

Instructions – Parts List



1000 LITER SIZE, DUAL POST

Air-Powered Ram

308976 Rev.B

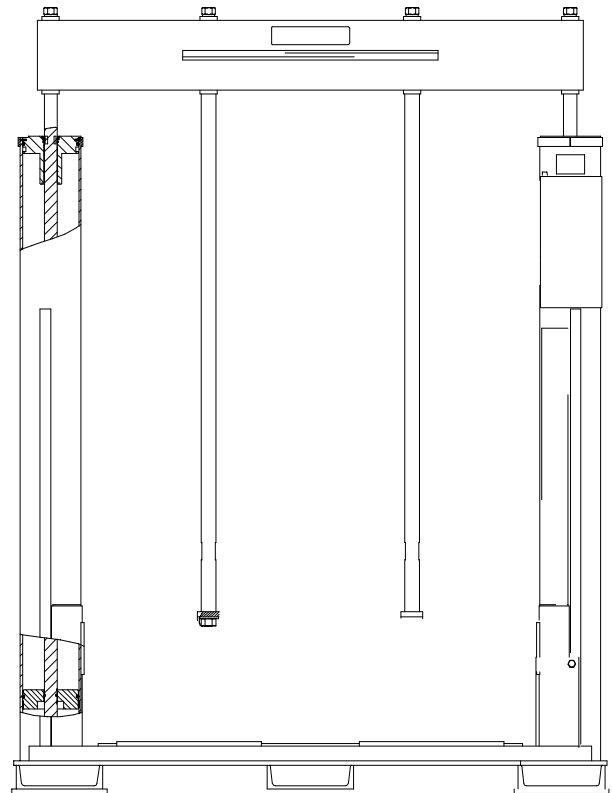
125 psi (8.8 bar) Maximum Air Inlet Pressure

Model 241373, Series A

For use with high pressure extrusion pumps.



Read warnings and instructions.



9432B

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Symbols

Warning Symbol



This symbol alerts you to the possibility of serious injury or death if you do not follow the instructions.

Caution Symbol



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

WARNING



INSTRUCTIONS

EQUIPMENT MISUSE HAZARD

Equipment misuse can cause the equipment to rupture or malfunction and result in serious injury.

- This equipment is for professional use only.
- Read all instruction manuals, tags, and labels before operating the equipment.
- Use the equipment only for its intended purpose. If you are uncertain about usage, 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.
- Wear hearing protection when operating this equipment.
- Comply with all applicable local, state, and national fire, electrical, and safety regulations.

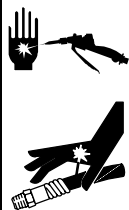


MOVING PARTS HAZARD

Moving parts, such as the pump priming piston and ram plate/pump fluid inlet, can pinch or amputate your fingers.

- Keep clear of all moving parts when starting or operating the pump.
- Keep hands and fingers away from the ram plate, pump fluid inlet, and lip of the fluid container when raising or lowering the ram.
- Keep hands and fingers away from the priming piston during operation and whenever the pump is charged with air.
- Before servicing the equipment, follow the **Pressure Relief Procedure** on page 8 to prevent the equipment from starting unexpectedly.

WARNING



INJECTION HAZARD

Spray from the spray gun/dispense valve, hose 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 medical attention.**
- Do not point the gun/valve at anyone or at any part of the body.
- Do not put your hand or fingers over the spray tip/nozzle.
- 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/valve trigger safety operates before spraying.
- Lock the gun/valve trigger safety when you stop spraying.
- Follow the **Pressure Relief Procedure** on page 8 whenever you: are instructed to relieve pressure; stop spraying/dispensing; clean, check, or service the equipment; and install or clean the spray tip/nozzle.
- Tighten all fluid connections before operating the equipment.
- Check the hoses, tubes, and couplings daily. Replace worn, damaged, or loose parts immediately. Permanently coupled hoses cannot be repaired; replace the entire hose.

