REPAIR MANUAL

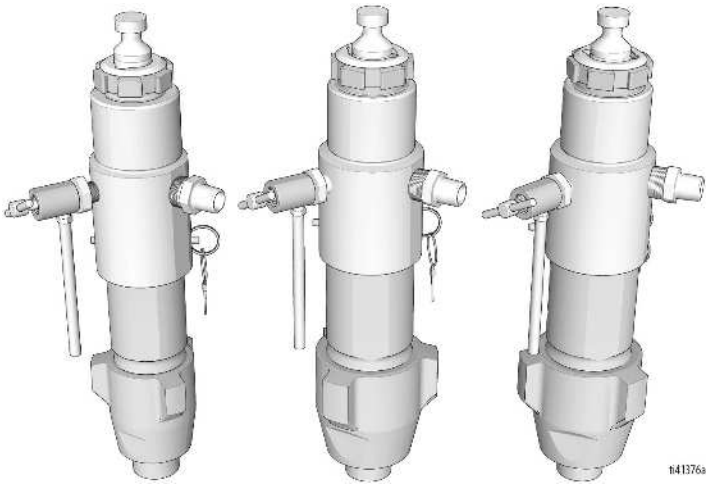
MANUAL NUMBER X058569 | REVISION A | ENGLISH (US)

Contractor King™ Displacement Pumps

Pump lower for use with Contractor King™ sprayers only. For professional use only.

Important Safety Instructions

Read all warnings and instructions in this manual and all related manuals before using the equipment. Save these instructions.



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MOVING MATERIALS THAT MATTER

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MODELS

The part numbers reflect distinct features and characteristics of the Contractor King™ Displacement Pumps.

PART	MAXIMUM WORKING PRESSURE	DESCRIPTION	PUMP
19D951	7250 psi (50 MPa, 500 bar)	70:1	180 cc
19D952	6000 psi (41.3 MPa, 413 bar)	60:1	220 cc
19D954	4500 psi (31 MPa, 310 bar)	45:1	290 cc

RELATED MANUALS

Additional documents are available to support the operation, repair, and maintenance of the Contractor King™ Displacement Pumps. Find English manuals and any available translations at www.graco.com.

Table 2-1: Related Manuals for Contractor King Displacement Pumps Repair Manual X058569

ENGLISH MANUAL	DESCRIPTION
3A9121	Contractor King™ Sprayers and Sprayer Packages, Instructions
311254	Silver Plus, Silver Plus HP, and Flex Plus™ Airless Spray Guns, Instructions
333507	Hopper Installation Kit, Instructions
3A9126	Zinc Circulation Kit for King® and Contractor King™ Sprayers, Accessory
3A9127	Air Filter, Lubricator, and Regulator Kits for Contractor King™ Sprayers, Accessory
3A9129	Lift Ring Kit for Contractor King™ Sprayers, Accessory
3A9128	Paint Filter Kit for Contractor King™ Sprayers, Accessory
3A9161	Heater Mounting Kit for Contractor King™ Sprayers, Accessory
3A2954	VISCON® HF, Instructions
309524	VISCON® HP, Instructions, Parts

SAFETY SYMBOLS

The following safety symbols appear throughout this manual and on warning labels. Read the table below to understand what each symbol means.

SYMBOL	MEANING
	Equipment Misuse Hazard
	Fire and Explosion Hazard
	Moving Parts Hazard
	Skin Injection Hazard
	Skin Injection Hazard
	Splash Hazard
	Toxic Fluid or Fumes Hazard
	Do Not Stop Leaks with Hand, Body, Glove or Rag

SYMBOL	MEANING
	Eliminate Ignition Sources
	Follow Pressure Relief Procedure
	Ground Equipment
	Read Manual
	Ventilate Work Area
	Wear Personal Protective Equipment



Safety Alert Symbol

This symbol indicates: Attention! Become Alert! Look for this symbol throughout the manual to indicate important safety messages.

WARNINGS

The following warnings apply throughout this manual. Read, understand, and follow the warnings before using this equipment. Failure to follow these warnings can result in serious injury.

⚠ WARNING



FIRE AND EXPLOSION HAZARD

Flammable fumes, such as solvent and paint fumes, **in work area** can ignite or explode. Paint or solvent flowing through the equipment can cause static sparking. To help prevent fire and explosion:

- Use equipment only in well-ventilated area.
- Eliminate all ignition sources, such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static sparking).
- Ground all equipment in the work area. See **Grounding** instructions.
- Never spray or flush solvent at high pressure.
- Keep work area free of debris, including solvent, rags and gasoline.
- Do not plug or unplug power cords, or turn power or light switches on or off when flammable fumes are present.
- Use only grounded hoses.
- Hold gun firmly to side of grounded pail when triggering into pail. Do not use pail liners unless they are anti-static or conductive.
- **Stop operation immediately** if static sparking occurs or you feel a shock. Do not use equipment until you identify and correct the problem.
- Keep a working fire extinguisher in the work area.



SKIN INJECTION HAZARD

High-pressure fluid from gun, hose leaks, or ruptured components will pierce skin. This may look like just a cut, but it is a serious injury that can result in amputation. **Get immediate surgical treatment.**

- Do not spray without tip guard and trigger guard installed.
- Engage trigger lock when not spraying.
- Do not point gun at anyone or at any part of the body.
- Do not put your hand over the spray tip.
- Do not stop or deflect leaks with your hand, body, glove, or rag.
- Follow the **Pressure Relief Procedure** when you stop spraying and before cleaning, checking, or servicing equipment.
- Tighten all fluid connections before operating the equipment.
- Check hoses and couplings daily. Replace worn or damaged parts immediately.

⚠ WARNING



MOVING PARTS HAZARD

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

- Keep clear of moving parts.
- Do not operate equipment with protective guards or covers removed.
- Equipment can start without warning. Before checking, moving, or servicing equipment, follow the **Pressure Relief Procedure** and disconnect all power sources.



EQUIPMENT MISUSE HAZARD

Misuse can cause death or serious injury.

- Do not operate the unit when fatigued or under the influence of drugs or alcohol.
- Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See **Technical Specifications** in all equipment manuals.
- Use fluids and solvents that are compatible with equipment wetted parts. See **Technical Specifications** in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request Safety Data Sheets (SDSs) from distributor or retailer.
- Do not leave the work area while equipment is energized or under pressure.
- Turn off all equipment and follow the **Pressure Relief Procedure** when equipment is not in use.
- Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only.
- Do not alter or modify equipment. Alterations or modifications may void agency approvals and create safety hazards.
- Make sure all equipment is rated and approved for the environment in which you are using it.
- Use equipment only for its intended purpose. Call your distributor for information.
- Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.
- Do not kink or overbend hoses or use hoses to pull equipment.
- Keep children and animals away from work area.
- Comply with all applicable safety regulations.

⚠ WARNING



TOXIC FLUID OR FUMES HAZARD

Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled, or swallowed.

