

King™ Spray Packages and Pumps with XL 10K Air Motor

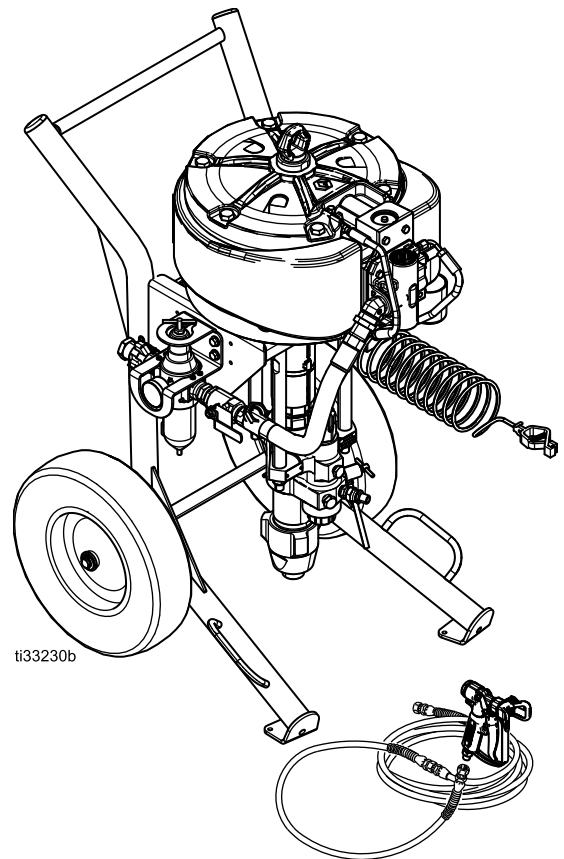
334645G
EN

High performance, high pressure spray packages for applying protective coatings.



Read all warnings and instructions in this manual before using the equipment. Save these instructions.

See Packages on page 6 for maximum working pressures.



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Related Manuals



Manual in English	Description
334644	Xtreme XL Air Motor, Instructions-Parts
3A0293	Air Controls, Instructions-Parts
311825	Dura-Flo™ Lowers, Instructions-parts
311762	Xtreme® Lowers, Instructions-Parts
311164	Xtreme Packages, Instructions-Parts






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.

 WARNING	
   	<p>FIRE AND EXPLOSION HAZARD</p> <p>Flammable fumes, such as solvent and paint fumes, in work area can ignite or explode. Paint or solvent flowing through the equipment can cause static sparking. To help prevent fire and explosion:</p> <ul style="list-style-type: none"> • Use equipment only in well ventilated area. • Eliminate all ignition sources; such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static sparking). • Ground all equipment in the work area. See Grounding instructions. • Never spray or flush solvent at high pressure. • Keep work area free of debris, including solvent, rags and gasoline. • Do not plug or unplug power cords, or turn power or light switches on or off when flammable fumes are present. • Use only grounded hoses. • Hold gun firmly to side of grounded pail when triggering into pail. Do not use pail liners unless they are anti-static or conductive. • Stop operation immediately if static sparking occurs or you feel a shock. Do not use equipment until you identify and correct the problem. • Keep a working fire extinguisher in the work area.

WARNING

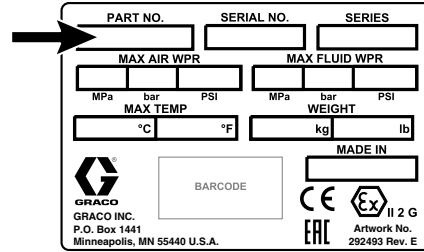
	<p>SKIN INJECTION HAZARD</p> <p>High-pressure fluid from gun, hose leaks, or ruptured components will pierce skin. This may look like just a cut, but it is a serious injury that can result in amputation. Get immediate surgical treatment.</p> <ul style="list-style-type: none"> • Do not spray without tip 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.
	<p>EQUIPMENT MISUSE HAZARD</p> <p>Misuse can cause death or serious injury.</p> <ul style="list-style-type: none"> • Do not operate the unit when fatigued or under the influence of drugs or alcohol. • Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See Technical Data in all equipment manuals. • Use fluids and solvents that are compatible with equipment wetted parts. See Technical Data in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request MSDS 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.

 <h1 style="margin: 0;">WARNING</h1>	
 	<p>MOVING PARTS HAZARD</p> <p>Moving parts can pinch, cut or amputate fingers and other body parts.</p> <ul style="list-style-type: none"> • Keep clear of moving parts. • Do not operate equipment with protective guards or covers removed. • Pressurized equipment can start without warning. Before checking, moving, or servicing equipment, follow the Pressure Relief Procedure and disconnect all power sources.
	<p>TOXIC FLUID OR FUMES HAZARD</p> <p>Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled, or swallowed.</p> <ul style="list-style-type: none"> • Read MSDSs to know the specific hazards of the fluids you are using. • Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.
	<p>PERSONAL PROTECTIVE EQUIPMENT</p> <p>Wear appropriate protective equipment when in the work area to help prevent serious injury, including eye injury, hearing loss, inhalation of toxic fumes, and burns. Protective equipment includes but is not limited to:</p> <ul style="list-style-type: none"> • Protective eyewear, and hearing protection. • Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer.

Sprayer Packages

Air Motor Part Matrix

Check your sprayer or wall mount package's identification plate (ID) on the side of the shelf mounting bracket for the 6 digit part number of your package. Use the following matrix to define the construction of your package, based on the six digits. For example, Sprayer Part Number **K 70 F G 1** represents the King brand (**K**), pressure ratio (**70 :1**), Xtreme lower with a built-in filter on a heavy duty cart (**H**), and complete package (gun, hose, and pump filter included) (**1**). To order replacement parts, see [Parts, page 22](#).



t25703b

Approvals:



II 2 G Ex h IIC 230°C (T2) Gb

K	70		F		H		1	
First Digit Sprayer	Package Pressure		Lower Type		Fifth Digit Mounting		Sixth Digit Option 0-9	
K	30*	XL 3400/220cc	F	Std Filter	H	Heavy Duty Cart	0	Bare Package with Air Controls and Siphon Kit, No Hose and Gun
	40*	XL 3400/180cc	N	Std Non-Filter	L	Lightweight Cart	1	Std Complete Unit with Air Kit, Siphon Kit, and Hose/Gun Kit
	45*	XL 6500/290cc	M	Max-Life with Filter	W	Wall Mount	2	Std Complete Unit with Air Kit, Siphon Kit, and Hose/Gun Kit, and Lubricator
	50*	XL 6500/250cc						
	60*	XL6500/220cc						
	70*	XL 6500/180cc						
	90*	XL 6500/145cc						
	47	XL 10000/430cc DF						
	71	XL 10000/290cc						
	82	XL 10000/250cc						

Heavy Fluid Packages

Part	Description
†26C891	SPRAYER, XL65, HF, 70:1
†26C892	SPRAYER, XL10K, HF, 71:1, 2 Gun
‡24X593	SPRAYER, XL70, HF, 70:1
‡24X594	SPRAYER, XL80, HF, 80:1

NOTE: Packages include a hopper, no fluid filter, and XHF spray gun(s) with tip.

†Packages include a 1/2 in. x 50 ft hose and 3/8 in. x 6 ft whip for each gun (two of each are included with 26C892 packages).

‡Packages include 3/4 in. outer check valve, 3/4 in. x 50 ft hose, and 1/2 in. x 25 ft whip.

Sprayer Packages with 250 ft hose and XHF Gun

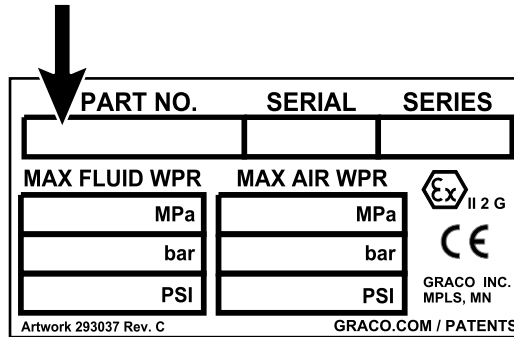
Part	Description
*26C349	K70NH0 with 250 ft hose and XHF Gun
26C351	K71NH0 with 250 ft hose and XHF Gun

*These systems are covered in the King Sprayer Packages and Pumps manual.

Pump Packages

Check the identification plate (ID) on your pump package (attached to the black motor shroud) for the 6-digit part number of your pump package. For example, Pump Part Number **P 70 H C 2** represents the pump (**P**), pressure ratio (**70:1**), carbon steel construction (**C**), and built-in filter (**2**).

To order replacement parts, see [Pump Package Parts](#).



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Approvals:

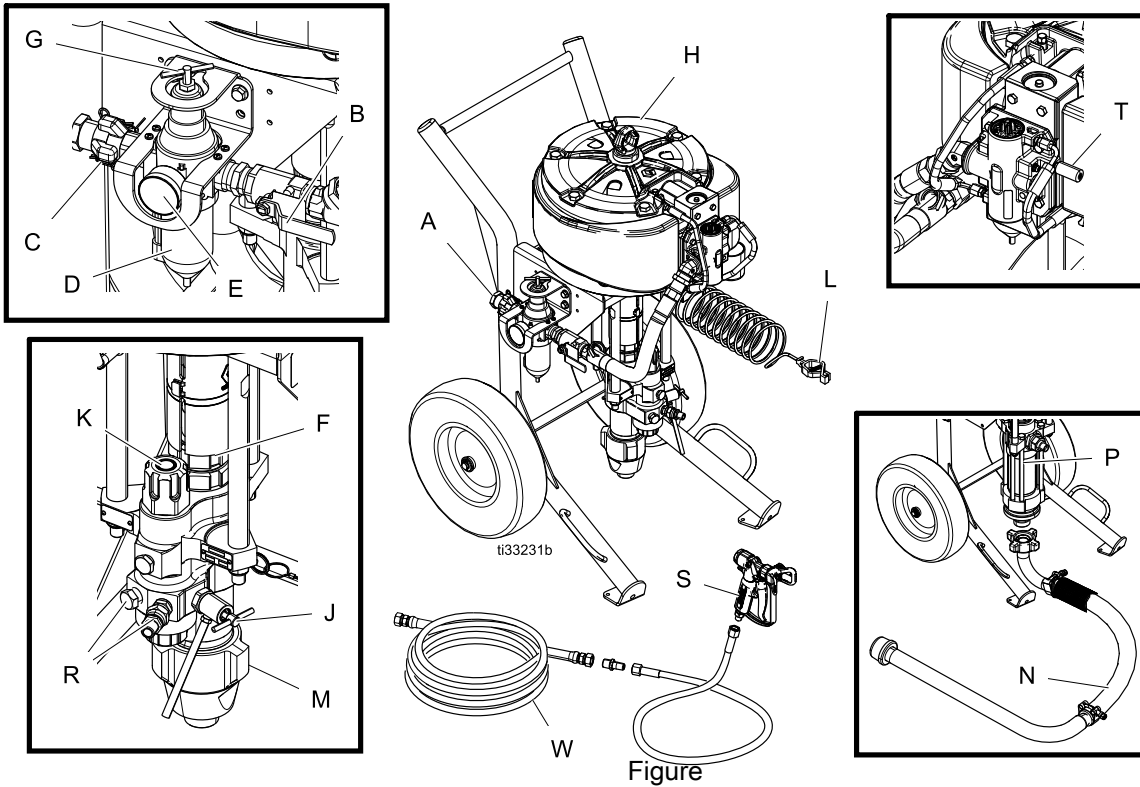


II 2 G Ex h IIC 230°C (T2) Gb

P	70		H		C		2	
First Digit Pump	Package Pressure		Motor Type		Lower Type		Filter Option	
P	30*	XL 3400/220cc	F	High Performance	C	Carbon Steel	1	No Filter in Lower
	40*	XL 3400/180cc			M	Max Life	2	Built-in Filter in Lower (Max Life only offered with built-in filter)
	45*	XL 6500/290cc						
	50*	XL 6500/250cc						
	60*	XL6500/220cc						
	70*	XL 6500/180cc						
	90*	XL 6500/145cc						
	47	XL 10000/430cc DF						
	71	XL 10000/290cc						
	82	XL 10000/250cc						

* These systems are covered in manual 3A5422.

