



This manual contains important warnings and information.
READ AND KEEP FOR REFERENCE.

INSTRUCTIONS

First choice when quality counts.™

Rev. F
Supersedes Rev. E
and PCN F

Displacement Pump

CARBON STEEL PUMPS

Part No. 217-577, Series B
3000 psi (210 bar) Maximum Working Pressure

Part No. 218-215, Series C
2750 psi (195 bar) Maximum Working Pressure

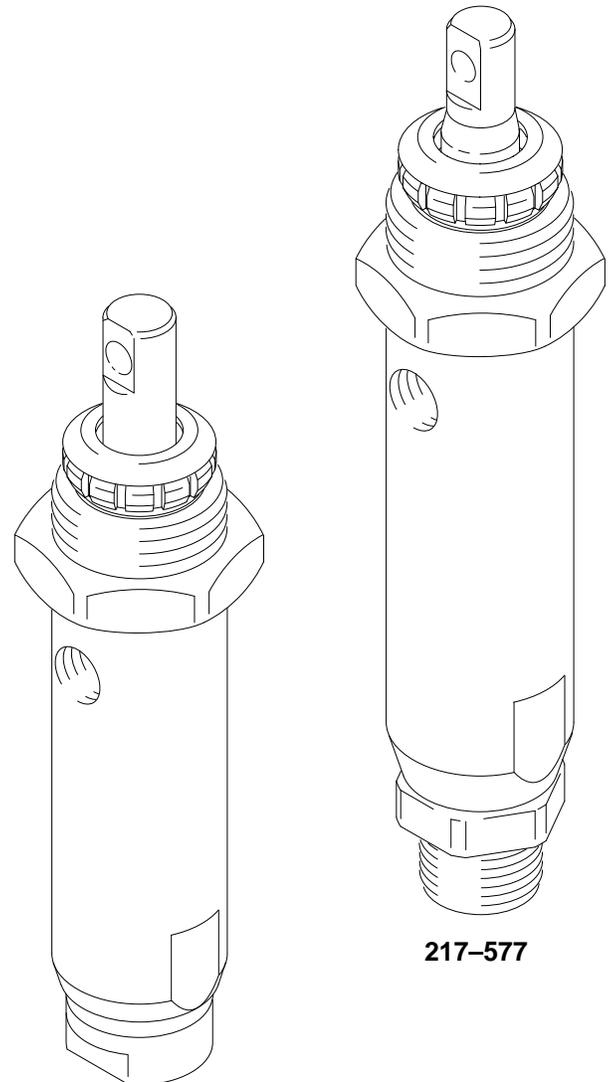
STAINLESS STEEL PUMPS

Part No. 218-347, Series C
3000 psi (210 bar) Maximum Working Pressure

Part No. 220-647, Series A
2750 psi (195 bar) Maximum Working Pressure

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218-215

217-577

02197

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.

- 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.
- Electrically disconnect all equipment in the spray area.
- 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.



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 of the lowest rated system component. Refer to the **Technical Data** on page 12 for the maximum working pressure of this equipment.
- 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.
- Do not use 1,1,1-trichloroethane, methylene chloride, other halogenated hydrocarbon solvents or fluids containing such solvents in pressurized aluminum equipment. Such use could result in a chemical reaction, with the possibility of explosion.
- 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 82°C (180°F) or below -40°C (-40°F).
- Do not lift pressurized equipment.
- Comply with all applicable local, state, and national fire, electrical, and safety regulations.

⚠ WARNING



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 is a serious injury. The injury may look like just a cut, but it is a serious injury. Get immediate medical attention.
- 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.
- Lock the gun trigger safety when you stop spraying.
- Follow the **Pressure Relief Procedure** on page 7 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.



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.



MOVING PARTS HAZARD

Moving parts can pinch or amputate your fingers.

- Keep clear of all moving parts when starting or operating the pump.
- Before servicing the equipment, follow the **Pressure Relief Procedure** on page 7 to prevent the equipment from starting unexpectedly.

Service

Tools Needed:

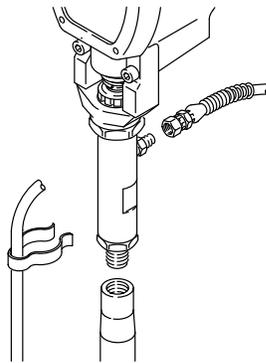
- Heavy duty wrench
- Plastic mallet
- 7/8" open end wrench
- Small screwdriver
- 2" open-end or adjustable wrench

⚠ WARNING

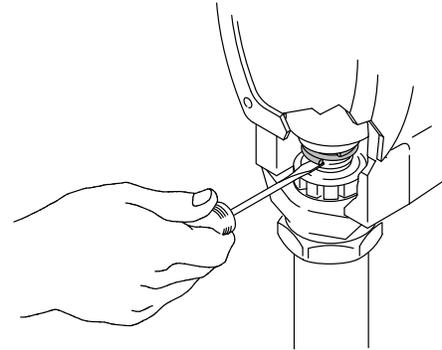
INJECTION HAZARD
To reduce the risk of serious bodily injury, follow the **Pressure Relief Procedure Warning** on page 7 before checking or repairing any part of the spray system.

