

Dura-Flo™ 2400 Cart-Mounted Pump Package

311683 rev. A

A paint supply system with severe-duty rod and cylinder.

Part No. 253912 Pump, Series A, 34:1 Ratio with Premier™ Air Motor and 232801 Displacement Pump

3,400 psi (24 MPa, 235 bar) Maximum Fluid Working Pressure

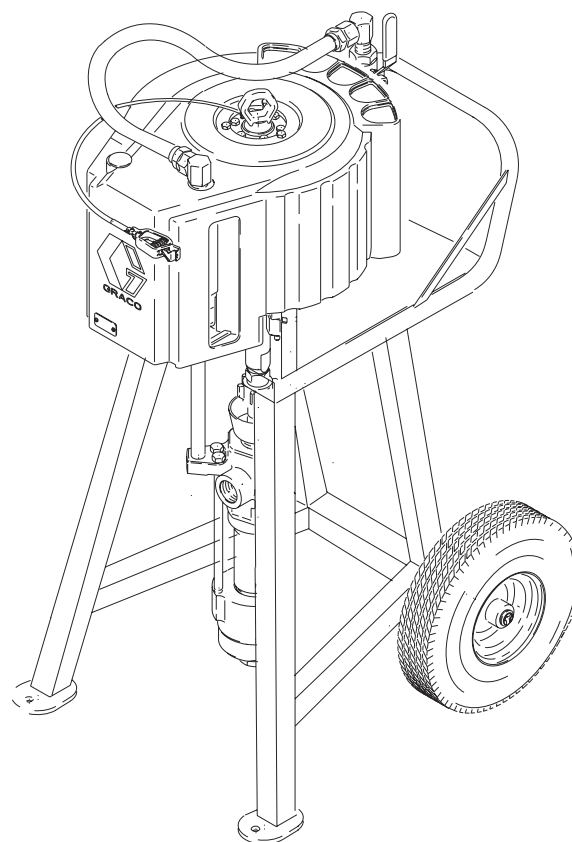
97 psi (0.67 MPa, 6.7 bar) Maximum Air Input Pressure



Important Safety Instructions

Read all warnings and instructions in this manual.
Save these instructions.

See page 2 for Table of Contents.






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Warnings

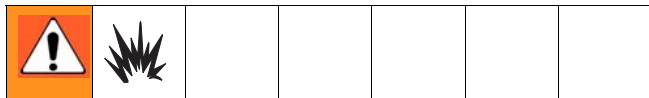
The following warnings are for the setup, use, grounding, maintenance, and repair of this equipment. The exclamation point symbol alerts you to a general warning and the hazard symbol refers to procedure-specific risk. Refer back to these warnings. Additional, product-specific warnings may be found throughout the body of this manual where applicable.

 WARNING	
	<p>FIRE AND EXPLOSION HAZARD</p> <p>Flammable fumes, such as solvent and paint fumes, in work area can ignite or explode. To help prevent fire and explosion:</p> <ul style="list-style-type: none"> • Use equipment only in well ventilated area. • Eliminate all ignition sources; such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static arc). • Keep work area free of debris, including solvent, rags and gasoline. • Do not plug or unplug power cords, or turn power or light switches on or off when flammable fumes are present. • Ground all equipment in the work area. See Grounding instructions. • Use only grounded hoses. • Hold gun firmly to side of grounded pail when triggering into pail. • If there is static sparking or you feel a shock, stop operation immediately. Do not use equipment until you identify and correct the problem. • Keep a working fire extinguisher in the work area.
	<p>EQUIPMENT MISUSE HAZARD</p> <p>Misuse can cause death or serious injury.</p> <ul style="list-style-type: none"> • Do not operate the unit when fatigued or under the influence of drugs or alcohol. • Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See Technical Data in all equipment manuals. • Use fluids and solvents that are compatible with equipment wetted parts. See Technical Data in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request MSDS forms from distributor or retailer. • Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only. • Do not alter or modify equipment. • Use equipment only for its intended purpose. Call your distributor for information. • Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces. • Do not kink or over bend hoses or use hoses to pull equipment. • Keep children and animals away from work area. • Comply with all applicable safety regulations.

