

## 15:1 Fire-Ball<sup>®</sup> 300 Pumps

306531Z1

For pumping petroleum–based undercoating material.

2700 psi (18.6 MPa, 186 bar) Maximum Working Pressure  
180 psi (1.2 Ma, 12 bar) Maximum Air Input Pressure

### Model No. 206405, Series K

35 lb. pail size

### Model No. 206699, Series J

120 lb. drum size

### Model No. 206700, Series J

400 lb. drum size



#### Important Safety Instructions

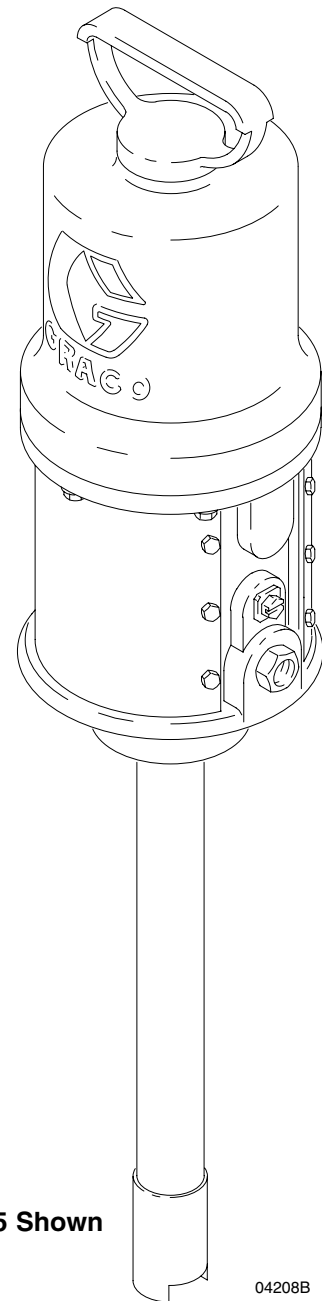
Read all warnings and instructions in this manual.  
Save these instructions.

### WARNING

This product is designed to be used for pumping non-corrosive and non-abrasive fluids only. Any other use can cause unsafe operating conditions and result in component rupture, fire, or explosion, which can cause serious injury, including skin injection.

## Table of Contents

Warnings .....	2
Installation .....	6
Operation .....	8
Maintenance .....	10
Troubleshooting Guide .....	12
Air Motor Service .....	13
Displacement Pump Service .....	16
Parts .....	18
Mounting Hole Layout .....	23
Dimensional Drawings .....	23
Technical Data .....	23
Graco Warranty .....	24
Graco Phone Numbers .....	24



Model 206405 Shown

04208B

PROVEN QUALITY. LEADING TECHNOLOGY.

# Symbols

## Caution Symbol



This symbol alerts you to the possibility of damage to or destruction of equipment if you do not follow the instructions.

## Warning Symbol



This symbol alerts you to the possibility of serious injury or death 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. Use only genuine Graco parts and accessories.
- 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 use hoses to pull 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 lift pressurized equipment.
- Comply with all applicable local, state, and national fire, electrical, and safety regulations.

# WARNING



## SKIN 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 might look like just a cut, but it is a serious injury. **Get immediate surgical treatment..**
- 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.
- Close the gun ball valves when you stop spraying.
- Lock the gun trigger safety when you stop spraying.
- Follow the **Pressure Relief Procedure** on page 8 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 8 to prevent the equipment from starting unexpectedly.

# WARNING



## FIRE AND EXPLOSION HAZARD

Improper grounding, poor ventilation, open flames or sparks can cause a hazardous condition and result in a fire or explosion and serious injury.

- Ground the equipment and the object being sprayed. Refer to **Grounding** on page 7.
- 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 operating or if fumes are present.
- Do not operate a gasoline engine in the spray area.



## TOXIC FLUID HAZARD

Hazardous fluid or toxic fumes can cause serious injury or death if splashed in the eyes or on the skin, inhaled, or swallowed.

- Know the specific hazards of the fluid you are using.
- Store hazardous fluid in an approved container. Dispose of hazardous fluid according to all local, state and national guidelines.
- Always wear protective eyewear, gloves, clothing and respirator as recommended by the fluid and solvent manufacturer.



# Installation

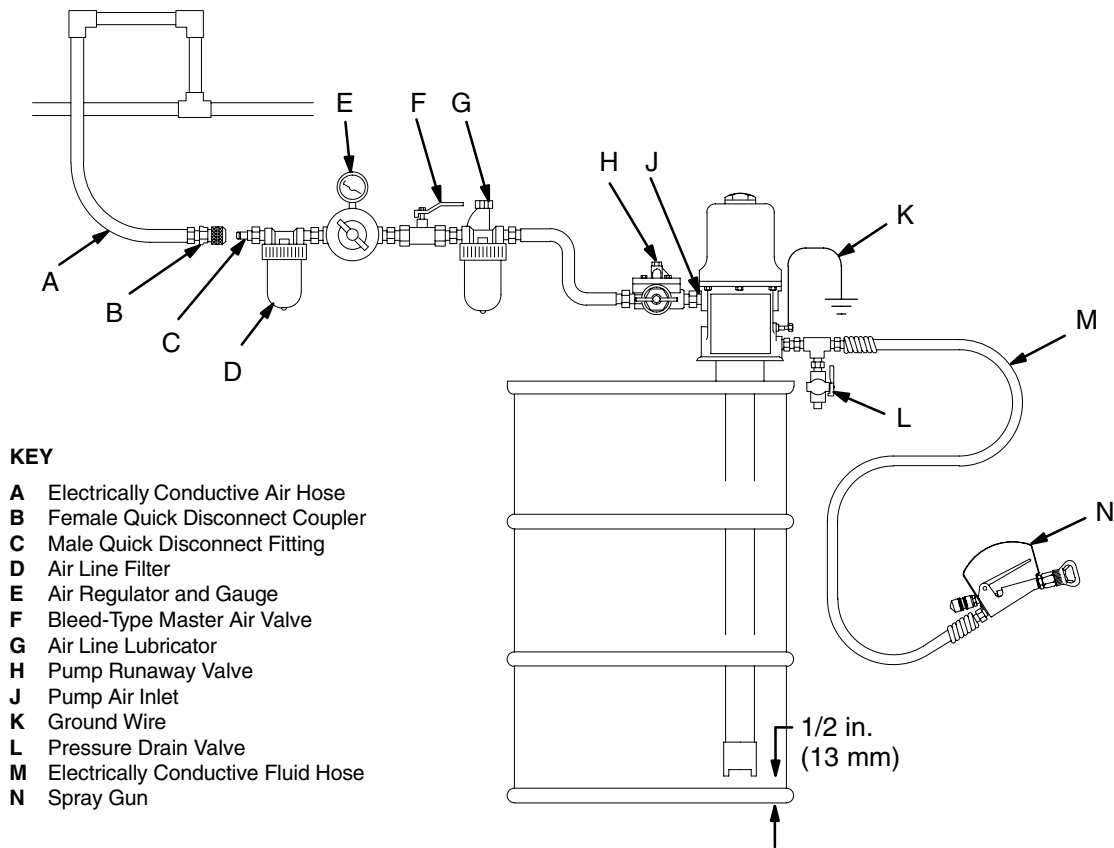


Fig. 1

04209

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

Figure 1 is only a guide to selecting and installing optional and required accessories. For help in designing a system to suit your needs, contact your Graco distributor.

