



GRACO

*First choice when
quality counts.™*

Rev. D

Supersedes Rev. B
and PCN C



INSTRUCTIONS

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

Hydra-Clean[®] Pressure Washers

42 bar, 4.2 MPa (600 psi) Maximum Working Pressure

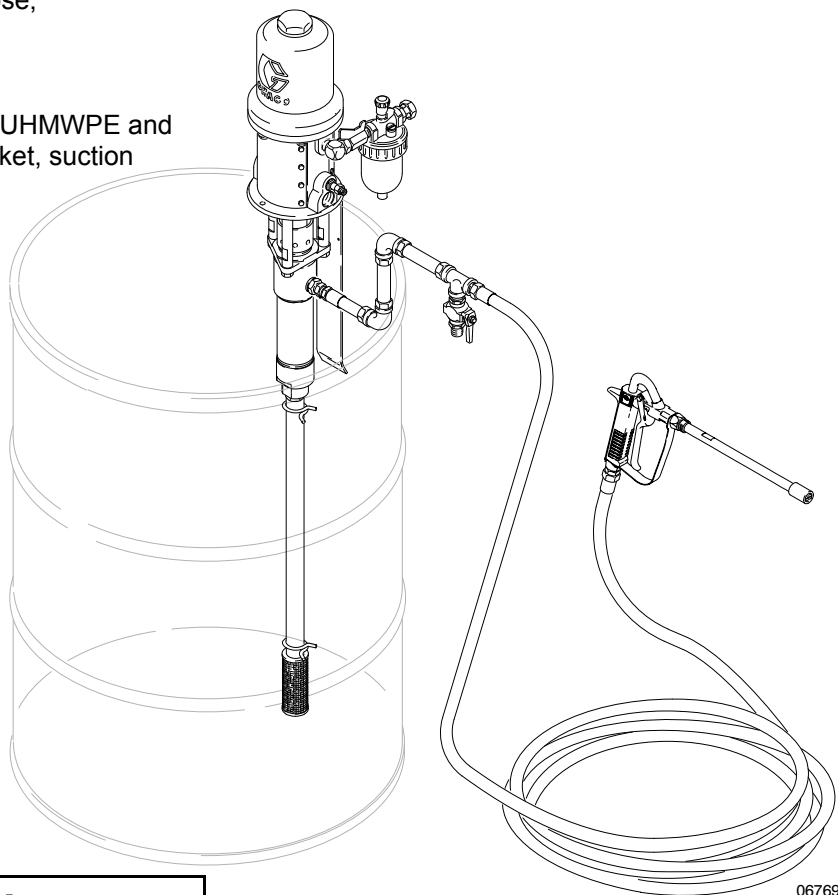
For Mounting on Open 55 Gallon Supply Drum
(Can be wall mounted with accessory bracket)

Model 205-985, Series C

Includes 5:1 Ratio Monark Pump with Neoprene and UHMWPE packings, drum mounting bracket, suction hose, air line lubricator, 40 ft. spray hose, Hydra-Clean[®] gun and spray tip.

Model 207-860, Series B

Includes 5:1 Ratio Monark Pump with UHMWPE and PTFE packings, drum mounting bracket, suction hose and air line lubricator.



⚠ CAUTION

The Graco warranty will not apply if abrasive or corrosive materials, other than those Graco recommends are used with this unit.

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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.

Use this pump only for pumping water and water-diluted cleaning solutions in a pressure washing system. Never use the pump for paint or any other coatings. Any misapplication of the pump may cause dangerous operating conditions which can result in serious injury and substantial property damage.

- 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. Use only Graco parts and accessories.
- Check equipment daily. Repair or replace worn or damaged parts immediately.
- Do not exceed the maximum working pressure stated on the equipment or in the **Technical Data** for your equipment. Do not exceed the maximum working pressure of the lowest rated component in your system.
- 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.
- Handle hoses carefully. Do not pull on hoses to move equipment.
- Route hoses away from traffic areas, sharp edges, moving parts, and hot surfaces. Do not expose Graco hoses to temperatures above 66°C (150°F) or below -40°C (-40°F).
- Wear hearing protection when operating this equipment.
- Do not move or 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 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 system.
- Always have the tip guard and the trigger guard on the spray 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 8 whenever you: are instructed to relieve pressure; stop spraying; 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. Do not repair high pressure couplings; replace the entire hose.
- Fluid hoses must have spring guards on both ends, to help protect them from rupture caused by kinks or bends near the couplings.



