

Repair

PRO-DUTY Displacement Pump



AIRLESSCO
MANUFACTURED BY GRACO

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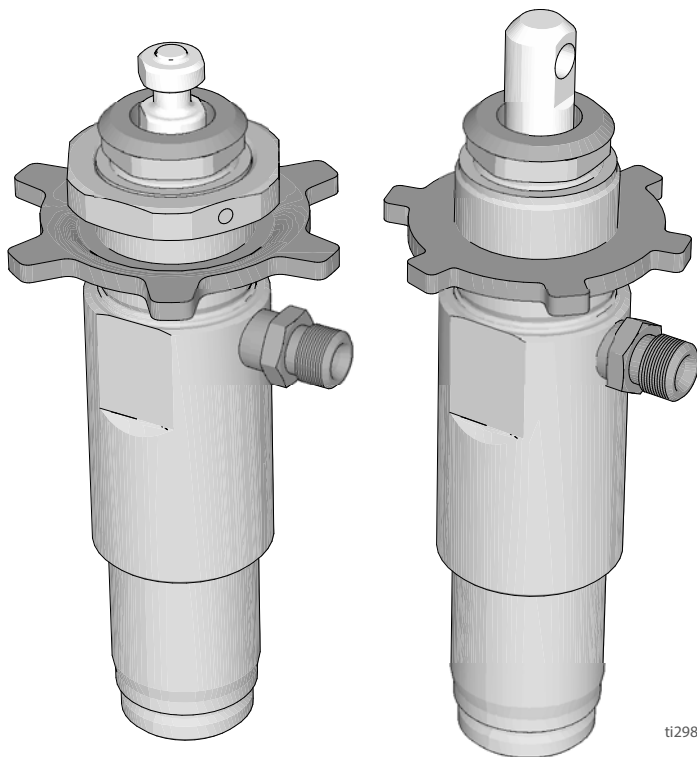
For professional use only.

Models: PRO-DUTY Quick Repair Pump: 17M990, 17M991
PRO-DUTY Pump: 17M988, 17M989



Important Safety Instructions

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



ti29850a

PRO-DUTY Quick Repair Pump

PRO-DUTY Pump

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Warnings

The following warnings are for the setup, use, grounding, maintenance, and repair of this equipment. The exclamation point symbol alerts you to a general warning and the hazard symbols refer to procedure-specific risks. When these symbols appear in the body of this manual or on warning labels, refer back to these Warnings. Product-specific hazard symbols and warnings not covered in this section may appear throughout the body of this manual where applicable.

WARNING



FIRE AND EXPLOSION HAZARD

Flammable fumes, such as solvent and paint fumes, in work area can ignite or explode. To help prevent fire and explosion:



- Do not spray flammable or combustible materials near an open flame or sources of ignition such as cigarettes, motors, and electrical equipment.



- Paint or solvent flowing through the equipment is able to result in static electricity. Static electricity creates a risk of fire or explosion in the presence of paint or solvent fumes. All parts of the spray system, including the pump, hose assembly, spray gun, and objects in and around the spray area shall be properly grounded to protect against static discharge and sparks. Use Airlessco conductive or grounded high-pressure airless paint sprayer hoses.



- Verify that all containers and collection systems are grounded to prevent static discharge. Do not use pail liners unless they are anti static or conductive.
- Connect to a grounded outlet and use grounded extensions cords. Do not use a 3-to-2 adapter.
- Do not use a paint or a solvent containing halogenated hydrocarbons.
- Do not spray flammable or combustible liquids in a confined area.
- Keep spray area well-ventilated. Keep a good supply of fresh air moving through the area.
- Sprayer generates sparks. Keep pump assembly in a well ventilated area at least 20 feet (6.1 m) from the spray area when spraying, flushing, cleaning, or servicing. Do not spray pump assembly.
- Do not smoke in the spray area or spray where sparks or flame is present.
- Do not operate light switches, engines, or similar spark producing products in the spray area.
- Keep area clean and free of paint or solvent containers, rags, and other flammable materials.
- Know the contents of the paints and solvents being sprayed. Read all Safety Data Sheets (SDS) and container labels provided with the paints and solvents. Follow the paint and solvents manufacturer's safety instructions.
- Fire extinguisher equipment shall be present and working.