WARNING



FIRE AND EXPLOSION HAZARD

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

- Ground the equipment and the object being sprayed. Refer to **Grounding** on page 5.
- If there is any static sparking or you feel an electric shock while using this equipment, **stop spraying/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 sprayed/dispensed.
- Keep the spray/dispense area free of debris, including solvent, rags, and gasoline.
- Electrically disconnect all equipment in the spray/dispense area.
- Extinguish all open flames or pilot lights in the spray/dispense area.
- Do not smoke in the spray/dispense area.
- Do not turn on or off any light switch in the spray/dispense area while operating or if fumes are present.
- Do not operate a gasoline engine in the spray/dispense 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

Grounding

**WARNING**

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

1. *Pump*: use a ground wire and clamp. See Fig. 1. Loosen the grounding lug locknut (W) and washer (X). Insert one end of a 1.5 mm² (12 ga) minimum ground wire (Y) into the slot in lug (Z) and tighten the locknut securely. Connect the other end of the wire to a true earth ground. See the **Accessories** section to order a ground wire and clamp.

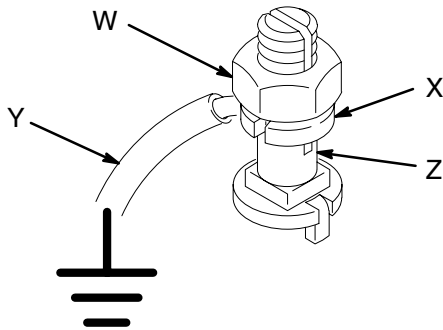


Fig. 1

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2. *Air hoses*: use only electrically conductive hoses.
3. *Fluid hoses*: use only electrically conductive hoses.
4. *Air compressor*: follow the air compressor manufacturer's recommendations.

5. *Spray gun/dispense valve*: ground through connection to a properly grounded fluid hose and pump.
6. *Fluid supply container*: follow your local code.
7. *Object being sprayed*: follow your local code.
8. *All solvent pails used when flushing*: follow your local code. Use only metal pails, which are conductive, placed on a grounded surface. Do not place the pail on a nonconductive surface, such as paper or cardboard, which interrupts the grounding continuity.
9. *To maintain grounding continuity when flushing or relieving pressure*, always hold a metal part of the gun/valve firmly to the side of a grounded *metal* pail, then trigger the gun/valve.

Installing the Ram

NOTE: Refer to **Dimensions** on page 17 for ram mounting and clearance dimensions.

1. Install the ram at a suitable location, ensuring that the surface is horizontal and flat. Leave sufficient room above the ram so that it can be fully raised. Make sure that the ram and pump air regulators are fully accessible. Refer to the separate ram manual for further information.
2. Level the base of the ram, using metal shims if necessary.
3. Use the anchors to fix the ram in the drilled holes.
4. Mount the pump onto the ram, as described under **Installing the Pump in the Ram**.

Installation

Installing Accessories and Connecting Air Lines

This air-powered ram (B) pushes a plate (N) into a drum of material, while the pump (A) removes material from the drum and pushes it through a supply hose and fluid manifold (F) to the point of application.

If you are using the 1000 liter ram without a conveyor, order Part No. 195080 Tie Rod Extensions. Two are required. See page 16.

Wiper rings and other accessory equipment for use with this ram are listed in the **Accessories** section.

WARNING

A main air bleed valve (D), pump air bleed valves (H), and fluid drain valves (E) are required. These accessories help reduce the risk of serious injury, including fluid injection and splashing of fluid in the eyes or on the skin, and injury from moving parts if you are adjusting or repairing the pump.

The main air bleed valve (D) shuts off and relieves the air to the pump and ram. The ram will hold pressure if the ram director valve (L) is in the center position. To relieve air pressure in the ram, close the main air bleed valve (D) and move the director valve (L) to DOWN. The ram will slowly drop.

The pump air bleed valves (H) relieve air trapped between them and the pump after the air is shut off. Trapped air can cause the pump to cycle unexpectedly. Locate the valve close to the pump.

The fluid drain valves (E) assist in relieving fluid pressure in the displacement pump, hose, and gun. Triggering the gun to relieve pressure may not be sufficient.

Before you install the system, you should be familiar with the parts discussed in the following paragraphs.

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

- **Main air bleed valve (D)** is required in your system to shut off the air supply to the pump and ram (refer to the preceding **WARNING**). When closed, the valve bleeds off all air in the ram and pump, and the ram slowly lowers. Be sure the valve is easily accessible from the pump, and is located **upstream** from the air manifold. See Fig. 2.