MOVING PARTS HAZARD

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

- Keep clear of all moving parts when starting or operating the pump.
- Never operate the pump with the air motor plates removed.
- Before checking or servicing the equipment, follow the **Pressure Relief Procedure** on page 8 to prevent the equipment from starting unexpectedly.

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 5.
- 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 spraying or while operating if fumes are present.
- Do not operate a gasoline engine in the spray area.



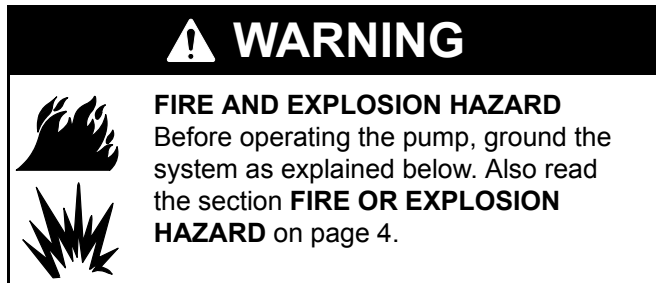
TOXIC FLUID HAZARD

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.

Setup

Grounding



Although water generally provides a natural electrical ground, the following equipment must be grounded if the cleaning chemical are volatile.

1. *When cleaning in enclosed areas*, such as storage tanks, locate the pump and air compressor outside the area and well away from it. Provide adequate ventilation. If the area you are cleaning has stored flammable materials, take appropriate precautions to avoid static sparking. Consult your local codes.
2. *Pump*: use a ground wire and clamp. See Fig. 1. Loosen the grounding lug locknut (W) and washer (X). Insert one end of a 1.5 mm² (12 ga) minimum ground wire (Y) into the slot in lug (Z) and tighten the locknut securely. Connect the other end of the wire to a true earth ground. Order Part No. 237-569 Ground Wire and Clamp.

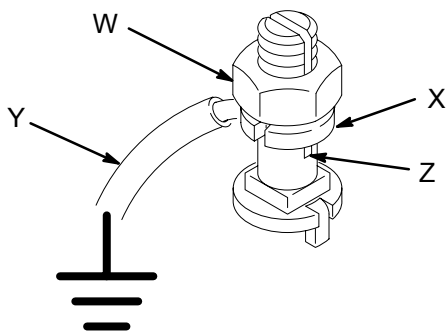


Fig. 1

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3. *Air and fluid hoses*: use only electrically conductive hoses.
4. *Air compressor*: follow manufacturer's recommendations.
5. *Spray gun*: ground through connection to a properly grounded fluid hose and pump.
6. *Fluid supply container*: follow your local code.
7. *Object being sprayed*: follow your local code.
8. *Solvent pails used when flushing*: follow your 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.
9. *To maintain grounding continuity when flushing or relieving pressure*, hold a metal part of the spray gun firmly to the side of a grounded *metal* pail, then trigger the gun.

General Information

The typical setup shown in Figure 2 is only a guide to selecting and installing required and optional components. For assistance in designing a system to suit your needs, contact your Graco representative. Refer to Figure 2 for callouts in parentheses.

Setup

Connect Hoses and Mount Pump

Connect hoses and pump as follows:

NOTE: This pump is supplied with a bracket (D) which holds it to the side of a drum. If you want to install the pump on a wall, do not install the hanging bracket. Use Graco Wall Mounting Bracket 206–778 or equivalent for wall setup.

1. Screw the hose stud (A) of the suction hose (B) into the pump's intake housing (C) using Loctite® Pipe Sealant. Assemble the hanging bracket (D) to the pump with the screw, lockwasher, and nut (E) provided.
2. Remove the ball valve (17, see Parts) from Model 205–985. It is not used in this setup. Hang the pump on your empty cleaning solution drum.

NOTE: A pump runaway valve (F) may be installed near the pump air inlet. This valve senses when the pump is running too fast and shuts off the air to the pump.

