

Instructions – Parts List



55 GALLON (200 LITER) DRUM SIZE

Air-Powered Ram

306934AM

150 psi (1 MPa, 10 bar) Maximum Air Inlet Pressure

Part No. 253017, Series A

Part No. 207279, Series L

Part No. 241988, Series A

Part No. C50007, Series A

For use with high pressure extrusion pumps.

Part No. 196078, Series A

Part No. 196079, Series A

For use with VRHM systems.

Part No. 241252, Series A

Part No. 241253, Series A

Part No. 954419, Series A



Important Safety Instructions.

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

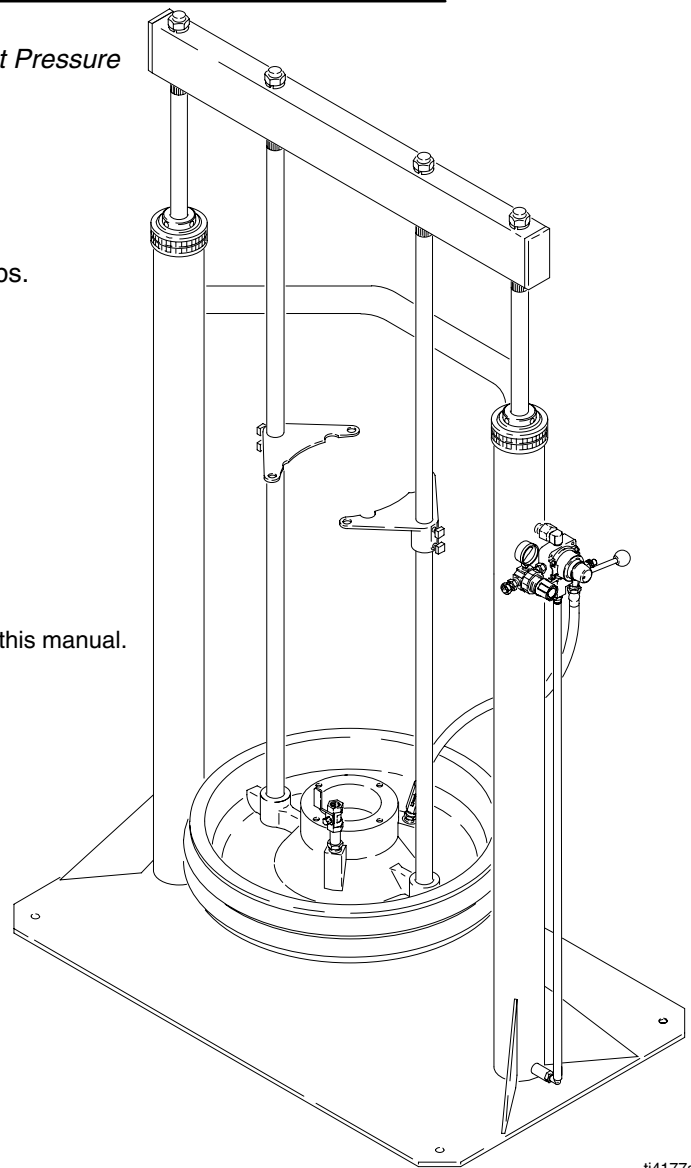


Table of Contents

Warnings	2
Pump Mounting Chart	3
Setup	4
Operation	9
Troubleshooting	12
Service	13
Parts	18
Accessories	29
Dimensions	31
Technical Data	31
Graco Standard Warranty	32
Graco Information	32

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	
 <small>INSTRUCTIONS</small>	<p>EQUIPMENT MISUSE HAZARD</p> <p>Equipment misuse can cause the equipment to rupture or malfunction and result in serious injury.</p> <ul style="list-style-type: none"> ● 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. ● 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.
	<p>MOVING PARTS HAZARD</p> <p>Moving parts, such as the pump's priming piston and the wiper plate, can pinch or amputate your fingers.</p> <ul style="list-style-type: none"> ● Keep clear of all moving parts when starting or operating the pump. ● Keep hands and fingers away from the priming piston during operation and whenever the pump is charged with air. ● Keep your hands away from the wiper plate and the lip of the drum while the ram is operating. ● Before servicing the equipment, follow the Pressure Relief Procedure on page 9 to prevent the equipment from starting unexpectedly.

Pump Mounting Chart

This chart lists the parts necessary to mount various Graco pumps on the ram.

Refer to pages 6–8 for mounting instructions. Refer to page 30 for parts.

For pump mounting and application information, contact your Graco distributor.

Pump Type	Ram Mounting Kit 224829	Ram Mounting Kit 222776 (must order separately)
Monark® and President® Check-Mate™ 450 Pumps (see page 6)	Yes	Yes
Bulldog® and Senator® Check-Mate™ 450 Pumps (see page 6)	No	Yes
King™, Bulldog®, and Senator® Check-Mate™ 800 Pumps (see page 6)	No	Yes
King™ Check-Mate™ 1000 Pumps (see page 6)	No	Yes
King™, Bulldog®, and Viscount® Check-Mate™ 2100 Pumps (see page 6)	No	Yes
King™, Bulldog®, and Senator® Power-Flo® Pumps (see page 7)	Yes	No
President® and Monark® Check-Mate™ 200 Pumps (see page 7)	Yes	No
Bulldog® and King™ Pumps with intake housing mounting flange (see page 8)	Yes	No
Fire-Ball® 300, 50:1 (see page 7)	247335 and 247336	No
Fire-Ball® 425, 10:1, 50:1, 75:1 (see page 7)	247335 and 247337	No

Setup

General Information

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

Accessories are available from Graco. Make certain all accessories are adequately sized and pressure-rated to meet your system's requirements.

Fig. 1 is only a guide for selecting and installing system components and accessories. Contact your Graco distributor for assistance in designing a system to suit your particular needs.

Hydraulic Operation

To convert the ram from air to hydraulic operation, install Piston Kit 220501. See page 29. Contact your Graco distributor for details.

Location

Position the ram so the air regulators for the pump and the ram will be easily accessible. Ensure that there is sufficient overhead clearance when the ram is fully raised. Refer to **Dimensions** on page 31.

Using the holes in the ram base as a guide, drill holes for 1/2 in. (13 mm) anchors.

Check that the ram base is level in all directions. If necessary, level the base using metal shims. Secure the base to the floor using 13 mm (1/2 in.) anchors which are long enough to prevent the ram from tipping.

Air Line Components and Accessories

Refer to Fig. 1.

WARNING

A main air bleed valve (E) and pump air bleed valve (H) 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 (E) shuts off and relieves the air to the pump and ram. The ram will hold pressure if the ram director valve (U) is in the horizontal (neutral) position. To relieve air pressure in the ram, close the main air bleed valve (E) and move the director valve (U) to DOWN. The ram will slowly drop.

The pump air bleed valve (H) relieves air trapped between it 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 main air bleed valve (E)** is required in your system to shut off the air supply to the pump and ram (see the **WARNING** at left). When closed, the valve will bleed off all air in the ram and pump, and the ram will slowly drop. Be sure the valve is easily accessible from the pump, and is located **upstream** from the air manifold (F).

- **The pump air bleed valve (H)** is required in your system to relieve air trapped between it and the air motor when the valve is closed (see the **WARNING** at left). Be sure the valve is easily accessible from the pump, and is located **downstream** from the pump air regulator (G).

- **The pump air regulator (G)** controls pump speed and outlet pressure by adjusting the air pressure to the pump. Locate the regulator close to the pump, but **upstream** from the pump air bleed valve.

- **The air manifold (F)** has a swivel air inlet. It mounts to the ram, and provides ports for connecting lines to air-powered accessories.

- **An air line filter (J)** removes harmful dirt and moisture from the compressed air supply. Also, install a **drain valve (W)** at the bottom of each air line drop, to drain off moisture.

- **A second bleed-type air valve (K)** isolates the air line accessories for servicing. Locate upstream from all other air line accessories.

- **The ram air regulator (T)** controls the air pressure to the ram.

- **The ram director valve (U)** controls the raising and lowering of the ram.

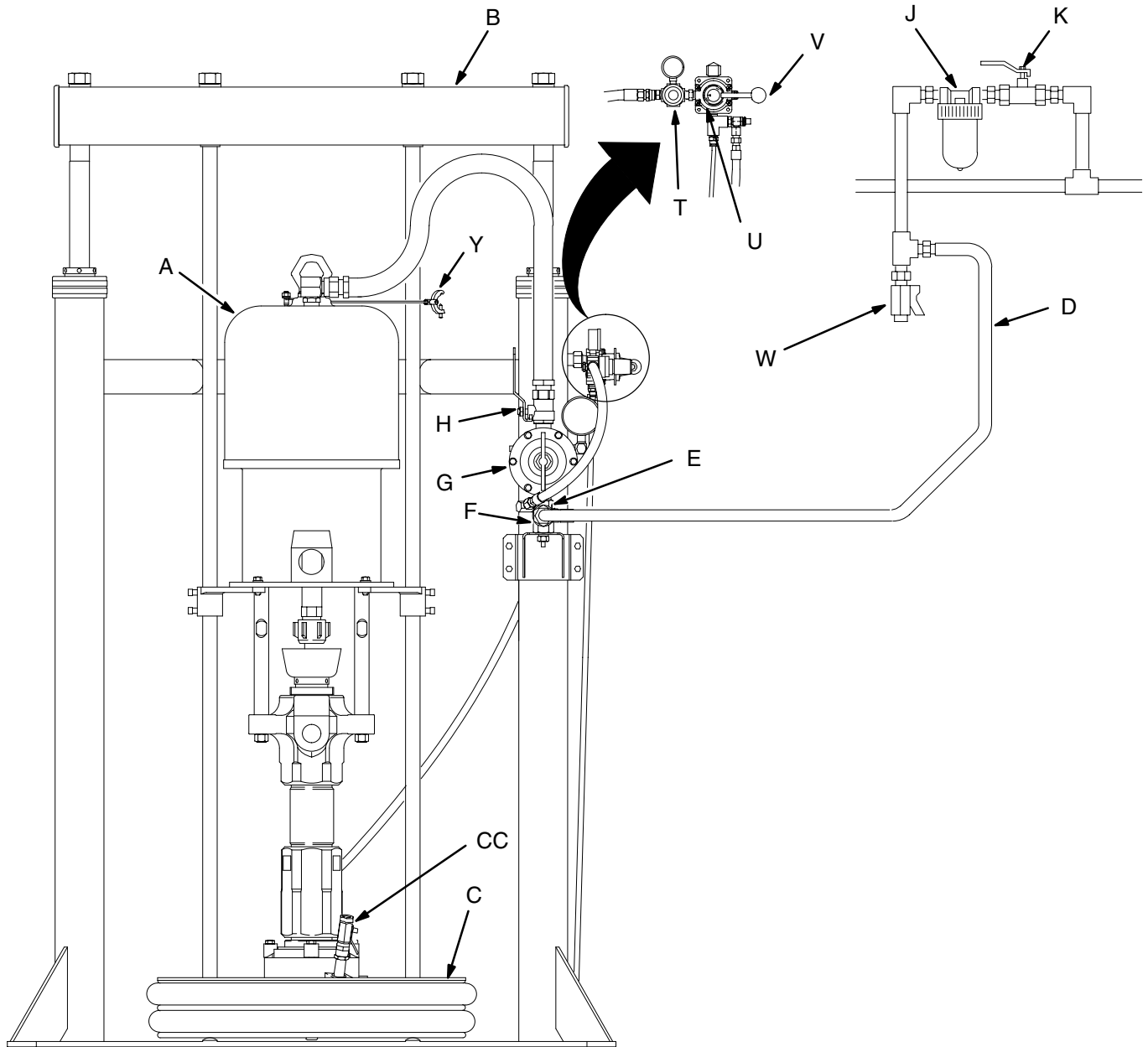
- **The air release valve (V)** opens and closes the flow of air to assist raising the wiper plate (C) out of an empty drum.