Component Identification - Cart Mount



1 Airless Sprayer

Key:

- | | | | |
|---|--|----|---|
| A | Air Inlet, 1 in npt(f) on claw fitting | L | Grounding Wire (required) |
| B | Bleed Type Master Air Valve (required) | M | Pump |
| C | Air Pressure Relief Valve | N | Suction Hose and Tube (if equipped) |
| D | Air Filter / Water Separator | P | Pump Fluid Outlet |
| E | Air Pressure Gauge | PG | Pump Guard |
| F | Packing Nut | R | Optional Fluid Outlet, for second spray gun |
| G | Air Regulator Adjustment | S | Spray Gun |
| H | Air Motor | T | De-Ice Control (Bleed Air) |
| J | Fluid Drain/Purge Valve (required) | U | Hopper (if equipped) |
| K | Fluid Filter (if equipped) | W | Fluid Hose |

Component Identification - Wall Mount

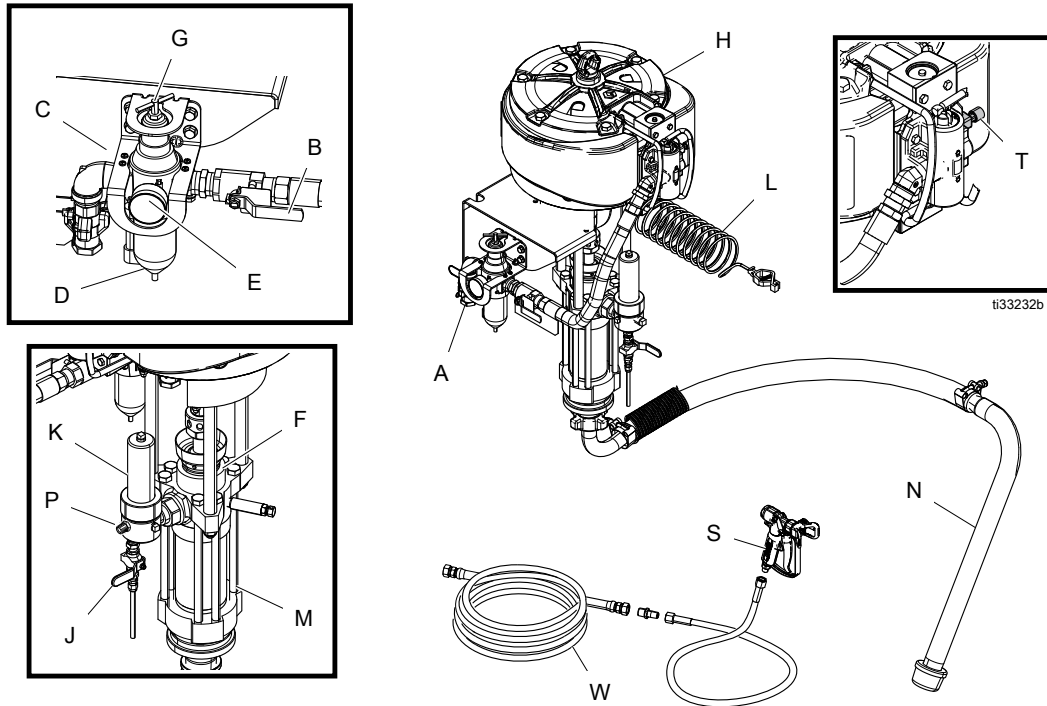


Figure 2 Airless Sprayer





Key:

- | | | | |
|---|--|---|----------------------------|
| A | Air Inlet, 1 in npt(f) on claw fitting | K | Fluid Filter (if equipped) |
| B | Bleed Type Master Air Valve (required) | L | Grounding Wire (required) |
| C | Air Pressure Relief Valve | M | Pump |
| D | Air Filter / Water Spearator | N | Suction Hose and Tube |
| E | Air Pressure Gauge | P | Fluid Outlet |
| F | Packing Nut | S | Spray Gun |
| G | Air Regulator Adjustment | T | De-Ice Control (Bleed Air) |
| H | Air Motor | W | Fluid Hose |
| J | Fluid Drain/Purge Valve (required) | | |

System Components

NOTE: * Required system components.

* Bleed Type Master Air Valve (B)

				
Trapped air can cause the pump to cycle unexpectedly, which could result in serious injury from splashing or moving parts.				

- Be sure the valve is easily accessible from the pump and located downstream from the air regulator.
 - Required in your system to relieve air trapped between it and the air motor when the valve is closed.
- Open the valve to supply air to the motor.
- Close the valve to shut off air to the motor, and bleed any trapped air from the motor.

* Air Pressure Relief Valve (C)

Automatically opens to relieve air pressure if supplied pressure exceeds preset limit.

* Air Filter (D)

Removes harmful dirt from compressed air supply. A minimum 40 micron filter is used.

Air Regulator Adjustment (G)

Adjusts air pressure to the motor and fluid outlet pressure of pump. Locate it close to the pump. Read air pressure on gauge (E).




* Fluid Drain/Purge Valve (J)

Open valve to relieve pressure and when flushing or priming pump. Close valve when spraying.

De-Ice Control (T)

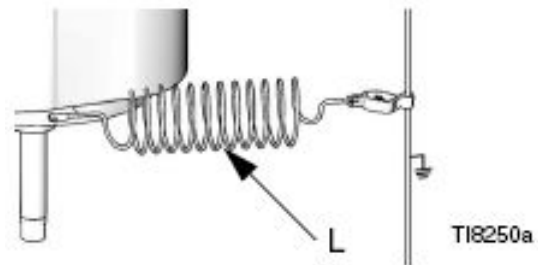
Turn bleed air knob (open) to reduce icing.

Grounding

				
The equipment must be grounded to reduce the risk of static sparking. Static sparking can cause fumes to ignite or explode. Grounding provides an escape wire for the electric current.				

Tools Required:

- Grounding wires and clamps for pails
 - Two 5 gal. (19 liter) metal pails
1. Connect the ground wire (244524) (L) to the ground stud on the air motor.



2. Connect the other end of the ground wire to a true earth ground.
3. Ground the object being sprayed, fluid supply container, and all other equipment in the work area. Follow your local code. Use only electrically conductive air and fluid hoses.
4. Ground all solvent pails. Use only metal pails, which are conductive, placed on a grounded surface. Do not place pail on a non-conductive surface, such as paper or cardboard, which interrupts grounding continuity.



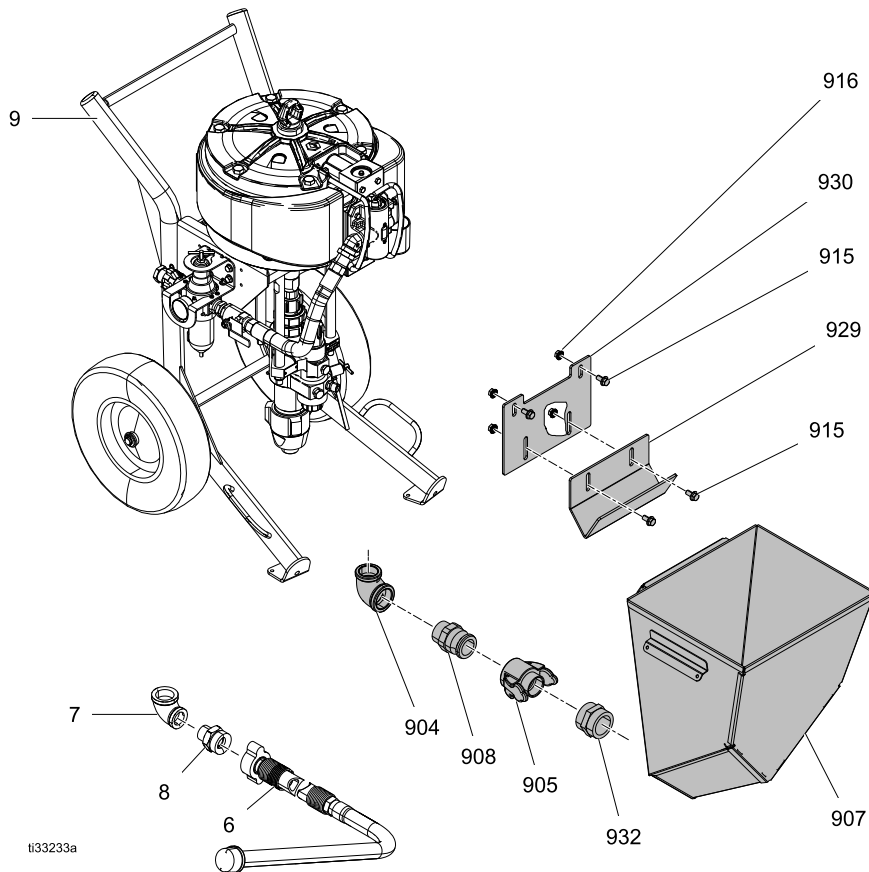
Install Wall Mount Assembly

NOTE: Before mounting any pump assembly to the wall always follow the [Pressure Relief Procedure, page 13](#).



1. Ensure the wall is strong enough to support the weight of the pump assembly and accessories, fluid, hoses, and stress caused during pump operation.
2. Drill four 7/16 in. (11 mm) holes using bracket as a template. Use any of the three mounting hole groupings in the bracket. See [Dimensions, page 35](#).
3. Bolt bracket securely to wall using bolts and washers designed to hold in the wall's construction.
4. Attach pump assembly to mounting bracket (201).
5. Connect air and fluid hoses. Refer to [Setup, page 12](#).

Install Hopper Assembly

1. If necessary remove suction hose.
 - a. Disconnect suction hose (6).
 - b. Disconnect fitting (7) and quick disconnect adapter (8) from the pump.
2. Attach bracket (930) to the cart (9) with nuts (916) and screws (915).
3. Loosely attach bracket (929) to bracket (930) with nuts (916) and screws (915).
4. Install elbow (904) and fitting (908) on the pump.
5. Install fitting (932) and fitting (905) on hopper (907).
6. Connect fitting (905) to fitting (908). Adjust bracket (929) height to fit under the lip on the back of the hopper (907). Tighten nuts (916).

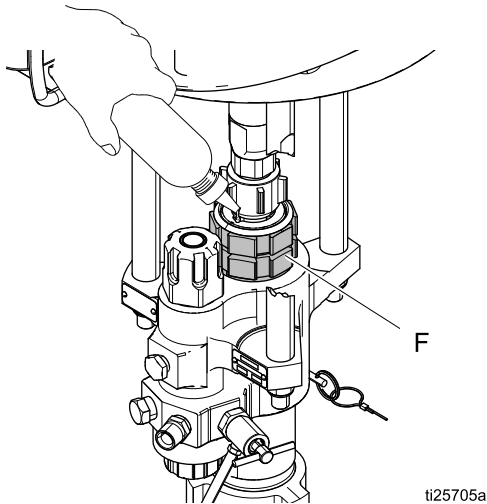


Setup

				
<p>To avoid tip over, ensure cart is on a flat and level surface. Failure to do so could result in injury or equipment damage.</p>				

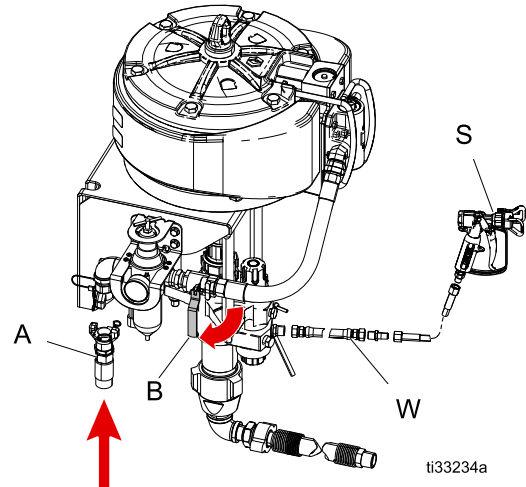
Tools Required:

- Two adjustable wrenches
 - Non-sparking hammer or plastic mallet
 - Torque wrench
 - Flat head screwdriver
1. Ground sprayer. See [Grounding, page 10](#).
 2. Use flat head screwdriver to remove pump guard (PG).
 3. Check packing nut (F). Remove packing nut cover and fill with Throat Seal Liquid (TSL). Torque to 100–110 ft-lb (135–150 N•m).



4. Reinstall the pump guard (PG).

5. Attach electrically conductive fluid hose to pump outlet and tighten.
6. Attach electrically conductive fluid hose (and air hose if using an AA gun) to gun and tighten. Check that all pressure connections are tight.
7. Close bleed type master air valve (B). Connect air supply hose to 1 in npt(f) air inlet (A).

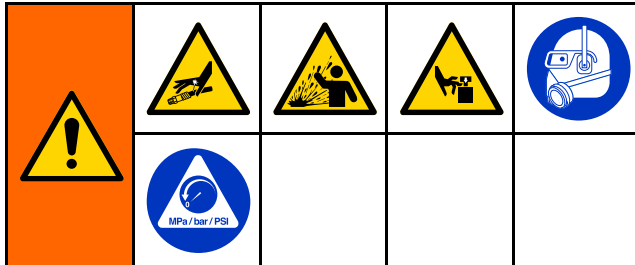


8. Flush and prime before using. See [Flush, page 14](#), and [Prime, page 16](#).

Pressure Relief Procedure



Follow the Pressure Relief Procedure whenever you see this symbol.

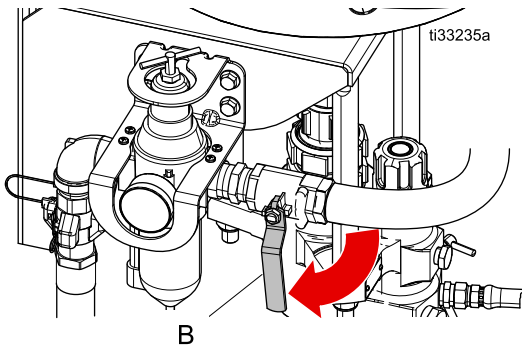


This equipment stays pressurized until pressure is manually relieved. To help prevent serious injury from pressurized fluid, such as skin injection, splashing fluid and moving parts, follow the Pressure Relief Procedure when you stop spraying and before cleaning, checking, or servicing equipment.

