

# Merkur<sup>®</sup> High Pressure Sprayer

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EN

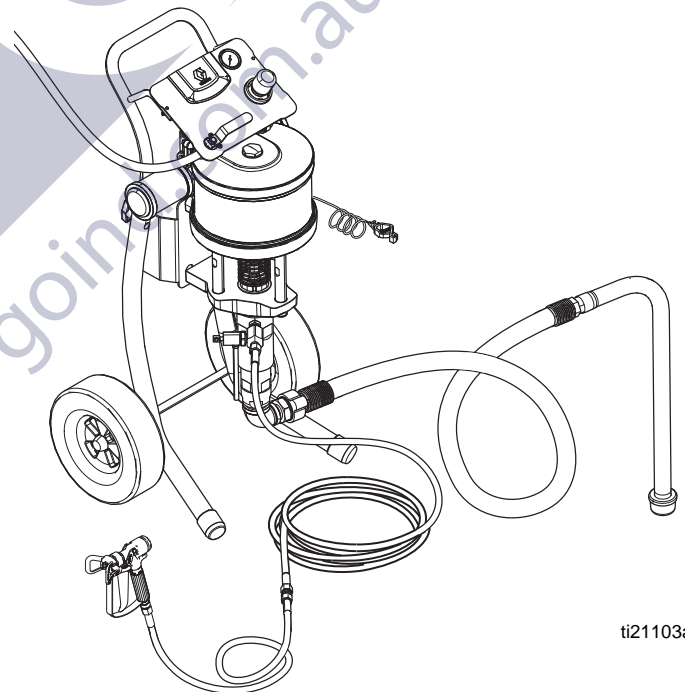
For protective coating applications in hazardous or non-hazardous locations. For professional use only.

See page 2 for model information, including maximum working pressures.



### Important Safety Instructions

Read all warnings and instructions in this manual. Save these instructions.



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## Related Manuals

Manual	Description
312796	NXT™ Air Motor
312145	XTR™5 and XTR™7 Airless Spray Gun
332246	Merkur High Pressure Displacement Pump
407055	Air Control Panel Kit
407053	Merkur X48 Seal Repair Kit
407054	Merkur X72 Seal Repair Kit
307296	High Pressure Surge Tanks and Fluid Filters
308169	Air Filters and Lubricators

# Models

## Merkur X48 Package

Part	Gun		Hoses		Accessories			Maximum Inlet Air Pressure psi (MPa, bar)	Maximum Fluid Working Pressure psi (MPa, bar)	Maximum Fluid Flow Rate gpm (lpm)
	Gun	Tip Size	Gun Fluid Hose	Gun Fluid Whip Hose	Suction Tube	Fluid Filter	Drain Valve Kit			
16U920	XTR504	0.019	✓	✓	✓		✓	100	4800 (33, 330)	1.2 (4.5)

## Merkur X72 Package

Part	Gun		Hoses		Accessories			Maximum Inlet Air Pressure psi (MPa, bar)	Maximum Fluid Working Pressure psi (MPa, bar)	Maximum Fluid Flow Rate gpm (lpm)
	Gun	Tip Size	Gun Fluid Hose	Gun Fluid Whip Hose	Suction Tube	Fluid Filter	Drain Valve Kit			
16U918	XTR704	0.019	✓	✓	✓		✓	100	7200 (50, 500)	0.8 (3)

## Bare Package

Bare packages do not include a gun or hose.


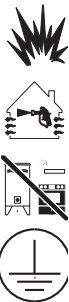

Part	Description	Maximum Inlet Air Pressure psi (MPa, bar)	Maximum Fluid Working Pressure psi (MPa, bar)	Maximum Fluid Flow Rate gpm (lpm)
16V174	Merkur X72	100	7200 (50, 500)	0.8 (3)
16V175	Merkur X48	100	4800 (33, 330)	1.2 (4.5)