NOTE: Flush the pump, if possible. Relieve pressure. Stop the pump with piston rod in lowest position.

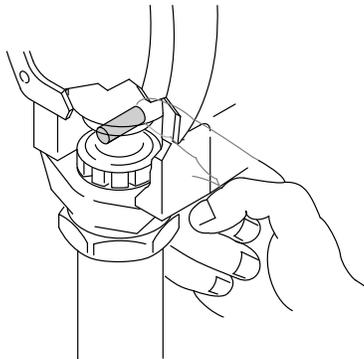
Soak the leather packings in oil.



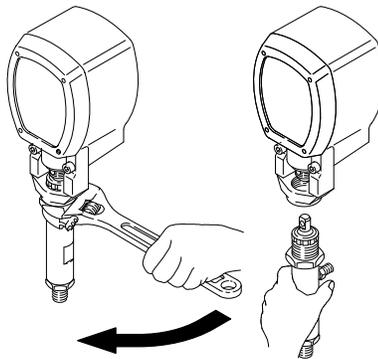
1. Unscrew the suction tube. Disconnect the hoses.



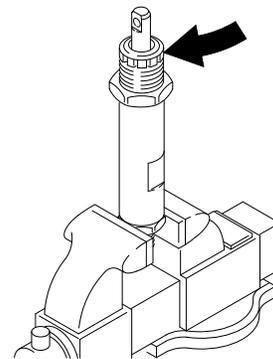
2. Push the retaining spring up.



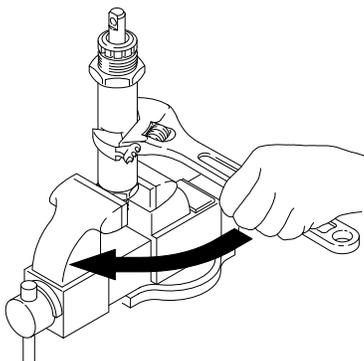
3. Push out the pin.



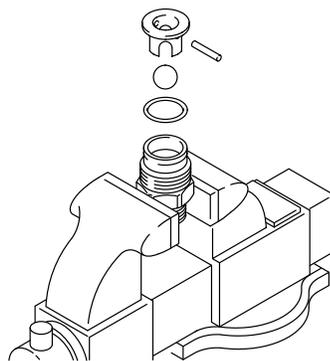
4. Loosen the locknut and unscrew the pump from the bearing housing.



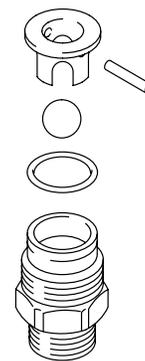
5. Loosen the packing nut and plug.



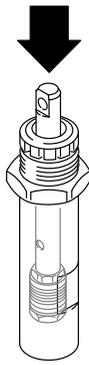
6. Loosen the cylinder from the intake valve.



7. Disassemble intake valve. Use a pick to remove the old gasket. Clean and inspect.

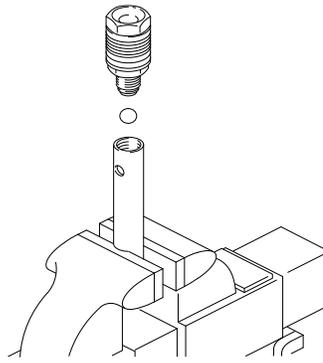


8. Reassemble the intake valve, using a new gasket, ball and pin.

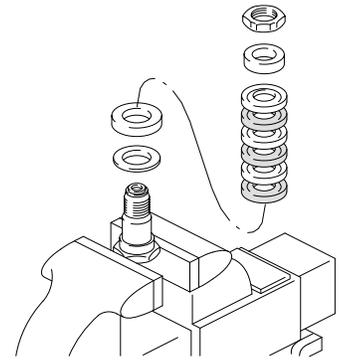


9. Tap the piston rod out of the cylinder.

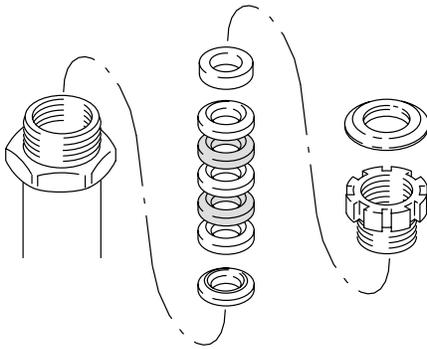
Clean and inspect all parts.



