



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

INSTRUCTIONS

HIGH VOLUME

Air Control Kits

250 psi (1.7 MPa, 17.2 bar) Maximum Air Inlet Pressure

Part No. 238-590, Series A

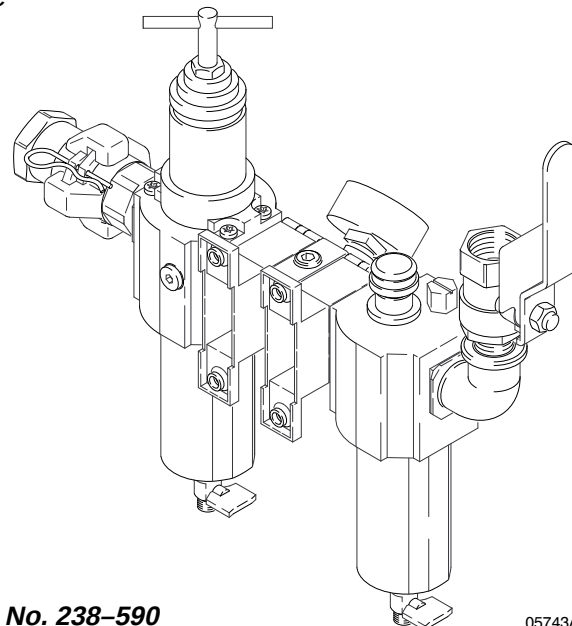
Air Filter/Regulator/Lubricator Kit

For King™, Bulldog®, and Senator® airless pumps.

Part No. 238-613, Series A

Air Filter/Regulator/Lubricator Kit

For Bulldog® and Senator® air-assisted airless pumps.

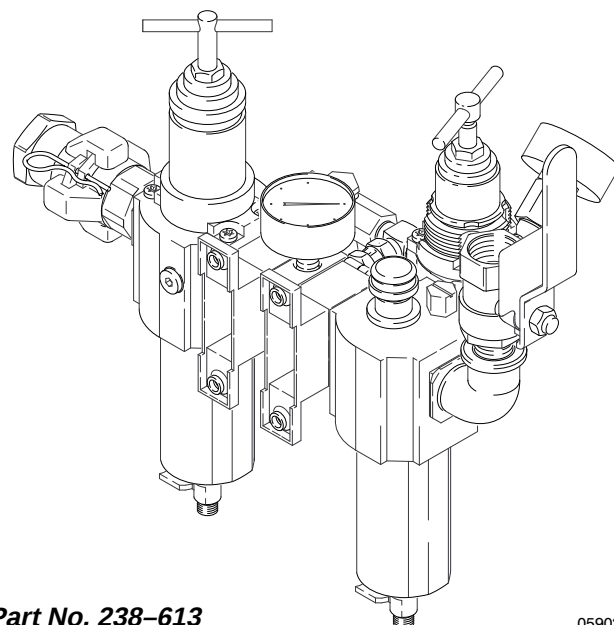


Part No. 238-590

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Part No. 238-613

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Symbols

Warning Symbol



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

Caution Symbol



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

WARNING



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 not sure, call your Graco distributor.
- Do not alter or modify this equipment.
- Check equipment daily. Repair or replace worn or damaged parts immediately.
- Follow the **Pressure Relief Procedure** on page 4 if the spray tip clogs and before cleaning, checking or servicing the equipment.
- Do not exceed the maximum working pressure of the lowest rated system component. Refer to the **Technical Data** on page 11 for the maximum working pressure of this equipment.
- Always wear protective eyewear when operating or servicing this equipment.
- Comply with all applicable local, state, and national fire, electrical, and safety regulations.

Installation

Prepare the Site

NOTE: Always use Genuine Graco Parts and Accessories, available from your Graco distributor. If you supply your own accessories, be sure they are adequately sized and pressure rated for your system.

Bring a compressed air supply line from the air compressor to the pump location. Be sure all air hoses are properly sized and pressure-rated for your system. Use only electrically conductive hoses. The air hose should have a 3/4 npsm(m) thread.

