

Displacement Pump

3A6584A

EN

For professional use only.

3300 psi (22.7 MPa, 227 bar) Maximum Working Pressure

Model 16Y598, Series A

UltraMax II and Ultimate MX II 695/795 STD

GMAX II 3900 STD

SL 1250, Mustang 11500

ASM H3150, Storch ST900

Model 17H828, Series A

TexSpray Mark IV STD

Model 16Y706, Series A

UltraMax II and Ultimate MX II 1095/1595 STD

GMAX II 5900 STD

Model 17H829, Series A

TexSpray Mark V STD and 5900 HD STD

Model 17H830, Series A

TexSpray Mark VII STD

Model 16X423, Series A

GMAX II 7900 STD

Model 17H831, Series A

TexSpray Mark X STD

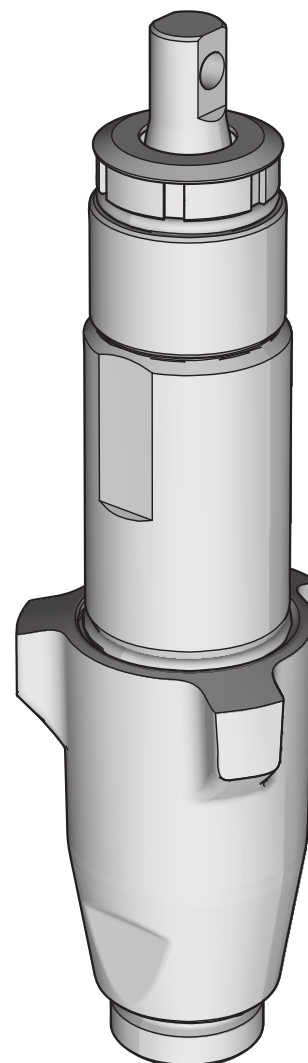
Model 25E689, Series A

TexSpray 7900 HD STD



Important Safety Instructions

Read all warnings and instructions in this manual and all related manuals before servicing. Save all instructions.



ti23116a









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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.

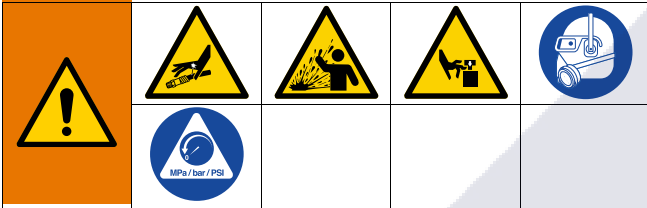
 <h1 style="margin: 0;">WARNING</h1>	
 	<p>EQUIPMENT MISUSE HAZARD Misuse can cause death or serious injury.</p> <ul style="list-style-type: none"> Do not operate the unit when fatigued or under the influence of drugs or alcohol. Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See Technical 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.
 	<p>MOVING PARTS HAZARD 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. Equipment can start without warning. Before checking, moving, or servicing equipment, follow the Pressure Relief Procedure and disconnect all power sources.
  	<p>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.</p> <ul style="list-style-type: none"> 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.

Service

Pressure Relief Procedure



Follow the Pressure Relief Procedure whenever you see this symbol.



This equipment stays pressurized until pressure is manually relieved. To help prevent serious injury from pressurized fluid, such as skin injection, splashing fluid and moving parts, follow the Pressure Relief Procedure when you stop spraying and before cleaning, checking, or servicing the equipment.

1. Engage trigger lock.
2. Turn ON/OFF switch to OFF. Unplug power cord on electric units.
3. Disengage the trigger lock.
4. Hold a metal part of the gun firmly to a grounded metal pail. Trigger the gun to relieve pressure.
5. Engage the trigger lock.
6. Turn prime valve down until ready to spray again.
7. If you suspect the spray tip or hose is clogged or that pressure has not been fully relieved after following the steps above:
 - a. VERY SLOWLY loosen tip guard retaining nut or hose end coupling to relieve pressure gradually.
 - b. Loosen the nut or the coupling completely.
 - c. Clear the obstruction into the hose or tip.

Pump Repair Kits

Pump	Repair Kit
16Y598	17H838
16Y706	17H839
16X423	17H840
17H831	17H848 (Ceramic check balls)
17H828	17H845 (Ceramic check balls)
17H829	17H846 (Ceramic check balls)
17H830	17H847
25E689	17H852 (Ceramic check balls)

Tools Needed

- Vise
- 12 in. adjustable, open-end wrench (2)
- Hammer (20 oz maximum)
- Small screwdriver
- Throat Seal Liquid
- Pick or long small screwdriver

Cleaning and Inspecting Parts

Clean and inspect parts. Pay particular attention to the ball seats in the intake valve and piston, which must have no nicks or wear, and to the inside of the sleeve and the outside of the piston rod, which must not be worn or scratched. Replace worn or damaged parts.

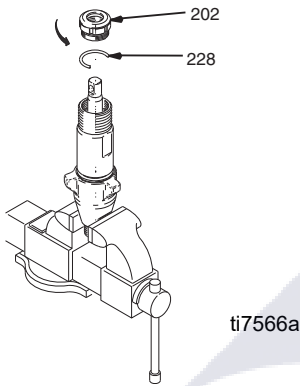
NOTE: Remove and clean sleeve when repacking pump.

NOTICE
To reduce the risk of damaging sealing surfaces, never use sharp or pointed tools to remove sleeve. If the sleeve cannot be removed easily, return the sleeve and cylinder to a Graco distributor for removal.

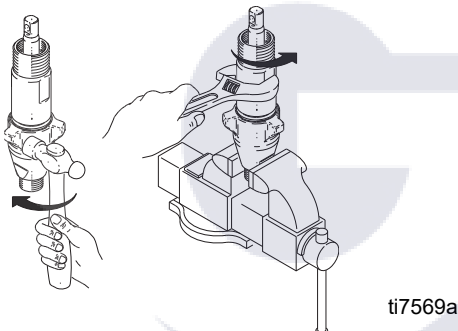
Repair When Pump is Separated From Sprayer

Disassembling the Pump

1. Remove packing nut (202) and o-ring (228).

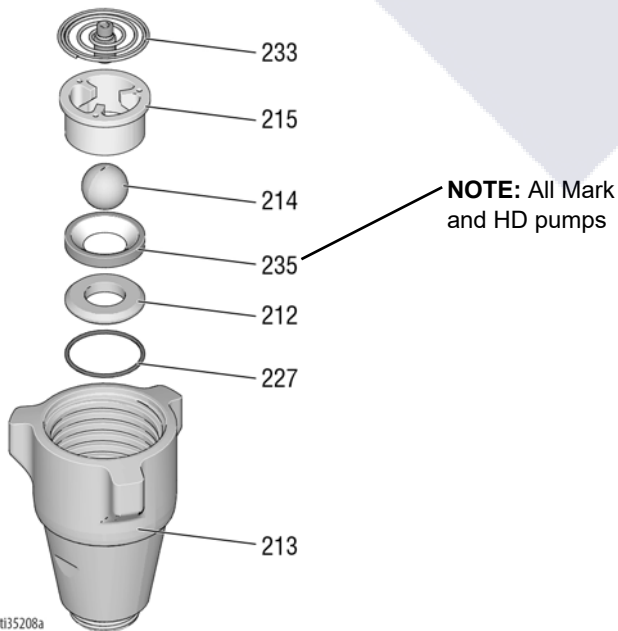


2. Unscrew intake valve from cylinder.



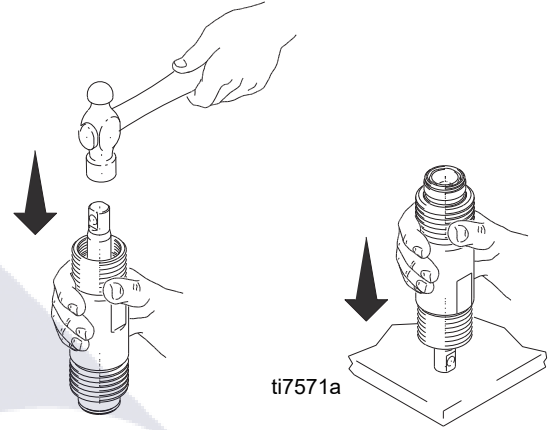
3. Disassemble intake valve. Clean and inspect o-ring (227).

NOTE: A pick may be required to remove o-ring.

