

# Instructions – Parts List



STAINLESS STEEL

## Viscount® I 1000 Pump

307622H

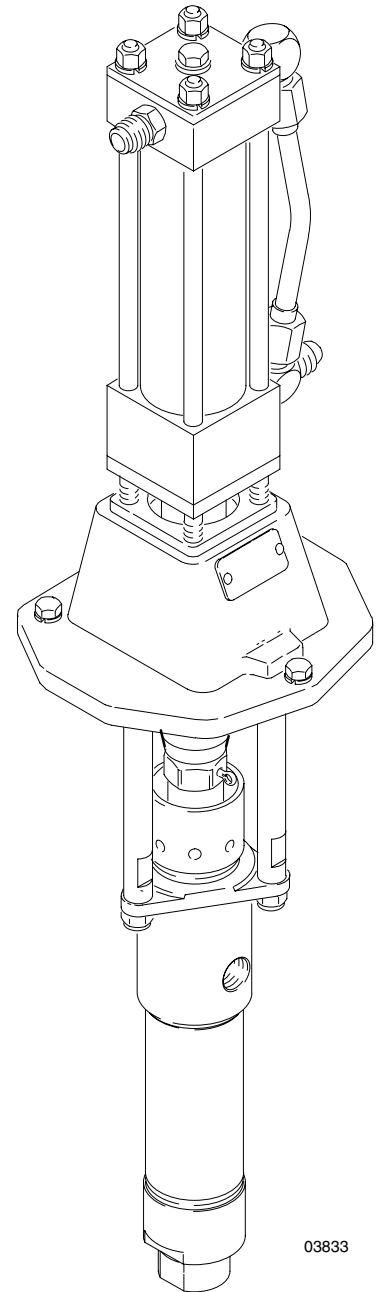
*1000 psi (6.9 MPa, 69 bar) Maximum Hydraulic Input Pressure*  
*1000 psi (6.9 MPa, 69 bar) Maximum Fluid Outlet Pressure*

### Part No. 218077, Series B

U.S. Patent No. 4,383,475  
Patent 1984 Canada  
Brevete 1984  
Foreign Patents Pending



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



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PROVEN QUALITY. LEADING TECHNOLOGY.

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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

 <small>INSTRUCTIONS</small>	<p><b>EQUIPMENT MISUSE HAZARD</b></p> <p>Equipment misuse can cause the equipment to rupture or malfunction and result in serious injury.</p> <ul style="list-style-type: none"> <li>● This equipment is for professional use only.</li> <li>● Read all instruction manuals, tags, and labels before operating the equipment.</li> <li>● Use the equipment only for its intended purpose. If you are uncertain about usage, call your Graco distributor.</li> <li>● Do not alter or modify this equipment. Use only genuine Graco parts and accessories.</li> <li>● Check equipment daily. Repair or replace worn or damaged parts immediately.</li> <li>● Do not exceed the maximum working pressure of the lowest rated system component. Refer to the <b>Technical Data</b> on pages 14 for the maximum working pressure of this equipment.</li> <li>● Use fluids and solvents which are compatible with the equipment wetted parts. Refer to the <b>Technical Data</b> section of all equipment manuals. Read the fluid and solvent manufacturer's warnings.</li> <li>● Do not use hoses to pull equipment.</li> <li>● 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).</li> <li>● Wear hearing protection when operating this equipment.</li> <li>● Do not lift pressurized equipment.</li> <li>● Comply with all applicable local, state, and national fire, electrical, and safety regulations.</li> </ul>
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# ⚠ WARNING



## INJECTION HAZARD

Spray from the gun/valve, 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/valve at anyone or at any part of the body.
- Do not put your hand or fingers over the spray tip/nozzle.
- 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/valve when spraying.
- Be sure the gun/valve trigger safety operates before spraying.
- Lock the gun/valve 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/ nozzle.
- 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.