Before installing any air line components, blow out the air lines to remove scale and other debris. Use pipe compound or tape sparingly and only on male threads.

Install a bleed-type shutoff valve in the air line upstream from all other air line components, to isolate them for servicing.



Do not hang the air control kit directly off the pump air motor inlet, which could be damaged by the weight and operating stress. Use a bracket to mount the kit to a cart or to the wall.

Installation

Kit Components (see page 9)

WARNING

A red-handled bleed-type master air valve (5) is supplied. This valve relieves air trapped between it and the pump when the valve is closed, to help reduce the risk of serious injury, including fluid injection and splashing of fluid in the eyes or on the skin, and injury from moving parts if you are adjusting or repairing the pump.

- **The red-handled bleed-type master air valve (5)** is supplied to relieve air trapped between it and the air motor when the valve is closed (see the **WARNING** above). Be sure the bleed valve is easily accessible from the pump, and is located **downstream** from the air filter/regulator (1).
- **The air filter/regulator (1)** controls pump speed and outlet pressure by adjusting the air pressure to the pump. It also removes harmful dirt and moisture from the compressed air supply. Locate the regulator as close as possible to the equipment it serves, but **upstream** from the bleed-type master air valve (5). Install the regulator in the air line so the air flow is in the direction of the arrow stamped on the body.
- **The gun air regulator (18, included in Kit 238–613 only)** adjusts the air pressure to an air-assisted airless spray gun.
- **The air manifold (13)** provides ports for connecting lines to air-powered accessories.
- **The air line lubricator (2)** provides automatic air motor lubrication.
- **The air line couplers (6 and 7)** connect the main air supply line to the air control kit.

Connecting the Air Line Couplers

Screw the female coupler (6) onto the main air hose. Leave the male coupler (7) attached to the air filter/regulator (1). Do not connect the couplers until you are ready to operate the pump.

Connect the female coupler to the male coupler and twist with a wrench to lock. Secure with the clip pins (P). See Fig. 1.

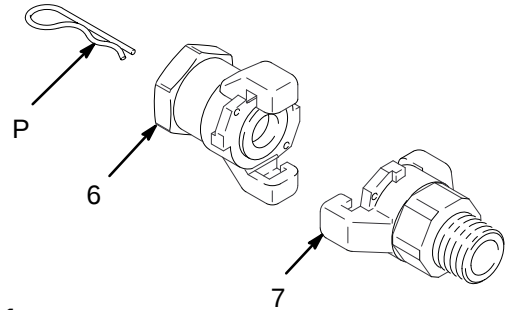


Fig. 1

Using the Quick Connectors

To open the quick connector (12), loosen the captive screw (S) and open the connector. Slide the desired component into the connector, close, and tighten the screw. See Fig. 2.

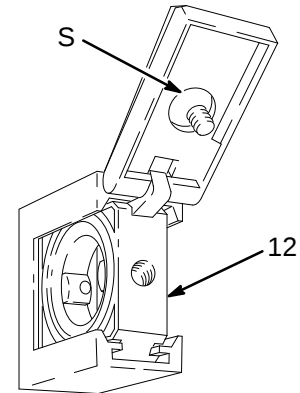


Fig. 2

Operation

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 tips.

1. Lock the gun trigger safety.
2. Close all bleed-type master air valves, including the red-handled bleed-type master air valve (5, supplied in your system).
3. Turn the regulator T-handle all the way counterclockwise if you are removing the air filter/regulator (1) bowl, or servicing the air regulators (1 and 18).
4. Open any fluid shutoff valves.
5. Unlock the gun trigger safety.
6. Hold a metal part of the gun firmly to the side of a grounded metal pail, and trigger the gun to relieve pressure.
7. Lock the gun trigger safety.
8. Open any fluid drain valves (required in your system), having a container ready to catch the drainage.