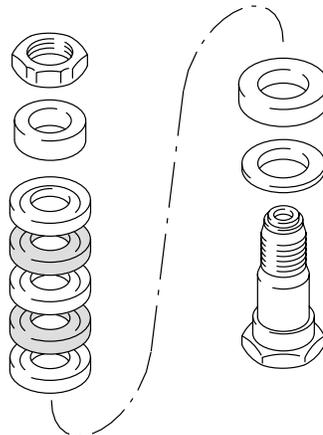
10. Loosen the jam nut. Unscrew the piston valve from the rod. Clean and inspect.



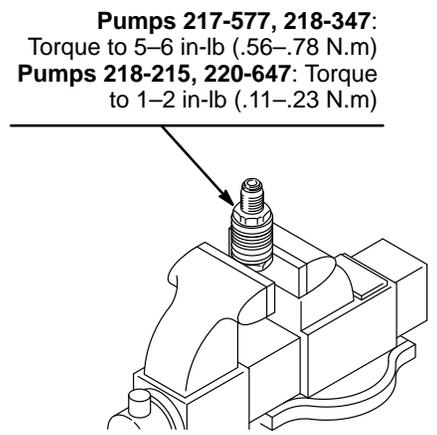
11. Disassemble the piston and discard the packings and glands.



12. Remove and discard the throat packings and glands. Clean and inspect parts.

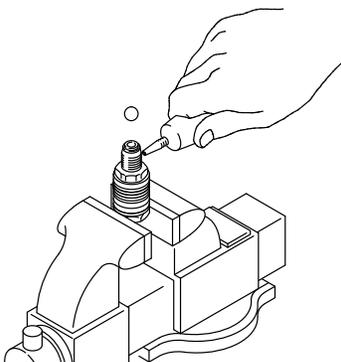


13. One at a time, stack the backup washer, seal (with lips facing down), and female gland on the piston. Alternately stack the polyethylene and leather packings (lips facing up) on the piston. Then install the male gland.

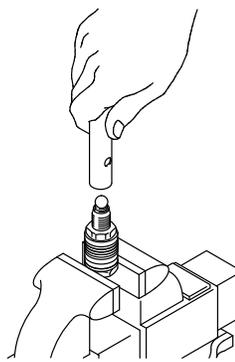


14. Tighten the packing retaining nut against the piston valve.

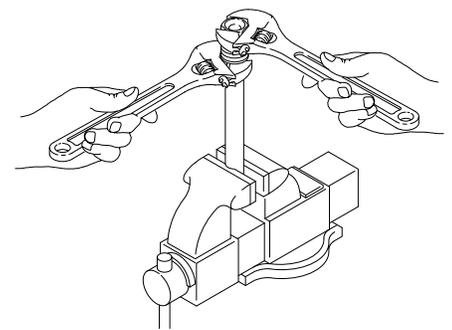
Note the alignment of the piston to the packing retainer nut. Maintain this alignment through Steps 17 and 18.



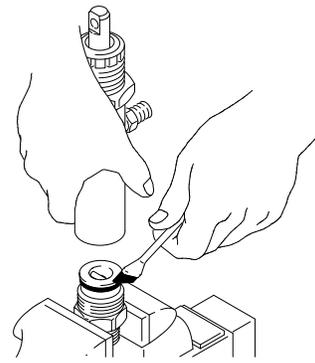
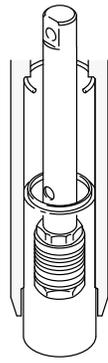
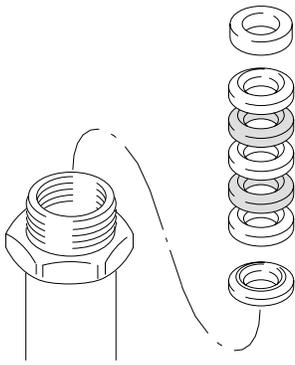
15. Clean the piston valve threads. Apply one drop of Locktite to the threads. Place the ball on the piston valve.



16. While maintaining the alignment, thread the valve assembly into the piston rod just until the nut contacts the rod.



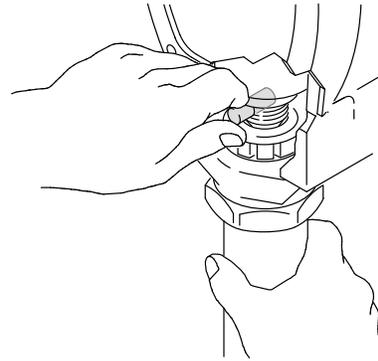
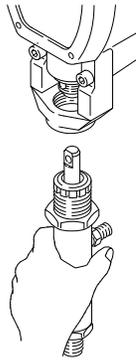
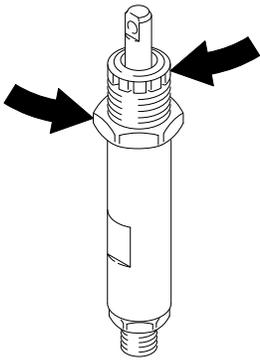
17. Carefully tighten the nut onto the piston rod to 19 ft-lb.