## MOVING PARTS HAZARD

Moving parts, can pinch or amputate your 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 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 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

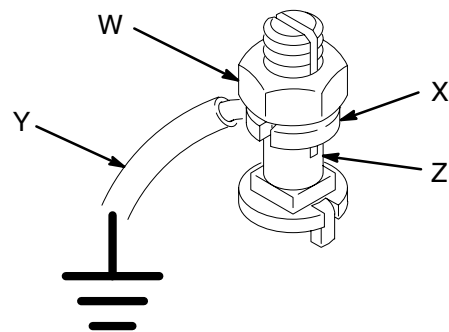
<b>⚠ WARNING</b>	
	<b>FIRE AND EXPLOSION HAZARD</b> Before operating the pump, ground the system as explained below. Also read the section <b>FIRE AND EXPLOSION HAZARD</b> on page 4.

### Ground all of this equipment:

- **Pump:** Loosen the grounding lug locknut (W) and washer (X). Insert one end of a 12 ga (1.5 mm<sup>2</sup>) minimum, ground wire (Y) into the slot in lug (Z) and tighten the locknut securely. See Fig. 1. Order Part No. 237569, Ground Wire and Clamp. Connect the clamp end of the ground wire to a true earth ground.
- **Fluid and hydraulic hoses:** Use only electrically conductive hoses.
- **Hydraulic power supply:** Follow manufacturer's recommendations.
- **Spray gun or dispensing valve:** Obtain grounding through connection to a properly grounded fluid hose and pump.

- **Object being sprayed:** Follow the local code.
- **Fluid supply container:** Follow the local code.
- **All solvent pails used when flushing:** Follow the 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.

*To maintain grounding continuity when flushing or relieving pressure, always hold a metal part of the gun firmly to the side of a grounded metal pail, then trigger the gun.*