9. 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 tip guard retaining nut or hose end coupling and relieve pressure gradually, then loosen completely. Now clear the tip or hose.*

Adjusting the Air Regulator

1. To **increase** the regulated air pressure, turn the T-handle **clockwise**.
2. To **decrease** the regulated air pressure, turn the T-handle **counterclockwise**.
3. To lock the regulator setting, tighten the jam nut.
4. Open the air filter/regulator (1) slowly. Use the filter/regulator to control pump speed and fluid pressure. Always use the lowest air pressure necessary to get the desired results. Higher pressures cause premature tip and pump wear.

WARNING

COMPONENT RUPTURE HAZARD



To reduce the risk of overpressurizing your system, which could cause component rupture and serious injury, *never exceed the specified Maximum Incoming Air Pressure to the pump* (see the **Technical Data**, on page 11).

Air-Assisted Airless Kit 238–613

Use the gun air regulator (18) to control the air pressure to the gun.

Spray some test patterns before doing any finished work. Refer to your separate gun manual for detailed information on correct spraying technique.

Operation

Lubricator Operation

The lubricator meters oil into the moving air stream to automatically lubricate air-operated motors. A manual adjustment in the housing sets the oil drip rate into the air stream, which can be monitored through a sight glass. One to two drops of oil per minute is common. Use an oil rated at 50 to 200 SUS (ISO grade 7 to 46) at 100°F (38°C), such as Graco motor oil, Part No. 202-659.

WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 4.

To refill, unscrew the fill plug (F, page 8) and pour in the oil. The lubricator's capacity is 7 oz (0.2 liter). Check the oil level with the sight glass. The lubricator can be refilled with the system pressurized. However, always **relieve the system pressure** before removing the bowl for any reason.

Service

Air Filter Service

Repair Kits are available. Refer to page 6.

Every day, drain contaminants from the bowl before reaching the baffle level by opening the drain (D) at the bottom of the bowl (B).

WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 4.

Clean the air filter regularly to maximize filtering efficiency and to avoid excessive pressure drop. Fully **relieve pressure** to remove the bowl (B).

Clean the filter element (111) and bowl using household soap and water or denatured alcohol. Use compressed air to blow out the filter body. Blow the filter element out from the inside.

Clean the sight glass (109) thoroughly. Do not leave solvent residue in the sight glass as it may attack or weaken the glass. If the sight glass appears damaged, replace it immediately.

Regulator Service

Repair Kits are available. Refer to pages 6 and 7.

If the regulator fails to operate, operates roughly, or vibrates, service it as follows.

WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 4.

Fully **relieve pressure** and remove the regulator from the air line.

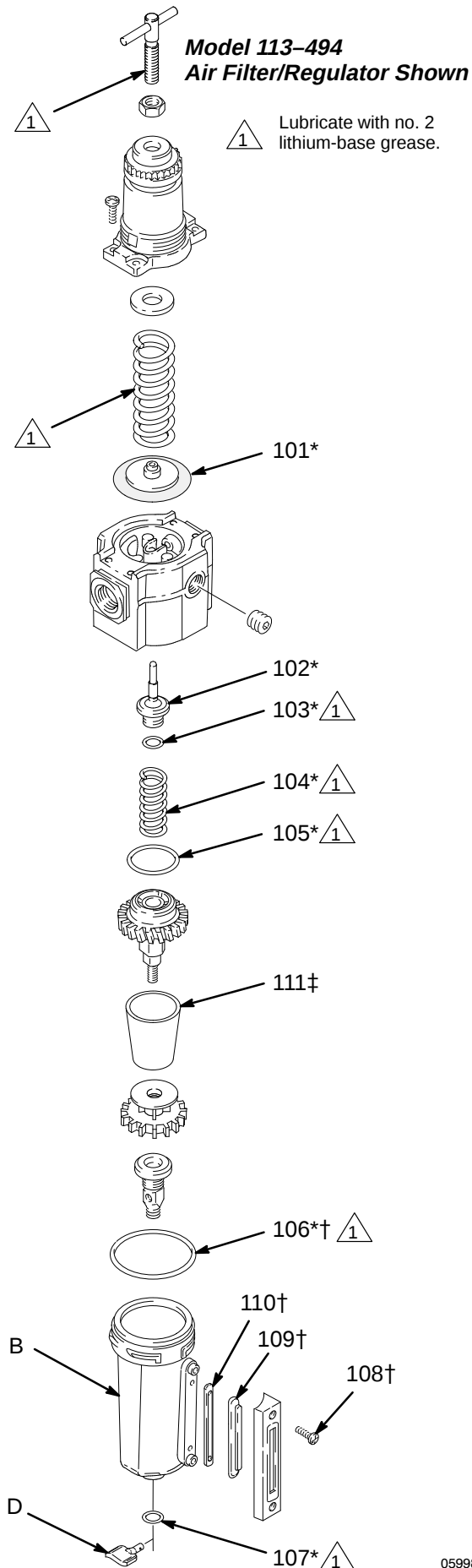
Refer to pages 6 and 7. Disassemble the regulator. If it is a filter/regulator, clean the filter bowl and element as described under **Air Filter Service**.