3. Connect the air line lubricator (G) to the pump air inlet using pipe sealant. Install a pump air bleed valve (H) and air regulator and gauge (J) to the air line lubricator. Connect an air line filter (K) to the regulator. From the air line filter, install an air drain valve (L), bleed-type air valve (M), and connect to the air supply using electrical conductive air supply hose (N).
4. Close to the pump's 1/2 npt(f) fluid outlet, install a tee (P) and a fluid drain valve (R). Then install a fluid hose (S) and Hydra-Clean gun (T). The hose and gun are supplied with Model 205–985, but must be purchased separately for Model 207–860.

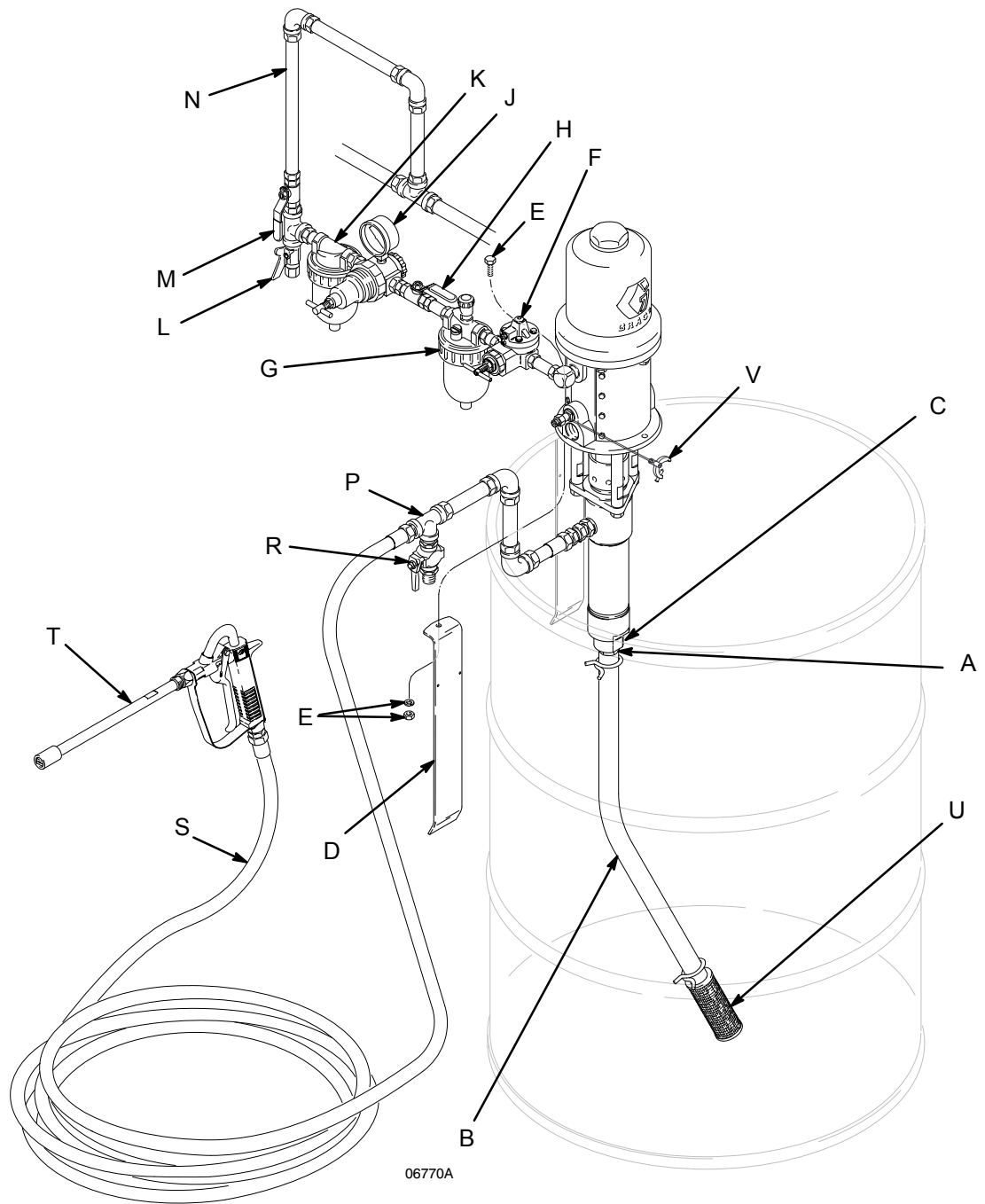
CAUTION

Oils containing phosphate ester or chlorinated hydrocarbons are not compatible with the plastic bowl of the lubricator – be sure that oil used to lubricate the compressor is free of these additives.