- Read Safety Data Sheets (SDSs) to know the specific hazards of the fluids you are using.
- Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.



PERSONAL PROTECTIVE EQUIPMENT

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

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

TECHNICAL SPECIFICATIONS

The table provides important information related to the Contractor King™ Displacement Pumps, including product attributes, measurements, and performance characteristics that support the use of the equipment.

Table 5-1: Technical Specifications for Contractor King Displacement Pumps

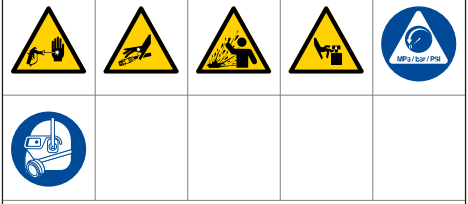
	US	METRIC
Maximum operating temperature*	180°F	82°C
Stroke length	4.75 in.	12.06 cm
Maximum fluid working pressure		
19D951	7250 psi	50 MPa, 500 bar
19D952	6000 psi	41 MPa, 414 bar
19D954	4500 psi	31 MPa, 310 bar
Nominal displacement per cycle*		
19D951	180 cc	
19D952	220 cc	
19D954	290 cc	
Wetted parts		
Carbon Steel, Alloy Steel, 304, 440 and 17-4 PH Grades of Stainless Steel, Zinc and Nickel Plating, Ductile Iron, Tungsten Carbine; PTFE, Leather		
Notes		
* *Maximum cycle rate of 60 cycles per unit. Do not dry stroke the unit*. All trademarks or registered trademarks are the property of their respective owners.		

Relieve pressure on the Contractor King™ equipment when operation is stopped, and before cleaning, checking, or servicing the equipment.



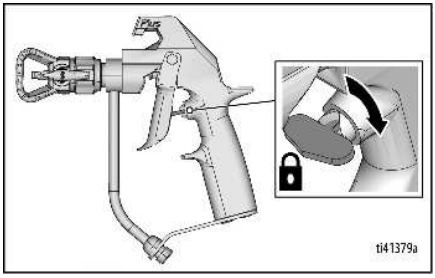
Follow the Pressure Relief Procedure whenever you see this symbol.

⚠ WARNING

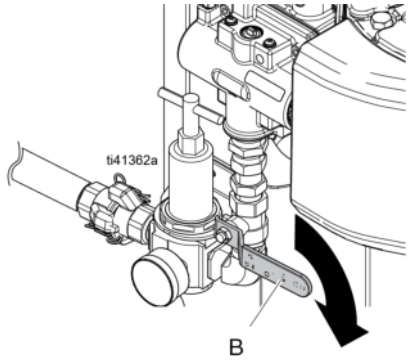


This equipment stays pressurized until pressure is manually relieved. To help prevent serious injury from pressurized fluid, such as skin injection, splashed fluid and moving parts, follow the **Pressure Relief Procedure** whenever sprayer is stopped and before sprayer is cleaned or checked, and before equipment is serviced.

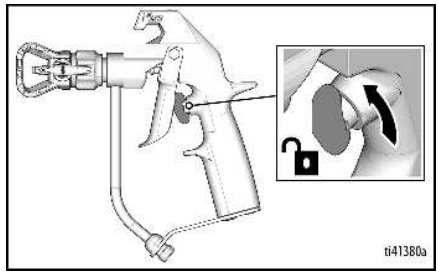
1. Engage trigger lock.



2. Close bleed type master air valve.



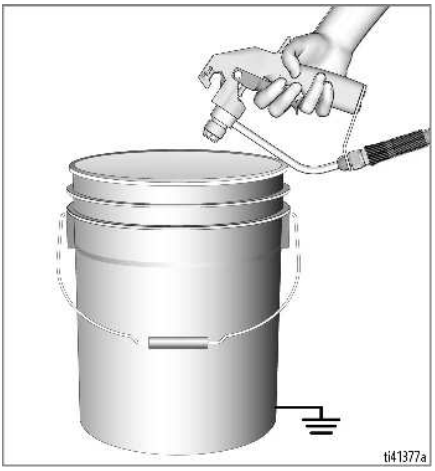
3. Disengage trigger lock.



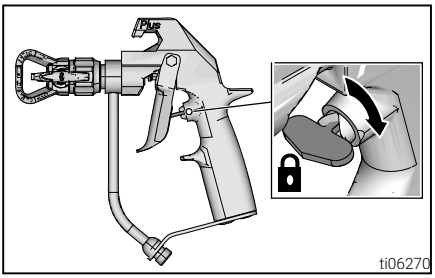
4. Hold a metal part of the gun firmly against a grounded metal pail. Trigger the gun until pressure is relieved.

NOTE:

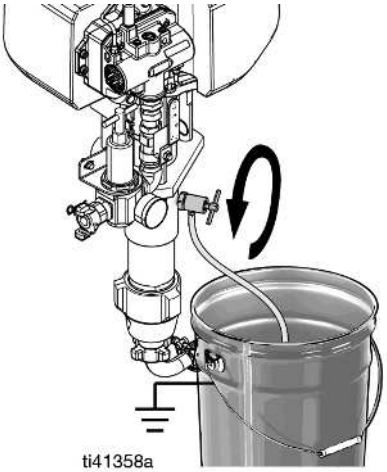
If fluid does not flow from gun, see the Clearing a Clogged Tip section of your sprayer manual. See **Related Manuals**.



5. Engage trigger lock.



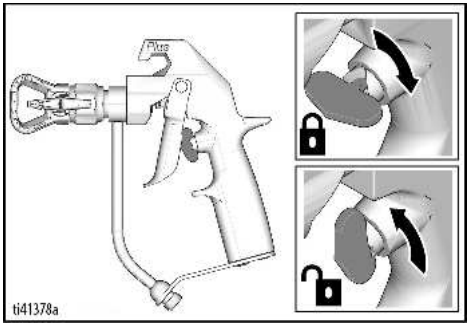
6. Drain fluid. To drain fluid, slowly open all fluid drain valves, including fluid drain/purge valve in system into a waste pail. If there is a return tube, open return line ball valve. Close valve after fluid is drained.



7. If you suspect the spray tip or hose is clogged, or that pressure has not been fully relieved:
   a. VERY SLOWLY loosen tip guard retaining nut or hose end coupling to relieve pressure gradually.
   b. Loosen nut or coupling completely.
   c. Clear hose or tip obstruction.

