

4-Ball Lowers with Open Wet Cup

3A3452J

750cc, 1000cc, 1500cc, and 2000cc Models

EN

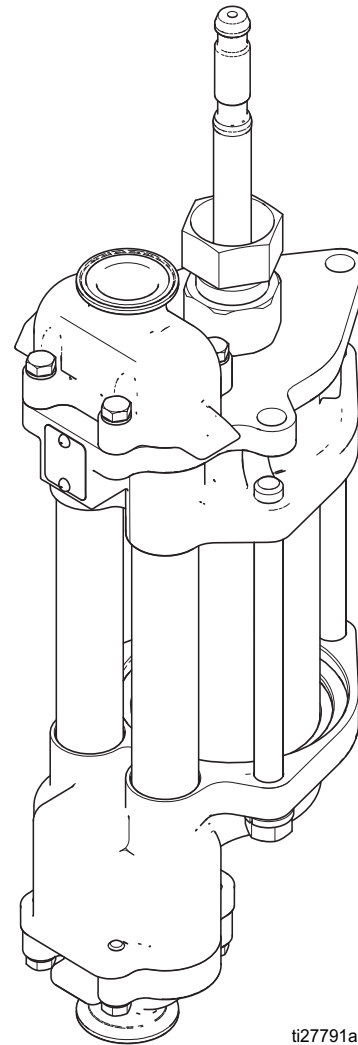
*Designed for low-pressure, high-volume circulation of finishing materials.
Do not use for flushing or purging lines with caustics, acids, abrasive line strippers, or
other similar fluids. For professional use only.*



Important Safety Instructions

Read all warnings and instructions in this manual and in your separate pump manual. Save these instructions.

See **Technical Data** for information on Maximum Fluid Working Pressure.



ti27791a

Contents

Related Manuals 2

Models 2

Warnings 3

Repair 5

 Full Lower Disassembly 5

 Preparation for Disassembly 5

 Remove the Outlet Checks 5

 Remove and Disassemble the Throat Cartridge 6

 Disassemble the Fluid Section 6

 Disassemble the Piston Assembly 7

 Remove and Disassemble the Inlet Checks 8

 Full Lower Reassembly 9

 Reassemble the Piston Assembly 10

 Reassemble the Inlet Checks 10

 Reassemble the Fluid Section 11

 Reassemble and Install the Throat Cartridge 12

 Reassemble and Install the Outlet Checks 12

Parts 14

 750cc Carbon Steel and Stainless Steel Models 14

 1000cc, 1500cc, 2000cc Carbon Steel and Stainless Steel Models 16

 Connection Kits 18

Repair Kits 19

Dimensions 20

Technical Data 21

California Proposition 65 21

Graco Standard Warranty 22

Graco Information 22

Related Manuals




3A3381	Viscount® 4-Ball Pumps
3A3382	High-Flo® 4-Ball Pumps
3A3383	President® 4-Ball Pumps
3A3384	E-Flo® DC 4-Ball Pumps
3A3453	E-Flo® DC 2000, 3000, and 4000 Circulation Pumps
311592	E-Flo® 4-Ball Pumps, Installation
3A3385	E-Flo® 4-Ball Pumps, Operation
3A3386	E-Flo® 4-Ball Pumps, Repair/Parts

Models







Model	Size	Material of Construction	Connection Style
17K660	750cc	Carbon Steel	NPT
17K661	1000cc		
17K662	1500cc		
17K663	2000cc		
17K664	750cc	Stainless Steel	Tri-Clamp
17K665	1000cc		
17K666	1500cc		
17K667	2000cc		
17K668	750cc		NPT
17K669	1000cc		
17K670	1500cc		
17K671	2000cc		

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.

 <h1 style="margin: 0;">WARNING</h1>	
	<p>FIRE AND EXPLOSION HAZARD</p> <p>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:</p> <ul style="list-style-type: none"> • 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.
	<p>PRESSURIZED EQUIPMENT HAZARD</p> <p>Fluid from the equipment, leaks, or ruptured components can splash in the eyes or on skin and cause serious injury.</p> <ul style="list-style-type: none"> • Follow the Pressure Relief Procedure when you stop spraying/dispensing and before cleaning, checking, or servicing equipment. • Tighten all fluid connections before operating the equipment. • Check hoses, tubes, and couplings daily. Replace worn or damaged parts immediately.

⚠️ WARNING

 	<p>EQUIPMENT MISUSE HAZARD</p> <p>Misuse can cause death or serious injury.</p> <ul style="list-style-type: none"> • 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 Data in all equipment manuals. • Use fluids and solvents that are compatible with equipment wetted parts. See Technical Data in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request Safety Data Sheet (SDS) from distributor or retailer. • 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.
 	<p>MOVING PARTS HAZARD</p> <p>Moving parts can pinch, cut or amputate fingers and other body parts.</p> <ul style="list-style-type: none"> • 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.
	<p>TOXIC FLUID OR FUMES HAZARD</p> <p>Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled, or swallowed.</p> <ul style="list-style-type: none"> • Read Safety Data Sheet (SDS) 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.
	<p>PERSONAL PROTECTIVE EQUIPMENT</p> <p>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:</p> <ul style="list-style-type: none"> • Protective eyewear, and hearing protection. • Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer.

Repair

Full Lower Disassembly

See **Repair Kits**, page 19, for a complete list of available repair kits.

NOTE: Throat Seal Kits are available with a variety of packing materials. Kit parts are marked with a dagger (†).

NOTE: Piston Seal Kits are available for each lower size. Kits are available with a variety of packing materials. Kit parts are marked with a diamond (◆).

NOTE: Complete Pump Repair Kits also are available for each lower size. Kit parts are marked with an asterisk (*).

Preparation for Disassembly

1. Flush the pump, if possible.



2. Stop the pump at the bottom of its stroke.
3. Relieve the pressure. See your separate pump manual.
4. Remove the lower from the motor as described in your separate pump manual.

Remove the Outlet Checks

NOTE: See FIG. 5, page 9, for an exploded view of the parts.