1. Engage gun trigger lock.

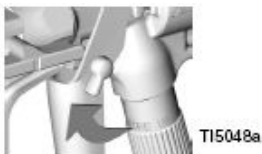


2. Close bleed type master air valve (B).



3. Disengage gun trigger lock.

NOTE: If using an AA gun, turn gun air regulator counter-clockwise to relieve pressure.



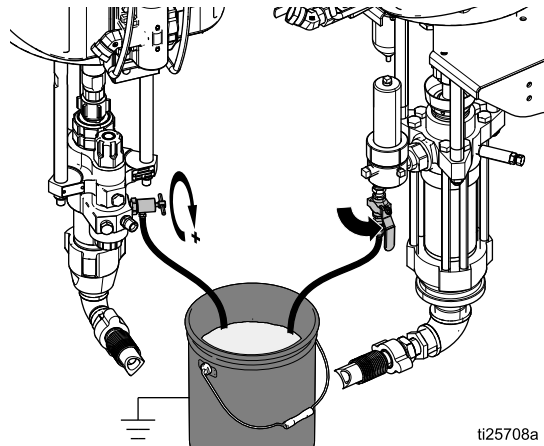
4. Hold gun firmly against a grounded metal pail. Trigger the gun until pressure is relieved.



5. Engage trigger lock.



6. Drain fluid. To drain fluid, slowly open all fluid drain valves, including drain/purge valve (J), in system into a waste pail. If there is a return tube, open return line ball valve. Close valve after fluid is drained.



Left: Xtreme Lower Right: Dura-Flo Lower

7. If you suspect the spray tip or hose is clogged or that pressure has not been fully relieved.
 - a. VERY SLOWLY loosen tip guard retaining nut or hose end coupling to relieve pressure gradually.
 - b. Loosen nut or coupling completely.
 - c. Clear hose or tip obstruction.

Flush

To avoid fire and explosion, always ground equipment and waste container. To avoid static sparking and injury from splashing, always flush at lower possible pressure.

Flush the pump:

- Before first use
- When changing colors or fluids
- Before repairing equipment
- Before fluid dries or settles out in a dormant pump (check the pot life of catalyzed fluids)
- At the end of the day
- Before storing the pump

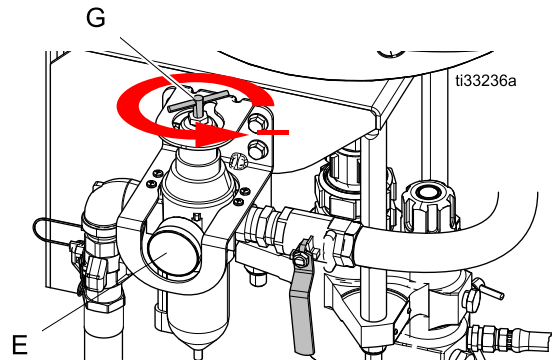
Flush at the lowest pressure possible. Flush with a fluid that is compatible with the fluid you are pumping and with the wetted parts in your system. Check with your fluid manufacturer or supplier for recommended flushing fluids and flushing frequency.

1. Follow [Pressure Relief Procedure](#), page 13.
2. Remove tip and tip guard from gun.
3. If desired, remove fluid filter. Reinstall filter cap after removing fluid filter.
4. Place suction tube in a compatible solvent.

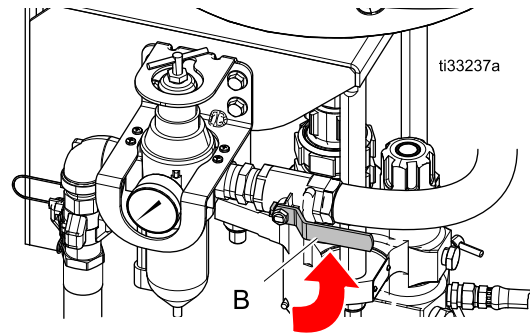


NOTE: Do not stretch hose tight. Let the hose hang to assist fluid flow into the pump.

5. Turn regulator adjustment knob (G) counterclockwise until it stops, and gauge (E) reads zero.

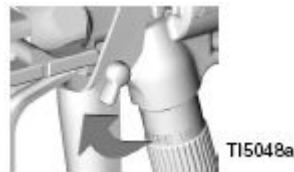


6. Open bleed type master valve (B).



7. Flush hose and gun:

- a. Disengage gun trigger lock. Hold the gun against a grounded metal pail.



- b. Trigger gun, slowly open regulator adjustment knob (G) until pump begins to cycle and a steady stream comes from gun. Trigger gun for 10-15 seconds.

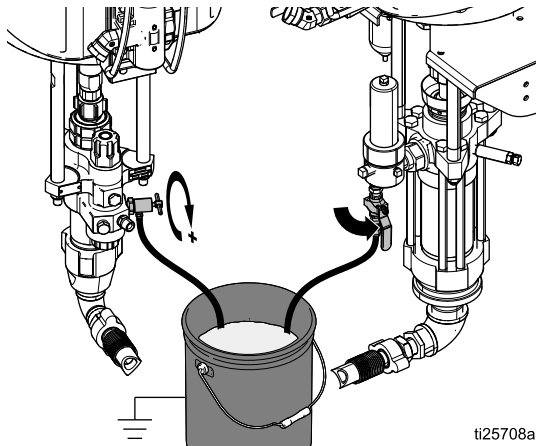


NOTE: If using an AA gun, increase air pressure by turning gun regulator clockwise.

- c. After solvent is running clean, turn the regulator adjustment knob (G) counter clockwise until it stops and the gauge reads zero. The pump will stop. Once the material stops flowing, release the trigger and engage the trigger lock. Stop the pump with the rod buried in the pump.
- d. Close the bleed type master air valve.

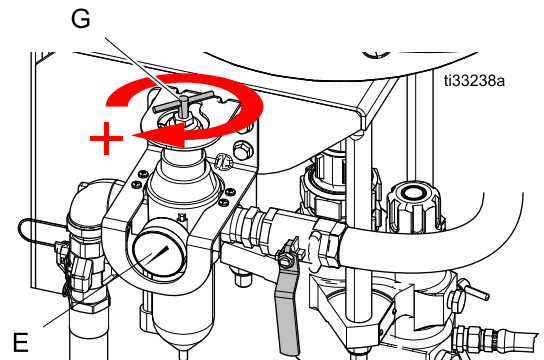
8. If flushing through drain/purge valve:

- a. Place drain tube in a grounded waste pail. Open drain/purge valve (J) slightly by rotating counterclockwise.

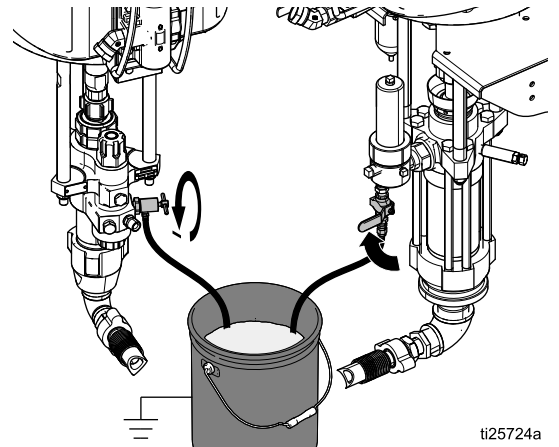


Left: Xtreme Lower	Right: Dura-Flo Lower
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- b. Start the pump by rotating the air regulator adjustment knob (G) clockwise until pump begins to move.



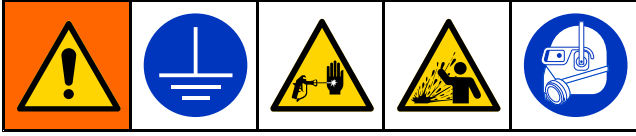
- c. When clean solvent flows from drain tube close drain/purge valve (J) by rotating clockwise. Pump will stall.



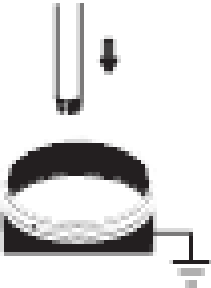
Left: Xtreme Lower	Right: Dura-Flo Lower
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- d. Stop the pump with the rod buried in the pump.
 - e. Follow [Pressure Relief Procedure, page 13](#). Leave solvent in and store sprayer.
9. Remove fluid filter and soak in solvent. Replace filter cap.

Prime

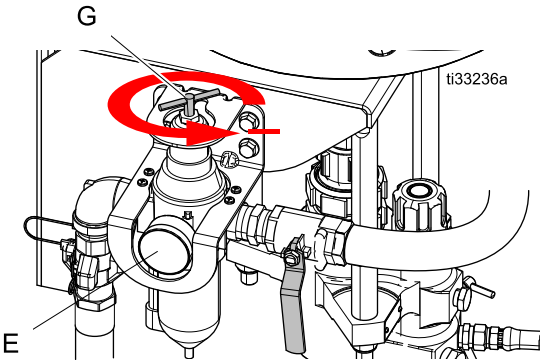


1. Follow [Pressure Relief Procedure](#), page 13.
2. Lock gun trigger. Remove tip and tip guard from gun.
3. Place suction tube in the material that will be sprayed.

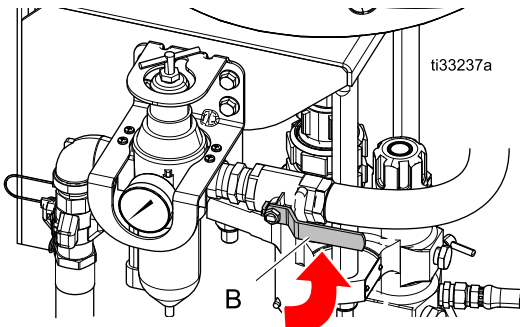


NOTE: Do not stretch hose tight let it hang to assist fluid flow into the pump.

4. Turn regulator adjustment knob (G) counterclockwise until it stops, and gauge (E) reads zero.



5. Open bleed type master valve (B).



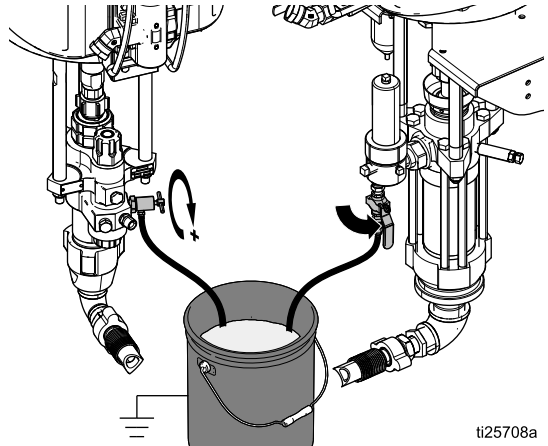
6. Prime through drain valve if necessary.

NOTE: Usually 1K high viscosity materials.

NOTICE

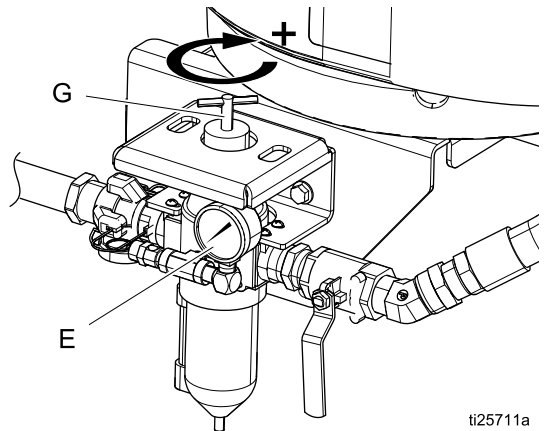
Do not prime pump through drain/purge valve using two component materials. Mixed two-component materials will harden in valve and result in clogging.

- a. Place drain tube in a grounded waste pail. Open drain/purge valve (J) slightly by rotating counterclockwise.



Left: Xtreme Lower	Right: Dura-Flo Lower
--------------------	-----------------------

- b. Start the pump by rotating the air regulator adjustment knob (G) clockwise until pump begins to move.



7. Prime hose and gun:

- a. Disengage gun trigger lock. Hold the gun against a grounded metal pail.



- b. Trigger gun, slowly open regulator adjustment knob (G) until pump begins to cycle and a steady stream comes from gun. Trigger gun for 10-15 seconds.



NOTE: If using an AA gun, increase air pressure by turning gun regulator clockwise.

- c. Engage trigger lock.
8. The equipment is now ready to spray; go to [Spray, page 18](#).