Warnings

WARNING



SKIN INJECTION HAZARD

High-pressure spray is able to inject toxins into the body and cause serious bodily injury. In the event that injection occurs, **get immediate surgical treatment**.



- Do not aim the gun at, or spray any person or animal.
- Keep hands and other body parts away from the discharge. For example, do not try to stop leaks with any part of the body.



- Always use the nozzle tip guard. Do not spray without nozzle tip guard in place.
- Use Airlessco nozzle tips.



- Use caution when cleaning and changing nozzle tips. In the case where the nozzle tip clogs while spraying, follow the **Pressure Relief Procedure** for turning off the unit and relieving the pressure before removing the nozzle tip to clean.



- Equipment maintains pressure after power is shut off. Do not leave the equipment energized or under pressure while unattended. Follow the **Pressure Relief Procedure** when the equipment is unattended or not in use, and before servicing, cleaning, or removing parts.

- Check hoses and parts for signs of damage. Replace any damaged hoses or parts.

- This system is capable of producing 3300 psi. Use Airlessco replacement parts or accessories that are rated a minimum of 3300 psi.

- Always engage the trigger lock when not spraying. Verify the trigger lock is functioning properly.

- Verify that all connections are secure before operating the unit.

- Know how to stop the unit and bleed pressure quickly. Be thoroughly familiar with the controls.



PRESSURIZED ALUMINUM PARTS HAZARD

Use of fluids that are incompatible with aluminum in pressurized equipment can cause serious chemical reaction and equipment rupture. Failure to follow this warning can result in death, serious injury, or property damage.

- Do not use 1,1,1-trichloroethane, methylene chloride, other halogenated hydrocarbon solvents or fluids containing such solvents.

- Do not use chlorine bleach.

- Many other fluids may contain chemicals that can react with aluminum. Contact your material supplier for compatibility.



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.

- Pressurized equipment can start without warning. Before checking, moving, or servicing equipment, follow the **Pressure Relief Procedure** and disconnect all power sources.



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 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. This protective equipment includes but is not limited to:

- Protective eye wear, and hearing protection.

- Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer.

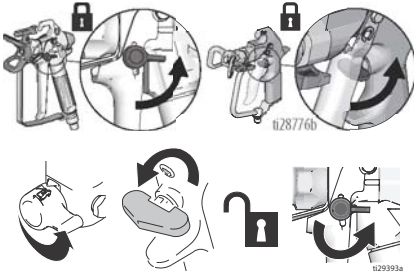
CALIFORNIA PROPOSITION 65

This product contains a chemical known to the State of California to cause cancer, birth defects or other reproductive harm. Wash hands after handling.

Pressure Relief

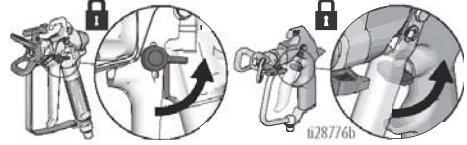
Trigger Lock

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



Follow the **Pressure Relief Procedure** whenever you see this symbol.

1. Engage the trigger lock.



2. Turn the ON/OFF switch to **OFF** position.
3. Unplug power cord or shut engine off.
4. Remove tip guard.
5. Turn pressure control to the lowest setting. Disengage trigger lock.

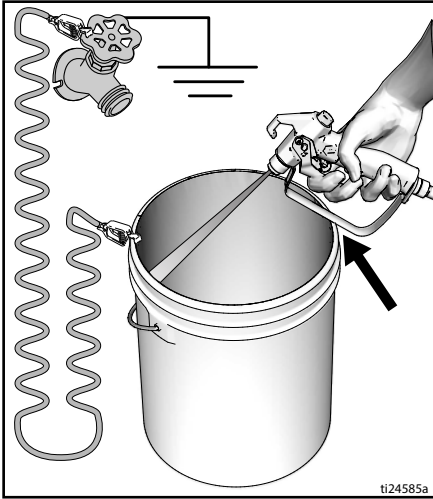


Pressure Relief Procedure

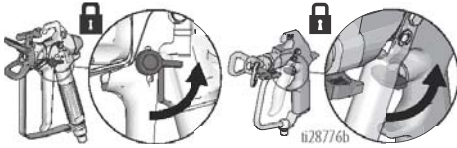
This equipment stays pressurized until pressure is manually relieved. To help prevent serious injury from pressurized fluid, such as skin injection, splashed fluid and moving parts, follow the Pressure Relief Procedure whenever sprayer is stopped and before sprayer is cleaned or checked, and before equipment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

