

# Kit Instructions



## Replacement Kits for Magnum

Project Painter Plus, X5, X7, LTS15 and LTS 17

3A5572B

EN



### Important Safety Instructions

For detailed sprayer information and warnings, see the Owners Manual included with your sprayer.

### Includes:

Kit Description	Kit No.
Enclosure Replacement Kits	17K541, 17K542
Control Board Replacement Kit	17L104
Motor Replacement Kit	17L282
Pressure Control Replacement Kit	17V782
Prime/Spray Valve and Handle Replacement Kit	17V783
Pump Outlet Valve Replacement Kit	16E845
Pump Inlet Valve Replacement Kit	16E844
PushPrime™ Replacement Kit	17L086
Pump Assembly Replacement Kit	17V781



## WARNING

### SKIN INJECTION HAZARD

The sprayer builds up an internal pressure of 3000 psi (20.7 MPa, 207 bar) during use. This sprayer stays pressurized until pressure is manually relieved. To help prevent serious injury from pressurized fluid, such as skin injection, follow the **Pressure Relief Procedure** whenever sprayer is stopped and before sprayer is cleaned or checked, and before equipment is serviced or transported.

### ELECTRIC SHOCK HAZARD

AC powered equipment must be grounded. Improper grounding, setup, or usage of the equipment can cause electric shock. Turn off and disconnect power cord before servicing the equipment.

## Pressure Relief Procedure

Before servicing the sprayer, pump pressure must be relieved.

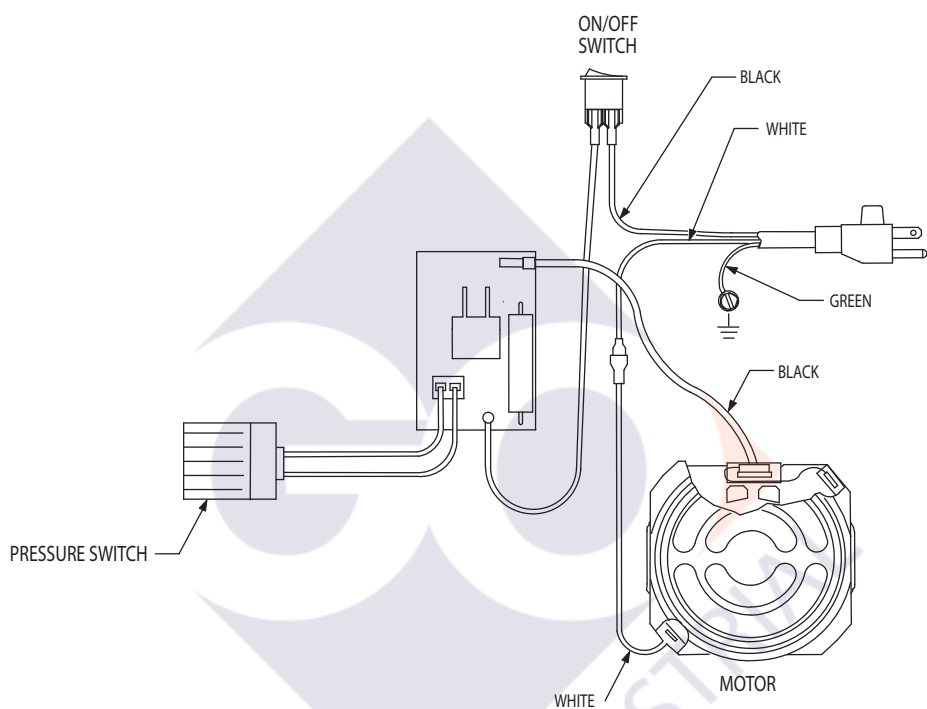
1. Turn ON/OFF switch to the **OFF** position.
2. Engage the trigger lock. Always engage the trigger lock when sprayer is stopped to prevent the gun from being triggered accidentally.
3. Turn pressure control to lowest setting.
4. Put drain tube into a pail and lift Prime/Spray Valve in PRIME position to relieve pressure.
5. Hold the gun firmly to a pail. Point gun into pail. Disengage the trigger lock and trigger the gun to relieve pressure.
6. Engage the trigger lock.