- **Pump air bleed valves (H)** are required in your system to relieve air trapped between the valves and the pumps when the valves are closed (refer to the preceding **WARNING**). Be sure the valves are easily accessible from the pumps, and located **downstream** from the air manifold.
- **Pump air regulators (G)** control pump speed and outlet pressure by adjusting the air pressure to the pumps. Locate the regulators close to the pump, but **upstream** from the pump air bleed valves (H).
- **Air filters (J)** remove harmful dirt and moisture from the compressed air supply.
- **Pneumatic crossover (C)** provides switching between supply modules to provide a constant supply of material to the system. The crossover controls the air supply to each of the supply modules.
- **Ram air regulators (K)** control the air pressure to the rams.
- **Ram director valves (L)** control the raising and lowering of the ram.
- **Ram plate blowoff valves (M)** open and close the flow of air to assist raising the ram plate (N) out of an empty drum.

Mounting the Pumps (Unheated)

NOTE: For heated applications, contact your Graco distributor.

NOTE: CM2100, DF2400, and DF1800 pump installations require Mounting Kit 222776. See **Accessories** on page 16. CM1000 and CM800 pump installations require an O-ring, 109465.

1. Place the gasket (P) from Mounting Kit 222776 on the ram plate. See Fig. 2. Lower the pump onto the gasket and plate. Secure the pump's intake flange to the plate with the screws and lugs (F) included in the mounting kit (used with CM2100, DF2400, and DF1800 pumps).
2. Attach the motor to the mounting brackets (S) with the screws and washers provided with your pump.

Installation

KEY

- A Supply Module Pump
- B Ram
- C Pneumatic Crossover
- D Main Air Bleed Valve (required, for pump and ram)
- E Fluid Drain Valves
- F Mounting Lugs and Screws
- G Pump Air Regulators
- H Pump Air Bleed Valves (required, for pump)

- J Air Filters
- K Ram Air Regulators
- L Ram Director Valves
- M Ram Plate Blowoff Valve
- N Ram Plate
- P Mounting Gasket or O-ring
- R Low Level Sensors
- S Pump Mounting Bracket

- T Pump Start Button
- U Air line from air manifold to air motor
- V Air line from low level sensor to crossover
- W Fluid Supply Line
- X Fluid Return Line
- Y Ground Wire
- Z Air Blowoff Line

