REPAIR MANUAL

MANUAL NUMBER X053426 | REVISION A | ENGLISH (US)

Repair Kits for Magnum® ProX™ and GX™ Sprayers

For the repair and replacement of ProX and GX Sprayers.

Important Safety Instructions

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

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RELATED MANUALS

Additional documents are available to support the operation, repair, and maintenance of the Repair Kits for Magnum® ProX™ and GX™ Sprayers. Find English manuals and any available translations at www.graco.com.

Table 1-1: Related Manuals for Repair Kits for Magnum® ProX™ and GX™ Sprayers Repair Manual X053426

ENGLISH MANUAL	DESCRIPTION
X017686EN	Magnum® TRUEAIRLESS® Electric Airless Sprayer, Operation
X046314EN	Magnum® TRUEAIRLESS® Electric Airless Sprayer, Operation
X044107EN	GX™ Electric Airless Sprayers, Operation
X017304EN	GX™ Electric Airless Sprayers, Operation
X052017EN	Electric Airless Sprayers, Operation

SAFETY SYMBOLS

The following safety symbols appear throughout this manual and on warning labels. Read the table below to understand what each symbol means.

SYMBOL	MEANING
	Moving Parts Hazard
	Skin Injection Hazard
	Skin Injection Hazard
	Splash Hazard
	Do Not Place Hands or Other Body Parts Near Fluid Outlet

SYMBOL	MEANING
	Do Not Stop Leaks with Hand, Body, Glove or Rag
	Follow Pressure Relief Procedure
	Read Manual
	Wear Personal Protective Equipment

Safety Alert Symbol

This symbol indicates: Attention! Become Alert! Look for this symbol throughout the manual to indicate important safety messages.

WARNINGS

The following warnings apply throughout this manual. Read, understand, and follow the warnings before using this equipment. Failure to follow these warnings can result in serious injury.

⚠ WARNING

SKIN INJECTION HAZARD

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

- Do not aim the gun at, or spray, any person or animal.
- Keep hands and other body parts away from the discharge. For example, do not try to stop leaks with any part of the body.
- Always use the spray tip guard. Do not spray without spray tip guard in place.
- Use Graco spray tips.
- Use caution when cleaning and changing spray tips. In the case where the spray tip clogs while spraying, follow the **Pressure Relief Procedure** for turning off the unit and relieving the pressure before removing the spray tip to clean.
- Equipment maintains pressure after power is turned off. Do not leave the equipment energized or under pressure while unattended. Follow the **Pressure Relief Procedure** when the equipment is unattended or not in use, and before servicing, cleaning, or removing parts.
- Check hoses and parts for signs of damage. Replace any damaged hoses or parts.
- This system is capable of producing 3000 psi (207 bar, 20.7 MPa). Use Graco parts or accessories that are rated a minimum of 3000 psi (207 bar, 20.7 MPa).
- Always engage the trigger lock when not spraying. Verify the trigger lock is functioning properly.
- Verify that all connections are secure before operating the unit.
- Know how to stop the unit and bleed pressure quickly. Be thoroughly familiar with the controls.

MOVING PARTS HAZARD

Moving parts can pinch, cut, or amputate fingers and other body parts.

- Keep clear of moving parts.
- Do not operate equipment with protective guards or covers removed.
- Equipment can start without warning. Before checking, moving, or servicing equipment, follow the **Pressure Relief Procedure** and disconnect all power sources.

KITS

KIT NUMBER	DESCRIPTION	MANUAL SECTION
17J866	**Front Cover Replacement**	Drive
17F756, 17F757, 17F758, 17K285, 17K684, 17L083	**Motor Replacement**	
16X980, 287770	**Fan Replacement**	
17J863, 17J864, 17J869	**Gear and Yoke Replacement**	
17J867, 17J885	**Control Board Replacement**	Control
17J881, 17J927	**Pressure Control Replacement**	Pump
17J925	**Prime/Spray Valve and Knob Replacement**	
17J880	**Prime Outlet Valve Replacement**	
17J876, 17J877, 17J924	**Prime Inlet Valve Replacement**	
17J878	**PushPrime Button Replacement** GX models only	

Refer to the illustrations in this document and your Owners/Operation manual for additional parts information, wiring diagrams, and any additional assembly torques that you may need.

PRESSURE RELIEF PROCEDURE

Relieve pressure on the Magnum® ProX™ and GX™ Sprayers when operation is stopped, and before cleaning, checking, or servicing the equipment.

Follow the Pressure Relief Procedure whenever you see this symbol.

⚠ WARNING

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. 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 place Prime/Spray valve in PRIME position (drain) 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.
7. If you suspect the spray tip or hose is clogged or that pressure has not been fully relieved:
    a. Using a wrench, VERY SLOWLY loosen the spray tip guard retaining nut or the hose end coupling to relieve pressure gradually.
    b. Using a wrench, loosen the nut or coupling completely.
    c. Clear airless hose or spray tip obstruction.