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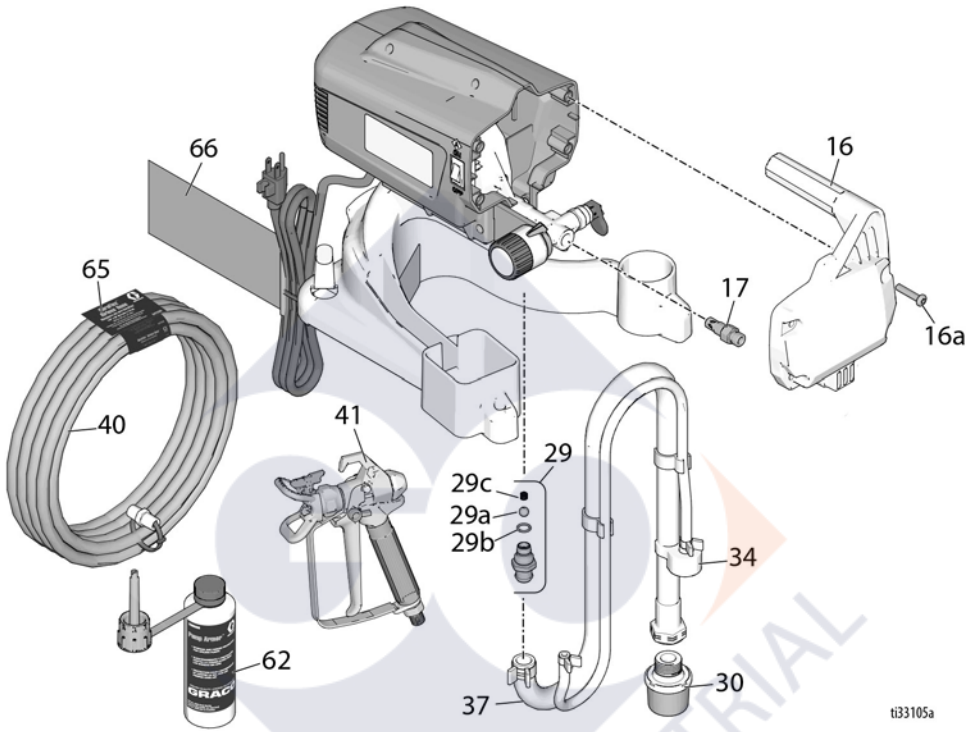
# Wiring Diagram

## All Models



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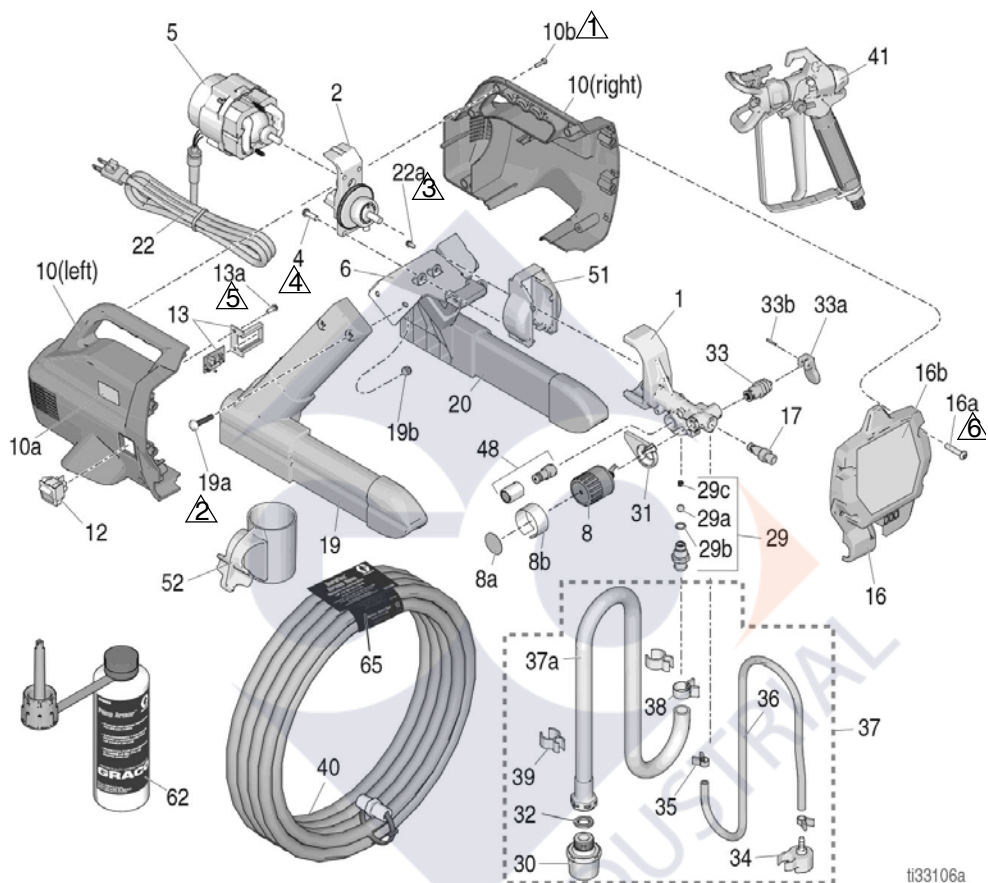
# Project Painter Plus Diagram and Parts



