Instructions

5:1 Fire-Ball® 300 Pump

For pumping non-corrosive and non-abrasive greases and lubricants only. For professional use only.

Model No. 203872, 203857, 204254, 222087, 203876

900 psi (6.2 MPa, 62 bar) Maximum Working Pressure
180 psi (1.2 MPa, 12 bar) Maximum Air Input Pressure

Important Safety Instructions
Read all warnings and instructions in this manual. Save these instructions.
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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 symbols refer to procedure-specific risks. When these symbols appear in the body of this manual or on warning labels, refer back to these Warnings. Product-specific hazard symbols and warnings not covered in this section may appear throughout the body of this manual where applicable.

**WARNING**

**EQUIPMENT MISUSE HAZARD**

Misuse can cause death or serious injury.

- 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 from distributor or retailer.
- Do not leave the work area while equipment is energized or under pressure.
- Turn off all equipment and follow the **Pressure Relief Procedure** when equipment is not in use.
- Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer’s replacement parts only.
- Do not alter or modify equipment. Alterations or modifications may void agency approvals and create safety hazards.
- Make sure all equipment is rated and approved for the environment in which you are using it.
- 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.

**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.

- Read MSDSs 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 chemically impermeable gloves when spraying, dispensing, or cleaning equipment.

**MOVING PARTS HAZARD**

Moving parts can pinch, cut or amputate fingers and other body parts.

- 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** and disconnect all power sources.

**PERSONAL PROTECTIVE EQUIPMENT**

Wear appropriate protective equipment when in the work area to help prevent serious injury, including eye injury, hearing loss, inhalation of toxic fumes, and burns. This protective equipment includes but is not limited to:

- Protective eyewear, and hearing protection.
- Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer.
Installation

Grounding

The equipment must be grounded to reduce the risk of static sparking and electric shock. Electric or static sparking can cause fumes to ignite or explode. Improper grounding can cause electric shock. Grounding provides an escape wire for the electric current.

Be sure to ground all this equipment:

**Pump**: Use a ground wire and clamp as shown in FIG. 1.

**Fluid hoses**: Use only electrically conductive hoses.

**Air compressor**: Follow manufacturer’s recommendations.

**Fluid supply container**: Follow the local code.

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

To ground the pump: remove the ground screw (Z) and insert through the eye of the ring terminal at end of the ground wire (Y). Fasten the ground screw back onto the pump and tighten securely. Connect the other end of the ground wire to a true earth ground. See Fig. To order a ground wire clamp, order Part. No. 222011.

**FIG. 1**

1/2 in. (13 mm) between foot spacer and bottom of drum

**FIG. 2: Typical Installation**

**Key**:

A  Bleed-type master air valve (required if quick-disconnect fitting [L] and coupler [M] are not installed) Order Part No. 107142
B  Air line filter
C  Air regulator and gauge
D  Pump runaway valve
E  Air inlet
F  Ground wire (required) Order Part No. 222011
G  Pump (model 204254 shown)
H  Drain valve (required) Order Part No. 210658
J  Dispensing valve
K  Low-level cut-off valve
L  Male quick-disconnect fitting
M  Female quick-disconnect coupler
N  Air line lubricator
P  Fluid hose
R  Thermal relief kit (required) Order Part No. 237893
S  Bung adapter, models 204254 and 222087
1. Install the pump on the drum cover so that the pump's fluid intake is 1/2 inch. (13 mm) off the bottom of the drum. (Fig. 2)

2. **On Models 204254 and 222087**, screw the bung adapter tightly into the drum cover's bung hole, adjust the position of the pump in the drum, and tighten the bung adapter screw to hold the pump.