Mount the pump to suit the type of installation planned. See page 23 for dimensions and mounting hole layout.

## System Accessories

### **⚠ WARNING**

To reduce the risk of serious injury including skin injection, splashing in the eyes or on the skin, and injury from moving parts, if you are adjusting or repairing the pump, two accessories are **required** in your system: a bleed-type master air valve (F) and a pressure drain valve (L).

The bleed-type master air valve (F) 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 if you are adjusting or repairing the pump. Install the valve near the pump air inlet, within easy reach of the pump.

The pressure drain valve (L) assists in relieving fluid pressure in the displacement pump, hoses and gun. Triggering the spray gun to relieve pressure may not be sufficient.

# Installation

## **⚠ CAUTION**

Provide a bracket for mounting the air accessories. The fittings are not strong enough to support the accessories and may cause one or more to break.

**NOTE:** Install the accessories in the order shown in Figure 1.

- **A pump runaway valve (H)** shuts off the air to the pump if the pump accelerates beyond the pre-adjusted setting. A pump which runs too fast can be seriously damaged.
- **An air line lubricator (G)** provides automatic air motor lubrication.
- **A bleed-type master air valve (F)** relieves air trapped between it and the motor when the valve is closed. Order Part No. 107142.
- **The air regulator (E)** controls pump speed and pressure.
- **An air line filter (D)** removes harmful dirt and contaminants from your compressed air supply.
- **A drain valve (L)** is required near the pump fluid outlet to relieve fluid pressure in the pump, hose and gun. Order Part No. 210657.
- Install an electrically conductive **fluid hose (M)** and **spray gun (N)**.

## Grounding

Proper grounding is an essential part of maintaining a safe system.

To reduce the risk of static sparking, ground the pump. Check your local electrical code for detailed grounding instructions for your area and type of equipment. Be sure to ground all of this equipment:

- *Pump:* use a ground wire and clamp as shown below.
- *Truck bed or platform:* according to your local code.
- *Fluid hoses:* use only electrically conductive hoses.
- *Air compressor:* follow manufacturer's recommendations.
- *Spray gun:* grounding is obtained through connection to a properly grounded fluid hose and pump.
- *Object being sprayed:* according to local code.
- *Fluid supply container:* according to local code.
- *All solvent pails used when flushing or relieving pressure,* always hold a metal part of the gun firmly to the side of a grounded metal pail, then trigger the gun.

## To ground the pump:

To ground the pump, use a ground wire and clamp as shown below. Remove the ground screw (Z) and insert through the eye of ring terminal at end of 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. 2. *To order a ground wire and clamp, order Part No. 222011.*

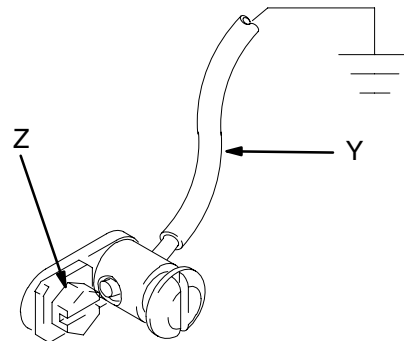


Fig. 2

T11052

# Operation

## Pressure Relief Procedure

### WARNING



#### SKIN 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 tips.

1. Lock the spray gun trigger safety.
2. Close the pump air regulator. Close the bleed-type master air valve (required in your system).
3. Unlock the gun trigger safety.
4. Hold a metal part of the spray gun firmly to a grounded metal waste container and trigger the gun to relieve the fluid pressure.
5. Lock the gun trigger safety.
6. Open the pump drain valve (required with your system) and leave it open until you are ready to spray again.

If you suspect that the spray tip or hose is clogged or that fluid pressure is not fully relieved after following the steps above, **very slowly** loosen the tip guard retaining nut or hose end coupling and relieve pressure gradually. Clear the tip or hose obstruction.

### WARNING



#### COMPONENT RUPTURE HAZARD

Overpressurizing any component can result in rupture, fire, explosion, property damage, and serious injury. To reduce the risk of overpressurizing, know the Maximum Working Pressure of the lowest rated component in your system, and limit the air to the pump so that you **never** exceed that pressure.

To determine the fluid output pressure using the air regulator reading, multiply the pump ratio by the air pressure you set on the regulator gauge. Example:

15 (:1) ratio x 100 psi air = 1500 psi fluid output

[15 (:1) ratio x 7 bar air = 105 bar fluid output]

### WARNING

**Never** operate the pump with the warning plate (20) or the identification plate (40) removed. These plates protect your fingers from pinching or amputation by moving parts in the air motor.

## Starting and Adjusting the Pump

1. With the air regulator (E) closed, open the bleed-type master air valve (F).
2. Connect the air hose.
3. Trigger the spray gun (N) into a grounded metal pail, making firm metal-to-metal contact.
4. Open the pump air regulator (E) slowly, just until the pump is running. When the pump is primed and all air has been pushed out of the lines, release the spray gun trigger. With sufficient air supplied, the pump starts when the spray gun is triggered and shuts off when the trigger is released.
5. Adjust the air regulator just until you get adequate flow from the spray gun. Always run the pump at the lowest speed necessary.

### 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. 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. Use a pump runaway valve (K) to automatically shut off the pump if it starts to run too fast.

6. Read and follow the instructions supplied with each component in your system.
7. If the pump will be unattended for any period of time, or to shut off the system at the end of the work shift, always follow the **Pressure Relief Procedure**, at the left.





# Maintenance

## Shutdown and General Care

### **WARNING**

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

- Always relieve the pressure when you shut down the pump.
- If you are pumping fluid that dries or sets up, flush with a compatible solvent as often as necessary to prevent buildup in the pump and hoses.
- After every 40 hours of operation, adjust the packing nut (42) as described on page 11.

## Flushing

### **WARNING**

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

1. To reduce the risk of skin injection, static sparking or splashing, **Relieve the Pressure** before flushing.
2. Remove the spray tip.
3. Hold a metal part of the gun firmly to the side of a grounded metal pail. Use the lowest possible fluid pressure when flushing.

### **Lubrication**

The accessory air line lubricator (G) provides automatic air motor lubrication. For daily, manual lubrication follow this procedure:

1. Disconnect the regulator.
2. Place about 15 drops of light machine oil in the pump air inlet.
3. Reconnect the regulator.
4. Turn on the air supply to blow oil into the motor.

# Maintenance

## Packing Nut Adjustment

### **⚠ WARNING**

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

### **⚠ WARNING**

Keep your hand and fingers away from the piston when it is moving. As the piston moves into the pump base it can amputate fingers or break tools caught between the moving parts. Note the pinch point shown in Fig. 3. Be sure all air and fluid pressure is fully relieved before adjusting the piston or packing nut to reduce the risk of amputation.

**NOTE:** Perform this adjustment if: (a) material drips steadily from the air motor weep hole, which indicates the packings are too loose, (b) the pump requires more than 50 psi (.345 MPa, 3.4 bar) air pressure to cycle when the gun is triggered, which indicates the packings are too tight, or (c) the pump has been in operation for 40 hours.