- **The check valve (CC)** bleeds air from under the wiper plate (C) to assist in priming the pump.

Setup

KEY

- | | | |
|------------------------------------------------------------|-------------------------------------------------------|--------------------------------------|
| A Pump | G Pump Air Regulator | T Ram Air Regulator |
| B Ram | H Pump Air Bleed Valve
(required, for pump) | U Ram Director Valve |
| C Wiper Plate | J Air Line Filter | V Air Release Valve |
| D Electrically Conductive Air Supply Hose | K Bleed-Type Air Valve | Y Pump Ground Wire (required) |
| E Main Air Bleed Valve (required, for pump and ram) | W Air Line Drain Valve | CC Check Valve |
| F Air Manifold | | |



ti4178a

Fig. 1

Setup

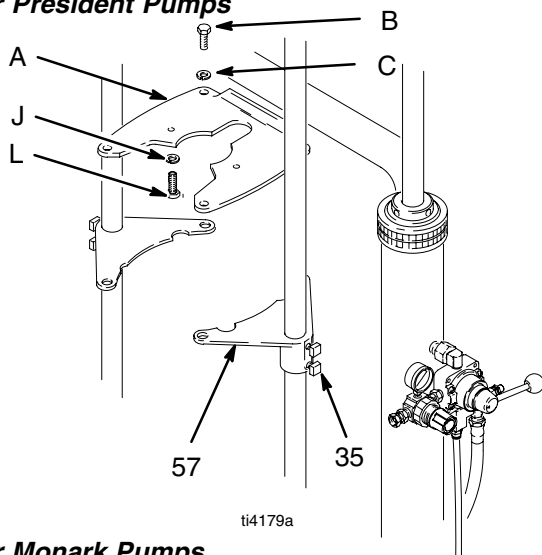
Mounting Check-Mate 450, 800, 1000, and 2100 Pumps

NOTE: The Pump Mounting Chart on page 3 lists the parts necessary to mount Check-Mate 450, 800, 1000, and 2100 Pumps on this ram. Installing other pumps on the ram may require alternate parts. For information, contact your Graco distributor.

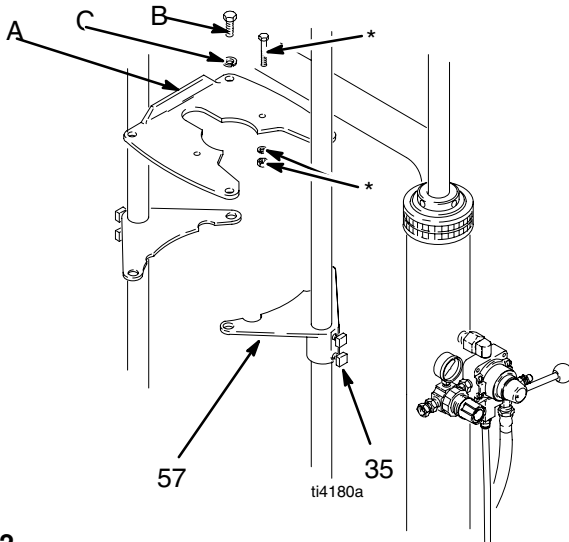
NOTE: This installation requires Mounting Kit 222776 and 224829 which must be ordered separately. See **Accessories** on page 29.

1. Position the mounting brackets (57) so that the top of the pump will clear the support beam (3).
2. *For President and Monark Check-Mate 450 Pumps only*, install the mounting plate (A) from kit 224829 onto the mounting brackets (57) using four screws (B) and lockwashers (C). See Fig. 2. Note that the plate is oriented differently for the President than for the Monark.

For President Pumps



For Monark Pumps



3. Attach the motor to the mounting brackets (57) or mounting plate (A) with the fasteners supplied (*), as applicable. See Fig. 2.
4. Place the gasket (K) from Mounting Kit 222776 on the ram plate (63). See Fig. 3. Loosen the mounting bracket setscrews (35), and carefully lower the pump onto the gasket and plate. Secure the pump's intake flange (N) to the plate with the screws (L) and lugs (M) included in the mounting kit.

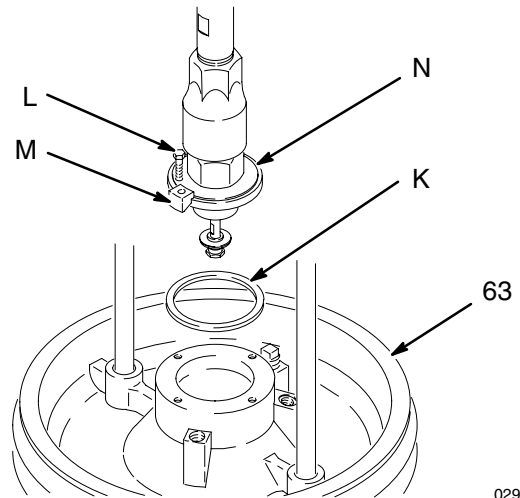


Fig. 3

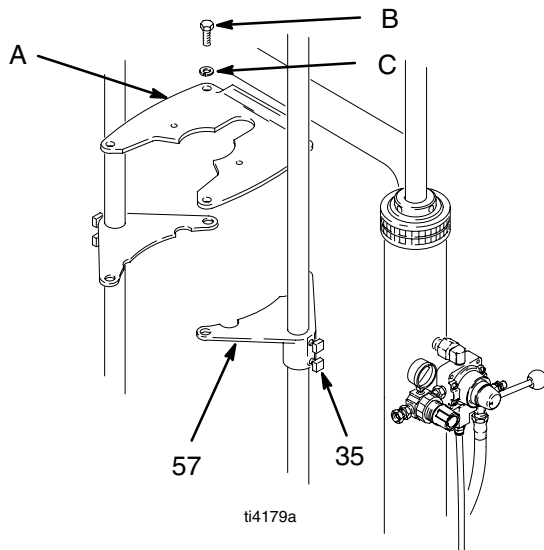
Setup

Mounting Power-Flo, Check-Mate 200, Fire-Ball 300 and Fire-Ball 425 pumps.

NOTE: The Pump Mounting Chart on page 3 lists the parts necessary to mount Power-Flo, Check-Mate 200, Fire-Ball 300 and Fire-Ball 425 pumps on this ram. Installing other pumps on the ram may require alternate parts. For information, contact your Graco distributor.

1. Position the mounting brackets (57) so that the top of the pump will clear the support beam (3).
2. For *President, Monark Check-Mate 200, and Fire-Ball Pumps only*, install the mounting plate (A) onto the mounting brackets (57) using four screws (B) and lockwashers (C). See Fig. 4. Note that the plate is oriented differently for the President and Fire-Ball 425 than for the Monark and Fire-Ball 300.

For President and Fire-Ball 425 Pumps



For Monark and Fire-Ball 300 Pumps

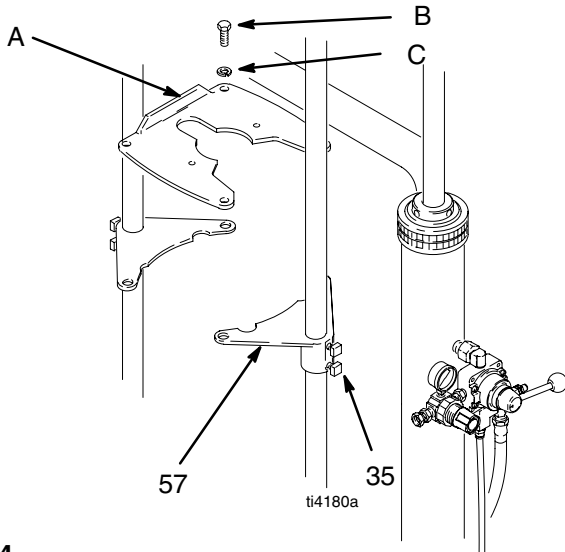


Fig. 4

3. Attach the motor to the mounting brackets (57) or mounting plate (A) with the fasteners supplied, as applicable.

NOTE: Before proceeding to step 4, install Adapter Kit 224267 for the Fire-Ball 300 pump. Install Adapter Kit 224266 for Fire-Ball 425, 50:1 and 75:1 Pump.

4. Slide the top seal plate (G) up over the pump intake valve and push the seal (F) onto the pump intake housing. Leave the bottom seal plate (G) and gasket (H) in place. See Fig. 5.
5. Loosen the mounting bracket setscrews (35), and carefully lower the pump until the intake valve is below the gasket (H), then tighten the setscrews.
6. Push the seal (F) down firmly against the bottom seal plate (G).
7. Align the holes in the top seal plate with the holes in the ram plate (63). Secure tightly to the ram plate with the four screws (D) and washers (C).

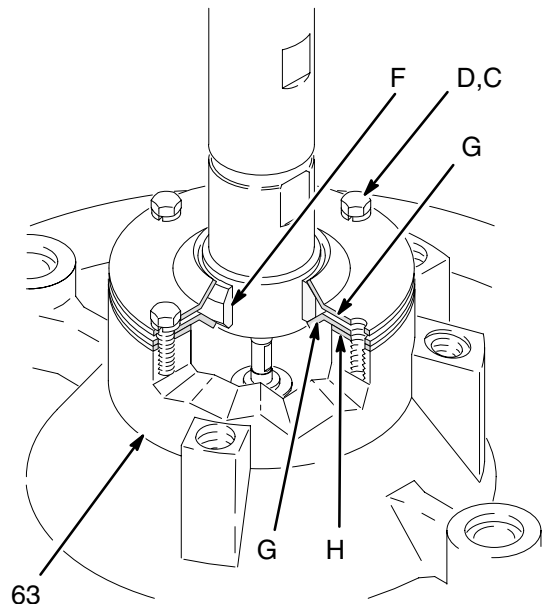


Fig. 5

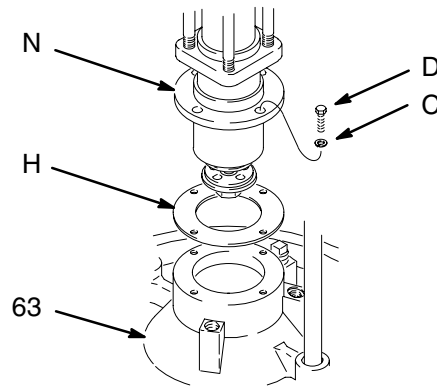
02938

Setup

Mounting Pumps with an Intake Housing Flange

NOTE: The Pump Mounting Chart on page 3 lists the parts necessary to mount pumps with an intake housing flange on this ram. Installing other pumps on the ram may require alternate parts. For information, contact your Graco distributor.

1. Position the mounting brackets (57) so that the top of the pump will clear the support beam (3).
2. Attach the motor to the mounting brackets (57) with the fasteners supplied, as applicable.
3. Loosen the mounting bracket setscrews (35), and carefully lower the pump until the intake valve is below the gasket (H), then tighten the setscrews.
4. Align the holes in the intake housing flange (N) with those in the gasket (H) and ram plate (63). Secure tightly to the ram plate with the four screws (D) and washers (C). See Fig. 6.



02939

Fig. 6

NOTE: Ram 241988 does not include an inductor plate. Pumps may be mounted by connecting the air motor to bracket 161822 and connecting the inductor plate (C58391) and o-ring (109482) to the inlet of the pump by means of the included setscrew.

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. **Get immediate surgical treatment.** 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 the pump air bleed valve (H, required in your system).
3. Shut off the main air bleed valve (E, required in your system). Set the ram director valve (U) to DOWN. The ram will slowly drop.
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 (DD), having a container ready to catch the drainage.
8. Leave the drain valve open until you are ready to spray again.