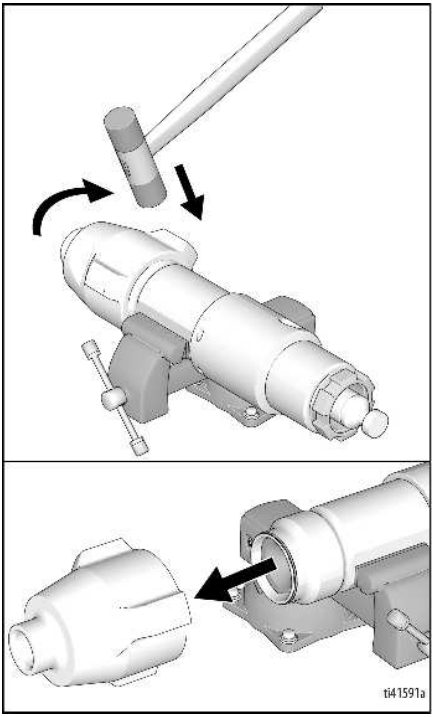
TRIGGER LOCK

Always engage the trigger lock when sprayer is stopped to prevent the gun from being triggered accidentally by hand or if dropped or bumped.

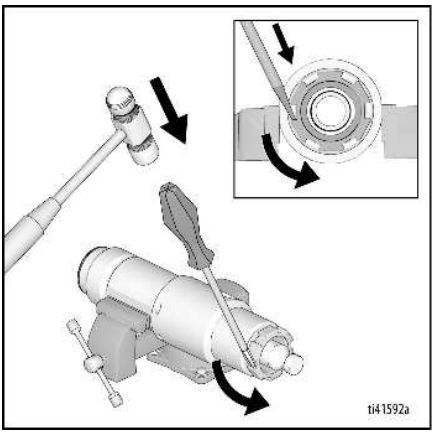


DISASSEMBLE PUMP

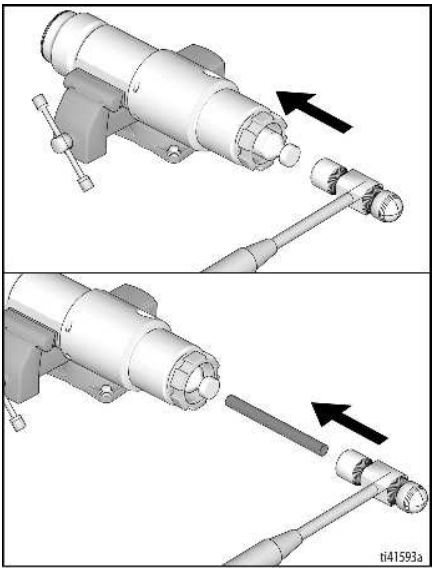
1. Perform **Pressure Relief Procedure**.
2. Remove the pump (see your spray manual). See **Related Manuals**.
3. Unscrew cylinder from intake valve.



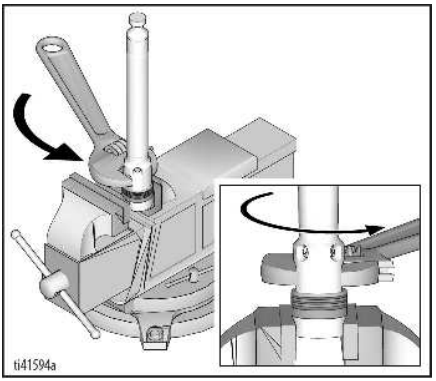
4. Loosen and remove packing nut.



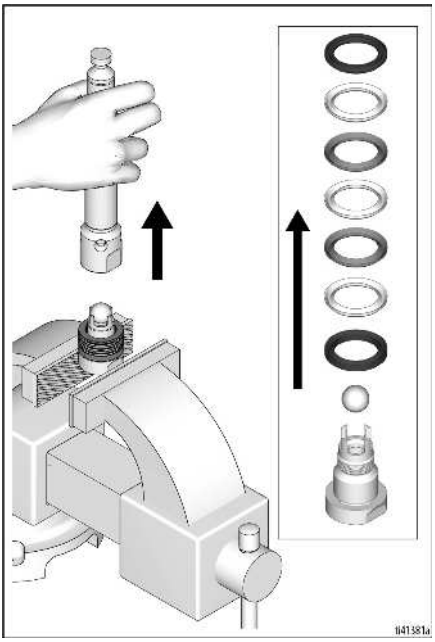
5. Tap piston rod out of cylinder with a plastic hammer being careful not to damage the threads. Use a thin, soft rod if necessary.



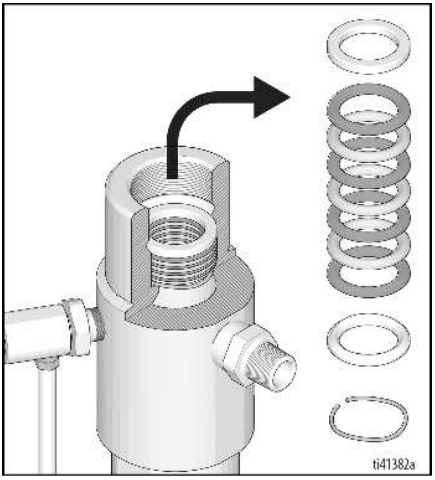
6. Unscrew displacement rod from piston valve.



7. Remove displacement rod from piston. Clean and inspect parts.

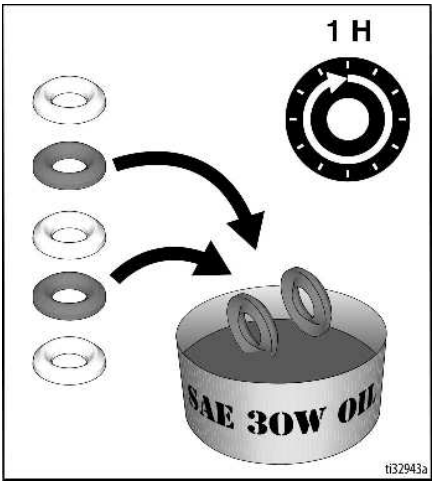


8. Remove and discard throat packing and glands from the cylinder.

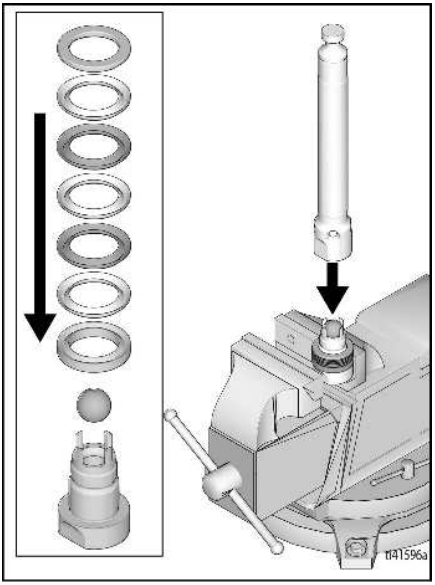


9. Clean all parts with compatible solvent.

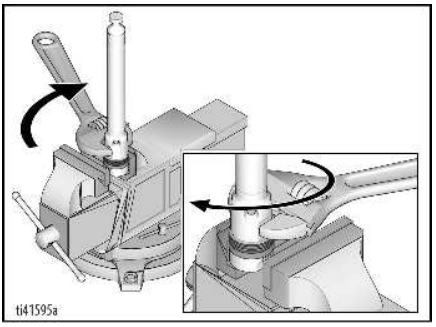
1. If applicable, soak leather packings in SAE 30W oil for one hour before assembly.