Typical Dual Ram Installation

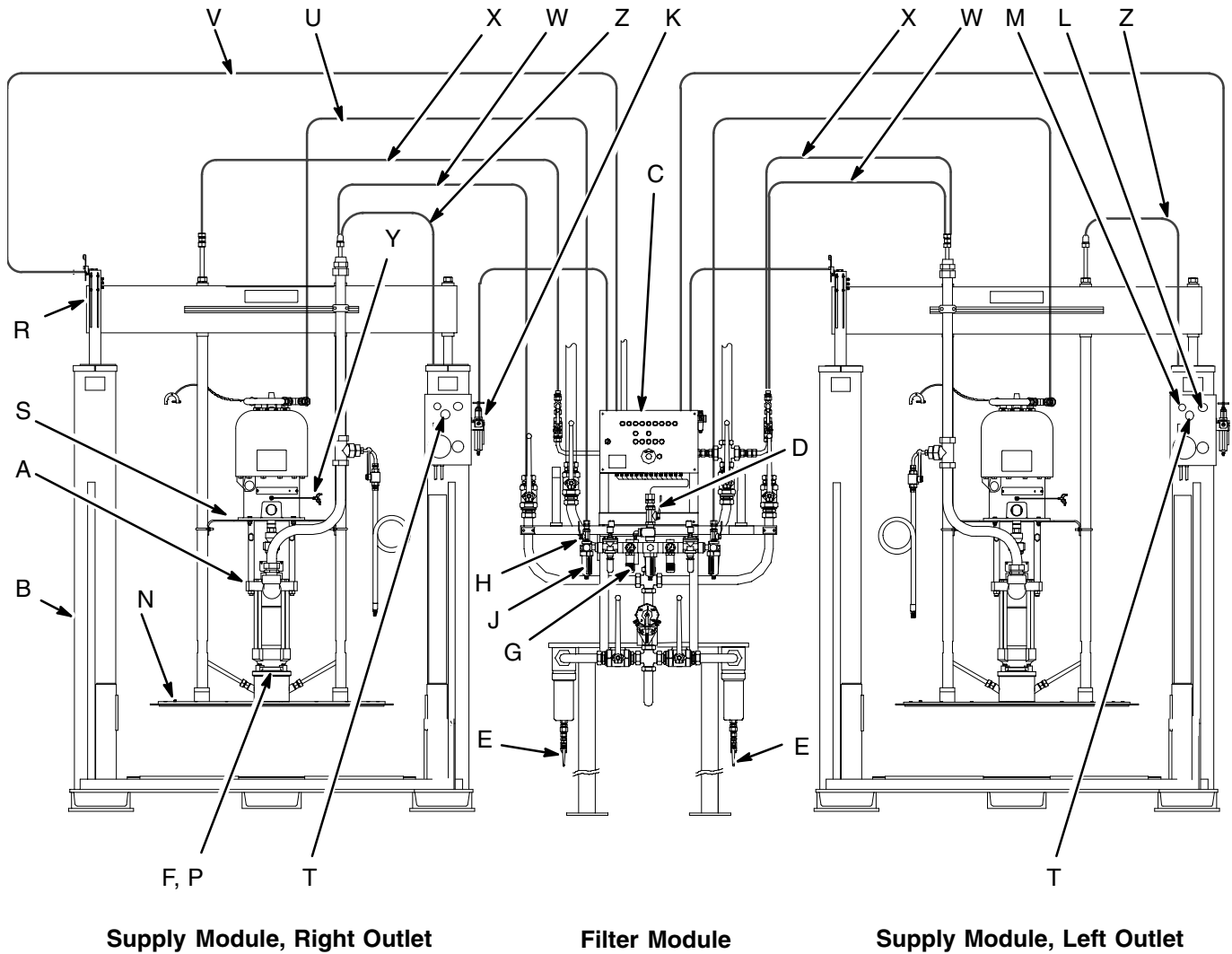


Fig. 2

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Operation

Pressure Relief Procedure

WARNING



INJECTION HAZARD

The system pressure must be manually relieved to prevent the system from starting or spraying accidentally. Fluid under high pressure can be injected through the skin and cause serious injury. To reduce the risk of an injury from injection, splashing fluid, or moving parts, follow the **Pressure Relief Procedure** whenever you:

- are instructed to relieve the pressure,
- stop spraying/dispensing,
- check or service any of the system equipment,
- or install or clean the spray tip/nozzle.

1. Lock the gun/valve trigger safety.
2. Close pump air bleed valves (H, required in your system).
3. Shut off the main air bleed valve (D, required in your system).
4. Unlock the gun/valve trigger safety.

5. Hold a metal part of the gun/valve firmly to the side of a grounded metal pail, and trigger the gun/valve to relieve pressure.
6. Lock the gun/valve trigger safety.
7. Open the drain valve (required in your system) and/or the pump bleeder valve, having a container ready to catch the drainage.
8. Leave the drain valve open until you are ready to spray/dispense again.

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

Before Starting to Pump Material

1. Drain/clean the air filters (J).
2. Check the grounding of the system. See page 5.
3. Check the tightness of the pump packing nut. Fill the wet-cup 1/3 full of a compatible solvent, or Graco Throat Seal Lubricant.
4. Check the material, including the expiration date.
5. Flush the system.

Operation

Starting Up After Setting Up the Ram

WARNING



PRESSURIZED EQUIPMENT HAZARD

To reduce risk of injury or equipment damage:

- Make sure all material hose connections are secure.
- Check that all routing of air lines will not interfere with any moving components within the fixture.
- Do not pressurize the system until you have verified the system is ready and it is safe to do so.

1. Close **all** air regulators and air valves on the supply module being started.
2. Open main air bleed valve (D) and set ram air regulator (K) to 3 bar, 0.3 MPa (40 psi). Set the ram pressure adjust knob to 2 bar, 0.2 MPa (30 psi). Move director valve (L) handle to UP, and let ram rise to full height.
3. Remove drum cover. To prevent air from being trapped under the ram plate, scoop material from the center of the pail to the sides, to make the surface concave.

4. Set full drum of fluid on ram base, slide drum back against tube stop, and center under ram plate (N).

WARNING



MOVING PARTS HAZARD

Moving parts can pinch or amputate your fingers. When the pump is operating and when raising or lowering the ram, keep your fingers and hands away from the pump intake, ram plate, and lip of the drum.

CAUTION

To help avoid damage to equipment, *do not* use drums that have side bungs or large dents with this ram. Rough bung openings or large dents will damage the wipers or stop the ram plate, resulting in a runaway pump.