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

Starting and Adjusting the Ram

1. Refer to Fig. 7. Close all air regulators and air valves.
2. Open the main air bleed valve (E) and set the ram air regulator (T) to 2.8 bar (40 psi). Pull up on the director valve (U) handle so the arrow points to UP, and let the ram rise to its full height.
3. Set a full drum of fluid on the ram base, slide it back against the tube stop, and center it under the wiper plate (C). Use the drum clamps (17) to center, hold, and properly align the drum with the ram. Then remove the drum cover and smooth the surface of the fluid with a straightedge.

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, wiper plate, and lip of the drum.

NOTE: 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 wiper plate, resulting in a runaway pump.

4. Push down on the director valve handle so the arrow points to DOWN, and lower the ram until the wiper plate is just ready to enter the drum, then set the valve to neutral. Reposition the drum as necessary so the wipers will not hit the drum lip, then open the check valve (CC) on the wiper plate.
5. Set the director valve to DOWN and continue to lower the ram until fluid appears at the check valve (CC). Set the director valve to neutral and close the check valve.

Operation

Starting and Adjusting the Pump

1. Be sure the pump air regulator (G) is closed. Then set the ram air regulator (T) to about 3.5 bar (50 psi). Set the director valve (U) to DOWN. See Fig. 7.
2. Start the pump as explained in the separate pump instruction manual.
3. Keep the director valve (U) set to DOWN while the pump is operating.

NOTE: Increase air pressure to the ram if the pump does not prime properly with heavier fluids. If fluid is forced out around the top wiper, ram pressure is too high and the air pressure should be decreased.

Changing Drums

⚠ 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, wiper plate, and lip of the drum.

1. Stop the pump. **Close the pump air bleed valve (H).**

2. Before raising wiper plate, locate push button on air release valve (V) .
3. Set director valve (U) to UP to raise wiper plate. At the same time, carefully equalize pressure in drum by operating air release valve.
4. Raise wiper plate until it is completely out of drum.
5. Remove empty drum.
6. Inspect wiper plate and, if necessary, remove any remaining material or material build-up.
7. Place full drum on ram base.
8. Lower the ram and adjust the position of the drum relative to the wiper plate, as explained under “**Starting and Adjusting the Ram**” on page 9.

Shutdown and Care of the Pump

1. Set the director valve (U) to neutral.

⚠ WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 9.

2. **Relieve the pressure.**
3. Follow the pump shutdown instructions in your separate pump manual.

Operation

Ram Shown with Bulldog Pump

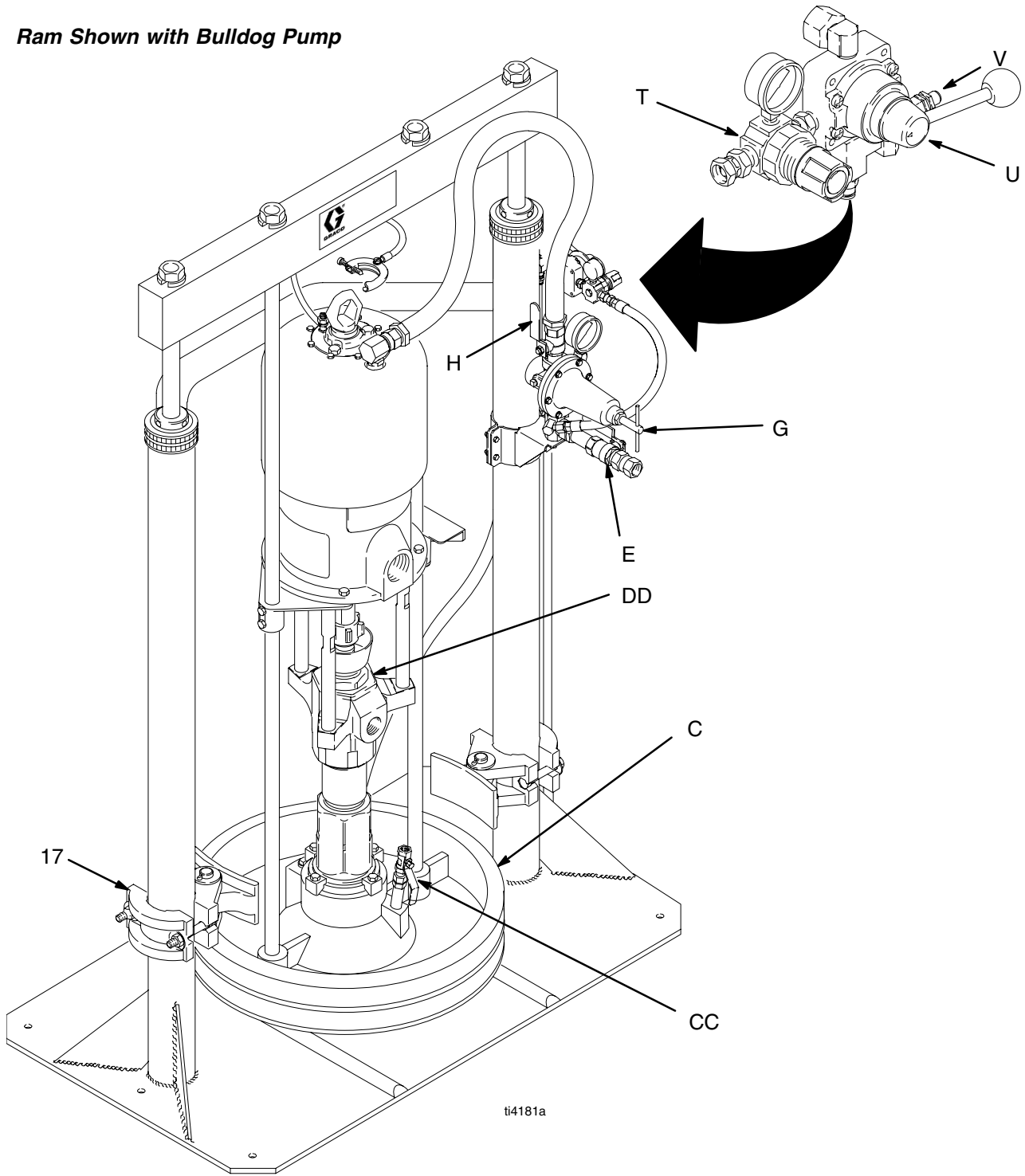


Fig. 7

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 9.

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.	Clear the air line; increase the air supply. Check that the valves are open.
	Not enough air pressure to ram.	Increase the air pressure, but do not exceed 150 psi (10 bar).
	Worn or damaged piston.	Service. See page 15.
	Director valve is closed or clogged.	Open the valve; clear.
Ram raises and lowers too fast.	Air pressure to ram is too high.	Decrease the air pressure.
Fluid squeezes past the wiper plate.	Air pressure to ram is too high.	Decrease the air pressure.
	Worn or damaged wiper.	Replace. See the separate wiper plate manual.
Pump will not prime properly or pumps air.	Closed air valve or clogged air line.	Clear the air line; increase the air supply. Check that the valves are open.
	Not enough air pressure to ram.	Increase the air pressure, but do not exceed 150 psi (10 bar).
	Worn or damaged piston.	Service. See page 15.
	Director valve is closed or clogged.	Open the valve; clear.
	Director valve is dirty, worn, or damaged.	Clean; service.
	Wiper plate check valve is open.	Close the check valve.
Air director valve will not hold drum down or lift plate up.	Closed air valve or clogged air line.	Clear the air line; increase the air supply. Check that the valves are open.
	Not enough air pressure to ram.	Increase the air pressure, but do not exceed 150 psi (10 bar).
	Valve passage clogged.	Clean.

Service

Replacing Wipers

1. To replace worn or damaged wipers (59 or 60), raise the wiper plate up out of the drum. Remove the drum from the base. Wipe the fluid off the wiper plate.
2. Separate the wiper joint (A) and bend back the strapping (65) covering the clamp setscrew (B). See Detail A of Fig. 8. Loosen the setscrew, pull the end of the strapping through the clamp (72) and remove the wiper.
3. Slide the strapping (65) through the new wiper (59 or 60). Slide the clamp (72) onto the new strapping and bend the strapping back approximately 3 in. (76 mm). Insert the strapping through the clamp a second time. See Detail B of Fig. 8.
4. Install the wipers on the wiper plate. Position the wipers so that their joints (A) are 180° apart.

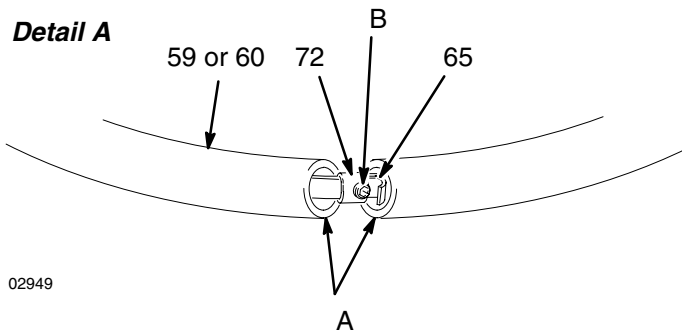
NOTE: You will need the special banding tool (C) shown in Detail C of Fig. 8 to tighten the strapping. See **Accessories**.

5. Grip the strapping (65) with the tool (C) as shown. With your thumb on the gripper lever (E), turn the tool handle (F) clockwise to apply tension.

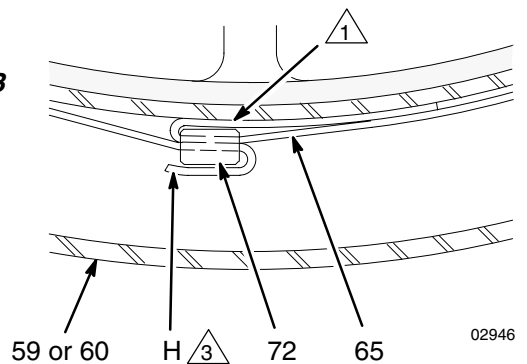
NOTE: Be careful not to pull the cutting handle (D) until you are ready to cut the strapping in step 7.

6. Continue turning the tool handle until you see the strapping stop moving through the clamp (72). Stop turning the handle.
7. Tighten the setscrew (B) with a wrench (G). Pull the cutting handle (D) to cut. Remove the tool (C). Bend the strapping back over the clamp (72).
8. Pound the wiper all the way around with a rubber mallet until the joints (A) are butted tightly together.

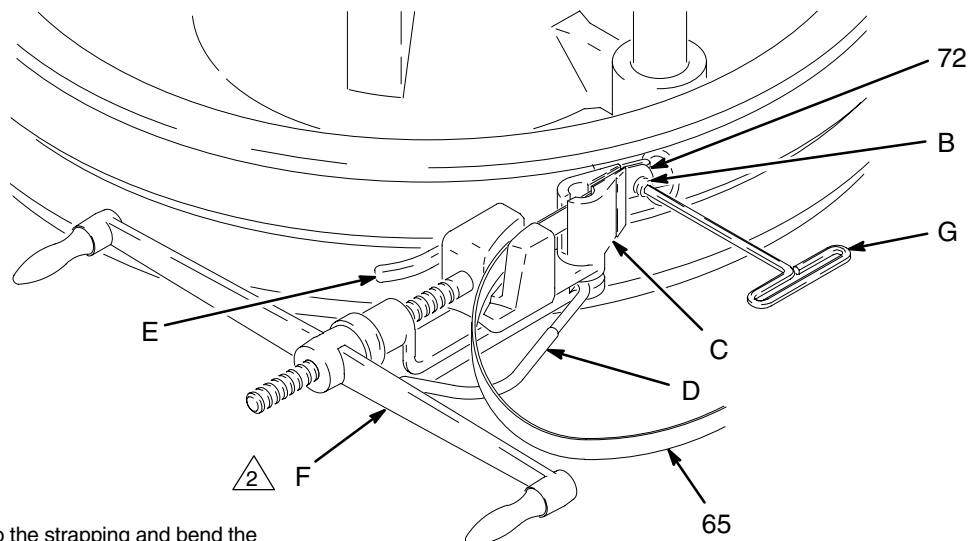
Detail A



Detail B



Detail C



△ 1 Slide the clamp onto the strapping and bend the strapping back approximately 3 in. (76 mm).