## Maximum Recommended Tip Size

Model	Tip Size
Merkur X72	0.021
Merkur X48	0.025







# 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.

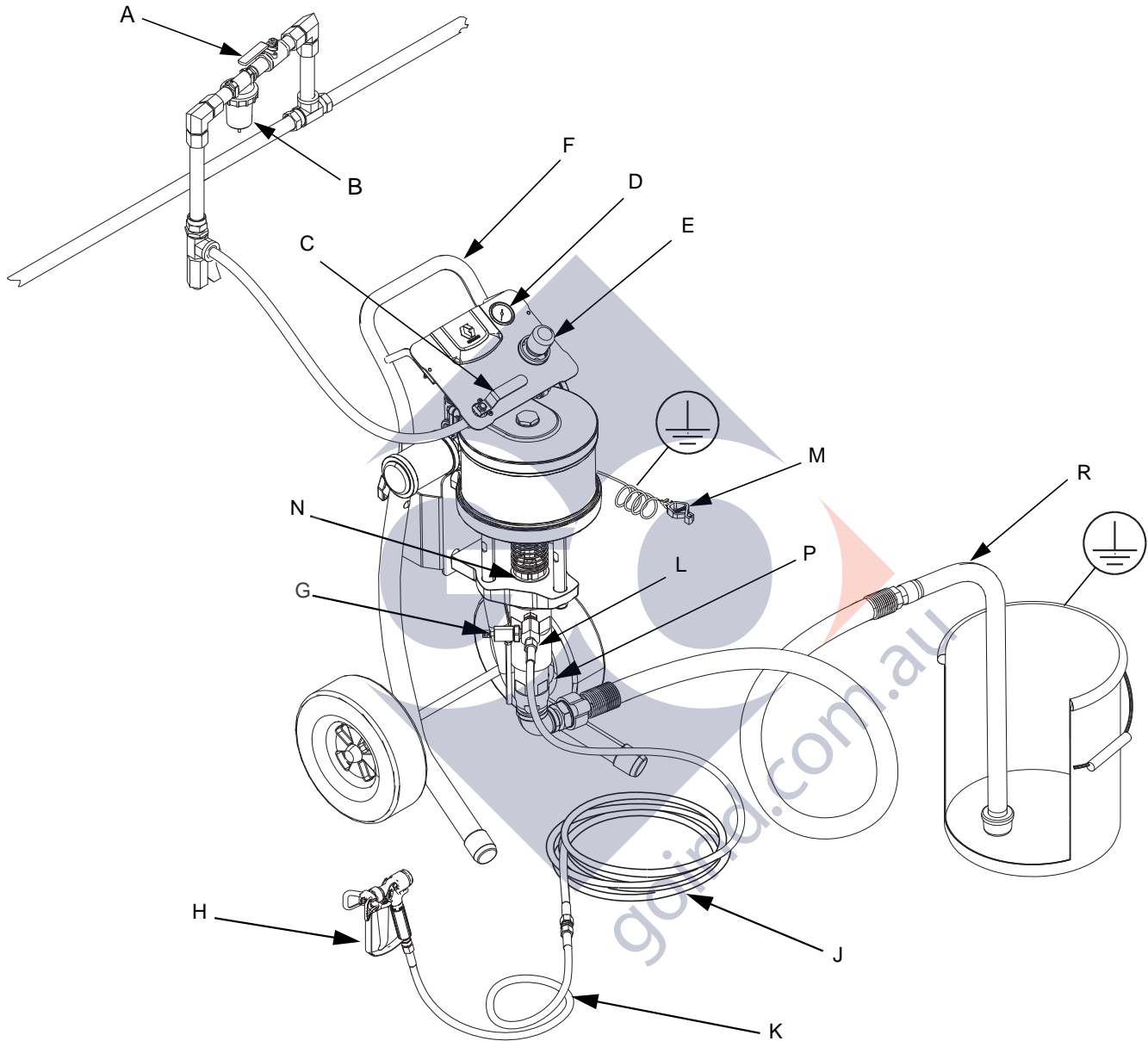
 <h2 style="margin: 0;">WARNING</h2>	
	<p><b>FIRE AND EXPLOSION HAZARD</b></p> <p>Flammable fumes, such as solvent and paint fumes, in <b>work area</b> can ignite or explode. To help prevent fire and explosion:</p> <ul style="list-style-type: none"> <li>• Use equipment only in well ventilated area.</li> <li>• Eliminate all ignition sources; such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static arc).</li> <li>• Keep work area free of debris, including solvent, rags and gasoline.</li> <li>• Do not plug or unplug power cords, or turn power or light switches on or off when flammable fumes are present.</li> <li>• Ground all equipment in the work area. See <b>Grounding</b> instructions.</li> <li>• Use only grounded hoses.</li> <li>• Hold gun firmly to side of grounded pail when triggering into pail. Do not use pail liners unless they are antistatic or conductive.</li> <li>• <b>Stop operation immediately</b> if static sparking occurs or you feel a shock. Do not use equipment until you identify and correct the problem.</li> <li>• Keep a working fire extinguisher in the work area.</li> </ul>
	<p><b>SKIN INJECTION HAZARD</b></p> <p>High-pressure fluid from dispensing device, 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. <b>Get immediate surgical treatment.</b></p> <ul style="list-style-type: none"> <li>• Engage trigger lock when not dispensing.</li> <li>• Do not point dispensing device at anyone or at any part of the body.</li> <li>• Do not put your hand over the fluid outlet.</li> <li>• Do not stop or deflect leaks with your hand, body, glove, or rag.</li> <li>• Follow the <b>Pressure Relief Procedure</b> when you stop dispensing and before cleaning, checking, or servicing equipment.</li> <li>• Tighten all fluid connections before operating the equipment.</li> <li>• Check hoses and couplings daily. Replace worn or damaged parts immediately</li> </ul>