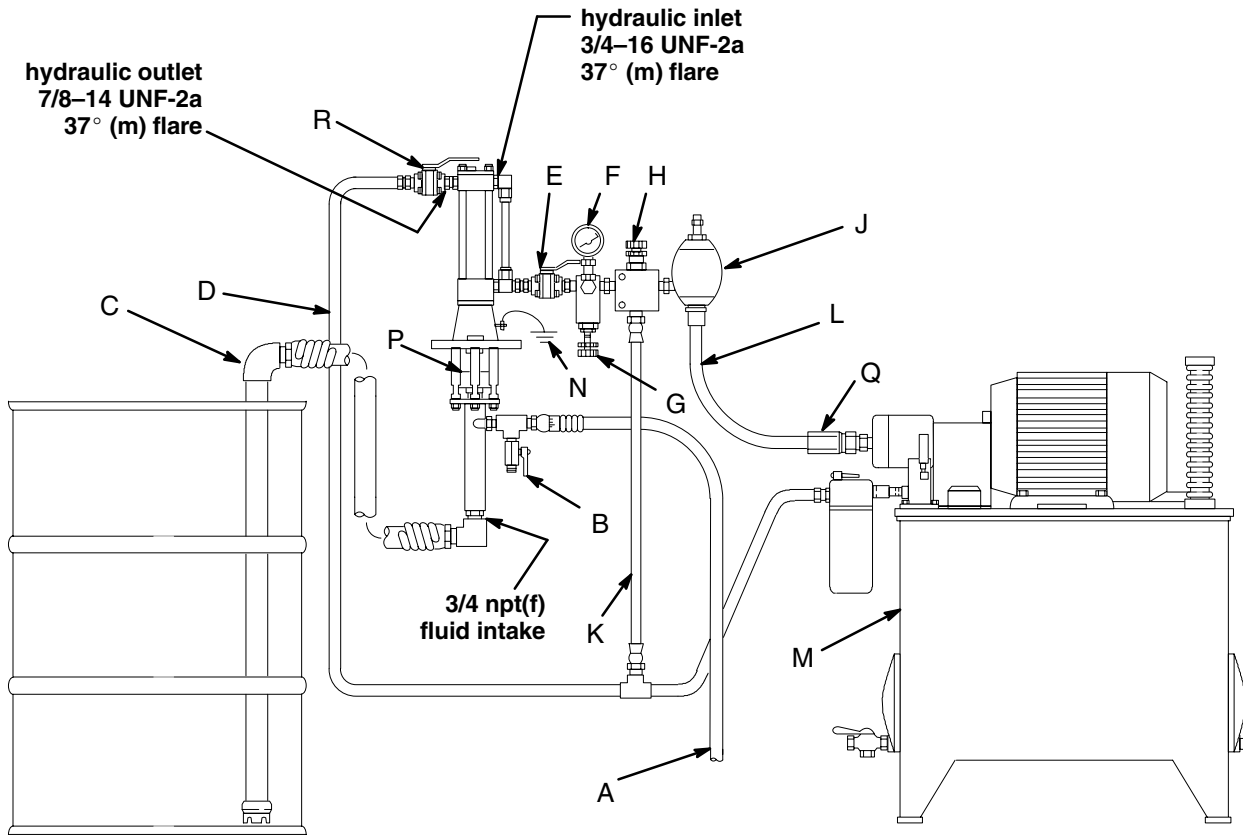


**Fig. 1**

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# Installation

## Typical Installation



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### KEY

- A Fluid hose to gun
- B Fluid drain valve
- C Suction hose
- D Hydraulic return line
- E Hydraulic supply line shutoff valve

- F Pressure gauge
- G Flow control valve
- H Pressure reducing valve
- J Accumulator
- K Drain line

- L Hydraulic supply line
- M Hydraulic power supply
- N Ground wire
- P Wet-cup
- Q Check valve
- R Hydraulic return line Shutoff valve

# Installation

**NOTE:** The Typical Installation shown on page 6 is only a guide. Contact your Graco distributor for assistance in custom designing your hydraulic system.

**NOTE:** Mount the pump to suit the type of installation planned. The pump dimensions and mounting hole layout are shown on the back cover.

## CAUTION

The hydraulic supply system must be kept clean at all times to avoid damage to the motor and hydraulic power supply. Blow out all hydraulic lines with air and flush thoroughly with hydraulic oil before connecting the lines to the motor.

Always plug the hydraulic inlets, outlets, and lines when disconnecting them for any reason to avoid introducing dirt and other contaminants into the system.

Be sure that your hydraulic power supply is equipped with a suction filter to the hydraulic pump and a system return line filter of 10 micron size. Carefully follow the manufacturer's recommendations on reservoir and filter cleaning and periodic changes of hydraulic fluid.

The motor has a 3/4–16, 37° (m) flared tube hydraulic oil inlet fitting, and a 7/8–14, 37° (m) flared tube hydraulic oil outlet fitting. Use a minimum 1/2 in. ID hydraulic supply line and a minimum 5/8 in. ID return line.

On the hydraulic oil supply line (L), install a shutoff valve (E) to isolate the system for servicing; a fluid pressure gauge (F) to monitor hydraulic oil pressure to the motor and avoid overpressurizing the motor or displacement pump; a pressure and temperature compensated flow control valve (G) to prevent the motor from running too fast; a pressure reducing valve (H) with a drain line (K) running directly into the hydraulic return line (D); and an accumulator (J) to reduce the hammering effect caused by the motor reversing direction.

On the hydraulic return line (D), install a shutoff valve (R) for isolating the motor for servicing.

## WARNING

To reduce the risk of serious injury including fluid injection, your system must include a drain valve installed near the pump fluid outlet to help relieve fluid pressure in the displacement pump and hoses when shutting off the pump.

Install a fluid drain valve (B) and a grounded dispense hose to the pump's 1/2 npt fluid outlet, and connect a suction hose to the 3/4 npt pump fluid intake. See the Typical Installation.