Pressure Relief

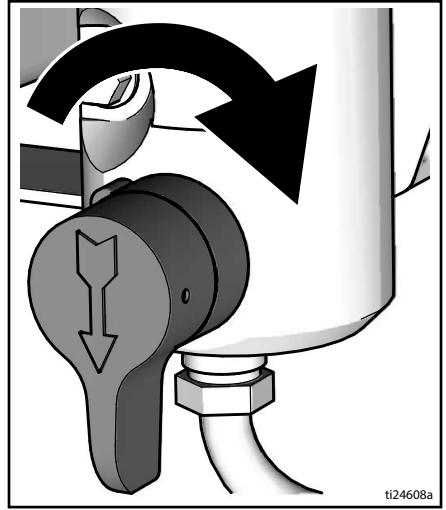
6. Hold a metal part of the gun firmly to a grounded metal pail. Trigger the gun to relieve pressure.



7. Engage the trigger lock.



8. Open any fluid drain valves in system. Leave drain valves open until ready to spray again.



9. If you suspect the spray tip or hose is clogged or that pressure has not been fully relieved:
- VERY SLOWLY** loosen tip guard retaining nut or hose and coupling to relieve pressure gradually.
 - Loosen nut or coupling completely.
 - Clear hose or tip obstruction.

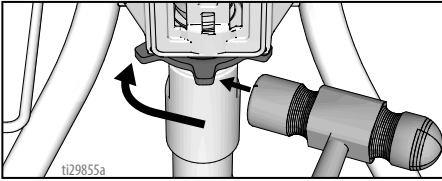
Pump Removal

Pump removal includes disconnecting the fluid inlet and outlet and removing the pump.

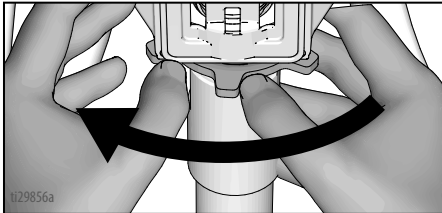
PRO-DUTY Quick Repair Pump Removal

Perform **Pressure Relief Procedure**, page 5.

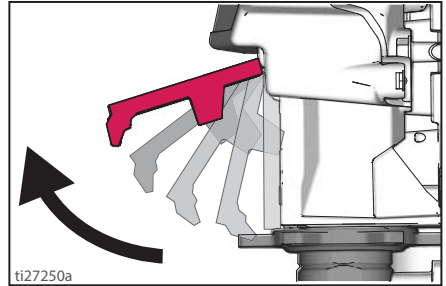
1. Use a hammer to loosen pump retaining nut.



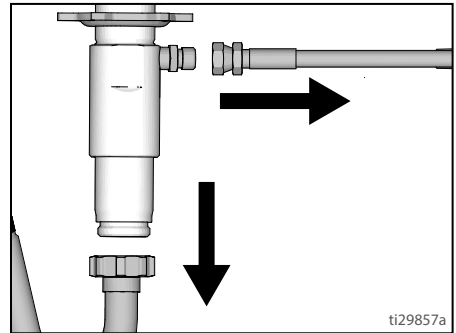
2. Turn pump retaining nut to free pump rod cover.



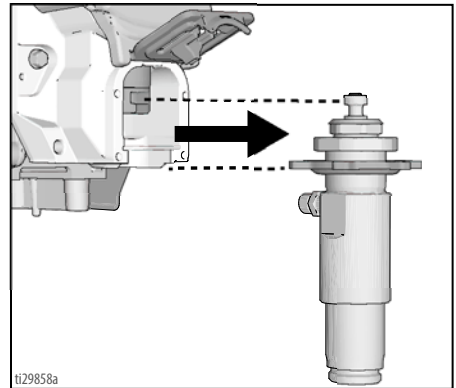
3. Swing pump rod cover open.