FRONT COVER REPLACEMENT

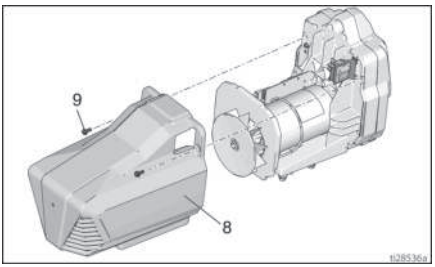
See **Drive and Control Parts** and your Owners/ Operation manual for illustrations.

DISASSEMBLY

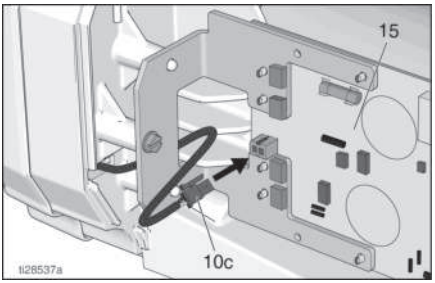
1. Perform **Pressure Relief Procedure**.
2. Unplug sprayer.

Remove Motor Shield

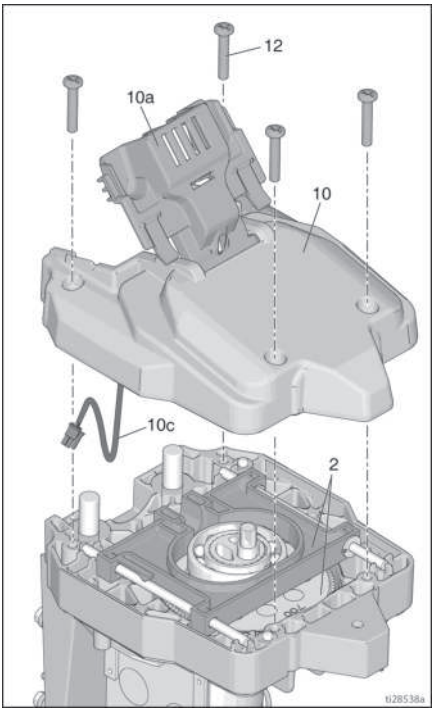
3. Remove two machine screws (9) and motor shield (8).



4. Disconnect cable (10c) from control board (15).



5. If necessary remove paint shield (14). Paint shield is not included on all sprayers.
6. Position sprayer so front cover (10) is pointing up.
7. See **Open Easy Access Door**.
8. Remove four front cover (10) screws (12) using a T-20 Torx. Make certain gear and yoke (2) remain installed in drive housing.



9. Pull cable (10c) through drive housing.

ASSEMBLY

1. Locate new front cover (10).
2. Route cable (10c) through drive housing to control board (15).
3. Assemble front cover (10) to drive housing. Insert four screws (12) and torque. See **Drive and Control Parts** for torque.
4. Connect cable (10c) to control board (15).

Install Motor Shield

5. Install motor shield (8) using two screws (9) removed earlier. Make sure motor shield (8) slides into switch bracket (13). Be careful not to pinch the cable (10c) when installing the motor shield (8).
6. See **Close Easy Access Door**.

MOTOR REPLACEMENT

See **Drive and Control Parts** and your Owners/ Operation manual for illustrations.

NOTE:

On hopper units you may need to remove the hopper before replacing the motor. Direct immersion and hopper units are easier to disassemble if the sprayer is placed on the side. Save all hardware remove during disassembly, most is required during reassembly.

REMOVAL

1. Perform **Pressure Relief Procedure**.
2. Unplug sprayer.
3. Remove pump assembly. See steps 3-5 in **Pressure Control Replacement** disassembly procedure.
4. Remove front cover. See **Front Cover Replacement** disassembly procedure.
5. Disconnect leads from ON/OFF switch (17) and slide switch bracket (13) with ON/OFF switch (17) out of the drive housing.
6. Disconnect all leads from control board (15) and remove control board. See **Control Board Replacement**.
7. Remove gear and yoke (2). See **Gear and Yoke Replacement**.
8. Remove ground screw (18) and power cord (3) from motor drive housing (1).
9. For sprayers with a handle (24), remove screw (6) and handle (24) from drive housing (24).
10. Remove four screws (22) and motor (1) with drive housing from sprayer frame.