### System Accessories

*Refer to Fig. 2 for the following instructions.*

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

- The air bleed device relieves air trapped between it and air motor after the air supply is shut off. Trapped air can cause the motor to cycle unexpectedly, causing serious injury if you are adjusting or repairing the pump. Use either a bleed-type master air valve (A) or a quick-disconnect coupler (M) and fitting (L). Install them near the pump air inlet within easy reach from the pump.
- The fluid drain (H) assists in relieve fluid pressure in the displacement pump, hoses, and dispensing valve. Triggering the valve to relieve pressure may not be sufficient.
- The thermal relief kit (R) assists in relieving pressure in the pump, hose, and dispensing valve due to heat and expansion.
- The ground wire (F) reduces the risk of static sparking.

**NOTICE**

Do not hang the air accessories directly on the air inlet (E). The fittings are not strong enough to support the accessories and may break. Provide a bracket on which to mount the accessories.

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

1. Install a pump runaway valve (D) to shut off the air to the pump if the pump accelerates beyond the pre-adjusted setting. A pump that runs too fast can be seriously damaged.

**NOTICE**

Never allow the pump to run dry of fluid being pumped. A dry pump will quickly accelerate to a high speed, possibly damaging itself, and it may get very hot.

2. Install an air line lubricator (N) for automatic air motor lubrication.

3. Install a bleed-type master air valve (A) to relieve air trapped between the valve and the motor. As an alternative, you can install an air line quick-disconnect coupler (M) and fitting (L) to serve as an air-bleed device. See Fig. 2.

4. Install a Thermal Relief Kit (K) on the dispensing valve side of the pump.

5. Install the air regulator (C) to control pump speed and pressure.

6. Install an air line filter (B) to remove harmful dirt and contaminants from the compressed air supply. Install another bleed-type master air valve (A) to isolate the accessories for servicing.

7. Install a drain valve (H) near the pump fluid outlet.

8. Install a suitable fluid hose (P) and dispensing valve (J).
Operation

Pressure Relief Procedure

Follow the Pressure Relief Procedure whenever you see this symbol.

This equipment stays pressurized until pressure is manually relieved. To help prevent serious injury from pressurized fluid, such as skin injection, splashing fluid and moving parts, follow the Pressure Relief Procedure when you stop spraying and before cleaning, checking, or servicing the equipment.

1. Close the pump air regulator and bleed-type master air valve (required in the system).

2. Hold a metal part of the dispensing valve firmly to a grounded metal waste container and trigger the valve to relieve the fluid pressure.

Start and Adjusting the Pump

1. With the air regulator (C) closed, open the bleed-type master air valves (A), or, if so equipped, join the quick-disconnect coupler (M) to the male fitting (L).

2. Open the dispensing valve (J) into a grounded metal waste container, making firm metal-to-metal contact between the container and valve.

3. Open the pump air regulator (C) slowly, just until the pump is running. When the pump is primed and all air has been pushed out of the lines, close the dispensing valve.

NOTE: When the pump is, and with sufficient air supplied, the pump starts when the dispensing valve is opened and shuts off when closed.

4. Adjust the air regulator until you get sufficient flow from the dispensing valve. Always run the pump at the lowest pressure necessary to get the desired results. Do not exceed the maximum working pressure of any component in the system.

5. 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, prime the pump and lines with fluid, or flush it and leave it filled with a compatible solvent. Be sure to eliminate all air from the fluid lines.

NOTE:

- The low-level cut-off valve accessory (K) closes the pump fluid intake when the fluid level is low, which prevents air from entering the system.
- A pump runaway valve (D) should be installed on the air line to automatically shut off the pump if it starts to run too fast.

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

7. If the pump will be unattended for any period of time, if there is an air supply interruption, or at the end of the work shift, shut off the system and always relieve the pressure. (See Pressure Relief Procedure)

NOTICE

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, and it may get very hot.