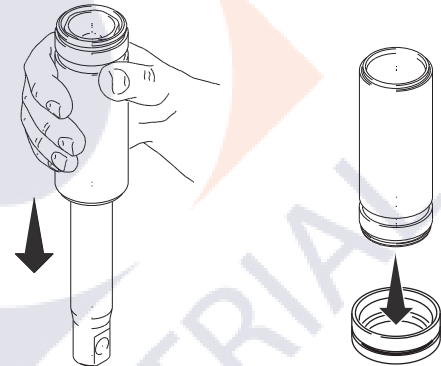


NOTE: Spring (233) only used on 17H830, 16X423, and 17H831

4. Tap piston rod out of cylinder with a hammer or flip over and tap piston rod out against a bench. Sleeve may come out of cylinder with piston rod.



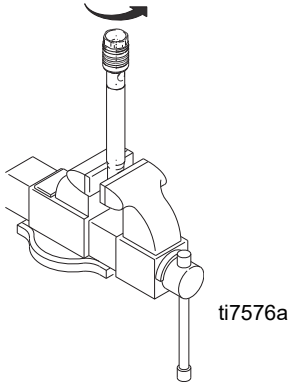
5. Remove piston rod from sleeve, or remove sleeve from cylinder. **Mark IV and Mark VII models:** Remove sleeve spacer (230) from sleeve.



NOTICE

To reduce the risk of damaging sealing surfaces, never use sharp or pointed tools to remove sleeve. If the sleeve cannot be removed easily, return the sleeve and cylinder to a Graco distributor for removal.

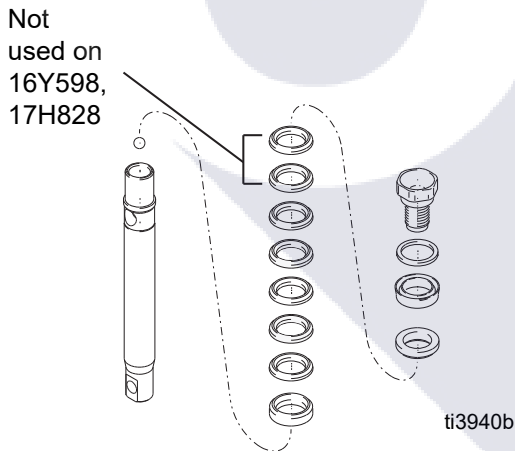
- Unscrew piston valve from piston rod. Clean and inspect parts. The piston has a special thread locking/sealing patch. Do not remove the patch. The patch allows four disassembly/assembly procedures before it is necessary to apply thread sealant to the threads.



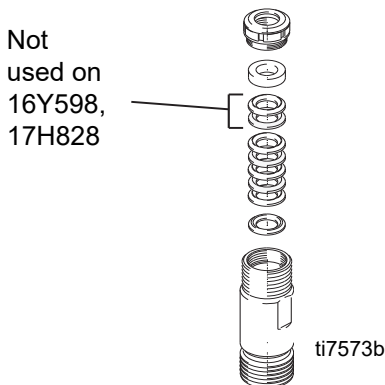
NOTICE

To avoid damage to pump and sprayer, do not clean or wipe the piston threads. Cleaning the piston threads could destroy the special sealing patch and cause the piston to come loose during operation. Use thread sealant if unsure about the effectiveness of the thread patch.

- Remove packings and glands from piston rod.

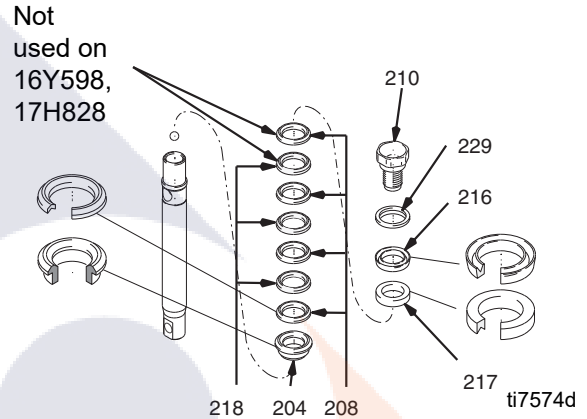


- Remove throat packings and glands from cylinder. Discard throat packings and glands.

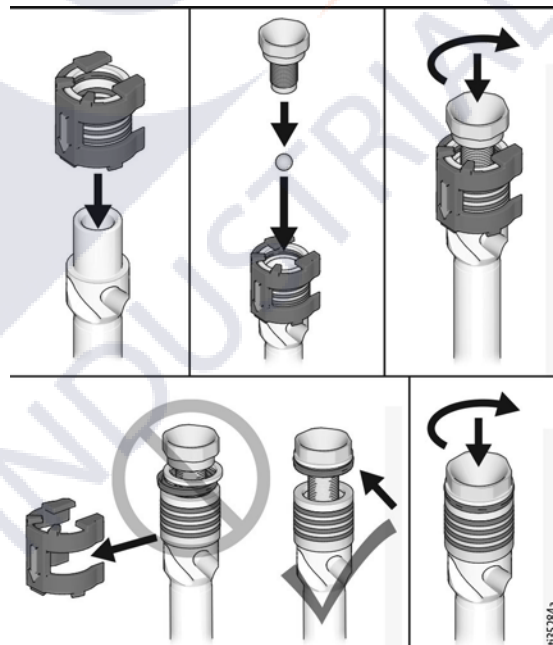


Assembling the Pump

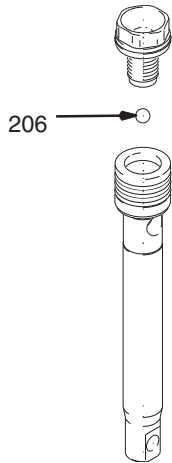
- For all non-QuikPak™ Repair Kits. Soak all leather packings in SAE 30W oil for 1 hour minimum prior to assembly. Stack male gland (204) on piston rod. Alternately stack UHMWPE (208) and leather (218) packings (note orientation) on piston rod. Install female gland (217). Install piston wiper (216) and backup washer (229) on piston valve, threads are good for four repackings. Use thread sealant on piston valve threads after four repackings.



- For all QuikPak Piston Repair Kits (provided pre-soaked in oil). Note directional arrow on clip.

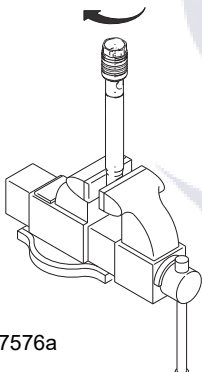


- Install ball (206) in piston rod. If thread sealant is applied to piston valve threads, make sure that none gets on ball.

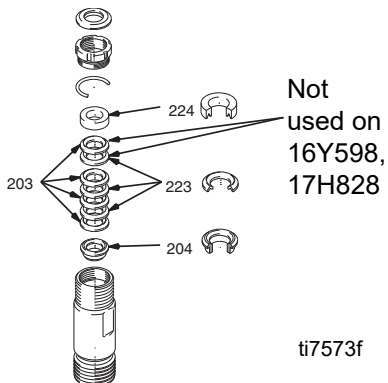


- Tighten piston valve to piston rod as specified:

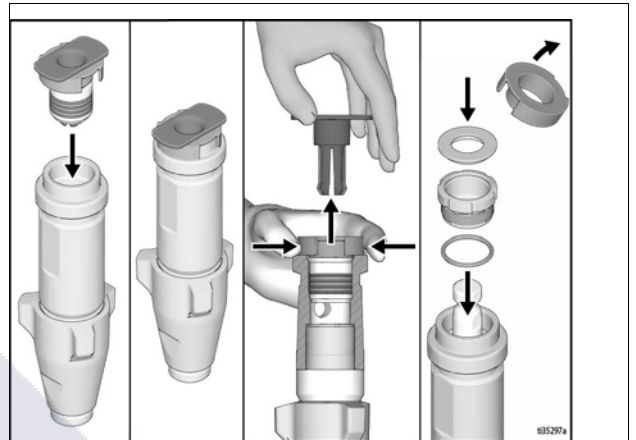
Models	Torque
16Y598, 17H828	27 ± 3 ft-lb. (36.6 ± 4.1 N•m)
16Y706, 17H829, 17H830	55 ± 3 ft-lb. (74.6 ± 4.1 N•m)
16X423, 17H831, 25E689	100 ± 5 ft-lb. (136 ± 7 N•m)



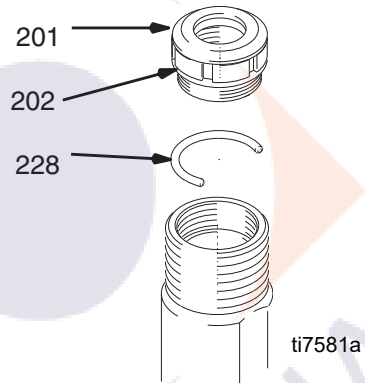
- For all non-QuikPak Repair Kits. Soak all leather packings in SAE 30W oil for one hour minimum prior to assembly. Place male gland (204) in cylinder. Alternately stack UHMWPE (203) and leather packings (223) (note orientation). Place female gland (224) in top of cylinder seat packings.