1. Secure the inlet check manifold (18) in a vise.
2. Loosen but do not remove the wet cup (43) and the throat cartridge (41).
3. Remove the four capscrews (9) and washers (8) from around the outlet check manifold (22).
4. Remove the outlet check manifold (22), balls (23), seats (24) and gaskets (7).

NOTICE

Be careful not to drop or damage the balls (23) or seats (24). A damaged ball or seat cannot seal properly and the pump will leak.

Remove and Disassemble the Throat Cartridge

1. Loosen and remove the wet cup (43).
2. Loosen and remove the throat cartridge (41). Remove the PTFE o-ring (35).
3. Remove the glands (19 and 26) and packings (20, 25). Remove and inspect the stack of belleville springs (42). If necessary, order Kit 17K755 to replace them.

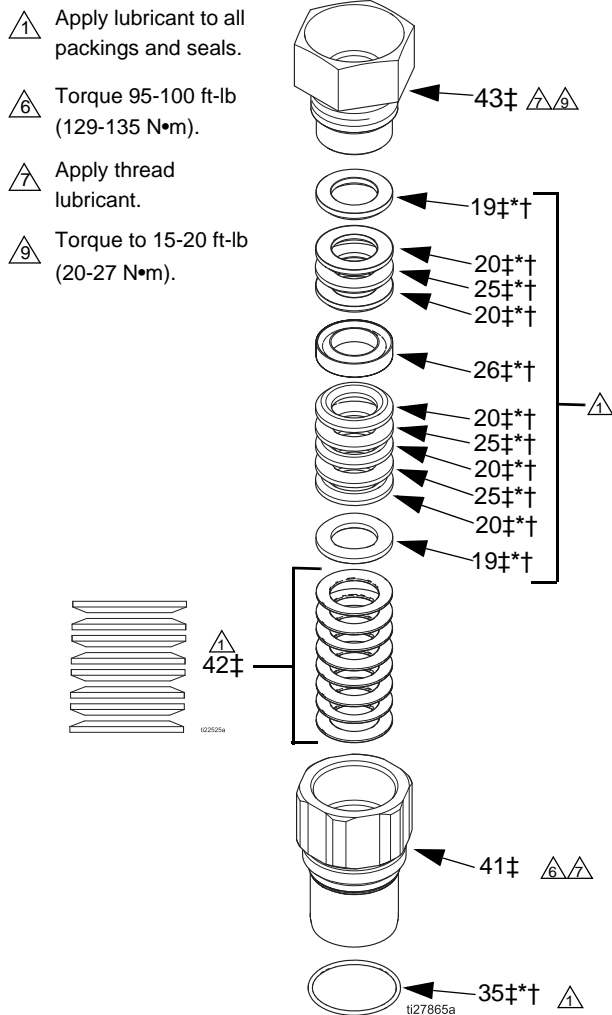


FIG. 1. Throat Packing Detail

Disassemble the Fluid Section

See FIG. 5, page 9, for an exploded view of the parts.

1. Remove the three screws (13) and lock washers (14). Lift off the fluid outlet housing (16).

NOTE: The fluid tubes (3), cylinder (1), and piston assembly may come loose with the fluid outlet housing (16), or may remain in place on the fluid inlet housing (15).

2. Remove the fluid tubes (3) and cylinder (1).
3. Pull the piston assembly out of the cylinder (1). Inspect the surface of the piston rod (17) and the inside surfaces of the cylinder (1) and fluid tubes (3). If any of these parts are scratched or damaged, replace them.
4. Remove two o-rings (2) from the fluid inlet housing (15), where the fluid tubes (3) sit. Remove o-rings (2) from the grooves at each end of the fluid tubes (3).
5. Release the inlet check manifold (18) from the vise.

Disassemble the Piston Assembly

1. Place the flats of the piston nut (12) in a vise.
2. Unscrew the rod (17) from the piston nut (12).
3. Remove the piston (10), seal (11♦*) and spacer (40, not used on 750 cc models).

△1 Apply lubricant to all packings and seals.

△3 Apply high strength (red) Loctite® 263 or 2760 to entire length of threads. Sealant must be allowed to cure for a minimum of 12 hours before use.

△6 Torque 95-100 ft-lb (129-135 N•m).

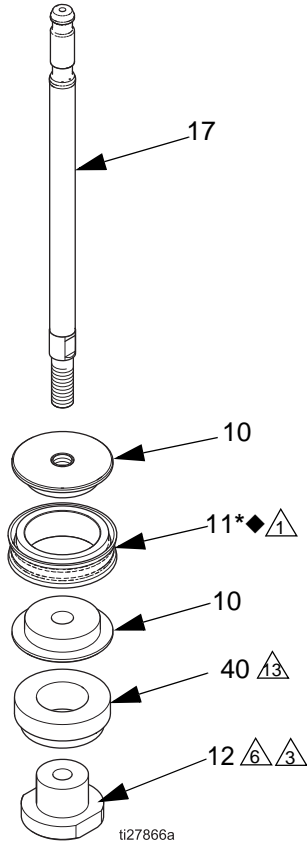


FIG. 2. Disassemble or Assemble the Piston (1000cc, 1500cc, and 2000cc models only)

△1 Apply lubricant to all packings and seals.

△3 Apply high strength (red) Loctite® 263 or 2760 to entire length of threads. Sealant must be allowed to cure for a minimum of 12 hours before use.

△6 Torque 95-100 ft-lb (129-135 N•m).

