

MANUAL NUMBER X020224 | REVISION A | ENGLISH (US)

King® E-Max XT™ Displacement Pumps

Pump lower for use with King® E-Max XT™ Sprayers only. For professional use only.

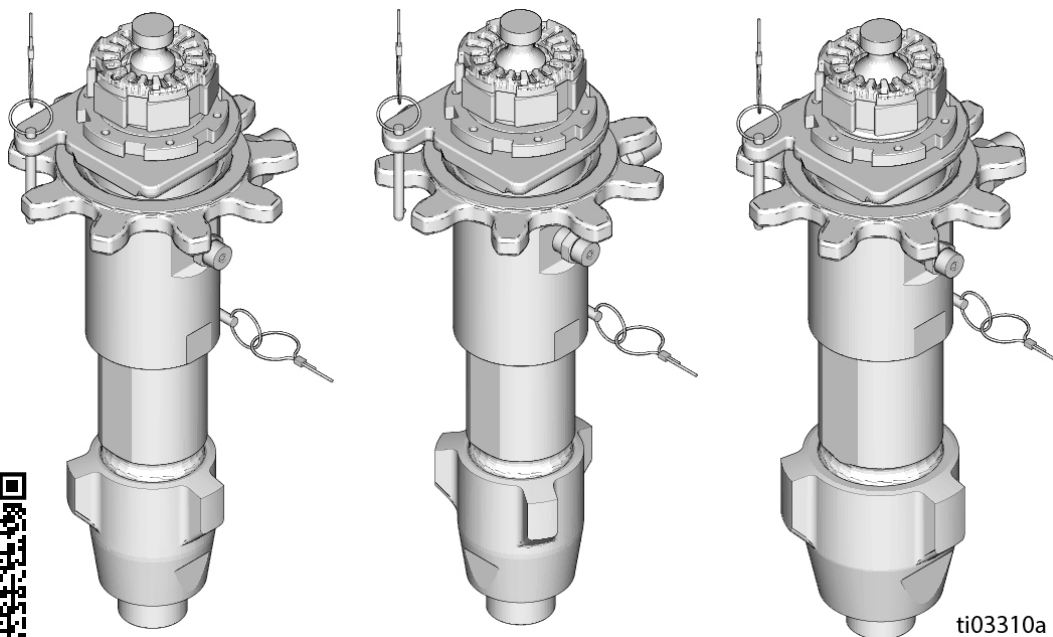


Important Safety Instructions

Read all warnings and instructions in this manual and all related manuals before using the equipment. Be familiar with the proper control and usage of the equipment. Save these instructions.



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Images are for illustrative purposes only

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MODELS

Part numbers reflect distinct features and characteristics of the King® E-Max™ XT™ Displacement Pumps.

Table 1-1: Models for King® E-Max™ XT™ Displacement Pumps

MODEL	MAXIMUM WORKING PRESSURE	DESCRIPTION	PUMP
2009332	7250 psi (50 MPa, 500 bar)	70:1	145 cc
2009333	6000 psi (41.3 MPa, 413 bar)	60:1	180 cc
2009334	4000 psi (27.6 MPa, 276 bar)	40:1	220 cc

RELATED MANUALS

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






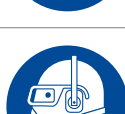
Table 2-1: Related Manuals for King® E-Max™ XT™ Displacement Pumps Repair Manual X020224

ENGLISH MANUAL	DESCRIPTION
X021279	King® E-Max™ XT™ Electric Airless Sprayers, Operation
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
3A2954	VISCON® HF High Flow, High Pressure Fluid Heater, Instructions
309524	VISCON® HP High Pressure Fluid Heater, 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.

GENERAL WARNINGS FOR KING® E-MAX™ XT™ DISPLACEMENT PUMPS

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 over bend hoses or use hoses to pull equipment.
- Keep children and animals away from work area.
- Comply with all applicable safety regulations.



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.



WARNING



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 King® E-Max™ XT™ Displacement Pumps, including product attributes, measurements, and performance characteristics that support the use of the equipment.

Table 5-1: Technical Specifications for King® E-Max™ XT™ Displacement Pumps

	US	METRIC
Maximum operating temperature*	180°F	82°C
Stroke length	4.75 in.	12.06 cm
Maximum fluid working pressure		
2009332	7250 psi	50 MPa, 500 bar
2009333	6000 psi	41 MPa, 414 bar
2009334	4000 psi	27.6 MPa, 276 bar
Nominal displacement per cycle*		
2009332		145 cc
2009333		180 cc
2009334		220 cc
Wetted Parts		
Carbon Steel; Alloy Steel; 304, 440 and 17-4 PH Grades of Stainless Steel; Zinc and Nickel Plating; Ductile Iron; Tungsten Carbide; PTFE; Leather		
Notes		
* Do not dry stroke the unit.		
All trademarks or registered trademarks are the property of their respective owners.		

PRESSURE RELIEF PROCEDURE

To help avoid injury, relieve pressure on the King® E-Max XT™ Sprayer when operation is stopped, and before cleaning, checking, or servicing the equipment.



Follow the Pressure Relief Procedure whenever you see this symbol.

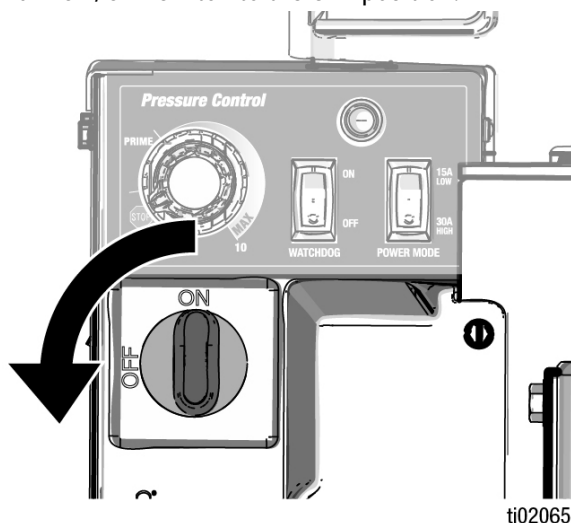
WARNING				
<p>This equipment stays pressurized until pressure is manually relieved. To help prevent serious injury from pressurized fluid, such as skin injection, splashed fluid and moving parts, follow the Pressure Relief Procedure whenever sprayer is stopped and before sprayer is cleaned or checked,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

1. Engage the Trigger Lock.



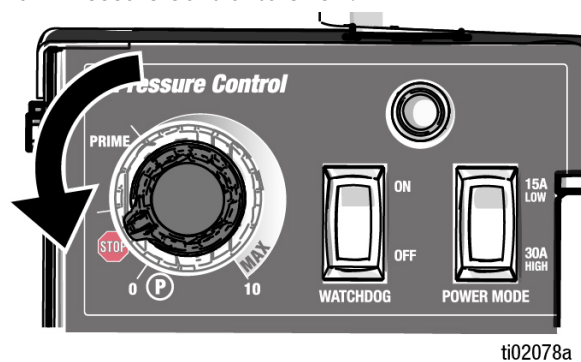
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2. Turn ON/OFF Switch to the **OFF** position.



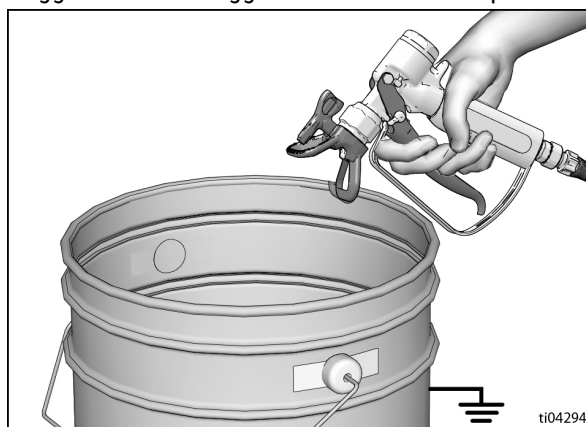
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3. Turn Pressure Control to **STOP**.