## WARNING

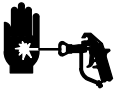
To reduce the risk of component rupture, which can cause serious injury, including fluid injection, be sure that all accessories and system components can withstand the pressure and flow created by this pump.

Ground the pump and system as instructed on page 5.

# 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/dispensing
- Check or service any of the system equipment
- Install or clean the spray tip/nozzle

1. Lock the gun/valve trigger safety.
2. Turn off the hydraulic supply line valve (E) first, then the return line valve (R).
3. Unlock the gun/valve trigger safety.

4. Hold a metal part of the gun/valve firmly to a grounded metal waste container and trigger it to relieve the fluid pressure.
5. Lock the trigger safety.
6. Open the pump drain valve (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 hose end coupling and relieve pressure gradually, then loosen completely. Now clear the tip or hose obstruction.



# Operation

## ⚠ CAUTION

When shutting off the hydraulic supply system, always shut off the supply line shutoff valve (E) first, and then the return line shutoff valve (R). This is to prevent overpressurizing the motor or its seals. When starting the hydraulic system, open the return line shutoff valve first.

Check the hydraulic fluid level, and add fluid as necessary to fill lines, before each use.

Flush the pump before using it for the first time to remove the light oil which was left in after factory testing to protect the pump from corrosion. Be sure the solvent used is compatible with the fluid to be sprayed and the wetted parts of the pump, shown on the back cover.

### To Flush:

Use a compatible solvent when flushing. In a circulating system, circulate the flushing fluid long enough to thoroughly clean all lines.

## ⚠ WARNING

To reduce the risk of fluid injection, static sparking and splashing when flushing, be sure the entire system is grounded, including flushing pails. Hold a metal part of the gun firmly to the side of a grounded metal pail, and aimed into it, and use the lowest possible pressure to flush. See Fig. 2. Then, follow the **Pressure Relief Procedure** on page 8.

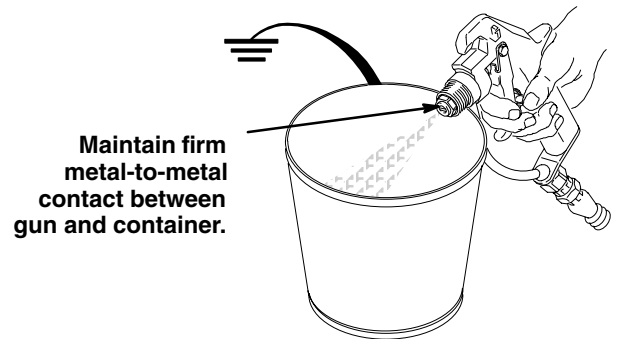


Fig. 2

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To operate the pump, turn on the hydraulic power supply. Open the hydraulic return line shutoff valve (R) first, and then the supply line shutoff valve (E). Slowly open the flow control valve. Use the lowest possible pressure to obtain the desired results. Higher pressures increases tip wear and pump wear.

In a direct supply system, the pump starts when the gun or valve is opened and stall when it is closed. In a circulating system, the pump operates continuously until the hydraulic power supply is turned off.

## ⚠ WARNING

To reduce the risk of overpressurizing the system which can cause a rupture, fire, or explosion and result in serious injury, including fluid injection, always follow these precautions:

Never exceed 1000 psi (7 MPa, 70 bar), or 3 gpm (11.4 liter/min) hydraulic input to the motor.

Never exceed 1000 psi (7 MPa, 70 bar) maximum pump outlet pressure.

## ⚠ CAUTION

Never allow the hydraulic oil temperature to exceed 130° F (54° C). The pump seals wear faster and leaking might occur at higher temperatures.