Setup

KEY

- | | | |
|--|--|---|
| A Barbed Hose Stud | J Air Regulator and Gauge | S Spray Fluid Hose (supplied with 205-985) |
| B Suction Hose | K Air Line Filter | T Hydra-Clean Gun (supplied with 205-985) |
| C Pump Intake housing | L Air Line Drain Valve | U Filter |
| D Bracket | M Bleed-type Air Valve (for accessories) | V Ground Wire (required; see page 5 for installation instructions) |
| E Screw, Lockwasher, and Nut | N Electrically Conductive Air Supply Hose | |
| F Pump Runaway Valve | P Tee | |
| G Air Line Lubricator | R Fluid Drain Valve (provided) | |
| H Pump Air Bleed Valve (required, for pump) | | |



Operation

General Information

The following instructions are for operation of the Monark 5:1 Ratio Hydra-Clean Pressure Washers Model 205-985 and Model 207-860. Callouts in parentheses refer to Figure 2.

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 nozzles.

1. Lock the gun trigger safety.
2. Close the bleed-type master air valve (H, required in your system)
3. Unlock the gun trigger safety.
4. Hold a metal part of the gun firmly to the side of a grounded metal pail, and trigger the gun to relieve pressure
5. Lock the gun trigger safety.
6. Open the drain valve (R, required in your system), having a container ready to catch the drainage.
7. Leave the drain valve 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.*

Operation

WARNING

To avoid serious injury, including fluid injection and splashing in the eyes or on the skin, never point the gun at yourself or anyone else.

Before Using

See Fig. 2. Prepare cleaning solution as instructed, observing all safety precautions. Pre-mix powered cleaners in a separate bucket of hot water before adding to water in the supply drum.

WARNING

Take care not to get spray containing cleaning chemicals into your eyes, ears, or nose. If any spray does get on your skin or in your eyes, flush immediately and thoroughly with water. Seek immediate medical attention.

Open the bleed-type air valve (M), hold the spray valve trigger (T) open and slowly open the pump air bleed valve (H) until the pump is running slowly. After solution is coming from the spray nozzle, open the pump air bleed valve all the way and adjust the air line lubricator (G) to deliver about 1 drop per minute. Refer to the separate lubricator instruction manual.

Release the spray valve trigger and let the pump run.

NOTE: Protect surfaces that might be damaged by the cleaning solution and rinse off before the solution dries. For removing stubborn dirt, use a strong, heated solution.

Useful Hints

WARNING

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

Hold the spray nozzle about 2 feet (0.6 m) from the surface you are cleaning and mist-wet it completely. Let it soak briefly, then use the spray to “chisel” the dirt off. Keep the nozzle at an angle, about 6 in. (150 mm) from the surface. If some dirt remains, wet the surface again. Let the object soak a little longer, then hold the nozzle as close as possible and spray to blast the dirt off.

After the dirt is removed, through rinse off the remaining solution with clear, cold water. When you are done cleaning, close the pump air bleed valve and **relieve the pressure**.

Shutdown and Care of Unit

CAUTION

To reduce the risk of damaging your pump, never allow the pump to run dry of fluid. Keep liquid in the container to prevent the pump from running away.

WARNING

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

When shutting down for the day or weekend, shut off both the bleed-type air valve and pump air bleed valve. **Relieve the pressure**. Rinse off any solution remaining on equipment with clear, cold water. Shut off the water supply valve and relieve the water pressure.

After shutdown, check the air line lubricator (G) often and keep it filled with oil. Also check the pump packing nut regularly and keep it just tight enough to stop leakage, but no tighter. Use a 1/4 in. diameter rod to tighten.

Troubleshooting

WARNING

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

Before servicing this equipment always make sure to **relieve the pressure**.

Note: Check all possible problems and solutions before disassembling.

