

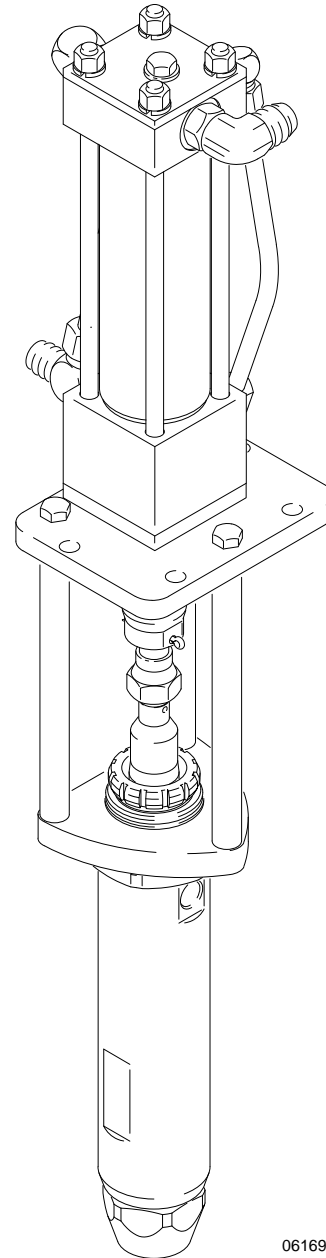


This manual contains important warnings and information.
READ AND KEEP FOR REFERENCE.

INSTRUCTIONS

Viscount® I Hydraulic Motor and Displacement Pump

Model 238-349, Series A



06169

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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.
- 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, 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 is a serious injury. The injury may 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 7 if the spray tip clogs and before cleaning, checking or servicing the equipment.
- Tighten all fluid connections before operating the equipment.
- Check the hoses, tubes, and couplings daily. Replace worn or damaged parts immediately. Do not repair high pressure couplings; you must 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 can pinch or amputate your fingers.

- Keep clear of all moving parts when starting or operating the pump.
- Before checking or servicing the equipment, follow the **Pressure Relief Procedure** on page 7 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.
- Before operating this equipment, electrically disconnect all equipment in the spray area.
- Before operating this equipment, 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.


Installation


General Information

NOTE: Reference numbers and letters in parentheses in the text refer to the callouts in the figures and the parts drawing.

NOTE: Always use Genuine Graco Parts and Accessories, available from your Graco distributor.

Grounding

 **WARNING**



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

1. *Pump*: use a system ground wire and clamp. See manual 308–611.

2. *Hydraulic, and fluid hoses*: use only electrically conductive hoses.
3. *Hydraulic power supply*: follow manufacturer's recommendations.
4. *Spray gun*: ground through connection to a properly grounded fluid hose and pump.
5. *Fluid supply container*: follow your local code.
6. *Object being sprayed*: follow your local code.
7. *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.
8. *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.