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Ref	Part #	Description	Qty	Ref	Part #	Description	Qty
16	24D617	KIT, front cover includes 16a	1	60	17Y781	GUIDE, Magnum quick guide, English and Spanish (not shown)	1
16a	120724	SCREW	4	61	115648	VALVE, power flush (not shown)	1
17	16E845	KIT, outlet valve	1	62	17S980	KIT, Pump Armor, 8oz	1
29	16E844	KIT, inlet valve includes 29a, 29b, 29c	1	63▲	179960	CARD, wallet, medical alert (not shown)	1
29a		BALL, intake	1	65▲	15G026	TAG, warning, hose	1
29b		O-RING	1	66▲	17K627	LABEL, warning, cord	1
29c		SPRING, inlet	1	▲Replacement Danger and Warning labels, tags, and cards are available at no cost.			
30	288716	KIT, strainer	1				
34	244035	DEFLECTOR, barbed	1				
37	24V074	KIT, tube, suction includes 30, 34, 61	1				
40	247339	HOSE, 1/4 in. x 25 ft	1				
41	243011	GUN, spray, SG2	1				

# X5 and LTS 15 Diagram



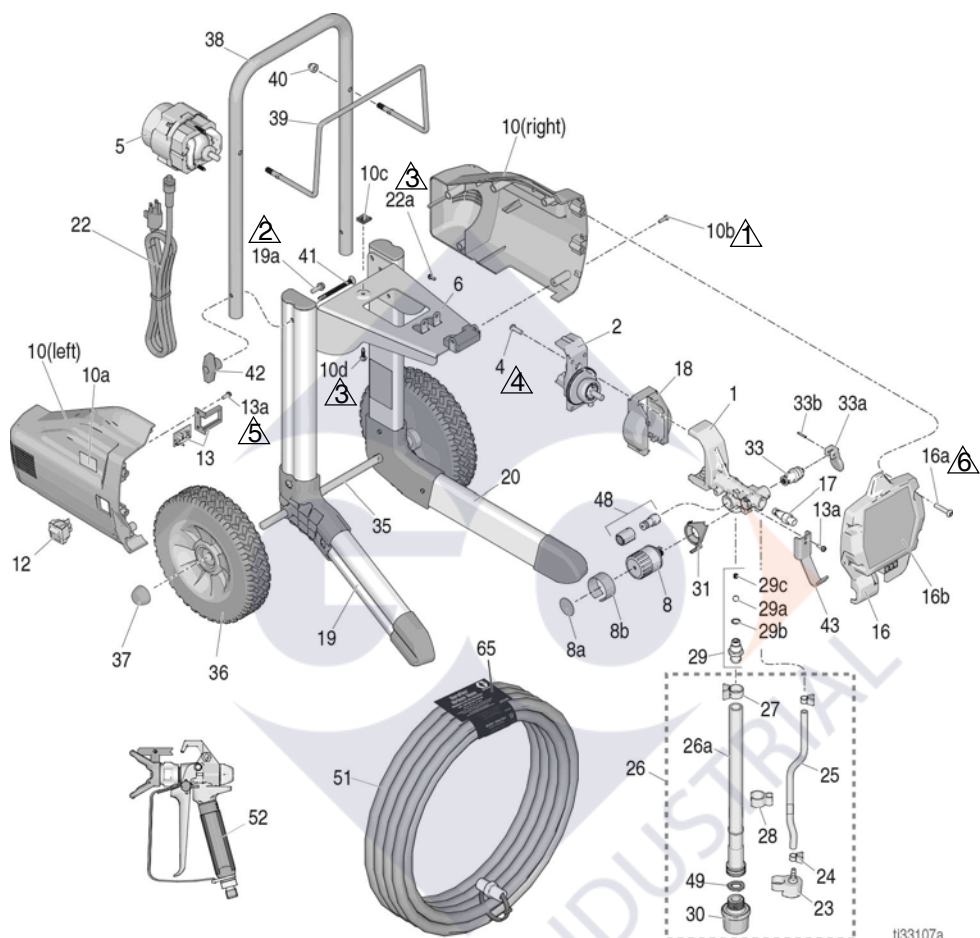
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Ref.	Torque
	20-25 in-lb (2.3-2.8 N•m)
	26-32 in-lb (2.9-3.6 N•m)
	25-35 in-lb (2.8-4.0 N•m)
	80-90 in-lb (9.0-10.0 N•m)
	12-16 in-lb (1.4-1.8 N•m)
	36-42 in-lb (4.0-4.7 N•m)