# Maintenance

## **⚠ WARNING**

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

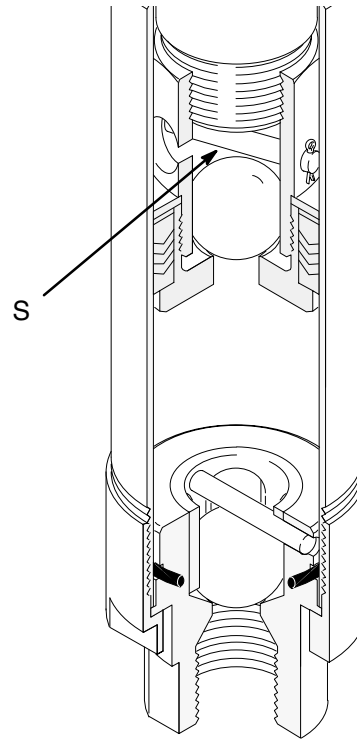
Check the tightness of the packing nut weekly. Always **relieve the pressure** before adjusting. The packing nut should be tight enough to stop leakage, but no tighter. Overtightening compresses and damages the packings and results in pump leaking.

Carefully monitor the fluid supply. If the pump empties the supply container, air is sucked into the pump, causing it to run too fast and to be damaged. If the pump runs too fast, shut it off immediately. Fill the supply container and prime the pump to remove all air, or flush the pump.

Always flush the pump before any fluid dries in it. Always stop the pump at the bottom of its stroke to prevent the fluid from drying on the displacement rod and damaging the throat packings.

### **Check Valve Adjustment**

The fluid piston valve is factory set for low volume pumping of light viscosity fluids. For heavier fluids or more volume, increase the ball travel by moving the pin (S) to a high set of holes. See Fig. 3.



**Fig. 3**

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# Troubleshooting Chart

## 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. Check all possible causes and problems before disassembling the pump.

PROBLEM	CAUSE	SOLUTION
Pump operates, but output low on both strokes	Restricted lines or inadequate hydraulic supply	Clear lines; increase hydraulic supply.
	Insufficient hydraulic pressure; Closed or clogged valves, etc.	Open; clean.
	Exhausted fluid supply	Refill & reprime or flush.*
	Clogged fluid line, valves, etc.	Clear.**
	Piston check valve needs adjustment	Adjust. See page 10.
	Packing nut too tight	Loosen.
	Loose packing nut or worn packings	Tighten, replace.
Pump operates, but output low on down stroke	Held open or worn intake valve	Clear; service.
Pump operates, but output low on up stroke	Held open or worn piston or packings	Clear; service.
Erratic pump operation	Exhausted fluid supply	Refill & reprime or flush.*
	Held open or worn intake valve or piston packings	Clear; service.
	Piston check valve needs adjustment	Adjust. See page 10.
	Excessive hydraulic fluid supply volume	Lower.
	Air entrained in fluid	Purge all air; change fluid.
Pump fails to operate	Restricted lines or inadequate hydraulic supply	Clear; increase.
	Insufficient hydraulic pressure; closed or clogged valves, etc.	Open; clean.
	Exhausted fluid supply	Refill and reprime or flush.*
	Clogged fluid line, valves, etc.	Clear.**
	Damaged hydraulic motor	Service; See manual 307654.
	Dried fluid seizure of displacement rod	Service.***

\* Stop the pump immediately if it is running too fast; check fluid supply. If empty, refill and reprime the pump being sure to eliminate all air from the system, or flush the pump and store it with an oil-based solvent, such as mineral spirits, to prevent corrosion.

\*\* **Relieve the pressure;** disconnect fluid line. If pump starts when hydraulic power is restored, line, etc. is clogged.

\*\*\* Always stop the pump at the bottom of its stroke, and keep the packing nut/wet-cup 1/3 full of TSL to help prevent displacement rod seizure.