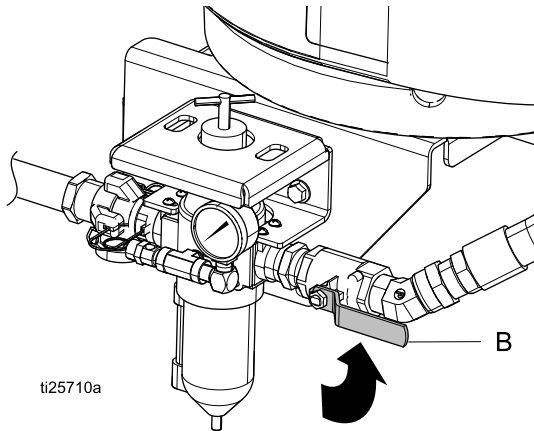
Spray



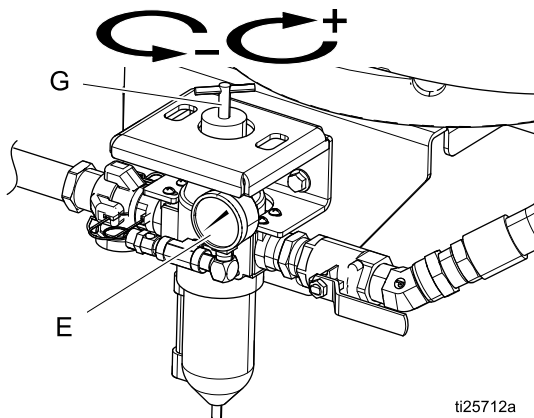
NOTICE

Do not allow pump to run dry. It will quickly accelerate to a high speed causing damage.

1. Prime. See [Prime](#), page 16.
2. Follow [Pressure Relief Procedure](#), page 13.
3. Install tip and tip guard on gun.
4. Open bleed type master air valve (B).



5. Turn regulator adjustment knob (G) until gauge (E) reads desired pressure. Turn clockwise to increase pressure, counterclockwise to decrease pressure.



6. Disengage gun trigger lock.

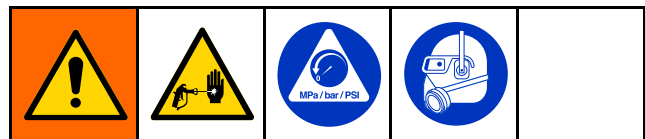


7. Spray a test pattern. Read fluid manufacturer's recommendations. Adjust pressure as necessary. If using an AA gun, increase gun air pressure while testing spray pattern.



8. Flush when done spraying. See [Flush](#), page 14.
9. Follow [Pressure Relief Procedure](#), page 13.

Shutdown



NOTICE

Never leave water or water-based fluid in pump over night. If you are pumping water-based fluid, flush with water first, then with a rust inhibitor, such as mineral spirits. Relieve pressure, but leave rust inhibitor in pump to protect parts from corrosion.

Follow [Pressure Relief Procedure](#), page 13.

Always flush the pump before the fluid dries on the displacement pump rod. See [Flush](#), page 14.

Maintenance

Preventative Maintenance Schedule

The operating conditions of your particular system determine how often maintenance is required. Establish a preventive maintenance schedule by recording when and what kind of maintenance is needed, and then determine a regular schedule for checking your system.

Daily Maintenance



NOTE: For over night shutdown, stop pump at bottom of its stroke to prevent fluid from drying on exposed displacement rod and damaging throat packings. Follow [Pressure Relief Procedure, page 13](#).

1. Flush. See [Flush, page 14](#).
2. Relieve pressure. See [Pressure Relief Procedure, page 13](#).
3. Check packing nut (S). Adjust packings and replace TSL as necessary. Torque to 25-30 ft-lb (34-41 N•m).
4. Drain water from air filter.
5. Clean suction tube using a compatible solvent. It is recommended that you clean the outside of the sprayer using a cloth and compatible solvent.
6. Check hoses, tubes, and couplings. Tighten all fluid connections before each use.
7. Clean fluid line filter.

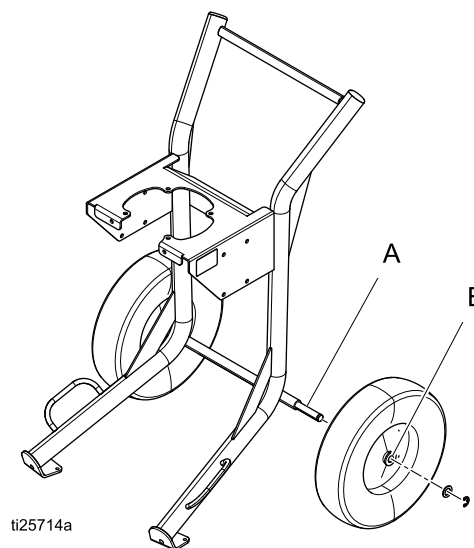
Corrosion Protection

Always flush the pump before the fluid dries on the displacement rod. Never leave water or water-based fluid in the pump overnight. First, flush with water or a compatible solvent, then with mineral spirits. Relieve the pressure, but leave the mineral spirits in the pump to protect the parts from corrosion.

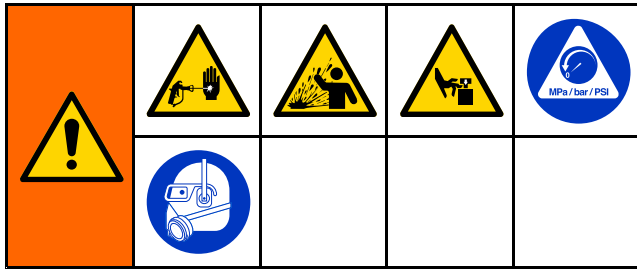
Cart Maintenance

Periodically lubricate the axle between points A and B with lightweight oil.

Keep the cart clean by wiping up spills daily, using a compatible solvent



Troubleshooting



1. Follow [Pressure Relief Procedure, page 13](#).
 2. Check all possible causes and problems before disassembling pump.
 3. See air motor manual for air motor specific troubleshooting
- * To determine if fluid hose or gun is obstructed, follow [Pressure Relief Procedure, page 13](#). Disconnect fluid hose and place a container at pump fluid outlet to catch any fluid. Turn on air power just enough to start pump. If pump starts, the obstruction is in fluid hose or gun.

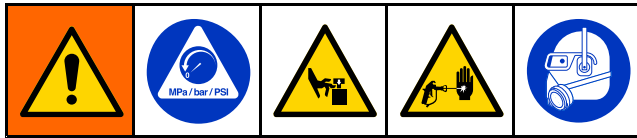
Problem	Cause	Solution
Does not operate.	Valve closed or clogged.	Clear air line; increase air supply. Check that valves are open.
	Fluid hose or gun obstructed.	Clean hose or gun.*
	Dried fluid on displacement rod.	Clean rod; always stop pump at bottom of stroke; keep wet-cup filled with compatible solvent.
	Air motor parts dirty, worn, or damaged.	Clean or repair air motor. See motor manual.
Output low on both strokes.	Air line restricted or air supply inadequate. Valves closed or clogged.	Clear air line; increase air supply. Check that valves are open.
	Fluid hose/gun obstructed; hose ID too small.	Clear hose or gun*; use hose with larger ID.
	Air motor icing.	Open De-Ice control.
Output low on down stroke.	Open or worn intake valve.	Clear or service intake valve.
	High viscosity fluid.	Adjust intake spacers.
Output low on upstroke.	Open or worn piston valve or packings.	Clear piston valve; replace packings.
Erratic accelerated speed.	Fluid supply exhausted, clogged suction.	Refill supply and prime pump. Clean suction tube.
	High viscosity fluid.	Reduce viscosity; adjust intake spacers.
	Open or worn piston valve or packings.	Clear piston valve; replace packings.
	Open or worn intake valve.	Clear or service intake valve.
Runs sluggishly.	Possible icing.	Stop pump. Open De-Ice control.
Cycles or fails to hold pressure at stall.	Worn check valves or seals.	Service lower. See Remove Lower, page 21 , and Xtreme Lowers manual (311762).
Air bubbles in fluid.	Loose suction line.	Tighten. Use compatible liquid thread sealant or PTFE tape on connections.
Poor finish or irregular spray pattern.	Incorrect fluid pressure at gun.	See gun manual; read fluid manufacturer's recommendations.
	Fluid is too thin or too thick.	Adjust fluid viscosity; read fluid manufacturer's recommendations.

Remove Lower

Required Tools

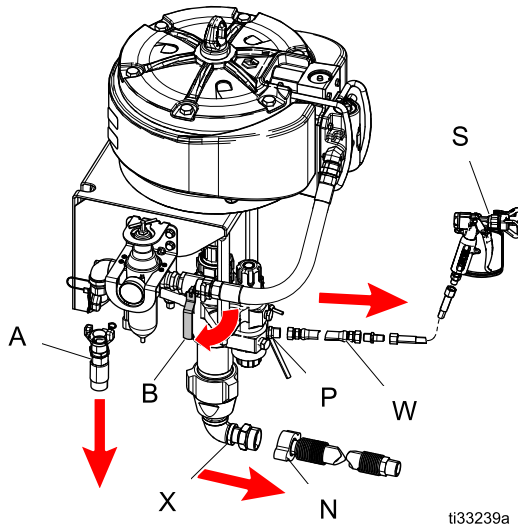
- Set of adjustable wrenches
- Torque wrench
- Rubber mallet
- Thread lubricant
- Anti-seize lubricant 222955
- Loctite® 2760™ or equivalent

Disconnect and Reconnect Lower

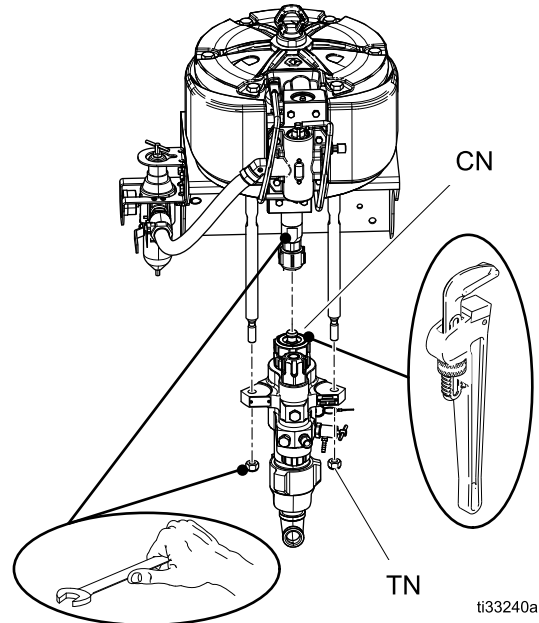


1. Flush the pump; see [Flush, page 14](#). Stop pump at bottom of its stroke. Follow [Pressure Relief Procedure, page 13](#).
2. Disconnect air hose.
3. Disconnect fluid hose (W). Hold fluid outlet fitting (P) with a wrench to keep it from loosening while you disconnect suction hose (N).

NOTE: Note the relative position of lower's fluid outlet (P) to inlet (X) of motor for easier reassembly alignment. If motor does not require service, leave it attached to its mounting.



4. Use a flathead screwdriver to remove pump guard (PG).
5. Hold the flats of the air motor piston rod with a wrench. Use another wrench to loosen the coupling nut (CN).



6. Remove the tie rod nuts (TN).
7. Remove lower. Refer to the Lower manual to service lower. To service motor, refer to separate motor manual.
8. Reconnect lower by following disconnect steps in reverse order.

NOTE: Torque coupler nut to 230–250 ft-lb (312–340 N•m). Apply anaerobic pipe sealant.

Parts

Airless King Sprayer Packages

The following table lists the major components and part numbers for each airless sprayer package.

