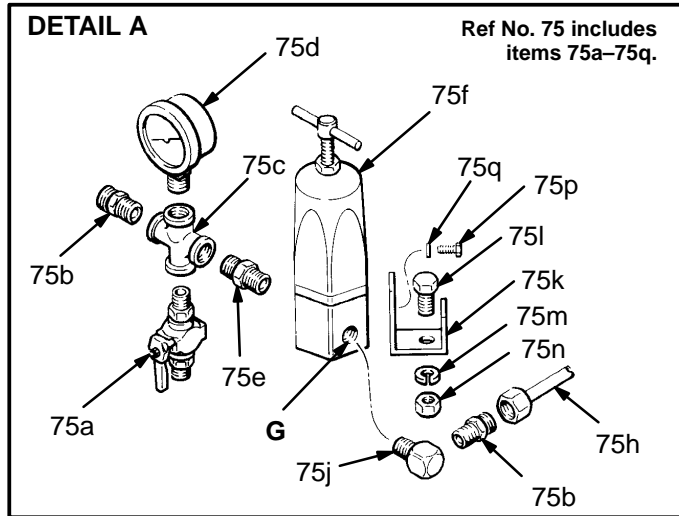
Connect the gun fluid supply hose (72) between the gun fluid inlet (C) and the nipple (75b) mounted in the pipe cross (75c).

### **WARNING**

To reduce the risk of serious injury, never connect a fluid hose to the drain valve (E) mounted in the bottom outlet of the fluid filter (25) or the drain valve (75a) mounted in the pipe cross (75c) of the fluid regulation kit. These valves are for use only as drain valves, to relieve fluid pressure in the system during shutdown.



# Installation



INSTALL BLEED-TYPE MASTER AIR VALVE (J) AT PUMP AIR INLET, DOWNSTREAM FROM ALL OTHER AIR ACCESSORIES

**⚠ WARNING**

Never connect a spray hose to these valves. They are for use only as drain valves, to relieve system fluid pressure.

