

INSTRUCTIONS-PARTS LIST

This manual contains **IMPORTANT
INSTRUCTIONS and WARNINGS.**
READ AND RETAIN FOR REFERENCE.



308-250

Rev A

230 VAC, 50 Hz, 10 AMP

ULTRA® 1500 MARK V TEXTURE SPRAYER

210 bar (3000 psi) MAXIMUM WORKING PRESSURE

Model 231-206

This sprayer is based on an Ultra 1500 with a different displacement pump and different hardware between the pump and pressure control. This manual contains only the displacement pump parts and repair information, and the sprayer's parts list and drawing. Use this information in place of pages 12, 13, 18, 19, and 20 in manual 308-102 (supplied). Refer to manual 308-102 for all other Warnings and Instructions.

— WARNING —

Read and follow all warnings and instructions in manual 308-102, supplied, before using this sprayer, to reduce the risk of serious bodily injury due to improper use.

DISPLACEMENT PUMP REPAIR

WARNING

Before doing this procedure, follow the **Pressure Relief Procedure Warning** on page 2 of manual 308–102 to reduce the risk of a fluid injection injury or other serious injury.

NOTE: Packing Repair Kit 223–411 is available. For the best results, use all the new parts in the kit, even if the old ones still look good.

Removing the Pump *See Fig 1.*

1. Flush the pump and relieve pressure.
2. Unscrew both ferrules on the inlet tube (115).
3. Push up the retaining spring (35). Push out the pin (20).
4. Loosen the locknut (38). Unscrew the pump from the bearing housing (27).
5. Unscrew the extension tube (212).
6. Push up the retaining spring (215). Push out the pin (230).

Disassembling the Pump

1. Remove the spacer (224). Unscrew the intake valve (223). Remove the parts. *See Fig 1.*

NOTE: If only the intake valve is being repaired, clean and reassemble it, using a new gasket (221).

NOTE: Refer to Fig 3 for Steps 3 to 5.

3. Remove the packing nut (217) and plug (229).
4. Tap the piston rod (231) down and then pull the rod out through the bottom of the cylinder (227).
5. Remove the throat packings (202, 209) and glands (201, 203).

NOTE: Whenever you disassemble the pump for cleaning or repair, remove the sleeve.

WARNING

Always use the special tool, Graco Part No. 220–991, to remove the sleeve. Other removal methods could cause the pump to rupture, resulting in serious bodily injury. If the sleeve cannot be removed easily, return the sleeve and cylinder to your Graco distributor for removal.

6. Screw the large nut (B) of the tool into the top of the cylinder (227). Screw down the rod (A) to push the sleeve out. Remove the tool. *See Fig 2.*
7. Clamp the flats of the piston rod in a vise. Loosen the retaining nut (220). Unscrew the piston valve (226). Remove the packings and glands.