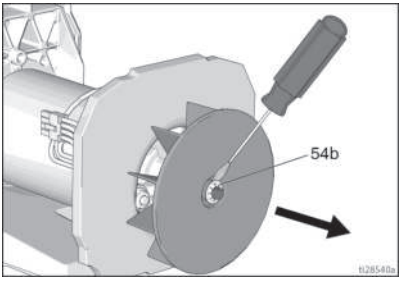
INSTALLATION

1. Secure new motor (1) with drive housing to frame using four screws (22) and torque. See **Drive and Control Parts** for torque.
2. For sprayers with a handle (24), install screw (6) and handle (24) into drive housing (1).
3. Install power cord (3) in drive housing (1), route power cord (3) through the hole located in the bottom of the drive housing (1) and around the top of the motor shell.
4. Reconnect ground wire from power cord (3) with screw (18) to motor drive housing (1) and torque. See **Drive and Control Parts** for torque.
5. Slide switch bracket (13) with switch (17) into drive housing.
6. Install control board (15), reconnect all wire leads and motor connector. See **Control Board Replacement**. Refer to wiring diagram in your Owners/Operation manual.
7. Install gear and yoke (2). See **Gear and Yoke Replacement**.
8. Install front cover. See **Front Cover Replacement** assembly procedure.
9. Install pump assembly. See steps 7-9 in **Pressure Control Replacement** assembly procedure.

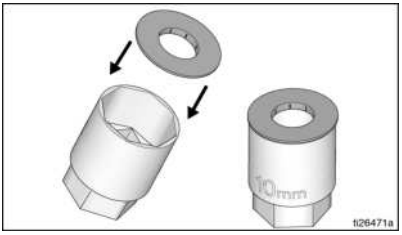
FAN REPLACEMENT

There are two fans used on this series of sprayers. One is a direct drive fan (see step 4 for replacement procedure) and the other is a clutch fan (see step 5 for replacement procedure).

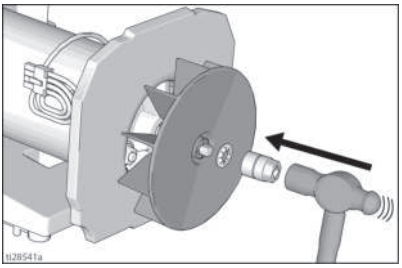
1. Perform **Pressure Relief Procedure**.
2. Unplug sprayer.
3. See **Remove Motor Shield**.
4. Direct drive fan replacement.
   a. Pry push nut (54b) off the motor shaft with a small screwdriver. Discard old push nut.



   b. Remove fan from motor shaft.
   c. Install new fan on the motor shaft with the fins facing the motor.
   d. Place a new push nut (54b) on a 3/8 in. (10 mm) socket.

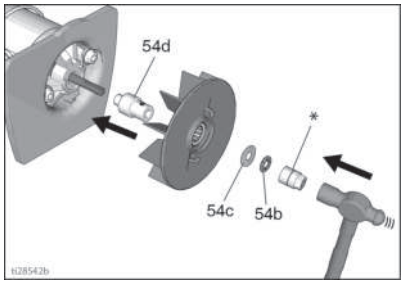


   e. Position the push nut and socket at the end of the motor shaft. Use a small or light (8 oz./ 225 g) hammer to drive the push nut (54b) onto the shaft.



5. Clutch fan replacement.
   a. Pry push nut (54b) off the motor shaft with a small screwdriver.

b. Remove and discard old push nut (54b), washer (54c), fan, and shaft adapter (54d). If present, the shaft adapter requires a 5/64 in. hex key to loosen the setscrew. Apply heat to loosen the setscrew.



***** 3/8 in. or 10 mm socket

c. Slide the new shaft adapter (54d) on to the motor shaft. If using the adapter with setscrew, apply thread locker (supplied in kit) to setscrew. Thread setscrew onto shaft adapter (54d) and torque to 20–25 in-lb (2.3–2.8 N·m).

d. Rotate fan clockwise while sliding fan onto shaft adapter (54d) with the fins facing the motor. Slide wave washer (54c) onto motor shaft.

e. Place a push nut (54b) on a 3/8 in. (10 mm) socket.

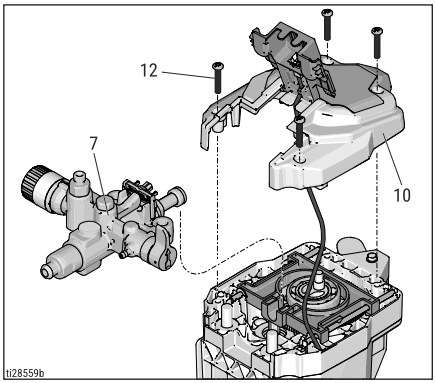
f. Position the push nut and socket at the end of the motor shaft. Use a small light (8 oz./ 225 g) hammer to drive the push nut onto the shaft compressing the wave washer.

6. Slide motor shield (8) over the motor.
7. Secure the motor shield (8) using the two machine screws (12) removed earlier.