5. Move director valve handle to the DOWN position. Lower ram until ram plate is just above drum, then move the director valve to the center position. Reposition drum as necessary so wipers do not hit drum lip.
6. Set director valve to DOWN position and lower ram until the ram plate rests on the material. Set director valve to center position. Open the air vent valve located next to the ram control box. The air underneath the ram plate may escape via the ball valve or the vent valve. Close the air vent valve when air under the ram plate stops escaping.

Operation

Replacing the Material Drum

1. Close the pump air bleed valve (H).
2. Set the director valve handle to UP to raise the ram from the drum. At the same time, press the ram plate blowoff valve (M) to direct air under the ram plate to help raise the plate out of the drum.

NOTE: If the ram pulls the drum upward, stop raising the ram plate until sufficient air has been directed under the plate.

3. When the ram reaches the top position, replace the empty drum with a full one.
4. Inspect the ram plate and, if necessary, remove any remaining material or material build-up.

Starting the Pump and Supplying Material

1. Set the ram pressure adjustment of the first ram to approximately 2 bar. Set the director valve (L) to DOWN. Open the air valve (H) to the air motor. Press the START PUMP button (T) to start the pump. Run the pump until material emerges from the venting valve of the riser pipe. Continue this until all air entrapment is eliminated. Then close the vent valve.

2. Move the director valve (L) to the DOWN position.
3. Set the ram pressure adjustment of the second ram to approximately 2 bar. Set the director valve (L) to DOWN. Open the air valve (H) to the air motor. Press the START PUMP button (T) to start the pump. Run the pump until material emerges from the venting valve of the riser pipe.
4. Move the director valve (L) to the DOWN position.
5. Both supply modules are now operational, however only module no. 1 can be used. When a low level sensor is reached, the system automatically switches to module no. 2. The ram for module no. 1 can then be reloaded.
6. Open both pump air valves (H). See Fig. 2.
7. Open the air valve (R) on the ram changeover box. This will enable changeover and pressure control.
8. Push the start button for pump 1 or 2 ON. This will enable the respective pump to supply material to the filler module.
9. Open the respective supply and return ball valves.
10. The system is now fully operational.

Troubleshooting Chart

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. **Relieve the pressure.**
2. Check all possible causes and problems before disassembling the pump.

Problem	Cause	Solution
Ram will not raise or lower.	Closed air valve or clogged air line.	Open, clear.
	Not enough air pressure.	Increase pressure.
	Worn or damaged piston.	Replace.
	Air control valve closed or clogged.	Open, clear.
Ram raises or lowers too fast.	Air pressure is too high.	Decrease.
Air leaks around the cylinder.	Damaged seal.	Replace.
Material squeezes past the seal ring.	Air pressure is too high.	Decrease.
	Damaged or worn wipers.	Replace.
Pump will not operate properly or pumps air.	Closed air valve or clogged air line.	Open, clear.
	Pumps not primed properly.	Open venting valve and re-prime pumps.
	Drum is empty.	Check low level control for operation or proper height setting.
	Not enough air pressure.	Increase pressure.
	Worn or damaged piston.	Replace.
	Air control valve closed or clogged.	Open, clear.
	Air control valve is dirty, damaged, or worn.	Clean, service.
Air control valve fails to hold drum down and pushes the ram plate up.	Closed air valve or clogged air line.	Open, clear.
	Not enough air pressure.	Increase.
	Valve passage clogged.	Clean.
	Director valve not in DOWN position.	Set director valve to DOWN position.

Service

Piston Rod Seal Service (Fig. 3)

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. **Relieve the pressure.**
2. Remove the four nuts and lockwashers holding the tie bar to the rods. Remove the tie bar.
3. Remove the guide sleeve retaining ring by gripping the ring tab with a pair of pliers and rotating the ring out of its groove.
4. Remove the guide sleeve by sliding it off of the rod. Four 1/4"-20 holes are provided to ease removal of the guide sleeve.
5. Inspect the parts for wear or damage. Replace as necessary.
6. Install new O-rings and seal guard. Lubricate the packings with O-ring lubricant.
7. Slide the guide sleeve onto the rod and push it into the cylinder. Replace the retaining ring by feeding it around the guide sleeve groove.
8. Reinstall the tie bar using the nuts and lockwashers. Torque to 40 ft-lb (54 N•m).

WARNING

Do not use pressurized air to remove the guide sleeve or piston. Failure to follow this instruction may result in personal injury.