4. Disconnect outlet hose and suction hose from pump.



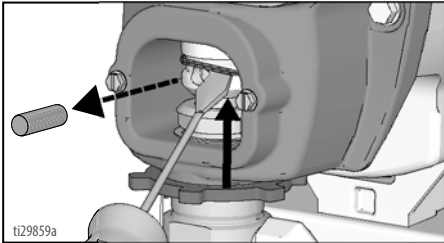
5. Slide pump out of the drive housing.



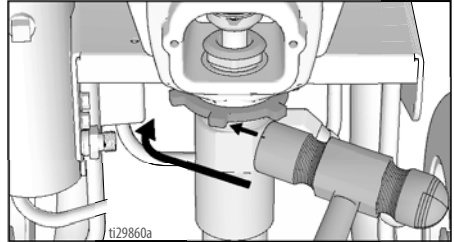
Pump Removal

PRO-DUTY Pump Removal

1. Stop pump with piston rod in the lowest position.
2. Perform **Pressure Relief Procedure**, page 5.
3. If necessary remove guard or pail hook to gain access to the pump.
4. Disconnect outlet hose and suction hose from pump.



5. Use a screwdriver to push retaining spring up then push pin out.
6. Loosen pump jam nut by hitting firmly with a hammer. Unscrew pump.



Repair

Disassemble Pump

1. Pry the button plug off the top of the pump.



2. Unscrew packing nut from cylinder. PRO-DUTY Quick Repair pump retaining nuts are not removable and not sold separately.



3. Unscrew cylinder from intake valve.



4. Disassemble intake valve. Clean and inspect.



5. O-ring at the bottom may require a pick for removal.



NOTICE

If using a pick to remove the O-ring use care to avoid damage to the machined surfaces.

6. Remove the O-ring from the intake valve.



Repair

7. Tap piston rod out of cylinder with a soft hammer or flip over and tap piston rod out against a bench.



8. Clean and inspect parts.
9. Use a 1/4" hex driver to unscrew piston seat retainer from the piston.



10. Remove, clean, and inspect Ball and seat. Replace if necessary. O-ring at the bottom may require a pick for removal.



NOTICE

If using a pick to remove the O-ring use care to avoid damage to the machined surfaces.



11. Remove and discard the upper throat packing with glands from the cylinder. Remove and discard the lower packing with glands from the cylinder.



Assemble Pump

1. Soak leather packings in SAE 30W oil for one hour before assembly.
2. Install ball with new o-ring and seat in piston rod.

- a. Drop the ball into the piston.



- b. Insert O-ring into piston body.



- c. Insert seat into piston. Make certain seat chamfer faces ball and o-ring.



- d. Apply Blue Locktite® 242 to threads of seat retainer and install in piston. When thread sealant is applied to piston valve threads, ensure that none gets on the ball.



- e. Torque to 175 ± 15 in.-lb (20 ± 2 N•m).

3. Assemble upper-throat packing stack. Use leather throat packings soaked earlier alternating with white V-packings. Install from the top of the cylinder (lips face in).



4. Using a hammer with a socket or round bar stock to tap upper throat packing into pump cylinder.



Repair

5. Loosely install packing nut into top of cylinder.



6. Assemble lower piston packing stack. Install from the bottom of the cylinder (lips face in). Alternate white and brown V-packings.



7. Grease both piston rod diameters that will go through the packings. Gently guide displacement rod up through 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 of the intake valve housing.



9. Reassemble intake valve placing a new o-ring inside the intake valve body.



10. Thread intake valve housing into cylinder to dimension shown.



11. Tighten packing nut. Torque to 70 ± 10 in.-lb (8 ± 1 N•m) or additional 1/2 turn from hand tight.



12. Install the button plug on the piston rod at the top of the pump.



Throat and Piston Packing Adjustment



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.

When pump packings begin to leak after much use, perform **Pressure Relief Procedure**, page 5.

Turn electric sprayers OFF and unplug from power source.