Installation

General

1. Connect the hydraulic motor (101) and the displacement pump (102) as explained on page 8. See Fig. 1.

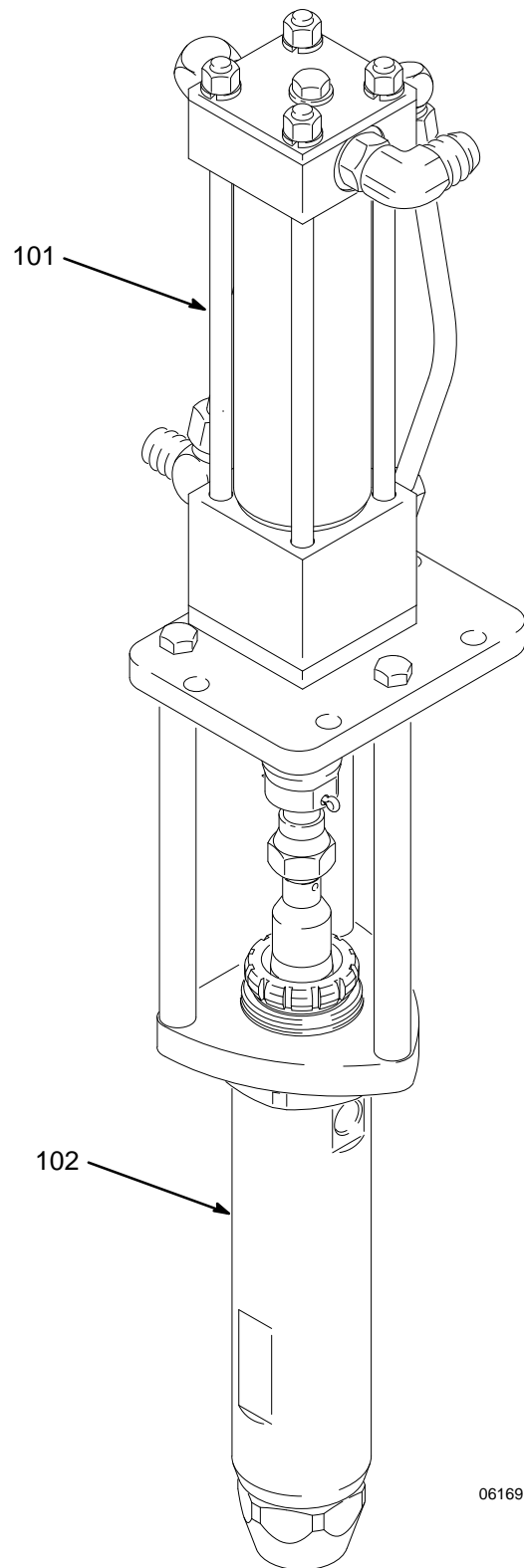
CAUTION

Keep the hydraulic system clean

To reduce the risk of damaging the hydraulic power supply and motor, blow out all hydraulic lines with air, flush thoroughly with solvent, and then blow out with air again before connecting the lines to the hydraulic 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.

Carefully follow the manufacturer's recommendations on reservoir and filter cleaning, and periodic changes of hydraulic fluid. The maximum water content of the hydraulic oil is 1 percent.



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Fig. 1

Operation

Startup

Before each use, check the hydraulic fluid level and add fluid as necessary to fill the lines.

WARNING



FIRE HAZARD

If hydraulic oil becomes too hot, it can reach its flash point and cause a fire.

Operating at too high an oil temperature can also cause faster motor seal wear and leakage. The recommended hydraulic oil operating temperature is 80–115°F (27–45°C). If the oil temperature approaches 130°F (54°C), shut off the motor and check the hydraulic oil supply cooling system, filters, etc. Clean or repair as needed.

Always use Graco-approved Hydraulic Oil or equivalent. Do not substitute a lower grade oil or one with a lower flash point.

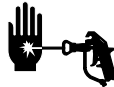
The equivalent is a premium, ISO grade 46 petroleum-based hydraulic oil containing rust and oxidation inhibitors and anti-wear agents. Before using any other type of oil in this equipment, contact Graco Technical Assistance, 1-800-543-0339. **Unauthorized use of lesser grade oil or substitutes will void the warranty.**

Shutdown & Care

Follow the **Pressure Relief Procedure Warning** below.

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 tip.

1. Set hydraulic pump lever in by-pass position.
2. Place an empty pail under the drain valves to catch drainage from the drain valves.
3. Open all paint drain valves.
4. Place an empty pail under guns to catch drainage from the guns.
5. Actuate guns to relieve pressure.
6. Shut off engine.
7. Leave the drain valve(s) open until you are ready to spray again.

If you suspect that the spray gun 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 valve or hose.

Service

Disconnecting the Hydraulic Motor

⚠ WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 7.

1. **Relieve the pressure.**
2. Disconnect the hydraulic hoses and plug all hydraulic connections and hoses.