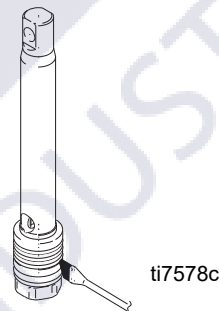
- For all QuikPak Piston Repair Kits (provided pre-soaked in oil).



- Install seal (201) into packing nut (202). Install o-ring (228) onto packing nut. Loosely install packing nut into cylinder.

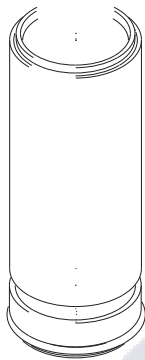


- Grease piston packings.



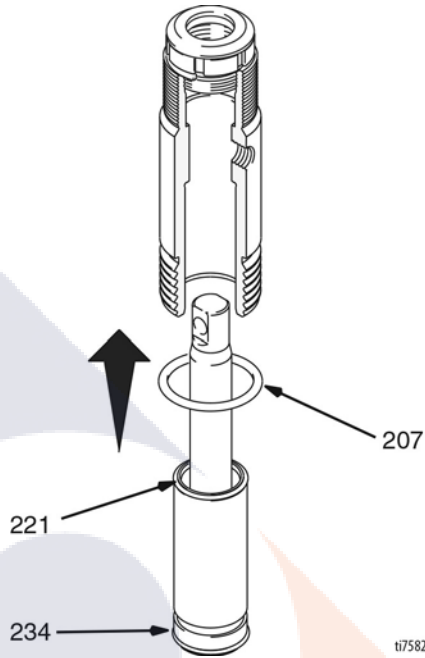
NOTE: Do not slide piston assembly into top of sleeve as this may damage piston packing.

7. Slide piston assembly (with force) into bottom of sleeve.



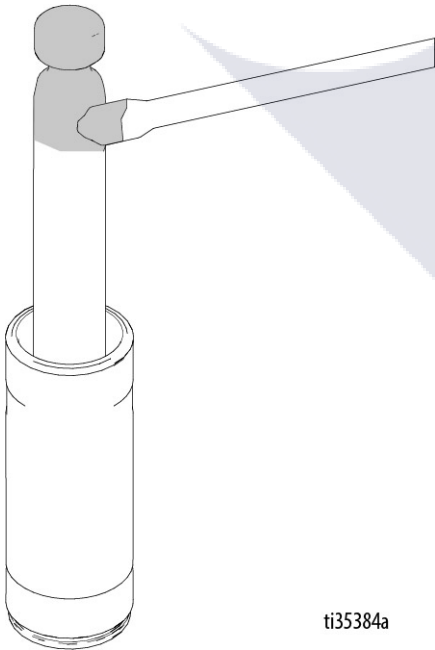
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9. Grease o-rings (221 and 234) and place on sleeve. Slide sleeve/piston rod assembly into bottom of cylinder. Replace o-ring (207) if desired.



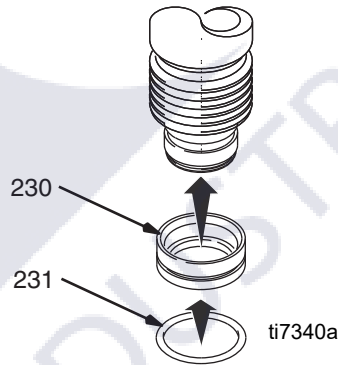
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8. Grease top inch or two of piston rod that will go through the cylinder throat packings.



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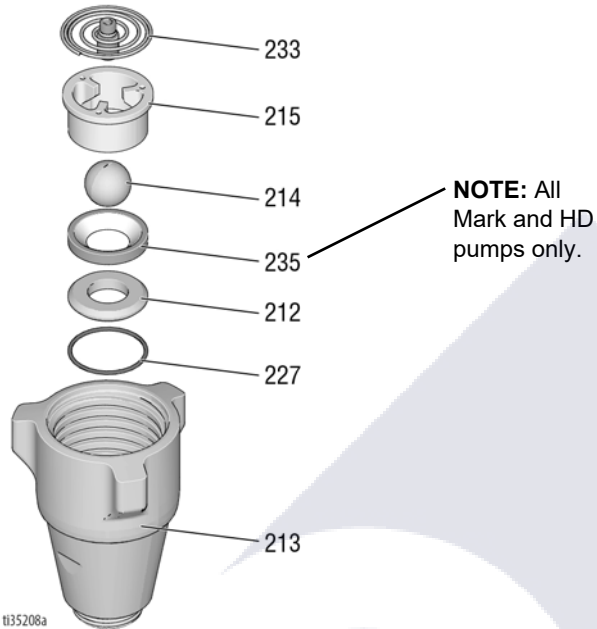
10. **Mark IV and Mark VII models:** Install o-ring (231) on sleeve spacer (232) and install sleeve spacer on sleeve.



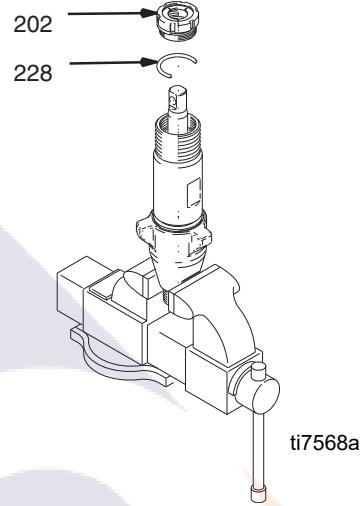
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11. Reassemble intake valve with new o-ring (227), seat (212) and ball (214). Seat may be flipped over and used on other side. Clean seat thoroughly.

NOTE: Spring (233) only used on 17H830, 16X423, and 17H831.

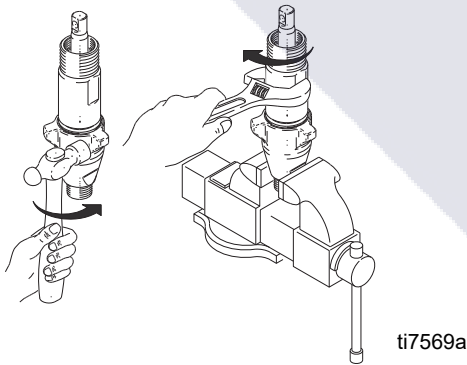


14. Remove o-ring (228) when pump packings begin to leak after extended use. Then tighten packing nut (202) down until leakage stops or lessens. This allows approximately 100 gallons of additional operation before a repacking is required.



12. Install intake valve on cylinder. If a wrench is used torque as follows:

Models	Torque
16Y598, 17H828	67 ± 5 ft-lb (90.8 ± 6.8 N•m)
16Y706, 17H829, 17H830	80 ± 5 ft-lb (108.5 ± 6.8 N•m)
16X423, 17H831, 25E689	200 ± 15 ft-lb (271.2 ± 20.3 N•m)



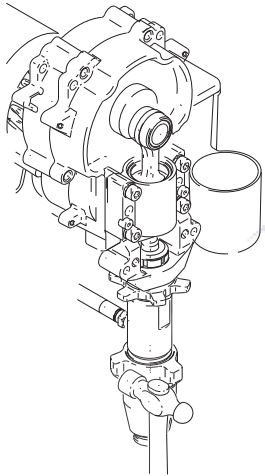
13. Torque packing nut (202) as follows:

Models	Torque
16Y598, 17H828, 16Y706, 17H830, 17H829	100 ± 10 in-lb (11.3 ± 1.1 N•m)
16X423, 17H831, 25E689	140 ± 10 in-lb (15.8 ± 1.1 N•m)

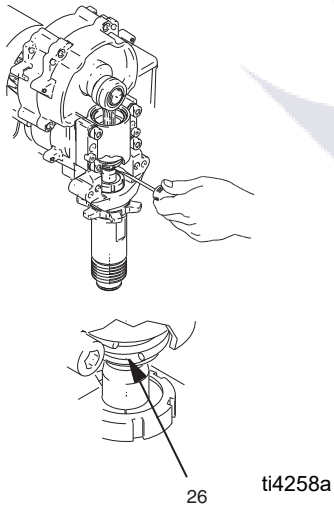
Repair When Pump is On Sprayer



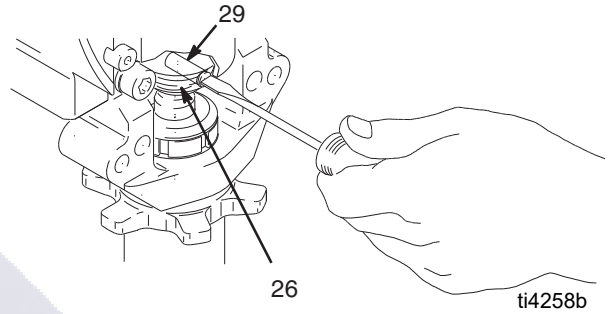
1. See **Pressure Relief Procedure**, page 4.
2. Remove intake valve.