# X5 and LTS 15 Parts

Ref.	Part	Description	Qty.	Ref.	Part	Description	Qty.
1	17V781	KIT, pump <i>includes 4, 8, 17, 29, 33, 48</i>	1	29b	103338	O-RING	1
2	16E835	DRIVE	1	29c	123849	SPRING, inlet	1
4	112689	SCREW, button, thd form	4	30		KIT, strainer	1
5	17L282	KIT, motor	1		288716	MAGNUM X5	
6	16D682	BRACKET, motor	1		257002	MAGNUM LTS 15	
8	17V782	KIT, pressure control <i>includes 8a, 8b</i>	1	31	15Y296	COVER, wire	1
8a	17V058	LABEL, control	1	32	115099	WASHER, hose	1
8b	17V191	LABEL, control	1	33	17V783	KIT, drain valve <i>includes 33a, 33b</i>	1
10	17K541	KIT, enclosure, X5 and LTS 15 <i>includes 10a, 10b, 16a</i>	1	33a	25M700	HANDLE, valve, drain	1
10a	17K516	LABEL, A+ service	1	33b	119956	PIN, grooved	1
10b	115477	SCREW, mach, torx, pan hd	4	34	244035	DEFLECTOR, barbed	1
12	118899	SWITCH, rocker, spdt	1	35	115489	CLAMP, drain tube	2
13	17L104	KIT, control board <i>includes 13a</i>	1	36	195084	TUBE, drain	1
13a	115477	SCREW, mach, torx	1	37	24V074	KIT, tube, suction <i>includes 30, 32, 34, 35, 36, 37a, 38, 39, 61</i>	1
16	17L085	KIT, housing cover <i>includes 16a, 16b</i>	1	37a	197607	TUBE, suction <i>includes 32</i>	1
16a	120724	SCREW	4	38	116295	CLAMP, tube	1
16b		LABEL, front	1	39	195400	CLIP, spring	2
	17J963	MAGNUM X5		40	247339	HOSE, cpld, 1/4 in. x 25 ft	1
	17J967	MAGNUM LTS 15		41		GUN, spray, SG2	1
17	16E845	KIT, outlet valve	1		243011	Model 262800 and 17K955	
18	16W319	COVER, gear	1		257359	Model 17K437	
19	24K632	KIT, right leg, stand <i>includes 2 screws, 19a, 19b</i>	1	48	17L086	KIT, push prime	1
19a	125116	BOLT, carriage	4	52	17H422	CUP, inlet drip	1
19b	102040	NUT, lock, hex	4	60	17Y781	GUIDE, Magnum quick guide, English and Spanish (not shown)	1
20	24K633	KIT, left leg, stand <i>includes 2 screws, 19a, 19b</i>	1	61	115648	VALVE, power flush (not shown)	1
22	16E842	KIT, power cord, X5 and LTS 15 <i>includes 22a, 22b</i>	1	62	17S980	KIT, Pump Armor 8oz	1
22a	115498	SCREW, grounding	1	63▲	179960	CARD, medical wallet (not shown)	1
22b▲	17K627	LABEL, Magnum, warning (not shown)	1	64	17Y794	TAG, hang, tip (not shown)	1
29	16E844	KIT, pump, inlet valve <i>includes 29a, 29b, 29c</i>	1	65▲	15G026	TAG, warning, hose	1
29a	124249	BALL, intake	1	▲Replacement Danger and Warning labels, tags, and cards are available at no cost.			