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4. Hold a metal part of the Gun firmly to a grounded metal pail. Point Gun into pail. Disengage the Trigger Lock and trigger the Gun to relieve pressure.

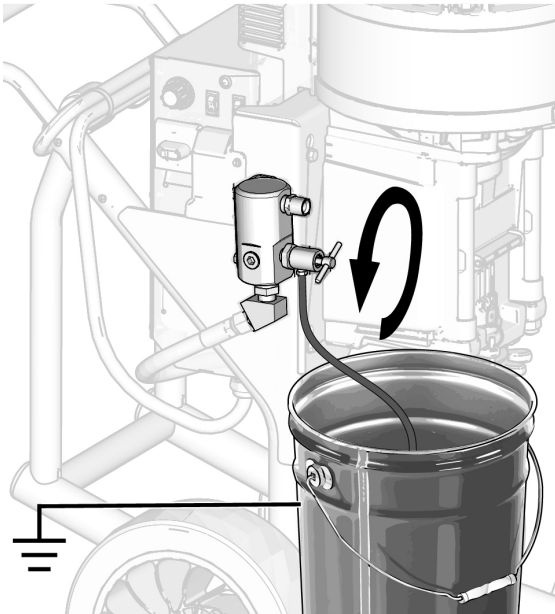


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5. Engage the Trigger Lock.

PRESSURE RELIEF PROCEDURE

6. Drain fluid. To drain fluid, slowly open Fluid Drain/Purge Valve into a waste pail. Close valve after fluid is drained.

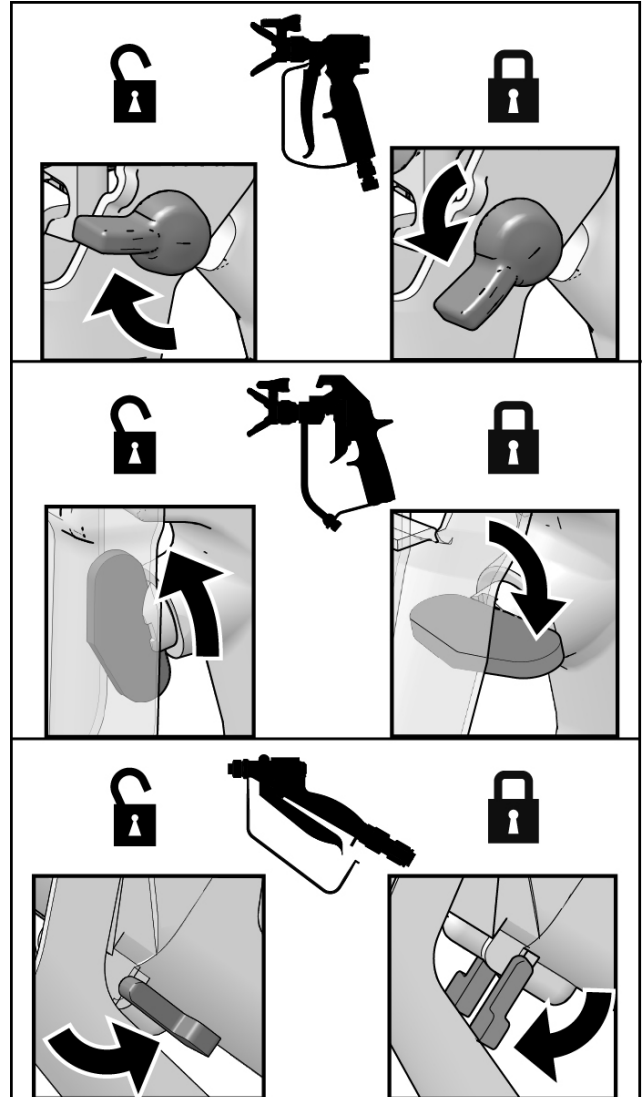


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7. If you suspect the Spray Tip or hose is clogged or that pressure has not been fully relieved:
 - a. Using a wrench, VERY SLOWLY loosen the Tip Guard retaining nut or the hose end coupling to relieve pressure gradually.
 - b. Using a wrench, loosen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

TRIGGER LOCK

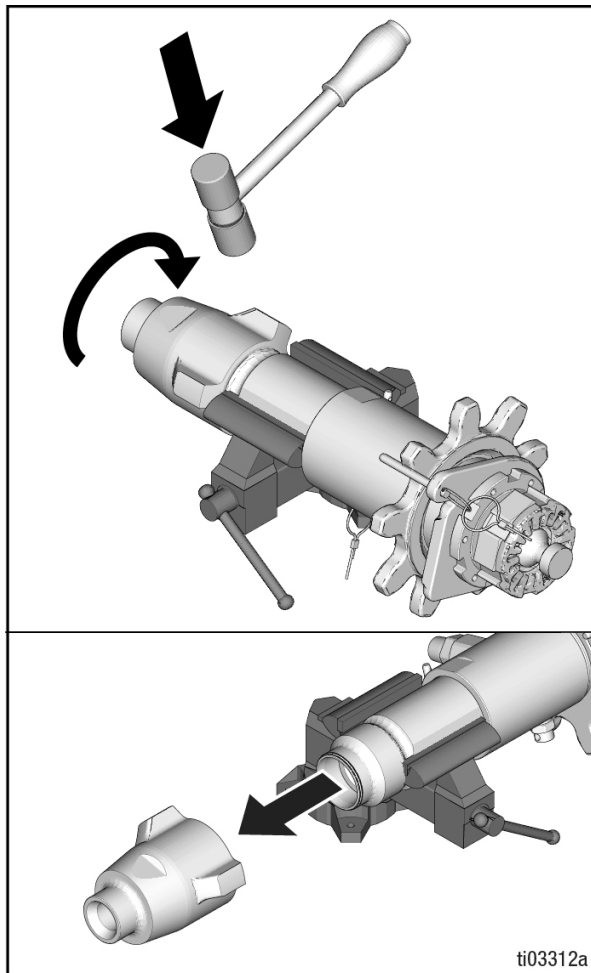
Always engage the Trigger Lock on the King® E-Max XT™ Sprayer when spraying is stopped to prevent the Gun from being triggered accidentally by hand or if dropped or bumped.



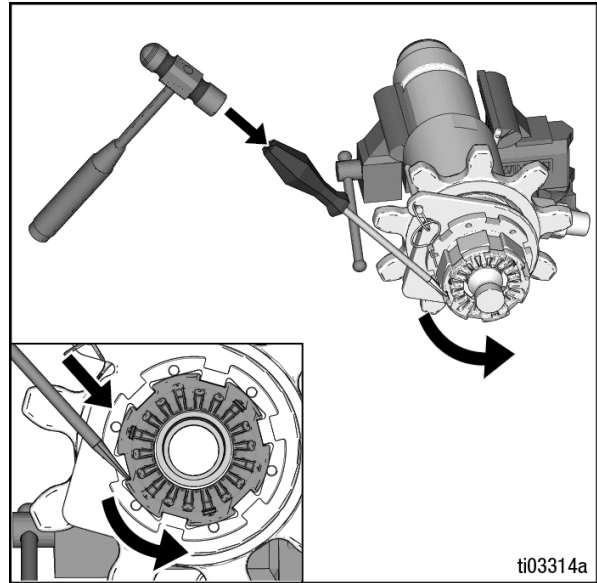
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DISASSEMBLE PUMP