18. Place the male gland into the cylinder. Alternately stack the polyethylene and leather packings (lips facing down). Then place the female gland into the top of the cylinder.

19. Slide the piston rod assembly into the bottom of the cylinder.

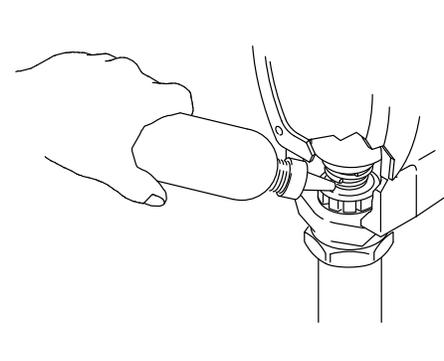
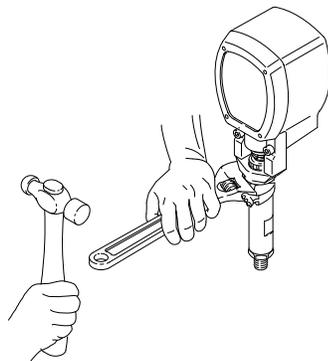
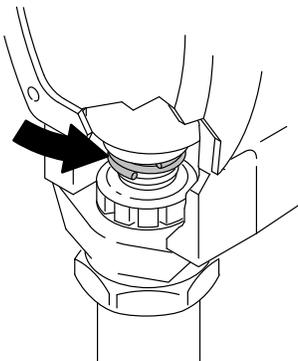
20. Grease the intake valve o-ring with non-silicon grease. Screw the pump cylinder into the intake valve. Torque to 80 ft-lb.



21. Tighten the packing nut hand tight. Screw the cylinder locknut down to the bottom of the external cylinder threads.

22. Screw in the pump until the holes in the bearing housing and piston rod align.

23. Push the pin into the holes.



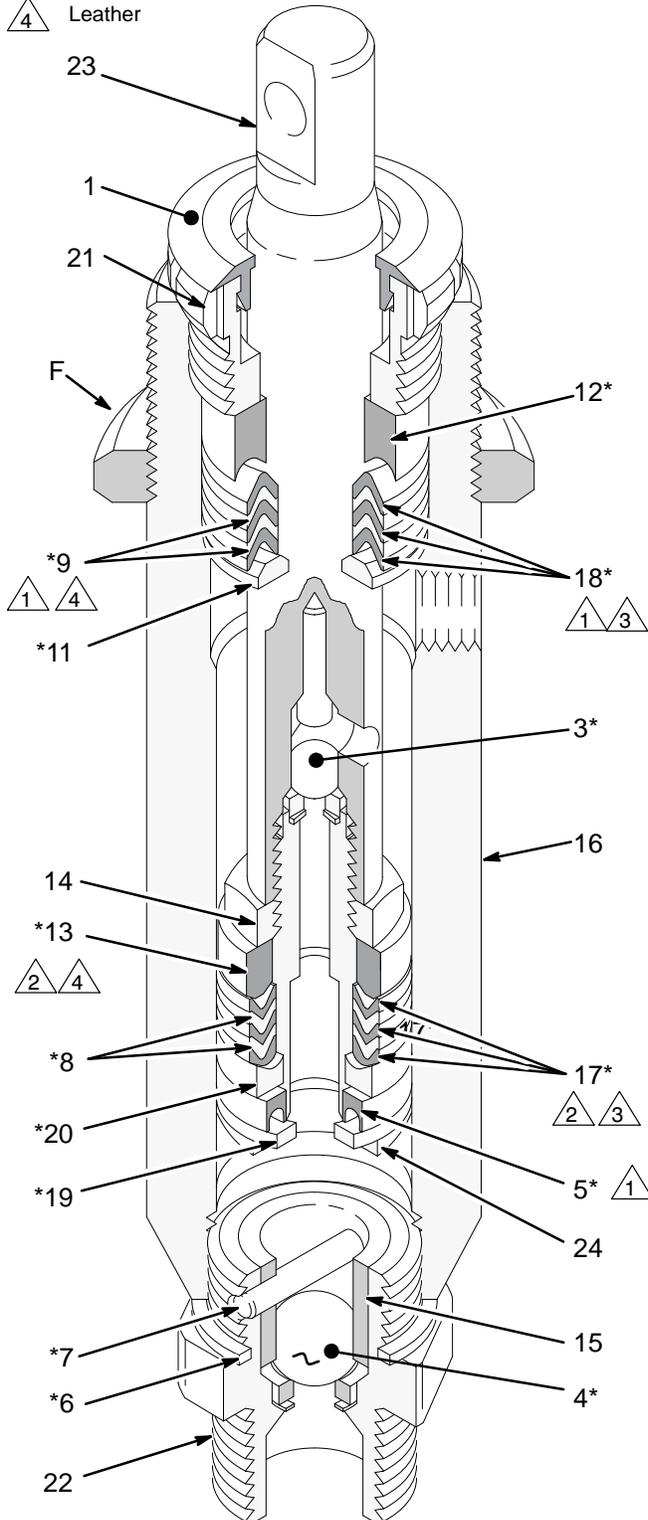
24. Push the retaining spring into the groove all the way around the connecting rod.