# X7 and LTS 17 Diagram



t133107a

Ref.	Torque
	20-25 in-lb (2.3-2.8 N•m)
	45-55 in-lb (5.0-6.2 N•m)
	25-35 in-lb (2.8-4.0 N•m)
	80-90 in-lb (9.0-10.0 N•m)
	12-16 in-lb (1.4-1.8 N•m)
	36-42 in-lb (4.0-4.7 N•m)

# X7 and LTS 17 Parts

Ref.	Part	Description	Qty.	Ref.	Part	Description	Qty.
1	17V781	KIT, pump <i>includes 4, 8, 17, 29, 33, 48</i>	1	28	195400	CLIP, spring	2
2	16E835	KIT, drive	1	29	16E844	KIT, pump, inlet valve (includes 29a, 29b, 29c)	1
4	112689	SCREW, button, thd form	4	29a	124249	BALL, intake	1
5	17L282	KIT, motor	1	29b	103338	O-RING	1
6	16D683	BRACKET, motor	1	29c	123849	SPRING, inlet	1
8	17V782	KIT, pressure control <i>includes 8a, 8b</i>	1	30		KIT, strainer	1
8a	17V058	LABEL, control	1		288716	MAGNUM X7	
8b	17V191	LABEL, control	1		257002	MAGNUM LTS 17	
10	17K542	KIT, enclosure, X7 and LTS 17 <i>includes 10a, 10b, 10c, 10d, 16a</i>	1	31	15Y296	COVER, wire	1
10a	17K516	LABEL, A+ service	1	33	17V783	KIT, drain valve <i>includes 33a, 33b</i>	1
10b	115477	SCREW, mach, torx, pan hd	4	33a	25M700	HANDLE, valve, drain	1
10c	121481	NUT, U-type, tinnerman	1	33b	119956	PIN, grooved	1
10d	120093	SCREW, self drilling	1	35	15R602	AXLE, cart	1
12	118899	SWITCH, rocker, spdt	1	36	115095	WHEEL, 9 in.	2
13	17L104	KIT, control board <i>includes 13a</i>	1	37	112612	CAP, hub	2
13a	115477	SCREW, mach, torx	3	38	16H354	HANDLE, cart	1
16	17L085	KIT, housing cover <i>includes 16a, 16b</i>	1	39	16H350	RACK, hose	1
16a	120724	SCREW	4	40	120689	NUT, hex, acorn, 5/16-18 nickel	2
16b		LABEL, front	1	41	120788	SCREW, carriage	2
	17J966	MAGNUM X7		42	115480	KNOB, t-handle	2
	17J968	MAGNUM LTS 17		43	16D907	HANGER, pail	1
17	16E845	KIT, outlet valve	1	48	17L086	KIT, push prime	1
18	16W319	COVER, gear	1	49	115099	WASHER, hose	1
19	17L088	KIT, right leg, cart <i>includes 3 screws, 19a</i>	1	51	247339	HOSE, cpd, 1/4 in. x 25 ft	1
19a	260212	SCREW, hex washer	4	52	243011	GUN, spray, SG2	1
20	17L087	KIT, left leg, cart <i>includes 3 screws, 19a</i>	1	60	17Y781	GUIDE, Magnum quick guide, English and Spanish (not shown)	1
22	16E843	KIT, power cord, X7 and LTS 17 <i>includes 22a, 22b</i>	1	61	115648	VALVE, power flush (not shown)	1
22a	115498	SCREW, grounding	1	62	17S980	KIT, pump armor, 8oz	1
22b▲	17K627	LABEL, Magnum, warning (not shown)	1	63▲	179960	CARD, medical wallet (not shown)	1
23	244035	DEFLECTOR, barbed	1	64	17Y794	TAG, hang, tip (not shown)	1
24	115489	CLAMP, drain tube	2	65▲	15G026	TAG, warning, hose	1
25	195108	TUBE, drain	1	▲ <i>Replacement Danger and Warning labels, tags, and cards are available at no cost.</i>			
26	24V073	KIT, suction tube <i>includes 23, 24, 25, 26a, 27, 28, 30, 49, 61</i>	1				
26a		TUBE, suction <i>includes 49</i>	1				
	16H348	MAGNUM X7					
	16D951	MAGNUM LTS 17					
27	116295	CLAMP, tube	1				



# Front Cover and Enclosure Replacement

Before servicing the sprayer, the enclosure and front cover may need the removed.