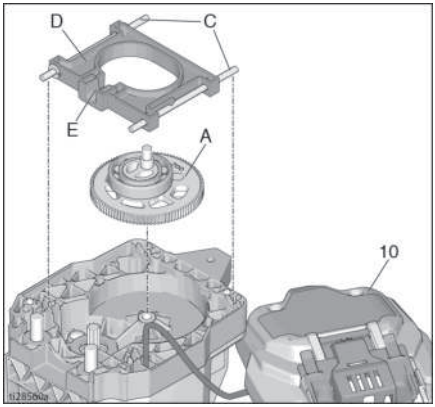
GEAR AND YOKE REPLACEMENT

DISASSEMBLY

1. Perform **Pressure Relief Procedure**.
2. Unplug sprayer.
3. If necessary remove paint shield (14). Paint shield is not included on all models.
4. Position sprayer so front cover (10) is pointing up.
5. See **Open Easy Access Door**.
6. Remove four front cover (10) screws (12) using a T-30 Torx. Move front cover (10) to the side, support cover so that it is not hanging by the cable.
7. Remove pump assembly (7) by sliding it off the mounting pins. Set the pump assembly to the side.



8. Remove yoke (D) with the two yoke guide rods (C) from the drive housing.
9. Remove gear (A) from drive housing.



ASSEMBLY

1. Use applicator brush to spread entire contents of grease tube (included in kit) into gear teeth. Grease must be worked into roots of gear teeth to ensure long life.

2. Carefully position new gear (A) in drive housing. Make certain motor drive gear meshes with new gear (A).
3. Install yoke (D) with slot (E) facing out for pump piston as shown.
4. Apply grease to yoke guide rods (C).
5. Install front cover (10) and cover screws (12).

NOTICE

If yoke guide rods (C) drop out of position during assembly, damage to cover will occur when cover is tightened. Always check position of guide rods before tightening cover.

Take care to not pinch wiring harness (10c) between pump drive housing and between front cover (10). To prevent wiring harness damage, use a needle-nose pliers to move harness.

6. Install pump assembly and close easy access door. See **Pressure Control Replacement** assembly for details.

CONTROL BOARD REPLACEMENT

Refer to your Owners/Operation manual for wiring diagrams.

Note color and locations of all wires connected to the control board before you start the control board replacement.

REMOVAL

1. Perform **Pressure Relief Procedure**.
2. Unplug sprayer.
3. See **Remove Motor Shield**.
4. Disconnect pressure switch (10c) and motor connector from control board (15).
5. Disconnect ON/OFF switch (17) leads and power cord (3) from control board (15).
6. Remove screw (16) securing control board to drive housing.

INSTALLATION

1. Carefully slide new control board (15) into place on the side of the drive housing. Secure with screw (16) and torque. See **Drive and Control Parts** for torque.
2. Reconnect the power cord connector(s) to the correct leads on the control board (15).
3. Connect appropriate control board (15) lead(s) to the ON/OFF switch (17).
4. Reattach pressure switch (10c) and motor connector to control board (15).
5. See **Install Motor Shield**.

FUSE REPLACEMENT

If fuse is blown, check for:

- Pinched or shorted wires
- A defective motor
- A locked or frozen pump

1. Perform **Pressure Relief Procedure**.
2. Unplug sprayer.
3. See **Remove Motor Shield**.
4. Remove fuse (15a) from control board (15).
5. Install new fuse (15a) on control board (15).
6. See **Install Motor Shield**.

The parts illustration and list show the components of Magnum® ProX™ and GX™ Sprayers Drive and Control and their connections that are required for assembly, repair, and maintenance.

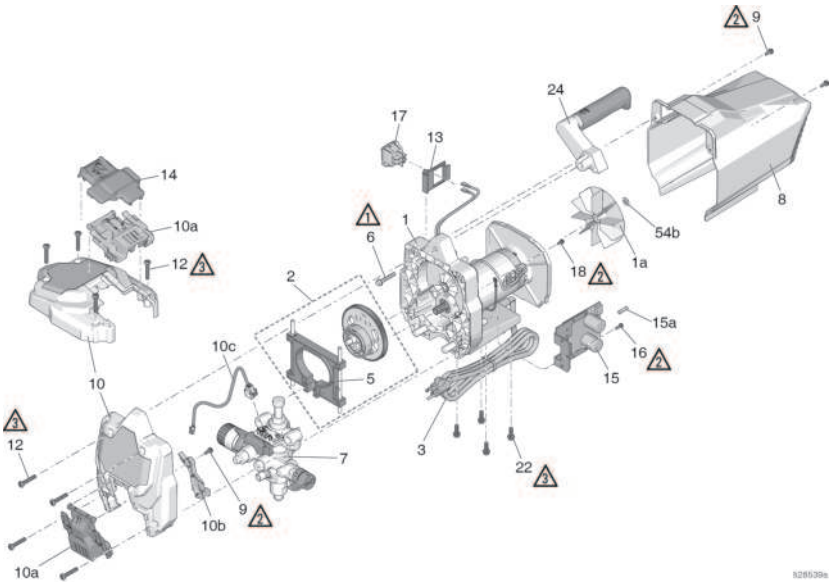


Figure 8-1: Drive and Control Parts Diagram

1 140–160 in-lb (16–18 N·m)