25. Tighten the locknut very tight—about 70 ft-lb.

26. Tighten the packing nut just enough to stop leakage, but no tighter. Fill the wet-cup/packing nut 1/3 full with Graco TSL.

Service

- △1 Lips must face down
- △2 Lips must face up
- △3 Poly
- △4 Leather



NOTE: This cutaway drawing is provided, in addition to the step by step repair procedure, as an aid to understanding the relationship of parts in the pump.

Pressure Relief Procedure

⚠ WARNING



PRESSURIZED EQUIPMENT HAZARD

The system pressure must be manually relieved to prevent the system from starting or spraying accidentally. To reduce the risk of an injury from accidental spray from the gun, 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 nozzle.

1. Engage gun safety latch.
2. Turn ON/OFF switch to OFF.
3. Unplug power cord.
4. Disengage gun safety latch. Hold metal part of gun against grounded metal pail and trigger gun into pail to relieve pressure.
5. Engage gun safety latch.
6. Open any fluid drain valves in system. Leave drain valve open until ready to dispense again.

Fig. 27

PUMP 217-577 SHOWN

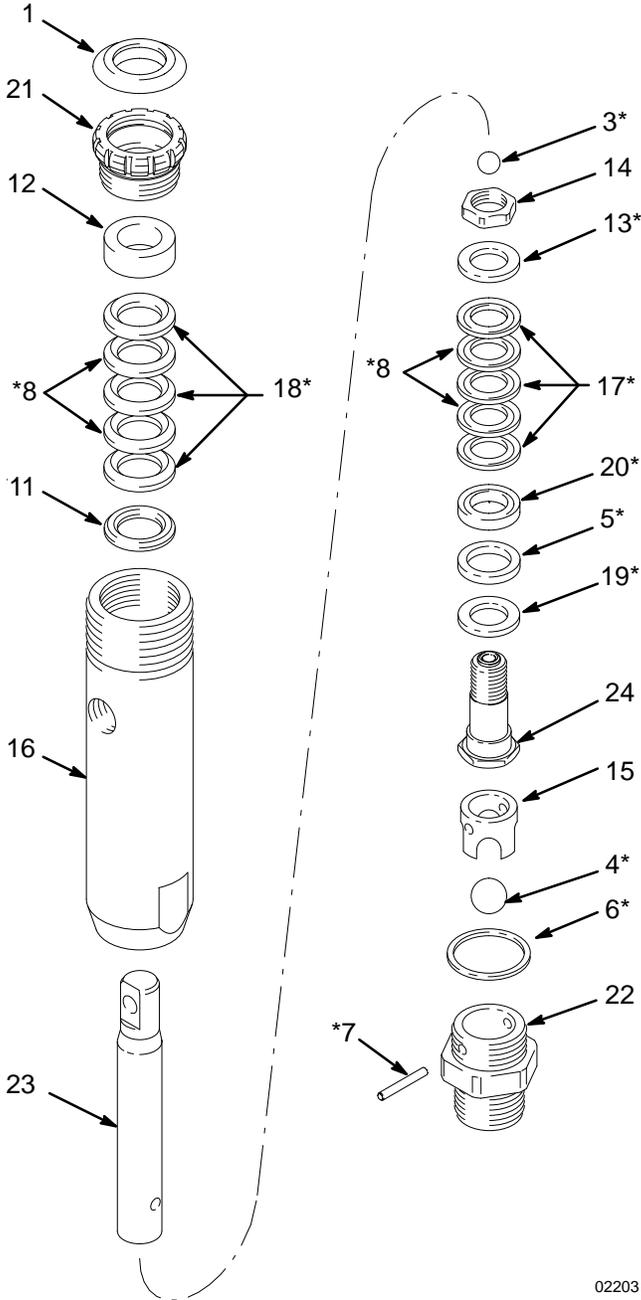
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Parts