# Service

## **⚠ WARNING**

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

### Notes:

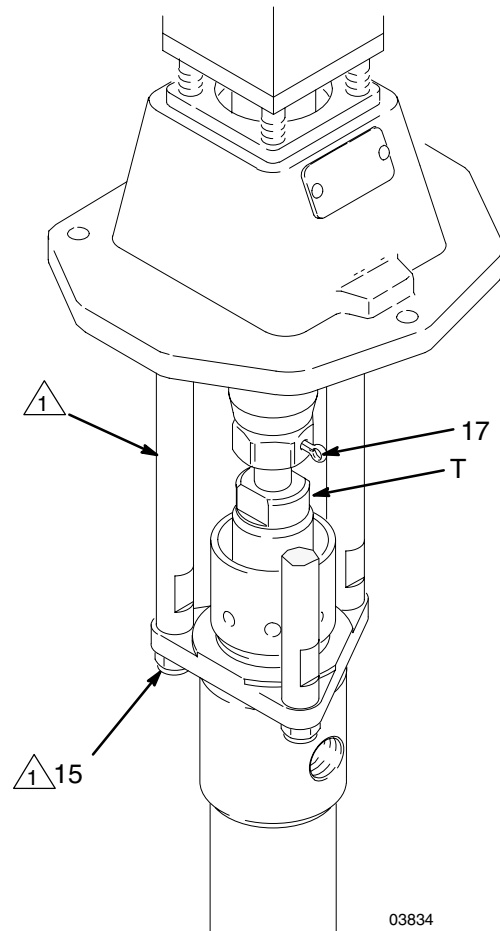
- Packing Repair Kit 224402 is available. Use all the parts in the kit for the best results, even if the old ones still look good.
- Clean all parts as you disassemble the pump and inspect them for wear or damage. Replace parts as necessary.

### Removing the Displacement Pump

(Fig. 4)

1. Flush the pump if possible. **Relieve the pressure.** Stop the pump at the bottom of its stroke.
2. Disconnect all hoses from the displacement pump.
3. If you remove the pump from its mounting, disconnect the hydraulic hoses first, and plug all hydraulic connections and lines to prevent contamination.
4. Remove the pin (17) from the top of the displacement rod (T).
5. Unscrew and remove the three locknuts (15).
6. Unscrew the displacement rod (T) from the motor connecting rod.
7. Refer to manual 308117 to service the displacement pump.
8. Reassemble in the reverse order. Torque the tie rods and locknuts to 20 to 33 ft-lb (38 to 44 N-m).