1. **Relieve the pressure.** Follow the **Pressure Relief Procedure** on page 8.
2. Using a 1/4" nut driver, remove the six screws (24) from one of the muffler plates (20 or 40) and remove the muffler plate. See Fig. 4.
3. Check to see that the air motor piston is at the top of the stroke. If it is not, **first read the warning above. Then, while keeping your fingers away from moving parts**, apply very low pressure air to the air inlet to move the piston up. Close the air regulator and disconnect the air supply hose. Refer to Fig. 3.
4. Use a 1/4" diameter rod, spanner wrench, or torque wrench to tighten the packing nut. First loosen the nut, then tighten snugly, and finally tighten an additional 1/2 turn (20–25 ft-lbs). See Fig. 5.
5. Replace the muffler cover, and the six screws. See Fig. 4.
6. Reconnect the air line. After the pump is started, it should run at 40 psi (.276 MPa, 2.8 bar) with no load. Startup may require additional air pressure.

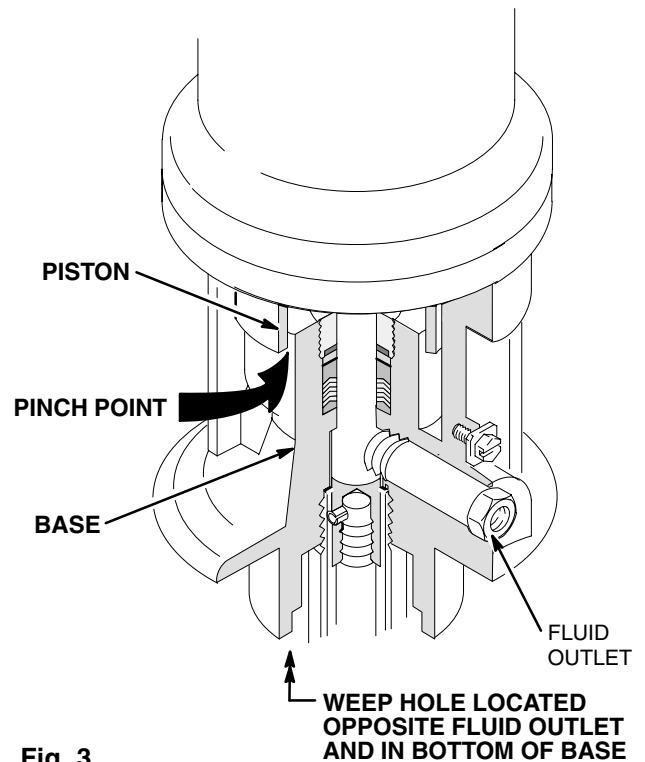


Fig. 3

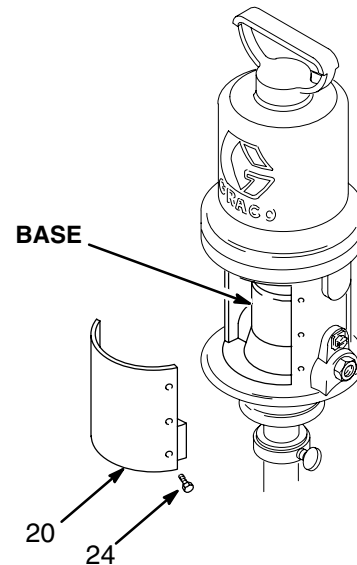


Fig. 4

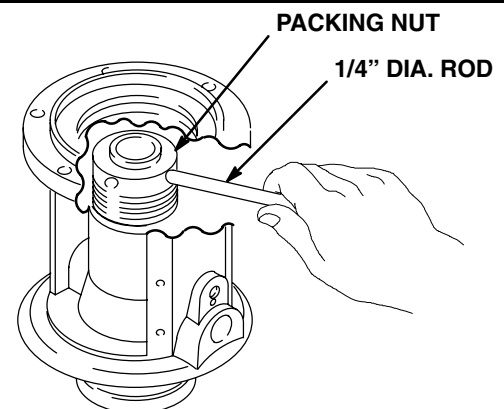


Fig. 5

# Troubleshooting

## ⚠ WARNING

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

## ⚠ WARNING

**Never** operate the pump with the warning plate (20) or the identification plate (40) removed. These plates protect your fingers from pinching or amputation by moving parts in the air motor.

**Relieve the Pressure** before you check or service any system equipment.

**NOTE:** Check all other possible problems and solutions before disassembling the pump.

Problem	Cause	Solution
Pump fails to operate	Low air supply pressure or restricted air lines	Increase air supply; clear*
	Closed valves	Open
	Clogged fluid lines, hoses, valves, etc.	Clear*
	Damaged air motor	Service air motor
	Empty fluid supply container	Refill and reprime, or flush
Continuous air exhaust	Worn or damaged air motor gasket, packing, seal, etc.	Service air motor
Erratic pump operation	Empty fluid supply container	Refill and reprime, or flush
	Held open or worn intake valve or piston packings	Clear; service
Pump operates, but output is low on the up stroke	Held open or worn piston or packings	Clear; service
Pump operates, but output is low on the down stroke	Held open or worn intake valve	Clear; service
Pump operates, but output is low on both strokes	Low air supply pressure or restricted air lines	Increase air supply; clear*
	Closed valves	Open
	Empty fluid supply container	Refill and reprime, or flush
	Clogged fluid lines, hoses, valves, etc.	Clear*
	Packing nut too tight	Loosen
	Loose packing nut or worn packings	Tighten; replace

\*Follow the **Pressure Relief Procedure** on page 8. Disconnect the fluid hose. If the pump starts when the air is turned on again, the hose or gun is clogged.

# Air Motor Service

## Before you start:

- Have all necessary parts on hand. Always replace the glands and bearing when replacing the packings. Use all the parts in the repair kits for the best results. See page 18 to order the kits.
- **Air Motor Repair Kit 206728.** Parts included in this kit are marked with a dagger, (for example, 36†), in the text and drawings.
- **Displacement Pump Repair Kit 206925.** Parts included in this kit are marked with one asterisk, (i.e., 6\*), in the text and drawings.
- Two accessory tools should be ordered. Use **Padded Pliers, 207579**, to grip the trip rod without damaging its surface. Use **Gauge, 171818**, to ensure the proper clearance between the poppets and seat of the transfer valve.

## Air Motor & Throat Disassembly

### ⚠ WARNING

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

1. Flush the pump.
2. Relieve the pressure before proceeding.
3. Disconnect the hoses, remove the pump from its mounting, and clamp the air motor base (55) in a vise.
4. Use a strap wrench on the riser tube (12) to screw it out of the air motor base (55).
5. Pull the connecting rod (10) down as far as it will go.
6. Use a hammer and punch to remove the roll pin (4). Unscrew the connecting rod (10). See Fig. 6.

### ⚠ CAUTION

Do not damage the plated surface of the trip rod (54). Damaging the surface of the trip rod can result in erratic air motor operation. Use the special Padded Pliers, Part Number 207579, to grasp the rod.