## Removal

1. Unplug power cord (22) and perform **Pressure Relief Procedure**, page 1.
2. Remove front cover screws (16a) (T-30 Torx).
3. **X7 and LTS 17 only:** Remove underside shroud screw (10d).
4. Remove enclosure screws (10b) (T-20 Torx), and remove right shroud (10).
5. If replacing the enclosure, disconnect all wire leads and connectors from control board (13) and ON/OFF switch. Remove screw (13a) from control board bracket to remove control board assembly (13) from left shroud (10).
6. Remove left shroud (10) and front cover (16).

## Replacement

1. Install power cord (22) into recess on left shroud (10).
2. Install control board assembly (13) to left shroud (10) using screw (13a).
3. Reconnect all wire leads and connectors to control board (13) and ON/OFF switch. See **Wiring Diagram**, page 2.

### NOTICE

Do not pinch wires between enclosure, front cover, motor, and pump/drive assembly.

4. Assemble front cover (16) and enclosure (10).
5. Install enclosure screws (10b) (T-20 Torx). Torque to 20-25 in-lb (2.3-2.8 N•m).
6. **X7 and LTS 17 only:** Install underside shroud screw (10d). Torque to 25 - 35 in-lb (2.8-4.0 N•m).

7. Install front cover screws (16a) (T-30 Torx). Torque to 36 - 42 in-lb (4.1-4.7 N•m).
8. Perform **Assembly Verification**, page 13.

# Control Board Replacement

To replace the control board, first disassemble the enclosure. See **Front Cover and Enclosure Replacement**, page 8.

1. Remove control board mounting screw (13a) and control board (13) from left side shroud (9).
2. If needed, assemble replacement control board into bracket.
3. Install control board assembly (13) to left side shroud (9) with mounting screw (13a). Torque to 12-16 in-lb (1.4-1.8 N•m).
4. Install front cover and enclosure. See **Front Cover and Enclosure Replacement**, page 8.
5. After assembly is complete, perform **Assembly Verification**, page 13.

# Motor Replacement

To replace the motor, you must first disassemble the enclosure. See **Front Cover and Enclosure Replacement**, page 8.

1. Disconnect motor leads from control board (13) and power cord (22).
2. Remove fan cover by gently prying adjacent to its narrow retention bars with a flat blade screwdriver. NOTE: Prying on the bars themselves can cause damage.
3. Remove 2 motor screws (T-20 Torx). Pull motor (5) from the pump/drive assembly. Be careful not to damage the cooling fan.



4. Assemble replacement motor (5) to the drive (2) with the black wire lead on the pressure control (8) side of the sprayer. Install 2 motor screws (T-20 Torx). Torque to 26-32 in-lb (2.9-3.6 N•m).
5. Route the motor leads through the ports in the fan cover. Snap the cover onto the motor (5).
6. Install front cover and enclosure. See **Front Cover and Enclosure Replacement**, page 8.
7. After assembly is complete, perform **Assembly Verification**, page 13
6. Route pressure control wire harness through function indicator (31) and front cover (16). Install indicator (31) on pump (1) and snap together. Align indicator and front cover while they are positioned loosely on pump. Connect wire harness to control board connector.
7. Install front cover and enclosure. See **Front Cover and Enclosure Replacement**, page 8.
8. Turn pressure control knob (8) clockwise as far as it will go. Apply pressure control label (8b) to knob. When properly positioned the function indicator (31) and Hi Spray position on pressure control label (8b) are aligned.

## Pressure Control Replacement

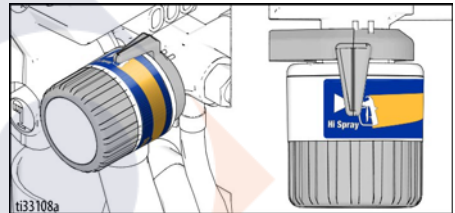
To replace the pressure control, first disassemble the enclosure. See **Front Cover and Enclosure Replacement**, page 8.

1. Disconnect pressure control wire harness from control board connector. Take note of wire routing; new pressure control wires will be rerouted the same way.
2. Release tab underneath function indicator (31) and remove indicator.
3. Turn pressure control knob (8) fully counterclockwise to expose wrench flats. Remove pressure control. Verify the o-ring seal has been removed from the pump.

### NOTICE

Do not pinch wires between enclosure, front cover, motor, and pump/drive assembly.