Clean the parts with household soap and water or denatured alcohol. Wipe dry with a clean, soft cloth. Use compressed air to blow dirt and contaminants out of the regulator body.

Inspect all parts for wear or damage. Replace damaged parts.

Lubricate the bearing area, all o-rings, adjusting screw threads, and spring ends with no. 2 lithium-base grease. Reassemble the regulator.

Service



Repair Kit 238-915 (includes items 101 to 107). For Part No. 113-494 Air Filter/Regulator (shown).

Kit parts are marked with an asterisk (101*). Individual parts are not available separately.

Ref. No.	Part No.	Description	Qty.
101*	N/A	DIAPHRAGM	1
102*	N/A	VALVE ASSEMBLY	1
103*	N/A	O-RING, valve	1
104*	N/A	SPRING, valve	1
105*	N/A	O-RING, center post	1
106*	N/A	O-RING, bowl assembly	1
107*	N/A	O-RING, drain	1

Repair Kit 238-912 (includes items 105 to 107). For Part No. 113-434 Air Filter.

Kit parts are marked with an asterisk (105*). Individual parts are not available separately.

Ref. No.	Part No.	Description	Qty.
105*	N/A	O-RING, center post	1
106*	N/A	O-RING, bowl assembly	1
107*	N/A	O-RING, drain	1

Sight Glass Kit 238-913 (includes items 106 to 110). For Part Nos. 113-494 Air Filter/Regulator (shown) and 113-434 Air Filter.

Kit parts are marked with a symbol (108†). Individual parts are not available separately.

Ref. No.	Part No.	Description	Qty.
106†	N/A	O-RING, bowl assembly	1
108†	N/A	SCREW	2
109†	N/A	LENS, sight glass	1
110†	N/A	SEAL, lens	1