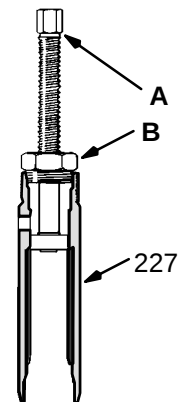


Fig 2

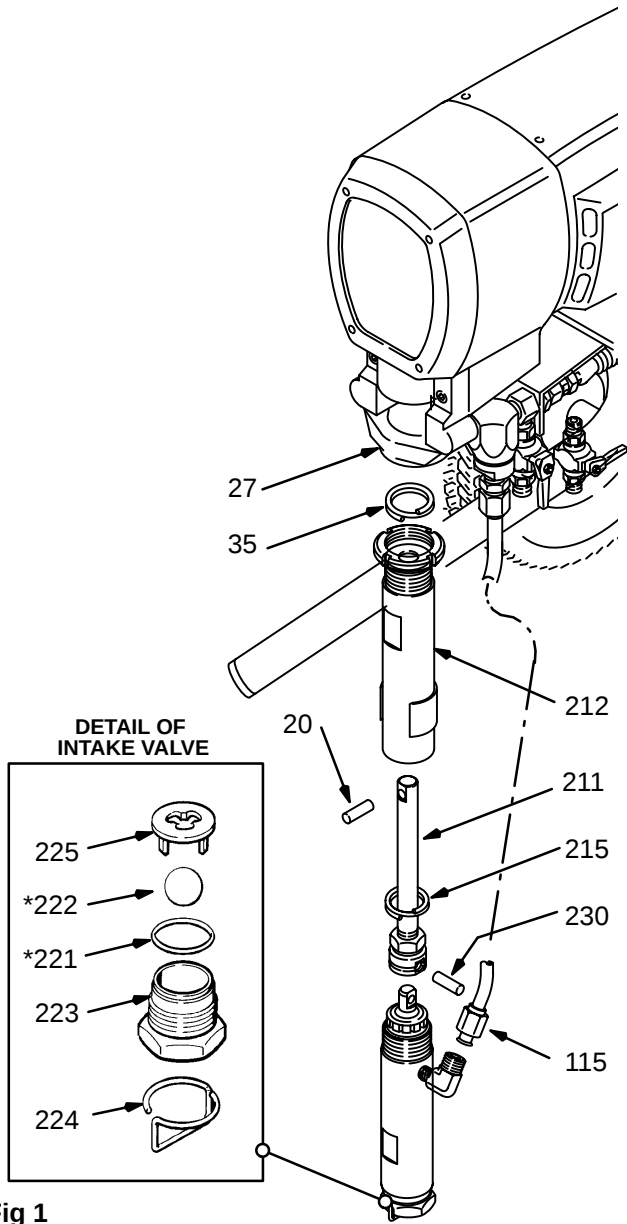


Fig 1

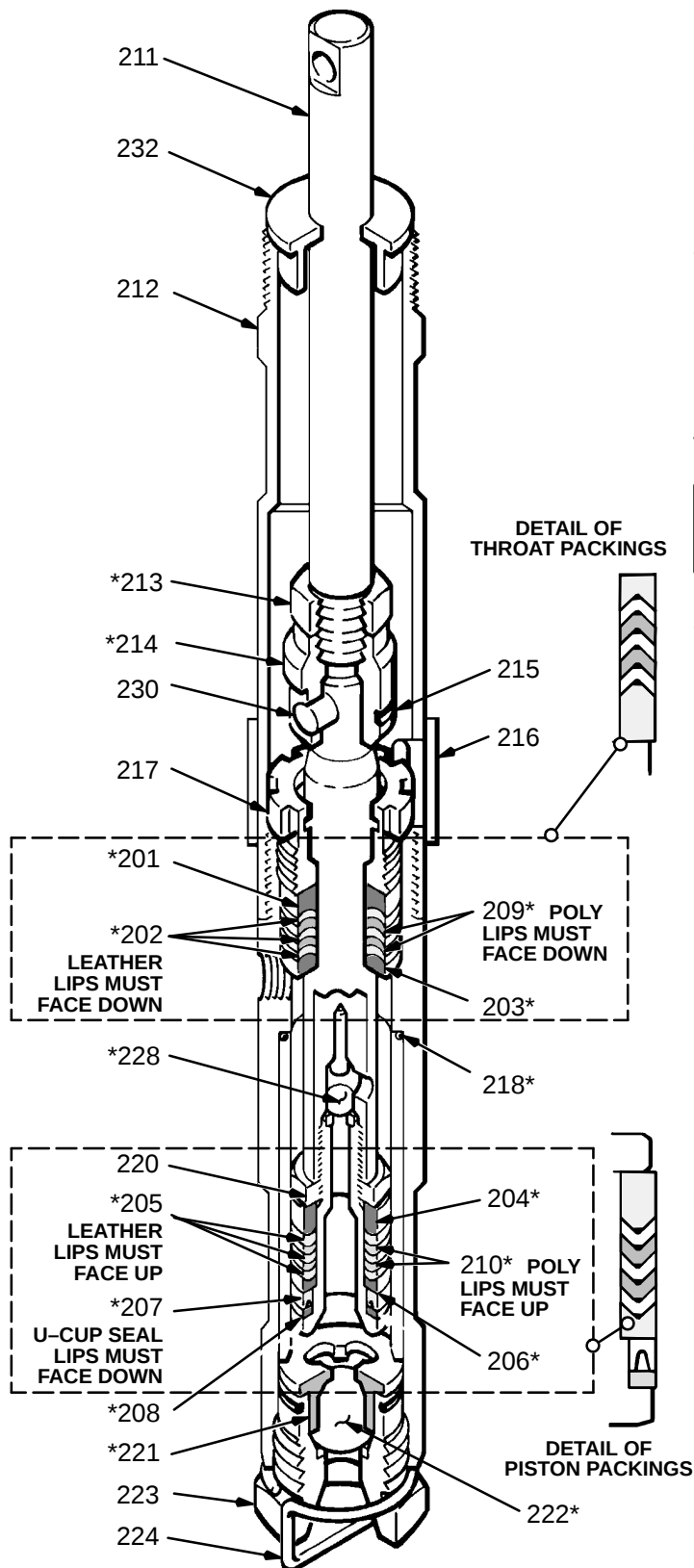


Fig 3

Reassembling the Pump

NOTE: Soak leather packings in oil before using them. Alternate leather and plastic packings, making sure the packings face the correct direction, as shown in Fig 3.

1. Check the outside of the piston rod (231) and the inside of the sleeve (219) for wear, and replace parts as needed.
2. Stack the packings (210, 205), glands (204, 206), u-cup seal (207) and washer (208) onto the piston valve (226) as shown in Fig 3.
3. Tighten the packing retaining nut (220) onto the piston valve (226) to 4 in-lb. See Fig 4.

Note the alignment of the piston (226) to the packing retainer nut (220). Maintain this alignment through Steps 4, 5, and 6.