NOTE:
Troubleshooting

1. Follow **Pressure Relief Procedure**, page 6, before checking or repairing gun.

2. Check all possible problems and causes before dis-assembling gun.

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pump fails to operate</td>
<td>Inadequate air supply pressure or restricted air lines</td>
<td>Increase air supply and/or clear restriction</td>
</tr>
<tr>
<td></td>
<td>Closed or clogged valves</td>
<td>Open and/or clear</td>
</tr>
<tr>
<td></td>
<td>Clogged fluid lines, hoses, valves, etc.</td>
<td>Relieve pressure. Clear obstruction</td>
</tr>
<tr>
<td></td>
<td>Damaged air motor</td>
<td>Assess damage and service air motor</td>
</tr>
<tr>
<td></td>
<td>Exhausted fluid supply</td>
<td>Refill and reprime or flush</td>
</tr>
<tr>
<td>Continuous air exhaust</td>
<td>Worn or damaged air motor gasket or seal</td>
<td>Assess wear or damage and service air motor</td>
</tr>
<tr>
<td>Erratic pump operation</td>
<td>Exhausted fluid supply</td>
<td>Refill and reprime or flush</td>
</tr>
<tr>
<td></td>
<td>Held open or worn intake valve or piston packings</td>
<td>Clear and service</td>
</tr>
<tr>
<td>Pump operates, but output low on upstroke</td>
<td>Held open or worn piston packings</td>
<td>Clear and service</td>
</tr>
<tr>
<td>Pump operates, but output low on downstroke</td>
<td>Held open or worn intake valve</td>
<td>Clear and service</td>
</tr>
<tr>
<td>Pump operates, but output low on both strokes</td>
<td>Inadequate air supply or restricted air line</td>
<td>Increase air supply and/or clear restriction</td>
</tr>
<tr>
<td></td>
<td>Closed or clogged valves</td>
<td>Open and/or clear</td>
</tr>
<tr>
<td></td>
<td>Exhausted fluid supply</td>
<td>Refill fluid supply and reprime pump or flush</td>
</tr>
<tr>
<td></td>
<td>Clogged fluid lines, hoses, valves, etc.</td>
<td>Relieve pressure. Clear obstruction</td>
</tr>
</tbody>
</table>
Service

Displacement Pump Service

Pump Repair Kit 238286 is available and includes repair parts for the pump and air motor. Use all parts in the kit for best results.

1. Flush the pump.
2. Relieve the pressure before proceeding, page 6.
3. Disconnect the hoses, remove the pump from its mounting, and clamp the air motor base (5) in a vise horizontally by closing the vise jaws on the flange.
4. Unscrew the intake valve body (107) from the fluid cylinder (105). Disassemble the intake valve. (See Parts Drawing Page 12.) Clean and inspect the parts for wear or damage, and replace parts as needed. Be sure to check the o-ring (108). Unless further intake valve service is needed, reassemble and reinstall, using liquid sealant on the male threads.
5. Use strap wrench on the fluid cylinder (105) to screw it out of the air motor base (5). Carefully inspect the smooth inner surface on the cylinder for scoring or irregular surfaces. Such damage causes premature packing wear and leaking, so replace the part if it is damaged.
6. Using wrenches on the flats of the displacement rod (8) and on the flats of the fluid piston (11), unscrew the fluid piston from the displacement rod.
7. Take the ball (111) out of the displacement rod (8), and take the packing o-ring (104) off of the fluid piston.
8. Clean and inspect all parts. Use all the repair kit parts during reassembly and replace other parts as necessary.
9. Place the piston ball (109) in the displacement rod (8).
10. Install the new packing o-ring (104) on the fluid piston (110).
11. Clamp the flats of the fluid piston (110) in a vise, and torque the displacement rod (8) to the piston to 40 to 60 ft-lbs (54 to 81 N.m).
12. Clamp the air motor base (5) in a vise horizontally by closing the vise jaws on the flange.
13. Use a strap wrench to screw the displacement pump cylinder (105) to the air motor base (5), and torque to 95 to 105 ft-lbs (129 to 142 N.m).
14. If the ground wire was disconnected before servicing, be sure to reconnect it before you operate the pump.

Air Motor and Throat Service

Refer to Fig. 3 and Fig. 4 for the following instructions.

Pump Repair Kit 238286 is available and includes repair parts for the pump and air motor. Use all parts in the kit for best results.

Two accessory tools should be used: Padded Pliers, 207579, are used to grip the trip rod without damaging its surface; Gauge, 171818, is used to ensure the proper clearance between the poppets and seat of the transfer valve.

