50:1 Fire–Ball® 300 Pump Module

For automatic lubrication systems only.

Part No. 241573, Series C
3500 psi (24.1 MPa, 241 bar) Maximum Fluid Outlet Pressure
70 psi (0.48 MPa, 4.8 bar) Maximum Air Input Pressure

Important Safety Instructions.
Read all warnings and instructions in this manual.
Save these instructions.

Table of Contents

Warnings .............................................. 2
Installation ......................................... 5
Operation ........................................... 7
Troubleshooting .................................... 8
Parts Drawing ...................................... 9
Parts List ............................................ 10
Technical Data ..................................... 11
Dimensions ......................................... 11
Graco Standard Warranty ......................... 12
Graco Phone Number .............................. 12
WARNING

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 you operate this 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 approved repair parts.
- Check equipment daily. Repair or replace worn or damaged parts immediately.
- Do not exceed the maximum working pressure of the lowest rated component in your system.
- Use fluids and solvents that 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 82°C (180°F) or below −40°C (−40°F).
- Do not lift pressurized equipment.
- Comply with all applicable local, state, and national fire, electrical, and safety regulations.
- Be sure breather is not plugged before filling reservoir.
- Be sure unit is securely mounted before operation.
### WARNING

#### SKIN INJECTION HAZARD

Fluid from the dispensing valve, 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 surgical attention.
- Do not put your hand or fingers over the end of grease outlet.
- Do not stop or deflect leaks with your hand, body, glove or rag.
- Follow the Pressure Relief Procedure on page 7 if the injector clogs and before you clean or service this equipment.
- Tighten all fluid connections before you operate this 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 protect them from rupture caused by kinks or bends near the couplings.

#### TOXIC FLUID HAZARD

Hazardous fluids 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.
- Contaminants in air supply will be exhausted through the air motor.
<table>
<thead>
<tr>
<th>WARNING</th>
</tr>
</thead>
</table>

**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 dispensed to. See **Grounding** on page 5.
- If there is any static sparking or you feel an electric shock while using this equipment, **stop dispensing 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 dispensed.
- Keep the dispensing area free of debris, including solvent, rags, and gasoline.
- Do not smoke in the dispensing area.

**MOVING PARTS HAZARD**

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

- Do not operate the pump with the air motor plates removed.
- Do not insert fingers in overflow port when filling reservoir.
- Keep clear of all moving parts when you start or operate the pump.
- Before you service this equipment, follow the **Pressure Relief Procedure** on page 7 to prevent the equipment from starting unexpectedly.
Reservoir

Fig. 2. Mount reservoir (P) on sturdy flat surface with 6, 3/8 in. diameter bolts. Note location of fill port (K) for easy access once installed.

Air and Fluid Line Accessories

⚠️ WARNING

Two accessories are required in your system: an air shut-off valve/air bleed device and ground wire. These accessories help reduce the risk of serious bodily injury, including fluid injection, splashing in the eyes or on the skin, injury from moving parts if you are adjusting or repairing the pump, and explosion from static sparking.

- The air bleed device relieves air trapped between it and the air motor after the air supply is shut off. Trapped air can cause the air motor to cycle unexpectedly, causing serious injury if you are adjusting or repairing the pump. Use a bleed-type master air valve (T). Install them near the pump air inlet within easy reach from the pump.
- The ground wire (R) reduces the risk of static sparking (required for non–mobile installation).

⚠️ CAUTION

Do not hang the air accessories directly on the air inlet. The fittings are not strong enough to support the accessories and may cause one or more to break. Provide a bracket on which to mount the accessories.

NOTE: Install the air line accessories as shown in Fig. 2.

1. Install an air line filter (B1) to remove harmful dirt and contaminants from your compressed air supply.

2. Install air regulator (B2) to control pump speed and pressure (see WARNING at left).

3. Install an air line lubricator (B3) for automatic air motor lubrication.

4. Install air solenoid valve (C). Air solenoid valve turns pump on and off using signal from automatic lube timer.

5. Install bleed-type master air valve (F) upstream from all other accessories, to isolate accessories for servicing.

6. Connect air supply from air solenoid valve via air hose to quick disconnect air fitting (N) located at tee on top of vent valve.