# WARNING

 	<p><b>EQUIPMENT MISUSE HAZARD</b></p> <p>Misuse can cause death or serious injury.</p> <ul style="list-style-type: none"> <li>• Do not operate the unit when fatigued or under the influence of drugs or alcohol.</li> <li>• Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See <b>Technical Data</b> in all equipment manuals.</li> <li>• 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.</li> <li>• Do not leave the work area while equipment is energized or under pressure.</li> <li>• Turn off all equipment and follow the <b>Pressure Relief Procedure</b> when equipment is not in use.</li> <li>• Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only.</li> <li>• Do not alter or modify equipment. Alterations or modifications may void agency approvals and create safety hazards.</li> <li>• Make sure all equipment is rated and approved for the environment in which you are using it.</li> <li>• Use equipment only for its intended purpose. Call your distributor for information.</li> <li>• Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.</li> <li>• Do not kink or over bend hoses or use hoses to pull equipment.</li> <li>• Keep children and animals away from work area.</li> <li>• Comply with all applicable safety regulations.</li> </ul>
 	<p><b>MOVING PARTS HAZARD</b></p> <p>Moving parts can pinch, cut or amputate fingers and other body parts.</p> <ul style="list-style-type: none"> <li>• Keep clear of moving parts.</li> <li>• Do not operate equipment with protective guards or covers removed.</li> <li>• Pressurized equipment can start without warning. Before checking, moving, or servicing equipment, follow the <b>Pressure Relief Procedure</b> and disconnect all power sources.</li> </ul>
	<p><b>TOXIC FLUID OR FUMES HAZARD</b></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"> <li>• Read MSDSs to know the specific hazards of the fluids you are using.</li> <li>• Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.</li> <li>• Always wear chemically impermeable gloves when spraying, dispensing, or cleaning equipment.</li> </ul>
	<p><b>PERSONAL PROTECTIVE EQUIPMENT</b></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. This protective equipment includes but is not limited to:</p> <ul style="list-style-type: none"> <li>• Protective eyewear, and hearing protection.</li> <li>• Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer</li> </ul>

# Installation



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**FIG. 1: Typical Installation**

**Key:**

- |  |                     |
|--|---------------------|
| A Air Shutoff Valve (optional accessory) | K Whip Hose         |
| B Air Filter (optional accessory)        | L Pump Fluid Outlet |
| C Bleed Type Master Air Valve            | M Grounding Wire    |
| D Pump Air Pressure Gauge                | N Wet-Cup           |
| E Pump Air Pressure Regulator            | P Pump Fluid Inlet  |
| F Cart                                   | R Suction Hose      |
| G Fluid Drain Valve                      |                     |
| H Spray Gun                              |                     |
| J Gun Fluid Supply Hose                  |                     |

## General Information

**NOTE:** Reference numbers and letters in parentheses in the text refer to the callouts in the figures.

**NOTE:** Always use Genuine Graco Parts and Accessories, available from your Graco distributor. If you supply your own accessories, be sure they are adequately sized and pressure-rated for your system.