⚠ CAUTION

Keep the hydraulic system clean

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

3. Remove the cotter pin (5), and unscrew the coupler (6) from the hydraulic motor displacement rod (104). Remove the o-ring (7) from the coupler. See Fig. 1.
4. With the unit upright, remove the three bolts (1) and the tie rods (2) holding the hydraulic motor (101) to the pump (102). See Fig. 1.
5. Clean and inspect all parts. Replace parts as necessary. To service the hydraulic motor (101), refer to manual 308-618

Reconnecting the Hydraulic Motor

1. With the unit upright, insert the three bolts (1) through the hydraulic motor tie plate (103), the tie rods (2), and into the pump tie plate (3). Torque the bolts to 20-30 ft-lb (27-40 N•m).
2. Lubricate, and place the o-ring (7) on the coupler (6). Insert the coupler into the hydraulic motor displacement rod (104), making sure that the holes in both pieces are aligned. Torque the coupler to 75-80 ft-lb (101-108 N•m). Insert the cotter pin (5). See Fig. 1.
3. Unplug all hydraulic connections and hoses. Reconnect the hydraulic hoses.

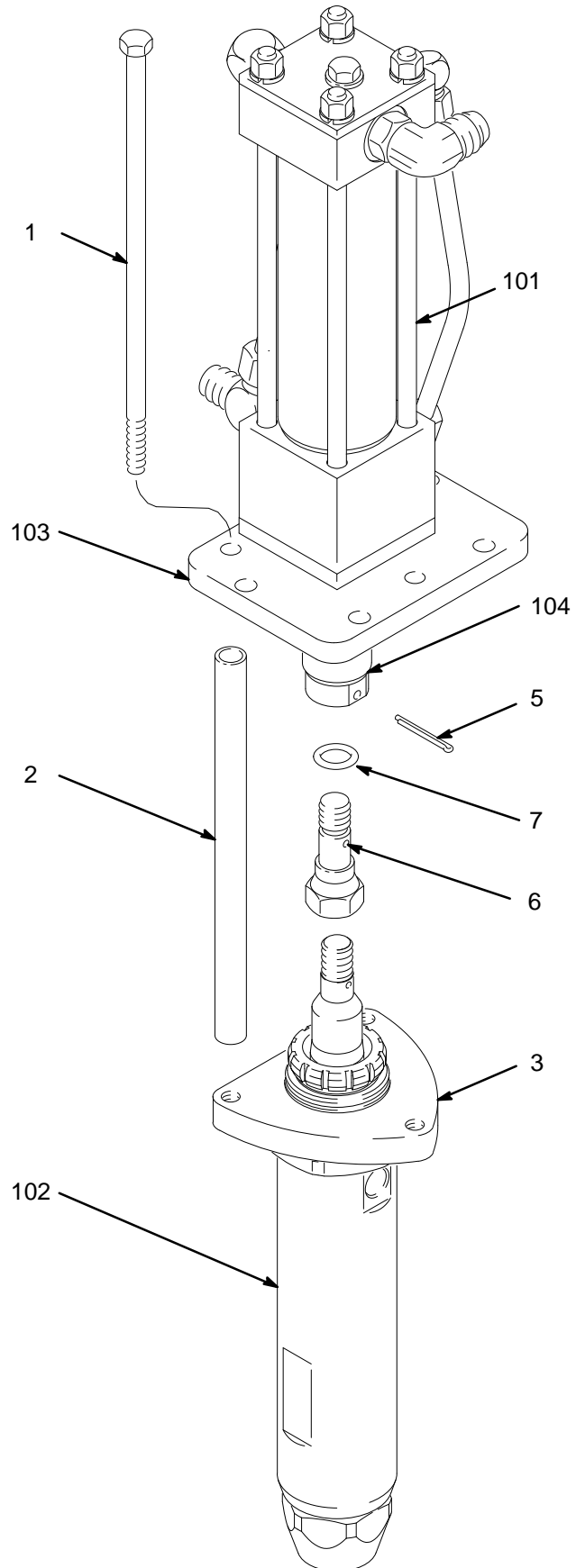


Fig. 2

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Notes

Service

Disconnecting the Displacement Pump

⚠ CAUTION

When servicing the left and center displacement pumps (as viewed from the rear of the system), the packings in both units must be replaced at the same time, or uneven performance will result.