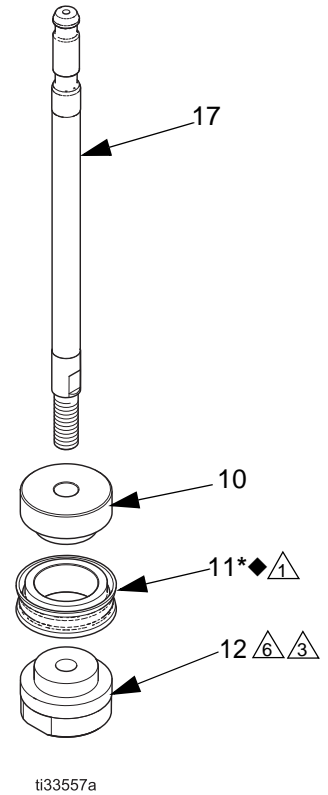


FIG. 3. Disassemble or Assemble the Piston (750cc models only)

Remove and Disassemble the Inlet Checks

See FIG. 5, page 9, for an exploded view of the parts.

1. Remove the four capscrews (9) and washers (8) from the inlet check manifold (18).
2. Remove the balls (5), inlet seats (6 and 33), and gaskets (7).

NOTICE

Be careful not to drop or damage the balls (5) or seats (6 and 33). A damaged ball or seat cannot seal properly and the pump will leak.

3. Inspect the pressure relief valve in the seat (6) to make sure it is not clogged. Press down on the valve's ball to see if the ball and the spring are free to move.

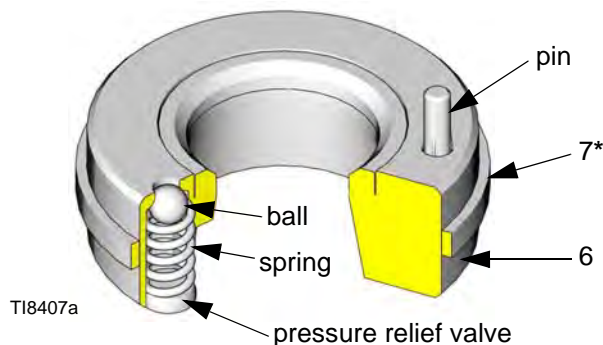


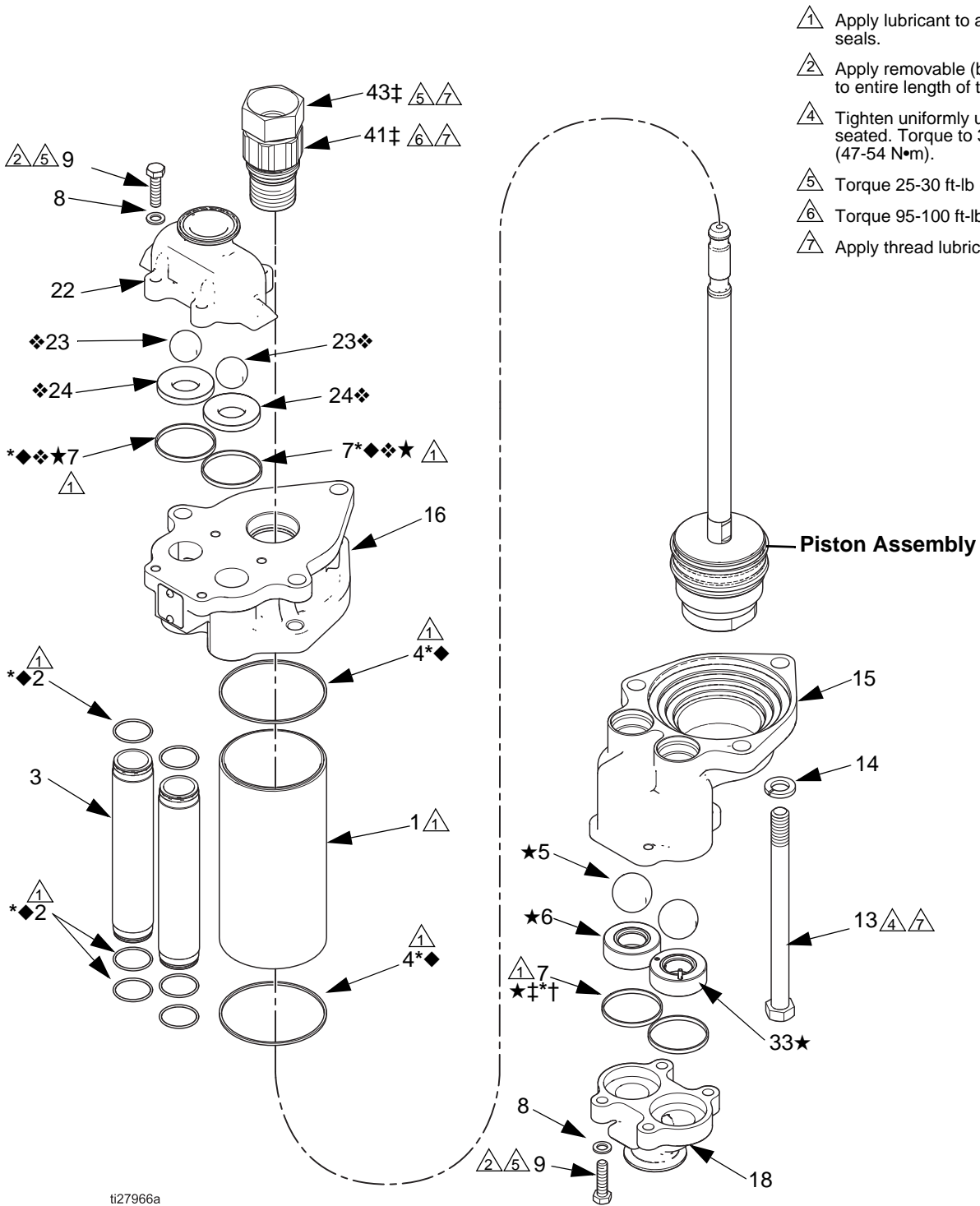
FIG. 4. Inlet Seat with Pressure Relief Valve

NOTICE

If the pressure relief valve in the seat (6) is clogged or filled with material, the pump may overpressurize, causing leakage. To clear, soak the seat in a compatible solvent. Make sure all material residue is cleaned from the ball and seat area. If the relief valve cannot be thoroughly cleaned so that the ball and spring are free to move, replace the seat (6).

