

# 255216 Wrist Pin Replacement Kit

311609D

ENG

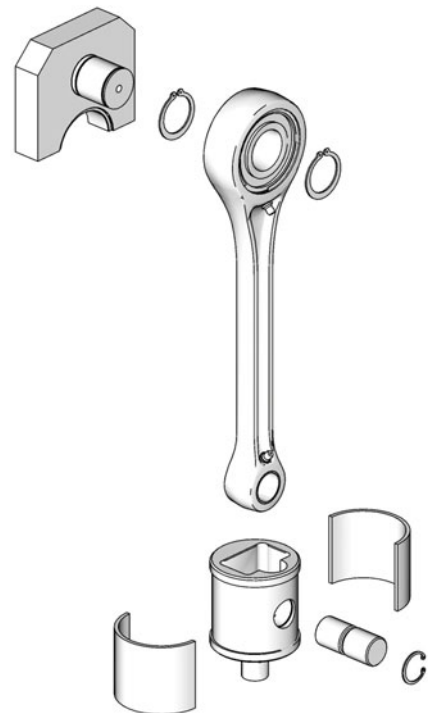
---

To replace both drive linkage wrist pin bearings on E-Flo<sup>®</sup> 4-Ball Piston Pumps.  
For professional use only.



**Important Safety Instructions**

Read all warnings and instructions in this manual and in E-Flo Repair-Parts manual 311594. Save these instructions.



ti8717a

# Pressure Relief Procedure

System pressure can cause the pump to cycle unexpectedly, which could result in serious injury from splashing or moving parts.						

1. Set START/STOP switch to STOP.
2. Push in SECURE DISABLE switch.
3. Open the back pressure regulator and all fluid drain valves in the system, having a waste container ready to catch drainage. Leave open until you are ready to pressurize system again.
4. Check that pressure gauges on fluid supply and return lines read zero. If gauges do not read zero, determine cause and carefully relieve pressure by VERY SLOWLY loosening a fitting. Clear obstruction before pressurizing system again.

## Kit Parts

**NOTE:** Wrist Pin Replacement Kit 15H873 includes parts to replace the wrist pin bearings on both drive linkage assemblies. Parts included in the kit are marked with an asterisk, for example (5\*). Use all the new parts in the kit.

Ref. No.	Part No.	Description	Qty
5*	n/a	SCREW, cap, socket-head; 5/8-11 x 3 in. (76 mm)	4
7a*	n/a	BEARING, wrist pin	2
10*	n/a	PIN, lower con rod	2
12*	116719	SCREW, 8-32 hex washer head	4

Parts designated n/a are not available separately.

# Kit Installation

## Disassembly

--	--	--	--	--	--	--

1. Jog the motor to bring the pump on the side being repaired to the bottom of its stroke. This provides access to the coupling nut (14).
2. Relieve pressure, page 2.
3. Shut off electrical power to the unit.
4. Remove two screws (12) and the cover. FIG. 1 shows the cover (32) on the stand side; the motor side cover is (21).
5. Place a clean rag over the top of the slider cylinder (2) to prevent debris from falling into the slider assembly during disassembly.
6. Remove the 2-piece shield (72) by inserting a screwdriver straight into the slot, and using it as a lever to release the tab. Repeat for all tabs. **Do not** use the screwdriver to pry the shields apart.

- Place clean rag over slider cylinder (2).
- Hold slider piston (9) flats with 3/4 in. wrench, and brace against tie rod (3).