△ 2 Turn clockwise to apply tension.

△ 3 Cut the strapping and bend it back over the clamp.

Fig. 8

Service

Replacing Wipers (Model 196078)

Clean the seal grooves as follows:

1. Using a wooden or plastic tool to prevent damage to the wiper, clean all material from the seal grooves.

Install the wiper ring seals as follows:

1. Slide the first upper wiper ring (A) up from the bottom of the plate to the top ring groove as shown in fig. 1.
2. Install the first upper band (B) over the wiper ring, placing it in the top groove of the wiper.

⚠ CAUTION

Do not over tighten the screw in the band. Over tightening the screw will deform the wiper ring.

3. Secure the top band using the screw in the band.
4. Install the second upper band onto the bottom of the wiper ring on the top groove of the wiper ring.
5. Secure the top band using the screw in the band.

6. Slide the second wiper ring up from the bottom of the plate to the bottom ring groove.
7. Install the first lower band over the wiper ring on the bottom groove, placing it in the top groove of the bottom wiper.

⚠ CAUTION

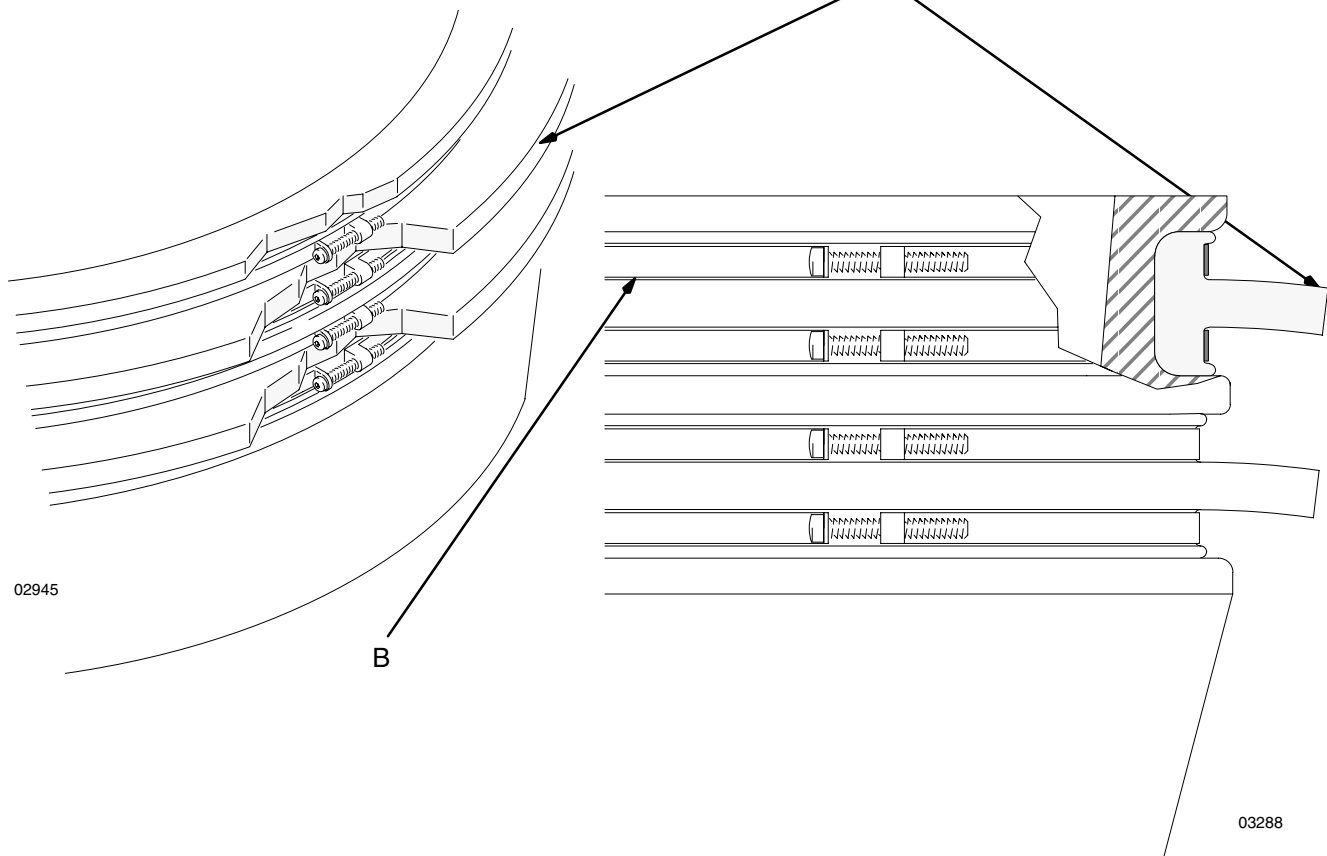
Do not over tighten the screw in the band. Over tightening the screw will deform the wiper ring.

8. Secure the top band using the screw in the band.
9. Install the second lower band onto the bottom of the wiper ring on the bottom groove of the wiper ring.
10. Secure the top band using the screw in the band.

⚠ CAUTION

Make sure the wipers are lubricated. Without lubrication, the wipers may tear.

11. using a lubricant compatible with the material to be pumped, lubricate the ram plate wipers.



Service

Piston Rod Packing Service

WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 9.

1. If air leaks around the piston rod packing nut (46), tighten the nut. If the air leak continues, **relieve the pressure** and continue as follows.
2. Remove the four nuts (37) and lockwashers (36) holding the support beam (3) to the rod (68), and remove the support beam. Screw the packing nut (46) out of the housing (70) and slide it up off the rod (68). See Fig. 9.
3. Remove the bearing (49), female gland (42), packings (47), male gland (43) and spring (44) and slide them up off the rod (68).
4. Inspect the parts for wear or damage. Replace as necessary.
5. Slide the spring (44) and male gland (43) onto the rod (68). Lubricate the packings (47) and slide them onto the rod one at a time, with the lips facing down. Slide the female gland (42) onto the rod and push all of the packings into the housing (70). Slide the bearing (49) onto the rod.
6. Slide the packing nut (46) onto the rod (68) and screw it into the housing (70). Tighten just snug; do not overtighten or the packings may be damaged.
7. Reinstall the support beam (3) on the rods (68), using the nuts (37) and lockwashers (36).

Ram Piston Service



NOTE: Some older series of Model 207279 Ram use a different piston assembly than current models. For Series A through H of Model 207279, order Repair Kit 220501. This kit is also necessary to convert the ram from air to hydraulic operation. See page 29 for parts.

WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 9.

1. **Relieve the pressure.**
2. Remove the support beam (3) as explained under **Piston Rod Packing Service**.
3. Remove the cylinder cap (67) and slide it up off the piston rod (68). Loosen the packing nut (46) and carefully slide the packing nut, bearing (49), and housing assembly (70) up off the rod. See Fig. 9.
4. Carefully pull the piston rod (68) **straight** up out of the cylinder (2). If the rod is cocked to one side, the piston or inside surface of the cylinder could be damaged.
5. Carefully lay the piston and rod down so the rod will not be bent. Remove the piston retainer nut (37), washer (36), piston (78), outer piston seal (54), inner piston seal (41) and spring (52).
6. Install the piston seals (41 and 54) on the piston (78) and lubricate the piston and seals. Reinstall the spring (52), piston (78), washer (36) and nut (37) on the piston rod (68).
7. Carefully insert the piston into the cylinder (2) and push the rod (68) **straight** down into the cylinder. Slide the housing, bearing (49), and packing nut (46) down onto the piston rod (68). Tighten the packing nut just snug; do not overtighten or the packings may be damaged.
8. Reinstall the cylinder cap (67) and beam (3).

Service

-  Lubricate.
-  Lips of v-packings must face down.