1. Flush the entire system.

NOTE: Any residual paint may clog the system.

⚠ WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 7.

2. **Relieve the pressure.**
3. Disconnect the filter hose and the inlet hose.

⚠ CAUTION

Be sure to support the displacement pump while it is being disconnected, to prevent it from falling and causing injury or property damage. Do this by securely bracing the pump, or by having one person hold it while another disconnects it.

4. Using an adjustable wrench, remove the three bolts (1) and the tie rods (2). Slide the pump (102) down as far as possible.
5. With two adjustable wrenches, use one to hold the coupler (6) to prevent it from turning, and the other to disconnect the displacement rod (105). Carefully remove the pump from the hydraulic motor (101).

6. Unscrew the lower tie plate (3), and retaining nut (4) from the displacement pump.
7. Refer to manual 308–650 for displacement pump service.

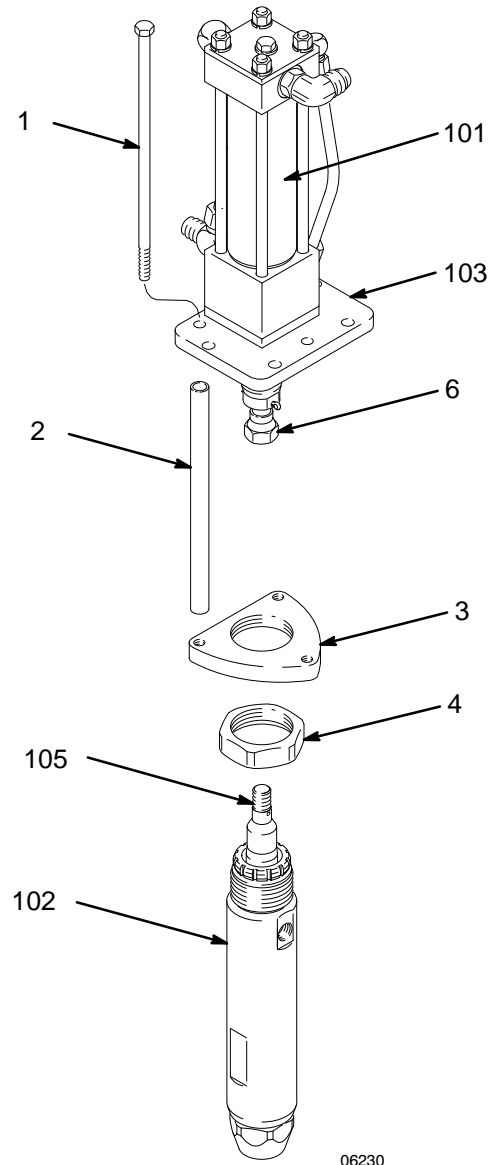


Fig. 3

Service

Reconnecting the Displacement Pump

⚠ CAUTION

Be sure to support the displacement pump while it is being disconnected, to prevent it from falling and causing injury or property damage. Do this by securely bracing the pump, or by having one person hold it while another disconnects it.

1. Hand-tighten the locking nut (4) on the displacement pump (102).
2. Place the lower tie plate (3) above the locking nut (4). Tighten the locking nut against the lower tie plate. Torque to 140–150 ft-lb (190–203 N•m).
3. Have one person hold the displacement pump while another connects it to the motor (see the **CAUTION** above). With two adjustable wrenches, use one to prevent the coupler (6) from turning, and the other to firmly attach the displacement rod (105). See Fig. 3.
4. Attach the displacement pump to the hydraulic motor by inserting the three bolts (1) through the upper tie plate (103), tie rods (2), and the lower tie plate (3). Torque to 20–30 ft-lb (27–40 N•m).
5. Reconnect all hoses.
6. Fill the packing nut (106) with Graco Throat Seal Liquid, or compatible solvent. See Fig. 4.