3. Push up retaining spring (26).

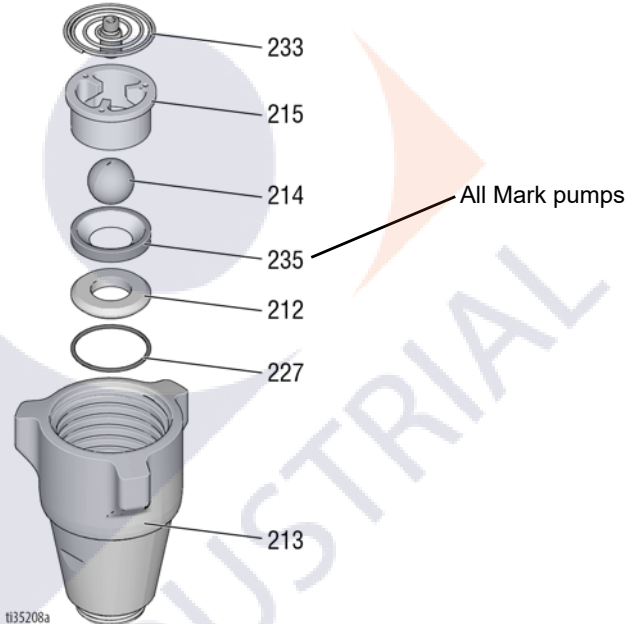


4. Push out pin (29). Ensure spring covers pin after assembly.

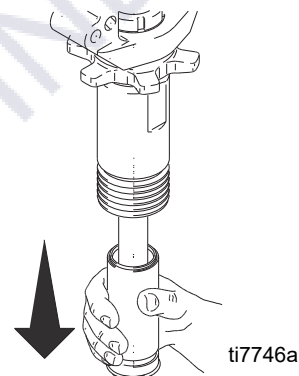


5. Disassemble intake valve. Clean and inspect. O-ring (227) may require a pick for removal.

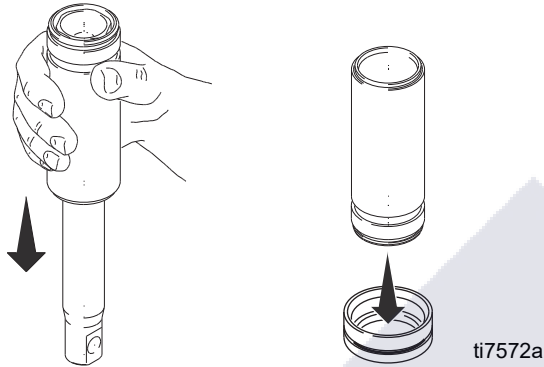
NOTE: Spring (233) only used on 17H830, 16X423, and 17H831.



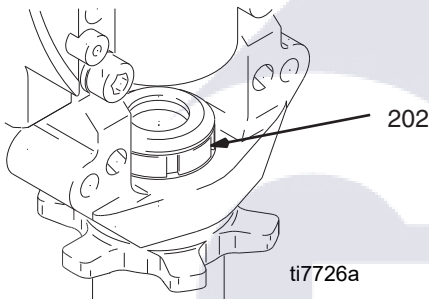
6. Remove piston rod and sleeve.



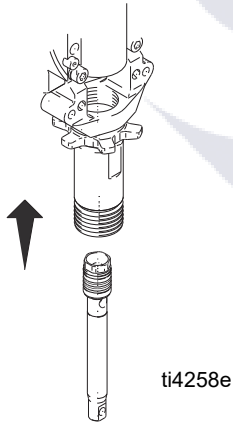
- 7. Invert piston rod and sleeve and pound on hard surface until piston rod comes out of sleeve.
Mark IV and Mark VII models: Remove sleeve spacer from sleeve.



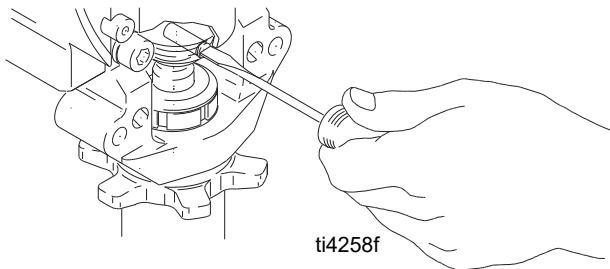
- 8. Remove packing nut (202).



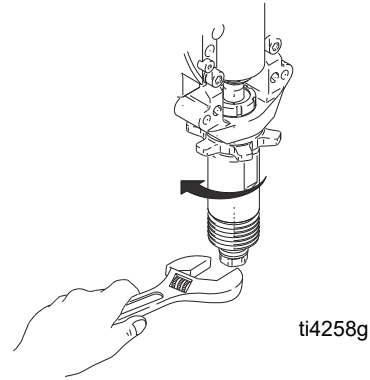
- 9. Invert piston rod and insert into cylinder to force out throat packings.



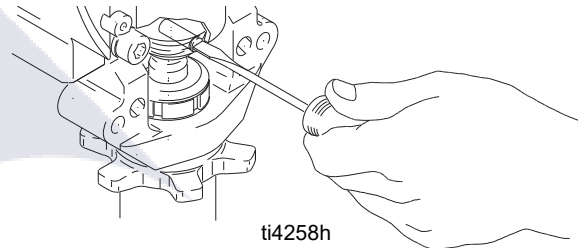
- 10. Insert piston rod into cylinder with pin hole up and piston valve down. Insert pin into piston rod and crank shaft.



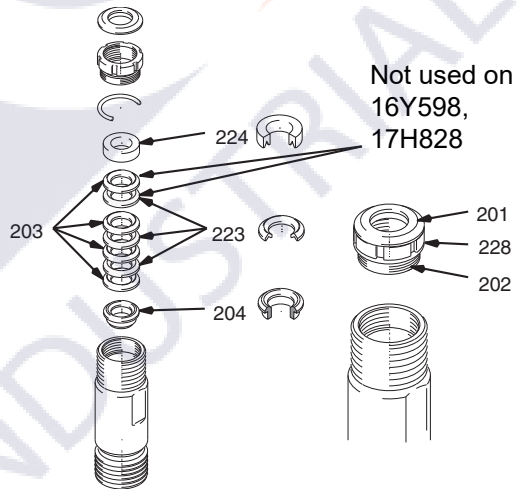
- 11. Remove piston valve from piston rod with a wrench.



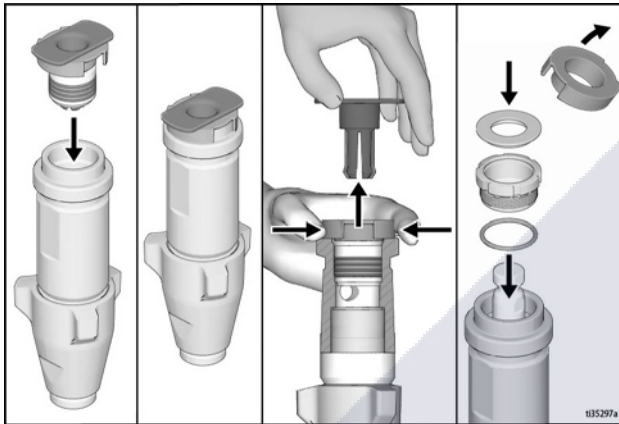
- 12. Remove pin and piston rod from cylinder.



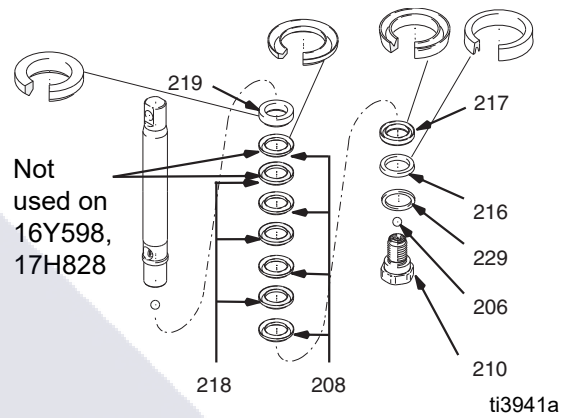
- 13. A) For all non-QuikPak Repair Kits. Soak all leather packings in SAE 30W oil for 1 hour minimum prior to assembly. Stack male gland (204). Alternately stack UHMWPE (203) and leather (223) packings (note orientation). Install female gland (224). Install seal (201) and packing nut (202) and o-ring (228).