4. Place the ball (228) on the piston valve (226).

CAUTION

Follow Step 5 carefully to avoid damaging the packings by overtightening.

5. Apply one drop of adhesive, supplied, to the threads of the piston valve. Hand tighten the valve into the piston rod just until the nut (220) contacts the rod (231). See Fig 4.

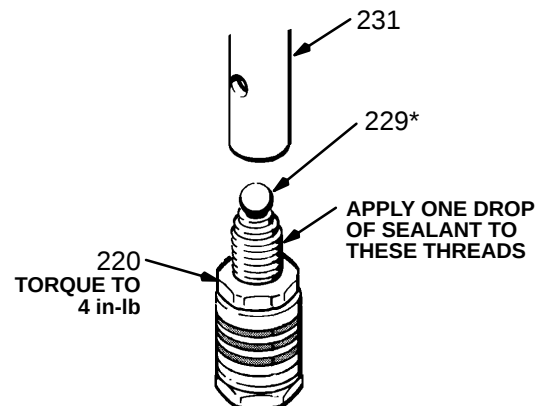


Fig 4

6. Place the flats at the top of the rod in a vise.
7. **CAREFULLY** tighten the nut (211) onto the piston rod and torque to 19 ft-lb (25 N.m). See Fig 5. Use two wrenches to maintain the alignment.

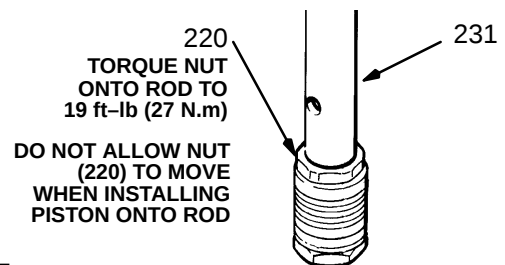


Fig 5

8. Stack the throat packings (202, 209) and glands (201, 203) in the cylinder (227) one at a time as shown in Fig 3.
9. Install the packing nut (216) and plug (205), but leave the packing nut loose for now. See Fig 3.