OR

Turn engine driven sprayers OFF.

Tighten packing nut and intake valve housing down an additional 1/2-1 turn. This should stop or lessen leakage. This allows approximately 50 gallons of additional operation before a repacking is required.

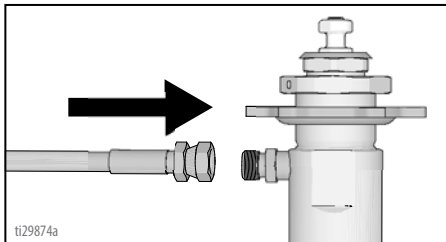
Pump Installation

Pump Installation

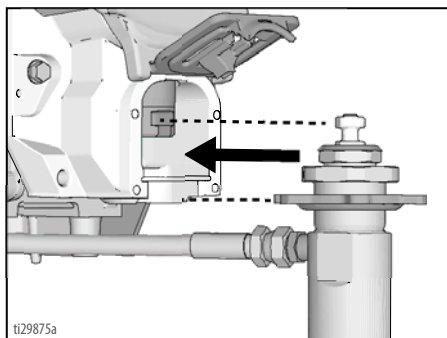
Pump installation includes securing the pump and connecting to the fluid inlet and outlet.

PRO-DUTY Quick Repair Pump Installation

1. Connect outlet hose to pump.



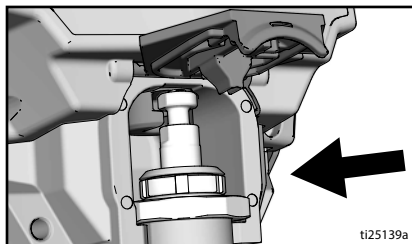
2. Move pump displacement rod up or down until it slides into the connecting rod when the pump is slid into the drive housing.



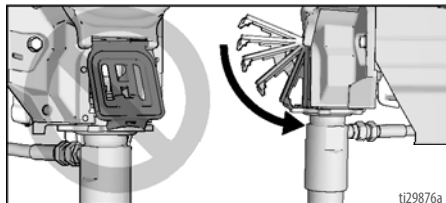
NOTICE

If pump displacement rod is not properly installed in the connecting rod, sprayer damage can occur. Make certain pump displacement rod is properly slid onto connecting rod.

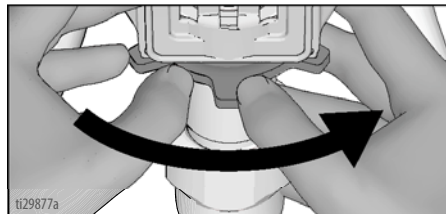
3. Slide pump all the way into drive housing.



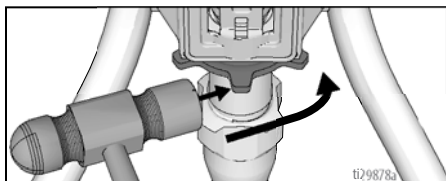
4. Close pump rod cover. Make certain that it is flush against drive housing.



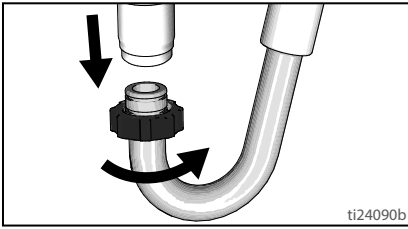
5. Use both hands to tighten pump retaining nut.



6. Use a hammer to turn pump retaining nut an additional 1/8 to 1/6th turn or 45° to 60°.



7. Install suction hose.



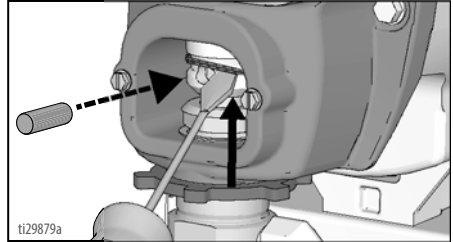
PRO-DUTY Pump Installation

<p>If pump pin works loose, parts could break off due to force of pumping action. Parts could project through air and result in serious injury or property damage. Make certain pin is properly installed.</p>				

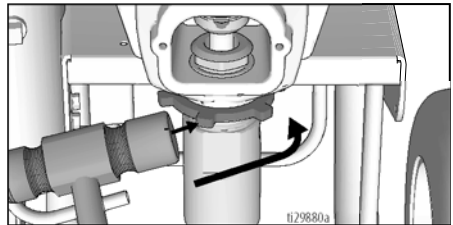
NOTICE

If the pump jam nut loosens during operation, the threads of the drive housing will be damaged.