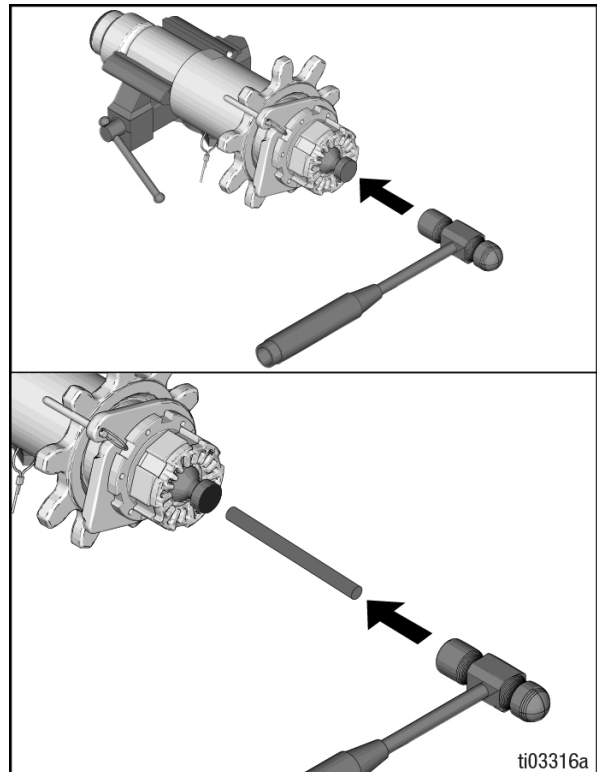
1. Perform **Pressure Relief Procedure**.
2. Remove the pump (see your sprayer manual).
3. Unscrew cylinder from intake valve.



4. Loosen and remove packing nut.

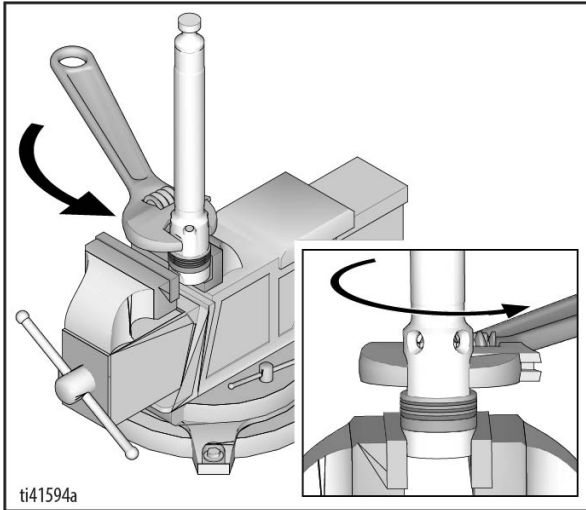


5. Tap piston rod out of cylinder with a plastic hammer being careful of the threads. Use a thin, soft rod if necessary.

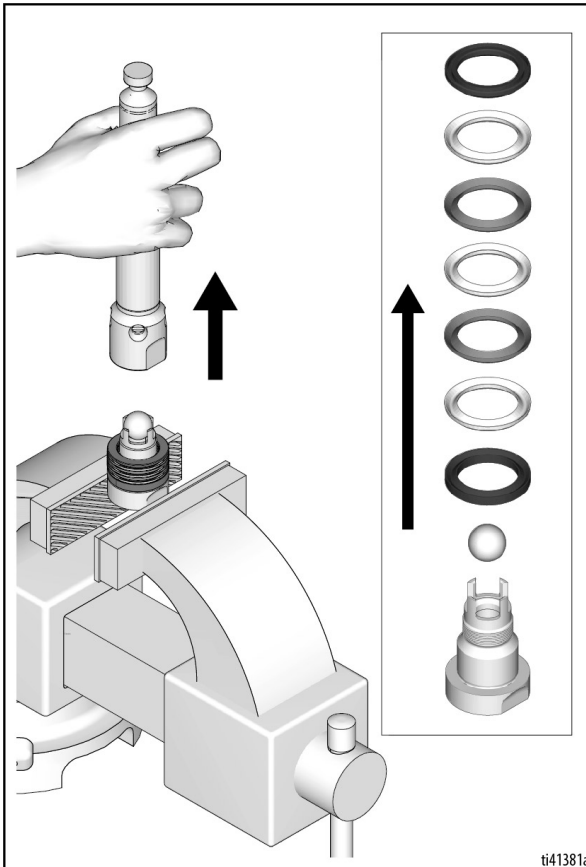


DISASSEMBLE PUMP

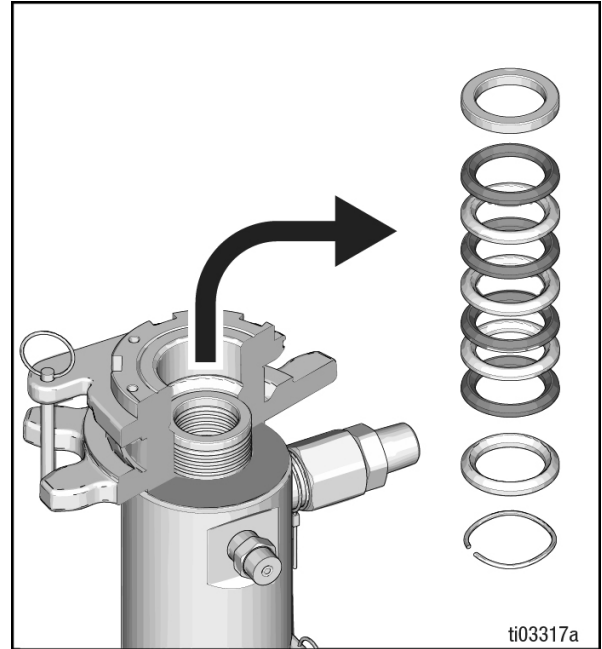
6. Unscrew displacement rod from piston valve.



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



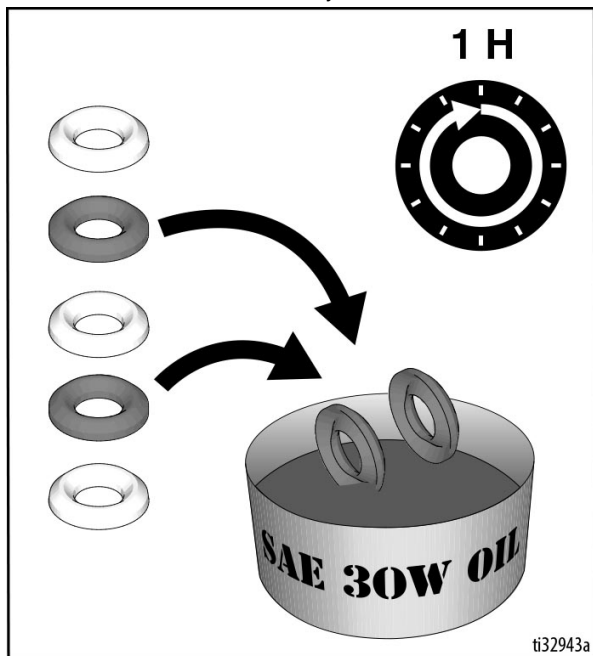
8. Remove and discard throat packing and glands from the cylinder.