7. Connect supply line (G) to vent valve (U).

8. Ground system (see Grounding below). Mount reservoir to grounded chassis member.

Grounding (for non–mobile installation)

Fig. 1. Loosen grounding lug locknut (A) and washer (B). Insert one end of a 12 ga (1.5 mm²) minimum ground wire (C) into slot in lug (D) and tighten locknut securely. Connect other end of wire to true earth ground. To order a ground wire and clamp, order part number 222011.
Installation

Typical Installation

The installation shown in Fig. 2 is only a guide for selecting and installing system components. Contact your Graco distributor for assistance in planning a system to suit your needs.

**KEY**

- **A** Main air supply
- **B** Filter/Regulator/Lubricator assembly
  - B1 Air filter
  - B2 Air regulator
  - B3 Air lubricator
- **C** Air solenoid valve
- **D** Pump module
- **E** Ignition switch
- **F** Bleed–type master air valve (required)
- **G** High-pressure lubricant supply lines
- **H** Injector banks
- **J** Lubrication controller
- **K** Fill port
- **L** Overflow port
- **M** Breather
- **N** Quick disconnect air coupler
- **P** Reservoir
- **R** Ground wire (for non–mobile installation)
- **U** Vent valve
- **V** Vent line
- **W** Follower plate (optional)
- **X** Pressure gage
- **Y** Level Indicators (optional)

**Fig. 2**

8853b
Operation

Pressure Relief Procedure

**WARNING**

**SKIN INJECTION HAZARD**
To reduce the risk of serious injury, including fluid injection or splashing in the eyes or on the skin, always follow the Pressure Relief Procedure whenever you:
- Are instructed to relieve the pressure
- Shut off the pump
- Check, clean, or service any of the system equipment
- Install or clean the dispensing devices

1. Fig. 2. Disconnect power from Lubrication Controller (J).
2. Disable air supply to pump (D) by one of the following means:
   - Close bleed-type air valve (F).
   - Disconnect quick disconnect air coupler (N) from tee on vent valve.

**WARNING**

**MOVING PARTS HAZARD**
Do not insert finger into the overflow port while filling a reservoir equipped with a follower plate. Injury or amputation could result.

Start-up

**Prime Vent Line.** Fig. 2. The first time the reservoir is filled, use the vent valve outlet. This removes all air from the vent line (V).
1. Connect lubricant supply hose from remote filling station pump unit to outlet of vent valve (U).
2. Remove plug in fill port (K) located at bottom of reservoir.
3. Slowly turn on supply lubricant until lubricant appears in fill port.
4. Remove lubricant supply hose from vent valve.

**Fill Reservoir.**
1. Fig. 2. Connect lubricant supply hose from remote filling station pump to fill port (K).
2. Connect automatic lube system main supply line (G) to vent valve (U).
3. Remove plug from overflow port (L).
4. Slowly turn on supply lubricant until level of lubricant reaches overflow port.

**Note:** For systems with a follower plate, fill until the follower plate reaches the overflow port.

**Note:** Refer to Automatic Lube System Design Guidelines Manual 309015 for instructions on priming remaining system lubricant lines and further operating instructions.

5. Set air pressure to pump at lowest pressure needed to get desired results.

**WARNING**

**COMPONENT RUPTURE HAZARD**
The maximum working pressure of each component in the system may not be the same. To reduce the risk of overpressurizing any component in the system, be sure you know the maximum working pressure of each component. **Never** exceed the maximum working pressure of the lowest rated component in the system. Overpressurizing any component can result in rupture, fire, explosion, property damage, and serious injury.

Regulate air to the pump so that no air line or fluid line component or accessory is overpressurized.

6. Read and follow instructions supplied with each system component.

**Note:** With a primed pump and sufficient air supply, the pump starts when the timer activates the air solenoid valve. The pump stops when the timer deactivates the air valve.
Operation

Shut Down.

1. To shut off system, disconnect power to lubricator controller (J), and turn off air supply (F and N).
   In an emergency situation, any of the following methods can be used to shut down the system:
   - Turn off the electrical power (E) to system.
   - Disconnect the air line quick disconnect (N) from the air line fitting on the vent valve (U) tee.

   **CAUTION**
   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. If your pump accelerates quickly, or is running too fast, stop it immediately and check the fluid supply.

Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>System does not build sufficient pressure</td>
<td>Pump malfunction</td>
<td>Refer to manual 308883</td>
</tr>
<tr>
<td></td>
<td>Pump turned off too soon</td>
<td>Increase timer “pump on” setting</td>
</tr>
<tr>
<td></td>
<td>Air solenoid malfunction</td>
<td>Repair or replace</td>
</tr>
<tr>
<td></td>
<td>Too low or no air supply</td>
<td>Turn air pressure up or supply on</td>
</tr>
<tr>
<td></td>
<td>Vent valve seal failure</td>
<td>Replace seal</td>
</tr>
<tr>
<td></td>
<td>Vent valve needle/seat failure</td>
<td>Replace needle and seat</td>
</tr>
<tr>
<td></td>
<td>Reservoir out of grease</td>
<td>Fill reservoir</td>
</tr>
<tr>
<td></td>
<td>Broken or leaky supply/branch line</td>
<td>Tighten connections and/or replace line(s)</td>
</tr>
<tr>
<td></td>
<td>Injector failure</td>
<td>Repair or replace</td>
</tr>
<tr>
<td>Lubricant dispensed from pressure relief valve</td>
<td>System pressure set too high</td>
<td>Decrease air pressure to pump</td>
</tr>
<tr>
<td>Pump runs too fast</td>
<td>Reservoir out of lubricant</td>
<td>Fill reservoir</td>
</tr>
<tr>
<td></td>
<td>Pump cavitation</td>
<td>Install a follower plate</td>
</tr>
<tr>
<td></td>
<td>Leak in distribution system</td>
<td>Repair leak</td>
</tr>
<tr>
<td>Lubricant coming out of breather</td>
<td>Reservoir overfilled</td>
<td>Drain lubricant until overflow stops</td>
</tr>
<tr>
<td>Pump will not start</td>
<td>No air supply</td>
<td>Verify/check air supply</td>
</tr>
<tr>
<td></td>
<td>Air solenoid malfunction</td>
<td>Replace air solenoid</td>
</tr>
<tr>
<td></td>
<td>No electrical supply to lubrication controller</td>
<td>Turn on electrical supply</td>
</tr>
<tr>
<td></td>
<td>Lubrication controller malfunction</td>
<td>Refer to controller manual 308950</td>
</tr>
<tr>
<td></td>
<td>Pump malfunction</td>
<td>Refer to pump manual 308883</td>
</tr>
</tbody>
</table>

Service

Service Instructions

See separate system component manuals for service instructions. For pump service see manual 308883. For vent valve service see manual 309954.
# Parts List