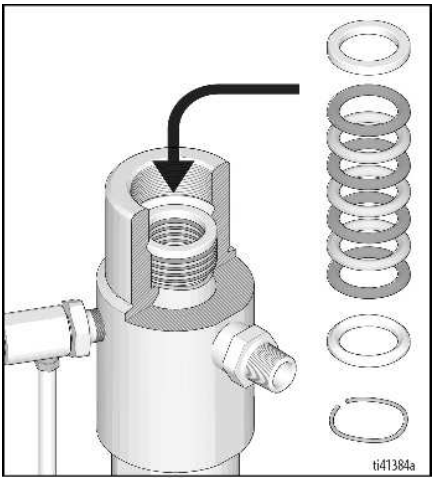
2. Assemble packings, then apply antiseize to threads and assemble ball to piston and piston rod.



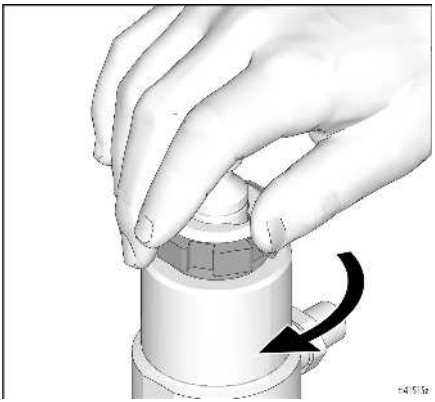
3. Torque piston and piston rod together. For torque values, see **Contractor King™ Displacement Pump Parts**.



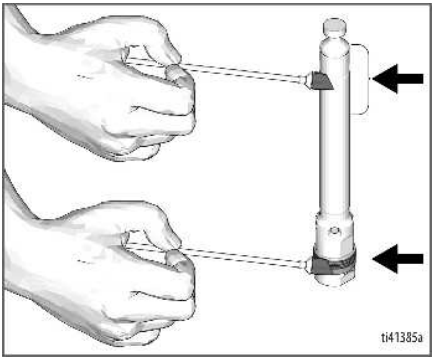
4. Assemble throat packings and place in pump cylinder.



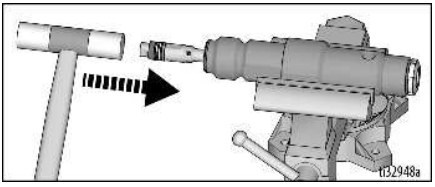
5. Hand-screw packing nut on to retain packings during assembly.



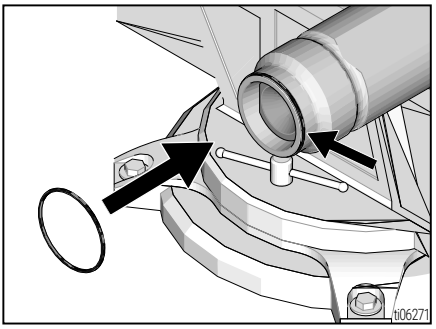
6. Apply liberal amounts of grease or oil to piston packings. Grease top inch or two of piston rod that will go through the cylinder throat packings.



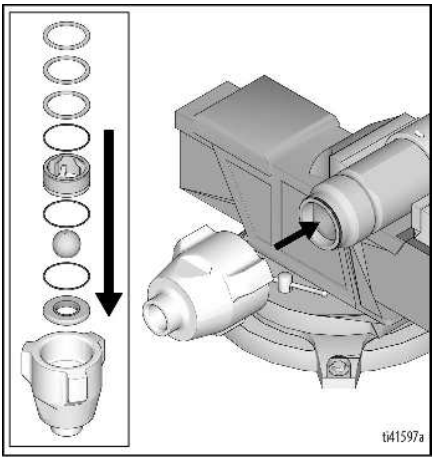
7. Gently guide displacement rod up through throat packings. Tap bottom of piston valve as necessary with a leather or plastic hammer.



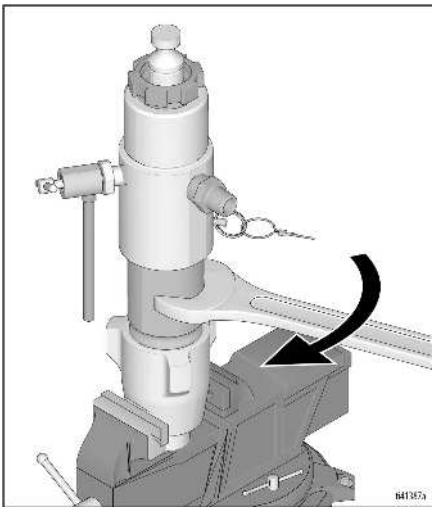
8. Grease o-ring and place on outside diameter ring groove.



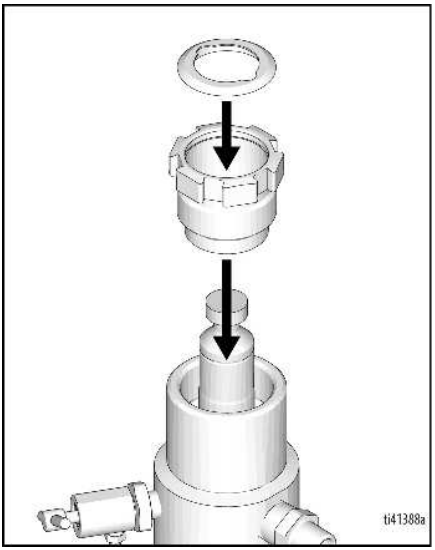
9. Clean seat thoroughly. Reassemble intake valve with a seat, ball, and new o-ring. Seat may be flipped over and used on other side.



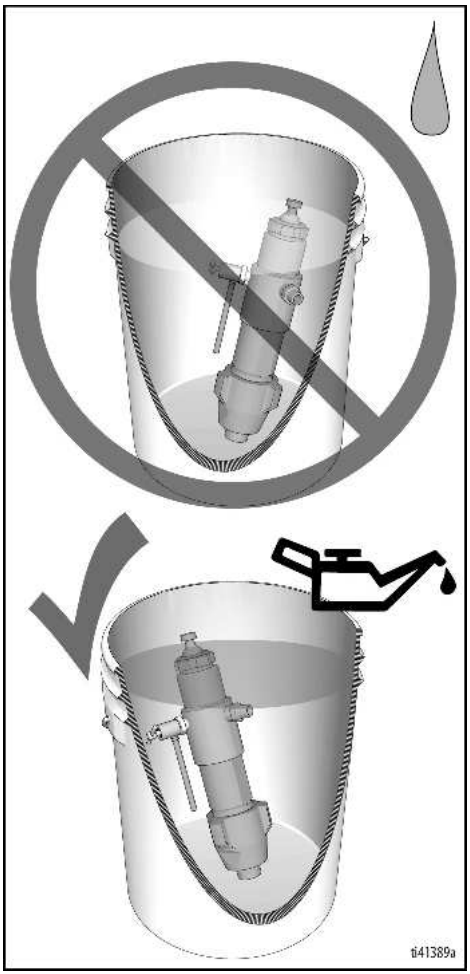
10. Torque foot valve. For torque value, see **Contractor King™ Displacement Pump Parts**.