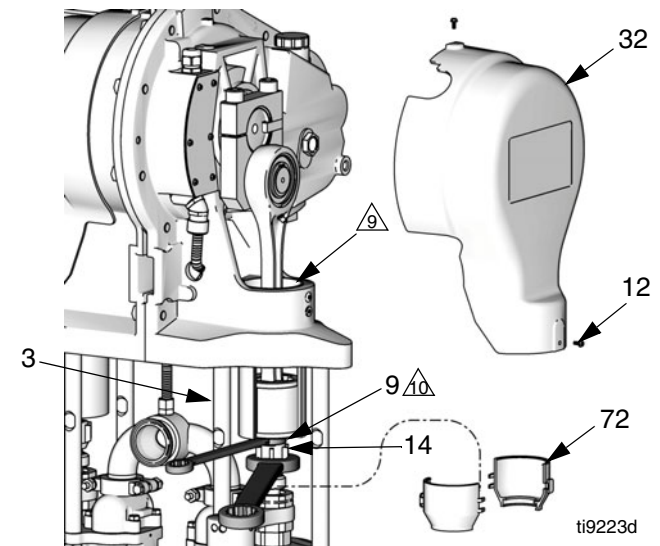


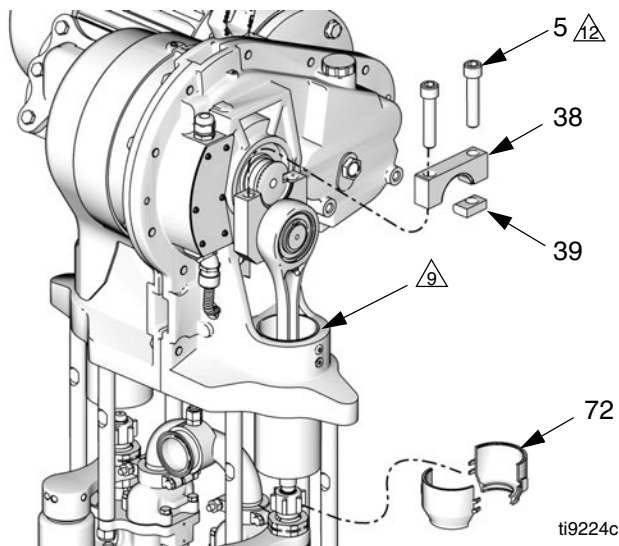


FIG. 1. Remove Coupling Nut

7. Place a 3/4 in. wrench on the slider piston (9) flats (just above the coupling nut), to keep the slider piston/connecting rod from turning when you are loosening the coupling nut (14). Orient the wrench so it is braced against one of the tie rods (3). Applying excessive force to the slider piston/connecting rod can shorten the life of the lower pin bearing.
8. Using a 1-5/8 in. open-end wrench, unscrew the coupling nut (14) from the slider piston (9) and let it slide down onto the pump piston rod. Be careful not to lose the collars (13).
9. See FIG. 2. Using a 1/2 in. hex driver, unscrew the two cap screws (5). Remove the crank arm cap (38) and key (39). If necessary, use a plastic hammer to break these parts loose.

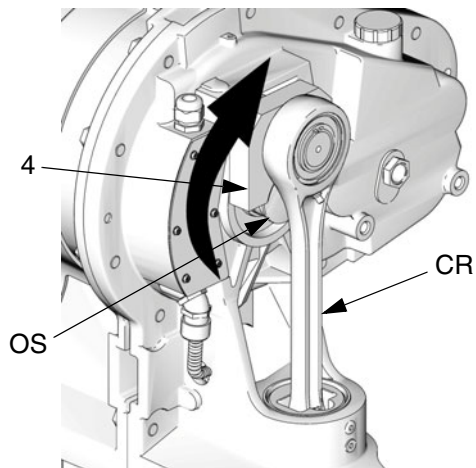
 Place clean rag over slider cylinder (2).

 Apply antiseize lubricant (LPS®-04110 or equivalent) to screw (5) threads. Torque key-side screw to 210-230 ft-lb (283-310 N•m) first, then torque gap side screw to 210-230 ft-lb (283-310 N•m). Torque screws an additional 2-3 times each, or until they stop turning when torqued to 210-230 ft-lb (283-310 N•m).