Disassembly

1. Flush the pump.
2. Relieve the pressure, see page 6.
3. Disconnect the ground wire from the grounding screw (5a), disconnect the hoses, remove the pump from its mounting, and clamp the air motor base in a vise horizontally by closing the vise jaws on the flange.
4. Use a strap wrench on the fluid cylinder (105) to screw it out of the air motor base (5).
5. Pull the displacement rod (8) down as far as it will go. (Fig. 3)
6. Using wrenches on the flats of the displacement rod (8) and on the flats of the fluid piston (110), unscrew the fluid piston from the displacement rod. Remove the ball (111) from the end of the displacement rod, and remove the packing o-ring (104) from the fluid piston.

7. Clamp the air motor upright in the vise by closing the vise jaws below the flange.

8. Unscrew the cylinder cap nut (29) from the top of the air motor cylinder (17).

9. Pull up on the cylinder cap nut (29) to expose the trip rod, grasp the trip rod with padded pliers, and unscrew the cylinder cap nut from the trip rod.

10. Remove the six screws (21) holding the air motor cylinder (17) to the air motor base (5), and carefully pull the cylinder straight up off the piston (2).

11. Pull the air motor piston/displacement rod assembly (2, 8) clear of the air motor base (5) by pulling up on the air motor piston.

12. Remove the o-rings (9, 112) and u-cup packing (6) from the air motor base (5). Use needle-nose pliers to remove the u-cup packing from the bottom of the air motor base.

13. Remove the o-ring (24) from the air motor piston (2).

14. Clamp the displacement rod upright in the vise by closing the vise jaws on the flats of the displacement rod.

15. Use a screw driver to push down on the trip rod yoke (22) to snap the toggles (M) down. (FIG. 4)

16. Remove the lockwires (31) from the adjusting nuts (30) of the transfer valves. Screw the top nuts off. Screw the valve poppet (1) stems out of the grommets (12) and bottom nuts (30). Take the valve poppets off the stems and squeeze them firmly to check for cracks.

17. Grip the toggle rockers (26) with pliers. Compress the springs (27) and swing the toggle assembly (M) up and away from the piston lugs (L), and remove the assembly. Check that the valve, actuator (13) is support by the spring clips (14), but slides easily into them. (FIG. 4)

18. Remove the trip rod yoke (22), actuator (13), and trip rod (11). Check the exhaust valve poppets (16) for cracks.

19. To remove the exhaust valve poppets (16), stretch them out and cut them with a sharp knife.

NOTICE
Do not damage the plated surface of the trip rod (11). Damaging the surface of the trip rod can result in erratic air motor operation. Use the special padded pliers to grasp the rod.

NOTICE
To avoid damaging the cylinder wall, lift the cylinder straight up off the piston. Never tilt the cylinder while you are removing it.
Reassembly

1. Clean all the parts carefully in a compatible solvent, and inspect for wear or damage. Use all the repair kit parts during reassembly, and replace other parts as needed.

2. Check the polished surfaces of the piston (2), displacement rod (8), and cylinder (17) wall for scratches or wear. A scored rod causes premature throat seal wear and leaking.

3. Lubricate all parts with a light, water-resistant grease.

4. Clamp the displacement rod (8) upright in the vise by closing the vise jaws on the flats of the displacement rod.

5. Pull the exhaust valve poppets (16) into the value actuator (13), and clip off the top part shown with dotted lines in Fig. 4.

6. Install the new grommets (12) in the actuator (22), place the inlet valve poppets (1) in the piston, and thread the bottom valve nuts (30) onto the stems of the inlet valve poppets until there are a few threads left before the threads run out.

NOTE: If you thread the valve nuts too far down onto the poppets, they will run off of the threaded part of the poppets.

7. Grease heavily and place the trip rod (11) in the air motor piston (2), place the actuator (13) in the yoke (22), and place the well-greased actuator/yoke assembly in the piston with the trip rod going through the center holes of the actuator and yoke and the stems of the inlet valve poppets (1) going through the grommets (12).