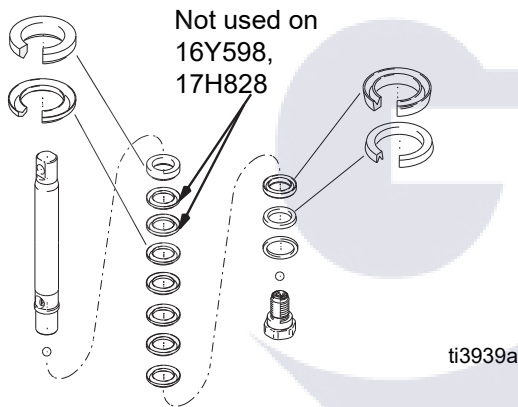
B) For all QuikPak Throat Repair Kits (provided pre-soaked in oil).



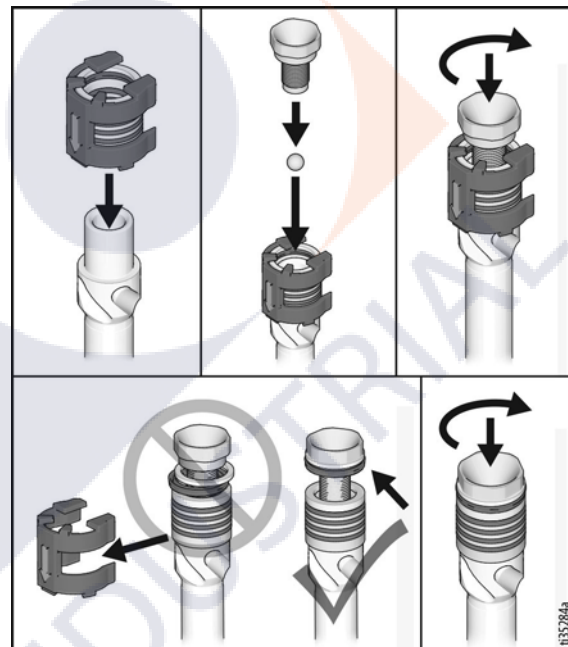
piston valve threads is good for four repackings. Use thread sealant on piston valve threads after four repackings.



14. Remove packings and glands from piston rod.



B) For all QuikPak Piston Repair Kits (provided pre-soaked in oil).

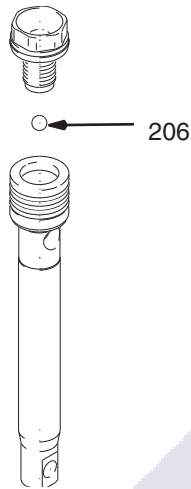


15. A) For all non-QuikPak Repair Kits. Soak all leather packings in SAE 30W oil for one hour minimum prior to assembly. Stack male gland (219) on piston rod. Alternately stack UHMWPE (208) and leather (218) packings (note orientation) on piston rod. Install female gland (217). Install piston wiper (216) and backup washer (229) (note orientation) on piston valve (210). The special sealing patch on

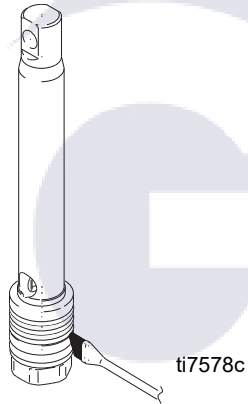
16. Install ball (206) in piston rod.

If thread sealant is applied to piston valve threads, make sure none gets on ball. Install piston valve on piston rod. Torque as follows:

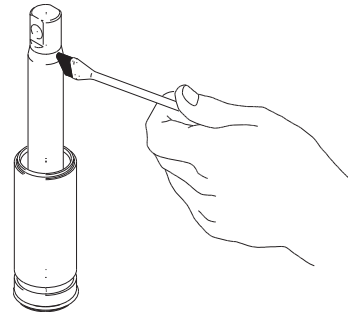
Models	Torque
16Y598, 17H828	27 ± 3 ft-lb (36.6 ± 4.1 N•m)
16Y706, 17H830, 17H829	55 ± 3 ft-lb (74.6 ± 4.1 N•m)
16X423, 17H831, 25E689	100 ± 5 ft-lb (136 ± 7 N•m)



17. Grease piston packings.

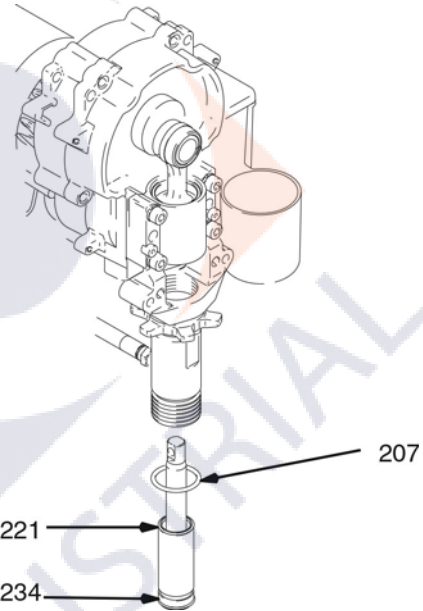


19. Grease top inch or two of piston rod that will go through the cylinder throat packings.



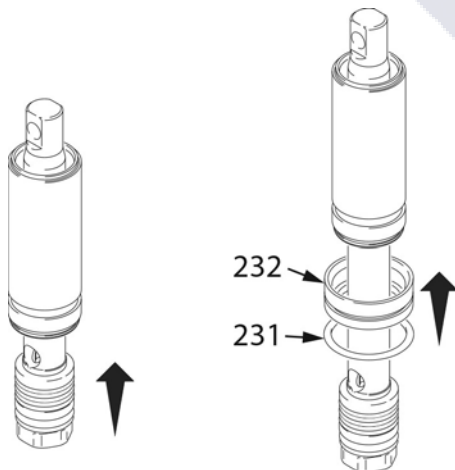
20. Grease o-ring (221 and 234) and place on sleeve. Slide sleeve/piston rod assembly into bottom of cylinder. Replace o-ring (207) if desired.

O-ring (207) is not required for safe pump operation.



NOTE: Do not slide piston assembly into top of sleeve as this may damage piston packing.

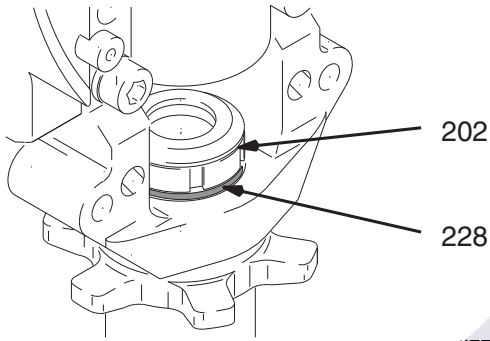
18. Slide piston assembly (with force) into bottom of sleeve. Make sure V-packing and u-cup are not rolled over or damaged. **Mark IV and Mark VII models:** Install o-ring (231) on sleeve spacer (232). Install sleeve spacer on sleeve.



21. Torque seal and packing nut (202) to the following:

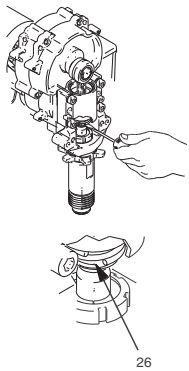
Models	Torque
16Y598, 17H828	100 ± 10 in-lb (11.3 ± 1.1 N•m)
16X423, 17H831, 17H830, 16Y706, 17H829, 25E689	140 ± 10 in-lb (15.8 ± 1.1 N•m)

Remove o-ring when pump packings begin to leak after extended use. Then tighten packing nut down until leakage stops or reduces. This allows approximately 100 gallons of additional operation before a repacking is required.



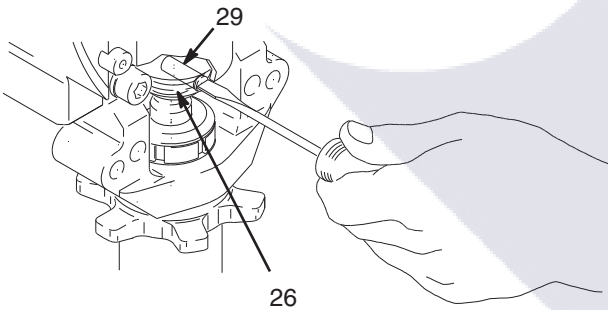
ti7726b

22. Push up retaining spring (26) with screwdriver.



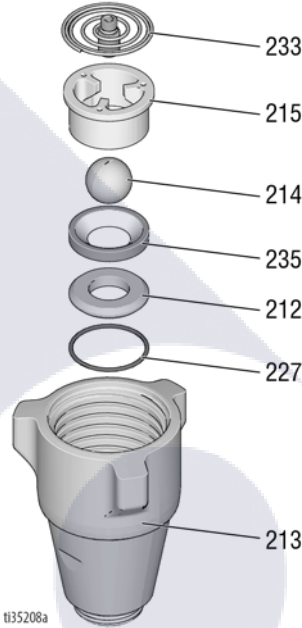
ti4258k

23. Push in pin (29). Ensure spring covers pin after assembly.



24. Reassemble intake valve with new o-rings (227), seat (212), and ball (214). Seat may be flipped over and used on other side. Clean seat thoroughly.