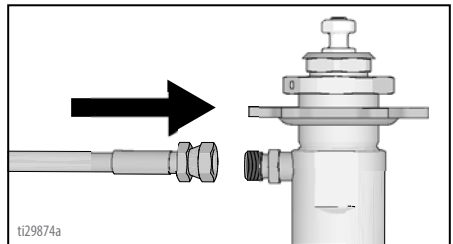
1. Pull piston rod out. Screw in pump until holes in connecting rod and piston rod align.



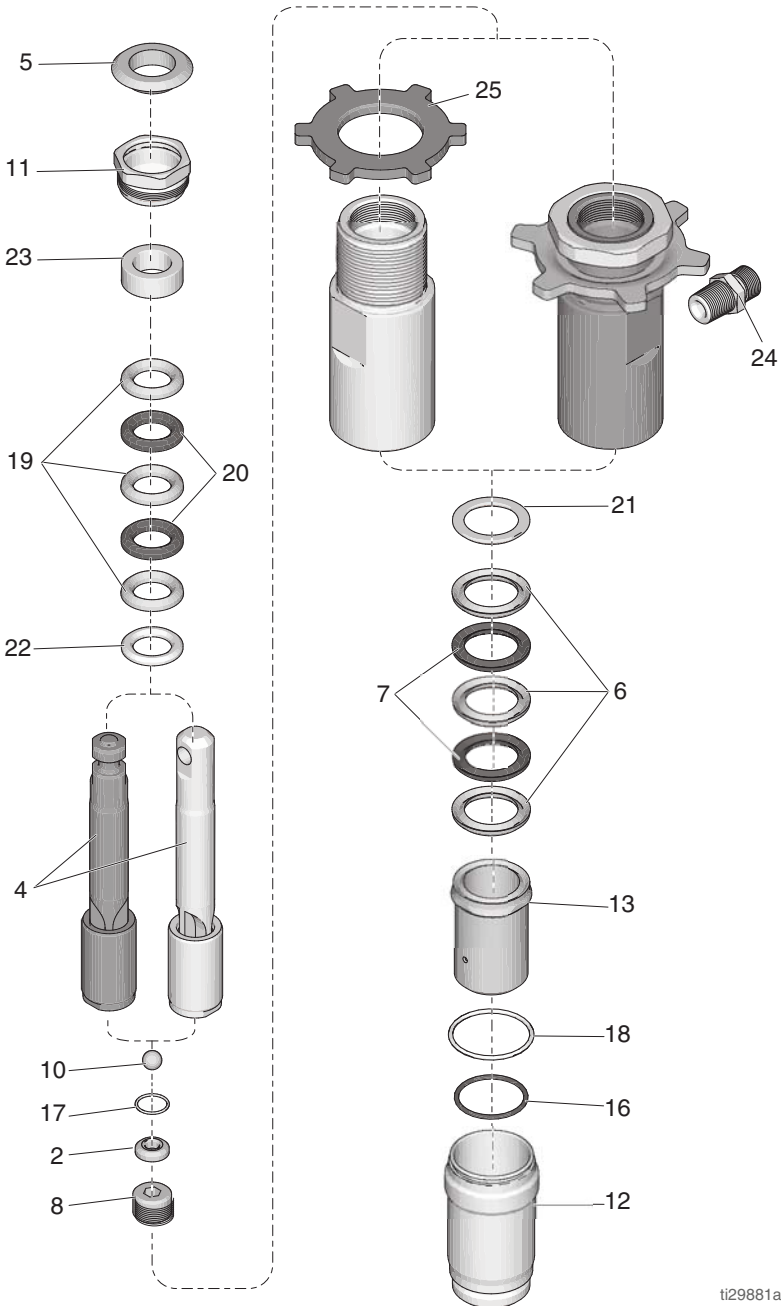
2. Push pin into hole. Push retaining ring spring into groove all the way around connecting rod.
3. Screw jam nut down onto pump until nut stops. Screw pump up into drive housing until top threads of pump are flush with drive housing face. Back off pump and jam nut to align pump outlet to side. Tighten jam nut by hand, then tap 1/8 to 1/4 turn with a hammer to approximately 75 ±5 ft-lb (102 N•m).