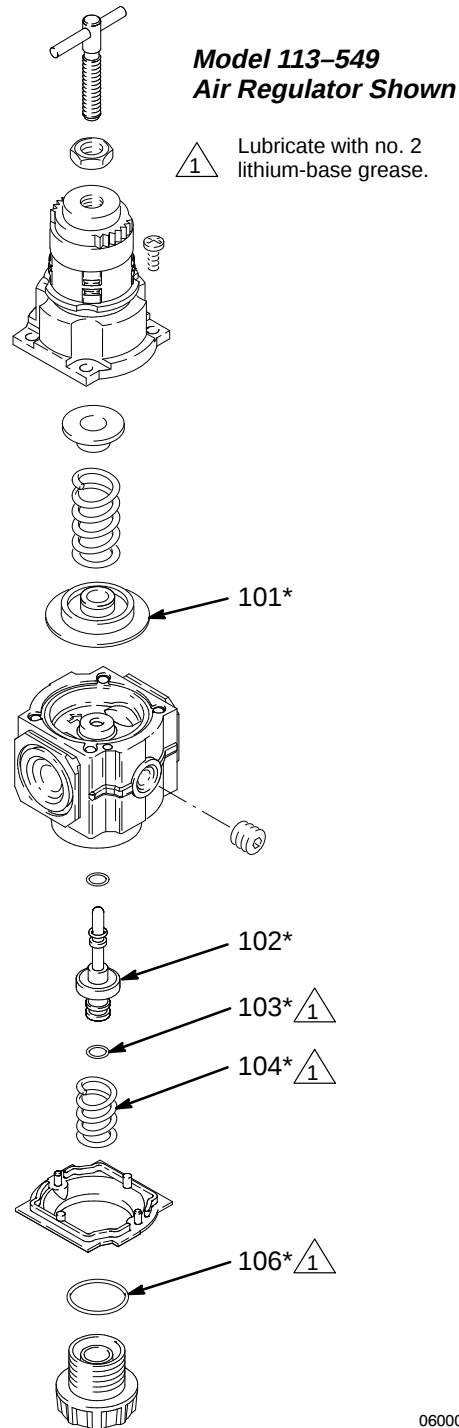
Filter Element Kit 238-914 (includes item 111). For Part Nos. 113-494 Air Filter/Regulator (shown) and 113-434 Air Filter.

Kit parts are marked with a symbol (111†). Individual parts are not available separately.

Ref. No.	Part No.	Description	Qty.
111†	N/A	ELEMENT, 40 micron; polypropylene	1

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Service



Repair Kit 238-916 (includes items 101 to 106). For Part No. 113-433 Air Regulator.

Kit parts are marked with an asterisk (101*). Individual parts are not available separately.

Ref. No.	Part No.	Description	Qty.
101*	N/A	DIAPHRAGM	1
102*	N/A	VALVE ASSEMBLY	1
103*	N/A	O-RING, valve	1
104*	N/A	SPRING, valve	1
106*	N/A	O-RING, plug	1

Repair Kit 238-917 (includes items 101 to 106). For Part No. 113-549 Air Regulator (shown).

Kit parts are marked with an asterisk (101*). Individual parts are not available separately.

Ref. No.	Part No.	Description	Qty.
101*	N/A	DIAPHRAGM	1
102*	N/A	VALVE ASSEMBLY	1
103*	N/A	O-RING, valve	1
104*	N/A	SPRING, valve	1
106*	N/A	O-RING, plug	1

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Service

Lubricator Service

Repair Kits are available.

To drain the bowl, open the drain (D) at the bottom of the bowl (B).

Clean the lubricator regularly to maximize efficiency. Fully **relieve pressure** and remove the lubricator from the air line.

Disassemble the lubricator.

Clean the parts with household soap and water or denatured alcohol. Wipe dry with a clean, soft cloth. Use compressed air to blow dirt and contaminants out of the lubricator body.

Inspect all parts for wear or damage. Replace damaged parts.

Clean the sight glass (109) thoroughly. Do not leave solvent residue in the sight glass as it may attack or weaken the glass. If the sight glass appears damaged, replace it immediately.

Reassemble the lubricator.

Repair Kit 238–918 (includes items 101 to 106). For Part No. 113–435 Lubricator.