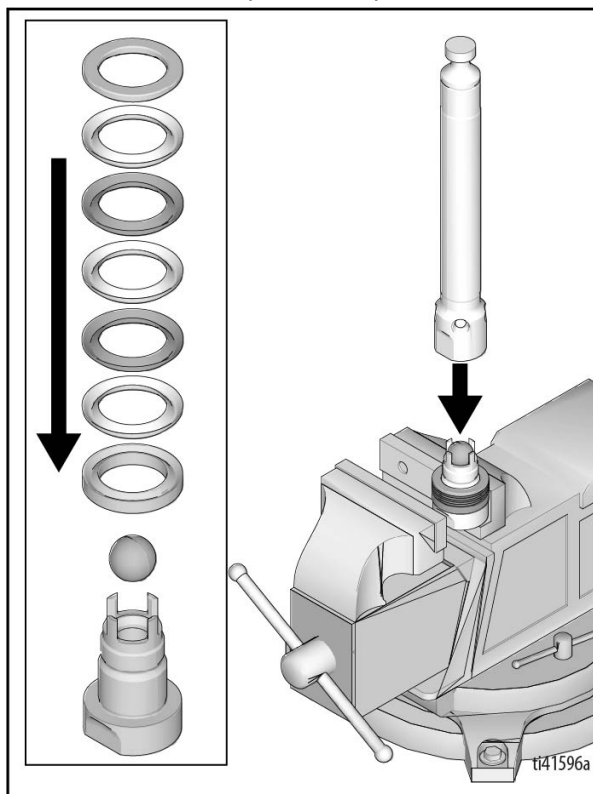
9. Clean all parts with compatible solvent.

ASSEMBLE PUMP

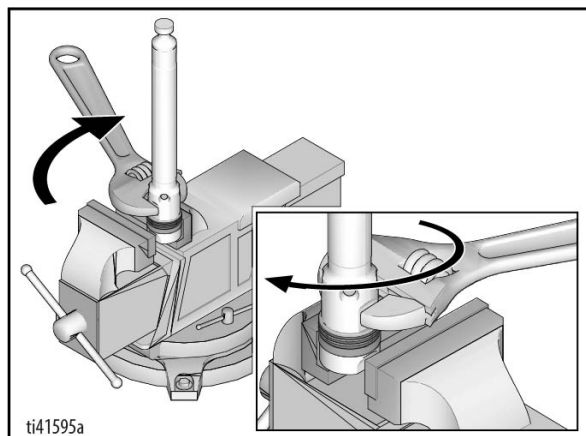
1. If applicable, soak leather packings in SAE 30W oil for one hour before assembly.



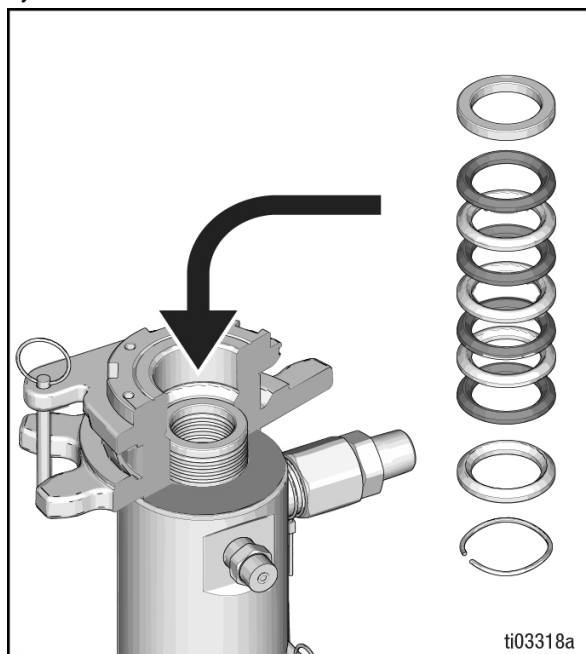
2. Assemble packings, then apply anti-seize to threads and assemble ball to piston and piston rod.



3. Torque piston and piston rod together. For torque values, see **Parts** section.

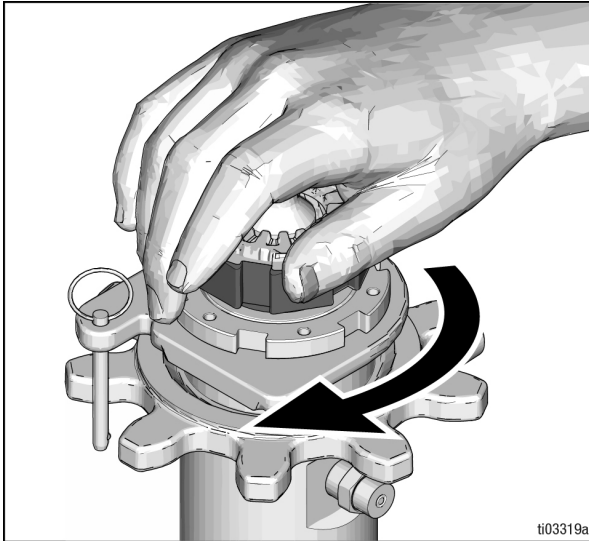


4. Assemble throat packings and place in pump cylinder.

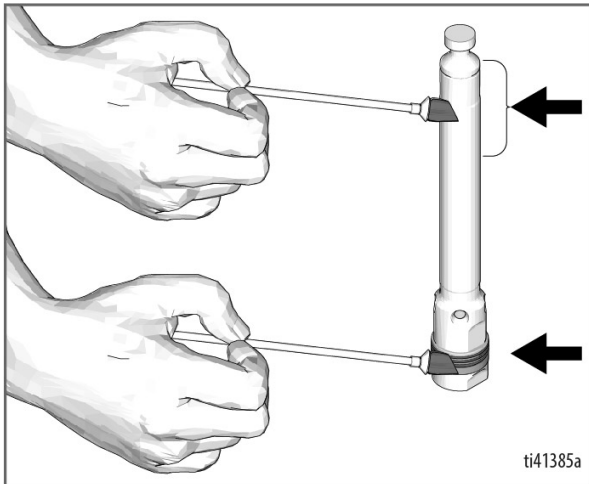


ASSEMBLE PUMP

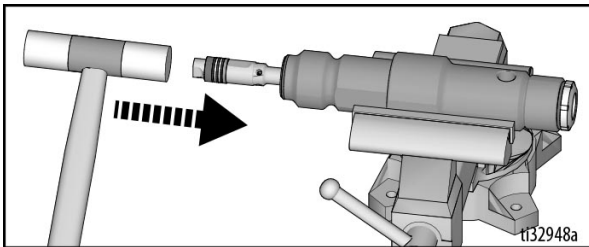
5. Hand screw packing nut on in order to retain packings during rod assembly.



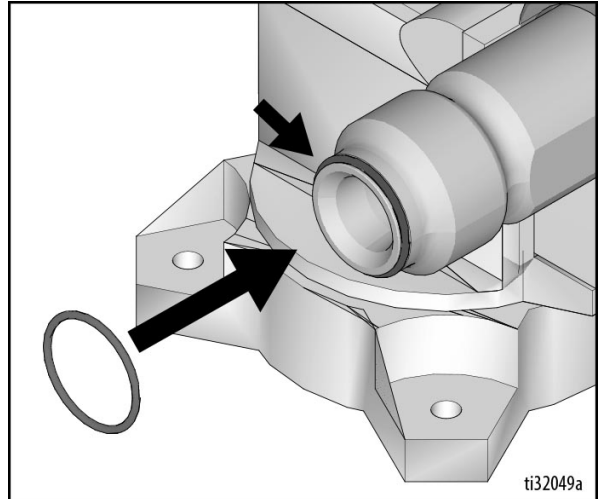
6. Apply liberal amounts of grease or oil to piston packings. Grease top inch or two of piston rod that will go through the cylinder throat packings.