2 30–35 in-lb (3.5–4 N·m)

3 110–120 in-lb (12–14 N·m)

REF.	DESCRIPTION
1	Motor
1a	Fan
2	Gear and yoke
3	Power cord
5	Yoke
6	Handle screw
7	Pump
8	Motor shield
9	Machine screw 10-24 x 0.5 in.
10	Front cover
10a	Easy access door
10b	Wire cover
10c	Cable
12	Machine screw (T-30 Torx)
13	Switch bracket
14	Paint shield (DI models only)
15	Control
15a	Fuse, 12.5A slow blow
16	Screw
17	ON/OFF switch
18	Machine screw
22	Screw, thread forming
24	Handle, stand models

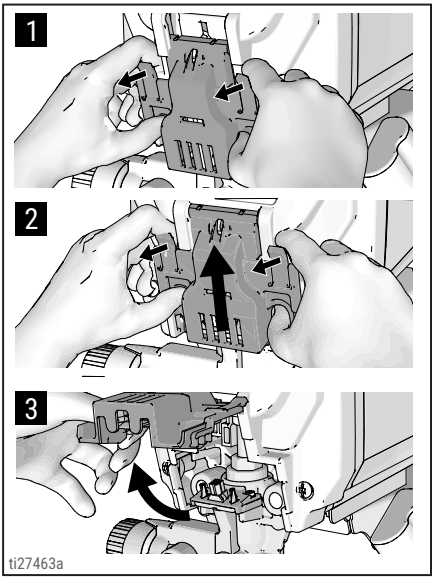
PRESSURE CONTROL REPLACEMENT

DISASSEMBLY

1. Perform **Pressure Relief Procedure**.
2. Unplug sprayer.

Open Easy Access Door

3. Pull tabs on sides of the easy access door pump towards you while pushing the entire door away from the inlet end of the pump.
4. Now lift the door so that it swivels out of the way.



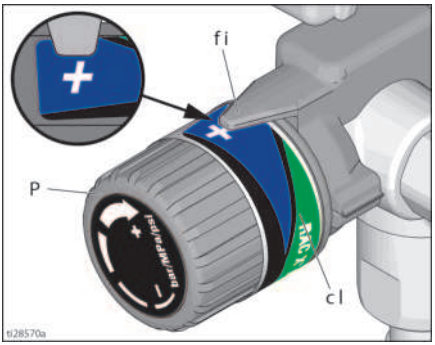
5. Remove pump by sliding it off the mounting pins.
6. Remove wire shield (30).
   - Unsnap the wire shield. On some models a retaining screw must be removed from the pump housing (1).
   - Save wire shield (30).
   - Note wire routing. Wires on new pressure control will be routed the same way.
7. Remove the two screws (5) from electrical connector bracket (29). Save the screws.
8. Turn pressure control knob fully counterclockwise to expose the wrench flats. Remove pressure control (28) with wire and electrical connector bracket (29). Verify the o-ring (28c) has been removed from the pump housing (1).

ASSEMBLY

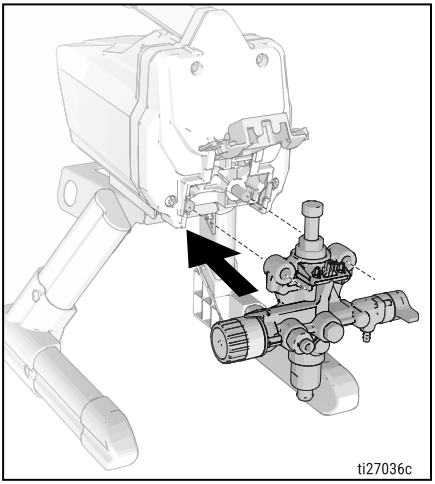
1. Examine pressure control (28) to verify that o-ring (28c) is on the pressure control (28). If o-ring is not installed on pressure control, install o-ring.
2. Apply one or two drops of thread locking adhesive (included in kit) to threads of pressure control (28). Assemble pressure control (28) into pump housing (1) and torque. See **Pump Parts** for torque.
3. Route wire from pressure control (28) with electrical connector bracket (29) along pump housing (1) to mounting location.
4. Secure electrical connector bracket (29) to pump housing (1) with screws (5) removed earlier and torque. See **Pump Parts** for torque.
5. Install wire shield (30).
   - Make certain wire is under wire shield (30).
   - Snap the wire shield around the pump housing (1). On some models, install retaining screw (5) into pump housing (1) and torque. See **Pump Parts** for torque.
6. Turn pressure control knob clockwise as far as it will go. Apply pressure control label (cl) to knob. To position label correctly, see note.