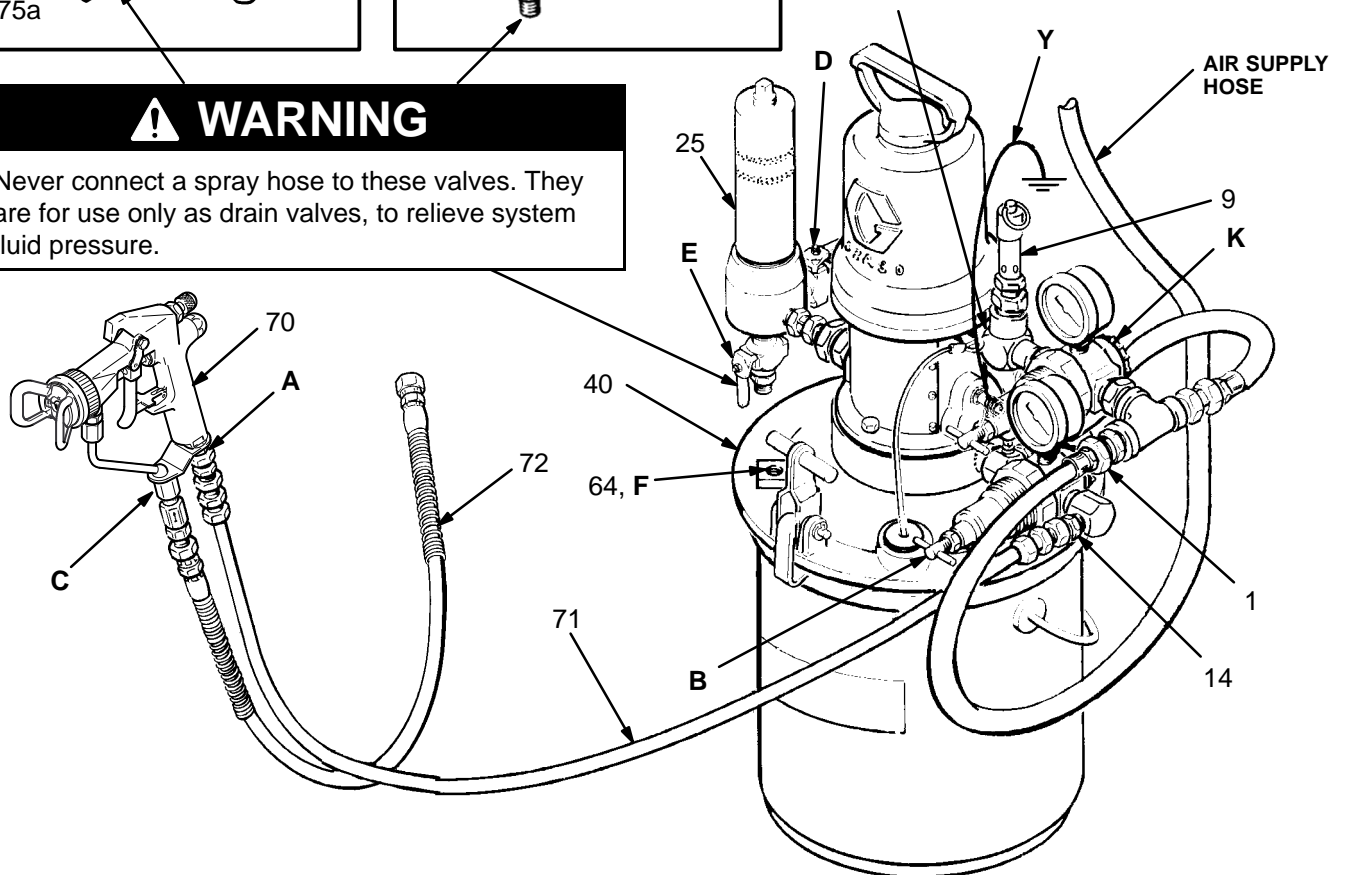


Fig. 2

# Operation

## Pressure Relief Procedure

### **WARNING**



#### **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 the spray tip.

1. Lock the spray gun trigger safety.
2. Shut off the air to the pump.
3. Close the bleed-type master air valve (required in your system).
4. Unlock the spray gun trigger safety.
5. Hold a metal part of the gun firmly to the side of a grounded metal pail, and trigger the spray gun to relieve pressure.
6. Lock the spray gun trigger safety.
7. Open the drain valve connected to the fluid filter outlet, and all other drain valves used in the system (such as in systems using fluid regulation), to help relieve fluid pressure in the displacement pump, hose, and gun. Triggering the gun to relieve pressure may not be sufficient. Have a container ready to catch the drainage.
8. Leave the drain valve(s) open until you are ready to spray again.

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 air cap or hose end coupling and relieve pressure gradually, then loosen completely. Now clear the tip or hose.

# Operation

## **WARNING**

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 10.

**NOTE:** Contact your Graco distributor for information on training aids available from Graco.

## To Operate the Pump

Be sure the air regulators and bleed-type master air valve are closed. **DO NOT INSTALL THE SPRAY TIP YET!**

Fill the pail (50) with fluid. Open the bleed-type master air valve (L) in the main air line, then open the gun air regulator (B). Hold a metal part of the spray gun (70) firmly to the side of a grounded metal pail and trigger the gun. Open the pump's bleed-type master air valve (J). Slowly open the pump air regulator (K) until the pump starts. Allow the pump to cycle slowly until all the air is pushed out of the fluid lines. Release the gun trigger and lock the trigger safety; the pump will stall against the pressure.

With the pump and lines primed, and with adequate air pressure and volume supplied, the pump will start and stop as the spray gun is triggered and released.

**Relieve the pressure**, then install the spray tip in the gun (see manual 308–640, supplied).

Use the pump air regulator (K) to control the pump speed and fluid pressure. Always use the lowest pressure necessary to achieve the desired results. Higher pressures waste fluid and cause premature wear of the pump packings and spray tip.

Keep the wet-cup filled with Graco Throat Seal Liquid (TSL) or other compatible solvent, to help prolong the packing life.

Never allow the pump to run dry of the fluid being pumped. A dry pump will quickly accelerate to a high speed, possibly damaging itself. If your pump accelerates quickly, or is running too fast, stop it immediately and check the fluid supply. If the supply container is empty and air has been pumped into the lines, refill the supply container and prime the pump and lines with fluid, being sure to eliminate all air from the fluid system, or flush the pump as described in “Shutdown and Care”.

## AA2000 Spray Gun Operation

Refer to the OPERATION section of manual 308–640, supplied, for installing the spray tip, adjusting the spray pattern and using the AA Plus Gun.