7. Manually push up on the piston rod (41) to move the piston assembly (59) up as far as it will go. Unscrew the cap nut (47). Pull the nut up. Grip the trip rod (54) with padded pliers, and screw the nut off the rod. See Fig. 6.

### ⚠ CAUTION

To avoid damaging the cylinder wall, lift the cylinder (51) straight up off the piston (59). Never tilt the cylinder as it is being removed.

8. Remove the six screws (25). See Fig. 6. Pull the cylinder (51) straight up off the piston (59).
9. Use a screwdriver to push down on the trip rod yoke (28), and snap the toggles down. See Fig. 7.

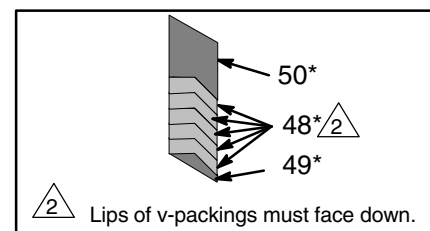
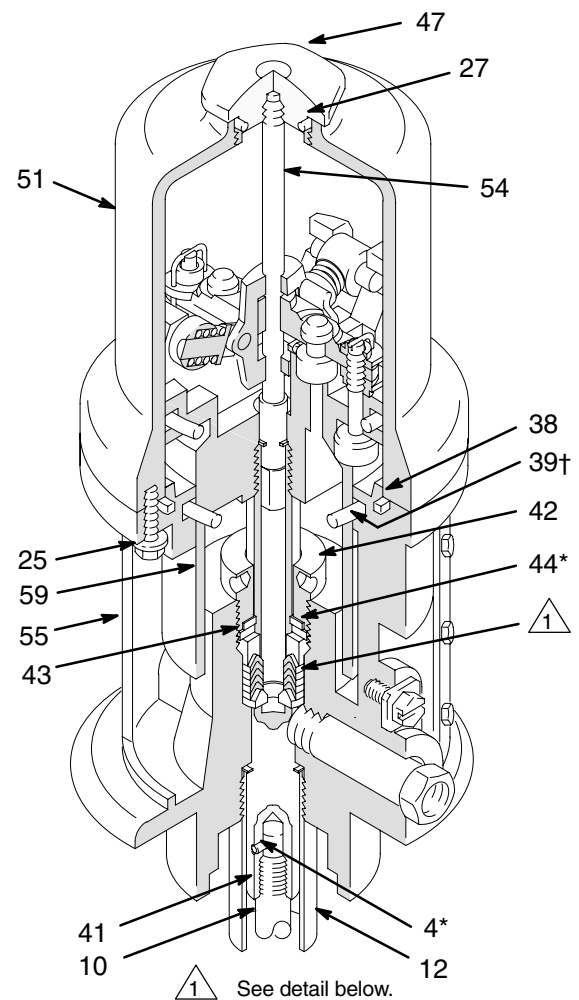
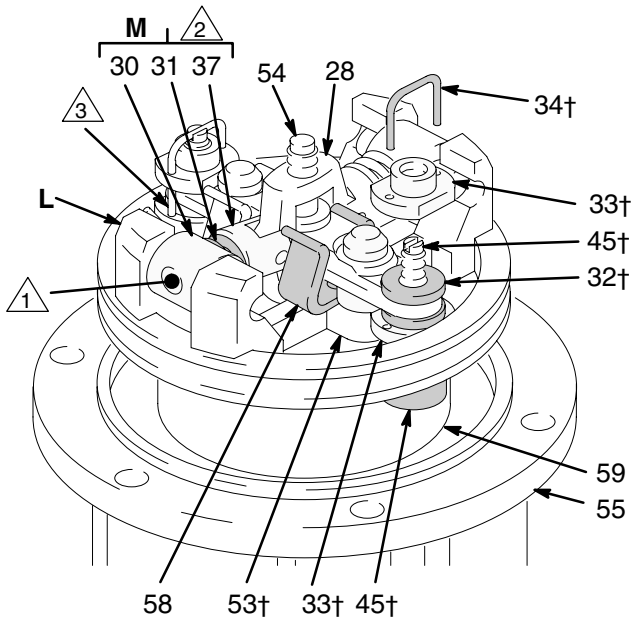


Fig. 6

04210B

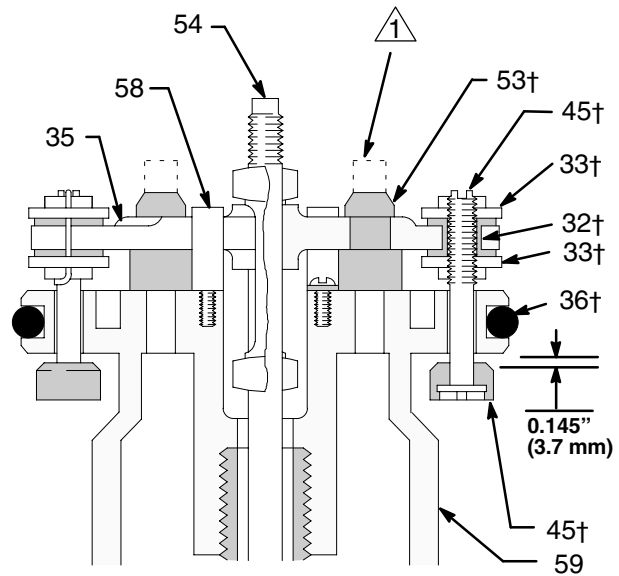
# Air Motor Service



- 1 To remove toggles: push in, swing up, ease out.
- 2 Push toggles (M) in and then up (shown in down position).
- 3 Turn wires up.

04118

Fig. 7



Cutaway View

- 1 Cut off tops of poppets as indicated by dotted lines.

04119

Fig. 8

10. Remove the lockwires (34†) from the adjusting nuts (33†) of the transfer valves. Screw the top nuts off. Screw the poppet valve stems (45†) out of the grommets (32†) and the bottom nuts (30). Take the valve poppets off the stems and squeeze them firmly to check for cracks. See Fig. 7.

## WARNING

To reduce the risk of pinching or amputating your fingers, **always** keep fingers clear of the toggle assemblies (M).

11. Grip the pivot pins (30) with pliers. Compress the springs (31), and swing the toggle assembly (M) up and away from the piston lugs (L). Remove the parts. Check to see that the valve actuator (35) is supported by the spring clips (58) but slides easily into them. See Fig. 7.
12. Remove the trip rod yoke (28), actuator (35) and trip rod (54). See Fig. 7. Check the exhaust valve poppets (53†) for cracks. To remove the exhaust valve poppets (53†), stretch them out and cut them with a sharp knife.
13. Remove one muffler plate (20 or 40). Pull the piston (59) up out of the base. Remove the throat packing nut (42) and packings. See Fig. 6.