10. Coat the piston rod and packings with oil. Carefully slide the assembly **INTO THE TOP OF THE SLEEVE**.

NOTE: The tapered end of the sleeve is the bottom of it. See Fig 6.

11. Place a new o-ring (218) firmly in the cylinder groove. See Fig 5.

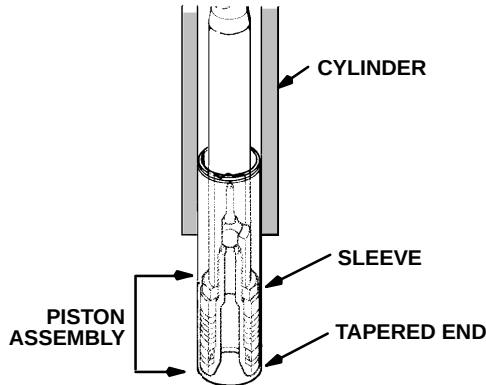


Fig 6

12. Slide the sleeve/piston rod assembly **INTO THE BOTTOM OF THE CYLINDER**. See Fig 4.
13. Screw down the cylinder locknut (38) until it is finger tight at the bottom of the external cylinder threads.
14. Place flats of the intake valve (223) in a vise. Install a new o-ring (202*). Screw the pump cylinder into the valve. Torque to 111 ft-lb (150 N.m). See Fig 1.