4. Clean all parts in a compatible solvent. Inspect all parts for wear or damage. If you are using a repair kit, use all the new parts in the kit, discarding the old ones they replace. Replace any other parts as needed. Worn or damaged parts may cause the pump to perform poorly or cause premature wear of the new seals and packings.

Full Lower Reassembly



ti27966a

FIG. 5. Exploded View of Lower

Reassemble the Piston Assembly

1. 1000cc, 1500cc, and 2000cc models only: Place the halves of the piston (10) around the piston seal (11◆*) and snap them together. See FIG. 2, page 7.





or

750cc models only: Place piston seal (11◆*) onto piston (10). See FIG. 3, page 7.

2. Apply high strength (red) Loctite® 263 or 2760 to the inner diameter threads on the piston nut (12). Screw the rod (17) through the piston (10) and spacer (40; not used on 750cc models) into the piston nut (12).
3. Torque the piston nut (12) to 95-100 ft-lb (129-135 N•m). Sealant must be allowed to cure for a minimum of 12 hours before use.

Reassemble the Inlet Checks

1. With the fluid inlet housing (15) turned upside down, install the inlet check balls (5★). Lubricate and install the gaskets (7*◆❖★).

				
COMPONENT RUPTURE HAZARD				
The inlet check seat that has the relief valve (6★) must be installed at the fluid inlet, as shown in FIG. 5. The relief valve reduces the risk of pump overpressurization. The seat cannot relieve pressure if installed on the other side of the fluid inlet housing (15).				

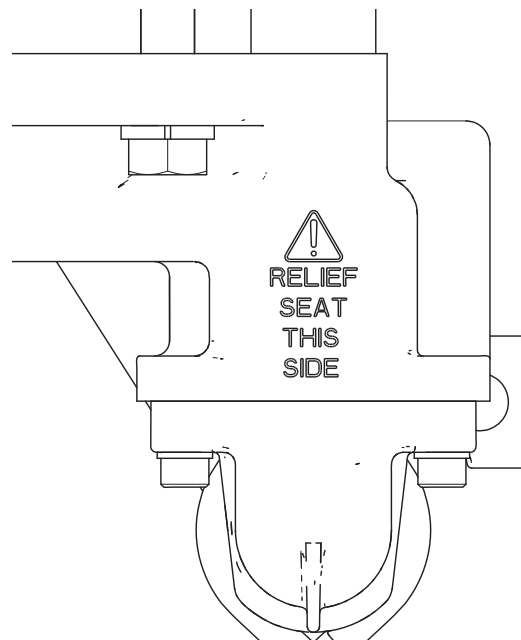


FIG. 6. Placement of Inlet Seat with Relief Valve

2. Use the **text cast into the inlet fluid housing (15)** as a guide to install the relief valve inlet seat (6★). The pin (See FIG. 7) on the seat must point into the inlet fluid housing (15). This pin limits the positioning of the seat (6★), ensuring that the vent hole is not blocked by part of the housing.

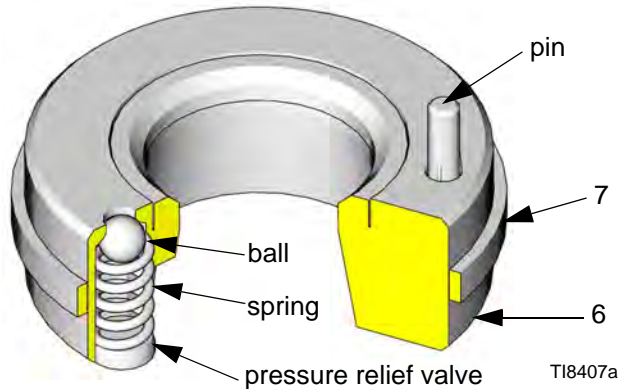


FIG. 7. Inlet Seat with Pressure Relief Valve

3. Install the inlet check seat without a relief valve (33★) in the right side of the lower housing (15).

NOTE: The seats (6★ and 33★) are not reversible. The chamfered side must face the ball.

4. Place the inlet check manifold (18) on the fluid inlet housing (15). Apply removable (blue) Loctite® 243 to entire length of the capscrew (9) threads. Install the lock washers (8) and capscrews (9). Torque to 25–30 ft-lb (34–41 N•m). See FIG. 5.

Reassemble the Fluid Section

1. Place the inlet check manifold (18) in a vise. Place one o-ring (2◆*) in each side of the fluid inlet housing (15), where the fluid tubes (3) sit. Place o-rings (2◆*) in the grooves at each end of the fluid tubes. Place a gasket (4◆*) in both the fluid inlet and fluid outlet housings (15 and 16). Position the fluid tubes (3) and cylinder (1) in the fluid inlet housing (15).

NOTE: It may be necessary to use a rubber mallet to set the fluid tubes (3) in place.

2. Lubricate the inside of the cylinder (1). Slide the piston assembly into the cylinder (1). Rotate the piston assembly as shown.