Packing Detail

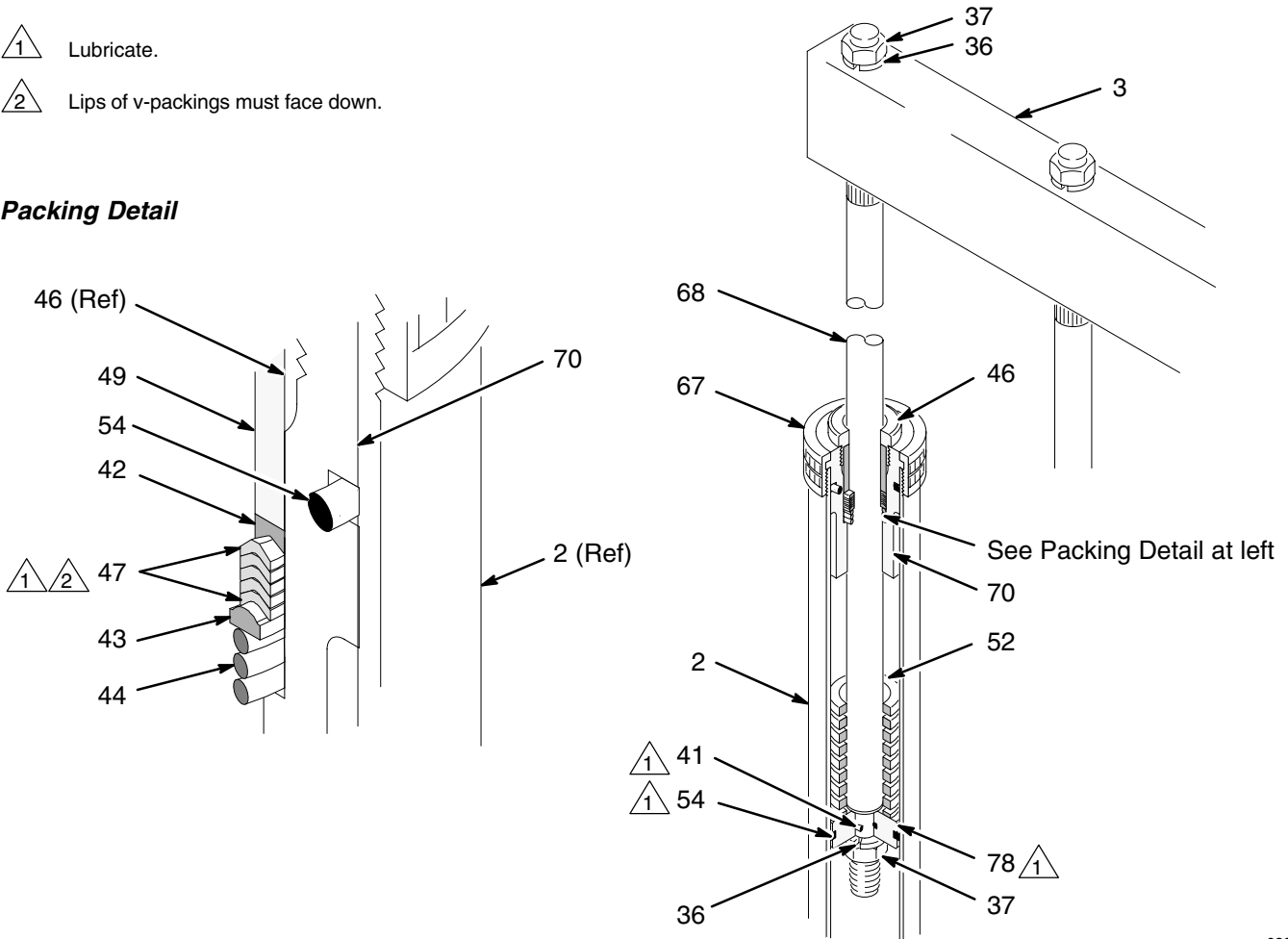


Fig. 9

02944

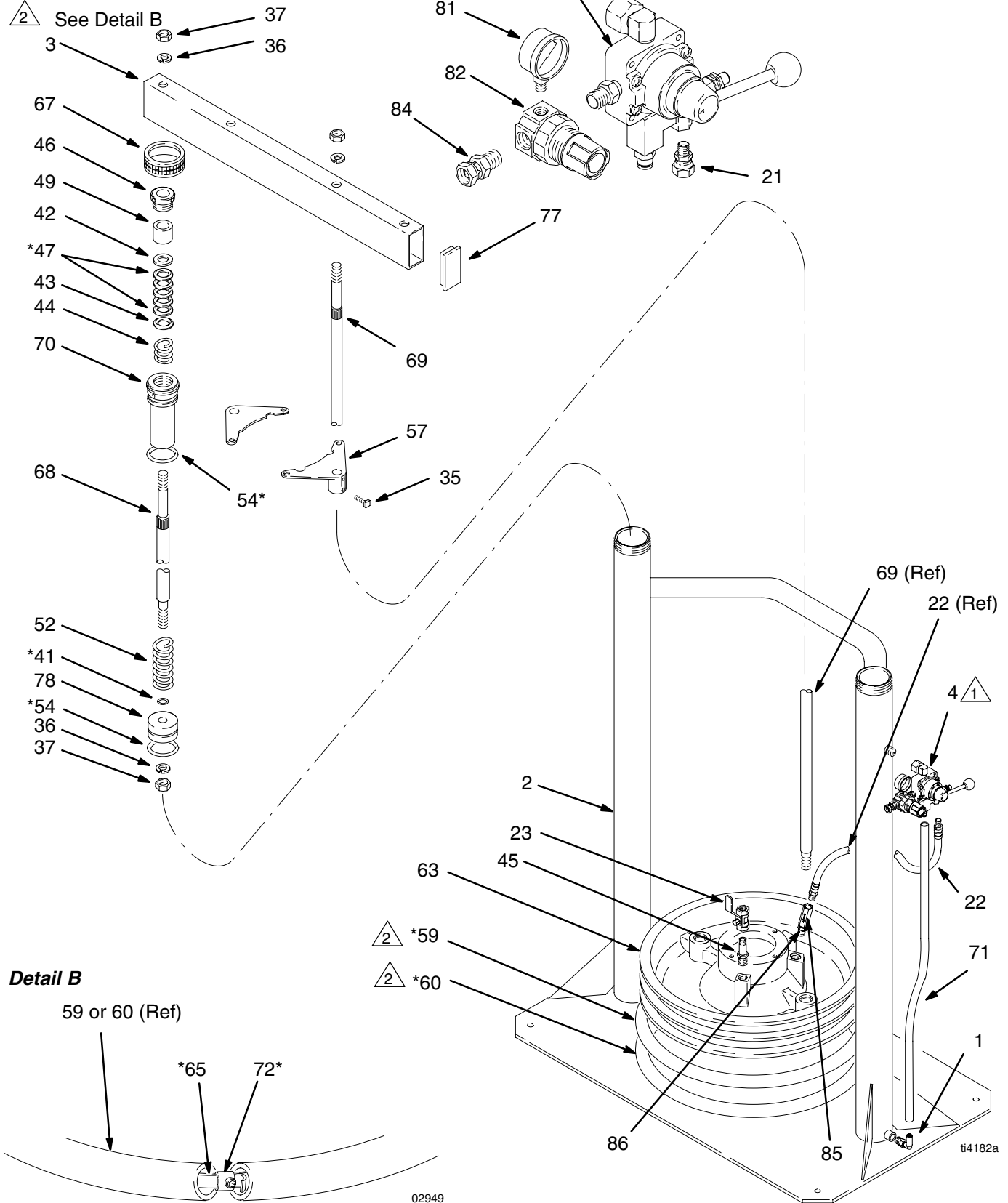
Parts

Detail A

Part No. 253017, Series A
Part No. 207279, Series L

△ 1 See Detail A

△ 2 See Detail B



Detail B

Parts

Part No. 253017, Series A Part No. 207279, Series L

Ref. No.	Part No.	Description	Qty.	Ref. No.	Part No.	Description	Qty.
1	111162	ELBOW, tube; 1/4 in. OD tube x 1/8 npt(m)	1	60◆‡*	162231	WIPER, ethylene-propylene hose; 1.25 in. (31.8 mm) ID;	
2	215335	RAM BASE & AIR CYLINDER	1			66.88 in. (1.70 m) long	1
3	167646	BEAM, support	1	63‡*	191991	PLATE, ram; aluminum	
4	113896	AIR CONTROL VALVE ASSY	1			(Model 207279 only.)	1
21	113915	ADAPTER, union; 1/8 npt (m) x 1/4 npsm (f)	1	63◆	C56136	PLATE, ram; PTFE coated	
22	208048	HOSE, air; 3/8 in. (9.5 mm) ID; cpld 1/4 npt x 3/8 npt (mbe); 48 in. (1.2 m) long	1	65◆‡*	177973	BAND, wiper	2
23	114363	BALL VALVE; 3/8 npt (fbe)	1	67	166552	CAP, cylinder	2
34	104663	PLUG, pipe, square hd; 3/4 npt	1	68††	167651	ROD, ram piston	2
35	100672	SCREW, square hd cup point; 3/8-16 x 1 in. (25.4 mm) long	4	69	167652	ROD, tie	2
36††	101533	LOCKWASHER, spring; 7/8 in.	6	70††	176630	HOUSING, packing	2
37††	101535	NUT, hex; 7/8 in.	6	71	054123	TUBE, nylon; 1/4 in. (6.4mm) OD,	
41††*	156401	SEAL, o-ring; nitrile rubber	2	72‡*	101817	CLAMP, strapping; wipers	2
42††	157636	GLAND, female packing	2	77	189559	PLATE, end	2
43††	157638	GLAND, male packing	2	78††	183020	PISTON	2
44††	158388	SPRING, helical compression	2	81	110319	GAUGE, air pressure	1
45	158979	NIPPLE, reducing; 1/2 npt x 3/8 npt	1	82	110318	AIR REGULATOR	
46††	159046	NUT, packing; air cylinders	2	84	156823	UNION, adapter, swivel;	1
47††*	159314	V-PACKING, pre-formed	10			1/4 npt(m) x 1/4 npsm(f)	1
49††	160093	BEARING, piston rod	2	85	114243	VALVE, check, carbon steel,	
52††	160138	SPRING, helical compression	2	86	156849	NIPPLE, pipe	1
54††*	160258	SEAL, o-ring; nitrile rubber	2			3/8 npt(f) X2	1
57	161822	BRACKET, pump mounting	2				1
59◆‡*	162230	WIPER, ethylene-propylene hose; 1.25 in. (31.8 mm) ID; 67.56 in. (1.72 m) long	1				

* Keep these spare parts on hand to reduce down time.

†† Part of Piston Assembly 238928.

‡ Part of Plate Assembly 238929. Model 207279 only.

◆ Part of Plate Assembly C56135. Model 253017 only.

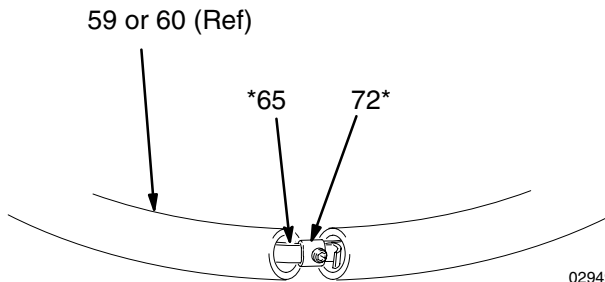
Parts

Part No. 196078, Series A
 Part No. 196079, Series A (shown)

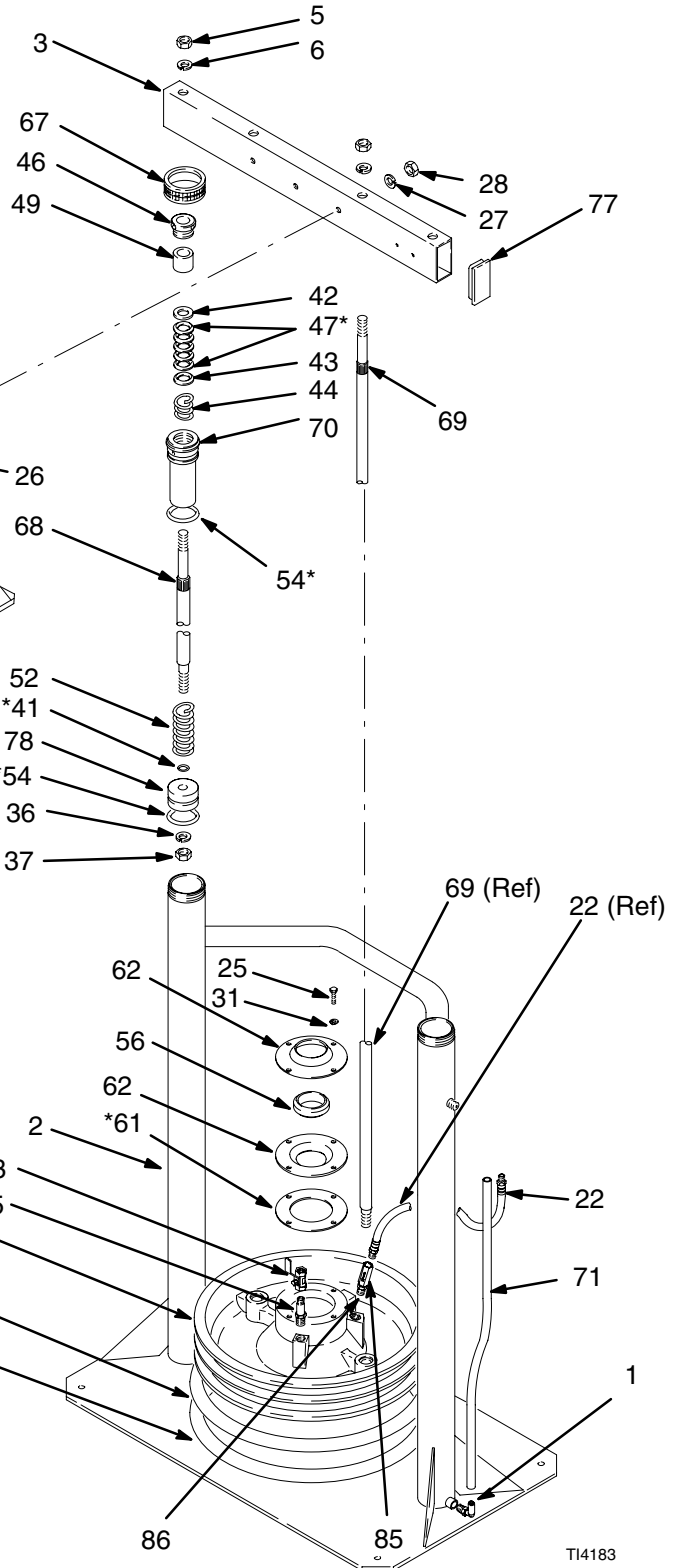
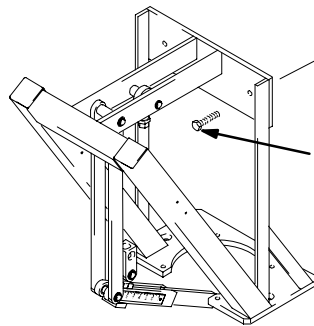
△1 See Detail A for 238929 only.

△2 See Detail B for 196078 only.