NOTE:

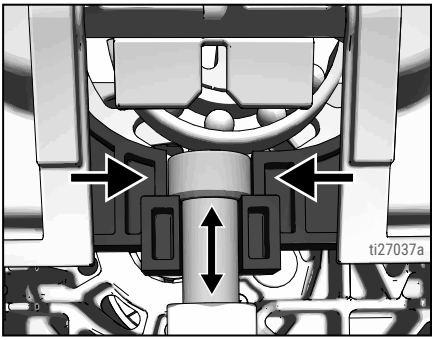
When properly positioned, the function indicator (fi) and hi-spray position symbol on pressure control label (cl) are aligned.



7. Slide pump assembly onto the mounting pins.

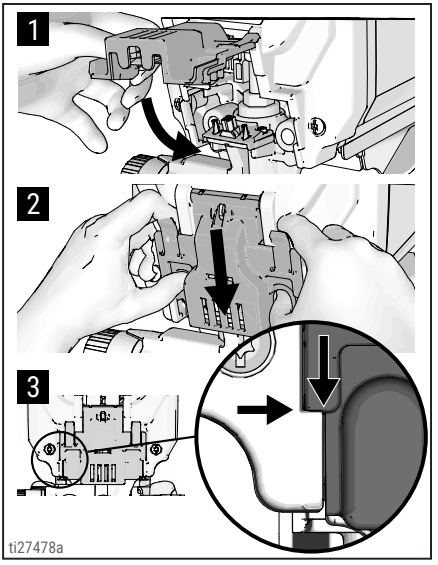


8. Move pump displacement rod up or down until cap is level with the opening in the yoke.



Close Easy Access Door

9. Swing easy access door pump door closed while pushing the entire door towards the inlet end of the pump.



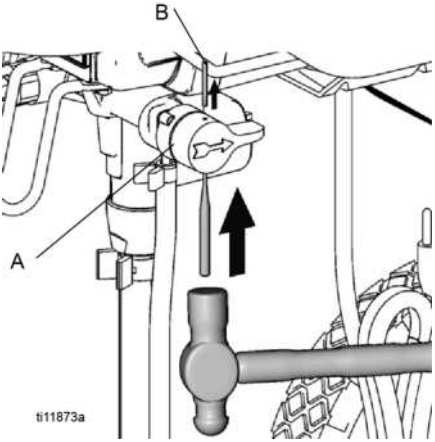
NOTE:

Door must be fully closed and latched before sprayer will operate.

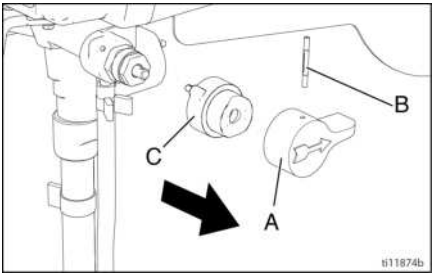
PRIME/SPRAY VALVE AND KNOB REPLACEMENT

DISASSEMBLY

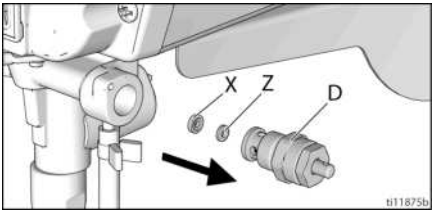
1. Perform **Pressure Relief Procedure**.
2. Unplug sprayer.
3. Turn knob (A) up to SPRAY position.
4. Remove pin (B) with pin punch and hammer.



5. Remove knob (A) and base (C).

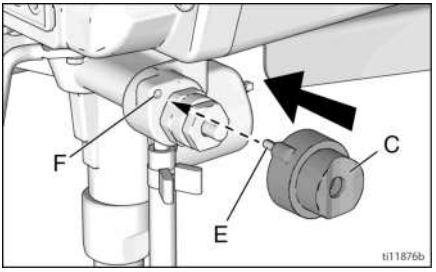


6. Remove valve stem assembly (D) from pump housing (1). Make certain gasket (X) and seat (Z) do not stay in pump housing (1).

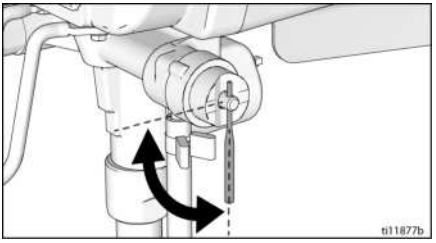


ASSEMBLY

1. Apply sealant (provided in kit) to valve threads. Install valve stem assembly in pump manifold and torque. See **Pump Parts** for torque.
2. Install base (C) on valve, aligning pin (E) on base (C) with hole (F) on pump housing (1).