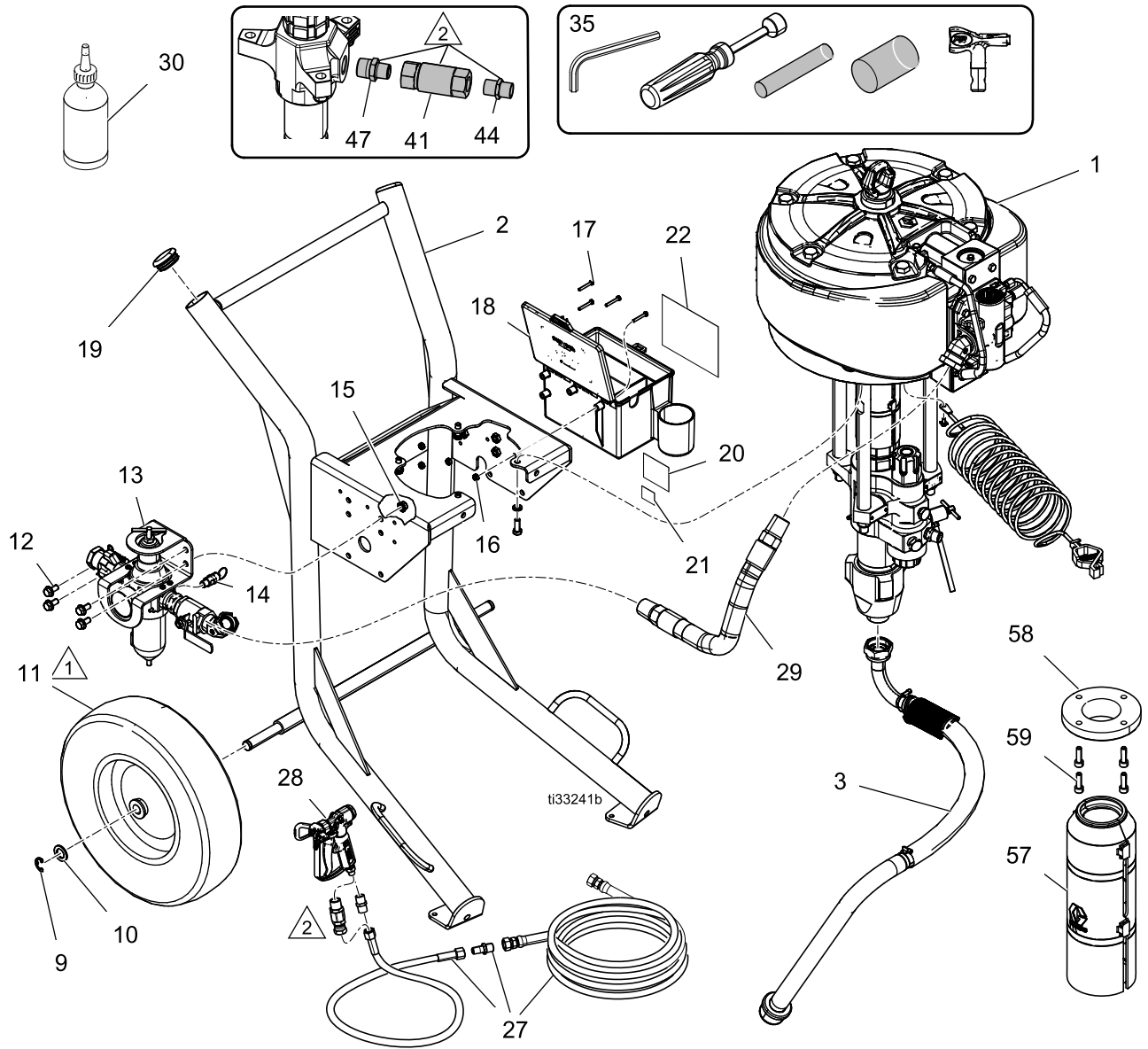
Sprayer Package	Reference Number and Description		
	301 Pump	302 Lower	303 Motor
K25FH0	P25HC2	L290C2	XL34D0
K25FH1	P25HC2	L290C2	XL34D0
K25FH2	P25HC2	L290C2	XL34D0
K25FL0	P25HC2	L290C2	XL34D0
K25FL1	P25HC2	L290C2	XL34D0
K25FW0	P25HC2	L290C2	XL34D0
K25FW1	P25HC2	L290C2	XL34D0
K25NH0	P25HC1	L290C1	XL34D0
K25NH1	P25HC1	L290C1	XL34D0
K25NH2	P25HC1	L290C1	XL34D0
K25NL0	P25HC1	L290C1	XL34D0
K25NL1	P25HC1	L290C1	XL34D0
K30FH0	P30HC2	L220C2	XL34D0
K30FH1	P30HC2	L220C2	XL34D0
K30FH2	P30HC2	L220C2	XL34D0
K30FL0	P30HC2	L220C2	XL34D0
K30FL1	P30HC2	L220C2	XL34D0
K30FW0	P30HC2	L220C2	XL34D0
K30FW1	P30HC2	L220C2	XL34D0
K30MH2	P30HM2	L220M2	XL34D0
K30MW1	P30HM2	L220M2	XL34D0
K30NH0	P30HC1	L220C1	XL34D0
K30NH1	P30HC1	L220C1	XL34D0
K30NH2	P30HC1	L220C1	XL34D0
K30NL0	P30HC1	L220C1	XL34D0
K30NL1	P30HC1	L220C1	XL34D0
K40FH0	P40HC2	L180C2	XL34D0
K40FH1	P40HC2	L180C2	XL34D0
K40FH2	P40HC2	L180C2	XL34D0
K40FL0	P40HC2	L180C2	XL34D0
K40FL1	P40HC2	L180C2	XL34D0

K40FW0	P40HC2	L180C2	XL34D0
K40FW1	P40HC2	L180C2	XL34D0
K40MH2	P40HM2	L180M2	XL34D0
K40MW1	P40HM2	L180M2	XL34D0
K40NH0	P40HC1	L180C1	XL34D0
K40NH1	P40HC1	L180C1	XL34D0
K40NH2	P40HC1	L180C1	XL34D0
K40NL0	P40HC1	L180C1	XL34D0
K40NL1	P40HC1	L180C1	XL34D0
K45FH0	P45HC2	L290C2	XL65D0
K45FH1	P45HC2	L290C2	XL65D0
K45FH2	P45HC2	L290C2	XL65D0
K45FL0	P45HC2	L290C2	XL65D0
K45FL1	P45HC2	L290C2	XL65D0
K45FW0	P45HC2	L290C2	XL65D0
K45FW1	P45HC2	L290C2	XL65D0
K45MH2	P45HM2	L290M2	XL65D0
K45MW1	P45HM2	L290M2	XL65D0
K45NH0	P45HC1	L290C1	XL65D0
K45NH1	P45HC1	L290C1	XL65D0
K45NH2	P45HC1	L290C1	XL65D0
K45NL0	P45HC1	L290C1	XL65D0
K45NL1	P45HC1	L290C1	XL65D0
K50FH0	P50HC2	L250C2	XL65D0
K50FH1	P50HC2	L250C2	XL65D0
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K50FL0	P50HC2	L250C2	XL65D0
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K50FW0	P50HC2	L250C2	XL65D0
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K50NH0	P50HC1	L250C1	XL65D0
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K50NH2	P50HC1	L250C1	XL65D0
K50NL0	P50HC1	L250C1	XL65D0

K50NL1	P50HC1	L250C1	XL65D0
K60FH0	P60HC2	L220C2	XL65D0
K60FH1	P60HC2	L220C2	XL65D0
K60FH2	P60HC2	L220C2	XL65D0
K60FL0	P60HC2	L220C2	XL65D0
K60FL1	P60HC2	L220C2	XL65D0
K60FW0	P60HC2	L220C2	XL65D0
K60FW1	P60HC2	L220C2	XL65D0
K60MH2	P60HM2	L220M2	XL65D0
K60MW1	P60HM2	L220M2	XL65D0
K60NH0	P60HC1	L220C1	XL65D0
K60NH1	P60HC1	L220C1	XL65D0
K60NH2	P60HC1	L220C1	XL65D0
K60NL0	P60HC1	L220C1	XL65D0
K60NL1	P60HC1	L220C1	XL65D0
K70FH0	P70HC2	L180C2	XL65D0
K70FH1	P70HC2	L180C2	XL65D0
K70FH2	P70HC2	L180C2	XL65D0
K70FL0	P70HC2	L180C2	XL65D0
K70FL1	P70HC2	L180C2	XL65D0
K70FW0	P70HC2	L180C2	XL65D0
K70FW1	P70HC2	L180C2	XL65D0
K70MH2	P70HM2	L180M2	XL65D0
K70MW1	P70HM2	L180M2	XL65D0
K70NH0	P70HC1	L180C1	XL65D0
K70NH1	P70HC1	L180C1	XL65D0
K70NH2	P70HC1	L180C1	XL65D0
K70NL0	P70HC1	L180C1	XL65D0
K70NL1	P70HC1	L180C1	XL65D0
K90FH0	P90HC2	L145C2	XL65D0
K90FH1	P90HC2	L145C2	XL65D0

K90FH2	P90HC2	L145C2	XL65D0
K90FL0	P90HC2	L145C2	XL65D0
K90FL1	P90HC2	L145C2	XL65D0
K90MH2	P90HM2	L145M2	XL65D0
K90NH0	P90HC1	L145C1	XL65D0
K90NH1	P90HC1	L145C1	XL65D0
K90NH2	P90HC1	L145C1	XL65D0
K90NL0	P90HC1	L145C1	XL65D0
K90NL1	P90HC1	L145C1	XL65D0
K47FH0	P47HC1	24W644	24X856
K47FH1	P47HC1	24W644	24X856
K47FH2	P47HC1	24W644	24X856
K47FW0	P47HC1	24W644	24X856
K47FW1	P47HC1	24W644	24X856
K71FH0	P71HC2	B29HC2	24X856
K71FH1	P71HC2	B29HC2	24X856
K71FH2	P71HC2	B29HC2	24X856
K71FW0	P71HC2	B29HC2	24X856
K71FW1	P71HC2	B29HC2	24X856
K71NH0	P71HC1	B29HC1	24X856
K71NH1	P71HC1	B29HC1	24X856
K71NH2	P71HC1	B29HC1	24X856
K82FH0	P82HC2	B25HC2	24X856
K82FH1	P82HC2	B25HC2	24X856
K82FH2	P82HC2	B25HC2	24X856
K82FW0	P82HC2	B25HC2	24X856
K82FW1	P82HC2	B25HC2	24X856
K82NH0	P82HC1	B25HC1	24X856
K82NH1	P82HC1	B25HC1	24X856
K82NH2	P82HC1	B25HC1	24X856

King Sprayer with Xtreme Lower Cart Packages

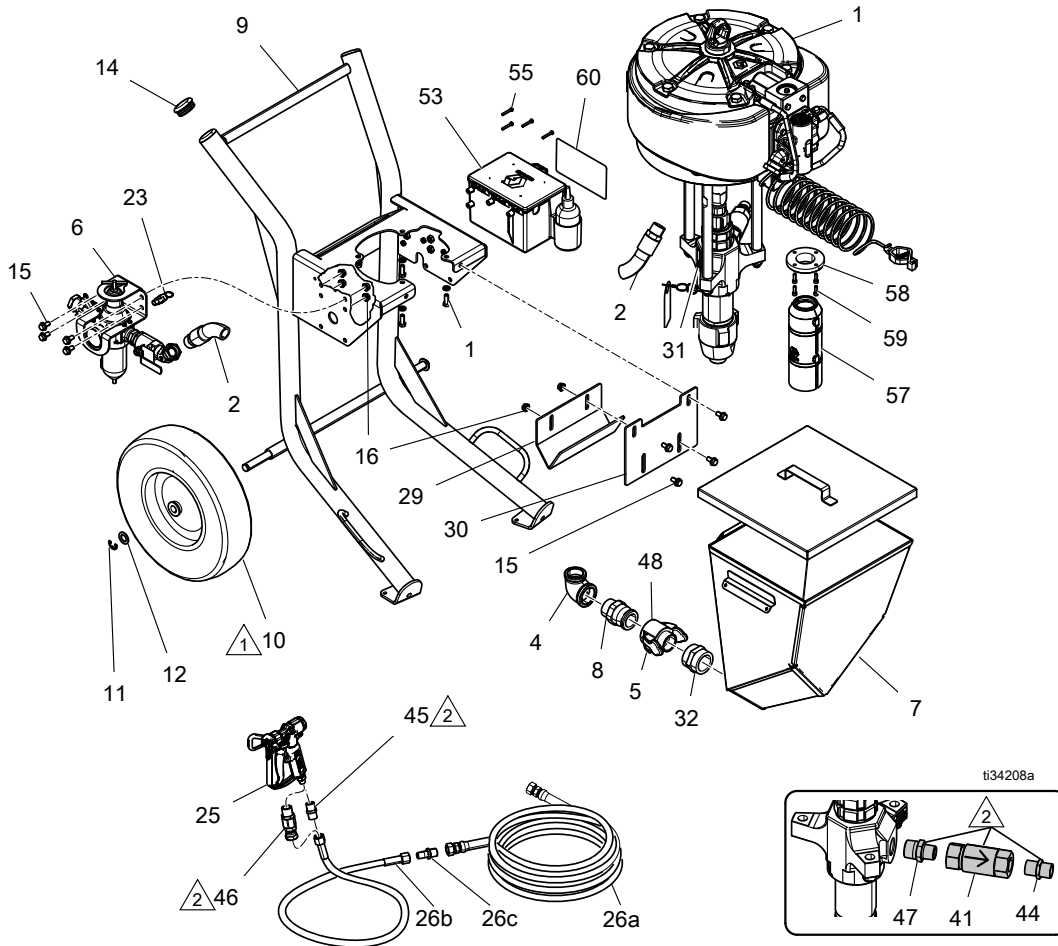


- △ 1 Apply grease to cart axles before assembling wheels.
- △ 2 For heavy fluid packages 24X593 and 24X594 only.
- 3. Apply anaerobic pipe sealant to all non-swiveling pipe threads.

King Packages with Xtreme Lower

Ref	Part	Description	Qty.
1	---	See Pumps, page 32.	1
2	24Z852	CART, heavy duty, painted	1
3	25D515	HOSE, suction, 5 gallon to 1-1/4 npt	1
9	113436	RING, retaining	2
10	154628	WASHER	2
11	113362	WHEEL, semi-pneumatic	2
12	112395	SCREW, cap, flange hd	4
13	---	MODULE, air controls, 1 in. npt	1
	17U994	STANDARD AIR CONTROLS, K71**0, K71**1, K82**0, K82**1	
	25D532	AIR CONTROLS WITH LUBRICATOR, K71**2, K82**2	
14	---	SAFETY VALVE	1
	113498	110 psi, K71 modules	
	16M190	95 psi, K82 models	
15	112958	NUT, hex, flanged	4
16	114231	NUT, lock, hex (standard)	4
17	115248	SCREW, cap, hex hd	4
18	25D498	TOOLBOX, color, black	1
19	113361	CAP, tube, round	2
21	15Y118	LABEL, made in USA	1
22	17V650	LABEL, toolbox, King sprayer	1
27	24T756	HOSE, set, Xtreme, 7250 psi	1
28	XTR704	GUN, XTR7, 1 in., 4 fng, GHDRAC	1
29	278770	HOSE, coupled	1
30	206994	FLUID,TSL 8 OZ BOTTLE	1
35	17V370	KIT,SPRAYER, with HOSE AND GUN	1
41	16T480	VALVE, check	1
44	160032	FITTING, nipple; 3/4-14 npt	1
47	171439	NIPPLE, pipe, reducing	1
57	17W472	COVER, machined, short, king	2
58	17W470	ADAPTER, cover, short, king	1
59	513035	SCREW, cap SKT, HD, M6 x 20m	4

Heavy Fluids Packages — 24X593 and 24X594



- △₁ Apply grease to cart axles before assembling wheels.
- △₂ For heavy fluid packages 24X593 and 24X594 only.
- 3. Apply anaerobic pipe sealant to all non-swiveling pipe threads.