Model 217-577, Series B Carbon Steel Displacement Pump

Includes items 1 to 24

NOTE: See the repair instructions for important torque values and procedures



Ref. No.	Part No.	Description	Qty.
1	179-810	PLUG	1
3*	105-444	BALL, sst	1
4*	105-445	BALL, sst	1
5*	107-093	SEAL, u-cup, polyurethane	1
6*	150-429	GASKET, copper	1
7*	178-938	PIN, ball stop	1
8*	178-939	V-PACKING, leather	2
9*	178-940	V-PACKING, leather	2
11*	178-942	GLAND, male, carbon steel	1
12*	178-943	GLAND, female, Delrin®	1
13*	178-944	GLAND, male, Delrin®	1
14	178-945	NUT, hex	1
15	178-948	GUIDE, ball, sst	1
16	178-949	CYLINDER, sst	1
17*	178-964	V-PACKING, poly	3
18*	178-965	V-PACKING, poly	3
19*	181-338	WASHER, backup	1
20*	178-969	GLAND, packing	1
21	179-809	NUT, packing/wet-cup	1
22	217-574	VALVE, intake	1
23	218-017	ROD, piston, cst	1
24	218-036	VALVE, piston	1

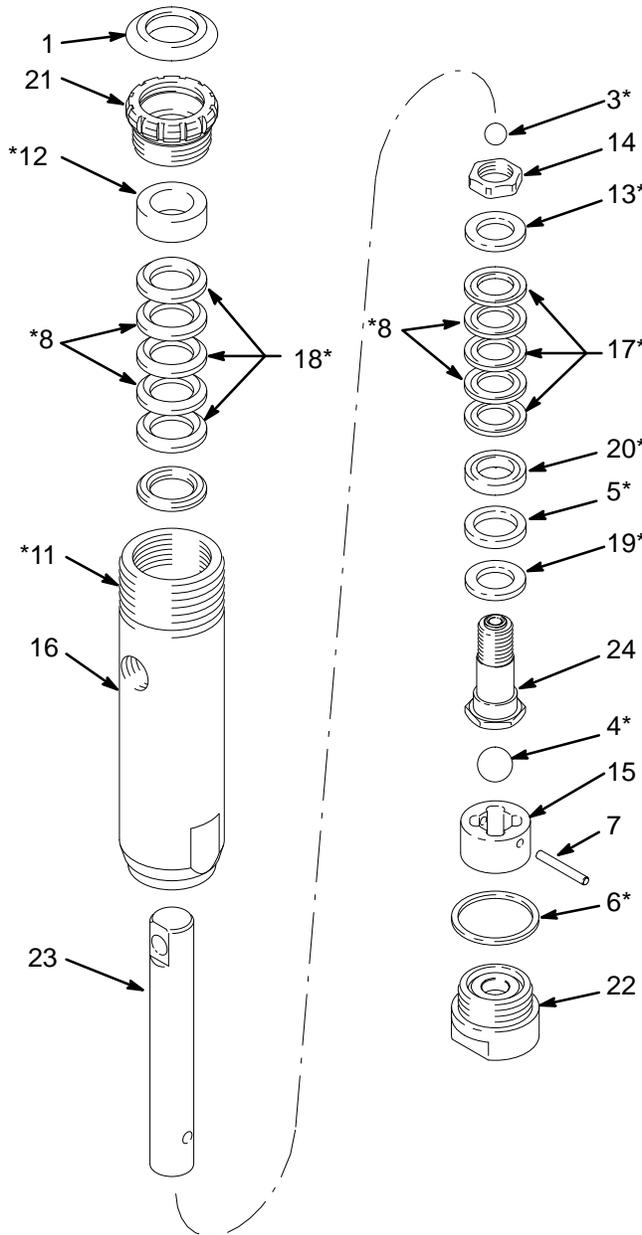
* These parts are also included in Repair Kit 222-588, which may be purchased separately.

02203

Parts

Model 218-215, Series C
Carbon Steel Displacement Pump
 Includes items 1 to 24

NOTE: See the repair instructions for important torque values and procedures



Ref. No.	Part No.	Description	Qty.
1	180-656	PLUG	1
3*	105-444	BALL, sst; 0.3125" dia.	1
4*	105-445	BALL, sst; 0.5" dia.	1
5*	105-522	SEAL, u-cup, polyurethane	1
6*	176-761	GASKET,	1
7	176-759	PIN, ball stop	1
8*	176-749	V-PACKING, leather	2
9*	176-755	V-PACKING, leather	2
11*	176-754	GLAND, male, Delrin®	1
12*	176-757	GLAND, female, Delrin®	1
13*	176-750	GLAND, male, Delrin®	1
14	176-751	NUT, hex; 1/2-20; sst	1
15	176-760	GUIDE, ball, sst	1
16	177-929	CYLINDER, sst	1
17*	176-882	V-PACKING, polyethylene	3
18*	176-997	V-PACKING, polyethylene	3
19*	186-652	WASHER, backup, aluminum	1
20*	180-073	GLAND, female, cst	1
21	176-758	NUT, packing/wet-cup	1
22	215-455	VALVE, intake	1
23	181-879	ROD, piston, carbon steel	1
24	218-197	VALVE, piston	1

* These parts are also included in Repair Kit 222-587, which may be purchased separately.