Control the air pressure to the gun with the gun air regulator (B).

Control the fluid pressure to the gun with the fluid regulator, if used. Otherwise, adjust the air pressure to the pump motor to control fluid pressure.

## Shutdown and Care

**Relieve the pressure** whenever you shut off the pump. Stop the pump at the bottom of its stroke to keep fluid from drying on the exposed displacement rod and damaging throat packings.

Always flush the pump with a compatible solvent before the fluid can dry on the displacement rod, and at the end of each day. If you are pumping water-based fluid, flush first with water and then with mineral spirits to protect the pump parts. If you are pumping oil-based fluids, flush with mineral spirits only.

Relieve pressure and leave the mineral spirits in the pump to prevent corrosion.

## Manual Air Motor Lubrication

To lubricate the air motor manually, first **relieve the pressure**. Then remove the air inlet fitting from the motor air inlet. Place 10–15 drops of oil in the inlet, reinstall the air inlet fitting and apply air to the motor. Do this daily for the best corrosion protection.

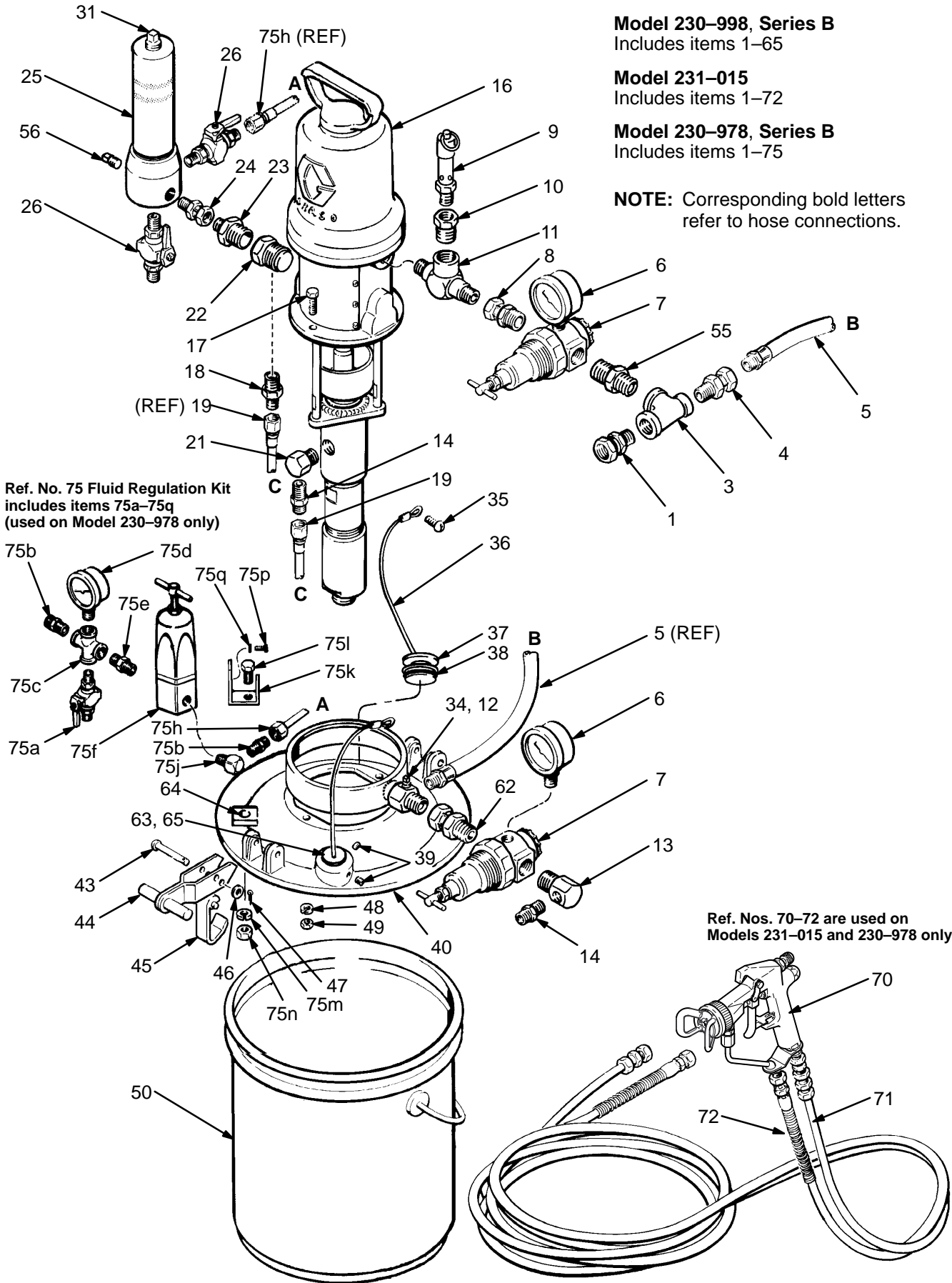
# Parts

**Model 230-998, Series B**  
Includes items 1-65

**Model 231-015**  
Includes items 1-72

**Model 230-978, Series B**  
Includes items 1-75

**NOTE:** Corresponding bold letters refer to hose connections.



Ref. No. 75 Fluid Regulation Kit  
includes items 75a-75q  
(used on Model 230-978 only)

Ref. Nos. 70-72 are used on  
Models 231-015 and 230-978 only

# Parts

## Model 230–998, Series B

Includes items 1–65

## Model 231–015

Includes items 1–72

## Model 230–978, Series B

Includes items 1–75

REF NO.	PART NO.	DESCRIPTION	QTY	REF NO.	PART NO.	DESCRIPTION	QTY
1	162–505	UNION, swivel; 1/2 npt(m) x 1/2 npt(f) swivel	1	47	100–063	PIN, cotter; 0.06" (1.6 mm) dia; 1/2" (12.7 mm) long	2
3	171–987	TEE, reducing, female; 3/8 npt x 1/4 npt run; 3/8 npt branch	1	48	100–016	LOCKWASHER, spring; 1/4"	2
4	156–823	UNION, swivel; 1/2 npt(m) x 1/4 npt(f) swivel	1	49	100–015	NUT, hex; 1/4–20	2
5	202–812	HOSE, air; neoprene; 1/4" (6.3 mm) ID; cpld 1/4 npt (mbe); 1.2 ft (355 mm) long	1	50	101–108	PAIL; 5 gal. (19 liter)	1
6	101–180	GAUGE, air pressure; 0–200 psi (0–14 bar) range	2	55	159–239	NIPPLE, reducing; 1/2 npt x 3/8 npt	1
7	104–267	REGULATOR, air; see 307–204 for parts	2	56	100–721	PLUG, pipe, slotted hd; 1/4 npt	1
8	158–256	UNION, swivel; 1/2 npt(m) x 3/8 npsm(f) swivel	1	58	206–994	THROAT SEAL LIQUID, 8 oz (not shown)	1
9	103–347	AIR PRESSURE RELIEF VALVE	1	62	156–684	UNION, swivel; 1/2 npt (m x f)	1