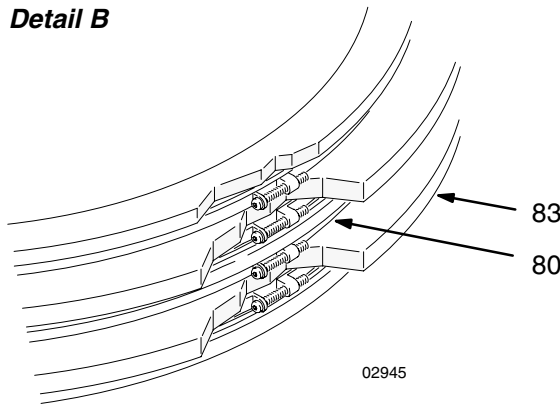
Detail A



02949



Detail B



02945

Parts

Part No. 196078, Series A

Part No. 196079, Series A

Ref. No.	Part No.	Description	Qty.	Ref. No.	Part No.	Description	Qty.
1	111162	ELBOW, tube; 1/4 in. OD tube x 1/8 npt(m)	1	59‡*	162230	WIPER, ethylene-propylene hose; 1.25 in. (31.8 mm) ID;	
2	215335	RAM BASE & AIR CYLINDER	1			67.56 in. (1.72 m) long	1
3	621386	BEAM, support	1	60‡*	162231	WIPER, ethylene-propylene hose; 1.25 in. (31.8 mm) ID;	
5	101533	LOCKWASHER, spring; 7/8 in.	4			66.88 in. (1.70 m) long	1
6	101535	NUT, hex; 7/8 in.	4	61*	162788	GASKET; cork	1
7	902755	FRAME, Hydra-Mate™ See manual 308930	1	62	162789	PLATE, seal, standard	2
22	208048	HOSE, air; 3/8 in. (9.5 mm) ID; cpld 1/4 npt x 3/8 npt (mbe); 48 in. (1.2 m) long	1	63‡☆	191991	PLATE, ram; aluminum	1
23	114363	BALL VALVE; 3/8 npt (fbe)	1	65‡*	177973	BAND, wiper	2
25	100004	SCREW, hex hd cap; 3/8-16 x 1-1/4 in. (31 mm) long	4	67	166552	CAP, cylinder	2
26	100679	SCREW, cap	3	68††	167651	ROD, ram piston	1
27	100018	LOCKWASHER, spring	3	69	167652	ROD, tie	2
28	100321	NUT	3	70††	176630	HOUSING, packing	1
31	100133	LOCKWASHER, spring; 3/8 in.	4	71	054123	TUBE, nylon; 1/4 in. (6.4mm) OD	A/R
36††	101533	LOCKWASHER, spring; 7/8 in.	1	72‡*	101817	CLAMP, strapping; wipers	2
37††	101535	NUT, hex; 7/8 in.	1	77	189559	PLATE, end	2
41††*	156401	SEAL, o-ring; nitrile rubber	1	78††	183020	PISTON	1
42††	157636	GLAND, female packing	1		570313	PLATE ASSEMBLY	1
43††	157638	GLAND, male packing	1	80☆	112256	BAND, wiper	4
44††	158388	SPRING, helical compression	1	83☆	112102	SEAL, wiper ring	2
45	158979	NIPPLE, reducing; 1/2 npt x 3/8 npt	1	85	206831	VALVE, check, carbon steel, 3/8 npt (fbe)	1
46††	159046	NUT, packing; air cylinders	1				
47††*	159314	V-PACKING, pre-formed	5				
49††	160093	BEARING, piston rod	1				
52††	160138	SPRING, helical compression	1				
54††*	160258	SEAL, o-ring; nitrile rubber	1				
56	161452	SEAL, ram plate, standard	1				

* Keep these spare parts on hand to reduce down time.

†† Part of Piston Assembly 238928.

‡ Part of Plate Assembly 238929 (Model 196079).

☆ Part of Plate Assembly 570313 (Model 196078).

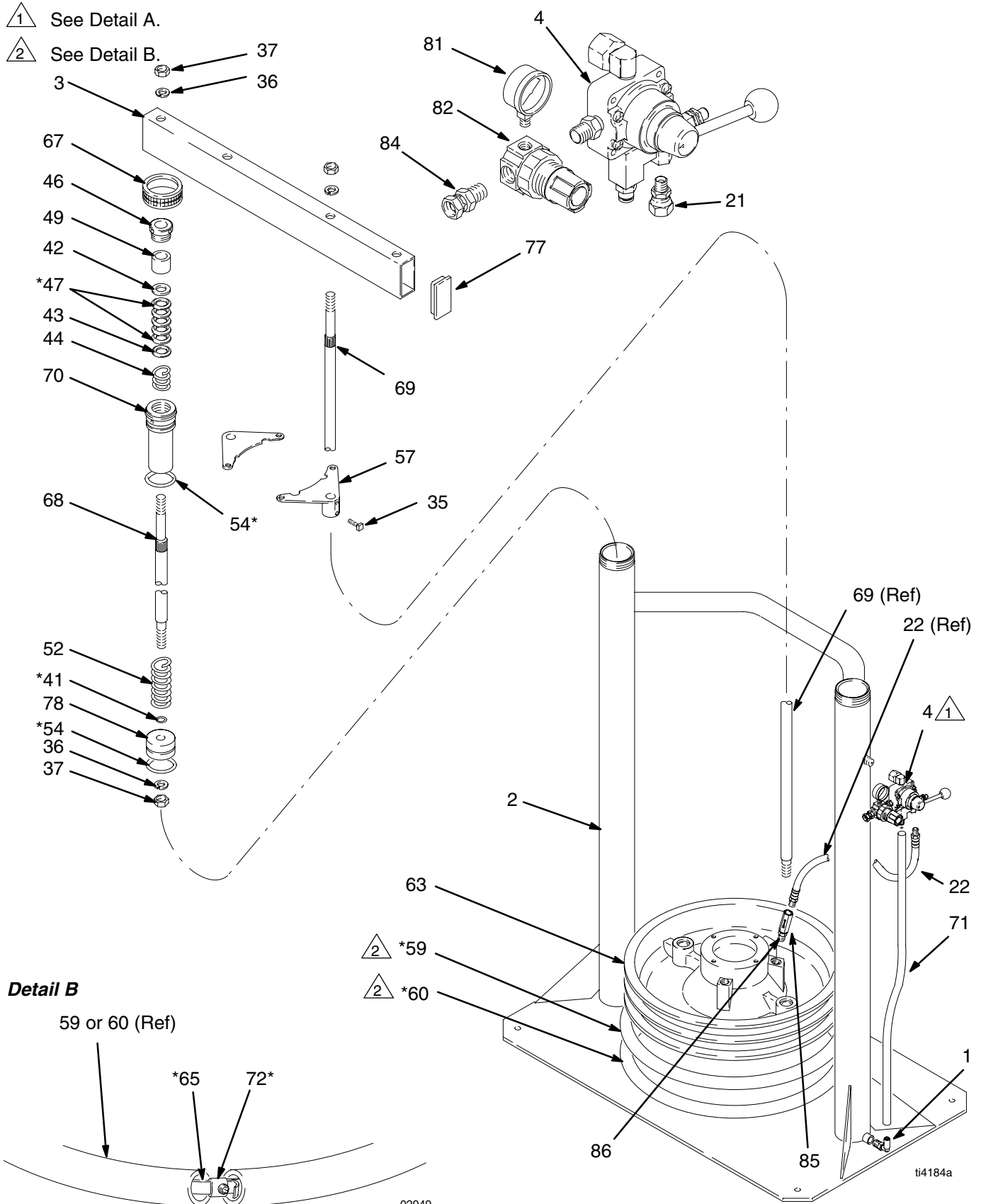
Parts

Part No. 241252, Series A
Part No. 241253, Series A

△ 1 See Detail A.

△ 2 See Detail B.

Detail A



Detail B

59 or 60 (Ref)

65 72

02949

ti4184a

Parts

Part No. 241252, Series A

Part No. 241253, Series A

Ref. No.	Part No.	Description	Qty.	Ref. No.	Part No.	Description	Qty.
1	111162	ELBOW, tube; 1/4 in. OD tube x 1/8 npt(m)	1	60‡*	162231	WIPER, ethylene-propylene hose; 1.25 in. (31.8 mm) ID;	
2	215335	RAM BASE & AIR CYLINDER	1			66.88 in. (1.70 m) long	1
3	167646	BEAM, support	1		C03061	WIPER, poly-vinyl chloride hose;	
4	113896	AIR CONTROL VALVE ASSY	1			1.25 in. (31.8 mm) ID;	
21	113915	ADAPTER, union; 1/8 npt (m) x 1/4 npsm (f)	1			66.88 in. (1.70 m) long (Model 241252)	1
22	208048	HOSE, air; 3/8 in. (9.5 mm) ID; cpld 1/4 npt x 3/8 npt (mbe); 48 in. (1.2 m) long	1	63‡	191991	PLATE, ram; aluminum	1
35	100672	SCREW, square hd cup point; 3/8-16 x 1 in. (25.4 mm) long	4	65‡*	177973	BAND, wiper	2
36††	101533	LOCKWASHER, spring; 7/8 in.	6	67	166552	CAP, cylinder	2
37††	101535	NUT, hex; 7/8 in.	6	68††	167651	ROD, ram piston	2
41††*	156401	SEAL, o-ring; nitrile rubber	2	69	167652	ROD, tie	2
42††	157636	GLAND, female packing	2	70††	176630	HOUSING, packing	2
43††	157638	GLAND, male packing	2	71	054123	TUBE, nylon; 1/4 in. (6.4mm) OD	A/R
44††	158388	SPRING, helical compression	2	72‡*	101817	CLAMP, strapping; wipers	2
46††	159046	NUT, packing; air cylinders	2	77	189559	PLATE, end	2
47††*	159314	V-PACKING, pre-formed	10	78††	183020	PISTON	2
49††	160093	BEARING, piston rod; aluminum	2	81	110319	GAUGE, air pressure	1
52††	160138	SPRING, helical compression	2	82	110318	AIR REGULATOR	
54††*	160258	SEAL, o-ring; nitrile rubber	2			See Manual 308167 for parts	1
57	161822	BRACKET, pump mounting	2	84	156823	UNION, adapter, swivel; 1/4 npt(m) x 1/4 npsm(f)	1
59‡*	162230	WIPER, ethylene-propylene hose; 1.25 in. (31.8 mm) ID;		85	114243	VALVE, check, carbon steel, 3/8 npt (fbe)	1
		67.56 in. (1.72 m) long	1	86	156849	NIPPLE, pipe	1
	C03062	WIPER, poly-vinyl chloride hose; 1.25 in. (31.8 mm) ID;					
		67.56 in. (1.72 m) long (Model 241252)	1				