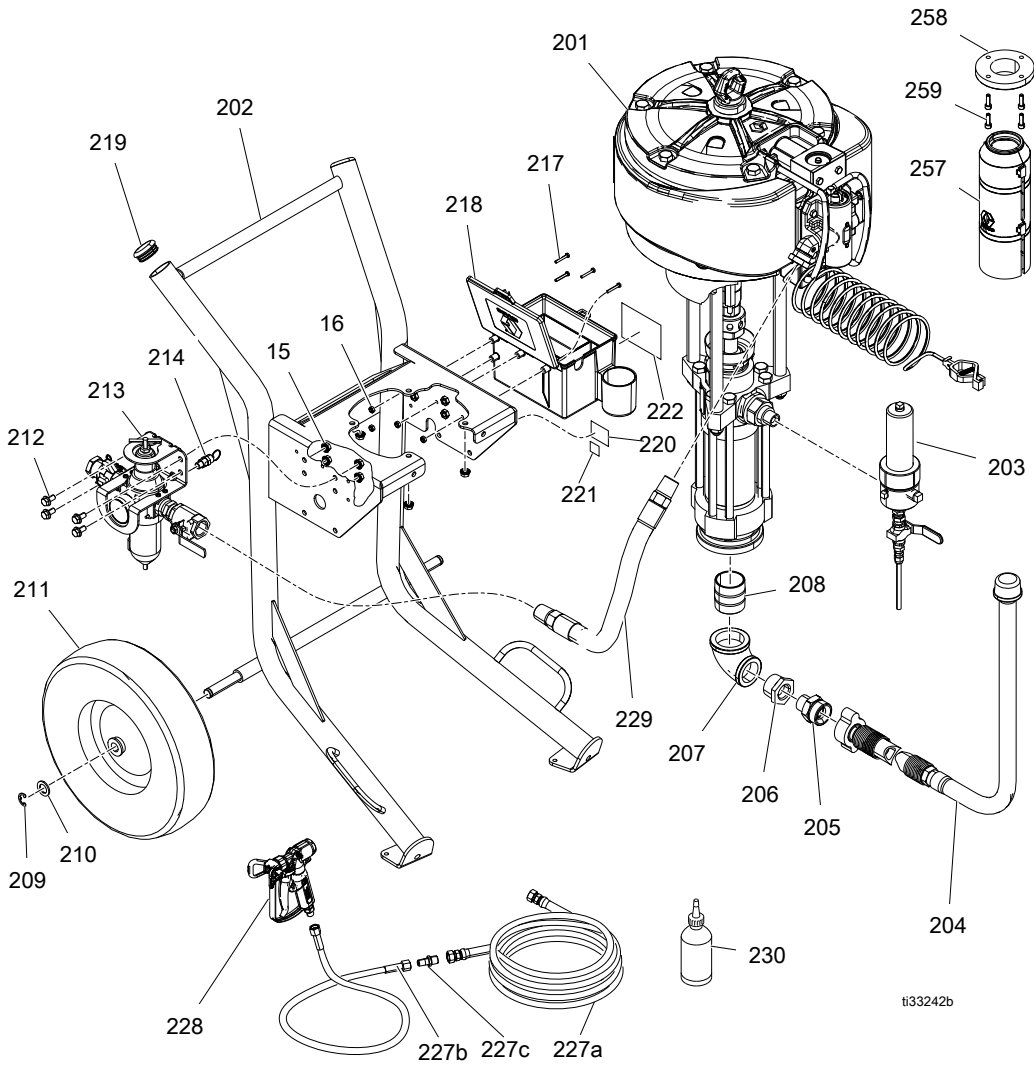
Heavy Fluids Packages

Ref.	Part	Description	Sprayer Description and Quantity with Hose and Gun Hopper	
			24X593	24X594
1	P71HC1	PUMP, heavy fluid, pump package	1	
	P82HC1	PUMP, heavy fluid, pump package		1
2	278770	Hose, coupled	1	
4■	126939	FITTING, elbow, 90, female, reducing	1	1
5■	128095	FITTING, cam and groove, 1.5 npt(m)	1	1
6	17U994	MODULE, air controls	1	1
7■	17E114	HOPPER	1	1
8■	17C692	FITTING, cam/groove, 1.5m, 1-1/2 npt	1	1
9	17X355	KIT, cart, heavy duty	1	1
10	113362	WHEEL, semi-pneumatic	2	2
11	113436	RING, retaining	2	2
12	154628	WASHER	2	2
14■	113361	CAP, tube, round	2	2
15■	112395	SCREW, cap, flng hd	8	8
16	112958	NUT, hex, flanged	8	8
23	113498	VALVE, safety, 110 psi	1	
	120306	VALVE, safety, 85 psi		1
25*	262854	GUN, XHF	1	1
26a*	H77550	HOSE, coupled, 725 psi, 3/4 in ID; 50 ft	1	1
26b*	H75025	HOSE, coupled, 725 psi, 3/4 in ID; 50 ft	1	1
26c*	16R883	FITTING, nipple, reducing, 3/4 x 1/4	1	1
29■	— — —	BRACKET, hopper	1	1
30■	— — —	BRACKET, hopper, upper	1	1
31	15M987	FITTING, elbow, 60 deg	1	1
32■	— — —	FITTING, bushing, 1-1/2	1	1
41	16T480	VALVE, check	1	1
44	160032	FITTING, nipple; 3/4-14 npt	1	1
45*	158491	FITTING, nipple; 1/2-14 npt	1	1
46*	24P834	SWIVEL, straight, PTFE	1	1
47	171439	NIPPLE, pipe, reducing	1	1
48	17C453	GASKET, 2 in. (packet 6)	1	1
57	17W472	COVER, machined, short, king	2	2
58	17W470	ADAPTER, cover, short, king	1	1
59	513035	SCREW, cap SKT, HD, M6 x 20m	4	4

■ Included in Hopper Kit 24X570.

* Included in Hose and Gun Kit 24X553.

Dura-Flo Cart Packages

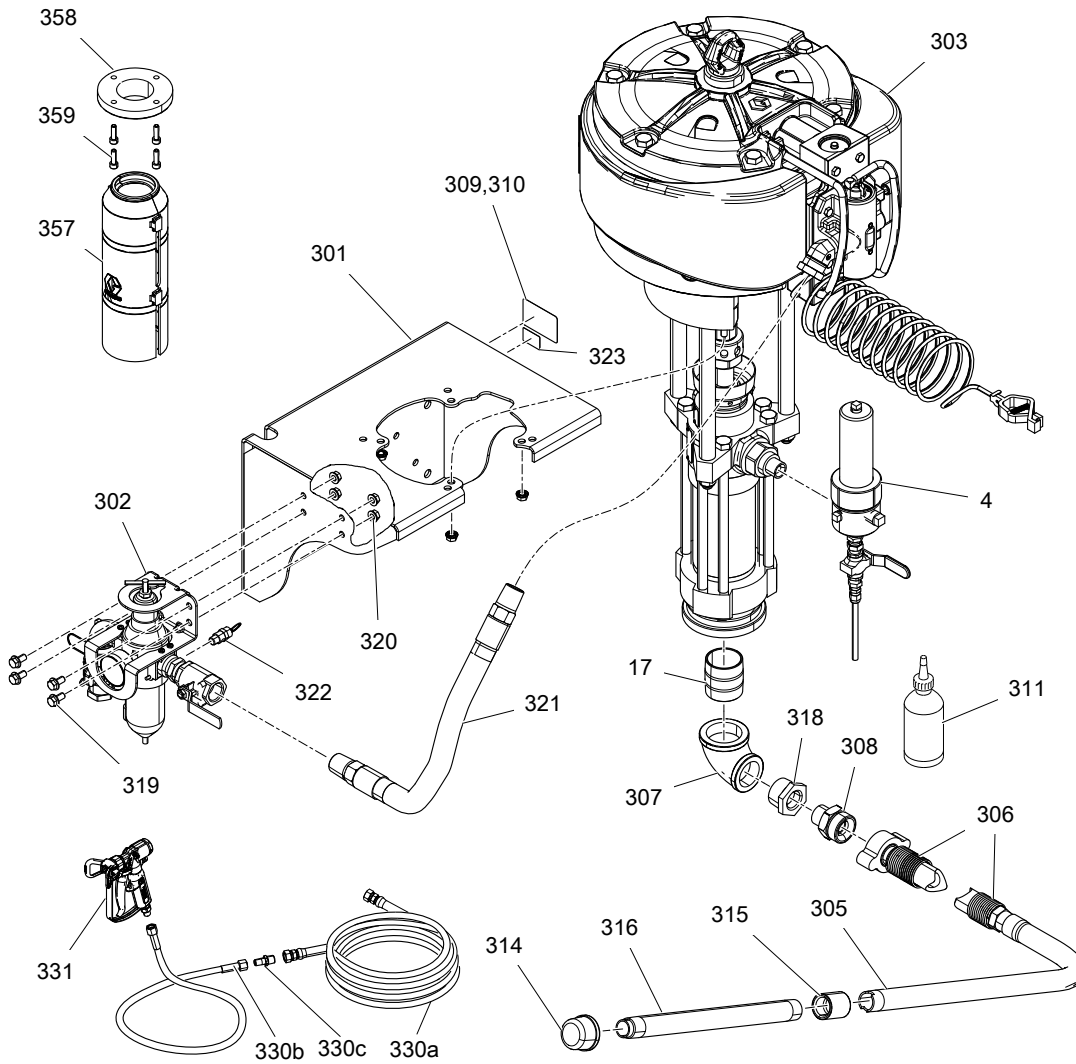


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Dura-Flo Cart Package Parts

Ref	Part	Description	Qty.
201	---	See Pumps, page 32 .	1
202	24Z852	CART, heavy duty, painted	1
203	238620	FILTER, paint	1
204	24T757	HOSE, with siphon, Xtreme	1
205	116402	ADAPTER, quick connect	1
206	121239	BUSHING, 1.5 x 1 npt reducer, sst	1
207	120291	PIPE, elbow, female	1
208	124945	FITTING, nipple, 2 in. npt 2.5 lng, mm, blk	1
209	113436	RING, retaining	2
210	154628	WASHER	2
211	113362	WHEEL, semi-pneumatic	2
212	112395	SCREW, cap, flange hd	4
213	---	AIR CONTROLS	1
	17U994	STANDARD AIR CONTROLS, K47FH0 and K47FH1	
	25D532	AIR CONTROLS with lubricant, K47FH2	
214	16M190	VALVE, safety, 110 psi	1
215	112958	NUT, hex, flanged	4
216	114231	VALVE, safety, 95 psi	4
217	115248	SCREW, cap, hex hd	4
218	25D498	TOOLBOX, color, black	1
219	113361	CAP, tube, round	2
221	15Y118	LABEL, Made in USA	1
222	17V650	LABEL, toolbox, King sprayer	1
227	24T755	HOSE, set, Xtreme, 5600 psi	1
228	XTR504	GUN, XTR5, 1 in. hnd, 4 fng, XHDRAC	1
229	128093	HOSE, coupled	1
230	206994	FLUID, TSL 8 oz bottle	1
236	159239	FITTING, nipple, pipe, rdcg	1
257	17W472	GUARD, pump	2
258	17W471	ADAPTER, cover, EXT, king	1
259	513035	SCREW, cap SKT, HD, M6 x 20m	4

Wall Mount Packages



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1. Apply stainless steel pipe sealant to all non-swiveling pipe threads.