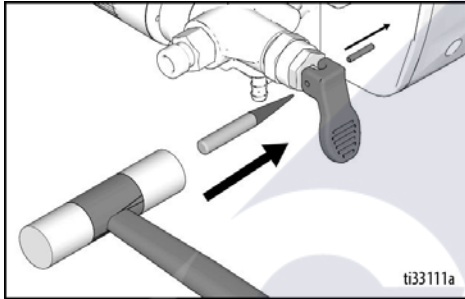
4. Examine new pressure control (8) to verify o-ring seal is in place. If o-ring seal is not installed on pressure control, install seal.
5. Apply one or two drops of thread locking adhesive to threads of pressure control (8). Assembly pressure control (8) into pump (1). Torque to 140 - 160 in-lb (15.8-18.1 N•m).



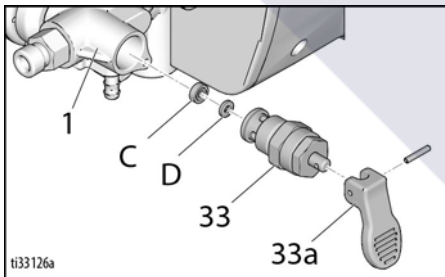
9. After assembly is complete, perform **Assembly Verification**, page 13.

# Prime/Spray Valve and Handle Replacement

1. Unplug power cord (22) and perform **Pressure Relief Procedure**, page 1.
2. Lower Prime/Spray Valve to **SPRAY** position.
3. Remove pin (33b) with pin punch and hammer.

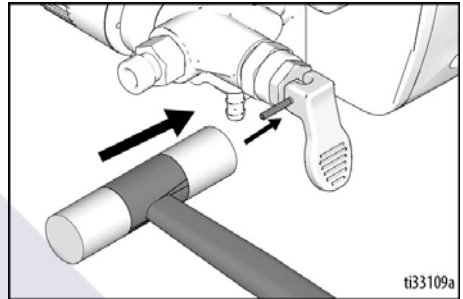


4. Remove Prime/Spray Valve handle (33a).
5. Remove valve stem assembly (33) from pump housing (1). Be sure gasket (C) and seat (D) do not stay in pump housing (1).



6. Apply sealant to threads of new valve stem assembly (33). Install valve assembly in pump housing. Torque to 220-250 in-lb (24.9-28.2 N•m).
7. Insert end of pin punch through hole in Prime/Spray Valve handle and valve stem to align.

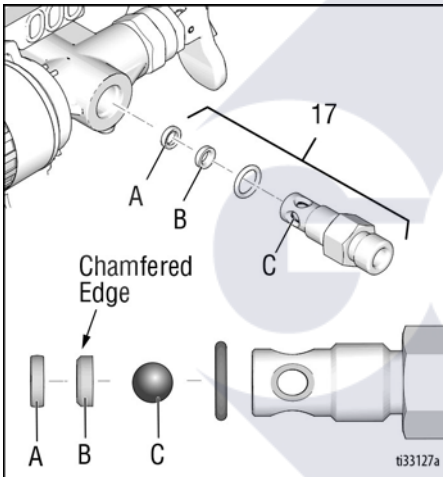
8. Install pin (33b) through aligned holes. Tap pin through with hammer. End of pin will be flush with top of hole in Prime/Spray Valve handle when correctly installed.



9. After assembly is complete, perform **Assembly Verification**, page 13.

## Pump Outlet Valve Replacement

1. Unplug power cord (22) and perform **Pressure Relief Procedure**, page 1.
2. Remove outlet valve (17) from pump housing (1).
3. Clean all dried residue from around outlet area in pump housing (1).
4. Verify gasket (A) is still pressed into outlet valve with chamfered edge of seat (B) away from the ball (C).



5. Thread new outlet valve (17) into pump housing (1). Torque to 290-310 in-lb (32.8-35.0 N•m).
6. After assembly is complete, perform **Assembly Verification**, page 13.

## Pump Inlet Valve Replacement

1. Unplug power cord (22) and perform **Pressure Relief Procedure**, page 1.
2. Remove suction tube (37) and drain line (36) from pump inlet valve (29).
3. Remove inlet valve fitting (29), ball (29a), and spring (29c) from pump housing (1).
4. Clean all dried residue from around inlet area in pump housing (1).
5. Install new spring (29c) over ball stop pin in pump inlet.
6. Install ball (29a).
7. Thread new inlet valve fitting (29) into pump housing (1). Torque to 200-240 in-lb (22.6-27.1 N•m).
8. Attach suction tube (37) and drain line (36).
9. After assembly is complete, perform **Assembly Verification**, page 13.