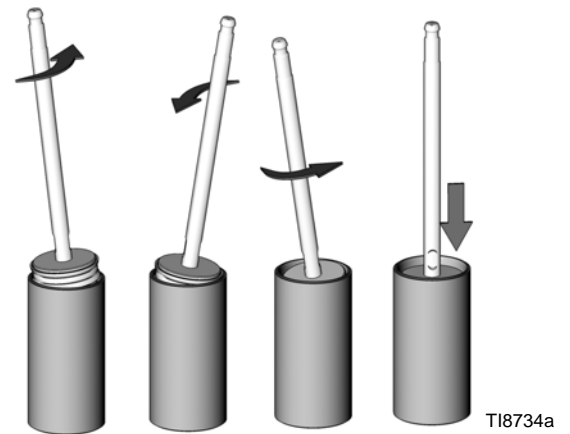


FIG. 8. Install Piston in Cylinder

Reassemble and Install the Throat Cartridge

1. Install the belleville springs (42‡) exactly as shown. They must be installed in this specific orientation.

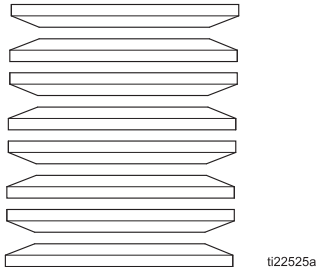


FIG. 9 Assembly of Springs in Throat Cartridge

2. See FIG. 1, page 6. Lubricate the throat packings and glands. Install one male gland (19‡*†), then five v-packings with the *lips facing down*: one ZX (20‡*†), one leather (25‡*†), then ZX, leather, ZX. Install the female gland (26‡*†). Install three v-packings with the *lips facing up*: ZX, leather, ZX. Install the other male gland (19‡*†). Lubricate and install the wet cup (43‡) finger-tight.
3. Lubricate and install the o-ring (35*) onto the throat cartridge (41). Lubricate the threads and install the assembled throat cartridge (41). Torque to 95-100 ft-lb (129-136 N•m).
4. Install the fluid outlet housing (16) over the piston rod (17) and onto the fluid tubes (3) and cylinder (1). It may not seat well at first. Apply thread lubricant and install the bolts (13) and lock washers (14) from the fluid inlet housing (15). Tighten two screws (A, see figure) into the fluid outlet housing (16). They will draw the housings firmly onto the tubes and cylinders. When fully seated, tighten the third screw (B, see figure). Torque all three screws to 35-40 ft-lb (47-54 N•m).

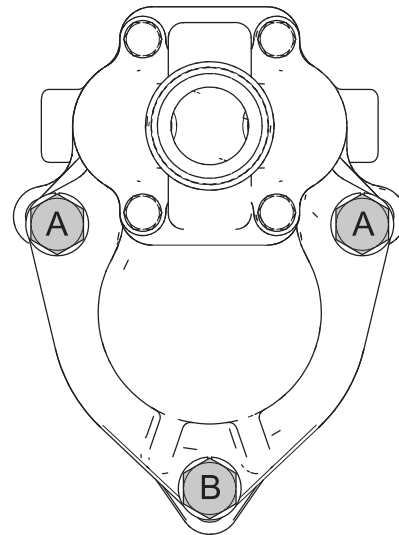


FIG. 10. Tightening Sequence

5. Torque the wet cup (43) to 15-20 ft-lb (20-27 N•m).

Reassemble and Install the Outlet Checks

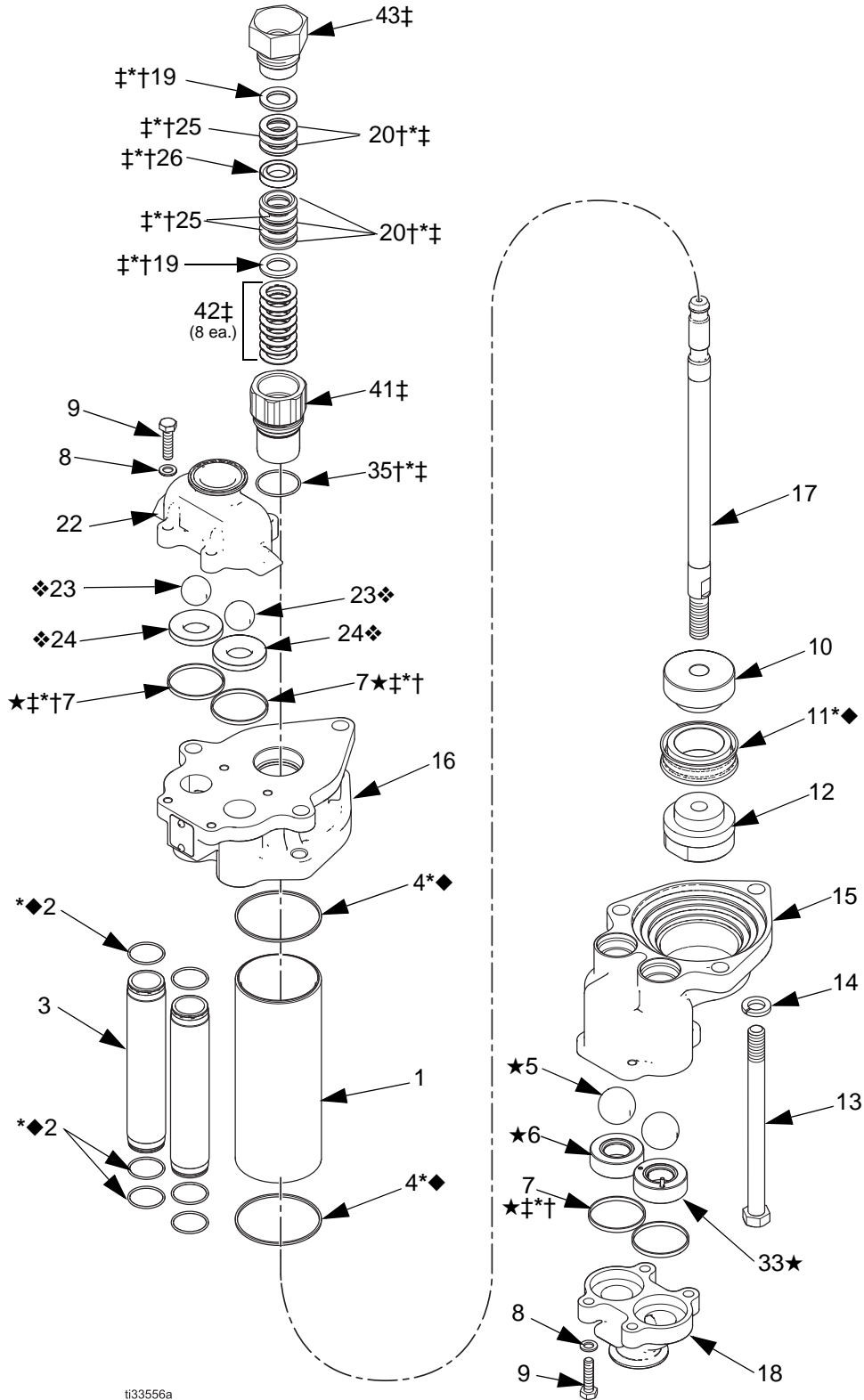
1. Place an outlet check ball (23❖) and seat (24❖) in each side of the outlet check manifold (22). Lubricate and install a gasket (7*◆❖★) in each side. Install the outlet check manifold (22) on the fluid outlet housing (16).