1. Assemble the extension tube (212) and extension rod (211) in the reverse order of disassembly.

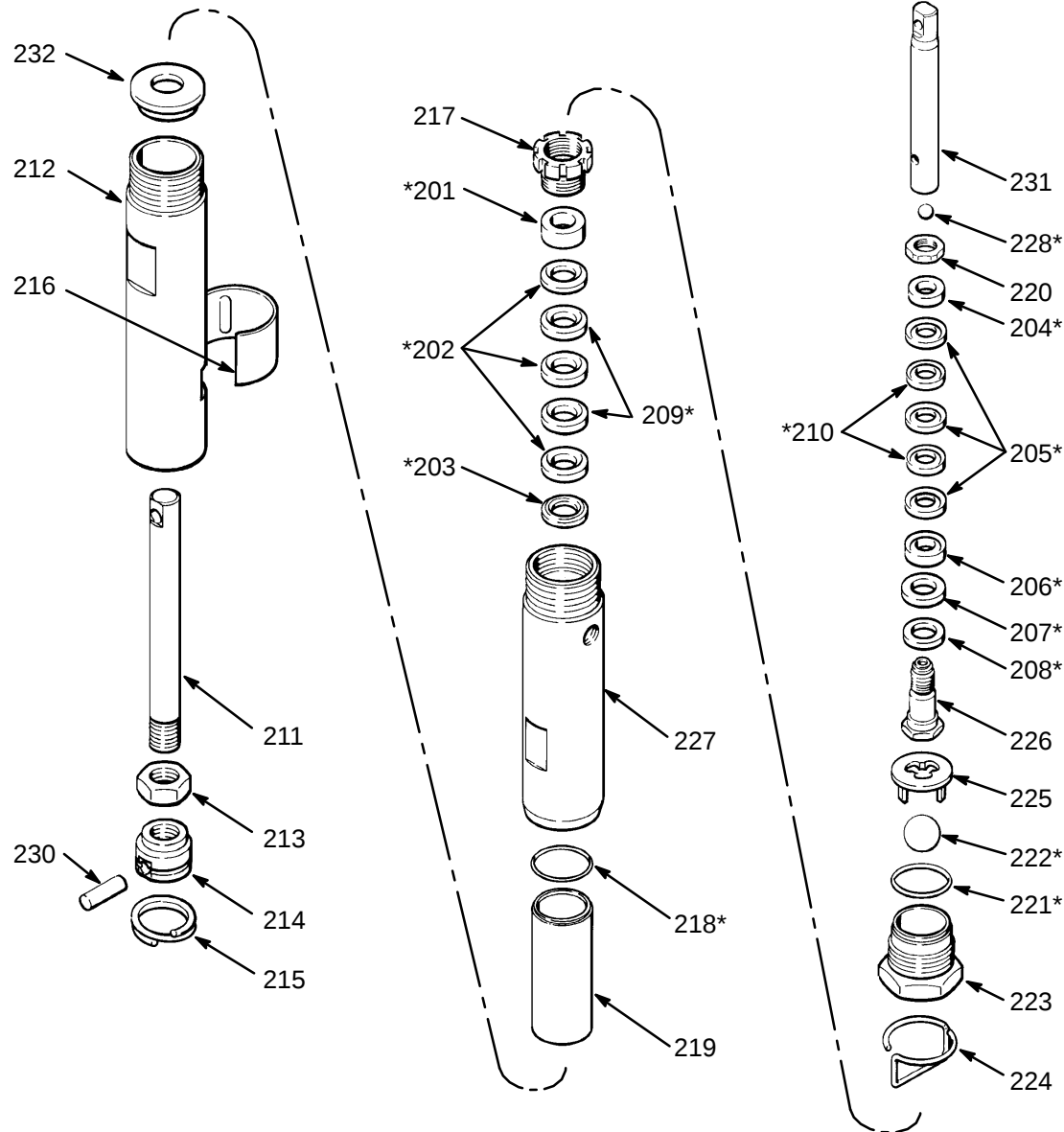
15. Screw the pump assembly into the bearing housing (27) until the pin (20) slides easily into the holes of the extension rod (211) and the connecting rod (29). Back off the pump until the tops threads of the extension tube (212) are flush with the face of the bearing housing and the outlet adapter (111) is at right angles to the bearing housing. Push the retaining spring (35) into the groove all the way around the connecting rod. Tighten the locknut (38) to 70 ft-lb (95 N.m). Tighten the packing nut (217) just enough to stop leakage. Fill the wet-cup/packing nut 1/3 full with Graco TSL.