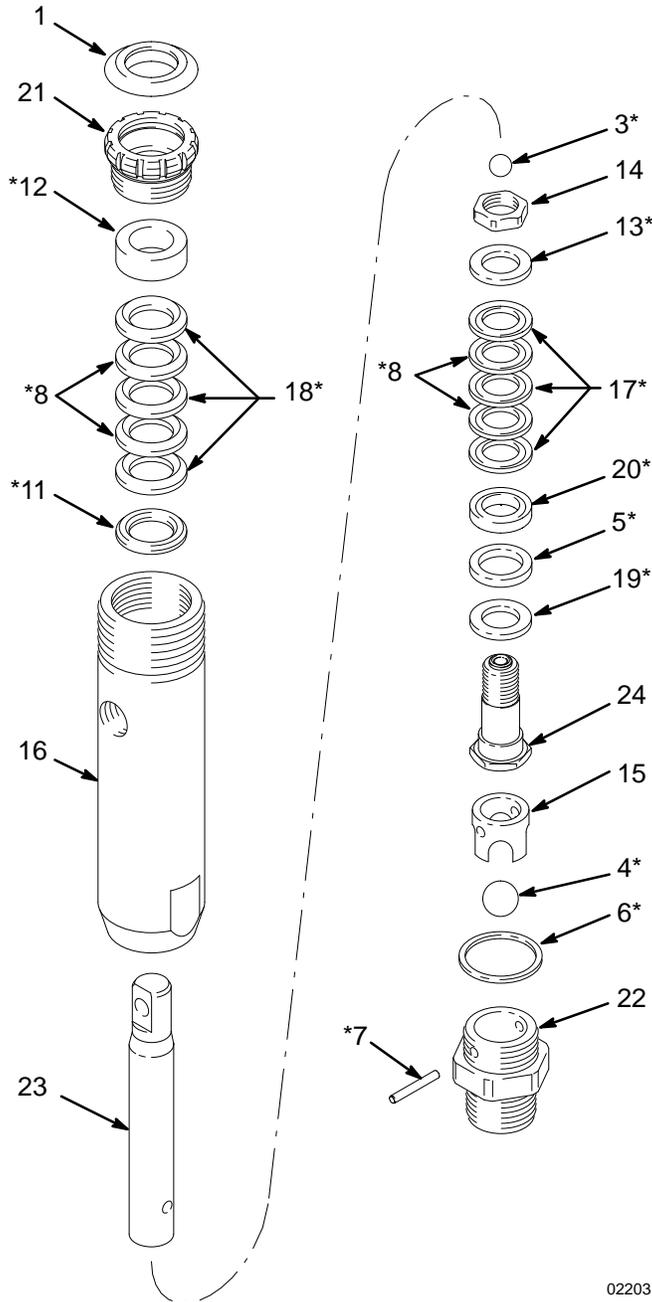
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Parts

Part No. 218-347, Series C

Displacement Pump
Includes items 1 to 24

NOTE: See the repair instructions for important torque values and procedures



Ref. No.	Part No.	Description	Qty.
1	179-810	PLUG	1
3*	105-444	BALL, sst	1
4*	105-445	BALL, sst	1
5*	108-706	SEAL, u-cup, PTFE	1
6*	150-429	GASKET, copper	1
7*	178-938	PIN, ball stop	1
8*	178-939	V-PACKING, leather	2
9*	178-940	V-PACKING, leather	2
11*	185-020	GLAND, male, cst	1
12*	183-232	GLAND, female, Delrin®	1
13*	183-231	GLAND, male, Delrin®	1
14	178-945	NUT, hex	1
15	178-948	GUIDE, ball, sst	1
16	183-234	CYLINDER, sst	1
17*	178-964	V-PACKING, poly	3
18*	178-965	V-PACKING, poly	3
19*	185-022	WASHER, backup	1
20*	185-021	GLAND, packing	1
21	179-809	NUT, packing/wet-cup	1
22	217-574	VALVE, intake	1
23	222-438	ROD, piston, sst/hard chrome	1
24	218-036	VALVE, piston	1

* These parts are also included in Repair Kit 220-845, which may be purchased separately.