FIG. 1 is only a guide for selecting and installing system components and accessories.

## Prepare the Operator

All persons who operate the equipment must be trained in the operation of all system components as well as the proper handling of all fluids. All operators must thoroughly read all instruction manuals, tags, and labels before operating the equipment.

## Prepare the Site

Ensure that you have an adequate compressed air supply.

Bring a compressed air supply line from the air compressor to the pump location. Be sure all air hoses are properly sized and pressure-rated for your system. Use only electrically conductive hoses. The air hose should have a 3/8 npt(m) thread. For best performance, use 1/2 in. air line or larger.

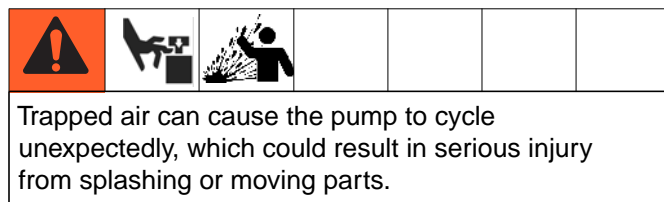
Keep the site clear of any obstacles or debris that could interfere with the operator's movement.

Have a grounded, metal pail available for use when flushing the system.

## Components

See FIG. 1.

- The red-handled bleed-type master air valve (C) is required in your system to relieve air trapped between it and the air motor when the valve is closed. Do not block access to the valve.



- The pump air regulator (E) controls pump speed and outlet pressure by adjusting the air pressure to the pump.
- The air relief valve (not shown) opens automatically to prevent overpressurization of the pump.
- The airless spray gun (H) dispenses the fluid. The gun houses the spray tip (not shown), which is available in a wide range of sizes for different spray patterns and rates of flow. Refer to gun manual for tip installation.
- The hose (J) provides the gun fluid supply.
- The suction hose (R) with strainer allows the pump to draw fluid from a 5 gallon (19 liter) pail.
- A optional fluid filter with a 60 mesh (250 micron) stainless steel element filters particles from fluid as it leaves the pump.
- A fluid drain valve (G) relieves fluid pressure in the hose and gun.

## Air Lines Accessories

Install the following accessories in the order shown in FIG. 1, using adapters as necessary.

- An air-line filter (B) removes harmful dirt and moisture from the compressed air supply.
- A second bleed-type air shutoff valve (A) isolates the air line accessories for servicing. Locate upstream from all other air line accessories.

## Grounding



The equipment and flush pail 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.

1. Pump: See FIG. 2. Verify that the ground screw (MS) is attached and tightened securely to the air motor. Connect the other end of the ground wire (M) to a true earth ground.

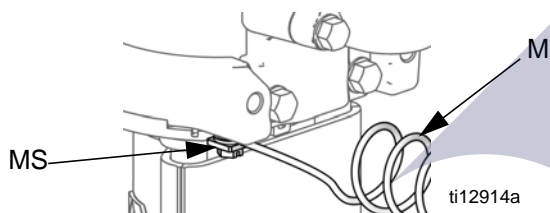
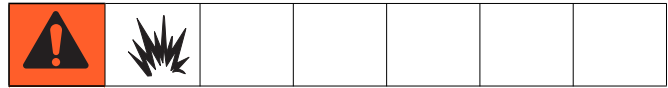