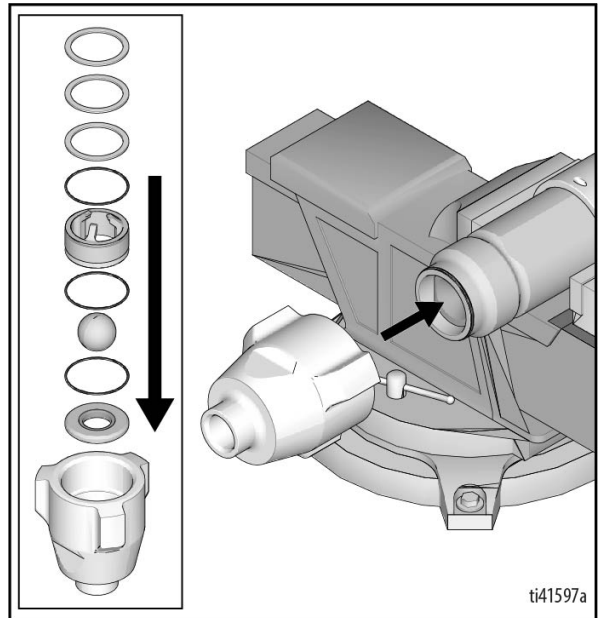
7. Gently guide displacement rod up through throat packings. Tap bottom of piston valve as necessary with a leather or plastic hammer.



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

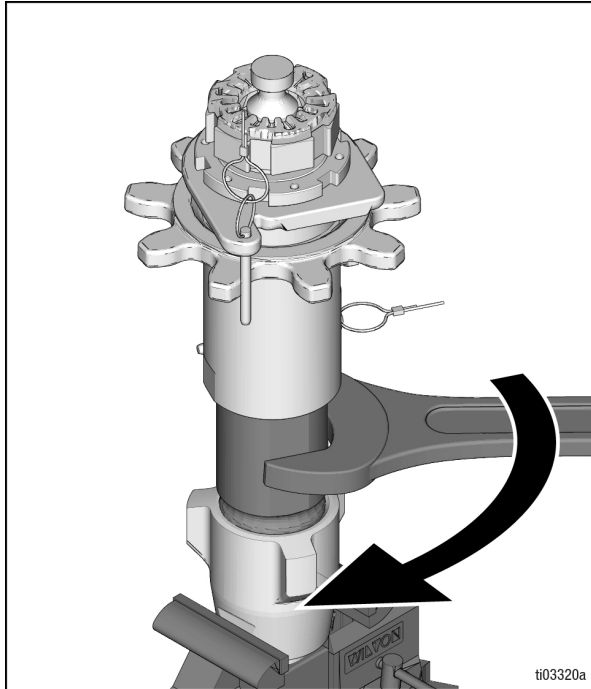


9. Clean seat thoroughly. Reassemble intake valve with a seat, ball, and new o-ring. Seat may be flipped over and used on other side.

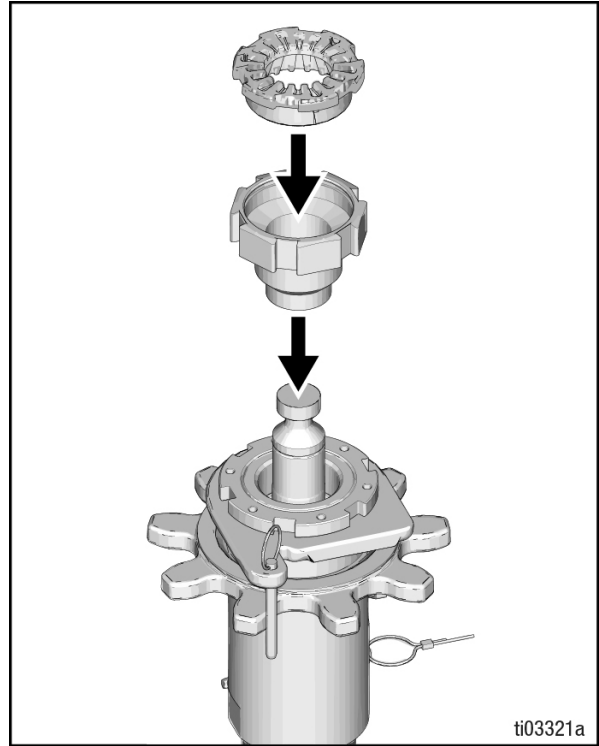


ASSEMBLE PUMP

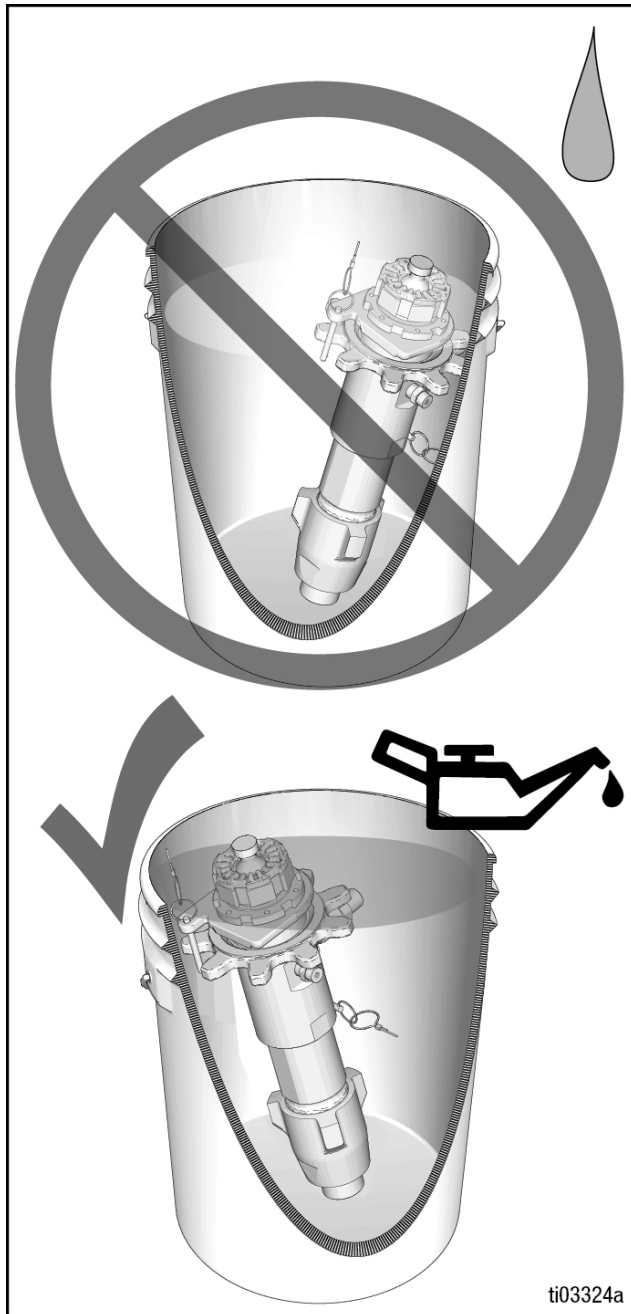
10. Torque foot valve. For torques values, see **Parts** section.