7. Turn on the power supply. Open the hydraulic return line valve *first*, then the supply line valve. Run the pump slowly to ensure proper operation.

⚠ WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 7.

8. Before returning the pump to production, **relieve the pressure** and tighten the packing nut just enough to prevent leakage, but no tighter.

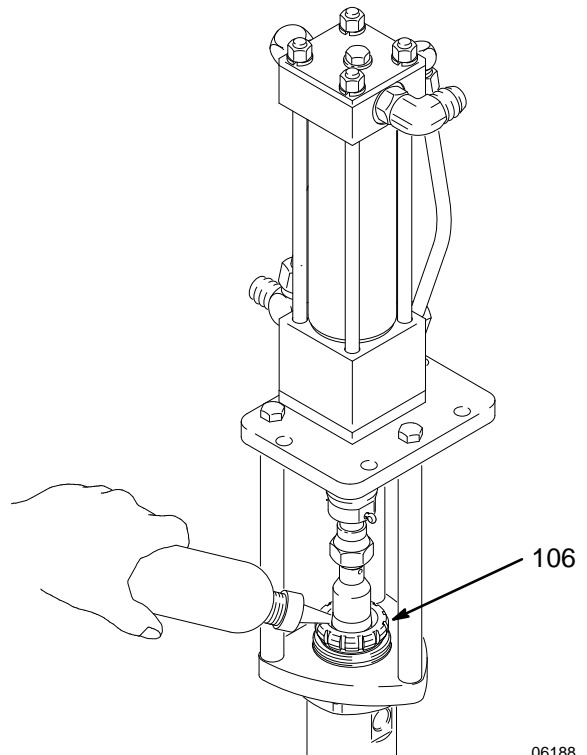
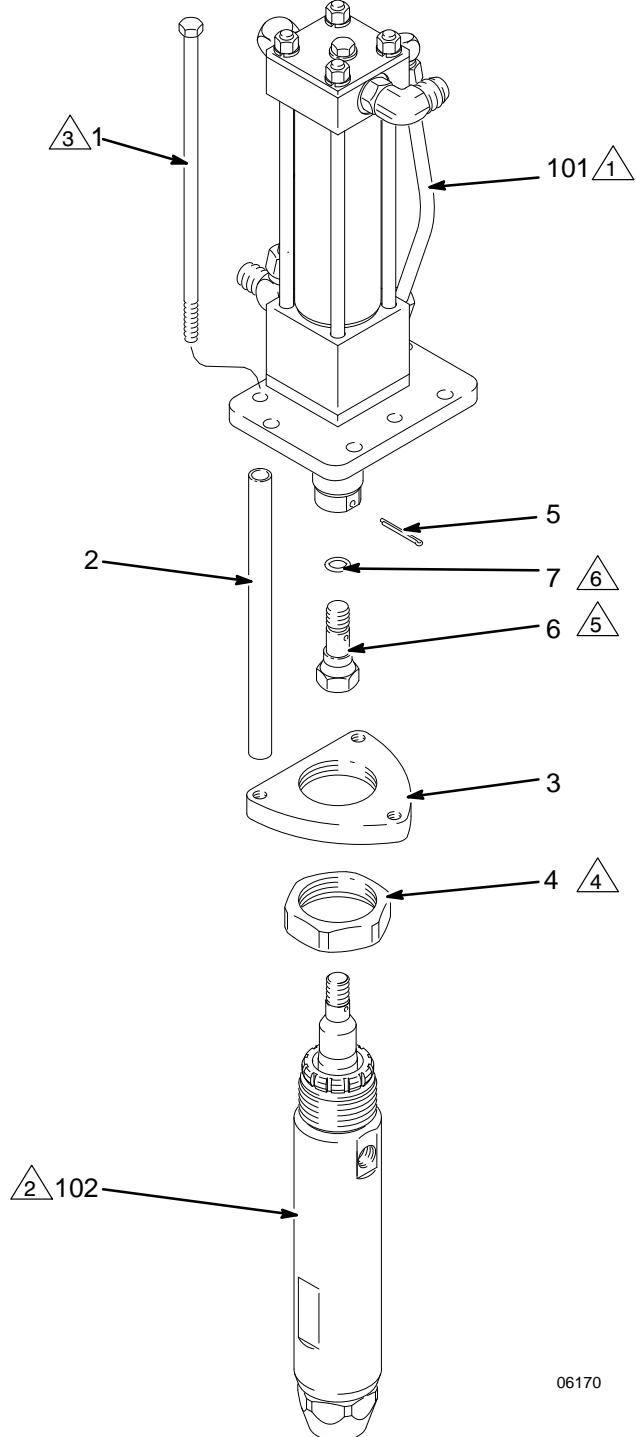