## Reassembly

1. Clean all the parts in a compatible solvent and inspect for wear or damage. Check the polished surfaces of the piston (59), piston rod (41), and cylinder wall (51) for scratches or wear. A scored rod will cause premature packing wear and leaking. Use all the repair kit parts and replace other parts as necessary.
2. Lubricate all parts with a light, waterproof grease.
3. One at a time, install these parts in the base (55): the gland (49\*), five v-packings (48\*) *with lips facing down*, bearing (50\*), backup washer (43), flat packing (44\*), and loosely screw in the packing nut (42). Be sure the o-rings (38 & 39†) are in place. See Fig. 6.
4. Pull the exhaust valve poppets (53†) into the valve actuator (35) and clip off the top part shown with dotted lines. See Fig. 8.
5. Install the grommets (32†) in the valve actuator (35). Install the trip rod (54) in the piston (59). Place the trip rod yoke (28) and valve actuator (35) on the trip rod. Be sure the o-ring (36\*) is in place and that the valve actuator is supported by the spring clips (58), and reassemble the valve mechanism. See Fig. 7.

# Air Motor Service

6. Install the bottom adjusting nuts (33) on the poppet valve stems (45†) and screw the stems into the grommets (32†). Screw the top nuts (33†) on the stems. Before installing the lockwires (34†) in the adjusting nuts, use the gauge 171818 to adjust the transfer valve so there is 0.145 in. (3.7 mm) clearance between the poppets and the seat when it is open. See Fig. 8.
  9. Manually push on the piston rod (41) to move the piston (59) up as far as it will go. Grip the trip rod (54) with padded pliers and screw the cylinder cap nut (47) onto the trip rod. Pull the piston rod (41) to move the piston down. Be sure the o-ring (27) is in place at the top of the cylinder (51), and screw the cap nut into the cylinder.
  10. Screw the connecting rod (10) into the piston rod (41) and secure with the pin (4\*). Manually push on the piston rod (41) to move the piston (59) up as far as it will go. Screw the riser tube (12) into the base (55).
  11. Use a 1/4" diameter rod, spanner wrench, or torque wrench to tighten the packing nut (42). Tighten snugly and then tighten an additional 1/2 turn (20–25 ft–lbs).
  12. Install the muffler plate (20 or 40) using the six screws (24).
  13. Connect an air hose and run the pump slowly [about 30 psi (2.1 bar)] to see that it operates smoothly.
  14. Remount the pump and reconnect the ground wire.
7. Install the springs (31) and pivot pins (30) on the toggle arms (37). Snap the toggles to the up position. Refer to Fig. 7.
  8. Carefully lower the cylinder (51) over the piston (59) and onto the base (55). Secure with the six screws (25).

## WARNING

To reduce the risk of pinching or amputating your fingers, **always** keep fingers clear of the toggle assemblies (M).

# Displacement Pump Service

## Before you start:

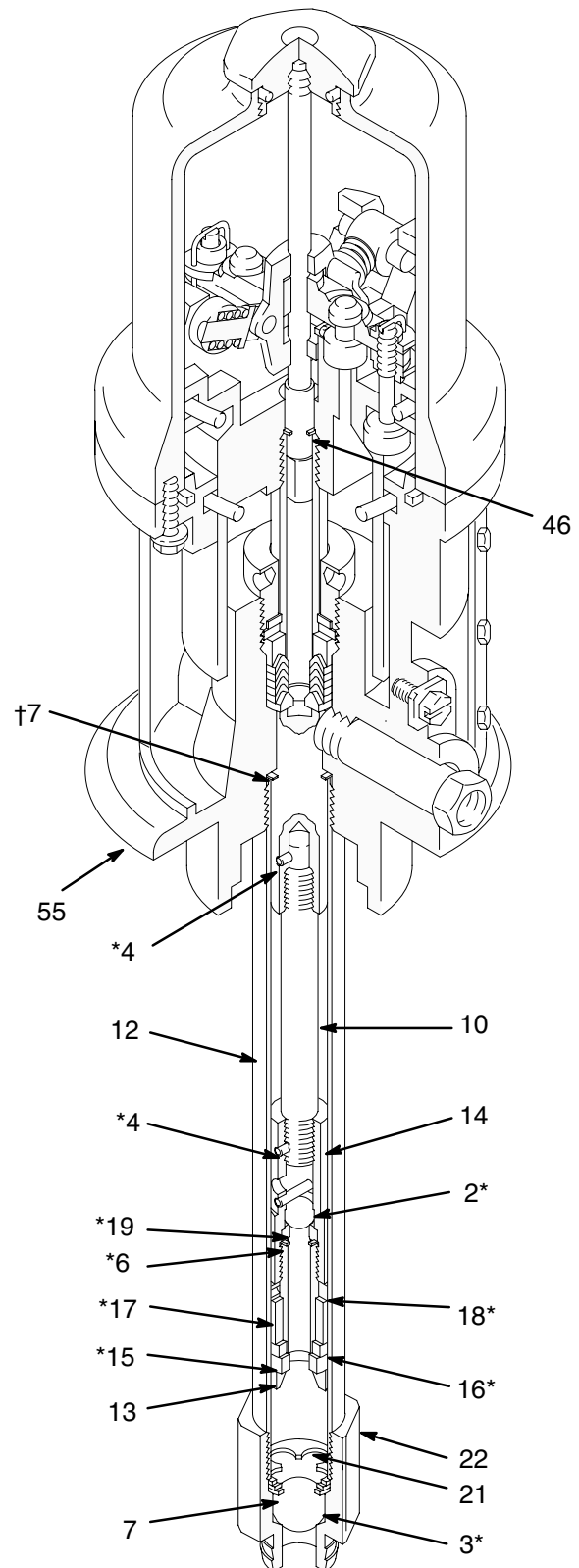
1. Have all necessary parts on hand. Whenever you replace the packings, also replace the glands and bearing. If you are using a repair kit, use all the parts for the best results. See the parts pages to order the kits.
2. **Displacement Pump Repair Kit 206925** includes repair parts for the pump throat and piston. Parts included in the kit are marked with one asterisk, for example (6\*), in the text and drawings.
3. To replace the throat packings, which are included in Repair Kit 206728, refer to the **Air Motor and Throat Disassembly** on page 13.

## Displacement Pump Disassembly

### **WARNING**

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

1. Flush the pump.
2. **Relieve the Pressure**
3. Disconnect the hoses, remove the pump from its mounting, and clamp the air motor base in a vise.
4. Unscrew the intake valve body (22) from the riser tube (12). See Fig. 9. Disassemble the intake valve.
5. Clean and inspect the parts for wear or damage, and replace parts as needed. Unless further service is needed, reassemble and reinstall the intake valve, using liquid sealant on the male threads. See Fig. 9.
6. Use a strap wrench on the riser tube (12) to screw it out of the air motor base (55). Carefully inspect the smooth inner surface of the cylinder for scoring or irregular surfaces. Such damage causes premature packing wear and leaking, so replace the part if damaged.
7. Unscrew the piston body (13) from the piston coupling (14). Remove the ball (2\*), seat (19\*), gasket (6\*), bearing (18\*), packing (17\*), and seal (16\*). Do not remove the press-fit brass bearing (15\*). See Fig. 9.