**Model 241573, 50:1 Fire-Ball 300 Pump Module**

<table>
<thead>
<tr>
<th>Ref. No.</th>
<th>Part No.</th>
<th>Description</th>
<th>Qty.</th>
<th>Ref. No.</th>
<th>Part No.</th>
<th>Description</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>239887</td>
<td>PUMP, Fire-Ball, 300, 50:1</td>
<td>1</td>
<td>2n</td>
<td>194994</td>
<td>HOSE, air; ¼ in.</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>See manual 308883</strong></td>
<td></td>
<td>2p</td>
<td>194995</td>
<td>HOSE, vent; ½ in.</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>241572</td>
<td>KIT, installation, vent valve</td>
<td>1</td>
<td>2r</td>
<td>208536</td>
<td>COUPLER, line, air</td>
<td>1</td>
</tr>
<tr>
<td>2a</td>
<td>121282</td>
<td>FITTING, straight, swivel</td>
<td>2</td>
<td>2s</td>
<td>155470</td>
<td>UNION, swivel</td>
<td>1</td>
</tr>
<tr>
<td>2b</td>
<td>195218</td>
<td>HOSE, coupled</td>
<td>1</td>
<td>3</td>
<td>241486</td>
<td>KIT, reservoir, 90 # grease</td>
<td>1</td>
</tr>
<tr>
<td>2c</td>
<td>111801</td>
<td>SCREW, cap, flange head</td>
<td>2</td>
<td>3a</td>
<td>100737</td>
<td>PLUG, pipe</td>
<td>2</td>
</tr>
<tr>
<td>2d</td>
<td>115121</td>
<td>VALVE, vent</td>
<td>2</td>
<td>3b</td>
<td>108126</td>
<td>TEE, pipe</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>(see manual 308954)</strong></td>
<td></td>
<td>3c</td>
<td>110996</td>
<td>NUT, flanged, hex</td>
<td>6</td>
</tr>
<tr>
<td>2e</td>
<td>115122</td>
<td>VALVE, pressure relief</td>
<td>1</td>
<td>3d</td>
<td>111800</td>
<td>SCREW, cap, flange head</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>(see manual 308954)</strong></td>
<td></td>
<td>3e</td>
<td>115254</td>
<td>BREATHER</td>
<td>1</td>
</tr>
<tr>
<td>2f</td>
<td>121283</td>
<td>FITTING, 45° street elbow</td>
<td>1</td>
<td>3f</td>
<td>112166</td>
<td>SCREW, cap, soc hd.</td>
<td>2</td>
</tr>
<tr>
<td>2g</td>
<td>108638</td>
<td>TEE, pipe</td>
<td>1</td>
<td>3g</td>
<td>194868</td>
<td>GASKET, cover</td>
<td>1</td>
</tr>
<tr>
<td>2h</td>
<td>156684</td>
<td>UNION, adapter</td>
<td>2</td>
<td>3h</td>
<td>194907</td>
<td>PAIL, reservoir</td>
<td>1</td>
</tr>
<tr>
<td>2j</td>
<td>161889</td>
<td>FITTING, 45° union, swivel</td>
<td>1</td>
<td>3j</td>
<td>247448</td>
<td>COVER, reservoir</td>
<td>1</td>
</tr>
<tr>
<td>2k</td>
<td>162667</td>
<td>ELBOW, street, pipe</td>
<td>1</td>
<td>3k</td>
<td>15M442</td>
<td>GASKET</td>
<td>1</td>
</tr>
<tr>
<td>2l</td>
<td>169970</td>
<td>FITTING, line, air</td>
<td>1</td>
<td>3l</td>
<td>100016</td>
<td>WASHER, lock</td>
<td>2</td>
</tr>
<tr>
<td>2m</td>
<td>194867</td>
<td>BRACKET, vent valve</td>
<td>1</td>
<td>3m</td>
<td>104663</td>
<td>PLUG, pipe</td>
<td>1</td>
</tr>
</tbody>
</table>
**Technical Data**

Pump wetted parts .................................................. See manual 308883
Vent valve wetted parts ........................................... See manuals 308953
Reservoir wetted parts ........................................... steel, buna–n rubber
Maximum delivery ..................................................... 30 oz/min (54 in³/min, 885 cm³) at 60 psi (0.41 MPa, 4.1 bar) air
Air pressure operating range ......................... 50 to 70 psi (0.34 to 0.48 MPa, 3.4 to 4.8 bar)
Air consumption .................................................. 10 scfm (0.283 m³/min) at 60 psi air pressure (0.41 Mpa, 4.1 bar) with flow rate of 20 oz/min (0.59 liter/min)
Fluid outlet pressure range .......................... 1850 to 3500 psi (13 to 24 MPa, 128 to 241 bar)
Reservoir overflow port size ........................................ 1/2 npt(f)
Reservoir fill port size ........................................... 1/2 npt(f)
Air inlet port size .................................................. 1/4 npt(f) (coupler provided)
Lubricant outlet port size ........................................ swivel adapter 1/2 npsm(f)
Grease capacity ...................................................... 90 lb
Mounting holes for pump module ................. Six 7/16" holes on 13 7/8" bolt circle
Reservoir diameter .............................................. 12 3/4" (324 mm)
Pump module height ............................................... 37 3/4" (959 mm)
For sound data see pump manual 308883.

**Dimensions**

![Mounting Diagram]

- Air inlet 1/4 in. npt
- Lubricant outlet 1/2 in. npsm
- Overflow 1/2 in. npt
- Fill port 1/2 in. npt
- Mounting Diagram: 6x 7/16" holes, 13 7/8" bolt circle
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 présent 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 procedures concernées.

Graco Phone Number

TO PLACE AN ORDER, contact your Graco distributor, or call this number to identify the distributor closest to you: 612–623–6928 or, Toll Free: 1–800–533–9655. Fax 612–378–3590

All written and visual data contained in this document reflect the latest product information available at the time of publication. Graco reserves the right to make changes at any time without notice.

This manual contains English. MM 308955

Graco Headquarters: Minneapolis
International Offices: Belgium, Korea, China, Japan

GRACO INC. P.O. BOX 1441 MINNEAPOLIS, MN 55440–1441
www.graco.com