**⚠ 1** Torque to 20 to 30 ft-lb (27 to 40 N-m)



**Fig. 4**

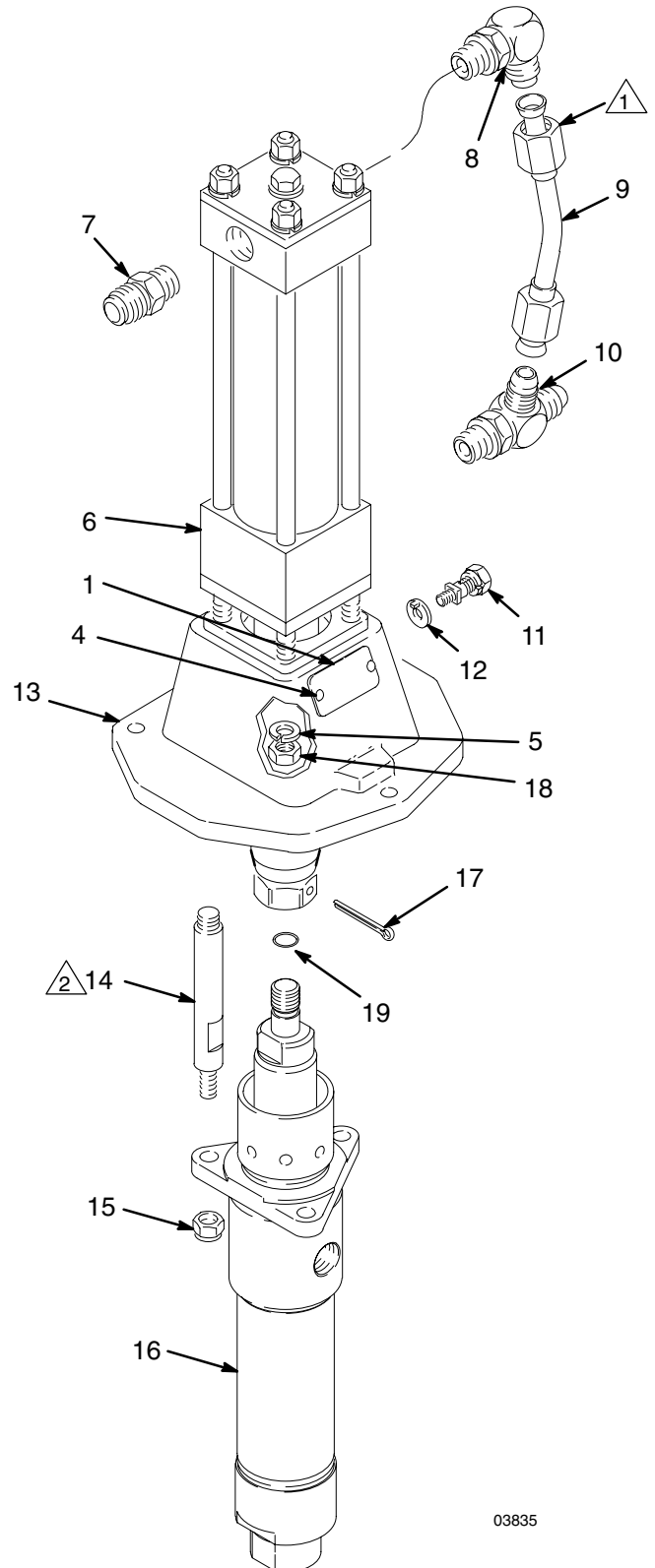
# Parts

## Model 218077 Viscount I 1000 Pump Series B Stubby Length

Ref. No.	Part No.	Description	Qty.
1	169455	PLATE, designation	1
2	100508	SCREW, drive (not shown)	4
3	179884	PLATE, identification (not shown)	1
4	111445	SCREW, drive	2
5	100133	LOCKWASHER	1
6	217222	VISCOUNT I MOTOR	1
		See manual 307654 for parts	
7	107195	ADAPTER, straight thd, 7/8-14 UNF-2a; 37° flare (m)	1
8	107195	ADAPTER, straight thd, 37° flare; for 1/2" dia. tube	1
9	217221	TUBE, inlet, 1/2 ID	1
10	107197	TEE, run, straight thd; 3/4-16 UNF-2a, 37° flare(m)	1
11	104029	CLAMP, grounding	1
12	104582	WASHER, tab	1
13	179882	BASE, motor	1
14	166237	ROD, tie; 4-3/4" (120 mm) long	3
15	102021	LOCKNUT, hex; 3/8-16 thd size	3
16	224344	DISPLACEMENT PUMP	1
		See manual 308117 for parts	
17	100103	PIN, cotter	1
18	106292	NUT, hex, 3/8"	4
19	156082	O-RING	1