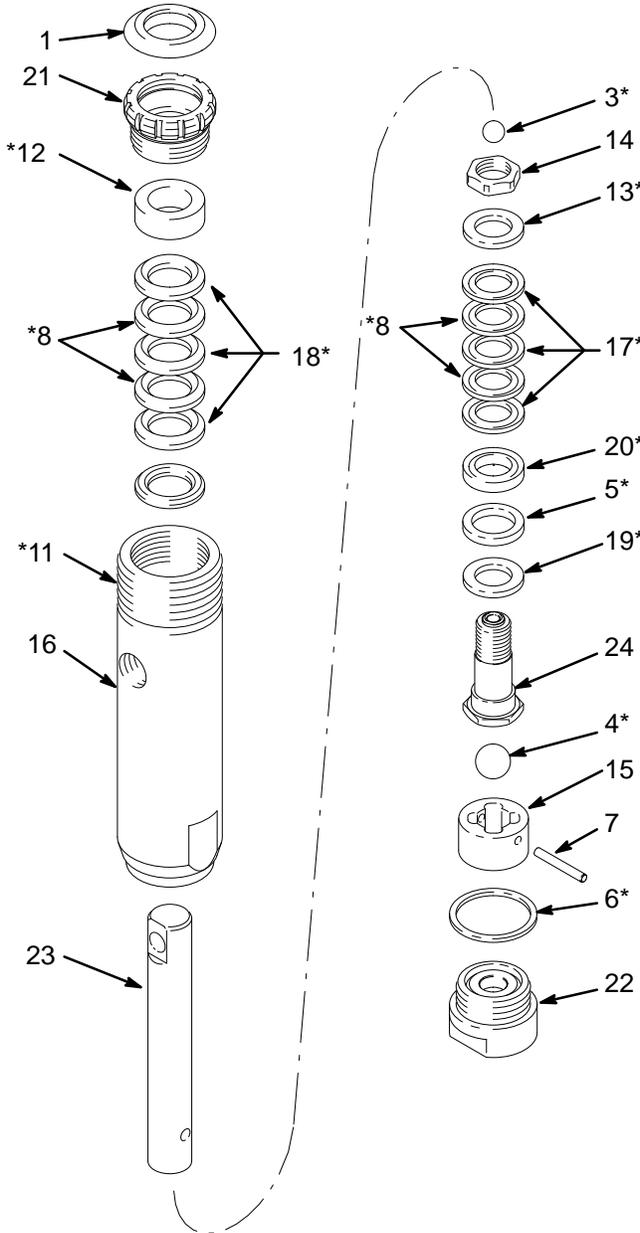
02203

Parts

Model 220-647, Series A Stainless Steel Displacement Pump

Includes items 1 to 24

NOTE: See the repair instructions for important torque values and procedures



Ref. No.	Part No.	Description	Qty.
1	180-656	PLUG	1
3*	105-444	BALL, sst; 0.3125" dia.	1
4*	105-445	BALL, sst; 0.5" dia.	1
5*	105-522	SEAL, u-cup, polyurethane	1
6*	176-761	GASKET, brass	1
7*	176-759	PIN, ball stop	1
8*	176-749	V-PACKING, leather	2
9*	176-755	V-PACKING, leather	2
11*	176-754	GLAND, male, Delrin®	1
12	183-237	GLAND, female, brass	1
13	183-236	GLAND, male, brass	1
14	176-751	NUT, hex; 1/2-20; sst	1
15	176-760	GUIDE, ball, sst	1
16	183-238	CYLINDER, sst	1
17*	176-882	V-PACKING, polyethylene	3
18*	176-997	V-PACKING, polyethylene	3
19*	186-652	WASHER, backup, aluminum	1
20*	180-073	GLAND, female, cst	1
21	176-758	NUT, packing/wet-cup	1
22	215-455	VALVE, intake	1
23	183-239	ROD, piston, sst	1
24	218-197	VALVE, piston	1

* These parts are also included in Repair Kit 222-587, which may be purchased separately.

NOTE: The throat glands (12 and 13) supplied in this kit are Delrin® rather than brass, as supplied in your pump. The brass glands should not wear, and so you can reuse them when repacking the pump. However, you may use the Delrin glands, if desired.

Manual Change Summary

Step 13 and the Graco Warranty were changed. PCN 3X7-793, Rev. F was incorporated.

02204

Technical Data

Wetted Parts

Pumps 218–215, 217–577 Carbon steel,
Polyurethane, UHMW Polyethylene,
Delrin®, Leather, Stainless steel

Pumps 218–347, 220–647 Stainless steel,
Polyurethane, UHMW Polyethylene,
Delrin®, Leather,

Inlet

Pumps 218–215, 218–347 1/2 npt(m)
with 30° chamfer

Pumps 217–577, 220–647 3/8 npt(m)
with 30° chamfer

Maximum Working Pressure

Pumps 218–215, 220–647 2750 psi (195 bar)

Pumps 217–577, 218–347 3000 psi (210 bar)

Graco Phone Number

TO PLACE AN ORDER, contact your Graco distributor, or call this number to identify the distributor closest to you:
1–800–367–4023 Toll Free

Graco Warranty

Graco warrants all equipment listed in this manual which is manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale by an authorized Graco distributor to the original purchaser for use. With the exception of any special extended or limited warranty published by Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

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

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

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, gas engines, 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.

ADDITIONAL WARRANTY COVERAGE

Graco does provide extended warranty and wear warranty for products described in the "Graco Contractor Equipment Warranty Program".

*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 Offices: Minneapolis, Detroit, Los Angeles
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