Wall Mount Package Parts

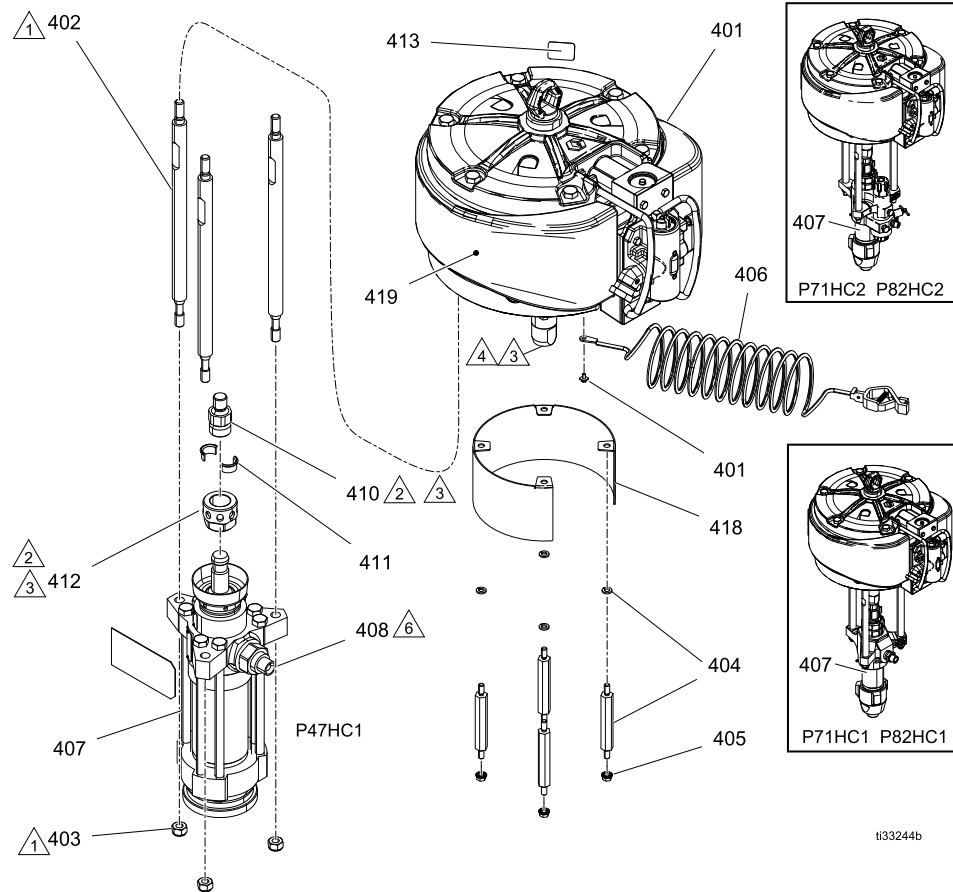
Ref	Part	Description	Qty.
301	24X180	BRACKET, wall, XL, painted	1
302	25D650	MODULE, air, wall, mount, 1 in.	1
303	— — —	PUMP, Xtreme	1
	P47HC1	XL10K/430DF, nf	
	P71HC2	XL10K/290, bf	
	P82HC2	XL10K/250, bf	
304	238620	FILTER, paint (K47 models only)	1
305	197682	TUBE, section	1
306	247302	HOSE, suction, 1 in. npt x quick connect	1
307	— — —	PIPE, elbow, female	1
	120291	K47 packages	
	116401	K71 and K82 packages	
308	116402	ADAPTER, quick connect	1
309	190774	BLANK, label, kit	1
311	206994	FLUID, TSL, 8 oz bottle	1
314	187147	STRAINER, inlet	1
315	114967	COUPLING, pipe, 1 in.	1
316	195151	TUBE, intake	1
317	124945	FITTING, nipple, 2 in. npt lng, mm, blk	1
318	121239	BUSHING, 1.5 x 1 npt reducer, sst	1
319	112395	SCREW, cap, flange hd	4
320	112958	NUT, hex, flanged	4
321	— — —	HOSE, coupled	1
	128093	K47 packages	
	278770	K71 and K82 packages	
322		VALVE, safety, 110 psi	1
	113498	110 psi, K71 packages	
	16M190	95 psi, K47 and K82 packings	
323	15Y118	LABEL, Made in USA	1
330	— — —	HOSE SET, Xtreme	1
	24T755	5600 psi, K47 packages	
	24T756	7250 psi, K71 and K82 packages	
331	— — —	XTR504 GUN	1
	XTR504	XTR5, 1 in. handle, K47 packages	
	XTR704	XTR7, 1 in. handle, K71 and K82 packages	
357	17W472	GUARD, pump	2
358	17W471	ADAPTER, cover, EXT, king	1
359	513035	SCREW, cap SKT, HD, M6 x 20m	4

Pumps

Part and Description		Sprayer Description and Quantity											
		No Hose and Gun				Hose and Gun				Hose and Gun, with Lubricator on Air Controls			
		No Filter on Lower		With Filter on Lower		No Filter on Lower		With Filter on Lower		No Filter on Lower		With Filter on Lower	
		K71NH0	K82NH0	K71FH0	K82FH0	K71NH1	K82NH1	K71FH1	K82FH1	K71NH2	K82NH2	K71FH2	K82FH2
P71HC1	* PUMP, Xtreme, XL, 290	1				1				1			
P71HC2				1			1					1	
P82HC1	* PUMP, Xtreme, XL, 250		1				1				1		
P82HC2					1			1					1

* See [Pump Package Parts, page 32](#).

Pump Package Parts



- △1 Torque to 95–105 ft-lb (129–142 N•m).
- △2 Torque to 230–250 ft-lb (312–340 N•m).

- △3 Apply anaerobic pipe sealant.
- △4 Apply stainless steel pipe sealant to all non-swiveling pipe threads.

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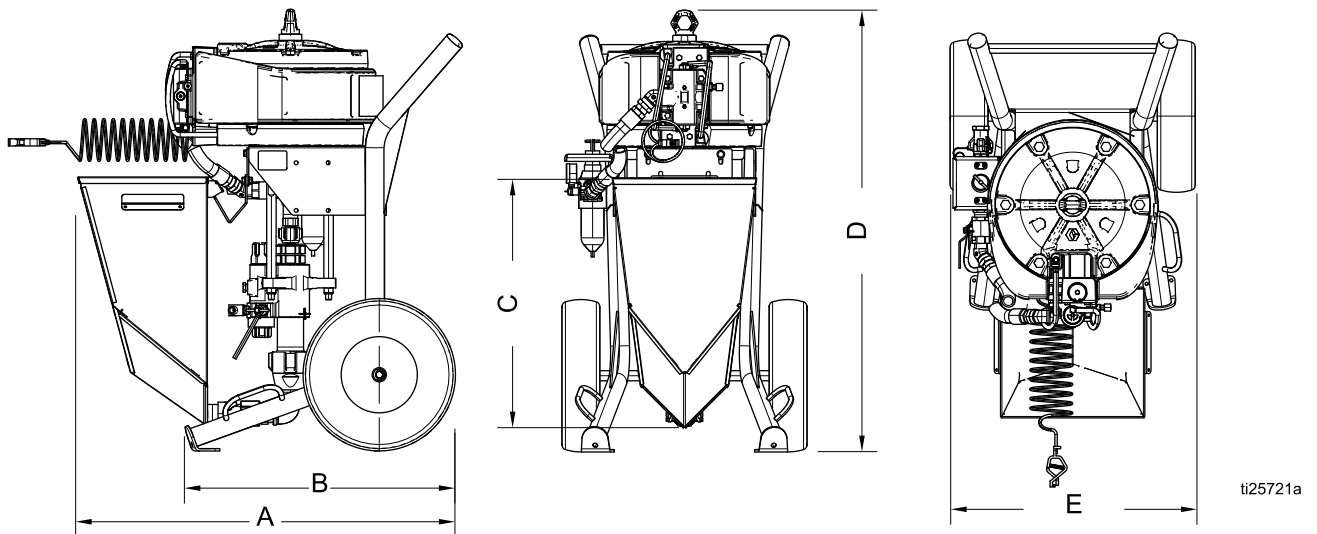
Pump Package Parts

Ref	Part	Description	Pump Part Number					
			Qty.	P47HC1	P71HC1	P71HC2	P82HC1	P82HC2
401	24X856	MOTOR, air, 13 in.	1	•	•	•	•	•
402	184382	ROD, tie	3	•				
	17A048	ROD, tie	3		•	•	•	•
403	15U606	NUT, lock, M16 x 2	3	•	•	•	•	•
404	120465	SPACER, mounting, threaded	4	•				
405	112958	NUT, hex, flanged	4	•				
406	244524	WIRE, ground assembly with clamp	1	•	•	•	•	•
407	— — —	LOWER, pump	1					
	24W644	DuraFlo, 3/4		•				
	L25HC1	Xtreme, 250 HP, no filter					•	
	L25HC2	Xtreme, 250 HP, with filter						•
	L29HC1	Xtreme, 290 HP, no filter			•			
	L29HC2	Xtreme, 290 HP, with filter				•		
410	— — —	ADAPTER, rod	1					
	184582	P47 packages		•				
	184583	P71 and P82 packages			•	•	•	•
411	— — —	COLLAR, coupling	2					
	184130	P47 packages		•				
	184129	P71 and P82 packages			•	•	•	•
412	— — —	NUT, coupling	1					
	184096	P47 packages		•				
	184098	P71 and P82 packages			•	•	•	•
413	15H117	LABEL, identification	1	•	•	•	•	•
418	15K296	SPACER, painted	1	•				
419	— — —	LABEL, King	1					
	17U827	XL45–430		•				
	17U828	XL70–290			•	•		
	17U829	XL80–250					•	•
421	112887	TOOL, wrench, spanner	1	•				

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

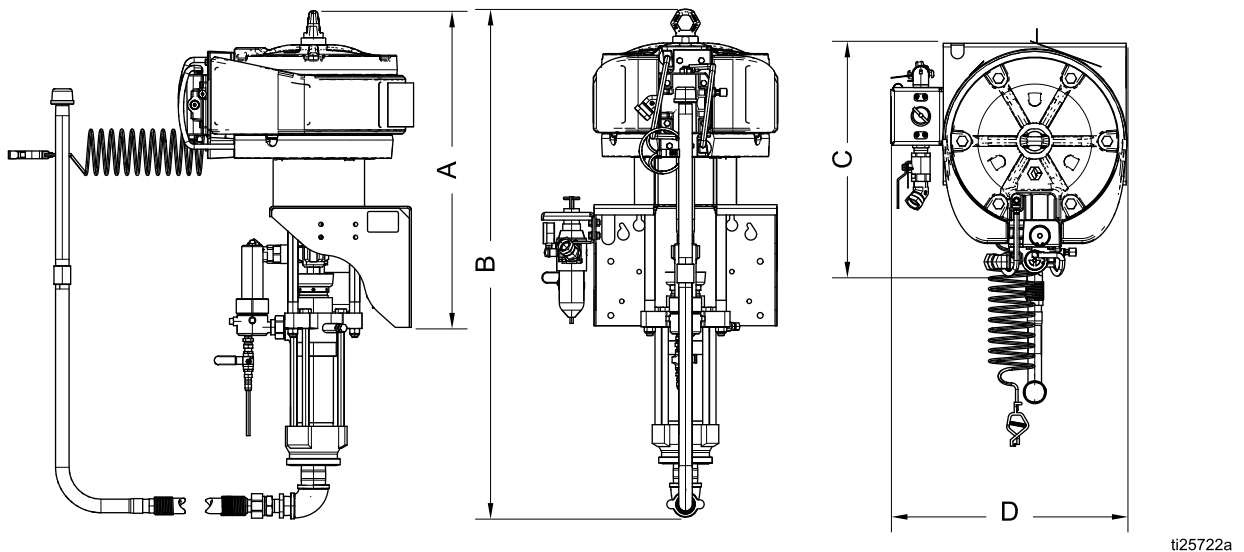
Dimensions

Sprayer Cart Packages



Mount	A	B	C	D	E
Dura-Flo	40.75 in (103.5 cm)	28.5 in (72.4 cm)	26.25 in (66.7 cm)	46.25 in (117.5 cm)	25.75 in (65.4 cm)
Xtreme	40.75 in (103.5 cm)	28.5 in (72.4 cm)	26.25 in (66.7 cm)	51 in (129.5 cm)	25.75 in (65.4 cm)