Problem	Cause	Solution
Excessive surge at spray nozzle	Obstructed spray tip, valve, or hose	Clean, clear
	Cleaning solution supply empty	Refill
	Clogged intake filter, kinked or collapsed suction hose	Clean, unkink
Fluid leaking from valve	Loose packing nut or worn packings	See manual 307-010
Valve will not stop dispensing	Valve not adjusted properly	See manual 307-010
	Dirty or worn valve stem or seat	Clean, clear, or replace – See manual 307-010
Valve will not stop the pump	Cleaning solution supply empty	Refill
	Clogged intake filter, kinked or collapsed suction hose	Clean, unkink
	Dirty or worn valve stem or seat	Clean clear, or replace – See manual 307-010
	Dirty or worn fluid piston or packings	Service – See pump manual
Pump operating, but spray pressure low on up stroke.	Dirty or worn fluid piston or packings	Service – See pump manual
Pump operating, but spray pressure low on down stroke	Dirty or worn fluid intake valve	Clean, clear, or replace – See pump manual
Pump operating, but spray pressure low on both strokes	Clogged intake filter, kinked or collapsed suction hose	Clean, unkink
	Dirty or worn fluid piston or packings	Service – See pump manual
	Dirty or worn fluid intake valve	Clean, clear, or replace – See pump manual
	Loose packing nut or worn packings	Tighten, replace – See pump manual
Fluid will not come from pump (hose removed)	Restricted air line	Check for closed valve; use larger supply hose
	Pump throat packing nut too tight	Loosen
	Pump air motor not working	Service – See pump manual
System will not spray	Restricted air line	Check for closed valve; use larger supply hose
	Pump air motor not working	Service – See pump manual

Service

General

WARNING

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

See Parts illustration for referenced items. Shut off the air supply to the pump and **relieve the pressure**.

Check the air line lubricator often and keep it filled with oil. Also check the pump packing nut regularly to keep it just tight enough to stop leakage, but no tighter. Use a 1/4 in. (6.3 mm) diameter rod to tighten.

To manually lubricate the motor, disconnect the air line at the motor and place 10 to 15 drops of oil in the inlet. Reconnect the air line and turn on the air to blow oil into the motor. Shut off the air supply to the pump and **relieve the pressure**.

Proper packing nut take-up will stop leakage. However, all the packings should be replaced after 1000 hours of operation or delivery of 120,000 gallons of solution at 2 gpm. Refer to separate pump manual.

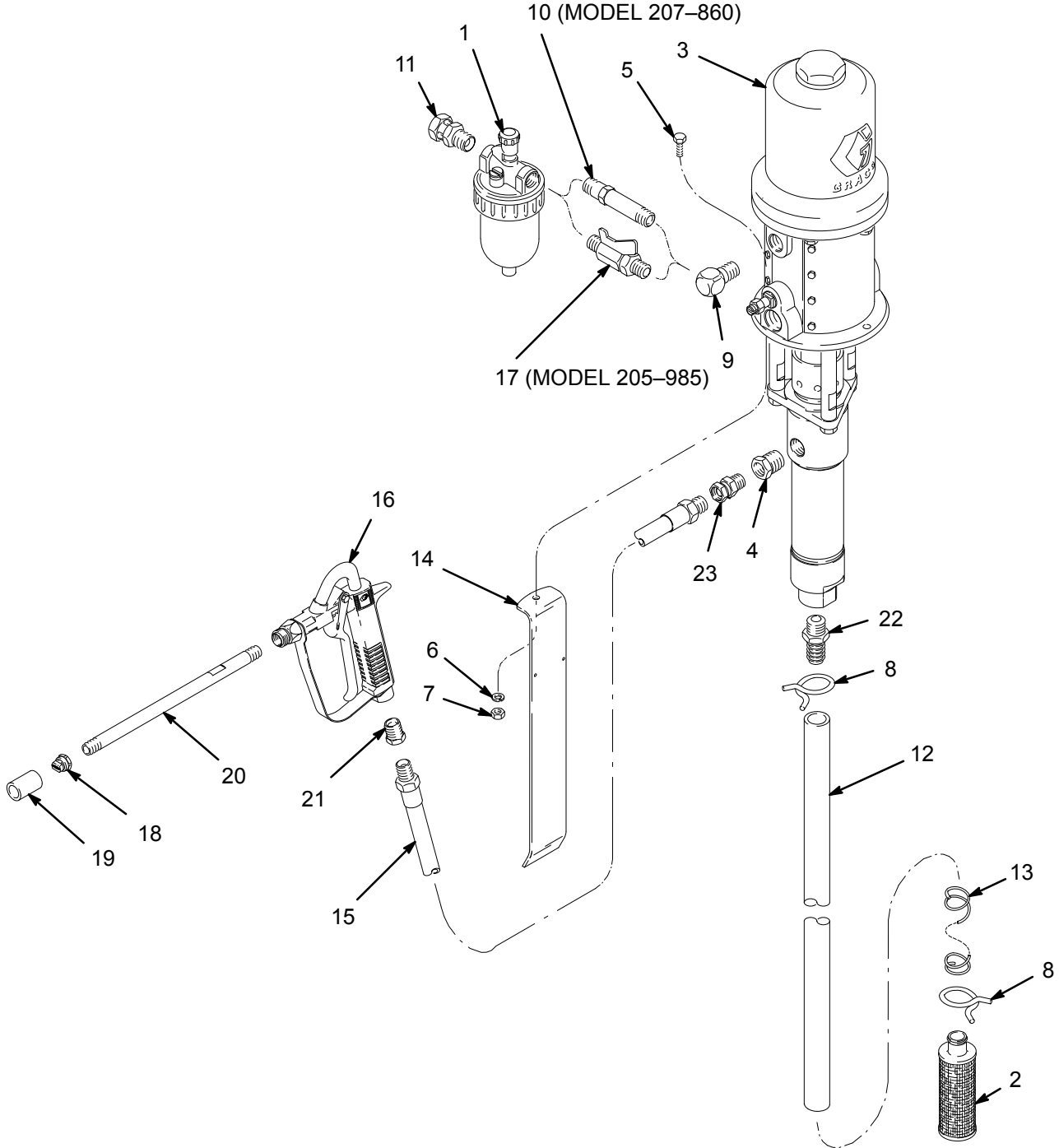
Clean the air line filter regularly.