NOTE: The outlet seats (24❖) are not reversible. The chamfered side must face the ball.

2. Apply removable (blue) Loctite® 243 to entire length of the screw threads. Install the lock washers (8) and capscrews (9), and torque to 25-30 ft-lb (34-40 N•m).
3. Reconnect the lower to the motor as explained in a separate pump manual.

Parts

750cc Carbon Steel and Stainless Steel Models



No. 17K660 - 750cc, Carbon Steel
No. 17K664 & 17K668 - 750cc, Stainless Steel

Ref.	Part	Description	Qty
1	183049 685971	CYLINDER Chrome; for 750cc CS pump Ultralife; for 750cc SST pump	1
2*◆	108526	O-RING; PTFE	6
3	183085	TUBE, fluid	2
4*◆	181875	GASKET, cylinder,	2
5★	101968	BALL, inlet check	2
6★	-----	SEAT, inlet check with pressure relief valve	1
7*◆❖ ★	181877	GASKET, seat, check valve	4
8	111003	WASHER, flat	8
9	16K289	SCREW, cap, socket head	8
10	17M899	PISTON	1
11*◆	-----	SEAL, piston	1
12	17N040	NUT, piston	1
13	120466 120199	WASHER, lock, spring Carbon Steel Models Stainless Steel Models	3
14	101333 108525	SCREW, cap, hex head, 9/16-12 x 7.5 in. Carbon Steel Models Stainless Steel Models	3
15	16D848 16E907	HOUSING, fluid inlet Carbon Steel Models Stainless Steel Models	1
16	16D849 16D847	HOUSING, fluid outlet Carbon Steel Models Stainless Steel Models	1
17	17E203 17E220	ROD, piston Chrome; for Carbon Steel Models Ultralife; for Stainless Steel Models	1
18	192260 15H663 192259	MANIFOLD, inlet check Carbon Steel Models Stainless Steel Models, Tri-clamp Stainless Steel Models, npt	1
19‡*†	16D958	GLAND, male	2
20‡*†	17J537	V-PACKING, throat, ZX	5

Ref.	Part	Description	Qty
22	181728 16E906 188104	MANIFOLD, outlet check Carbon Steel Models Stainless Steel Models, Tri-clamp Stainless Steel Models, npt	1
23❖	110259	BALL, outlet check	2
24❖	17G641	SEAT, outlet check	2
25‡*†	120238	V-PACKING, leather	3
26‡*†	192264	GLAND, female	1
33★	239865	SEAT, inlet check, without pressure relief valve	1
35*‡†	107098	O-RING, PTFE	1
36▲	172479	TAG, warning	1
41‡	17G819	CARTRIDGE, throat	1
42‡	17K755	SPRING, belleville, 8-pack	1
43‡	181684	WET CUP	1

▲ Replacement Danger and Warning labels, tags, and cards are available at no cost.

----- Parts not sold separately.

* Parts are included in the Complete Pump Repair Kit. See **Repair Kits**.

‡ Parts are included in the Throat Seal Kit. See **Repair Kits**.

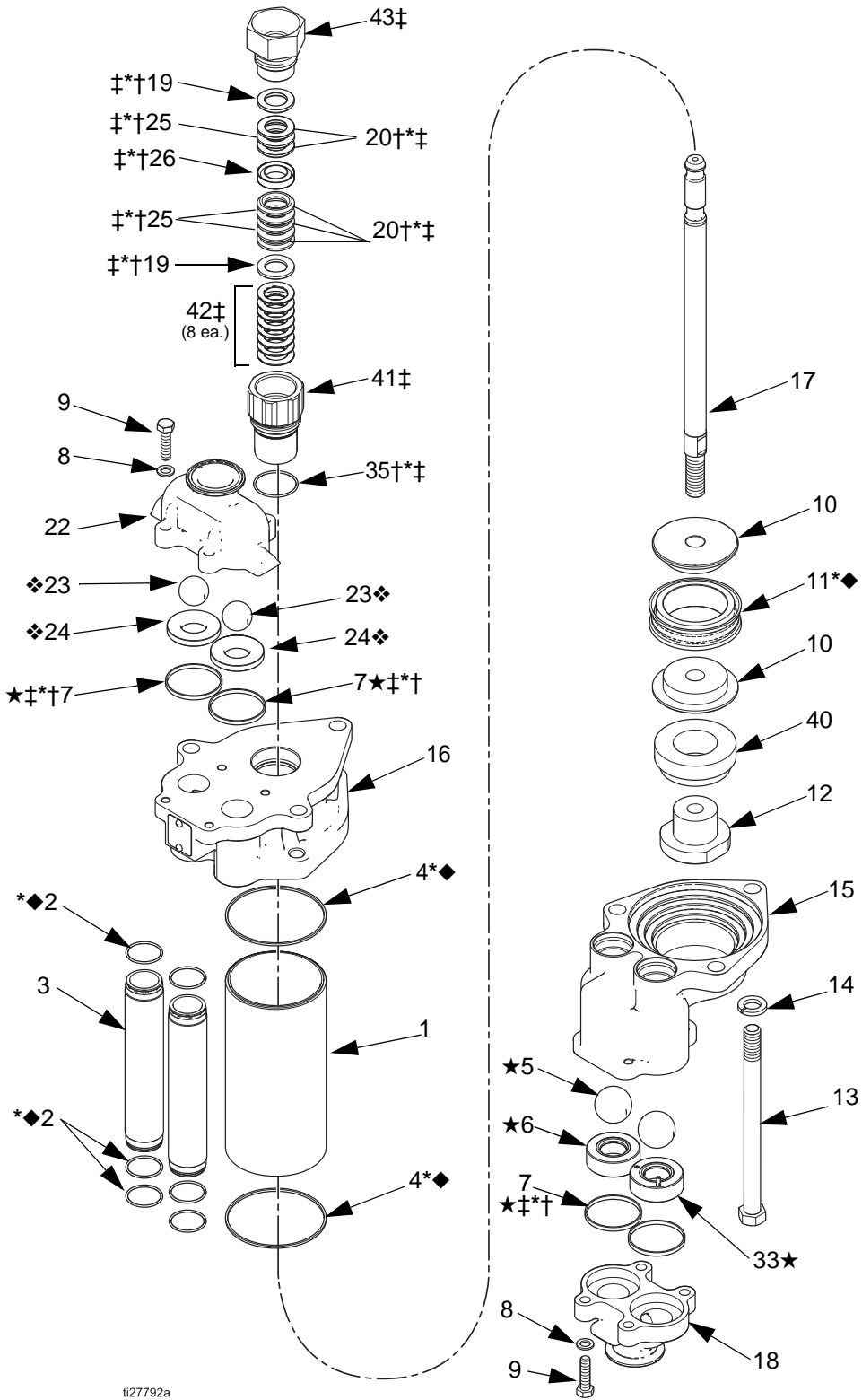
◆ Parts are included in the Piston Seal Kit. See **Repair Kits**.