* *Keep these spare parts on hand to reduce down time.*

†† *Part of Piston Assembly 238928.*

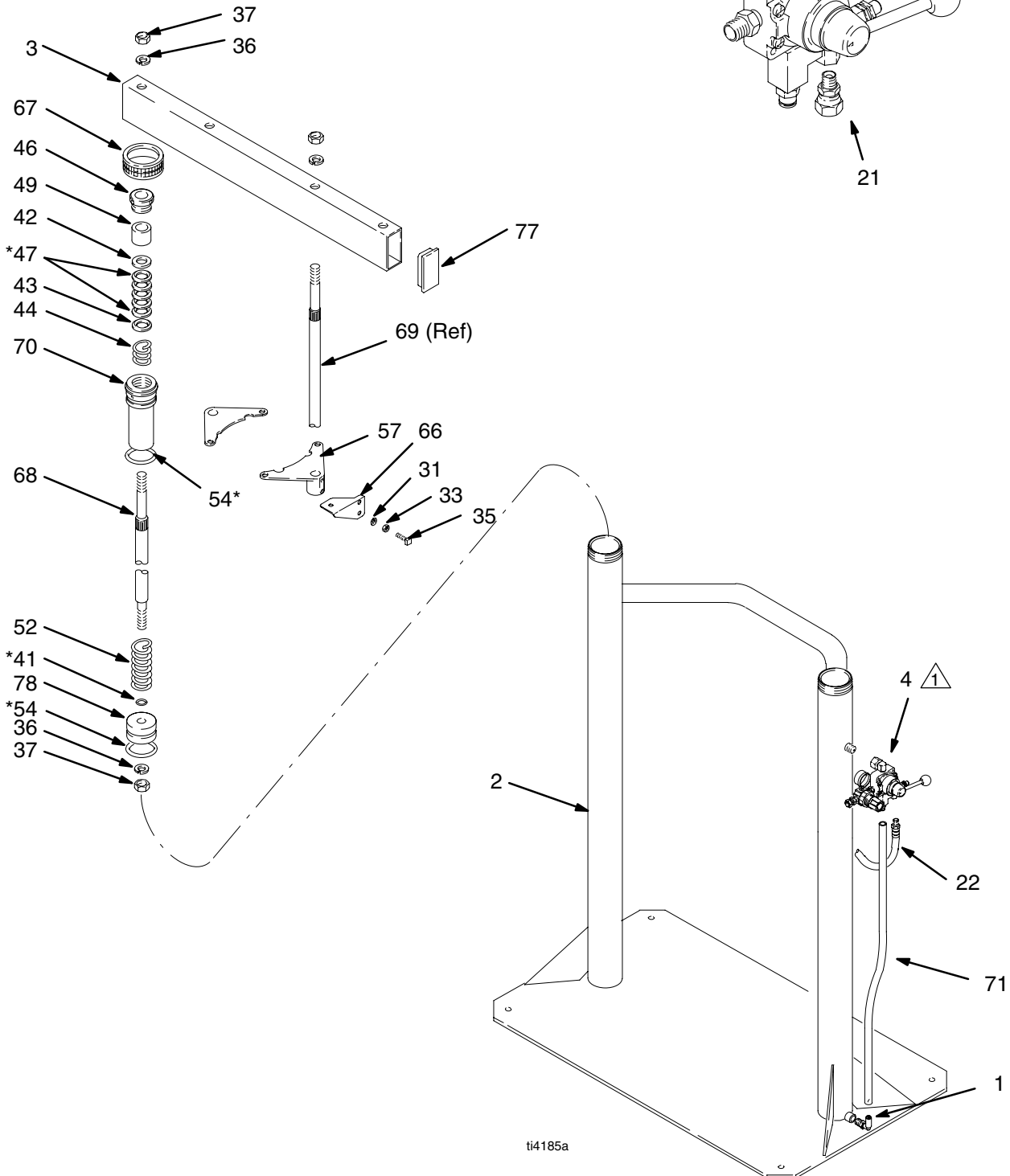
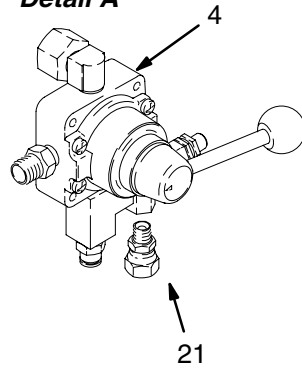
‡ *Part of Plate Assembly 238929 (Model 241253) and 241251 (Model 241252) .*

Parts

Part No. C50007, Series A

 See Detail A.

Detail A



t14185a

Parts

Part No. C50007, Series A

Includes parts 1 through 78

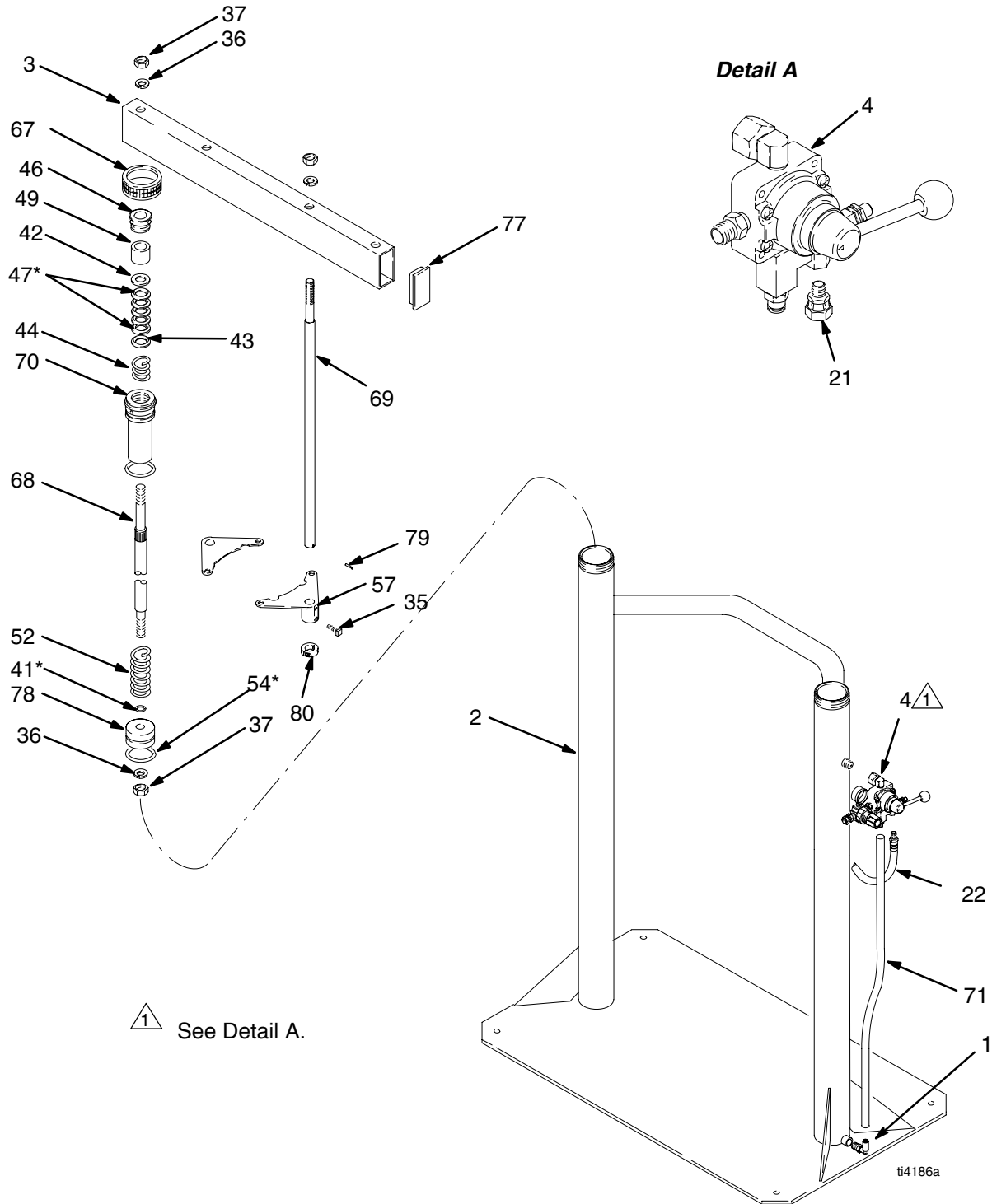
Ref. No.	Part No.	Description	Qty.	Ref. No.	Part No.	Description	Qty.
1	111162	ELBOW, tube; 1/4 in. OD tube x 1/8 npt(m)	1	37††	101535	NUT, hex; 7/8 in.	6
2	215335	RAM BASE & AIR CYLINDER	1	41††*	156401	SEAL, o-ring; nitrile rubber	2
3	167646	BEAM, support	1	42††	157636	GLAND, female packing	2
4	113896	AIR CONTROL VALVE ASSY	1	43††	157638	GLAND, male packing	2
21	113915	ADAPTER, union; 1/8 npt (m) x 1/4 npsm (f)	1	44††	158388	SPRING, helical compression	2
22	208048	HOSE, air; 3/8 in. (9.5 mm) ID; cpld 1/4 npt x 3/8 npt (mbe); 48 in. (1.2 m) long	1	46††	159046	NUT, packing; air cylinders	2
23†	114363	BALL VALVE; 3/8 npt (fbe)	1	47††*	159314	V-PACKING, pre-formed	10
26†	100016	LOCKWASHER, spring; 1/4 in.; not shown	4	49††	160093	BEARING, piston rod	2
27†	100022	SCREW, hex hd cap; 1/4-20 x 3/4 in. (19 mm) long; not shown	4	52††	160138	SPRING, helical compression	2
29†	100057	SCREW, hex hd cap; 5/16-18 x 3/4 in. (19 mm) long; not shown	3	54††*	160258	SEAL, o-ring; nitrile rubber	2
32†	100214	LOCKWASHER, spring; 5/16 in.; not shown	3	57†	161822	BRACKET, pump mounting	2
33†	100340	NUT, hex jam; 3/8-16	2	66†	166016	BRACKET, mounting; air regulator kit	1
35†	100672	SCREW, square hd cup point; 3/8-16 x 1 in. (25.4 mm) long	4	67	166552	CAP, cylinder	2
36††	101533	LOCKWASHER, spring; 7/8 in.	6	68††	167651	ROD, ram piston	2
				70††	176630	HOUSING, packing	2
				71	054123	TUBE, nylon; 1/4 in. (6.4mm) OD	A/R
				77	189559	PLATE, end	2
				78††	183020	PISTON	2

* Keep these spare parts on hand to reduce down time.

†† Part of Piston Assembly 238928.

Parts

Part No. 241988, Series A



Parts

Part No. 241988, Series A

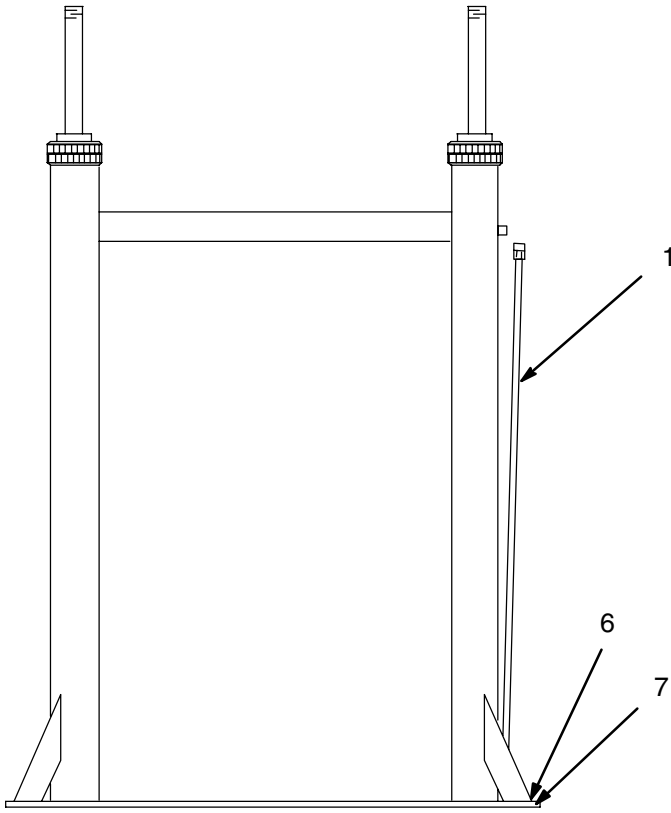
Ref. No.	Part No.	Description	Qty.	Ref. No.	Part No.	Description	Qty.
1	111162	ELBOW, tube; 1/4 in. OD tube x 1/8 npt(m)	1	47††*	159314	V-PACKING, pre-formed	10
2	215335	RAM BASE & AIR CYLINDER	1	49††	160093	BEARING, piston rod; aluminum	2
3	167646	BEAM, support	1	52††	160138	SPRING, helical compression	2
4	113896	AIR CONTROL VALVE ASSY	1	54††*	160258	SEAL, o-ring; nitrile rubber	2
21	113915	ADAPTER, union; 1/8 npt (m) x 1/4 npsm (f)	1	57	161822	BRACKET, pump mounting	2
22	208048	HOSE, air; 3/8 in. (9.5 mm) ID; cpld 1/4 npt x 3/8 npt (mbe); 48 in. (1.2 m) long	1	67	166552	CAP, cylinder	2
35	100672	SCREW, square hd cup point; 3/8-16 x 1 in. (25.4 mm) long	4	69	C54625	ROD, tie	2
36††	101533	LOCKWASHER, spring; 7/8 in.	6	68††	167651	ROD, ram piston	2
37††	101535	NUT, hex; 7/8 in.	6	70††	176630	HOUSING, packing	2
41††*	156401	SEAL, o-ring; nitrile rubber	2	71	054123	TUBE, nylon; 1/4 in. (6.4mm) OD,	A/R
42††	157636	GLAND, female packing	2	77	189559	PLATE, end	2
43††	157638	GLAND, male packing	2	78††	183020	PISTON	2
44††	158388	SPRING, helical compression	2	79	108068	PIN, spring, straight	2
46††	159046	NUT, packing; air cylinders	2	80	551294	COLLAR, shaft	2

* Keep these spare parts on hand to reduce down time.