Remove the inlet filter (2) daily and clean it. Check it for damage that may allow contaminants to enter the pump, and replace if necessary.

Refer to the separate instruction manuals supplied with the components of your system for complete troubleshooting and service instructions.

Parts

Model 205-985 Monark Hydra-Clean
and
Model 207-860 Monark Hydra-Clean



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Parts

Model 207–860 Monark Hydra-Clean

Ref No.	Part No.	Description	Qty.
1	214–847	AIR LINE LUBRICATOR	1
2*	206–300	FILTER, fluid intake	1
3	224–343	5:1 Ratio Monark Pump See manual 308–116 for parts	1
4	102–022	BUSHING, hex; 1/2 npt; 1/4 npt thd size	1
5	102–023	SCREW, hex cap; 1/4–20 thd size; 3/4" (19mm) long	1
6	104–024	LOCKWASHER, spring; 1/4 screw size	1
7	102–025	LOCKNUT, hex; 1/4–20 thd size	1
8	102–123	CLAMP, hose; self-tightening	2
9	155–699	ELBOW, 90° street; 3/8 npt size	1
10	160–790	NIPPLE; hex; 3/8 npt(mbe); 3–5/8" (92 mm) long	1
11	162–505	UNION, street swivel; 3/8 npt(m) x 1.2 npt(f); thd size	1
12	162–950	HOSE, plastic; 3/4" (19mm) ID; 29" (.74 m) long	1
13	164–085	SPRING, reinforcing; plastic hose	1
14	165–280	BRACKET, pump mounting	1
22	102–550	STUD, barbed hose; 3/8 npt(m)	1