‡ Parts are included in the Wet Cup Kit 24F144.

❖ Parts are included in Outlet Check Kit 17K757.

★ Parts are included in Inlet Check Kit 17K526.

1000cc, 1500cc, 2000cc Carbon Steel and Stainless Steel Models



No. 17K661 - 1000cc, Carbon Steel
No. 17K662 - 1500cc, Carbon Steel
No. 17K663 - 2000cc, Carbon Steel
No. 17K665 & 17K669 - 1000cc, Stainless Steel
No. 17K666 & 17K670 - 1500cc, Stainless Steel
No. 17K667 & 17K671 - 2000cc, Stainless Steel

Ref.	Part	Description	Qty
1		CYLINDER	1
	183047	Chrome; for 1000cc CS pump	
	183048	Chrome; for 1500cc CS pump	
	15G882	Chrome; for 2000cc CS pump	
	17G628	Ultralife; for 1000cc SST pump	
	17G629	Ultralife; for 1500cc SST pump	
	17G630	Ultralife; for 2000cc SST pump	
2*◆	108526	O-RING; PTFE	6
3	183085	TUBE, fluid	2
4*◆		GASKET, cylinder,	2
	183094	1000cc	
	181876	1500cc	
	15G881	2000cc	
5★	101968	BALL, inlet check	2
6★	-----	SEAT, inlet check with pressure relief valve	1
7*◆❖ ★	181877	GASKET, seat, check valve	4
8	111003	WASHER, flat	8
9	16K289	SCREW, cap, socket head	8
10		PISTON	2
	15G883	1000cc	
	15G884	1500cc	
	15G885	2000cc	
11*◆		SEAL, piston	1
	-----	1000cc	
	-----	1500cc	
	-----	2000cc	
12	15H989	NUT, piston	1
13		SCREW, cap, hex head, 9/16-12 x 7.5 in.	3
	101333	Carbon Steel Models	
	108525	Stainless Steel Models	

Ref.	Part	Description	Qty
14		WASHER, lock, spring	3
	120446	Carbon Steel Models	
	120199	Stainless Steel Models	
15		HOUSING, fluid inlet	1
	16D848	Carbon Steel Models	
	16E907	Stainless Steel Models	
16		HOUSING, fluid outlet	1
	16D849	Carbon Steel Models	
	16D847	Stainless Steel Models	
17		ROD, piston	1
	17E203	Chrome; for Carbon Steel Models	
	17E220	Ultralife; for Stainless Steel Models	
18		MANIFOLD, inlet check	1
	192260	Carbon Steel Models	
	15H663	Stainless Steel Models, Tri-clamp	
	192259	Stainless Steel Models, npt	
19††	16D958	GLAND, male	2
20††	17J537	V-PACKING, throat, ZX	5
22		MANIFOLD, outlet check	1
	181728	Carbon Steel Models	
	16E906	Stainless Steel Models, Tri-clamp	
	188104	Stainless Steel Models, npt	
23❖	110259	BALL, outlet check	2
24❖	17G641	SEAT, outlet check	2
25††	120238	V-PACKING, leather	3
26††	192264	GLAND, female	1
33★	239865	SEAT, inlet check, without pressure relief valve	1
35*††	107098	O-RING, PTFE	1
36▲	172479	TAG, warning	1

Continued on next page.

Ref.	Part	Description	Qty
40	16D850 16D851 16D852	PISTON, spacer 1000cc 1500cc 2000cc	1
41‡	17G819	CARTRIDGE, throat	1
42‡	17K755	SPRING, belleville, 8-pack	1
43‡	181684	WET CUP	1

▲ Replacement Danger and Warning labels, tags, and cards are available at no cost.

----- Parts not sold separately.

* Parts are included in the Complete Pump Repair Kit. See **Repair Kits**.

† Parts are included in the Throat Seal Kit. See **Repair Kits**.

◆ Parts are included in the Piston Seal Kit. See **Repair Kits**.

‡ Parts are included in the Wet Cup Kit 24F144.

❖ Parts are included in Outlet Check Kit 17K757.

★ Parts are included in Inlet Check Kit 17K526.

Connection Kits

The following kits are available to connect an existing motor to the open wet cup lower (this manual), the sealed lower (Manual 333022), or the enclosed wet cup lower (Manual 3A0539).