11. Install TSL Retainer. Torque packing nut to torque value lised in **Contractor King™ Displacement Pump Parts**.

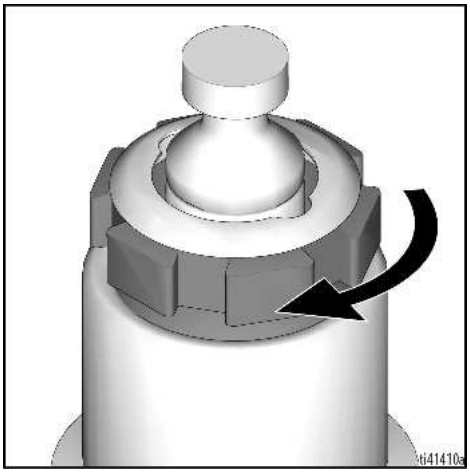


Storage:



THROAT PACKING ADJUSTMENT

When pump packings begin to leak after much use, perform **Pressure Relief Procedure** and tighten packing nut down until leakage stops or lessens. This allows for additional operation before a repacking is required.



The parts illustration and list show the components of Contractor King™ Displacement Pumps and their connections that are required for assembly, repair, and maintenance.

19D951 PARTS

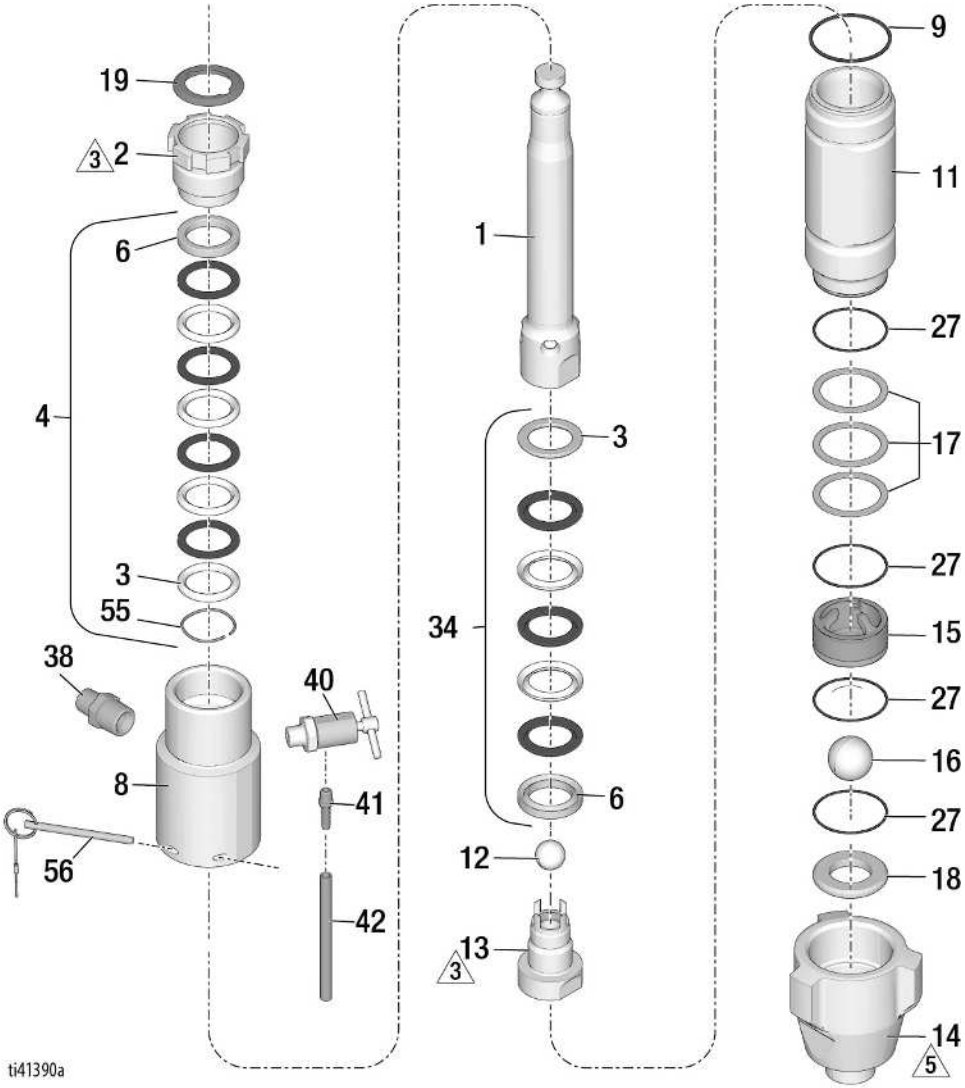


Figure 10-1: 19D951 Parts Diagram

3 105–145 ft-lb (155–185 N·m)

5 135–150 ft-lb (183–203 N·m)

REF.	PART	DESCRIPTION	QTY.
1	2002132	ROD, displacement, *includes 13*	1
2	197330	NUT, packing	1
3	17G931	GLAND, packing, male	2
4*		PACKING, throat stack	1
6	17G898	GLAND, packing, female	2
8	19D634	ADAPTER, lower	1
9	244892	PACKING, O-ring (pack of 10)	1
11	197316	CYLINDER, pump	1
12	253029	BALL (pack of 3)	1
13		VALVE, piston	1
14	197303	HOUSING, inlet	1
15	197307	GUIDE, ball	1
16	245128	BALL, metallic (pack of 3)	1
17	244855	SHIM, inlet (pack of 9)	3
18	196358	SEAT, carbide	1
19	244996	PLUG, throat (pack of 10)	1
27	244890	PACKING, O-ring, PTFE (pack of 10)	4
34*		PACKING, piston stack	1
38	19D623	FITTING, nipple, reducing, 1/2 x 3/4 NPT @ 7250	1
40	245143	VALVE, pressure, bleed	1
41	116746	FITTING, barbed, plated	1
42	116750	TUBE, nylon	1
55	17G975	SPRING, wave	1
56	244826	PIN, self-locking	1