10	100–176	BUSHING, hex; 1/4 npt(f) x 3/8 npt(m)	1	63	160–516	O–RING; nitrile rubber	1
11	108–066	TEE, pipe; 3/8 npt(m) x 3/8 npt(m) run; 3/8 npt(f) branch	1	64	101–380	BUTTON, plug (Models 230–998 and 231–015 only)	1
12	104–765	PLUG, pipe, hdls; 1/8–27 npt	1	65	165–096	PLUG, inspection hole	1
13	166–999	ELBOW, street, reducing; 1/4 npt(f) x 1/2 npt(m)	1	70	238–852	AA PLUS SPRAY GUN; see manual 308–640 for parts	1
14	162–453	NIPPLE; 1/4 npsm x 1/4 npt	2	71	216–069	HOSE, air; nylon; 1/4" (6.3 mm) ID; cpld 1/4 npsm (fbe) swivel; 26 ft (7.9 m) long	1
16	217–523	10:1 RATIO MONARK PUMP see 307–595 for parts	1	72	214–698	HOSE, fluid; nylon; 1/4" (6.3 mm) ID; cpld 1/4 npsm (fbe) swivel; spring guards both ends; 25 ft (7.6 m) long	1
17	104–429	CAPSCREW, hex hd; 1/4–20 x 2.25" long	2	75	222–564	FLUID REGULATION KIT Includes items 75a–75q	1
18	165–198	NIPPLE, reducing; 3/8 x 1/4 npt	1	75a	210–657	. VALVE, ball; 1/4 npt (mbe)	1
19	206–966	HOSE, fluid; Teflon®; 1/4" (6.3 mm) ID; cpld 1/4 npsm (fbe); 12.5" (310 mm) long	1	75b	162–453	. NIPPLE; 1/4 npt x 1/4 npsm (only 2 used with this sprayer)	3
21	164–259	ELBOW, street; 3/8 npt(m) x 1/4 npt(f)	1	75c	102–959	. CROSS, pipe; 1/4 npt(f)	1
22	166–031	ELBOW, outlet; 3/4 npt(f) x 3/8 npt(f)	1	75d	101–696	. GAUGE, pressure, fluid; 0–1000 psi (0–6.9 MPa, 0–69 bar) range	1
23	161–800	ADAPTER; 3/8 npsm x 3/4 npt (mbe)	1	75e	156–971	. NIPPLE; 1/4 npt	1
24	155–665	UNION, adapter; 3/8 npt(m) x 3/8 npsm(f)	1	75f	222–121	. FLUID PRESSURE REGULATOR See 307–886 for parts	1
25	218–029	FILTER, fluid; see 307–273 for parts	1	75g	110–220*	. ADAPTER, 45°; 1/4 npt(m) x 1/4 npsm(f) swivel	1
26	210–657	BALL VALVE; 1/4 npt (mbe)	2	75h	110–192	. HOSE; Teflon®; 0.20" ID; cpld 1/4 npsm (fbe) swivel; 22" (560 mm) long	1
31	104–813	PLUG, pipe; sq hd; 3/8 npt	1	75j	100–840	. ELBOW, street, 90°; 1/4 npt (m x f) (only 1 used with this sprayer)	2
34	218–693	BASE, mounting, pump	1	75k	185–251	. BRACKET, regulator	1
35	100–933	SCREW, type F self-tapping; no. 8–32 x 3/16"	2	75l	100–469	. SCREW, cap, hex hd; 3/8–16 x 3/4" long	1
36	206–755	CORD, wire; 5.5" (140 mm)	2	75m	100–133	. LOCKWASHER; 3/8"	1
37	164–726	PLUG, inspection hole	1	75n	100–307	. NUT, hex; 3/8–16 unc	1
38	156–593	O–RING; nitrile rubber	1	75p	100–270	. SCREW, cap, hex hd; 1/4–20 x 5/8" long	2
39	101–962	SCREW, set, cup pt socket hd; 1/4–20 x 3/8" long	2	75q	100–016	. LOCKWASHER; 1/4"	2
40	179–917	COVER, pail	1				
43	161–395	PIN, pivot; 1/4" (6.3 mm) dia; 2" (51 mm) long	2				
44	204–535	HANDLE, latch, cover	2				
45	204–534	HOOK, latch, cover	2				
46	158–223	WASHER; steel	2				