PARTS DRAWING – DISPLACEMENT PUMP

Model 222–692, Series A Displacement Pump

PACKING REPAIR KIT 223–411

Includes items marked with an asterisk (*).
Must be purchased separately.

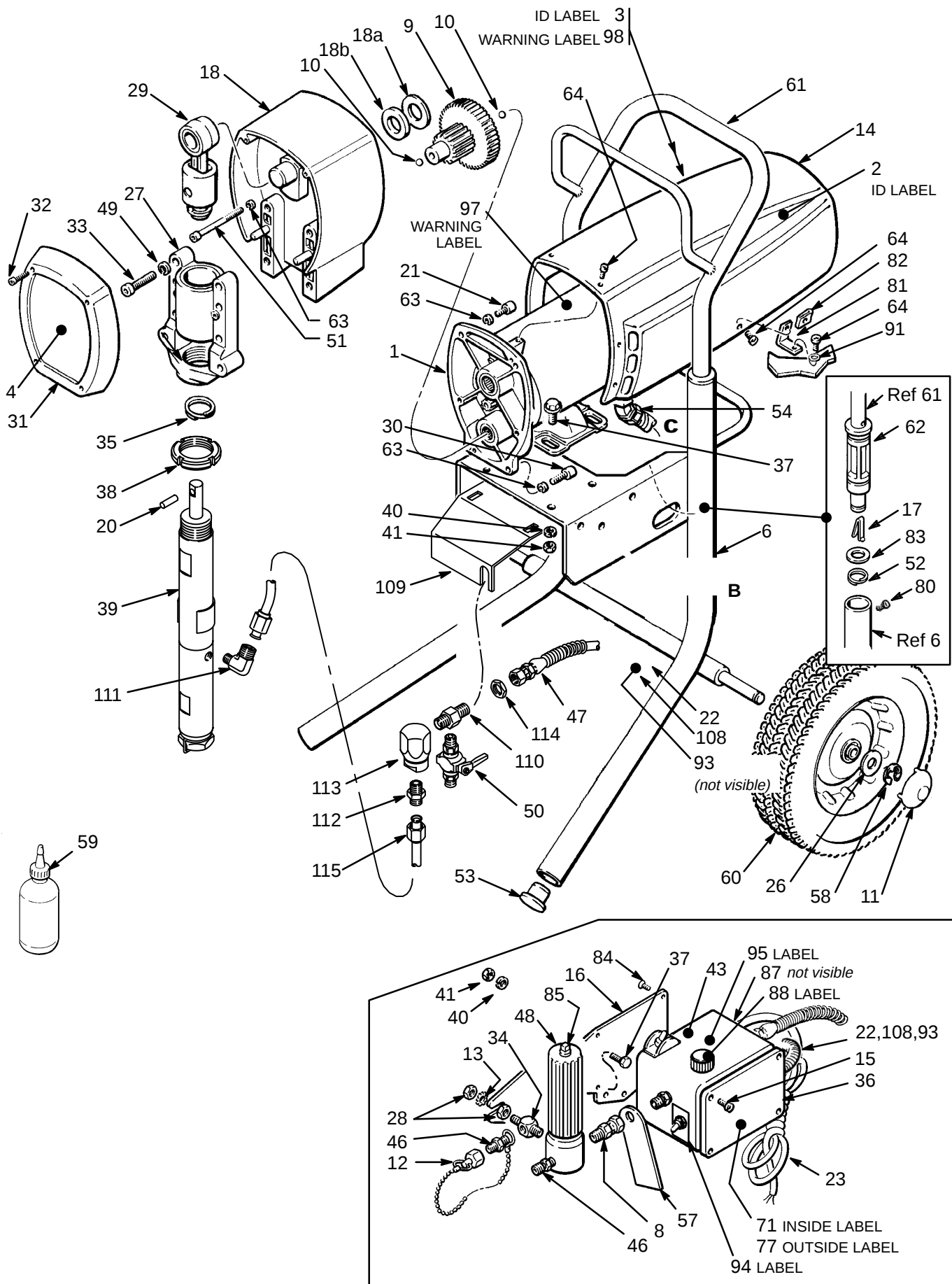


REF NO.	PART NO.	DESCRIPTION	QTY
201	185–475*	GLAND, female, brass	1
202	183–183*	V–PACKING, polyurethane	3
203	185–474*	GLAND, male, brass	1
204	185–476*	GLAND, male, brass	1
205	183–182*	V–PACKING, polyurethane	3
206	185–473*	GLAND, female, brass	1
207	110–284*	SEAL, u–cup, polyethylene	1
208	185–472*	WASHER, backup, 1.18" O.D.; brass	1
209	183–175*	V–PACKING, leather	2
210	183–174*	V–PACKING, leather	2
211	185–361	ROD, extension	1
212	185–359	EXTENSION, displacement pump, cst	1
213	100–071	NUT, hex; 3/4–16 nfsf	1
214	185–367	ROD, adapter	1
215	183–169	SPRING, retaining, music wire	1
216	185–521	SHIELD	1
217	183–186	NUT, packing	1
218	183–172*	O–RING, Teflon®	1
219	183–361	SLEEVE, cylinder	1

REF NO.	PART NO.	DESCRIPTION	QTY
220	183–179	NUT, HEX, retaining	1
221	107–098*	PACKING, o–ring, Teflon®	1
222	102–972*	BALL, .875"; #440 sst	1
223	222–691	VALVE, intake	1
224	185–522	SPACER, wire, sst	1
225	185–312	GUIDE, BALL, #316 sst	1
226	220–631	VALVE, piston	1
227	183–181	CYLINDER	1
228	101–947*	BALL; stainless steel; 0.375" (9.52 mm) dia	1
230	183–210	PIN, straight, hdls, steel	1
231	222–690	PISTON ROD KIT	1
232	185–633	PLUG	1

*Supplied in repair kit 223–411.