**Fig. 9**

04212B



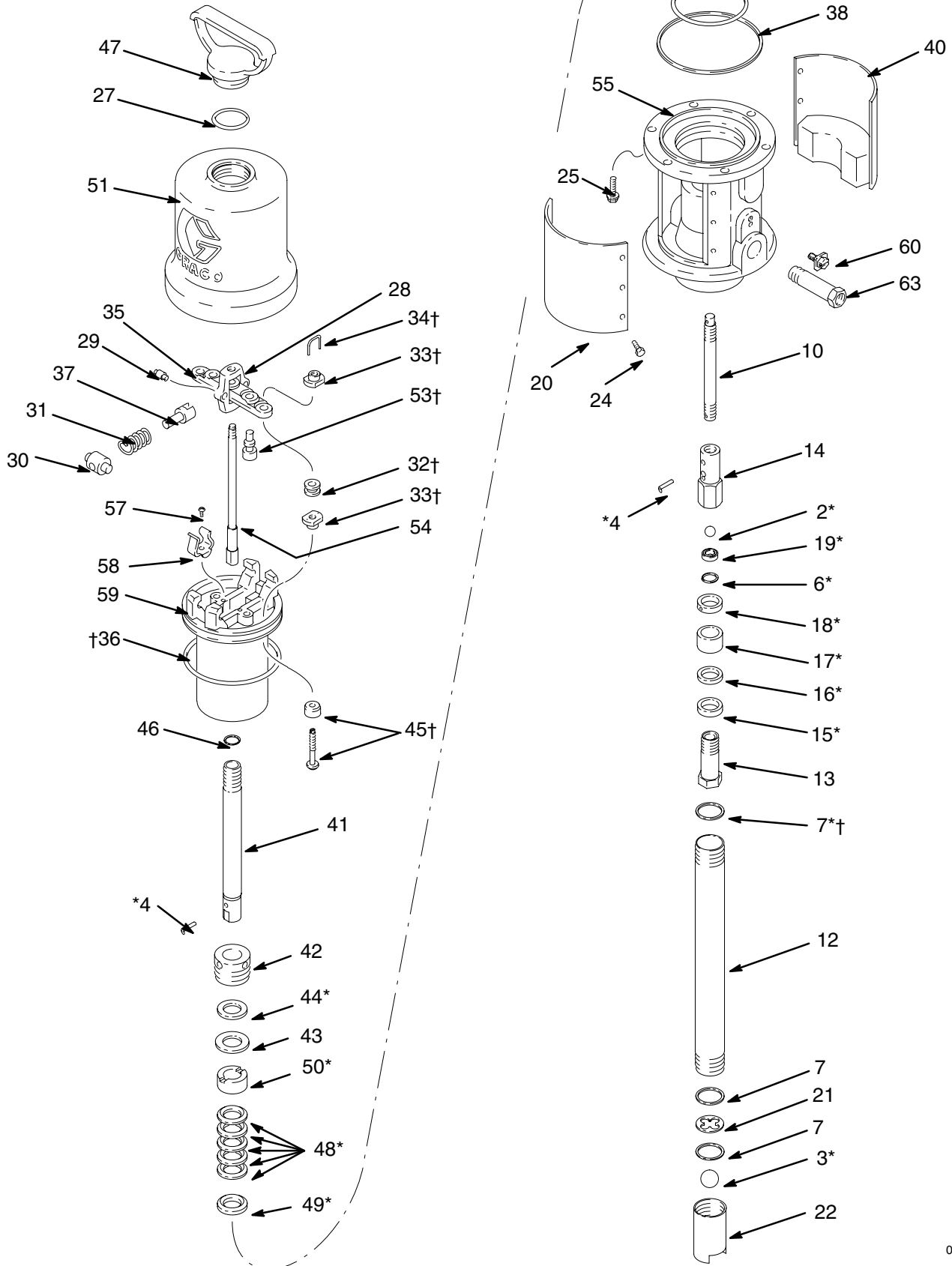
# Displacement Pump Service

**NOTE:** If the pressure-fit brass bearing (15\*) needs to be replaced, clamp it in a vise and drive the piston body (13) out with a plastic hammer. The new bearing **must** be started onto the piston body squarely.

8. Clean and inspect the parts and replace any that are worn or damaged. Be sure to check the copper gasket (46) in the motor base (55). Lubricate the parts with a light waterproof grease.
9. Install the seal (16\*), packing (17\*), bearing (18\*), gasket (6\*), seat (19\*) and ball (2\*) on the piston body (13). The check ball seat (19\*) may be reversed to provide a new seat. Screw the piston body (13) into the piston coupling (14).
10. Install the gasket (7\*). Screw the riser tube (12) into the air motor base (55).
11. Reinstall the ball (3\*), gasket (7), ball stop (21) and other gasket (7) in the intake valve housing (22). Screw the housing onto the riser tube (12).
12. Be sure the ground wire is connected before regular operation of the pump.

# Parts

Model 206405, Series K  
35 lb. pail size



# Parts

## Model 206405, Series K 35 lb. pail size

Ref No.	Part No.	Description	Qty.	Ref No.	Part No.	Description	Qty.
2*	100114	BALL, steel, 0.44" (11.2 mm) dia.	1	37	160623	. ARM, toggle	2
3*	100400	BALL, steel, 0.75" (19 mm) dia.	1	38	160624	. O-RING, nitrile rubber	1
4*	101579	PIN, roll, 0.12" (3.2 mm) dia., 0.75" (19 mm) long	3	39†	160625	. O-RING, nitrile rubber	1
6*	150451	GASKET, copper	1	40**	234577	. PLATE, identification, with muffler	1
7*†	150694	GASKET, copper (qty 1 in kits 206925 and 206728)	3	41	160639	. ROD, piston	1
10	165970	ROD, connecting, 5 1/4" (133 mm) long	1	42	160640	. NUT, packing	1
12	165971	TUBE, riser, 11–11/16" (297 mm) long	1	43	160641	. WASHER, backup	1
13	160939	BODY, piston	1	44*	160644	. PACKING, flat leather	1
14	160940	COUPLING, piston	1	45†	236079	. VALVE, poppet	2
15*	160941	BEARING, press fit, brass	1	46	160932	. GASKET, copper	1
16*	160942	SEAL, piston; PTFE	1	47	164704	. NUT, cylinder cap	1
17*	160943	PACKING, block, nitrile rubber	1	48*	162391	. V-PACKING, leather	5
18*	160944	BEARING, piston, brass	1	49*	168851	. GLAND, male	1
19*	160945	SEAT, piston, reversible	1	50*	168852	. BEARING, throat	1
20**	234578	PLATE, warning (with muffler)	1	51	160613	. CYLINDER, air motor	1
21	183326	STOP, ball	1	53†	170709	. POPPET, valve, urethane	2
22	191080	HOUSING, intake valve	1	54	203965	. ROD, trip	1
24**	100078	. SCREW, hex washer hd, mach, 8–32 x 3/8"	12	55	204896	. BASE, air motor	1
25	101578	. CAPSCREW, hex hd Nylock®, 5/16–18 x 7/8"	6	57	102975	. SCREW, rd hd mach, 6–32 x 1/4"	2
27	156698	. O-RING, nitrile rubber	1	58	172866	. CLIP, spring	2
28	158360	. YOKE, rod, trip	1	59	15K534	. PISTON, air motor	1
29	158362	. PIN, toggle	2	60	116343	. SCREW, ground	1
30	158364	. PIN, pivot	2	63	162718	. ADAPTER, 3/8 npt (m) x 1/4 npt(f)	1
31	167585	. SPRING, helical compression	2				
32†	158367	. GROMMET; rubber	2				
33†	160261	. NUT, adjusting	4				
34†	160618	. WIRE, lock	2				
35	172867	. ACTUATOR, valve	1				
36†	160621	. O-RING, nitrile rubber	1				

\* These parts are included in Pump Repair Kit 206925, which may be purchased separately.