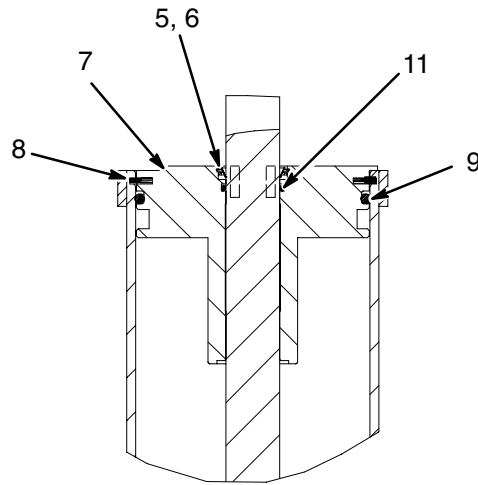


Fig. 3

Service

Ram Piston Service (Fig. 4)

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. **Relieve the pressure.**
2. Remove the tie bar as explained under **Piston Rod Seal Service.**
3. Remove the guide sleeve and slide it off of the piston rod.
4. Carefully pull the piston rod **straight** up out of the cylinder. If the rod is cocked to one side, the piston or inside surfaces of the cylinder could be damaged.
5. Carefully lay the piston and rod down so the rod will not be bent. Remove the lower piston retaining ring. Slide the piston off the piston rod.
6. Install new O-ring seals on the piston rod and the piston. Lubricate the piston and seals. Reinstall the piston and retaining ring.
7. Carefully insert the piston into the cylinder and push the rod **straight** down into the cylinder. Add 3 ounces of lubricant to each cylinder after inserting the piston.
8. Slide the guide sleeve onto the piston rod. Reinstall the retaining ring and tie bar, as explained under **Piston Rod Seal Service.**

WARNING

Do not use pressurized air to remove the guide sleeve or piston. Failure to follow this instruction may result in personal injury.