11. Install TSL Retainer. Torque packing nut to torque values listed in **Parts** section.

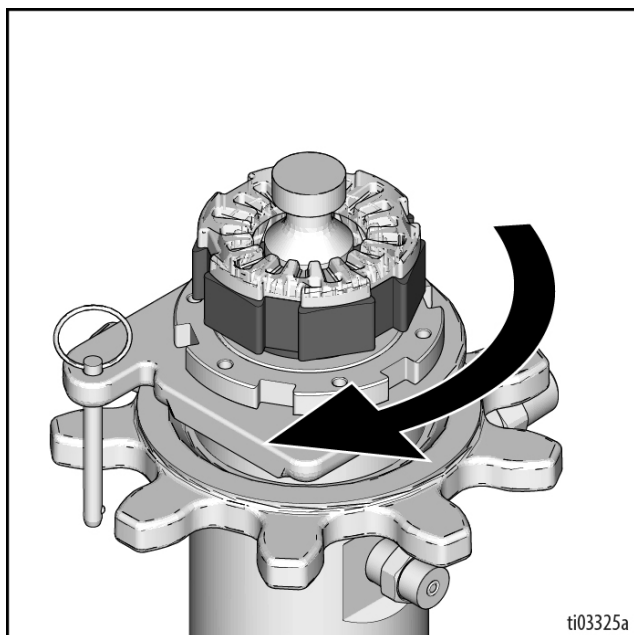


STORAGE



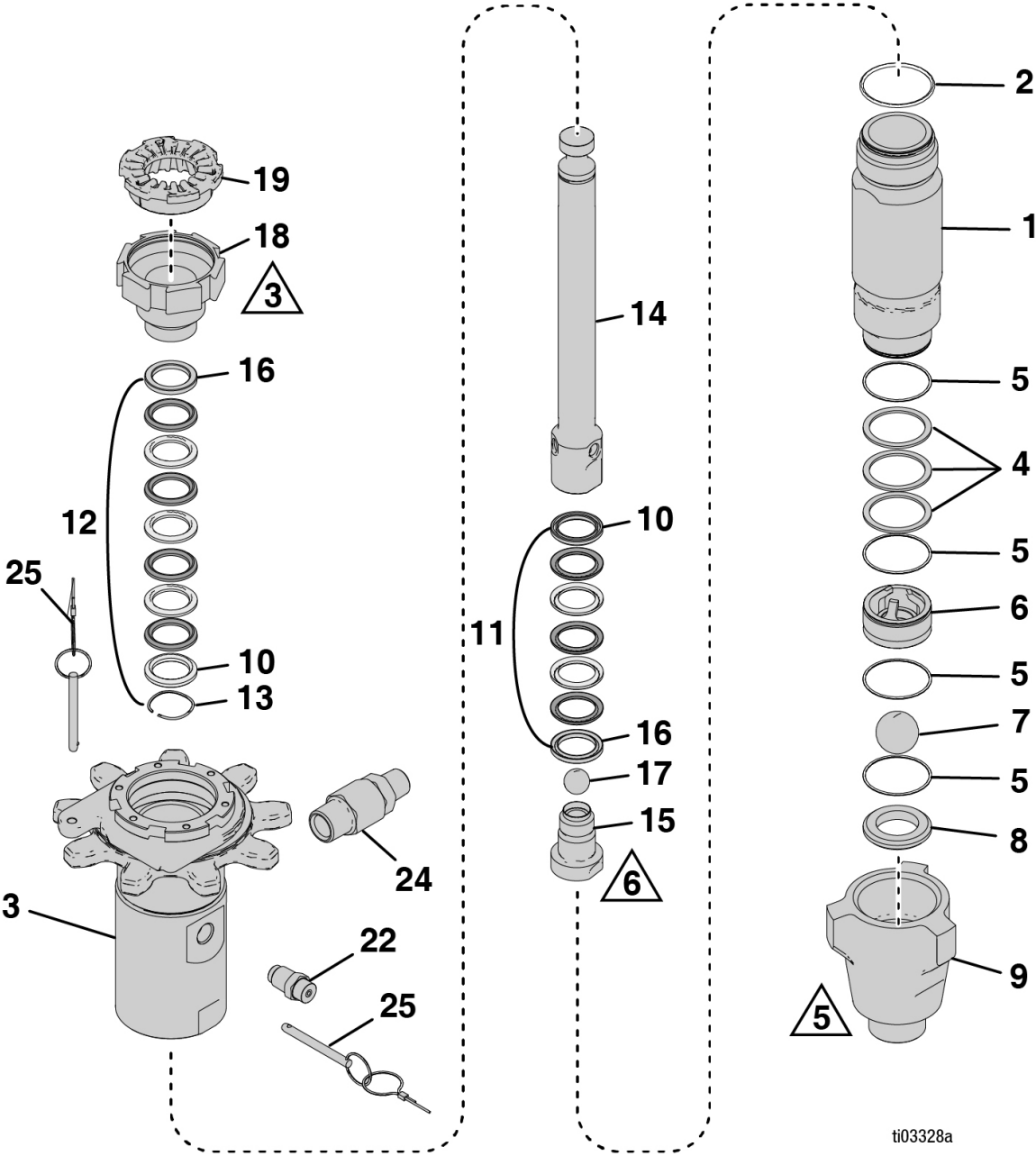
THROAT PACKING ADJUSTMENT

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.



KING® E-MAX™ XT™ DISPLACEMENT PUMPS PARTS

2009332 PARTS



△ 3 70-80 ft-lb (95-108 N·m)

△ 6 105-145 ft-lb (155-185 N·m)

△ 5 135-150 ft-lb (183-203 N·m)

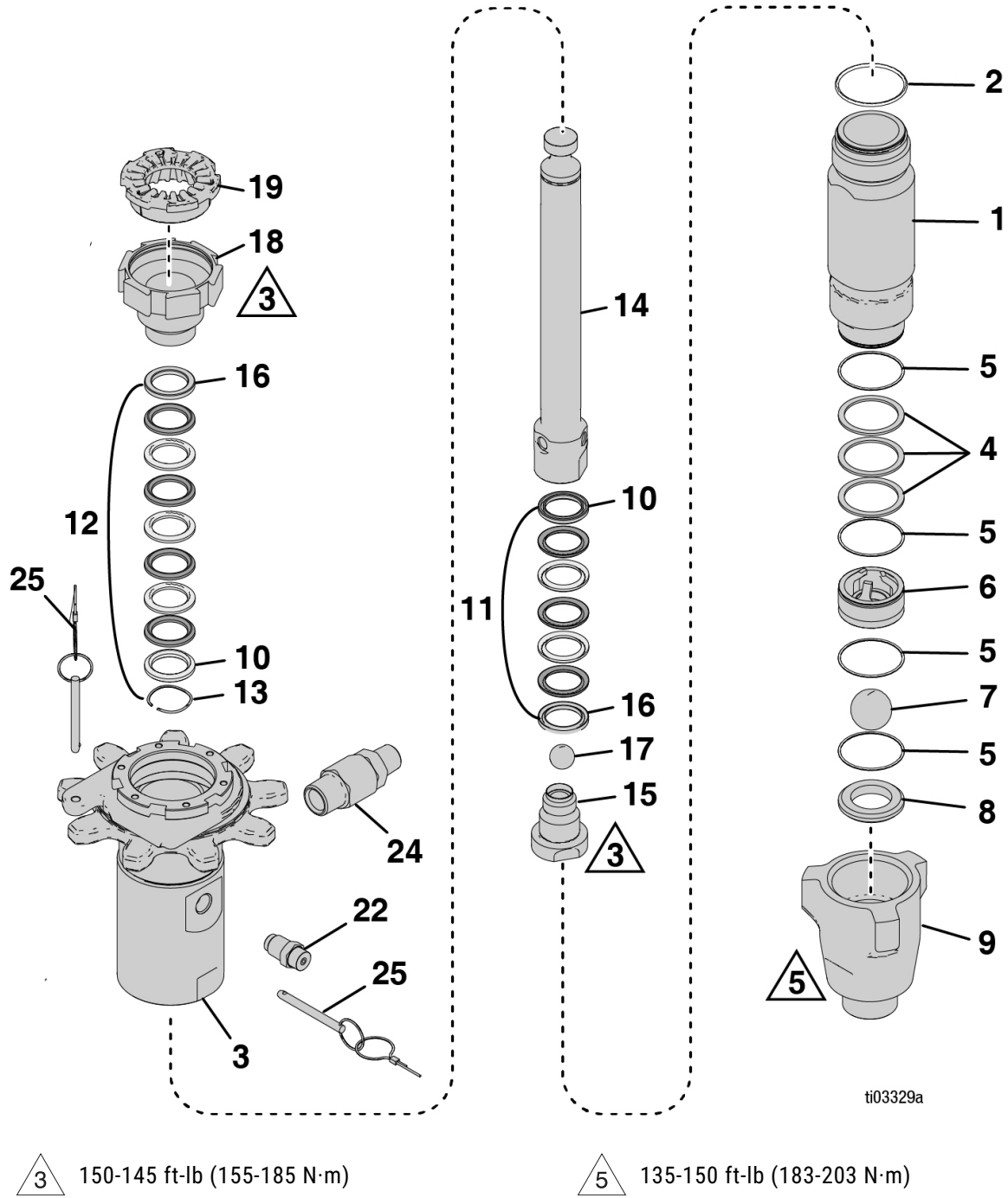
KING® E-MAX™ XT™ DISPLACEMENT PUMPS PARTS