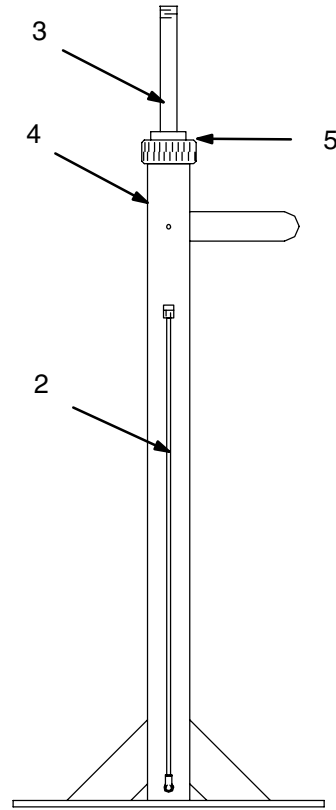
†† Part of Piston Assembly 238928.

Parts

Part No. 954419, Series A



Front View



Side View

Parts

Part No. 954419, Series A

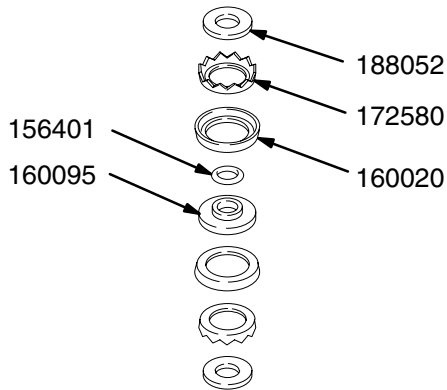
Ref. No.	Part No.	Description	Qty.	Ref. No.	Part No.	Description	Qty.
1	054123	TUBE, nylon (3.6 ft.)	1	5	166552	CAP, cylinder	2
2	113208	FITTING, tube	1	6	100132	WASHER, flat	4
3	238928	PISTON, 55 gal ram	2	7	100464	SCREW, lag	4
4	215335	BASE, ram	1				

Accessories

Piston Repair Kit 220501

For repairing Series A through H rams only, and also for converting all Series rams from air to hydraulic operation. Includes:

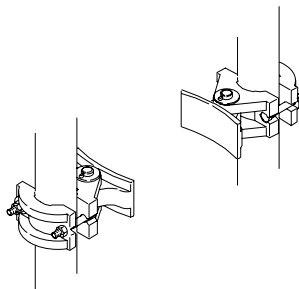
Part No.	Name	Qty
188052	Washer	4
172580	Spreader	4
160020	Cup Packing	4
160095	Piston	2
156401	O-Ring	2



Drum Clamp Set 206537

(Includes two clamps)

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



Mounting Kit 222776

Required for mounting Check-Mate 450, 800, 1000, and 2100 Pumps on the ram.

Wiper Ring 165601

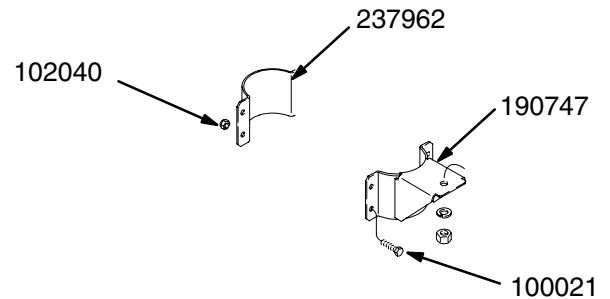
22 in. (560 mm) O.D.
White neoprene; Food grade;
Replaces items 59 and 60.

Banding Tool 168092

For tightening strapping when replacing wipers.

Regulator Mounting Bracket

Part No.	Name	Qty
237962	BRACKET	1
190747	BRACKET	1
100021	SCREW, 1/4-20 unc-3a	4
102040	NUT, hex, locking 1/4-20 unc-3b	4



Mounting Kit 224829

See pages 6–8 for mounting instructions.

Required for mounting President and Monark
Check–Mate 450 pumps.

Ref. No.	Part No.	Description	Qty.
A	184140	PLATE, mounting	1
B	100101	SCREW, hex hd, cap 3/8–16 x 1 in (25.4 mm)	4
C	100133	LOCKWASHER, spring, 3/8 in	8
D	100004	SCREW, hex hd, cap; 3/8–16 x 1–1/4 in (31 mm)	4
F	161452	SEAL, ram plate, standard	1
G	162789	PLATE, seal, standard	2
H	162788	GASKET; cork	1
J	100016	WASHER, lock	2
K	102025	NUT, hex, regular	2
L	100270	SCREW, cap, hex	2
M	15B588	SCREW, cap, socket	2

Mounting Kit 247335

See page 7 for mounting instructions.

Required for mounting Fire–Ball 300 and Fire–Ball 425
Pumps.

Ref. No.	Part No.	Description	Qty.
C	100133	LOCKWASHER, spring, 3/8 in	4
D	100004	SCREW, hex hd, cap; 3/8–16 x 1–1/4 in (31 mm)	4
F	160098	SEAL, ram plate	1
G	162789	PLATE, seal, standard	2
H	162788	GASKET; cork	1

Mounting Kit 247336

See page 7 for mounting instructions.

Required for mounting Fire–Ball 300, 50:1 Pumps.

Ref. No.	Part No.	Description	Qty.
A	184140	PLATE, mounting	1
B	100101	SCREW, hex hd, cap 3/8–16 x 1 in (25.4 mm)	4
C	100133	LOCKWASHER, spring, 3/8 in	4
Mounting Hardware (Pump to Plate A)			
	100022	SCREW, hex hd, cap 1/4–20 x .75 in	2
	100016	LOCKWASHER, 1/4	2
	100015	NUT, hex, 1/4–20	2

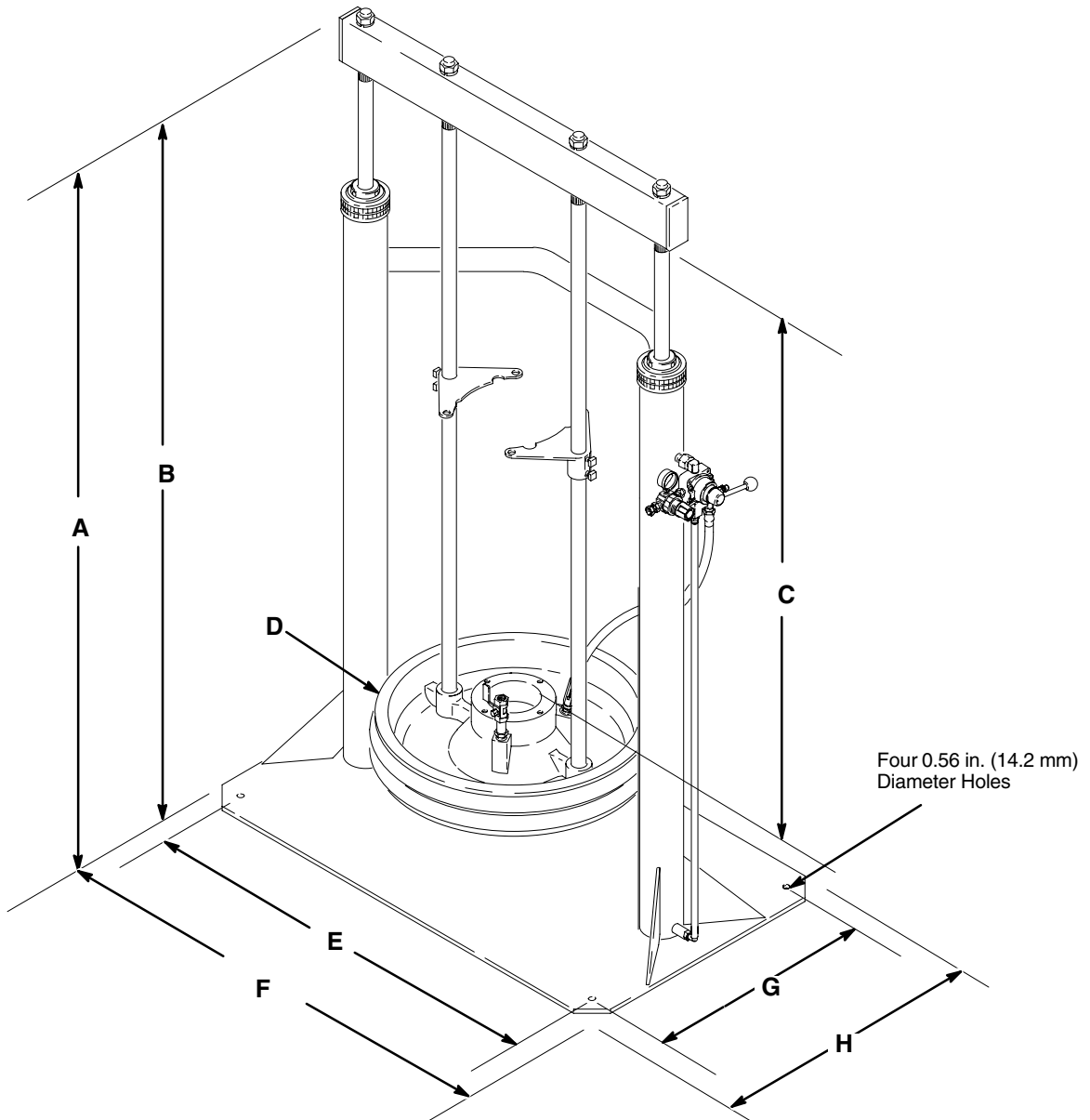
Mounting Kit 247337

See page 7 for mounting instructions.

Required for mounting Fire–Ball 425, 10:1, 50:1 and
75:1 Pumps.

A	162225	PLATE, mounting	1
B	100101	SCREW, hex hd, cap 3/8–16 x 1 in (25.4 mm)	4
C	100133	LOCKWASHER, spring, 3/8 in	4
Mounting Hardware (Pump to Plate A)			
	100022	SCREW, hex hd, cap 1/4–20 x .75 in	2
	100016	LOCKWASHER, 1/4	2

Dimensions



Weight: Approximately 405 lb (183.7 kg).

Ram Model	A (raised)	B (lowered)	C	D (diameter)	E	F	G	H	J (air inlet)
253017 207279 C50007	101.4 in. (2576 mm)	62 in. (1575 mm)	50 in. (1270 mm)	21.25 in. (540 mm)	38 in. (965 mm)	42 in. (1067 mm)	21 in. (533 mm)	25 in. (635 mm)	1/4 npsm(f)

Technical Data

Maximum air inlet pressure 150 psi (1.0 MPa, 10 bar) Wetted parts Cast Aluminum, ethylene-propylene

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 Information

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.

This manual contains English. MM 306934

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

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

www.graco.com

306934 10/1966, Revised 01/2007