4. Connect outlet and suction hose to pump.



Parts



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Parts List

Ref.	Part	Description	Qty.	Ref.	Part	Description	Qty.
2✓◆	17J183	SEAT, top (piston)	1	19*	125724	V-PACKING, piston,	3
4	◆17P096	KIT, rod, piston PRO-DUTY Quick	1			V-Max™ UHMWPE	
	✓17P095	Repair, pump PRO-DUTY, pump	1	20*	176755	V-PACKING, leather	2
5*	180656	PLUG, button	1	21*	17J188	GLAND, male, pis-	1
6*	17J184	PLUG, button V-PACKING, throat,	3			ton, lower	
		V-Max™ UHMWPE		22*	176754	GLAND, male, throat,	1
7*	17J185	V-PACKING, leather	2			upper	
8✓◆	17J179	PLUG, seat retainer, piston	1	23*	176757	GLAND, female, throat	1
				24	162453	PRO-DUTY, pump	1
10*✓◆	105444	BALL, sst, 0.3125 in.	1	25	195150	PRO-DUTY, pump	1
11	17J181	NUT, packing	1		*17P094	KIT, repair, pump	
12	17N465	VALVE, intake, hous-	1		◆17P096	KIT, repair, piston rod assembly, PRO-DUTY Quick	
		ing				Repair pump	
13*	17P097	KIT, guide, ball, assembly <i>includes 16,</i> <i>18</i>	1		✓17P095	KIT, repair, piston rod assembly, PRO-DUTY pump	
16*	16D531	O-RING	1				
17*◆✓	17J187	O-ring, special, pis-	1				
		ton seat					
18*	17S053	O-RING	1				

Technical Specifications

Technical Specifications

PRO-DUTY Displacement Pump		
	US	Metric
Maximum fluid working pressure	3300 psi	227 bar, 22.7 MPa
Inlet/Outlet Sizes		
Fluid inlet size	1.0 in. diameter	
Fluid outlet size	1/4 in.	
Wetted materials on all models	stainless steel, PTFE, leather, nylon, zinc-plated and nickel-plated carbon steel, tungsten carbide, chrome plating, UHMWPE, acetal, polyethylene, nylon	

Airlessco Standard Warranty

Airlessco warrants all equipment referenced in this document which is manufactured by Airlessco 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 Airlessco, Airlessco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Airlessco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Airlessco's written recommendations.

This warranty does not cover, and Airlessco 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-Airlessco component parts. Nor shall Airlessco be liable for malfunction, damage or wear caused by the incompatibility of Airlessco equipment with structures, accessories, equipment or materials not supplied by Airlessco, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Airlessco.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Airlessco distributor for verification of the claimed defect. If the claimed defect is verified, Airlessco 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.

Airlessco'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.

AIRLESSCO 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 Airlessco. These items sold, but not manufactured by Airlessco (such as electric motors, switches, hose, etc.), are subject to the warranty, if any, of their manufacturer. Airlessco will provide purchaser with reasonable assistance in making any claim for breach of these warranties.

In no event will Airlessco be liable for indirect, incidental, special or consequential damages resulting from Airlessco 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 Airlessco, or otherwise.

FOR AIRLESSCO 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.

Airlessco Information

For the latest information about AIRLESSCO products, visit www.airlessco.com.

For patent information, see www.graco.com/patents.

TO PLACE AN ORDER OR FOR SERVICE, contact your Airlessco distributor,
or call 1-800-223-8213 to identify the nearest distributor.

*All written and visual data contained in this document reflects the latest product information available at
the time of publication.*

Airlessco reserves the right to make changes at any time without notice.

Original Instructions. This manual contains English. MM 3A4347

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