* See **Repair Kits**

19D952 PARTS

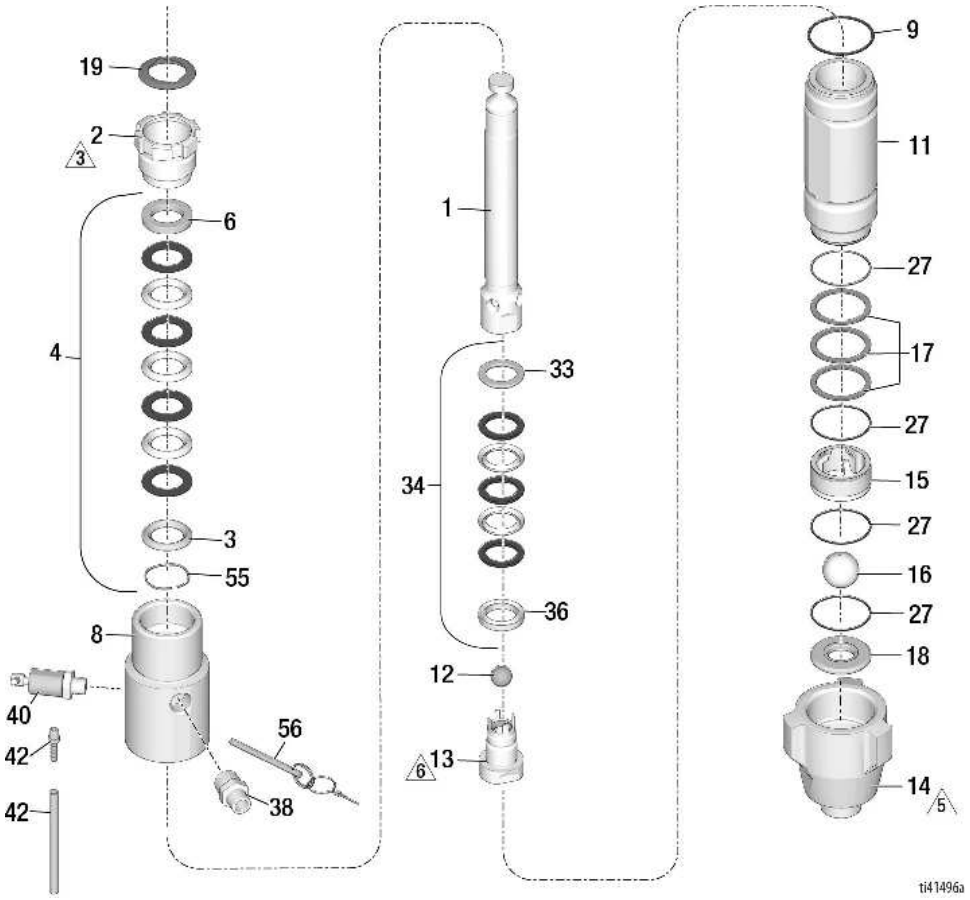


Figure 10-2: 19D952 Parts Diagram

△3 105–145 ft-lb (155–185 N·m)

△6 160–240 (220–320 N·m)

△5 135–150 ft-lb (183–203 N·m)

REF.	PART	DESCRIPTION	QTY.
1	2002133	ROD, displacement, *includes 13*	1
2	197331	NUT, packing	1
3	17G932	GLAND, packing, male	1
4*		PACKING, piston packings	4
6	17G899	GLAND, packing, female	1
8	19D635	ADAPTER, lower, 220	1
9	244893	PACKING, O-ring (pack of 10)	1
11	197317	CYLINDER, pump	1
12	244898	BALL (pack of 3)	1
13		VALVE, piston, 220 cc	1
14	197304	HOUSING, inlet	1
15	198647	GUIDE, ball, 1.5 in., spring load	1
16	253030	BALL, metallic (pack of 3)	1
17	244856	SHIM, inlet (pack of 9)	3
18	197344	SEAT, carbide	1
19	244999	PLUG, throat (pack of 10)	1
27	244894	PACKING, O-ring (pack of 10)	4
31	070303	LUBRICANT, grease	1
33	17G933	GLAND, packing, male	1
34*		PACKING, throat packings	3
36	17G910	GLAND, packing, female	1
38	19D623	FITTING, nipple, reducing, 1/2 x 3/4 NPT @ 7250	1
40	245143	VALVE, pressure, bleed	1
41	116746	FITTING, barbed, plated	1
42	116750	TUBE, nylon	1
55	17G976	SPRING, wave	1
56	244826	PIN, self-locking	1

* See **Repair Kits**

19D954 PARTS

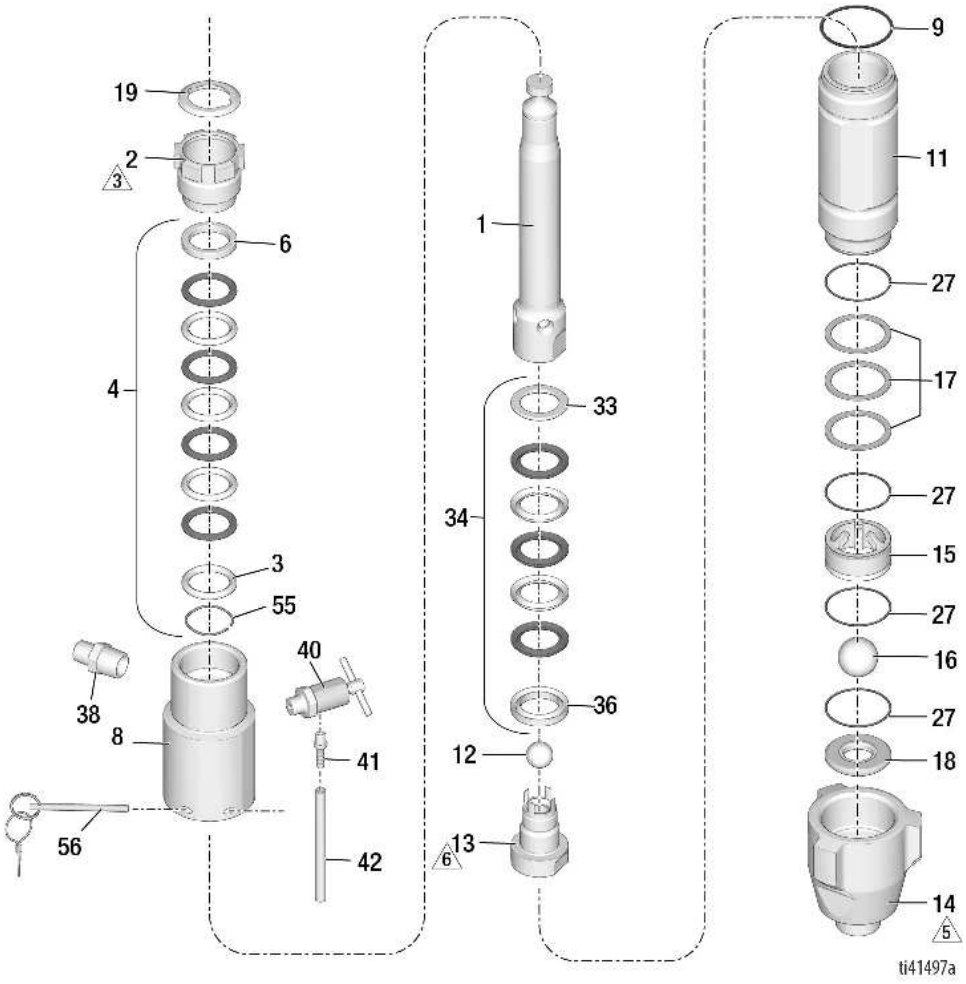


Figure 10-3: 19D954 Parts Diagram

3 105–145 ft-lb (155–185 N·m)