NOTE: A multipurpose, high temperature, water resistant NLGI#2 grease is recommended.

8. Thread the top of valve nuts (30) onto the stems of the inlet valve poppets (1) until one thread of the inlet valve poppets is exposed above the valve nuts.

9. Install the pins (23) in the yoke (22), place the toggle arm (25) ends of the toggle assembly (M) onto the toggle pins, and snap the pivot pin (26) ends of the toggle assembly into the piston lugs (L).

10. Measuring with the gauge create 0.145 inch (3.7 mm) of clearance between the inlet valve poppets (1) and the piston seat when the inlet valve is open. See the Cutaway View, Fig. 4.

NOTE: Adjust the distance between the inlet valve poppets and the piston seat by turning the top valve nuts (30).

11. Tighten the bottom valve nuts (30) by hand. The grommets (12) should be slightly compressed.

12. Align the holes in the valve nuts (30) and the slots on the stems of the inlet valve poppets (1), and drop the lock wires (31) through the holes in the valve nuts and into the slots in the stems of the inlet valve poppets. Pull the lock wires down tightly, and bend the ends with pliers so that they cannot be pulled back out of the holes.

13. Take the assembly out of the vise so that you can move it around for the next two steps.

14. Grease and install the new o-rings (9, 24, 112).

15. Install the new u-cup packing (6) through the bottom of the air motor base, with the lips facing toward the bottom of the pump.

16. Slide the displacement rod (8) down through the packings, and lower the air motor piston (2) into the air motor base (5).

17. Clamp the air motor upright in the vise by closing the vise jaws below the flange.

18. Carefully lower the air motor cylinder (17) straight down onto the piston assembly (2). Tighten the six screws (21) holding the air motor cylinder to the air motor base (5).

NOTE: You may have to hold the unit upside down to shake the trip rod loose.

19. Pull the trip rod (11) so it is sticking up out of the air motor cylinder (17).

NOTICE

Never re-use the old lock wires. They will get brittle and break easily from too much bending.

To avoid damaging the cylinder wall, lower the cylinder straight down onto the piston. Never tilt the cylinder as it is being lowered.

306518ZAE
20. Grip the trip rod (11) with padded pliers, screw the cylinder cap (29) onto the trip rod, push the cylinder cap nut down, and screw it into the top of the cylinder.

<table>
<thead>
<tr>
<th>NOTICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not damage the plated surface of the trip rod (11). Damaging the surface of the trip rod can result in erratic air motor operation. Use the special padded pliers to grasp the rod.</td>
</tr>
</tbody>
</table>

21. Place the piston ball (109) in the displacement rod (8).

22. Clean the threads of the fluid piston (110), apply Loctite® to the threads, install the new packing o-ring (104) on the fluid piston, and thread the fluid piston onto the displacement rod (8).

23. Clamp the flats of the fluid piston (11) in a vise, and torque the displacement rod (8) to the piston to 40 to 60 ft-lbs (54 to 81 N.m).

24. Clamp the air motor base (5) in a vise horizontally by closing the vise jaws on the flange.

25. Use a strap wrench to screw the displacement pump cylinder (105) to the air motor base (5), and torque to 95 to 105 ft-lbs (129 to 142 N.m).

26. Before remounting the pump, connect an air hose and run the air motor slowly, starting with just enough air pressure to make the air motor run, and make sure it operates smoothly.

27. Reconnect the ground wire before you resume regular pump operation.

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⚠️ Push toggles (M) in and then up.

⚠️ Cut off tops of poppets as indicated by dotted lines.

⚠️ Turn wires up.

⚠️ 0.145 in (3.7 mm) clearance between poppets (1) and seat when it is open.