## PushPrime Replacement

To replace the PushPrime, first disassemble the enclosure. See **Front Cover and Enclosure Replacement**, page 8.

1. Using a 1/16" hex driver, remove button by loosening set screw.
2. Using a 13mm deep socket, remove PushPrime module (48).
3. Install replacement PushPrime module (48). Torque to 200-220 in-lb (22.6-24.9 N•m).
4. Install button by lightly tightening set screw.
5. Install front cover and enclosure. See **Front Cover and Enclosure Replacement**, page 8.
6. After assembly is complete, perform **Assembly Verification**, page 13.

# Pump Assembly Replacement

To replace the pump assembly, first disassemble the enclosure. See **Front Cover and Enclosure Replacement**, page 8.

1. Remove suction hose and drain tube from pump (1).
2. Loosen screw (22a) retaining the green ground wire to the back of the drive (2) and remove the ground wire.
3. Remove motor fan cover by gently prying adjacent to its narrow retention bars with a flat blade screwdriver. **NOTE:** Prying on the bars themselves can cause damage.
4. Remove 2 motor screws (T-20 Torx). Pull motor (5) from the pump/drive assembly. Be careful not to damage the cooling fan.
5. Remove gear cover (18). Remove the two screws (4) at the bottom of the pump/drive assembly then remove the pump/drive assembly.
6. Place the pump/drive assembly in a vise with the jaws clamping on the flat sides at the bottom of the pump (1).
7. Open the latch at the bottom of the setting indicator (31), remove it from the pressure control (8).
8. Remove the two screws (4) holding the drive (2) to the pump (1), then rotate the drive bracket approximately 90°.
9. Pull the drive assembly (2) and pump piston from the pump (1). If necessary, tap on the shorter leg of the drive with a plastic hammer to separate the parts. **NOTE:** Prying between the pump and the drive can damage the drive and lead to failure of equipment.
10. Verify that a small amount of grease has been applied to the drive pocket in the pump piston in the replacement pump (1).
11. Rotate the drive gear to bring the stud towards the pump, then insert the stud into the piston pocket. Align the drive shaft with the pump bushing, then push the drive into the pump, rotating the gear to draw the drive inward. Press the drive and pump fully together. If necessary, tap on the bottom of the drive with a plastic hammer to seat the piston in the pump.
12. Install two screws (4) at the top of the drive (2). Torque to 80-90 in-lb (9.0-10.2 N•m).
13. Assemble motor (5) to the drive (2) with the black wire lead on the pressure control (8) side of the sprayer. Install 2 motor screws (T-20 Torx). Torque to 26-32 in-lb (2.9-3.6 N•m).
14. Route the motor leads through the ports in the motor fan cover. Snap the cover onto the motor (5).
15. Replace foam pad on motor bracket (6).
16. Place the pump/drive/motor assembly on the motor bracket (6), then install the two screws (4) at the bottom of the drive (2). Torque to 80-90 in-lb (9.0-10.2 N•m).
17. Reassemble gear cover (18).
18. Route the pressure control wire harness through the setting indicator (31). Install the indicator around the pressure control (8), snap together. Pass the wire harness through the front cover (16), aligning the indicator with the opening in front cover as they are positioned loosely on the pump.
19. Attach green ground wire to back of the drive assembly (2) using screw (22a). Torque to 25-35 in-lb (2.8-4.0 N•m).
20. Replace the suction and drain hoses on the pump (1), and secure with their clamps.
21. Install front cover and enclosure. See **Front Cover and Enclosure Replacement**, page 8.
22. After assembly is complete, perform **Assembly Verification**, page 13.

## Assembly Verification

After assembly is complete, perform the following steps to verify proper operation. If sprayer fails one of the steps, repeat sprayer repair procedures.

1. Visually inspect for gaps between enclosure halves. A gap larger than 1/32 in. (0.8 mm) may be caused by a pinched wire or an internal component not seated properly. If disassembly and inspection indicates that no wire has been pinched and all internal components are seated properly, carefully reassemble and repeat verification steps.
2. Lift and lower Prime/Spray Valve to make sure the valve lifts up to the PRIME position and lowers down to the SPRAY position.
3. Turn pressure control knob to verify it rotates.
4. Using water, verify sprayer primes and sprays. Follow instructions in your sprayer Owners Manual for proper setup, priming and spraying procedures.

INDUSTRIAL









*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 3A5431

**Graco Headquarters:** Minneapolis

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

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

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