NOTE: Spring (233) only used on 17H830, 16X423, and 17H831.

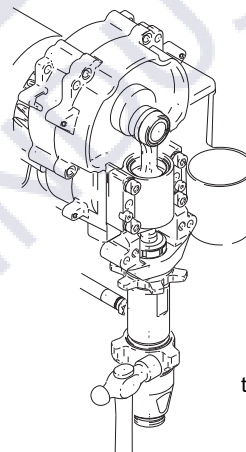


NOTE: All Mark and HD pumps only

ti35208a

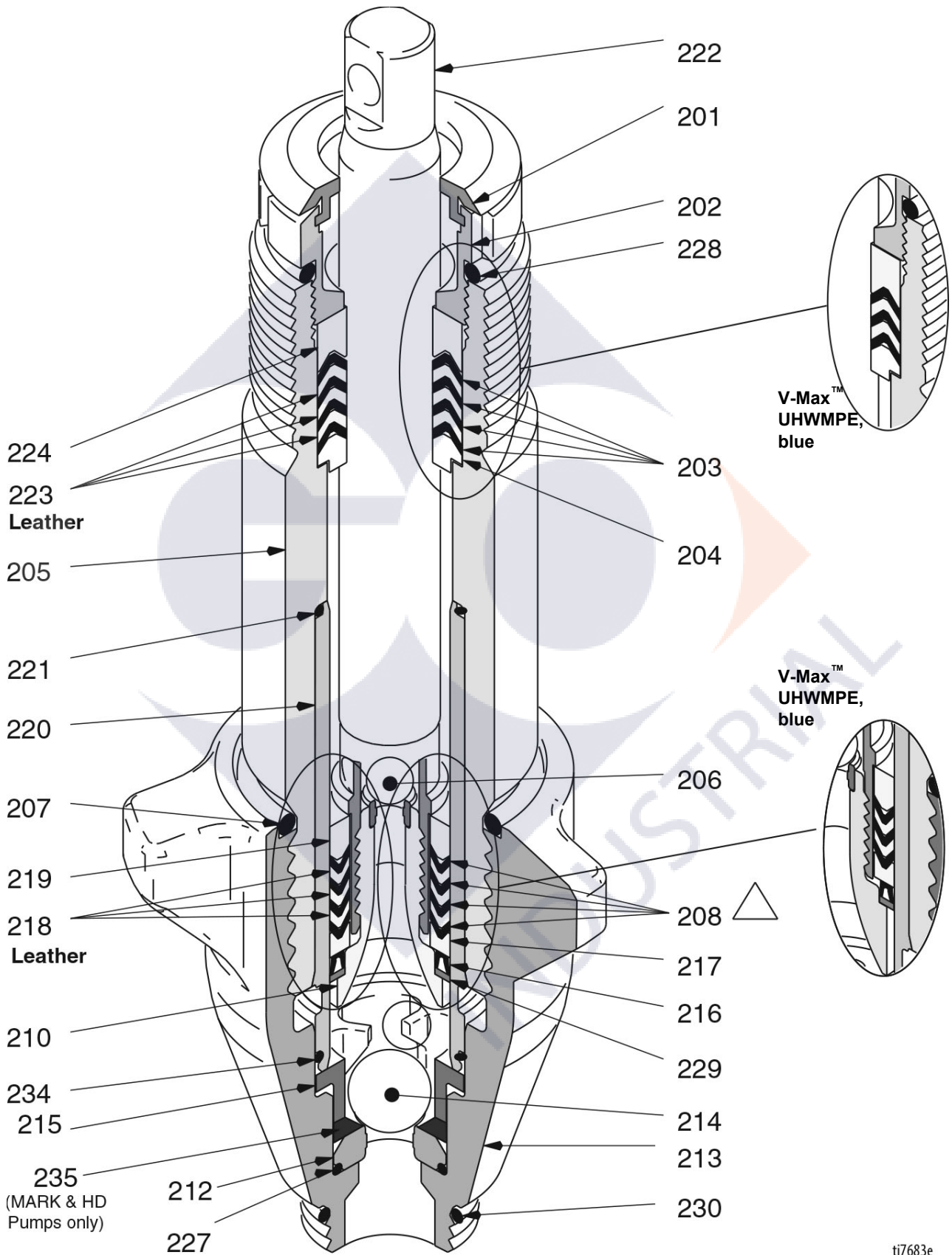
25. Install intake valve on cylinder. Torque as follows:

Models	Torque
16Y598, 17H828	70 ± 5 ft-lb (95 ± 7 N•m)
16Y706, 17H829, 17H830	80 ± 5 ft-lb (108.5 ± 6.8 N•m)
16X423, 17H831, 25E689	200 ± 10 ft-lb (271.2 ± 13.6 N•m)