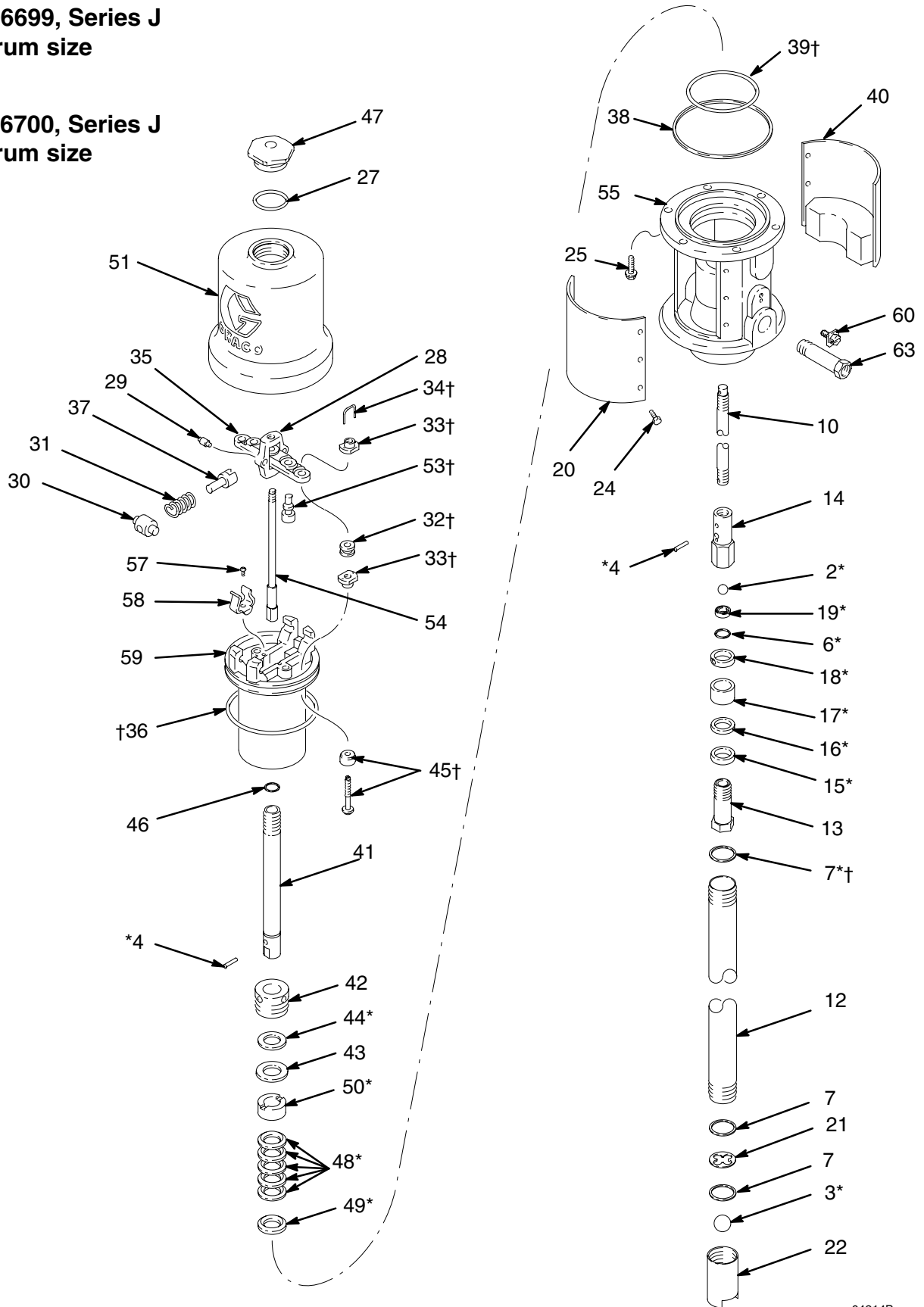
\*\* These parts are included in Muffler Repair Kit 222559, which may be purchased separately.

† These parts are included in Air Motor Repair Kit 206728, which may be purchased separately.

# Parts

**Model 206699, Series J**  
120 lb. drum size

**Model 206700, Series J**  
400 lb. drum size



04214B

# Parts

## Model 206699, Series J 120 lb. drum size

Ref. No.	Part No.	Description	Qty.
2*	100114	BALL, steel, 0.44" (11.2 mm) dia.	1
3*	100400	BALL, steel, 0.75" (19 mm) dia.	1
4*	101579	PIN, roll, 0.12" (3.2 mm) dia., 0.75" (19 mm) long	3
6*	150451	GASKET, copper	1
7*†	150694	GASKET, copper (qty 1 in kits 206925 and 206728)	3
10	160688	ROD, connecting, 18–15/16" (481 mm) long (For Model 206699)	1
	161050	ROD, connecting, 25 7/8" (657 mm) long (For Model 206700)	1
12	160938	TUBE, riser, 25–3/8" (645 mm) long (For Model 206699)	1
	161051	TUBE, riser, 32 5/16" (821 mm) long (For Model 206700)	1
13	160939	BODY, piston	1
14	160940	COUPLING, piston	1
15*	160941	BEARING, press fit, brass	1
16*	160942	SEAL, piston; PTFE	1
17*	160943	PACKING, block, nitrile rubber	1
18*	160944	BEARING, piston, brass	1
19*	160945	SEAT, piston, reversible	1
20**	234578	PLATE, warning (with muffler)	1
21	183326	STOP, ball	1
22	191080	HOUSING, intake valve	1
24**	100078	. SCREW, hex washer hd, mach, 8–32 x 3/8"	12
25	101578	. CAPSCREW, hex hd Nylock, 5/16–18 x 7/8"	6
27	156698	. O-RING, nitrile rubber	1
28	158360	. YOKE, rod, trip	1
29	158362	. PIN, toggle	2
30	158364	. PIN, pivot	2
31	167585	. SPRING, helical compression	2
32†	158367	. GROMMET; rubber	2

## Model 206700, Series J 400 lb. drum size

Ref. No.	Part No.	Description	Qty.
33†	160261	. NUT, adjusting	4
34†	160618	. WIRE, lock	2
35	172867	. ACTUATOR, valve	1
36†	160621	. O-RING, nitrile rubber	1
37	160623	. ARM, toggle	2
38	160624	. O-RING, nitrile rubber	1
39†	160625	. O-RING, nitrile rubber	1
40**	234577	. PLATE, identification, with muffler	1
41	160639	. ROD, piston	1
42	160640	. NUT, packing	1
43	160641	. WASHER, backup	1
44*	160644	. PACKING, flat leather	1
45†	236079	. VALVE, poppet	2
46	160932	. GASKET, copper	1
47	161435	. NUT, cylinder cap	1
48*	162391	. V-PACKING, leather	5
49*	168851	. GLAND, male	1
50*	168852	. BEARING, throat	1
51	160613	. CYLINDER, air motor	1
53†	170709	. POPPET, valve, urethane	2
54	203965	. ROD, trip	1
55	204896	. BASE, air motor	1
57	102975	. SCREW, rd hd mach, 6–32 x 1/4"	2
58	172866	. CLIP, spring	2
59	15K534	. PISTON, air motor	1
60	116343	. SCREW, ground	1
63	162718	. ADAPTER, 3/8 npt (m) x 1/4 npt(f)	1