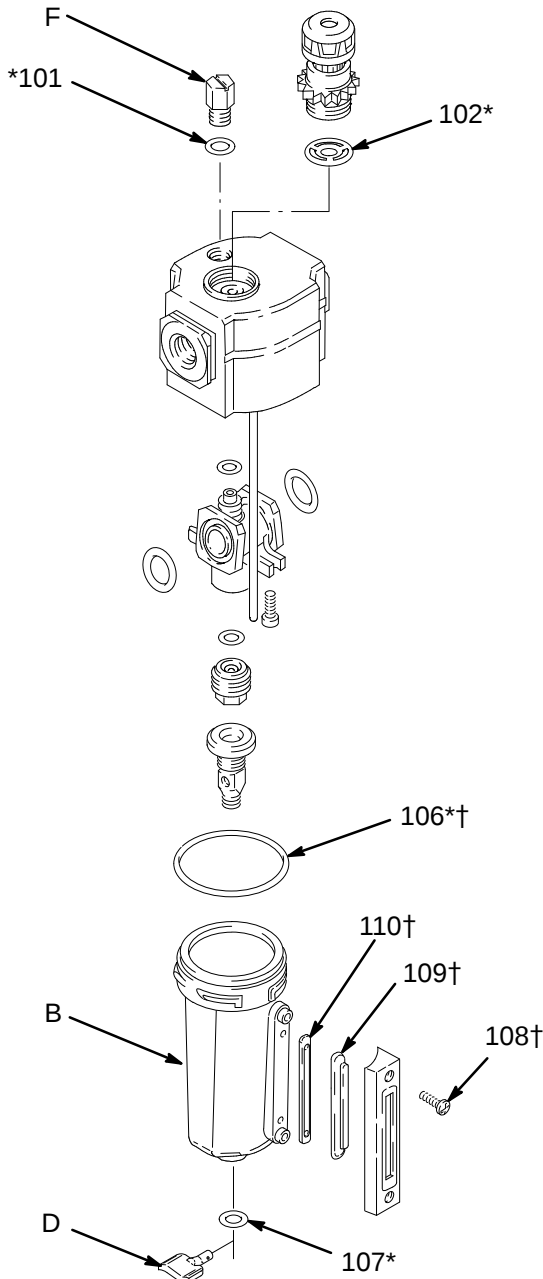
Kit parts are marked with an asterisk (101*). Individual parts are not available separately. The kit includes some parts not used on this lubricator.

Ref. No.	Part No.	Description	Qty.
101*	N/A	O-RING, fill plug	1
102*	N/A	SEAL, sight dome	1
106*	N/A	O-RING, bowl assembly	1
107*	N/A	O-RING, drain	1

Sight Glass Kit 238–913 (includes items 106 to 110). For Part No. 113–435 Lubricator.

Kit parts are marked with a symbol (108†). Individual parts are not available separately.

Ref. No.	Part No.	Description	Qty.
106†	N/A	O-RING, bowl assembly	1
108†	N/A	SCREW	2
109†	N/A	LENS, sight glass	1
110†	N/A	SEAL, lens	1

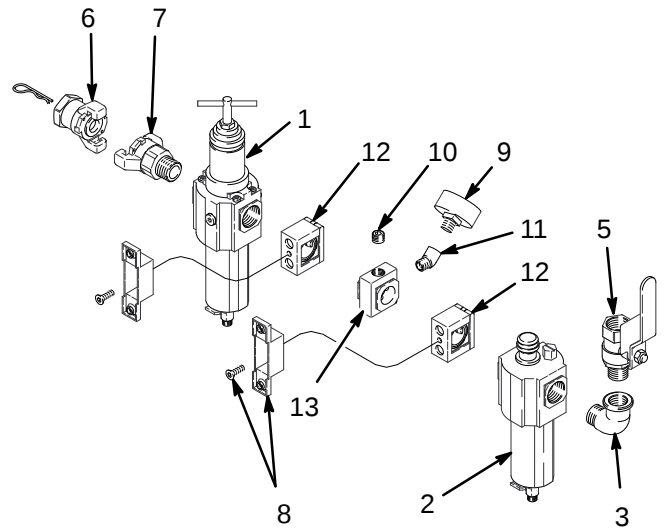


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Air Control Kit Parts

Part No. 238–590, Series A (includes items 1 to 13)