 WARNING	
 	SKIN INJECTION HAZARD High-pressure fluid from gun, hose leaks, or ruptured components will pierce skin. This may look like just a cut, but it is a serious injury that can result in amputation. Get immediate surgical treatment. <ul style="list-style-type: none"> Do not point gun at anyone or at any part of the body. Do not put your hand over the spray tip. Do not stop or deflect leaks with your hand, body, glove, or rag. Do not spray without tip guard and trigger guard installed. Engage trigger lock when not spraying. Follow Pressure Relief Procedure in this manual, when you stop spraying and before cleaning, checking, or servicing equipment.
	MOVING PARTS HAZARD Moving parts can pinch or amputate fingers and other body parts. <ul style="list-style-type: none"> Keep clear of moving parts. Do not operate equipment with protective guards or covers removed. Pressurized equipment can start without warning. Before checking, moving, or servicing equipment, follow the Pressure Relief Procedure in this manual. Disconnect power or air supply.
 	TOXIC FLUID OR FUMES HAZARD Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled, or swallowed. <ul style="list-style-type: none"> Read MSDS's to know the specific hazards of the fluids you are using. Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines. Always wear impervious gloves when spraying or cleaning equipment.
	PERSONAL PROTECTIVE EQUIPMENT You must wear appropriate protective equipment when operating, servicing, or when in the operating area of the equipment to help protect you from serious injury, including eye injury, inhalation of toxic fumes, burns, and hearing loss. This equipment includes but is not limited to: <ul style="list-style-type: none"> Protective eyewear Clothing and respirator as recommended by the fluid and solvent manufacturer Gloves Hearing protection

Installation

Grounding



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

1. Pump: loosen the grounding lug locknut (W) and washer (X). Insert one end of a 1.5 mm² (12 ga) minimum ground wire (Y) into the slot in lug (Z) and tighten the locknut securely. See Fig. 1. Connect the other end of the wire to a true earth ground. Order Part No. 237569 Ground Wire and Clamp.
2. Air hoses: use only electrically conductive hoses.
3. Fluid hoses: use only electrically conductive fluid hoses.
4. Air compressor: follow manufacturer's recommendations.
5. Spray gun/dispensing valve: grounding is obtained through connection to a properly grounded fluid hose and pump.

6. Fluid supply container: according to your local code.
7. Object being sprayed: according to your local code.
8. All solvent pails used when flushing, according to 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, always hold a metal part of the spray gun/dispensing valve firmly to the side of a grounded metal pail, then trigger the gun/valve.

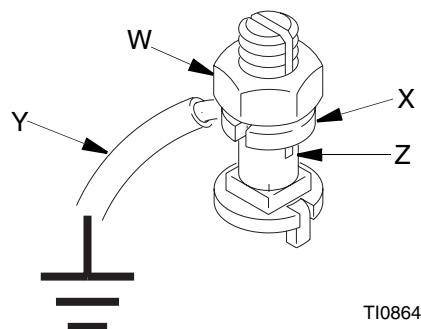


FIG. 1

System Accessories



A bleed-type master air valve and a fluid drain valve are required in your system. These accessories 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 bleed-type master air valve relieves air trapped between this valve and the pump after the air is shut off. Trapped air can cause the pump to cycle unexpectedly. Locate the valve close to the pump. Order Part No. 112730.

The fluid drain valve assists in relieving fluid pressure in the displacement pump, hose, and gun. Triggering the gun to relieve pressure may not be sufficient. Order Part No. 224774.

- **A red-handled bleed-type master air valve** is required in your system 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 regulator (3).
- With a wrench, loosen and remove the female air line coupler. Screw it onto the main air hose. Leave the mating coupler attached to the air manifold.
- **The air regulator** (3) controls pump speed and outlet pressure by adjusting the air pressure to the pump. Locate the regulator close to the pump, but upstream from the bleed-type master air valve.
- **The air manifold** provides ports for connecting lines to air-powered accessories.
- **The air relief valve** opens automatically to prevent overpressurization of the pump.

Air and Fluid Hoses

Be sure all air hoses and fluid hoses are properly sized and pressure-rated for your system. Use only electrically conductive hoses. Fluid hoses must have spring guards on both ends. Use a whip hose and a swivel between the main fluid hose and the gun to allow freer gun movement.

Air Line Accessories

Install the following accessories using adapters as necessary:

- **An air line lubricator** provides automatic air motor lubrication.
- **A pump runaway valve** senses when the pump is running too fast and automatically shuts off the air to the motor. A pump which runs too fast can be seriously damaged.
- **An air line filter** removes harmful dirt and moisture from the compressed air supply.
- **A second bleed-type air valve** isolates the air line accessories for servicing. Locate upstream from all other air line accessories.

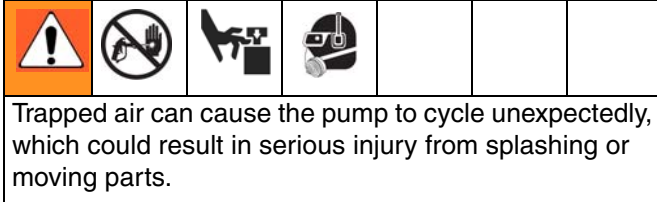
Fluid Line Accessories

Install the following accessories using adapters as necessary:

- **A fluid filter** with a 60 mesh (250 micron) stainless steel element, to filter particles from the fluid as it leaves the pump. It includes a **fluid drain valve**, which is required in your system to relieve fluid pressure in the hose and gun (see the **WARNING** on page 5).
- **A gun** dispenses the fluid.
- **A gun swivel** allows freer gun movement.
- **A suction kit** allows the pump to draw fluid from a 19 liter (5 gallon) pail.