Model 205–985 Monark Hydra-Clean

Ref No.	Part No.	Description	Qty.
1	214–847	AIR LINE LUBRICATOR	1
2	206–300	FILTER, fluid intake	1
3	224–345	5:1 Ratio Monark Pump See manual 308–117 for parts	1
4	102–022	BUSHING, hex; 1/2 npt; 1/4 npt thd size	1
5	102–023	SCREW, hex cap; 1/4–20 thd size; 3/4" (19mm) long	1
6	102–024	LOCKWASHER, spring; 1/4 screw size	1
7	102–025	LOCKNUT, hex; 1/4–20 thd size	1
8	102–123	CLAMP, hose; self-tightening	2
9	155–494	ELBOW, 90° street; 3/8 npt size	1
11	162–505	UNION, street swivel; 3/8 npt(m) x 1.2 npt(f); thd size	1
12	162–950	HOSE, plastic; 3/4" (19mm) ID; 29" (.74 m) long	1
13	164–085	SPRING, reinforcing; plastic hose	1
14	165–280	BRACKET, pump mounting	1
15	205–174	HOSE, fluid coupled, 1/4 npt(mbe); 1/4" ID; 40 ft. (12.2m) long	1
16	237–485	HYDRA-CLEAN® GUN See 307–010 for parts	1
17	208–393	BALL VALVE See 307–068 for parts	1
18	162–980	NOZZLE, spray; 0.062 orifice; 50° fan angle	1
19	162–981	GUARD, spray nozzle	1
20	164–017	TUBE, spray; 1/4 npt(m) 10" (254mm) long	1
21	168–160	BUSHING; 3/8 npt(m) x 1/4 npt(f)	1
22	102–550	STUD, barbed hose; 3/8 npt(m)	1
23	114–190	SWIVEL, sst, 1/2 npt(m) x 1/2 npt(f)	1

Accessories

Stainless Steel Spray Tips

TIP NO.	ORIFICE SIZE	SPRAY ANGLE	AIR SUPPLY TO PUMP						
			70 PSI (4.8 bar, 0.48 MPa)			100 psi (7 bar, 0.7 MPa)			
			GPM	CFM	WP	GPM	CFM	WP	
164-435	.043	40							
160-964	.043	25							
164-434	.052	25							
164-436	.052	40	1.6	17	610	1.8	24	840	
164-438	.052	65							
160-963	.062	25	2.3	23	560	2.6	32	750	

KEY:

GPM : Gallons Per Minute

CFM : Cubic Feet Per Minute

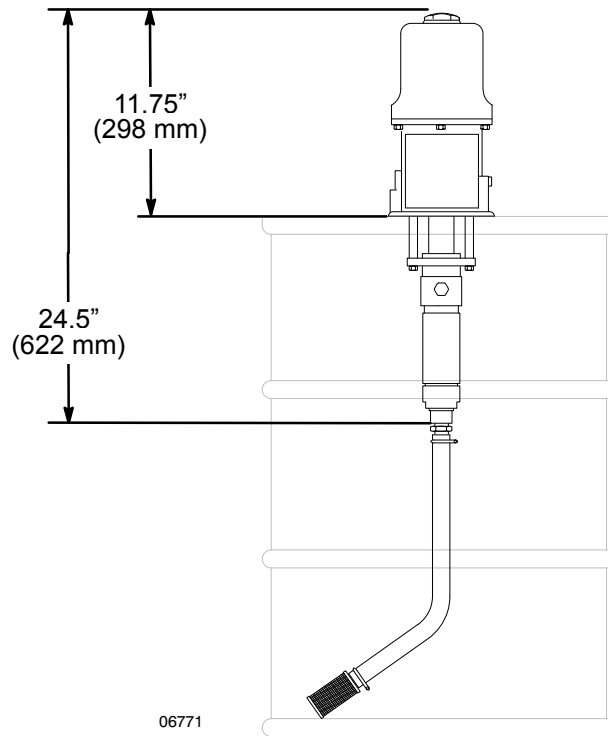
PSI : Pounds Per Square Inch

WP : Working Pressure in PSI

Stainless Steel Blasting Tips

TIP NO.	ORIFICE SIZE
102-442	.067
102-444	.078
102-446	.086
102-450	.125

Dimensions



06771

Technical Data

Air pressure range	40 to 120 psi (2.8 to 8.4 bar, .28 to .84 MPa)
Air volume requirements	8.2 cfm (0.23 m ³ /min.) at 100 psi (7 bar, 0.7 MPa),
Pump ratio	5:1
Max. recommended pump speed	66 cycles per min.
Pump discharge pressure	600 psi (41.4 bar, 4.14 MPa)
Weight	27 lb (12.26 kg) Model 207-860 37 lb (16.80 kg) Model 205-985
Maximum operating temperature of fluid pump.	480°F (249°C)
Maximum operating temperature of air motor.	200°F (90°C)

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PTFE is registered trademarks of the DuPont Co.

Graco Standard Warranty

Graco warrants all equipment referenced in this document 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.

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.

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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

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Sales Offices: Minneapolis, Detroit, Los Angeles
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