1 Torque nuts of tube (9) to 25 to 35 ft-lb (34 to 47 N-m)

2 Torque to 20 to 30 ft-lb (27 to 40 N-m)

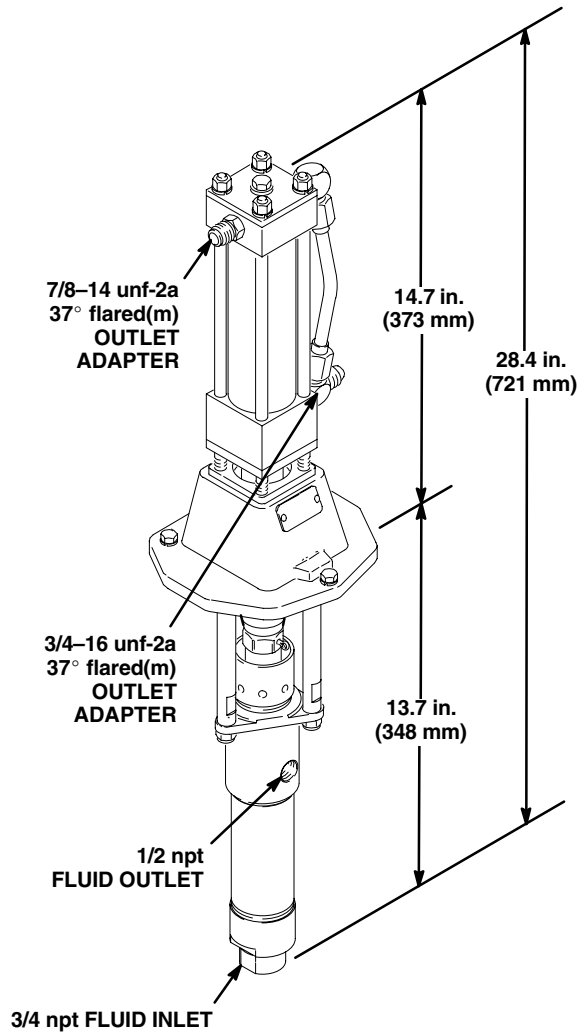


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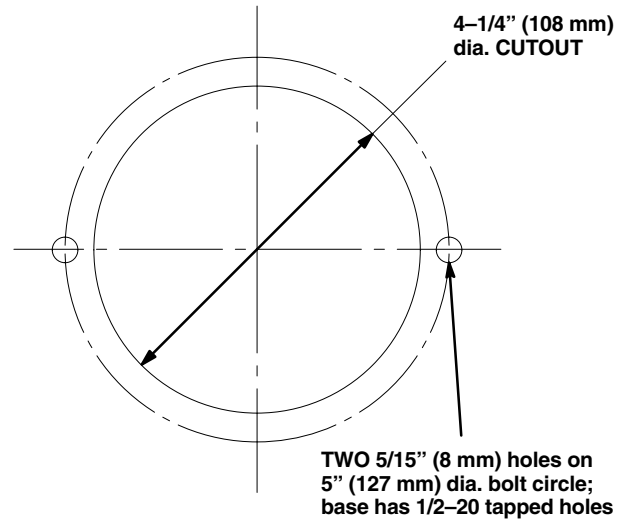
# Technical Data

Category	Data
Maximum Fluid Outlet Pressure	1000 psi (6.9 MPa, 69 bar)
Maximum Hydraulic Input Pressure	1000 psi (6.9 MPa, 69 bar)
Maximum Hydraulic Fluid Volume	3 gpm (11.7 liter/min)
Fluid Delivery Rate at 60 cycles/min	3 gpm (11.7 liter/min)
Maximum Hydraulic Fluid Temperature	130° F (54° C)
Cycles Per Gallon (3.8 Liter)	20
Wetted Parts	303 & 304 stainless steel, nitrile rubber, polyethylene, PTFE
Weight	33 lb (15 kg)

# Dimensions



# Mounting Hole Layout



# 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**

The parties acknowledge that they have required that the present document, as well as all documents, notices and legal proceedings entered into, given or instituted pursuant hereto or relating directly or indirectly hereto, be drawn up in English. Les parties reconnaissent avoir convenu que la rédaction du présente document sera en Anglais, ainsi que tous documents, avis et procédures judiciaires exécutés, donnés ou intentés à la suite de ou en rapport, directement ou indirectement, avec les procédures concernées.

# Graco Information

**TO PLACE AN ORDER**, contact your Graco distributor, or call one of the following numbers to identify the distributor closest to you:

**1-800-367-4023 Toll Free**

**612-623-6921**

**612-378-3505 Fax**

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**International Offices:** Belgium, Korea, Hong Kong, Japan

**[www.graco.com](http://www.graco.com)**

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