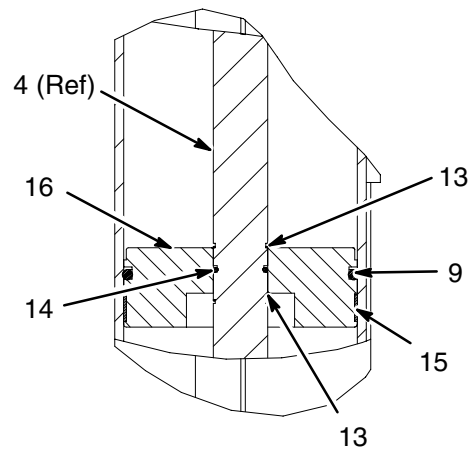


Fig. 4

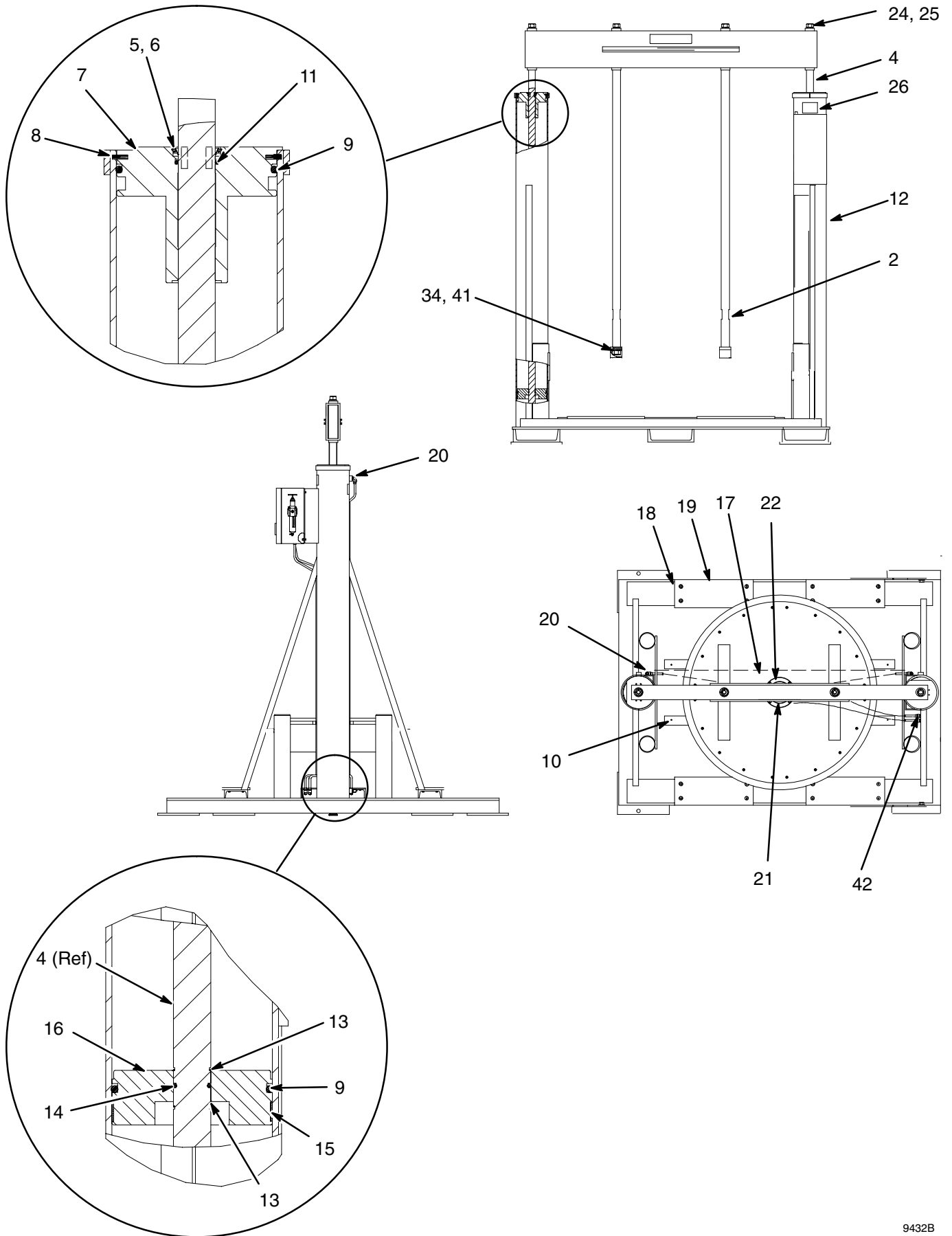
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Parts

Model 241373, Series A

Ref. No.	Part No.	Description	Qty.	Ref. No.	Part No.	Description	Qty.
2	194469	ROD, guide	2	17	100326	SCREW, flat hd; 1/4–20 x 1/2 in.	12
4	194470	ROD, piston	2	18	101088	SCREW, flat hd; 3/8–16	16
5	C03043	RING, snap, internal	2	19	617179	PAD, rest; nylon	4
6	C31001	GUARD, seal	2	22	115231	TEE, tube; 10 mm	2
7	617414	SLEEVE, guide	2	24	101535	NUT; 7/8–9	4
8	C32409	RING, retaining	2	25	101533	WASHER, lock; 7/8 in.	4
9	C38132	O-RING	4	26	C14043	LABEL, warning	4
10	C59467	COVER, 2 post Unidrum	1	34	113939	NUT, jam; 1 in.	4
11	156593	O-RING	2	37	100338	NUT, jam	2
13	C20417	RING, retaining	4	38	101044	WASHER, plain	2
14	158776	O-RING	2	39	194465	STOP, container	2
15	C32408	BAND, guide	2	40	115211	SCREW, cap, hex hd	2
16	C32405	PISTON, 6.5 in. OD	2	41	C38182	LOCKWASHER	2

Parts



Accessories

Use Only Genuine Graco Parts and Accessories

UNHEATED 55–GALLON RAM PLATE ASSEMBLY 918305

22" (560 mm) OD. Order wiper rings separately.

HEATED 55–GALLON RAM PLATE ASSEMBLY C32435

Used for 240, 380, 480, 575 VAC.

22" (560 mm) OD. Order wiper rings separately.

55–GALLON RAM PLATE WIPER RING KITS

22" (560 mm) OD.

Kit contains upper and lower hoses and clamp.

C03059	PVC, unheated applications
918312	EPDM, unheated applications
C03228	Neoprene, unheated applications
C31009	Silicone/Silicone, heated applications
C31008	Silicone/Silicone, heated applications, fiber drums
C31007	Silicone/Steam, heated applications

AIR CONTROL MODULES FOR RAM AND AIR CONTROL

2-Regulator module contains controls for ram and motor.

4-Regulator module contains controls for ram up, ram down, blow-off and motor.