Operation/Maintenance

Pressure Relief Procedure



1. Lock the spray gun/dispensing valve trigger safety.
2. Shut off the air supply to the pump.
3. Close the bleed-type master air valve (required in your system).
4. Unlock the gun/valve trigger safety.
5. Hold a metal part of the gun/valve firmly to the side of a grounded metal pail, and trigger the gun/valve to relieve pressure.
6. Lock the gun/valve trigger safety.
7. Open the drain valve (required in your system), having a container ready to catch the drainage.
8. Leave the drain valve open until you are ready to spray/dispense again.

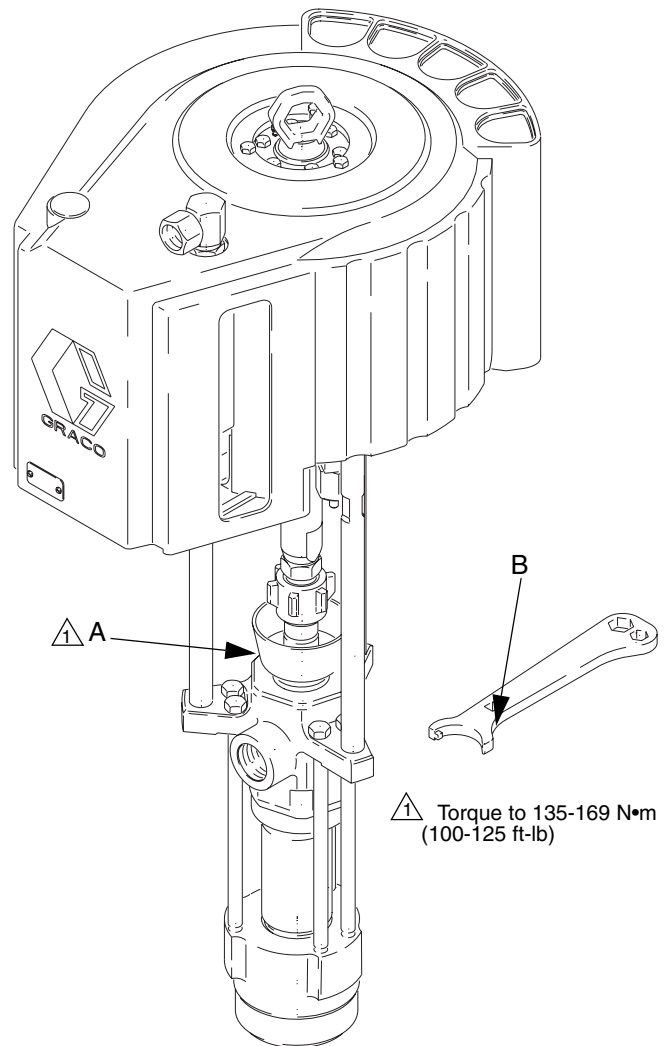
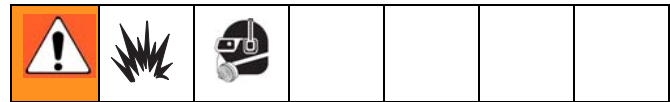
If you suspect that the spray tip/nozzle or hose is completely clogged, or that pressure has not been fully relieved after following the steps above, very slowly loosen the tip guard retaining nut or hose end coupling and relieve pressure gradually, then loosen completely. Now clear the tip/nozzle or hose.

Packing Nut/Wet Cup

Before starting, fill the packing nut (A) 1/3 full with Graco Throat Seal Liquid (TSL) or compatible solvent. See FIG. 2.

The packing nut is torqued at the factory and is ready for operation. If it becomes loose and there is leaking from the throat packings, you must first follow the **Pressure Relief Procedure Warning** above, then torque the nut to 135-169 N•m (100-125 ft-lb) using the supplied wrench (B). Do this whenever necessary. Do not over-tighten the packing nut.

Flushing the pump




TI9589A



FIG. 2

Starting and Adjusting the Pump




1. Refer to Fig. 2 on page 6. Connect the suction kit to the pump's fluid inlet, and place the tube into the fluid supply.
2. Be sure the air regulator is closed. Then open the pump's bleed-type master air valve. Hold a metal part of the spray gun firmly to the side of a grounded metal pail and hold the trigger open. Now slowly open the air regulator until the pump starts.
3. Cycle the pump slowly until all air is pushed out and the pump and hoses are fully primed. Release the gun trigger and engage the safety latch. The pump should stall against pressure when the trigger is released.
4. If the pump fails to prime properly, open the drain valve. Use the drain valve as a priming valve until the fluid flows from the valve. Close the drain valve.