PARTS DRAWING



PARTS DRAWING

Model 231-206

Includes items 1 – 115

REF NO.	PART NO.	DESCRIPTION	QTY	REF NO.	PART NO.	DESCRIPTION	QTY
1	224-303	MOTOR KIT	1	47	220-849	HOSE, 3/8 npsm(f) x 14-1/2"	1
2	183-196	LABEL, identification, motor cover	1	48	214-570	FLUID FILTER	
3	183-197	LABEL, identification, motor cover	1			<i>see manual 307-273 for parts</i>	
4	183-198	LABEL, identification, front cover	1			<i>includes one of items 46 and 85</i>	1
6	220-636	CART	1	49	106-115	LOCKWASHER, spring; 3/8"	4
8	155-665	UNION, adapter; 3/8" npsm swivel x 3/8 npt(m)	1	50	223-522	DRAIN VALVE	1
9	220-637	GEAR REDUCER	1	51	108-849	CAPSCREW, sch; 1/4-20 x 3"	2
10	100-069	BALL, steel; 1/4" dia.	1	52	110-243	RING, retaining	2
11	104-811	HUBCAP	2	53	108-691	PLUG, tubing	2
12	220-285	CAP	1	54	108-460	CONNECTOR	1
13	100-322	LOCKWASHER, ext., shakeproof, 7/16"	1	57	178-034*	TAG, WARNING	1
14	223-153	MOTOR SHIELD KIT	1	58	101-242	RING, retaining	2
15	110-885	SCREW, mach, pnh; 10-24 type C x 3/8"	4	59	206-994	THROAT SEAL LIQUID 8 oz. (0.27 liter)	1
16	185-539	BRACKET, mounting	1	60	179-811	WHEEL	2
17	179-777	BUTTON, snap	2	61	220-633	HANDLE, cart	1
18	220-879	DRIVE HOUSING KIT <i>Includes items 18 a and 18b, and one of item 10</i>	1	62	183-194	SLEEVE, cart handle	2
18a	183-209	.BEARING, thrust	1	63	105-510	LOCKWASHER, spring, 1/4"	6
18b	106-227	.SPACER	1	64	108-865	SCREW, mach, pnh; 8-32 x 3/8"	10
20	183-210	PIN, straight, 3/8 x 1-1/8"	1	71	177-762*	LABEL, WARNING	1
21	100-644	SCREW, socket head, no. 1/4-20 x 3/4"	2	77	181-608*	LABEL, WARNING	1
22	065-099	CONDUIT, electrical <i>specify length when ordering</i> 11-5/8 in.		80	109-032	SCREW, mach, pnh; 10-24 x 1/4"	4
23	224-263	POWER SUPPLY CORD	1	81	185-384	BRACKET	2
24	107-264	TERMINAL, female	2	82	110-240	NUT	2
26	154-636	WASHER	2	83	183-350	WASHER, flat; 7/8" ID	2
27	220-639	BEARING HOUSING KIT	1	84	106-078	SCREW, flat hd; 10-24 x 3/8"	4
28	150-513	NUT, jam; 7/16"	2	85	100-040	PLUG	1
29	220-640	CONNECTING ROD KIT	1	87	106-170	BUSHING, strain relief	1
30	100-643	SCREW, socket head, no. 1/4-20 x 1"	2	88	185-565	LABEL, control	1
31	183-168	COVER, housing	1	89	100-035	SCREW, mach, pnh; 8-32 x 5/16"	1
32	108-850	SCREW, mach, filh; no. 8-32 x 1-1/4"	4			<i>inside pressure control</i>	
33	110-141	CAPSCREW, sch; 3/8-16 x 1-1/5"	4	90	157-021	LOCKWASHER, internal, No. 8	1
34	187-003	ADAPTER, elbow, special; 1/4-18 npt(m x f)	1			<i>inside pressure control</i>	
35	183-169	SPRING, retaining	1	91	100-020	LOCKWASHER, .194" ID	2
36	186-918	COVER, pressure control	1	93	107-447	SEAL	2
37	110-963	CAPSCREW, flange head, 5/16-18 x 3/4"	7	94	111-296	LABEL, 10/7.5 amp	1
38	183-170	NUT, HEX, 1 13/16 unc-2b	1	95	178-035	LABEL, Caution	1
39	222-692	PUMP	1	96	221-621	TIP, RACIV, size 621	1
40	100-214	LOCKWASHER, spring; 5/16"	7	97	185-951*	LABEL, WARNING	1
41	100-188	NUT, heavy hex; 5/16-18 unc-2a	7	98	185-952*	LABEL, WARNING	1
43	224-385	PRESSURE CONTROL KIT <i>includes replaceable items 16, 23, 4 of 84</i>	1	108	102-932	FITTING, conduit, 90°	1
46	162-453	NIPPLE, hex; 1/4 npsm x 1/4 npt, 1-3/16" long	2	109	185-471	BRACKET	1
				110	110-311	NIPPLE	1
				111	110-310	ELBOW	1
				112	185-362	NIPPLE	1
				113	223-125	CHECK VALVE	1
				114	110-325	NUT	1
				115	222-619	TUBE	1