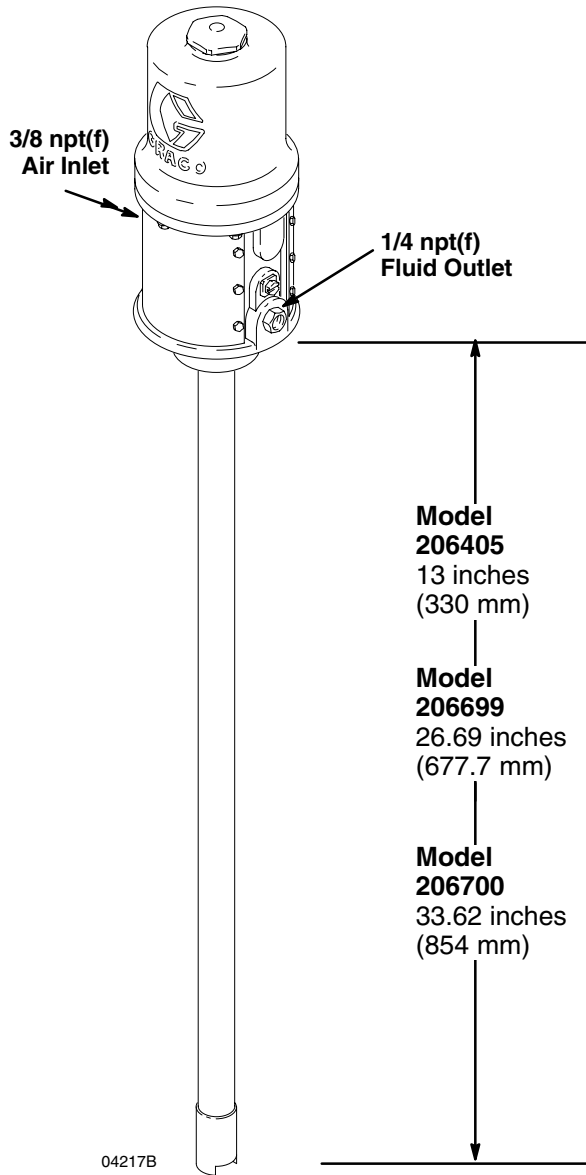
\* These parts are included in Pump Repair Kit 206925, which may be purchased separately.

\*\* These parts are included in Muffler Repair Kit 222559, which may be purchased separately.

† These parts are included in Air Motor Repair Kit 206728, which may be purchased separately.



# Dimensions



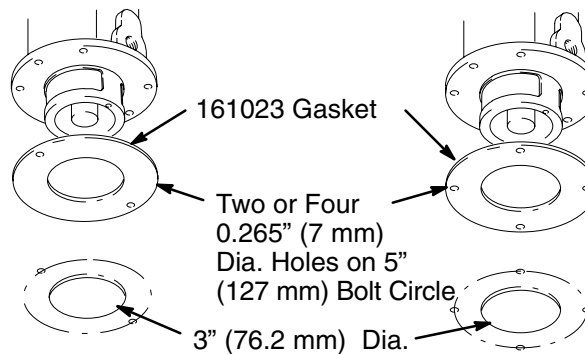
# Technical Data

Maximum Working Pressure . . . . . 2700 psi (186 bar)  
 Fluid pressure ratio . . . . . 15:1  
 Air operating range . . . . . 40 to 180 psi (3 to 12 bar)  
 Air motor effective diameter . . . . . 3 in. (76 mm)  
 Stroke . . . . . 3 in. (76 mm)  
 Air consumption . . . . . 17 cfm/gallon pumped at 100 psi  
 (0.476 m<sup>3</sup>/liter at 7 bar);  
 up to 30 cfm with pump operated  
 at 180 psi and 66 cycles/min.  
 (up to 0.84 m<sup>3</sup>/min with pump operated  
 at 12 bar and 66 cycles/min.)  
 Pump cycles per gallon (liter) . . . . . 90 (24)  
 Delivery . . . . . 0.66 gallons/minute (3 liters/minute)  
 Maximum recommended  
 pump speed . . . . . 66 cycles/min;  
 0.7 gpm (32 liter/min)  
 Recommended speed  
 for optimum pump life . . . . . 15 to 25 cycles per min  
 Wetted parts . . . . . Carbon Steel, Brass,  
 Copper, Aluminum,  
 PTFE, Nitrile Rubber, Leather  
 Approximate weight . . . . . 22 lb (10 kg)

# Mounting Hole Layout

2 Hole Mounting  
Pattern

4 Hole Mounting  
Pattern



04127

# 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 to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

This warranty does not cover, and Graco shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility of Graco equipment with structures, accessories, equipment or materials not supplied by Graco, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the claimed defect. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

**THIS WARRANTY IS EXCLUSIVE, AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.**

Graco's sole obligation and buyer's sole remedy for any breach of warranty shall be as set forth above. The buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss) shall be available. Any action for breach of warranty must be brought within two (2) years of the date of sale.

Graco makes no warranty, and disclaims all implied warranties of merchantability and fitness for a particular purpose in connection with accessories, equipment, materials or components sold but not manufactured by Graco. These items sold, but not manufactured by Graco (such as electric motors, switches, hose, etc.), are subject to the warranty, if any, of their manufacturer. Graco will provide purchaser with reasonable assistance in making any claim for breach of these warranties.

In no event will Graco be liable for indirect, incidental, special or consequential damages resulting from Graco supplying equipment hereunder, or the furnishing, performance, or use of any products or other goods sold hereto, whether due to a breach of contract, breach of warranty, the negligence of Graco, or otherwise.

## **FOR GRACO CANADA CUSTOMERS**

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

# Graco Phone Numbers

For the latest information about Graco products, visit [www.graco.com](http://www.graco.com).

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

**1-800-533-9655 Toll Free**

**612-623-6928**

**612-378-3590 Fax**

*All written and visual data contained in this document reflects 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 306531

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

**GRACO INC. P.O. BOX 1441 MINNEAPOLIS, MN 55440-1441**

Copyright 1996, Graco Inc. is registered to ISO 9001

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

Revised 05/2009



## Free Manuals Download Website

<http://myh66.com>

<http://usermanuals.us>

<http://www.somanuals.com>

<http://www.4manuals.cc>

<http://www.manual-lib.com>

<http://www.404manual.com>

<http://www.luxmanual.com>

<http://aubethermostatmanual.com>

Golf course search by state

<http://golfingnear.com>

Email search by domain

<http://emailbydomain.com>

Auto manuals search

<http://auto.somanuals.com>

TV manuals search

<http://tv.somanuals.com>