**Fig. 4**
Parts

Air Motor

Pump

⚠️ Lips face down.
### Model 203857, Series R, 55 gal.
*Includes items 101 to 114*

### Model 203872, Series R, 16 gal.
*Includes items 101 to 113 and 115*

### Model 203876, Series R, Universal
*Includes items 101 to 112*

### Model 204254, Series U, 55 gal. Bung Mount
*Includes items 101 to 113, 116, and 118*

### Model 222087, Series G, 275 gal. Bung Mount
*Includes items 101 to 113, 117, and 118*

#### Air Motor

<table>
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<tr>
<th>Ref.</th>
<th>Part Description</th>
<th>Qty.</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Ø VALVE, poppet</td>
<td>2</td>
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<tr>
<td>2</td>
<td>15K534 PISTON, air motor</td>
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<tr>
<td>4</td>
<td>116343 SCREW, grounding 1</td>
<td>1</td>
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<tr>
<td>5</td>
<td>238278 BASE, air motor, includes 5a</td>
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<tr>
<td>5a</td>
<td>116343 SCREW, grounding 1</td>
<td>1</td>
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<tr>
<td>6</td>
<td>Ø PACKING, u-cup 1</td>
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<td>8</td>
<td>191124 ROD, displacement 1</td>
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<tr>
<td>9</td>
<td>Ø O-RING, buna-N 1</td>
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<td>10</td>
<td>160624 O-RING, buna-N 1</td>
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<td>11</td>
<td>203965 ROD, trip 1</td>
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<td>12</td>
<td>Ø GROMMET, rubber 2</td>
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<tr>
<td>13</td>
<td>172867 ACTUATOR, valve 1</td>
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<tr>
<td>14</td>
<td>172866 CLIP, spring 2</td>
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<td>15</td>
<td>102975 SCREW, rd hd mach, no. 6-32 x 1/4&quot; (6.3mm)</td>
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<td>16</td>
<td>Ø POPPET, valve 2</td>
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<tr>
<td>17</td>
<td>160613 CYLINDER, air motor 1</td>
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<tr>
<td>18</td>
<td>Ø PLATE, identification, with muffler 1</td>
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<tr>
<td>19</td>
<td>Ø SCREW, hex head, no. 8-32 x 0.38 inches (10 mm) long 12</td>
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<td>20</td>
<td>Ø PLATE, warning, with muffler 1</td>
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<tr>
<td>21</td>
<td>101578 SCREW, hex head, 5/16-18 x 0.88&quot; 6</td>
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#### Pumps

<table>
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<th>Ref.</th>
<th>Part Description</th>
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<td>104</td>
<td>Ø PACKING, o-ring 1</td>
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<tr>
<td>105</td>
<td>191125 CYLINDER, fluid 1</td>
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<td>106</td>
<td>157182 RETAINER, ball 1</td>
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<tr>
<td>107</td>
<td>183009 BODY, intake valve 1</td>
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<tr>
<td>108</td>
<td>Ø O-RING, buna-N 1</td>
<td>1</td>
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<tr>
<td>109</td>
<td>101190 BALL, steel, 1&quot; (25 mm) dia 1</td>
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<td>110</td>
<td>191122 PISTON, fluid 1</td>
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<tr>
<td>111</td>
<td>100279 BALL, steel, 0.88&quot; (22.2 mm) dia 1</td>
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<td>112</td>
<td>Ø O-RING, buna-N 1</td>
<td>1</td>
</tr>
<tr>
<td>113</td>
<td>110127 SPACER, foot 1</td>
<td>1</td>
</tr>
<tr>
<td>114</td>
<td>191128 TUBE, extension, 21.75&quot; (553 mm) 1</td>
<td>1</td>
</tr>
<tr>
<td>115</td>
<td>191126 TUBE, extension, 14.25&quot; (362 mm) 1</td>
<td>1</td>
</tr>
<tr>
<td>116</td>
<td>191130 TUBE, extension, 26.0&quot; (661 mm) 1</td>
<td>1</td>
</tr>
<tr>
<td>117</td>
<td>191131 TUBE, extension, 36.0&quot; (915 mm) 1</td>
<td>1</td>
</tr>
<tr>
<td>118</td>
<td>222308 BUNG ADAPTER ASSEMBLY, includes items 118a and 118b 1</td>
<td>1</td>
</tr>
<tr>
<td>118a</td>
<td>104542 SCREW, cap, hex hd, M8 x 1.25&quot; 1</td>
<td>1</td>
</tr>
<tr>
<td>118b</td>
<td>210834 ADAPTER, bung, bare 1</td>
<td>1</td>
</tr>
</tbody>
</table>