 When changing fluid containers with the hose and gun already primed, open the drain valve, to assist in priming the pump and venting air before it enters the hose. Close the drain valve when all air has been eliminated.

5. With the pump and lines primed, and with adequate air pressure and volume supplied, the pump will start and stop as the gun is opened and closed. In a circulating system, the pump will speed up or slow down on demand, until the air supply is shut off.
6. Use the air regulator to control the pump speed and the fluid pressure. Always use the lowest air pressure necessary to get the desired results. Higher pressures cause premature tip and pump wear.

						
To reduce the risk of overpressurizing your system, which could result in component rupture and cause serious injury, never exceed the specified Maximum Incoming Air Pressure to the pump.						

7. Never allow the pump to run dry of the fluid being pumped. A dry pump will quickly accelerate to a high speed, possibly damaging itself. A pump run-away valve, which shuts off the air supply to the pump if the pump accelerates beyond the pre-set speed, is available. If your pump accelerates quickly, or is running too fast, stop it immediately and check the fluid supply. If the supply container is empty and air has been pumped into the lines, refill the container and prime the pump and the lines with fluid, or flush and leave it filled with a compatible solvent. Be sure to eliminate all air from the fluid system.

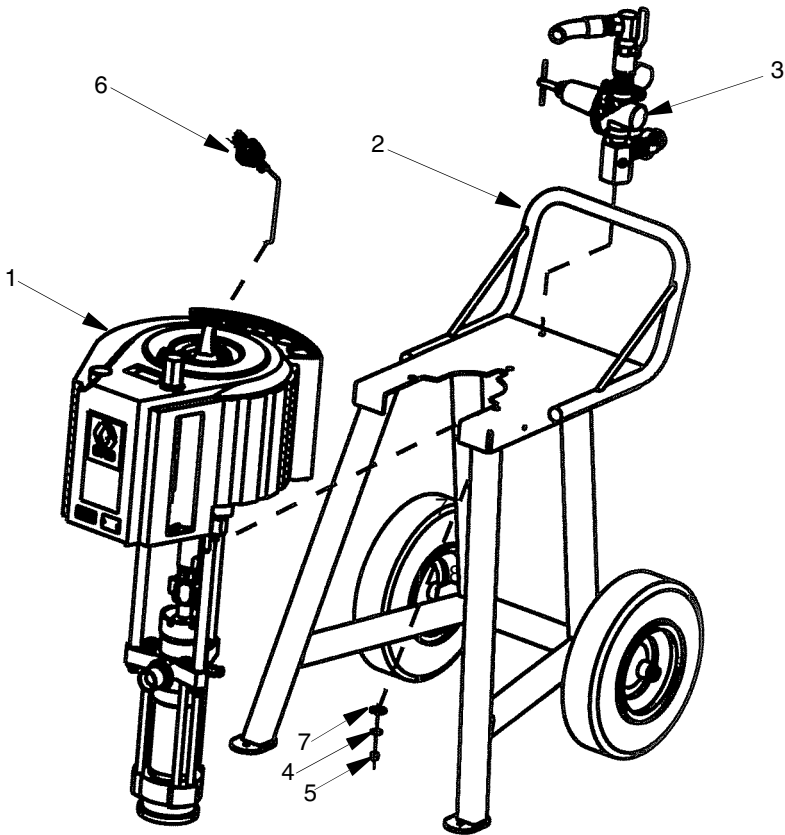
						
To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the Pressure Relief Procedure on page 8.						

Shutdown and care of the pump

For overnight shutdown, relieve the pressure. Stop the pump at the bottom of its stroke to prevent fluid from drying on the exposed displacement rod and damaging the throat packings.

Always flush the pump before the fluid dries on the displacement rod. Never leave water or water-based fluid in the pump overnight. First, flush with water or a compatible solvent, then with mineral spirits. Relieve the pressure, but leave the mineral spirits in the pump to protect the parts from corrosion.

Parts



253912

Ref. No.	Part No.	Description	Qty.	Ref. No.	Part No.	Description	Qty.
1	222942	PUMP	1	5	101566	NUT, lock	3
2	236943	CART	1	6	238909	WIRE, grounding assembly	1
3	236989	AIR REGULATOR KIT	1	7	190072	GASKET	3
4	100023	WASHER, flat	3				

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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 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 Information

TO PLACE AN ORDER, contact your Graco distributor or call to identify the nearest distributor.

Phone: 612-623-6921 **or Toll Free:** 1-800-328-0211 **Fax:** 612-378-3505

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