ti4258n

Pump Packings

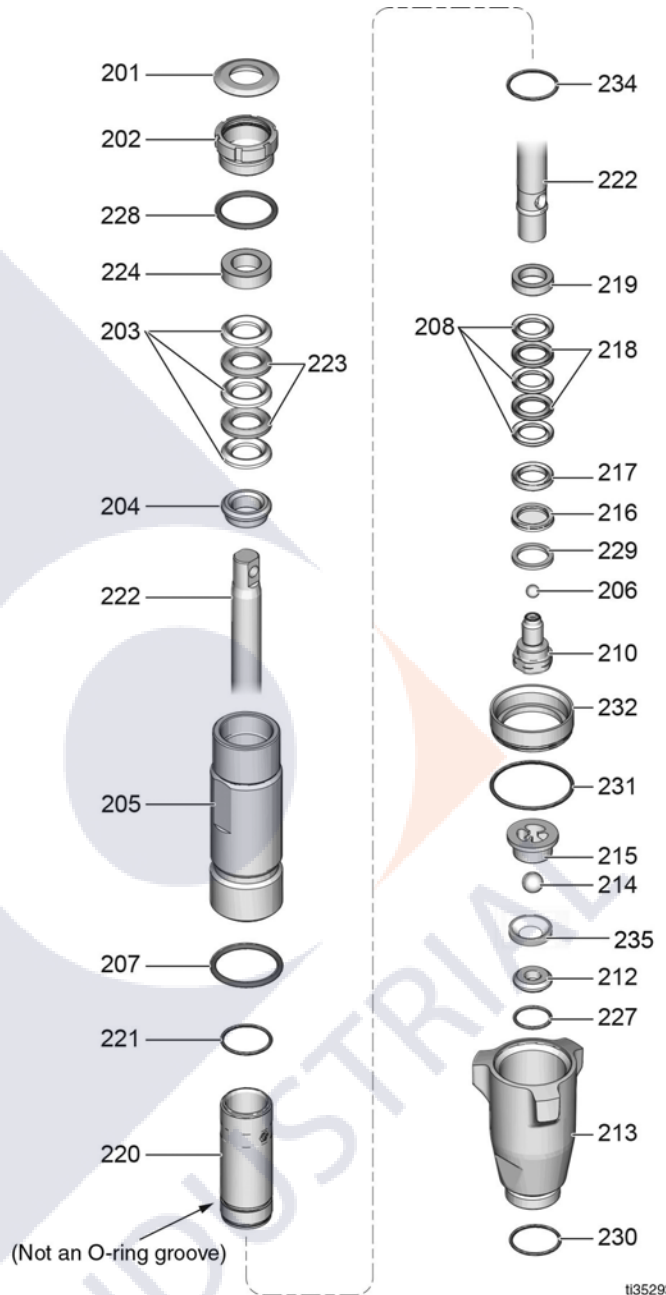


Pump 16Y706

ti7683e

Parts - Pump 16Y598, 17H828

Ref.	Part	Description	Qty.
201*†	179810	SEAL, throat	1
202	193046	NUT, packing	1
203*†	192692	V-PACKING, throat, V-Max, UHMWPE, blue	3
204*†	15C987	GLAND, male, throat,	1
205		CYLINDER, pump	1
	17A030	Model 16Y598	
	287876	Model 17H828	
206		BALL check	1
	105444*	Model 16Y598 (Stainless steel)	
	17R145†	Model 17H828 (Ceramic)	
207*†	156593	PACKING, o-ring	1
208*†	192693	V-PACKING, piston, V-MAX, UHMWPE, blue	3
210	287877	VALVE, piston	1
212		KIT, seat, carbide	1
	239922	Model 16Y598, (includes 214, 215, 227)	
	244571	Model 17H828 (includes 214, 227)	
213		VALVE, intake (foot)	1
	15C785	Model 16Y598	
	287878	Model 17H828	
214		BALL, check, inlet	1
	105445*	Model 16Y598 (Stainless steel)	
	17Y533†	Model 17H828 (Ceramic)	
	102972	Model 17H828 (Stainless steel)	
215		GUIDE, ball	1
	192624	Model 16Y598	
	17Y280	Model 17H828	
216*†	118503	WIPER, piston	1
217*†	178969	GLAND, female, piston	1
218*†	178939	V-PACKING, leather, piston	2
219*†	196880	GLAND, male, piston	1
220	248209	SLEEVE, cylinder	1
221*†	108526	O-RING, ptfe	1
222		ROD, piston	1
	248206	Model 16Y598	
	249969	Model 17H828	
223*†	178940	V-PACKING, leather, throat	2
224*†	15C988	GLAND, female, throat	1
227		O-RING, ptfe	1
	107079*	Model 16Y598	
	108526†	Model 17H828	
228*†	158776	O-RING	1
229*†	15C997	WASHER, backup	1
230*	118494	O-RING, fluoroelastomer (not used on 17H828)	1
231†	17E792	O-RING, FX90 (Model 17H828 only)	1
232†	15G494	SPACER, sleeve (Model 17H828 only)	1
234*†	17V093	O-RING, FX90	1
235	17Y287	SEAL, ball guide, Mark IV and Mark V (Model 17H828 only)	1



113529C

* These parts are also included in Repair Kit 17H838, which may be purchased separately.

† These parts are also included in Repair Kit 17H845, which may be purchased separately.

Parts - Pump 16Y706, 17H829, 17H830

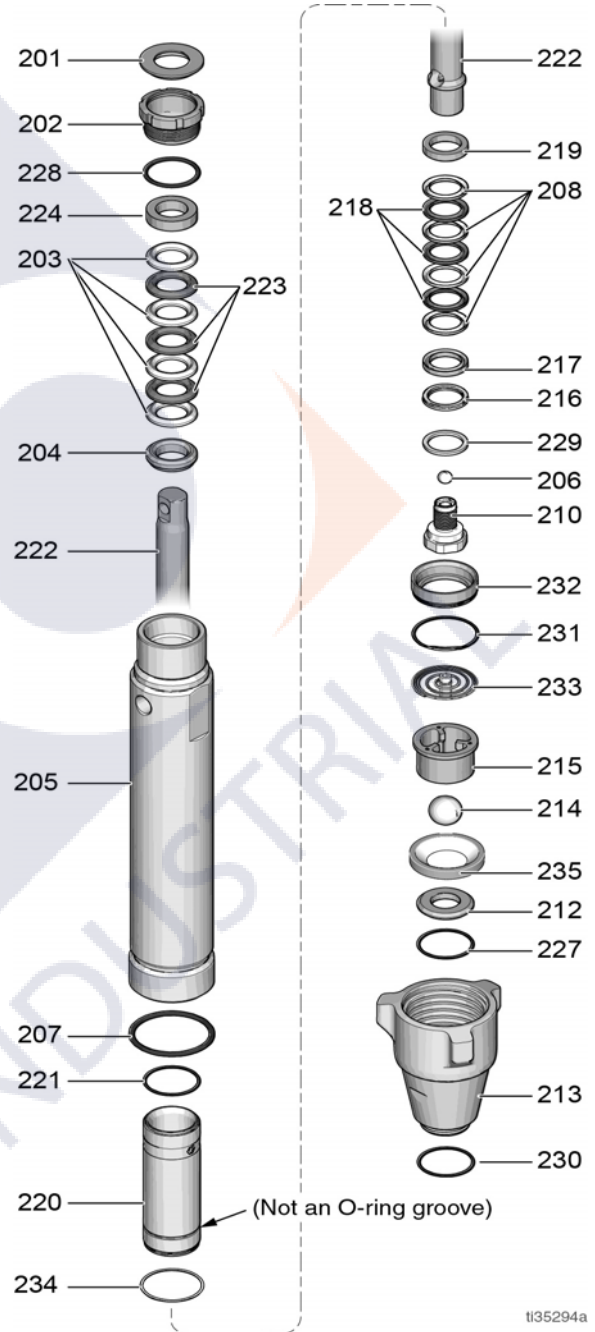
Ref.	Part	Description	Qty.
201*†*	183171	SEAL, throat	1
202	193032	NUT, packing	1
203*†*	193124	V-PACKING, throat, V-Max, UHMWPE, blue	4
204*†*	15C989	GLAND, male, throat	1
205		CYLINDER, pump	1
	243347	Model 16Y706	
	196754	Model 17H829	
	17A032	Model 17H830	
206		BALL, check	1
	101947*	Model 16Y706 (Stainless steel)	
	124249†*	Model 17H829, 17H830 (Ceramic)	
207		PACKING, o-ring	1
	156633*†	Model 16Y706, 17H829	
	160325*	Model 17H830	
208*†*	193125	V-PACKING, piston, V-MAX, UHMWPE, blue	4
210	24U993	VALVE, piston	1
212		KIT, seat, carbide	1
	244199	Model 16Y706 (includes 214, 227)	
	244571	Model 17H829 (includes 214, 227)	
	24N013	Model 17H830 (includes 214, 227, 233)	
213		VALVE, intake (foot)	1
	15E654	Model 16Y706	
	196753	Model 17H829	
	15A303	Model 17H830	
214		BALL, check, inlet	1
	102972*	Model 16Y706 (Stainless steel)	
	17Y533†	Model 17H829 (Ceramic)	
	17R046*	Model 17H830 (Ceramic)	
215		GUIDE, ball	1
	193027	Model 16Y706	
	17Y280	Model 17H829	
	17Y281	Model 17H830	
216*†*	118504	WIPER, piston, Model 16X429, 16Y601	1
217*†*	183185	GLAND, female, piston	1
218*†*	15E329	V-PACKING, leather, piston	3
219*†*	183178	GLAND, male, piston	1
220	248210	SLEEVE, cylinder	1
221*†*	107098	O-RING, ptfe	1
222		ROD, piston	1
	248207	Model 16Y706	
	249028	Model 17H829	
	241285	Model 17H830	
223*†*	183175	V-PACKING, leather, throat	3
224*†*	15C990	GLAND, female, throat	1
227		O-RING, ptfe	1
	108526*†	Model 16Y706, 17H829	
	107098*	Model 17H830	
228*†*	C20987	O-RING	1
229*†*	15C998	WASHER, backup	1
230*	118494	O-RING, fluoroelastomer (not used on 17H829, 17H830)	1
231*	17E793	O-RING, FX90 (Model 17H830 only)	1
232	16M291	SPACER, sleeve (Model 17H830 only)	1
233	24E027	SPRING, intake, ball (Model 17H830 only)	1
234*†*	17E792	O-RING, FX90	1
235		SEAL, ball guide (not used on 16Y706)	

Ref.	Part	Description	Qty.
	17Y287	Model 17H829	1
	17Y288	Model 17H830	1

* These parts are also included in Repair Kit 17H839, which may be purchased separately.

† These parts are also included in Repair Kit 17H846, which may be purchased separately.