PARTS LIST

REF.	PART	DESCRIPTION	QTY.
1	2007078	CYLINDER, pump	1
2	244892	PACKING, o-ring (pack of 10)	1
3	2010846	HOUSING, outlet	1
4	244855	SHIM, inlet (pack of 9)	3
5	244890	PACKING, o-ring, PTFE (pack of 10)	4
6	197307	GUIDE, ball	1
7	245128	BALL, metallic (pack of 3)	1
8	2007056	SEAT, carbide	1
9	2007069	HOUSING, inlet	1
10	17G919	GLAND, packing, male	2
11	see repair kits	PACKING, piston packings	1

REF.	PART	DESCRIPTION	QTY.
12	see repair kits	PACKING, throat packings	1
13	17G974	SPRING, wave	1
14	2006286	ROD, displacement	1
15	2006281	VALVE, piston, 145 cc	1
16	17G897	GLAND, packing, female	2
17	253029	BALL (pack of 3)	1
18	15K030	NUT, packing	1
19	2003199	PLUG, throat seal	1
22	2005152	HOUSING, rupture, disc	1
24	2010828	KIT, valve, check, outlet pump	1
25	244826	PIN, self-locking	2

2009333 PARTS



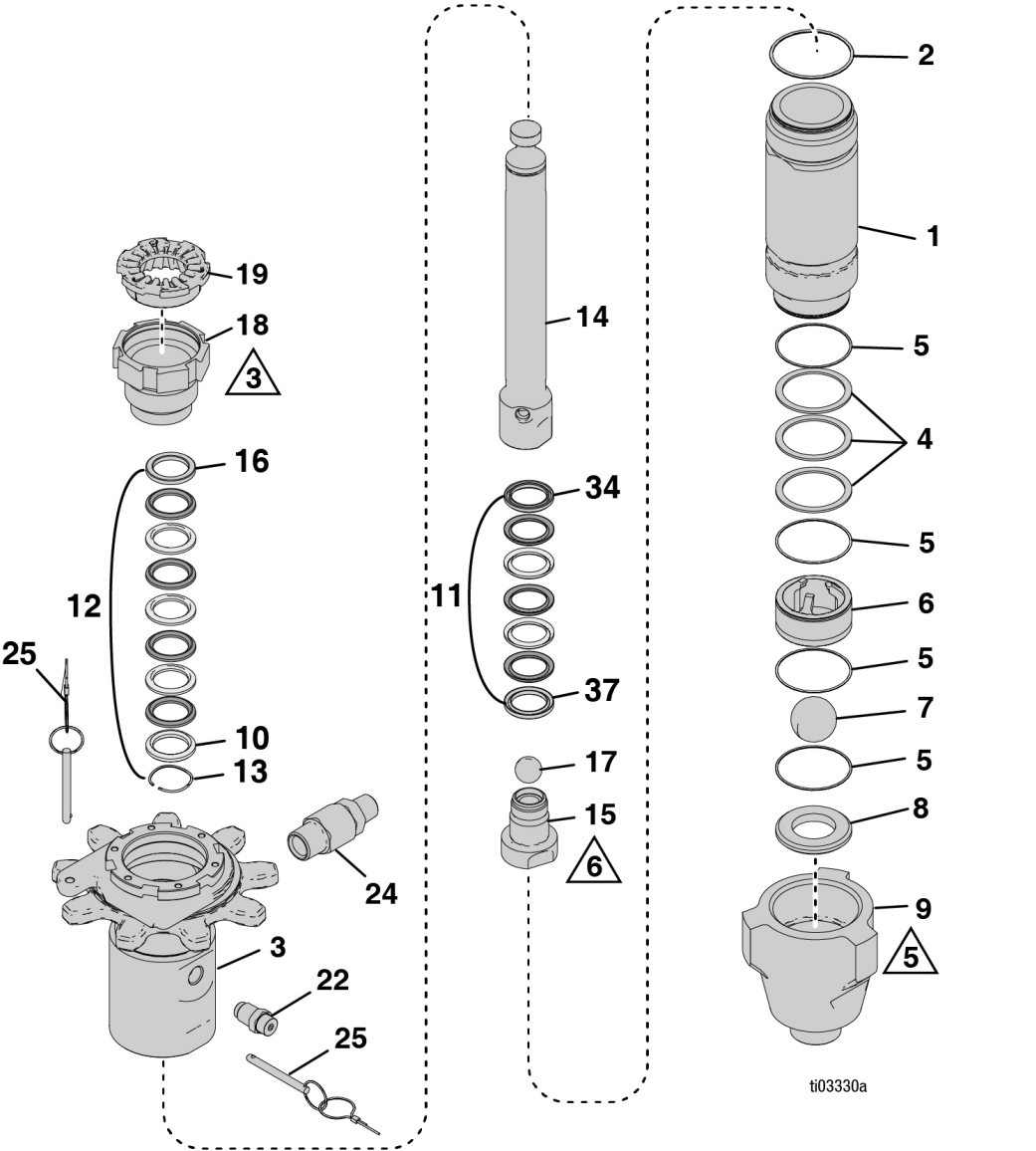
KING® E-MAX™ XT™ DISPLACEMENT PUMPS PARTS

PARTS LIST

REF.	PART	DESCRIPTION	QTY.
1	2007060	CYLINDER, pump	1
2	244892	PACKING, o-ring (pack of 10)	1
3	2010847	HOUSING, outlet	1
4	244855	SHIM, inlet (pack of 9)	3
5	244890	PACKING, o-ring, PTFE (pack of 10)	4
6	197307	GUIDE, ball	1
7	245128	BALL, metallic (pack of 3)	1
8	2007056	SEAT, carbide	1
9	2007069	HOUSING, inlet	1
10	17G931	GLAND, packing, male	2
11	see repair kits	PACKING, piston packings	1

REF.	PART	DESCRIPTION	QTY.
12	see repair kits	PACKING, throat packings	1
13	17G975	SPRING, wave	1
14	2006287	ROD, displacement	1
15	2006282	VALVE, piston, 180 cc	1
16	17G898	GLAND, packing, female	2
17	253029	BALL (pack of 3)	1
18	15K030	NUT, packing	1
19	2003199	PLUG, throat seal	1
22	2005152	HOUSING, rupture, disc	1
24	2010828	KIT, valve, check, outlet pump	1
25	244826	PIN, self-locking	2

2009334 PARTS



△ 3 105-145 ft-lb (155-185 N·m)

△ 6 160-240 ft-lb (220-320 N·m)

△ 5 135-150 ft-lb (183-203 N·m)