*125 psig (8.8 bar) Maximum Working Pressure
0–125 psig (0–8.8 bar)*

918306	2-Regulator air control module for Premier air motors
918307	4-Regulator air control module for Premier air motors
C32438	2-Regulator air control module for King/Bulldog/Senator air motors
C32437	4-Regulator air control module for King/Bulldog/Senator air motors

DRUM CLAMP MODULE, STANDARD, C32463 (Two required per ram)

Attach to ram cylinders to center drum in place and prevent drum from moving.

DRUM CLAMP, HEAVY DUTY, 918395 (Two required per ram)

Includes all hardware to attach to ram cylinders to center drum in place and prevent drum from moving. The heavy duty drum clamp is used in applications where excessive material adhesion may be a problem.

AUTOMATIC CROSSOVER KIT 918393

Switches ram operation to alternate ram, automatically.

LOW LEVEL DRUM KIT 918394

Provides signal when the drum is empty.

MOUNTING KIT 222776

Required for mounting Check-Mate pumps to ram plate.

AIR MOTOR/PUMP MOUNTING KIT C32434

Used in heated applications to connect the heated CM800 pump to various air motors (King, Bulldog, and Senator).

PUMP MOUNTING KIT

Used to connect the ram plate to the tie bar. Pumps mount on the brackets.

C32434	King/Bulldog/Senator heated applications
918309	King/Bulldog/Senator unheated applications
918304	Premier w/Check-Mate pumps
918310	Premier w/Dura-Flo pumps

HOSE SUPPORT KIT C34220

DRUM STOP KIT C32468

Provides a physical stop for drums to accurately position drums under the ram plate.

SKID ROD COVER 918398

Provides smooth bottom surface and ram baseplate.

FIBER DRUM CLAMP KIT 918397

Contains clamshell clamp for fiber drums and all hardware to install on ram.

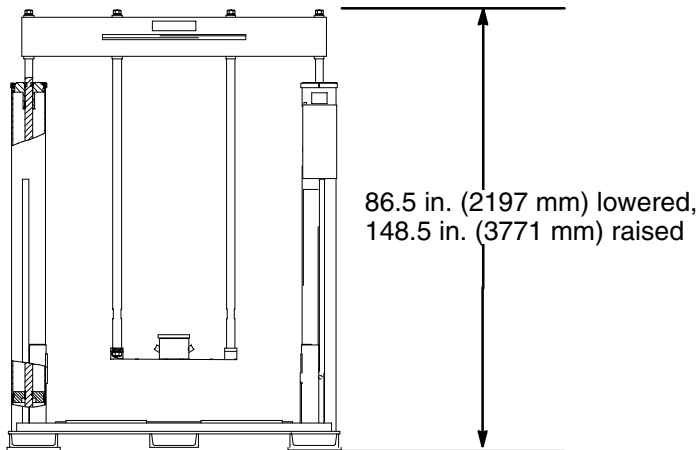
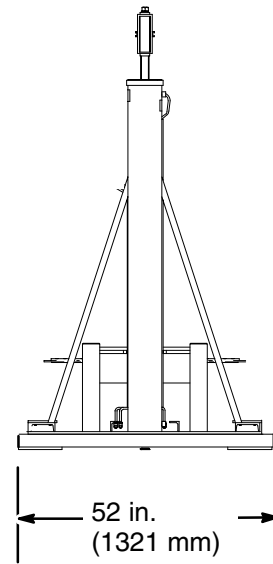
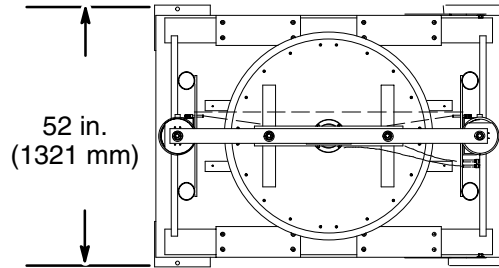
EMPTY DRUM KIT 918396

Shuts off air motor when drum is empty.

TIE ROD EXTENSION 195080 (two required)

Allows 1000 liter ram to be used without a conveyor.

Dimensions



9432A

Technical Data

Maximum inbound air pressure 125 psi (8.8 bar)

Wetted parts . . . Carbon steel, aluminum, nitrile, nylon

Weight approx. 475 lb (216 kg)

The 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 Number

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

1-800-328-0211 Toll Free

612-623-6921

612-378-3505 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.*

Sales Office: Minneapolis

Foreign Offices: Belgium, Korea, Hong Kong, Japan

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