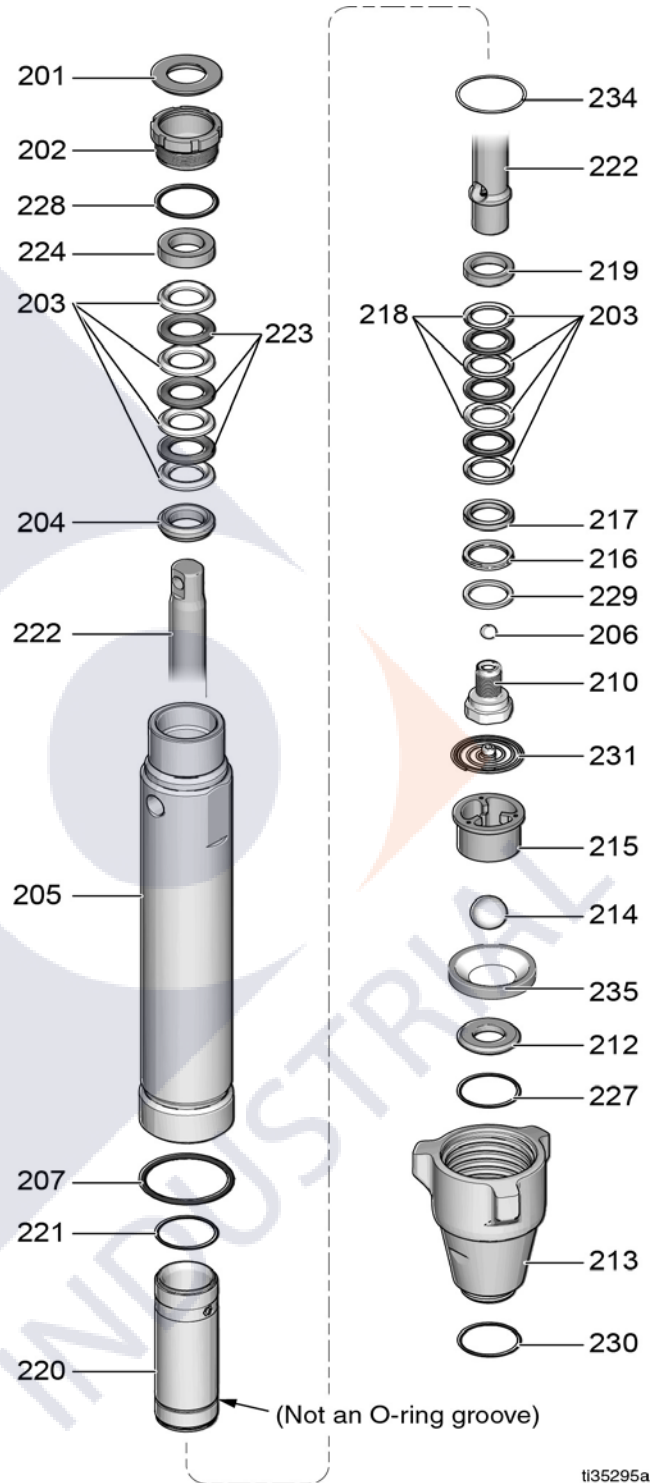
* These parts are also included in Repair Kit 17H847, which may be purchased separately.



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Parts - Pump 16X423, 17H831, 25E689

Ref.	Part	Description	Qty.
201*†	112590	SEAL, throat	1
202	15E962	NUT, packing	1
203*†	193722	V-PACKING, throat, V-Max, UHMWPE, blue	8
204*†	15G658	GLAND, male, throat	1
205	16X454	CYLINDER, pump	1
	16X458	Model 16X423	
	17Z421	Model 17H831	
	17Z421	Model 25E689	
206	107203*	BALL, check	1
	17R047†	Model 16X423(Stainless steel)	
	17R047†	Model 17H831, 25E689 (Ceramic)	
207*†	160325	PACKING, o-ring	1
210	249177	VALVE, piston	1
212	240918	KIT, seat, carbide	1
	24N013	Model 16X423 (includes 214, 227)	
	24N013	Model 17H831, 25E689 (includes 214, 227, 231)	
213	15E655	VALVE, intake (foot)	1
	15A303	Model 16X423	
	15A303	Model 17H831, 25E689	
214	107167*	BALL, check, inlet	1
	17R046†	Model 16X423 (Stainless steel)	
	17R046†	Model 17H831, 25E689 (Ceramic)	
215	198505	GUIDE, ball	1
	193391	Model 16X423	
	193391	Model 17H831, 25E689	
216*†	119636	WIPER, piston	1
217*†	189588	GLAND, female, piston	1
218	15E639*	V-PACKING, leather, piston	3
	112591†	Model 16X423, 25E689	
	112591†	Model 17H831	
219*†	189585	GLAND, male, piston	1
220	249121	SLEEVE, cylinder	1
	248979	Model 16X423, 25E689	
	248979	Model 17H831	
221*†	108822	O-RING, ptfe	1
222	249119	ROD, piston	1
	288103	Model 16X423	
	17Z315	Model 17H831	
	17Z315	Model 25E689	
223*†	112591	V-PACKING, leather, throat	3
224*†	15G657	GLAND, female, throat	1
227*†	107098	O-RING, ptfe	1
228*†	156593	O-RING	1
229*†	15J800	WASHER, backup	1
230*	118494	O-RING, fluoroelastomer (Model 16X423 only)	1
231	249770	SPRING, intake, ball	1
	24E027	Model 16X423	
	24E027	Model 17H831, 25E689	
234*†	17E793	O-RING, FX90	1
235	17Y288	SEAL, ball guide, Mark VII, Mark X	1



* These parts are also included in Repair Kit 17H840 (SST balls), which may be purchased separately.

† These parts are also included in Repair Kit 17H848 (ceramic balls), which may be purchased separately.

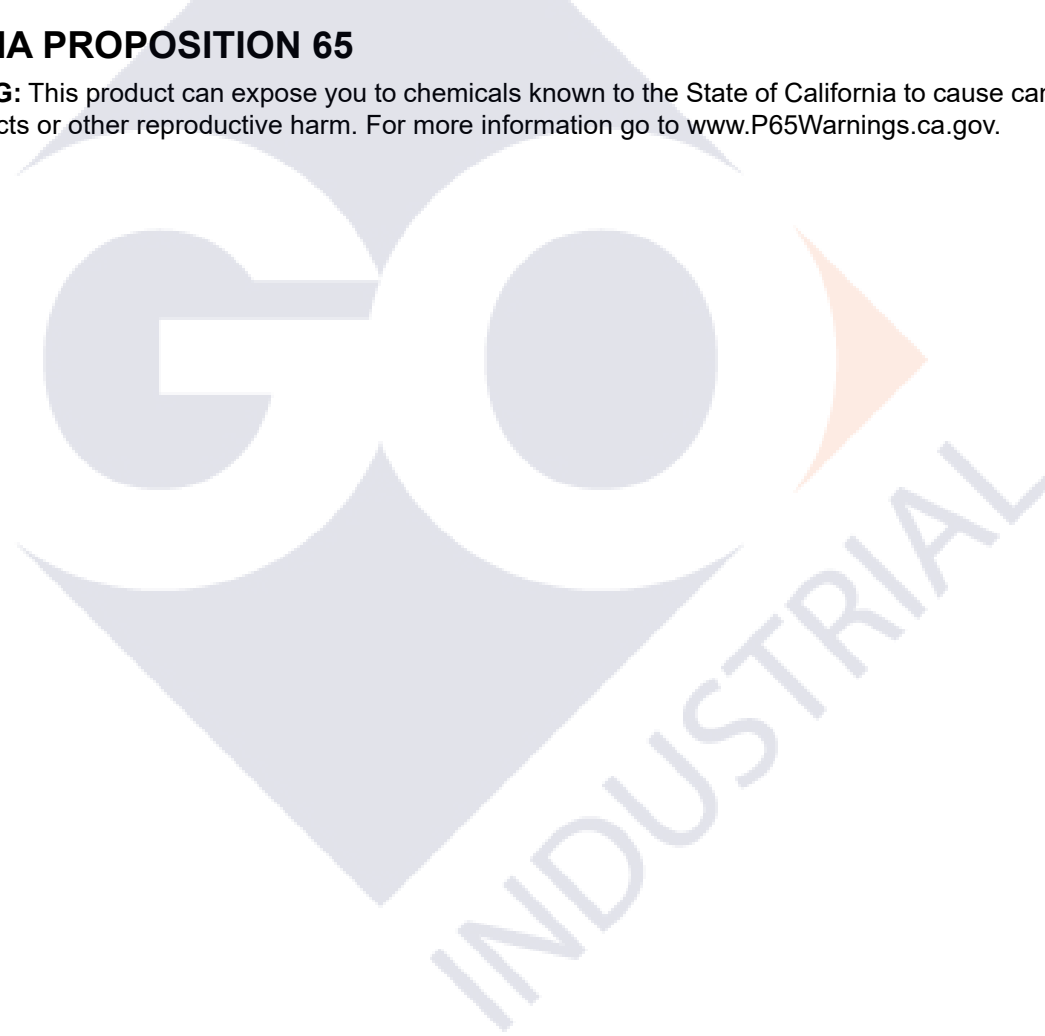
Technical Data

	U.S.	Metric
Maximum Working Pressure	3300 psi	227 bar, 22.7 MPa
Fluid Inlet Size	1-5/16-12 un(m)	1-5/16-12 un(m)
Fluid Outlet Size		
16Y598, 17H828, 16Y706, 17H829, 17H830	3/8 npt(f)	3/8 npt(f)
17H831	1/2 npt(f)	1/2 npt(f)
Wetted Parts	stainless steel, PTFE, leather, nylon, nickel and zinc-plated carbon steel, tungsten carbide, chrome plating, fluoroelastomer, acetal, polyethylene	

CALIFORNIA PROPOSITION 65



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