PARTS LIST

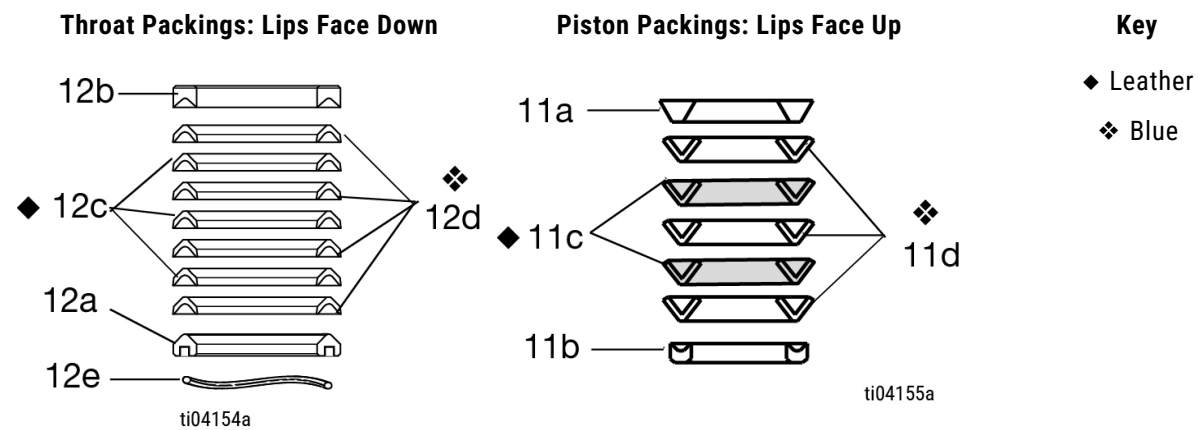
REF.	PART	DESCRIPTION	QTY.
1	2007070	CYLINDER, pump	1
2	244893	PACKING, o-ring (pack of 10)	1
3	2010848	HOUSING, outlet	1
4	244856	SHIM, inlet (pack of 9)	3
5	244894	PACKING, o-ring (pack of 10)	4
6	2007062	GUIDE, ball, 1.5 in., spring load	1
7	253030	BALL, metallic (pack of 3)	1
8	2007055	SEAT, carbide	1
9	2007072	HOUSING, inlet	1
10	17G932	GLAND, packing, male	1
11	see repair kits	PACKING, piston packings	1
12	see repair kits	PACKING, throat packings	1
13	17G976	SPRING, wave	1
14	2006288	ROD, displacement	1
15	2006283	VALVE, piston, 220 cc	1
16	17G899	GLAND, packing, female	1
17	244898	BALL (pack of 3)	1
18	15K031	NUT, packing	1
19	2003199	PLUG, throat seal	1
22	2005152	HOUSING, rupture, disc	1
24	2010828	KIT, valve, check, outlet pump	1
25	244826	PIN, self-locking	2
34	17G933	GLAND, packing, male	1
37	17G910	GLAND, packing, female	1

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 2, 5, 7, 17 and 19 on the parts list. Packings are items 11 and 12 on the parts lists.

Pump Model	Lower Size	Full Repair Kit	DESCRIPTIONS, REFERENCE NUMBERS, AND QUANTITY	
			Throat Seal Kit (12a-12e)	Piston Seal Kit (11a-11e)
			Replaces entire packing stack in throat (see figure below)	Replaces entire packing stack in piston (see figure below)
2009332	145 cc	25D234	25D134	25D141
2009333	180 cc	25D235	25D135	25D142
2009334	220 cc	25D236	25D136	25D143



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

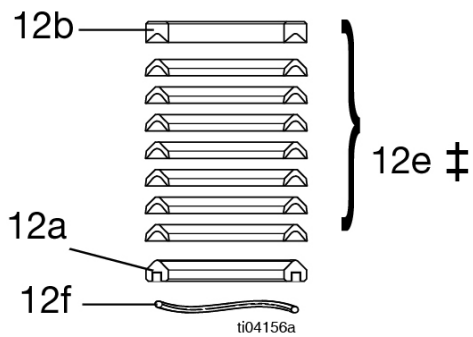
REPAIR KITS

PTFE

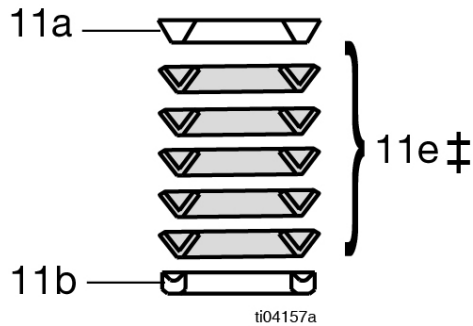
Repair kits contain a set of seven PTFE packings for the throat, and five PTFE packings for the piston that are ideal for chemical resistance and higher temperatures. Not ideal for abrasive applications. Full repair kits also include items 2, 5, 7, 17 and 19 on the parts list. Packings are items 11 and 12 on the parts lists.

Pump Model	Lower Size	Full Repair Kit	DESCRIPTIONS, REFERENCE NUMBERS, AND QUANTITY	
			Throat Seal Kit (12a-12e)	Piston Seal Kit (11a-11e)
			Replaces entire packing stack in throat (see figure below)	Replaces entire packing stack in piston (see figure below)
2009332	145 cc	25D244	25D151	25D161
2009333	180 cc	25D245	25D152	25D162
2009334	220 cc	25D246	25D153	25D163

Throat Packings: Lips Face Down



Piston Packings: Lips Face Up



Key

‡ White

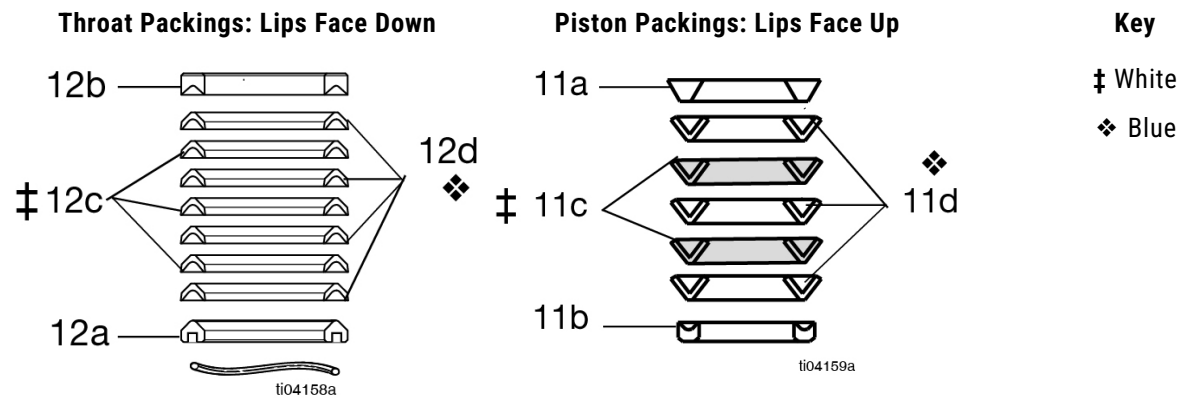
Lubricate Packings

REPAIR KITS

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 2, 5, 7, 17 and 19 on the parts list. Packings are items 11 and 12 on the parts lists.

Pump Model	Lower Size	Full Repair Kit	DESCRIPTIONS, REFERENCE NUMBERS, AND QUANTITY	
			Throat Seal Kit (12a-12e)	Piston Seal Kit (11a-11e)
			Replaces entire packing stack in throat (see figure below)	Replaces entire packing stack in piston (see figure below)
2009332	145 cc	25D258	25D175	25D189
2009333	180 cc	25D259	25D176	25D190
2009334	220 cc	25D260	25D177	25D191



Lubricate Packings

INLET BALL SPRING KITS

Use to improve change over rates in longer ball travel configurations. Order kit that corresponds with your lower model.

KIT	LOWER MODEL
245190	145 cc
245190	180 cc
245191	220 cc

CERAMIC BALL KITS

LOWER	CERAMIC PISTON BALL	CERAMIC INLET BALL
145 cc	111453	119264
180 cc	111453	119264
220 cc	118602	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.

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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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