Ref. No.	Part No.	Description	Qty.
1	113–494	AIR FILTER/REGULATOR; 3/4 npt(f) inlet and outlet; 5–150 psi (.03–0.1 MPa, 0.3–10 bar) pressure range; 40 micron polypropylene filter	1
2	113–435	LUBRICATOR, air line	1
3	100–549	ELBOW, street, 90°; 3/4 npt (m x f)	1
4	238–374	HOSE, air; 19 mm (3/4 in.) ID; 3/4 npt (mbe); 559 mm (22 in.) long; (not shown)	1
5	113–218	BLEED VALVE, red-handled; 3/4 npt (m x f)	1
6	113–430	COUPLER, air line; 3/4 npt(f)	1
7	113–429	COUPLER, air line; 3/4 npt(m)	1
8	113–432	BRACKET, mounting	2
9	101–689	GAUGE, air	1
10	100–721	PLUG, pipe; 1/4 npt	3
11	113–444	ELBOW, 45°; 1/4 npt (m x f)	1
12	113–431	CONNECTOR, quick	2
13	113–442	MANIFOLD, air; 1/4 npt(f)	1

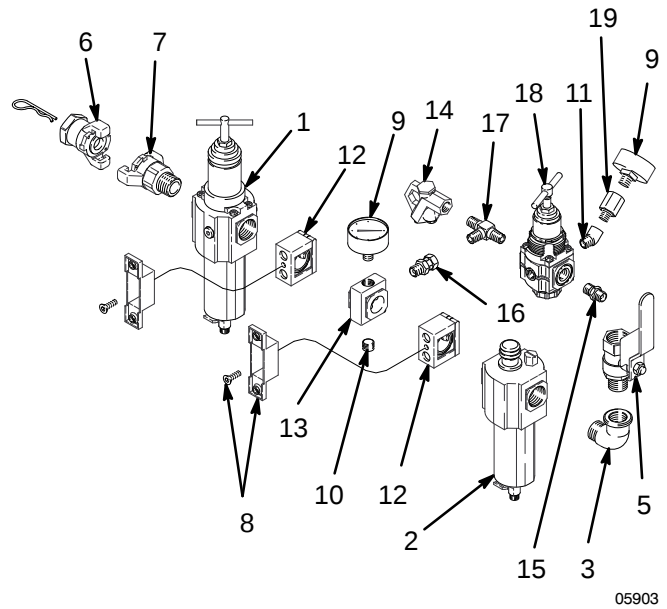


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Air Control Kit Parts

Part No. 238–613, Series A (includes items 1 to 19)

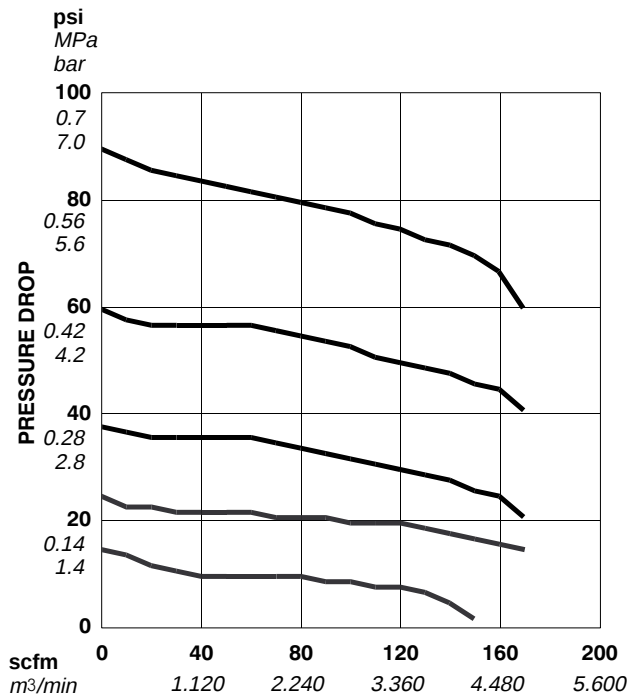
Ref. No.	Part No.	Description	Qty.
1	113–494	AIR FILTER/REGULATOR; 3/4 npt(f) inlet and outlet; 5–150 psi (.03–0.1 MPa, 0.3–10 bar) pressure range; 40 micron polypropylene filter	1
2	113–435	LUBRICATOR, air line	1
3	100–549	ELBOW, street, 90°; 3/4 npt (m x f)	1
4	238–374	HOSE, air; 19 mm (3/4 in.) ID; 3/4 npt (mbe); 559 mm (22 in.) long (not shown)	1
5	113–218	BLEED VALVE, red-handled; 3/4 npt (m x f)	1
6	113–430	COUPLER, air line; 3/4 npt(f)	1
7	113–429	COUPLER, air line; 3/4 npt(m)	1
8	113–432	BRACKET, mounting	2
9	101–689	GAUGE, air	2
10	100–721	PLUG, pipe; 1/4 npt	2
11	113–630	ELBOW, 45°; 1/8 npt (m x f)	1
12	113–431	CONNECTOR, quick	2
13	113–442	MANIFOLD, air; 1/4 npt(f)	1
14	208–627	AIR BLOW GUN	1
15	162–453	NIPPLE; 1/4 npt x 1/4 npsm	1
16	156–823	ADAPTER, swivel; 1/4 npt(m) x 1/4 npsm(f)	1
17	113–548	TEE; 1/4 npt(m)	1
18	113–549	GUN AIR REGULATOR; 1/4 npt(f) inlet and outlet; 5–150 psi (.03–0.1 MPa, 0.3–10 bar) pressure range	1
19	159–840	ADAPTER, increase; 1/8 npt(m) x 1/4 npt(f)	1