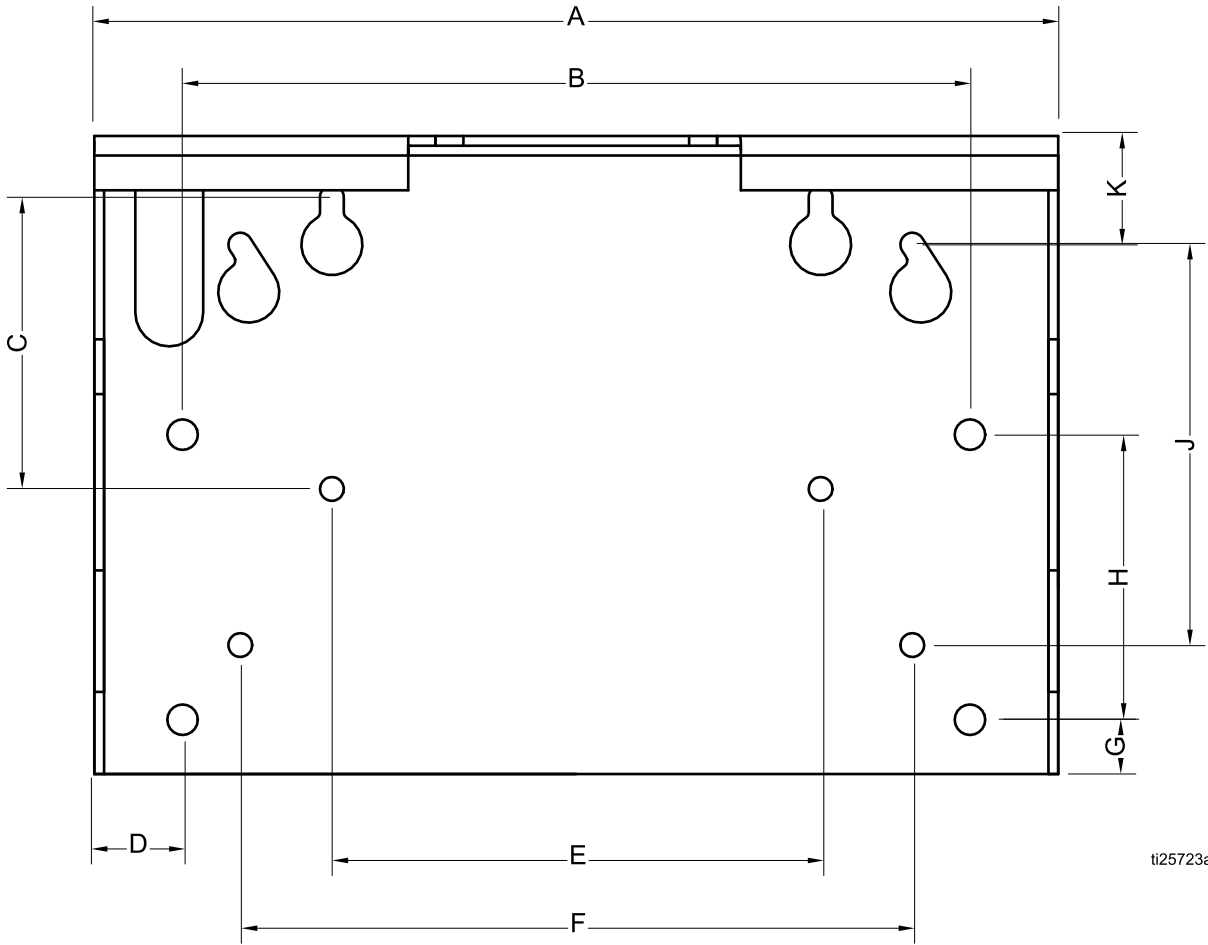
Wall Mount and Pump Packages



Mount	A	B	C	D
Dura-Flo	30.75 in (78.1 cm)	49.25 in (125.1 c)	22 in (55.9 cm)	23 in (58.4 cm)
Xtreme	26.25 in (66.7 cm)	43.5 in (110.5 cm)	22 in (55.9 cm)	23 in (58.4 cm)

Dimensions

Wall Mount Bracket Mounting Hole Diagram



ti25723a

1	1/2 in (12.7 mm) diameter holes for mounting to stand
2	7/16 in (11 mm) diameter holes for mounting to wall
A	17.8 in (450.9 mm)
B	14.5 in (368.3 mm)
C	5.4 in (136.5 mm)
D	1.6 in (41.4 mm)
E	9 in (228.6 mm)
F	12.4 in (314.3 mm)
G	1 in (25.4 mm)
H	5.3 in (133.4 mm)
J	7.4 in (187.3 mm)
K	2 in (50.8 mm)

Performance Charts

Calculate Fluid Outlet Pressure

To calculate fluid outlet pressure (psi/MPa/bar) at a specific fluid flow (gpm/lpm) and operating air pressure (psi/MPa/bar), use the following instructions and pump data charts.

1. Locate desired flow along bottom of chart.
2. Follow vertical line up to intersection with selected fluid outlet pressure curve. Follow left to scale to read fluid outlet pressure.

Calculate Pump Air Flow/Consumption

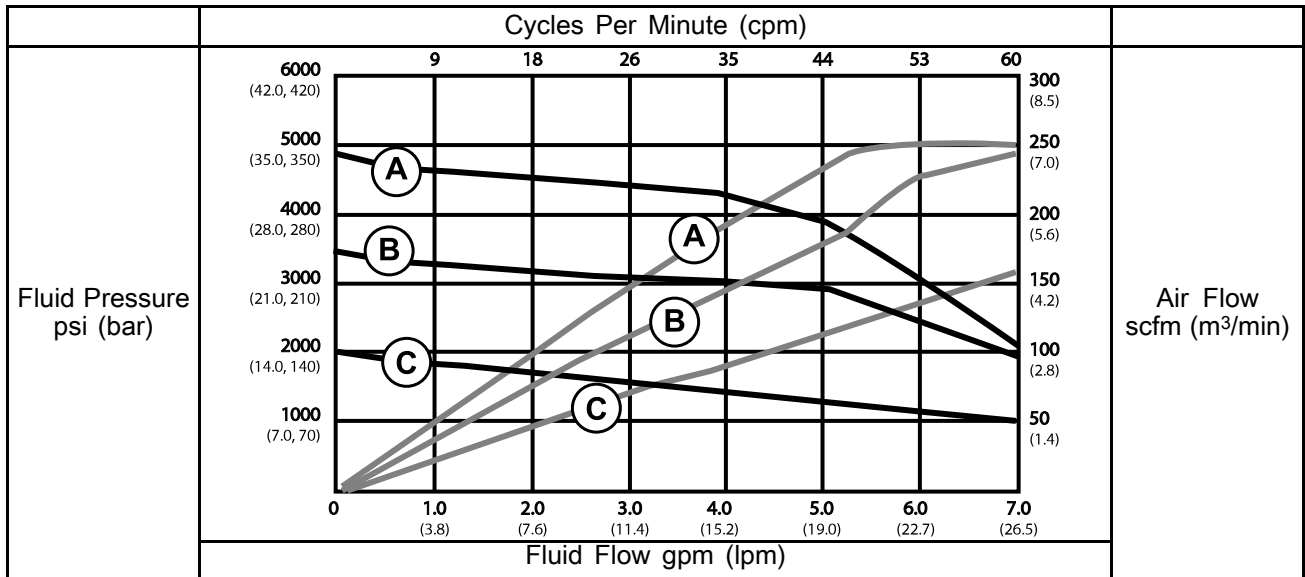
To calculate pump air flow/consumption (scfm or m³/min) at a specific fluid flow (gpm/lpm) and air pressure (psi/MPa/bar), use the following instructions and pump data charts.

1. Locate desired flow along bottom of chart.
2. Follow vertical line up to intersection with selected fluid outlet pressure curve. Follow right to scale to read air flow consumption.

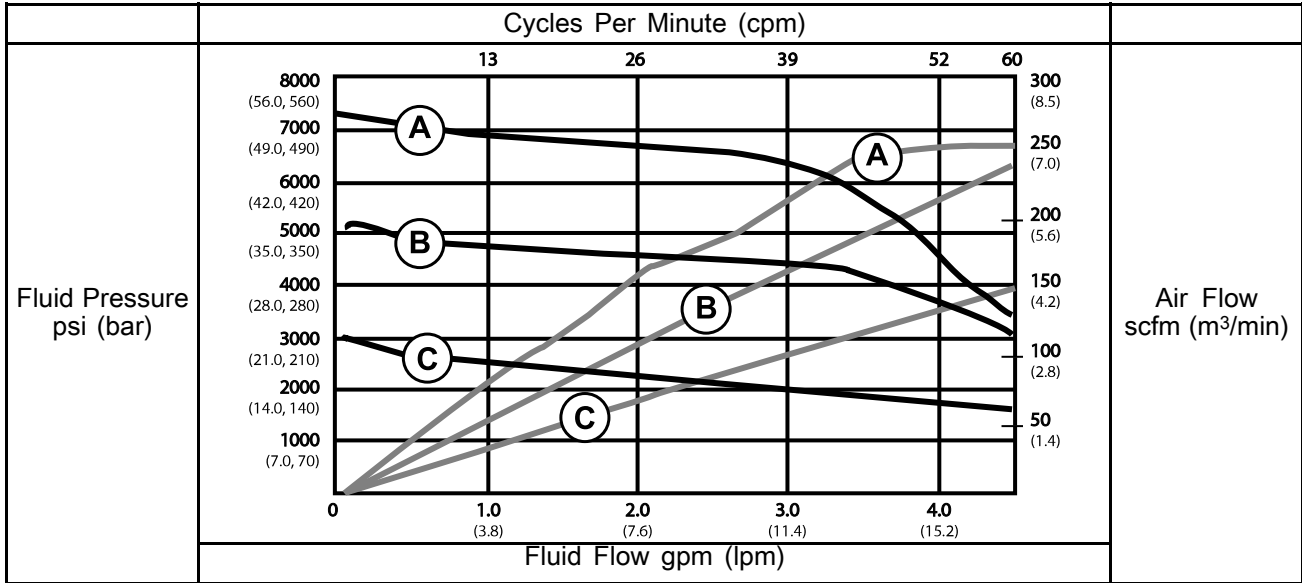
Key: Air Pressure

A	100 psi (0.7 MPa, 7 bar)
B	70 psi (480 kPa, 4.8 bar)
C	40 psi (280 kPa, 2.8 bar)

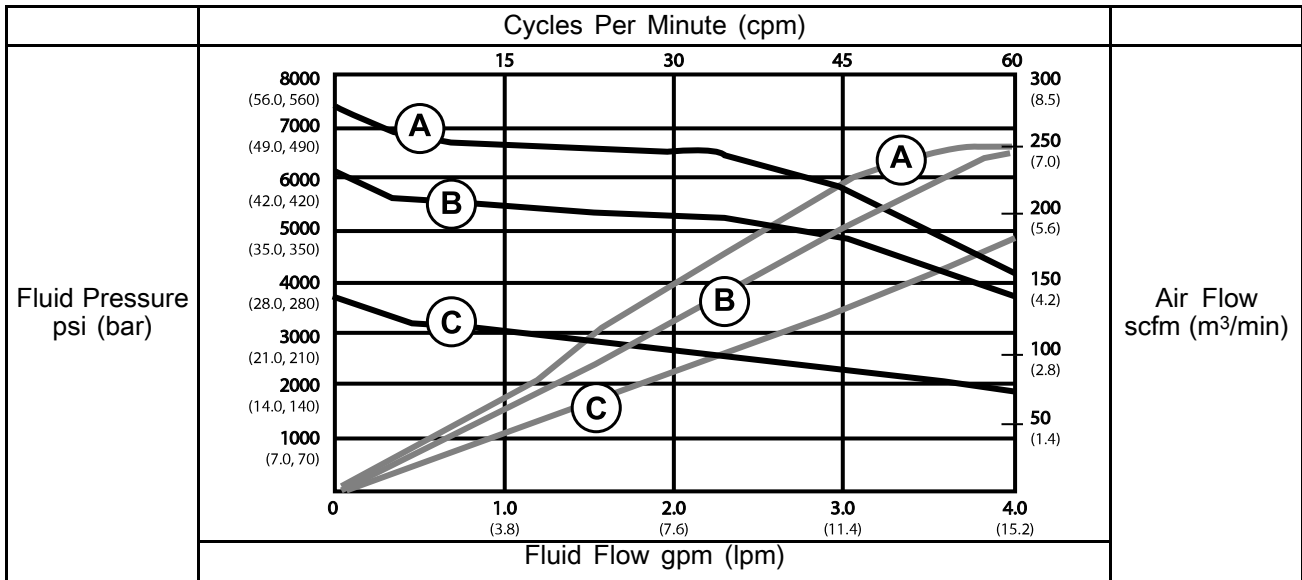
47:1



71:1



82:1



Technical Specifications

Xtreme XL Spray Packages		
	U.S.	Metric
Maximum air inlet pressure to sprayer	150 psi	1 MPa, 10.3 bar
Stroke length (nominal)	4.75 in.	
Maximum pump speed (Do not exceed maximum recommended speed of fluid pump, to prevent premature pump wear)	60 cycles per minute	
Sound Data	See XL Motor manual for sound data.	
Air Inlet Size	1 in. npt(f)	
Wetted Parts	Carbon steel; ally steel; 304, 440 and 17-4 PH grades of stainless steel; zinc and nickel plating; ductile iron; tungsten carbide; PTFE; leather	
Fluid Inlet Size		
All Xtreme Lower Pumps	1 1/4 npt(m)	
Dura-Flo Lower Pumps	2 in. npt(f)	
Fluid Outlet Size (Number of Outlets)		
Xtreme Lower Pumps With Built-In Filters (2)	1/2 in. npt(f)	
Xtreme Lower Pumps Without Filters (1)	1 in. npt(f)	
Dura-Flo Lower Pumps (1)	3/4 npt(m)	
Maximum Air Operating Pressure		
K47	100 psi	0.7 MPa, 7 bar
K71	100 psi	0.7 MPa, 7 bar
K82	88 psi	0.6 MPa, 6.1 bar
Maximum Fluid Working Pressure		
K47	4500 psi	31 MPa, 310 bar
K71	7100 psi	48.9 MPa, 489 bar
K82	7250 psi	50 MPa, 500 bar
Weight		
K71, K82	340 lbs.	154.2 kg
K47	341 lbs.	154.7 kg

Graco Standard Warranty

Graco warrants all equipment referenced in this document which is manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

This warranty does not cover, and Graco shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility of Graco equipment with structures, accessories, equipment or materials not supplied by Graco, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the claimed defect. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

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Phone: 612-623-6921 **or Toll Free:** 1-800-328-0211 **Fax:** 612-378-3505

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Original Instructions. This manual contains English. MM 334645

Graco Headquarters: Minneapolis

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