\* This part is not pictured as it is not used on this sprayer.

307 numbers in descriptions refer to separate instruction manuals.

# Technical Data

Category	Data
Maximum pump fluid working pressure	950 psi (6.6 MPa, 66 bar)
Recommended air operating range	20 to 95 psi (150–660 kPa, 1.5–6.6 bar)
Pump ratio	10:1
Maximum recommended pump speed for continuous operation	60 cpm; (1.0 gpm [3.8 lpm]) delivery
Air consumption	approx. 15 scfm (0.43 m <sup>3</sup> /min) at 1 gpm (3.8 lpm) flow rate at 95 psi (660 kPa, 6.6 bar) air pressure
Air inlet size	1/2 npt(f); use 1/2" ID air hose
Fluid filter	60 mesh (250 micron) screen
Wetted parts	See separate component instruction manuals
Height	30 in (762 mm)
Width	15.5 in (394 mm)
Depth	14.75 in (375 mm)
Weight	52 lb (24 kg)

## Manual Change Summary

This manual was revised to include the changes from PCN H, ECO V1305, and ECO V3726.



# 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**

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# Graco Phone Number

**TO PLACE AN ORDER**, contact your Graco distributor, or call this number to identify the distributor closest to you:  
**1-800-367-4023 Toll Free.**

*All written and visual data contained in this document reflects the latest product information available at the time of publication.  
Graco reserves the right to make changes at any time without notice.*

**Sales Offices:** Minneapolis, Detroit, Los Angeles  
**Foreign Offices:** Belgium, Canada, England, Korea, France, Germany, Hong Kong, Japan

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**<http://www.graco.com>**

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