*Parts included in Kit 238286 (purchase separately).*

*Parts included in Kit 222559 (purchase separately).*

**NOTE:** Two accessory tools are required for air motor and throat services: Padded Pliers, 207579, and Gauge, 17181.
Technical Data

5:1 Fire-Ball® 300 Pumps

<table>
<thead>
<tr>
<th></th>
<th>US</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum fluid working pressure</td>
<td>900 psi</td>
<td>6.2 MPa, 62 bar</td>
</tr>
<tr>
<td>Fluid pressure ratio</td>
<td>5:1</td>
<td></td>
</tr>
<tr>
<td>Air pressure operating range*</td>
<td>40 to 180 psi</td>
<td>0.28 to 1.2 MPa, 2.8 to 12 bar</td>
</tr>
<tr>
<td>Maximum air consumption</td>
<td>13 ft³/minute for first gpm pumped at 100 psi up to 8 additional ft³/min for each additional gpm with pump operated within recommended range</td>
<td>0.096 m³/minute for first lpm pumped at 0.7 MPa, 7 bar up to 0.058 additional m³/min for each additional lpm with pump operated within recommended range</td>
</tr>
<tr>
<td>Pump cycles per gallon (liters)</td>
<td>30</td>
<td>7.9</td>
</tr>
<tr>
<td>Recommended speed for optimum pump life</td>
<td>70 cycles per minute</td>
<td></td>
</tr>
<tr>
<td>Maximum recommended pump speed</td>
<td>130 cycles per minute 5 gpm</td>
<td>130 cycles per minute 19 lpm</td>
</tr>
<tr>
<td>Wetted Parts</td>
<td>Steel, aluminum, buna-N, urethane</td>
<td></td>
</tr>
<tr>
<td>Sound pressure level (measured at 1 meter from unit)</td>
<td>77.8 dB(A)</td>
<td></td>
</tr>
<tr>
<td>Sound power level (tested in accordance with ISO 9614-2)</td>
<td>85.6 dB(A)</td>
<td></td>
</tr>
<tr>
<td>Approximate weight</td>
<td>17 lb</td>
<td>7.7 kg</td>
</tr>
</tbody>
</table>

Loctite® is a registered trademark of the Loctite Corporation.

![Graph showing fluid outlet pressure vs. air consumption and fluid output rate.](image-url)

Inlet Air Pressures:

- **A** = 100 psi (6.9 bar)
- **B** = 70 psi (4.8 bar)
- **C** = 40 psi (2.8 bar)

TEST FLUID: No. 10 Weight Oil
Dimensions

Model 203876, Series N, Overall length 20.7 in (526 mm)

Overall Length: 20.7 in. (526 mm)

Mounting Hole Layout

Model 203857, Series N, Overall length 45.6 in (1158 mm)
Model 203872, Series N, Overall length 38.1 in (968 mm)
Model 204254, Series S, Overall length 49.9 in (1267 mm)
Model 222087, Series E, Overall length 59.9 in (1521 mm)
Graco 7-Year Pump 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 from the date of sale as defined in the table below, repair or replace equipment covered by this warranty and 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.

<table>
<thead>
<tr>
<th>Components</th>
<th>Warranty Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structural Components</td>
<td>7 years</td>
</tr>
<tr>
<td>Wear Parts - including but not limited to o-rings, packings and seal</td>
<td>1 year</td>
</tr>
</tbody>
</table>

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 one (1) year past the warranty period, or two (2) years for all other parts.

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

**Phone:** 612-623-6928 or **Toll Free:** 1-800-533-9655, **Fax:** 612-378-3590.