Technical Data

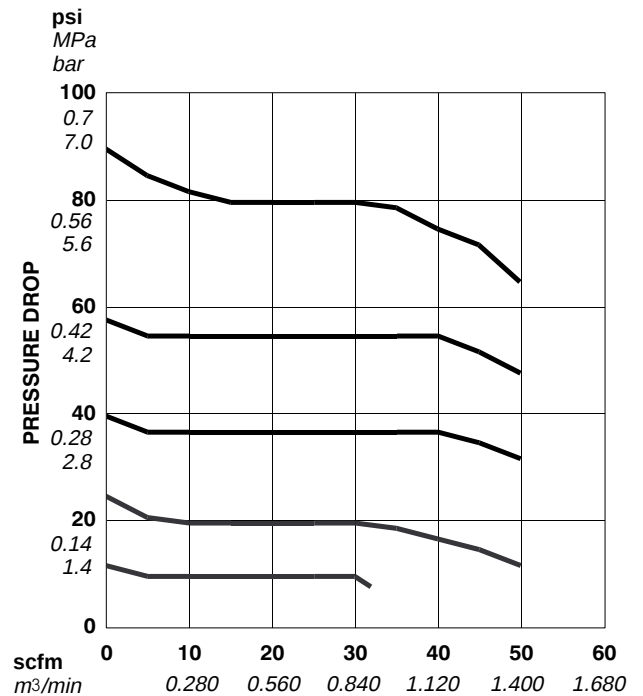
Category	Data
Maximum air input pressure	250 psi (1.7 MPa, 17.2 bar)
Air inlet size	Part Nos. 238–590 and 238–613: 3/4 npt(f) claw coupling Part No. 238–881: 3/4 npsm(f) swivel
Air outlet size	3/4 npt(f)
Gauge port size (air regulator)	1/4 npt(f)
Manual drain thread size (air filter and lubricator)	7/16–24 uns(m)
Air filter element	40 micron polypropylene screen
Lubricator oil capacity	7 oz (0.2 liter)
Maximum operating temperature	79°C (175°F)

**MODEL 113–494 AIR FILTER/REGULATOR AND
MODEL 113–433 AIR REGULATOR FLOW CURVE**



AIR FLOW AT INLET PRESSURE OF 100 PSI (0.7 MPa, 7 BAR)

MODEL 113–549 AIR REGULATOR FLOW CURVE



AIR FLOW AT INLET PRESSURE OF 100 PSI (0.7 MPa, 7 BAR)

The Graco Warranty and Disclaimers

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. 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.

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LIMITATION OF LIABILITY

In no event will Graco be liable for indirect, incidental, special or consequential damages resulting from Graco supplying equipment hereunder, or for 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.

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

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