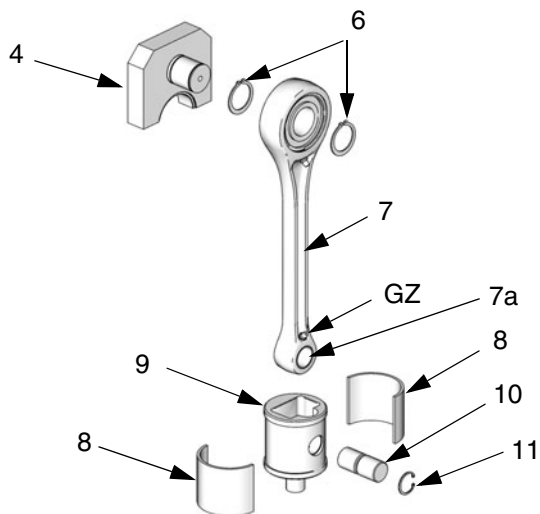
**FIG. 2. Remove Crank Arm Cap**

10. See FIG. 3. Rotate the crank arm (4) to allow it to be removed from the output shaft (OS).
11. Pull the crank arm/connecting rod/slider piston assembly (CR) up and out of the cylinder.



**FIG. 3. Rotate Crank Arm**

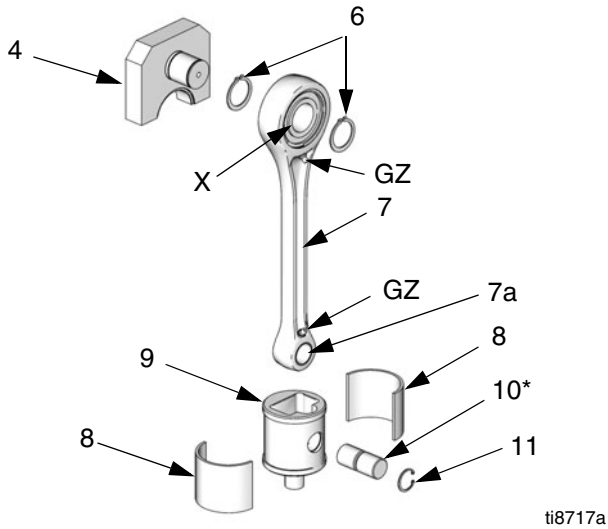
12. Remove the bearings (8), retaining ring (11), and pin (10). See FIG. 4.
13. Remove and discard the wrist pin bearing (7a) from the connecting rod (7).



**FIG. 4. Drive Linkage Assembly**

## Reassembly

1. See FIG. 5. Install the new wrist pin bearing (7a\*) on the connecting rod (7). Align the hole in the bearing with the grease passage in the connecting rod (7).
2. Orient the new connecting rod (7) and slider piston (9) as shown. Assemble the pin (10\*) and retaining ring (11).

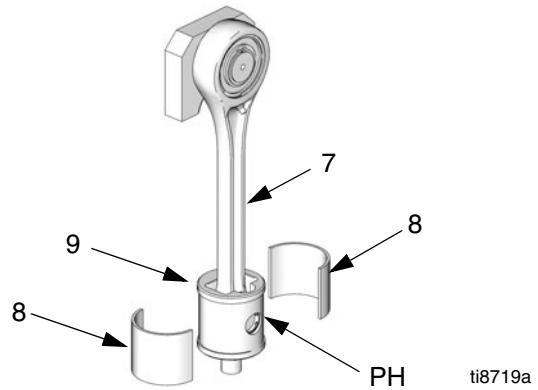


**FIG. 5. Drive Linkage Assembly**

3. Lubricate the crank pin bearing (X) and the wrist pin bearing (7a) with 1 shot (1 cc) of 107411 Grease or equivalent, using grease zerks (GZ).

**NOTE:** Lubricate the wrist pin bearings (7a) every 6 months and the crank pin bearings (X) annually. Replace the wrist pin bearings annually.