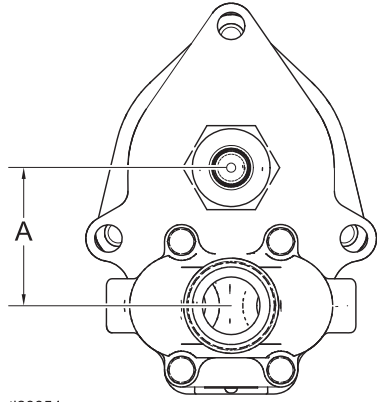
Lower Style	Motor/Pump Style					
	President	Viscount I	Viscount II	E-Flo	Bulldog or Senator	NXT, High-Flo or E-Flo DC
Sealed	17K523	17K519	17K520	17K524	17K517	17K525
Open Wet Cup or Enclosed Wet Cup	24J185 (standard) or 24J186 (stubby)	24F065	24J390	N/A	24F308	288209

Repair Kits

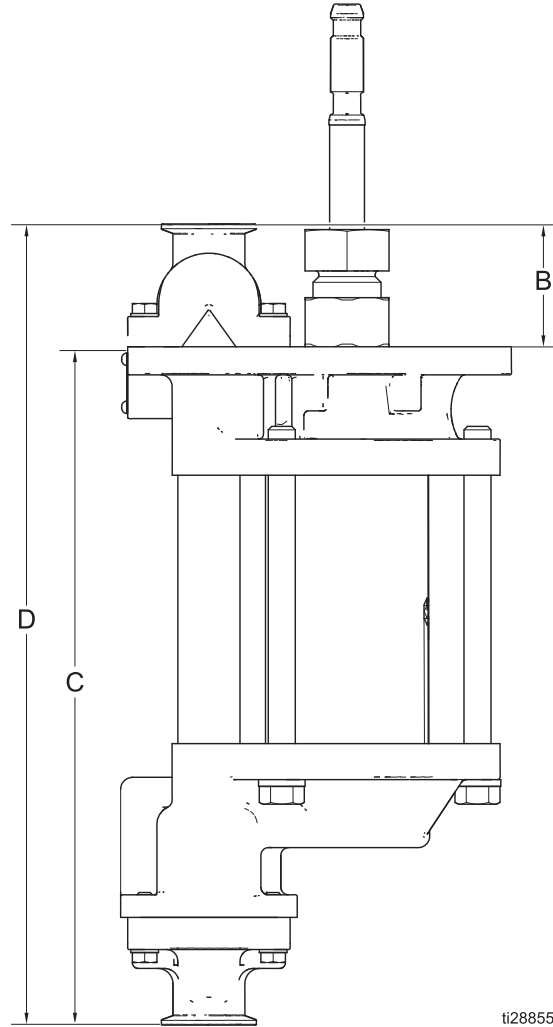
Description	Models 17K660, 17K664, and 17K668	Models 17K661, 17K665, and 17K669	Models 17K662, 17K666, and 17K670	Models 17K663, 17K667, and 17K671
Complete Pump Repair Kit (*) Includes Refs. 2, 4, 7, 11, 19, 20, 25, 26, 35	17K759	17K761	17K763	17K765
Chromex Piston Rod**	16A462			
Throat Seal Kit (†) Includes Refs. 19, 20, 25, 26, 35				
PTFE*	24F243			
Leather	24F244			
UHMWPE and Leather	24F245			
UHMWPE and PTFE*	24F246			
ZX and Leather (Standard)	17K754			
ZX and PTFE	17K916			
Piston Seal Kit (◆) Includes Refs. 2, 4, 7, and 11.				
ZXP Seal (standard)	17K912	17K913	17K914	17K915
UHMWPE Seal	16E904	277360	277362	277358
PTFE Seal**	16E895	277361	277363	277359
Wet Cup Kit (‡) Includes Refs. 19, 20, 25, 26, 35, 41, 42, 43	24F144			
Outlet Check Kit (◇) Includes Refs. 7, 23, and 24				
Carbide Seat (standard)	24F249			
Stainless Steel Seat	17K756			
ZX Seat	17K757			
Inlet Check Kit (★) Includes Refs. 5, 6, 7, and 33.	17K526			

** Use this component only when required for chemical compatibility. Use may result in a reduced cycle life.

Dimensions



ti28854a



ti28855a

Dimension	U.S.	Metric
A	3.0 in	8 cm
B	2.4 in	6 cm
C	14.4 in	37 cm
D	17.4 in	44 cm

Technical Data

4-Ball Pump Wet Cup Lowers (750cc, 1000cc, 1500cc, and 2000cc Sizes)		
	U.S.	Metric
Maximum Fluid Working Pressure		
Models 17K660, 17K664, and 17K668	600 psi	4.1 MPa, 41 bar
Models 17K661, 17K665, and 17K669		
Models 17K662, 17K666, and 17K670	460 psi	3.2 psi, 32 bar
Models 17K663, 17K667, and 17K671		
Displacement per Cycle (4.75 in. [12 cm] stroke)		
Models 17K660, 17K664, and 17K668	750cc	
Models 17K661, 17K665, and 17K669	1000cc	
Models 17K662, 17K666, and 17K670	1500cc	
Models 17K663, 17K667, and 17K671	2000cc	
Maximum Fluid Temperature Rating	150°F	66°C
Fluid Inlet Sizes	1-1/2 in. Sanitary Quick Clamp 1-1/2 in. NPT	
Fluid Outlet Sizes	1-1/2 in. Sanitary Quick Clamp 1 in. NPT	
Wetted Parts	Stainless Steel, PTFE, Leather, Ultra-High Molecular Weight Polyethylene, Tungsten Carbide, Fluoropolymer	

California Proposition 65

CALIFORNIA RESIDENTS

 **WARNING:** Cancer and reproductive harm. – www.P65warnings.ca.gov.

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.

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

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 3A3452

Graco Headquarters: Minneapolis

International Offices: Belgium, China, Japan, Korea

GRACO INC. AND SUBSIDIARIES • P.O. BOX 1441 • MINNEAPOLIS MN 55440-1441 • USA

Copyright 2019, Graco Inc. All Graco manufacturing locations are registered to ISO 9001.

www.graco.com

Revision J, June 2020