Fig. 4

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Pump Assembly Parts

- 1 For complete parts list, see manual 308-618.
- 2 For complete parts list, see manual 308-650.
- 3 Torque to 20-30 ft-lb (27-40 N•m).
- 4 Torque to 140-150 ft-lb (190-203 N•m)
- 5 Torque to 75-80 ft-lb (101-108 N•m).
- 6 Apply lubricant.



Ref No.	Part No.	Description	Qty.
1	113-583	BOLT, tie	3
2	191-217	TIE ROD	3
3	191-213	TIE PLATE, pump	1
4	191-212	NUT, retaining	1
5	100-103	PIN, cotter	1
6	207-370	NUT, coupler	1
7	156-082	PACKING, o-ring	1
101	238-356	HYDRAULIC MOTOR (see manual 308-618)	1
102	238-348	DISPLACEMENT PUMP (see manual 308-650)	1
103	191-216	PLATE, tie (see manual 308-618)	1
104	189-070	ROD, displacement, motor (see manual 308-618)	1
105	178-895	ROD, displacement, pump (see manual 308-650)	1
106	191-234	NUT, packing (see manual 308-650)	1

Technical Data

Maximum Hydraulic
 Input Pressure 1500 psi (103 bar)
 Maximum Fluid
 Outlet Pressure 2000 psi (138 bar) at
 2.5 GPM (9.5 L/m)

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Fig. 5

The Graco Warranty and Disclaimers

WARRANTY

Graco warrants all equipment manufactured by it 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. As purchaser's sole remedy for breach of this warranty, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment proven 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, 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 with Graco equipment of 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 claim. 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.

DISCLAIMERS AND LIMITATIONS

The terms of this warranty constitute purchaser's sole and exclusive remedy and are in lieu of any other warranties (express or implied), **including warranty of merchantability or warranty of fitness for a particular purpose**, and of any non-contractual liabilities, including product liabilities, based on negligence or strict liability. Every form of liability for direct, special or consequential damages or loss is expressly excluded and denied. In no case shall Graco's liability exceed the amount of the purchase price. Any action for breach of warranty must be brought within two (2) years of the date of sale.

EQUIPMENT NOT COVERED BY GRACO WARRANTY

Graco makes no warranty, and disclaims all implied **warranties of merchantability and fitness for a particular purpose**, with respect to accessories, equipment, materials, or components sold but not manufactured by Graco. These items sold, but not manufactured by Graco (such as electric motor, 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.

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.

Sales Offices: Atlanta, Chicago, Detroit, Los Angeles
Foreign Offices: Belgium, Canada, England, Korea, Switzerland, France, Germany, Hong Kong, Japan

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