6 160–240 (220–320 N·m)

5 135–150 ft-lb (183–203 N·m)

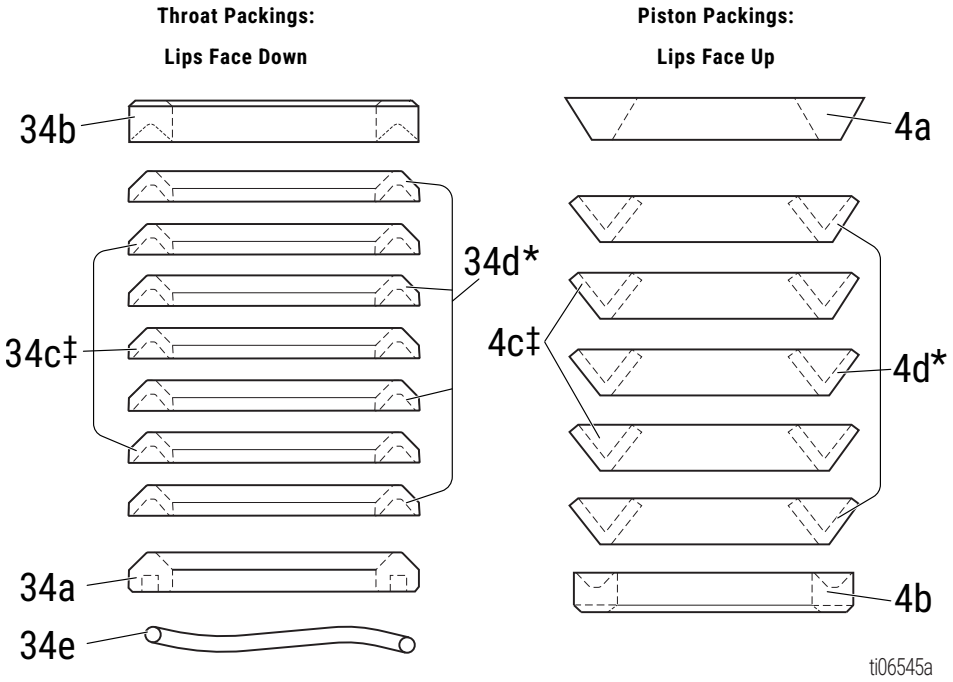
REF.	PART	DESCRIPTION	QTY.
1	2013820	ROD, displacement, *includes 13*	1
2	197331	NUT, packing	1
3	17G934	GLAND, packing, male	1
4*		PACKING, piston packings	4
6	17G917	GLAND, packing, female	1
8	19D635	ADAPTER, lower, 290	1
9	244893	PACKING, O-ring (pack of 10)	1
11	197319	CYLINDER, pump	1
12	244899	BALL (pack of 3)	1
13		VALVE, piston, 290 cc	1
14	197304	HOUSING, inlet	1
15	198647	GUIDE, ball, 1.5 in., spring load	1
16	253030	BALL, metallic (pack of 3)	1
17	244856	SHIM, inlet (pack of 9)	3
18	197344	SEAT, carbide	1
19	244999	PLUG, throat (pack of 10)	1
27	244894	PACKING, O-ring (pack of 10)	4
31	070303	LUBRICANT, grease	1
33	17G935	GLAND, packing, male	1
34*		PACKING, throat packings	3
36	17G918	GLAND, packing, female	1
38	19D623	FITTING, nipple, reducing, 1/2 x 3/4 NPT @ 7250	1
40	245143	VALVE, pressure, bleed	1
41	116746	FITTING, barbed, plated	1
42	116750	TUBE, nylon	1
55	17G976	SPRING, wave	1
56	244826	PIN, self-locking	1

* See **Repair Kits**

GRACO FORMULATED UHMWPE/LEATHER

Repair kits contain a set of four UHMWPE and three leather packings for the throat, and a set of three UHMWPE and two leather packings for the piston that are ideal for abrasive applications. Full repair kits also include items 9, 12, 16, 19, and 27 on the parts list. Packings are items 4 and 34 on the parts lists.

PUMP MODEL	LOWER SIZE	FULL REPAIR KIT	DESCRIPTIONS, REFERENCE NUMBERS, AND QUANTITY	
			THROAT SEAL KIT (34A-34E)	PISTON SEAL KIT (4A-4D)
			Replaced entire packing stack in throat (see figure)	Replaces entire packing stack in piston (see figure)
19D951	180 cc	25D235	25D135	25D142
19D952	220 cc	25D236	25D136	25D143
19D954	290 cc	25D238	25D138	25D145



Lubricate packings; soak leather packings in oil for one hour before assembly.

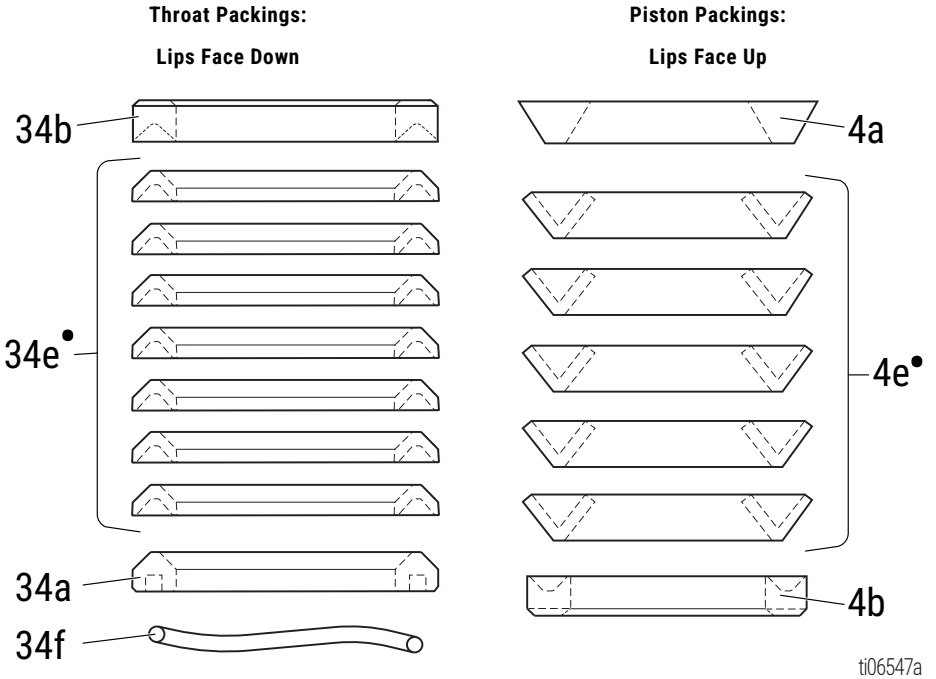
‡ *leather*

* *red*

PTFE

Repair kits contain a set of seven PTFE packings for the throat, and five PTFE packings for the piston that are ideal for chemical resistance and higher temperatures. Not ideal for abrasive applications. Full repair kits also include items 9, 12, 16, 19, and 27 on the parts list. Packings are parts no. 4 and 34 on the parts lists.