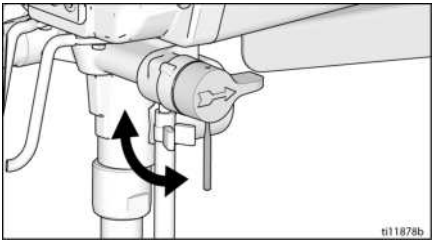


3. Rotate valve stem with a pin punch until hole is perpendicular.

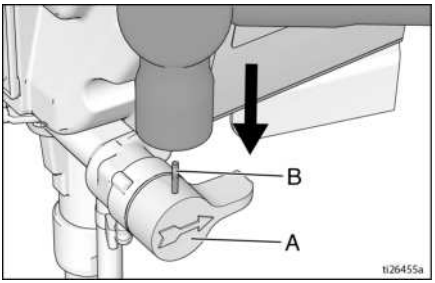


4. Install knob (A) over base (C).
5. Place knob in SPRAY position.

6. Insert end of pin punch through hole in knob (A), to make sure knob and valve stem are aligned.

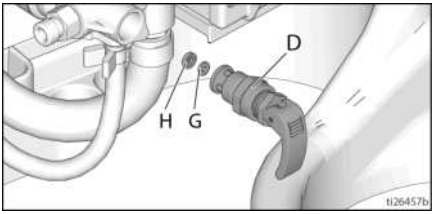


7. Install pin (B) through hole in knob (A). Tap pin through knob with hammer. End of pin will be flush with top of hole in knob when correctly installed.



GX MODELS ONLY

1. Remove valve stem assembly (D) from pump housing (1). Make certain gasket (H) and seat (G) do not stay in pump housing (1).



2. Apply sealant (provided in kit) to valve threads. Install valve stem assembly in pump housing (1) and torque. See **Pump Parts** for torque.

PUMP OUTLET VALVE REPLACEMENT

DISASSEMBLY

1. Perform **Pressure Relief Procedure**.
2. Unplug sprayer.
3. Remove outlet valve (15) from pump housing (1).
4. Clean all dried residue from around pump outlet seat area in pump housing (1).

ASSEMBLY

1. Verify that o-rings are installed.
2. Thread new pump outlet valve (15) into pump housing (1). Torque. See **Pump Parts** for torque.

PUMP INLET VALVE REPLACEMENT

DISASSEMBLY

1. Perform **Pressure Relief Procedure**.
2. Unplug sprayer.
3. Remove suction tube. Hopper may need to be removed on models with a hopper.
4. Remove inlet valve fitting (6) from pump housing (1) and discard. Make certain inlet ball (4), spring (3), and ball guide (2) are removed from pump housing (1).
5. Clean all dried residue from around pump inlet sealing area in pump housing (1).

ASSEMBLY

1. Assemble ball guide (2), spring (3), and ball (4) into pump housing (1).
   a. The ball guide (2) is keyed for proper alignment.
   b. Make certain the bump on the ball guide (2) is aligned with the slot in the pump housing (1). Slide ball guide (2) into pump housing (1).
   c. Install spring (3) over ball stop pin in the ball guide (2).
   d. Install ball (4) into ball guide (2).
2. Make certain o-ring (6a) is installed on inlet valve housing (6).
3. Thread new inlet valve housing into pump housing (1) or torque. See **Pump Parts** for torque.
4. Use a pencil or similar object to push on the ball (4) through the inlet valve intake to make sure the ball moves free.

PUSHPRIME BUTTON REPLACEMENT

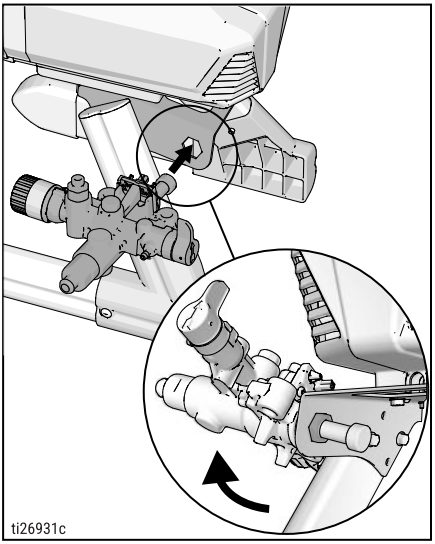
GX MODELS ONLY

1. Perform **Pressure Relief Procedure**.
2. Unplug sprayer.
3. Remove PushPrime button (7) from pump housing (1) and discard.
4. Clean all dried residue from around PushPrime button sealing area in pump housing (1).
5. Verify that o-ring (7a) is installed on the PushPrime button (7).
6. Thread new PushPrime button (7) into pump housing (1) and torque. See **Pump Parts** for torque.

PUMP PACKING O-RING REPLACEMENT

Remove pump packing assembly (25) and replace o-ring (21) with new one.

1. Remove pump housing (1) from sprayer. See **Pressure Control Replacement** for pump removal.
2. Insert hex end of pump into hex tool in the sprayer frame and turn counterclockwise to loosen assembly. Location of the hex varies depending on the sprayer.