*Extra Danger and Warning tags and labels available free.

TECHNICAL DATA

Power Requirements (full output) 220 VAC, 50Hz,
1 phase, 10 amp minimum
Working Pressure Range 0 – 210 bar (0–3000 psi)
Cycles/Liter (gallon) 27.5 (104)
Power Cord No. 12 AWG, 3 wire, 3 m (10')
Inlet Paint Strainer 16 mesh (1190 micron)
Stainless Steel Screen, reusable
Outlet Paint Filter 60 mesh (250 micron)
Stainless Steel Screen, reusable
Pump Inlet Size 3/4 npt(m)
Fluid Outlet Size 1/4 npsm from fluid filter
Wetted Parts:
Displacement Pump Carbon steel, Polyurethane,
polyethylene, brass, Leather
Filter Aluminum, Carbon steel, Stainless Steel,

THE GRACO WARRANTY AND DISCLAIMERS

WARRANTY

Graco warrants all equipment manufactured by it and bearing its name to be free from defects in material and workmanship on the date of sale by an authorized Graco distributor to the original purchaser for use. As purchaser's sole remedy for breach of this warranty, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment proven 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, 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 with Graco equipment of 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 claim. 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.

DISCLAIMERS AND LIMITATIONS

THE TERMS OF THIS WARRANTY CONSTITUTE PURCHASER'S SOLE AND EXCLUSIVE REMEDY AND ARE IN LIEU OF ANY OTHER WARRANTIES (EXPRESS OR IMPLIED), INCLUDING WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND OF ANY NON-CONTRACTUAL LIABILITIES, INCLUDING PRODUCT LIABILITIES, BASED ON NEGLIGENCE OR STRICT LIABILITY. EVERY FORM OF LIABILITY FOR DIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES OR LOSS IS EXPRESSLY EXCLUDED AND DENIED. IN NO CASE SHALL GRACO'S LIABILITY EXCEED THE AMOUNT OF THE PURCHASE PRICE. ANY ACTION FOR BREACH OF WARRANTY MUST BE BROUGHT WITHIN TWO (2) YEARS OF THE DATE OF SALE.

EQUIPMENT NOT COVERED BY GRACO WARRANTY

GRACO MAKES NO WARRANTY, AND DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WITH RESPECT TO ACCESSORIES, EQUIPMENT, MATERIALS, OR COMPONENTS SOLD BUT NOT MANUFACTURED BY GRACO. These items sold, but not manufactured by Graco (such as electric motor, 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.

Factory Branches: Atlanta, Chicago, Dallas, Detroit, Los Angeles, Mt. Arlington(N.J.)

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