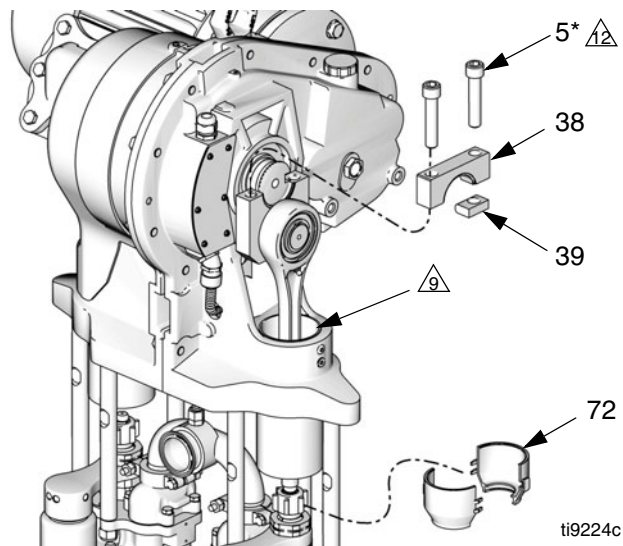
4. See FIG. 6. Install the two bearings (8) on the slider piston (9). The joints between the bearings must align with the pin hole (PH) in the slider piston.



**FIG. 6. Slider Bearings**

5. Slide the piston (9) and connecting rod (7) into the cylinder (2).
6. Position the crank arm (4) to engage the output shaft (OS), and rotate it to the bottom of the output shaft.
7. Place a clean rag over the top of the slider cylinder (2) to prevent debris from falling into the slider assembly during reassembly.
8. See FIG. 7. Apply antiseize lubricant (LPS®-04110 or equivalent) to the threads of the cap screws (5). Install the key (39), crank arm cap (38), and cap screws (5), oriented as shown. While the gap-side screw is still loose, torque the key-side screw to 210-230 ft-lb (283-310 N•m). Then torque the gap-side screw to 210-230 ft-lb (283-310 N•m). Torque screws an additional 2-3 times each, or until they stop turning when torqued to 210-230 ft-lb (283-310 N•m).

- 9 Place clean rag over slider cylinder (2).
- 12 Apply antiseize lubricant (LPS<sup>®</sup>-04110 or equivalent) to screw (5) threads. Torque key-side screw to 210-230 ft-lb (283-310 N•m) first, then torque gap side screw to 210-230 ft-lb (283-310 N•m). Torque screws an additional 2-3 times each, or until they stop turning when torqued to 210-230 ft-lb (283-310 N•m).



**FIG. 7. Install Crank Arm Cap**

9. Ensure that the collars (13) are in place in the coupling nut (14).
10. Place a 3/4 in. wrench on the flats of the slider piston (9\*), to keep it from turning when you are tightening the coupling nut (14). Orient the wrench so it is braced against one of the tie rods (3) or the pump stand. Tighten the coupling nut (14) onto the slider piston (9\*) and torque to 75-80 ft-lb (102-108 N•m).
11. Install the shields (72) by engaging the bottom lips with the groove in the wet-cup cap. Snap the two shields together.
12. Remove the rag. Reinstall the cover (32 or 21) and screws (12\*).
13. Repeat for the other side.

# 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.

## **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

For the latest information about Graco products, visit [www.graco.com](http://www.graco.com).

**TO PLACE AN ORDER**, contact your Graco distributor or call to identify the nearest distributor.

**Phone:** 612-623-6921 **or Toll Free:** 1-800-328-0211 **Fax:** 612-378-3505

*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.*

Original instructions. This manual contains English. MM 31 1609

**Graco Headquarters:** Minneapolis

**International Offices:** Belgium, China, Japan, Korea

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

**Copyright 2007, Graco Inc. is registered to ISO 9001**

[www.graco.com](http://www.graco.com)

Revised 02/2011