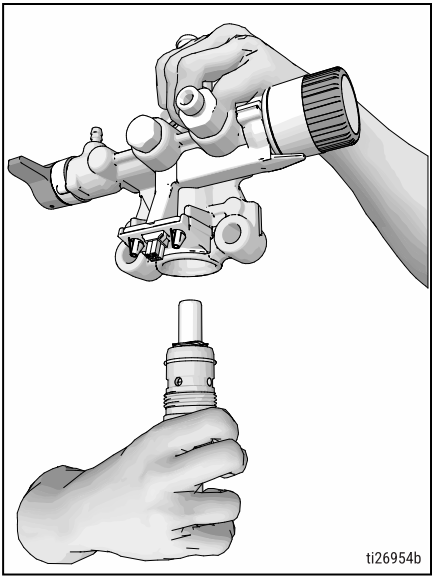


3. Remove entire packing assembly (25) from pump housing (21) including the packing spring (18).
4. Remove and replace o-ring (21).

NOTICE

Be careful not to lose the packing spring that is installed on the pump rod. Operation without the packing spring will cause early pump failure.

5. While holding the pump body upside down start threading the new packing assembly in by hand.



6. Insert hex end of pump into hex tool in the sprayer frame and torque. See **Pump Parts** for torque.
7. Install pump housing (1) into sprayer. See **Pressure Control Replacement** for pump installation.

SUCTION TUBE REPLACEMENT

1. Remove suction tube (26 or 37) from pump inlet.
2. Remove clamp and strainer from suction tube.
3. Locate new suction tube (26 or 37).
4. Install strainer.
5. Slide clamp over the end of the suction tube.
6. Install suction tube onto pump inlet and secure with clamp.

ASSEMBLY VERIFICATION

After assembly is complete, follow the Setup and Startup instructions in your Owners/Operation manual to verify proper sprayer operation.

The parts illustration and list shows the components of Magnum® ProX™ and GX™ Sprayers Pump and their connections that are required for assembly, repair, and maintenance.

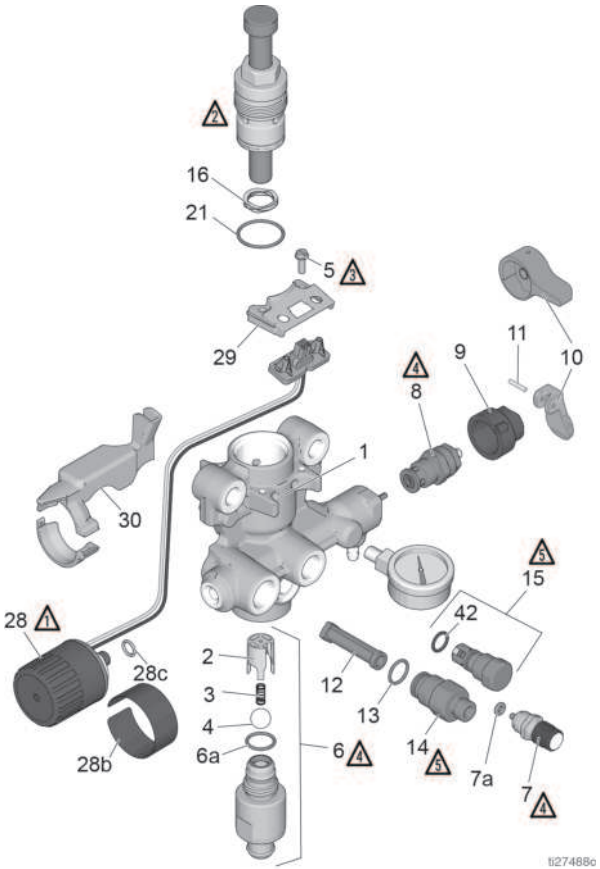


Figure 10-1: Pump Parts Diagram

1 140–160 in-lb (16–18 N·m)

2 270–330 in-lb (30–37 N·m)

3 30–35 in-lb (3.4–4 N·m)

4 220–250 in-lb (25–28 N·m)

5 320–380 in-lb (36–43 N·m)

REF.	DESCRIPTION
1	Pump housing
2	Ball guide
3	Compression spring
4	Ball 0.5 in.
5	Screw
6	Pump inlet valve kit
6a	O-ring
7	PushPrime button kit (Not used on all models.)
7a	O-ring (Not used on all models.)
8	Prime/Spray (Drain) Valve
9	Valve base (Not used on all models)
10	Prime/Spray Valve handle
11	Grooved pin
12	Filter (Not installed on all models)
13	O-ring
14	Pump filter housing kit
15	Pump outlet valve kit
16	Packing spring
21	O-ring
28	Pressure control
28b	Control label
28c	O-ring
29	Electrical connector bracket
30	Wire shield
42	O-ring

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 **WARNING** Cancer and reproductive harm — www.P65warnings.ca.gov.

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