PUMP MODEL	LOWER SIZE	FULL REPAIR KIT	DESCRIPTIONS, REFERENCE NUMBERS, AND QUANTITY	
			THROAT SEAL KIT (34A-34E)	PISTON SEAL KIT (4A-4D)
			Replaced entire packing stack in throat (see figure)	Replaces entire packing stack in piston (see figure)
19D951	180 cc	25D245	25D152	25D162
19D952	220 cc	25D246	25D153	25D163
19D954	290 cc	25D248	25D155	25D165



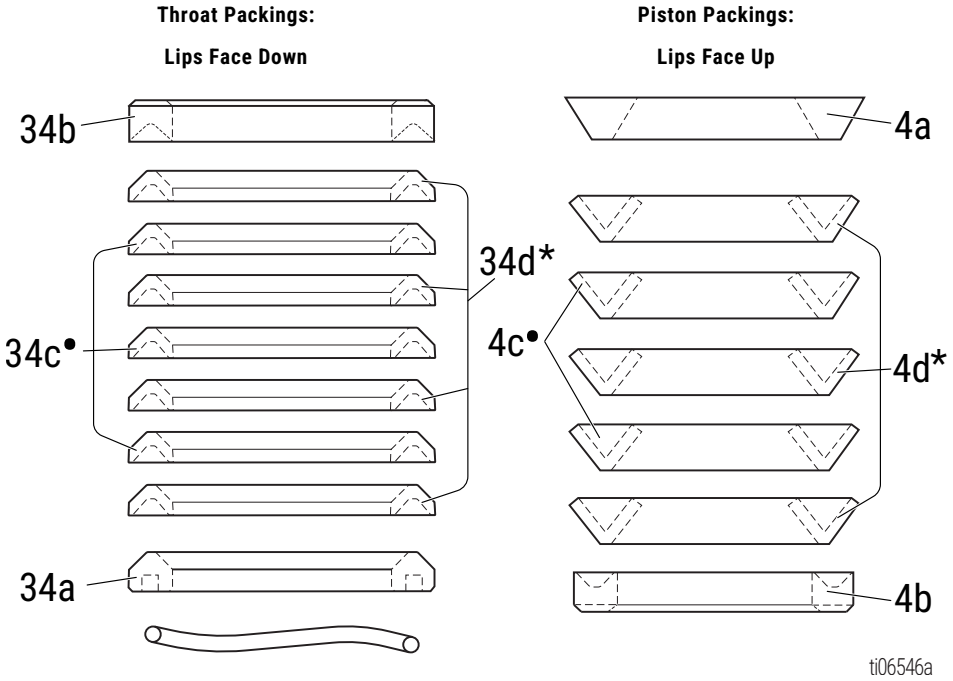
Lubricate Packings

• *white*

GRACO FORMULATED UHMWPE/PTFE

Repair kits contain a set of four UHMWPE and three PTFE packings for the throat, and three UHMWPE and two PTFE packings for the piston that are for chemical resistance and durability in applications below 140°F (60°C). Full repair kits also include items 9, 12, 16, 19, and 27 on the parts list. Packings are parts no. 4 and 34 on the parts lists.

PUMP MODEL	LOWER SIZE	FULL REPAIR KIT	DESCRIPTIONS, REFERENCE NUMBERS, AND QUANTITY	
			THROAT SEAL KIT (34A-34E)	PISTON SEAL KIT (4A-4D)
			Replaced entire packing stack in throat (see figure)	Replaces entire packing stack in piston (see figure)
19D951	180 cc	25D259	25D176	25D190
19D952	220 cc	25D260	25D177	25D191
19D954	290 cc	25D262	25D179	25D193



Lubricate Packings

• *white*

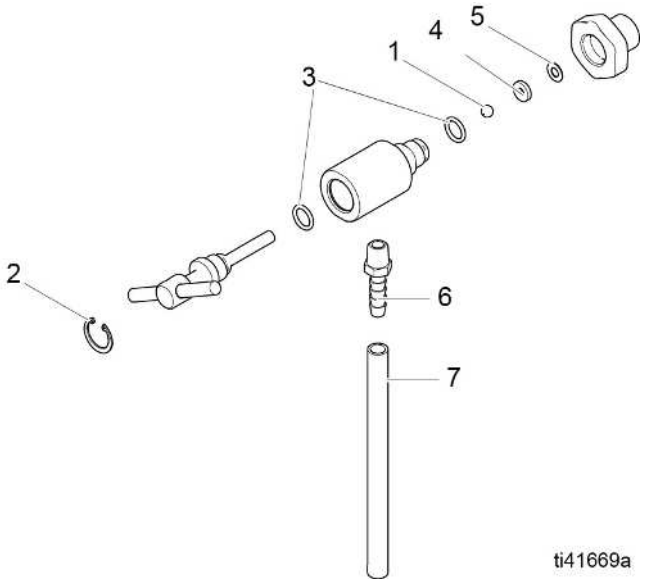
* *red*

INLET BALL SPRING KITS

Use to improve changeover rates in longer ball travel configurations. Order kit that corresponds with your lower model. See manual 3A9121.

KIT	LOWER MODEL
245190	180 cc
245191	220 cc
245191	290 cc

FLUID DRAIN VALVE REPAIR KIT (245145)



REF.	DESCRIPTION	QTY
1	BALL, carbide	1
2	RING, retaining	1
3	O-RING, PTFE	2
4	SEAT, valve	1
5	GASKET	1
6	FITTING, barbed, plated	1
7	TUBE, nylon	1

CERAMIC BALL KITS

LOWER	CERAMIC PISTON BALL	CERAMIC INLET BALL
180 cc	111453	119264
220 cc	118602	131271
290 cc	117321	131271

CALIFORNIA PROPOSITION 65

CALIFORNIA RESIDENTS

**WARNING** Cancer and reproductive harm — www.P65warnings.ca.gov.

NOTES

GRACO STANDARD WARRANTY

Graco warrants all equipment referenced in this document which is manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period 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.

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