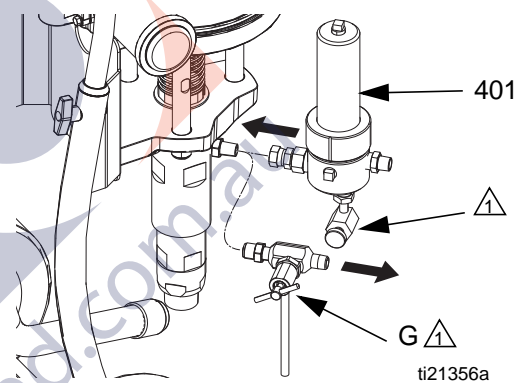
FIG. 2. Ground screw and wire

2. Pump fluid hoses: use only electrically conductive fluid hoses. Check electrical resistance of hoses. If total resistance to ground exceeds 25 megohms, replace hose immediately. Genuine Graco hoses are conductive.
3. Air compressor: follow manufacturer's recommendations.
4. Spray gun: ground through connection to a properly grounded fluid hose and pump.
5. Fluid supply container: follow your local code.
6. Object being sprayed: follow your local code.
7. Solvent pails used when flushing: follow your local code. Use only metal pails, which are conductive, placed on a grounded surface. Do not place the pail on a nonconductive surface, such as paper or cardboard, which interrupts the grounding continuity.
8. To maintain grounding continuity when flushing or relieving pressure, hold a metal part of the spray gun firmly to the side of a grounded metal pail, then trigger the gun.

## Setup



1. Apply warning label that matches your local language.
2. Attach a muffler to each side of the air manifold on the motor.
3. If it is necessary to filter the material at the pump fluid outlet, install optional Fluid Outlet Filter Kit 16V583. See **Accessories**, page 25, for parts.
  - a. Use a wrench to hold the pump fluid outlet fitting in place and a second wrench on the drain valve tee fitting. Remove drain valve tee fitting (G).
  - b. Place fluid filter (401) in a vise. Apply thread sealant on threads and install fittings as shown.



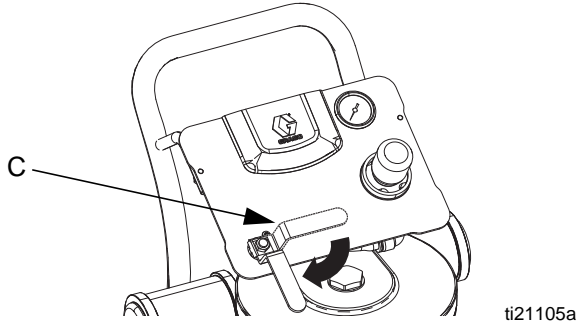
⚠ If necessary, remove barbed fitting (13) from tee fitting (G) and install in fluid filter kit drain valve.

FIG. 3: Optional Fluid Outlet Filter Kit

4. Attach the siphon hose to the pump inlet. Use a non-sparking hammer to tighten hose fitting lugs.
5. See FIG. 1. Attach end of fluid hose (J) to pump outlet (L), or filter, and tighten.
6. Attach other end of fluid hose (J) to reducing nipple and whip hose (K). Attach whip hose to gun and tighten.



7. Close bleed type master air valve (C). Connect air supply hose to air inlet.



8. Flush before using. See page 11.
9. Prime before using. See page 12.

### Wet Cup



Before starting, fill wet cup (N) 1/2 full with Graco Throat Seal Liquid (TSL) Part No. 206994, or compatible solvent.

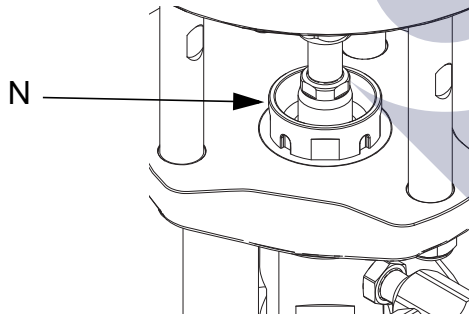


FIG. 4. Wet Cup

# Operation

## Pressure Relief Procedure



Follow the Pressure Relief Procedure whenever you see this symbol.



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

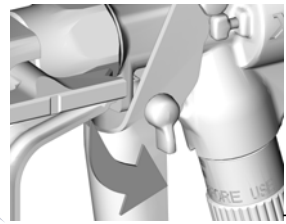
1. Engage the trigger lock.
2. See FIG. 1. Turn off the bleed-type master air valve (C).
3. Disengage the trigger lock.
4. Hold a metal part of the gun firmly to a grounded metal waste container. Trigger the gun to relieve fluid pressure.
5. Engage the trigger lock.
6. Open all fluid drain valves in the system, having a waste container ready to catch the drainage. After the fluid is drained, close the valves.
7. If you suspect the spray tip or hose is completely clogged, or that pressure has not been fully relieved after following the previous steps, very slowly loosen the tip guard retaining nut or hose end coupling and relieve pressure gradually; then loosen completely. With tip removed, trigger gun into bucket.

## Trigger Lock



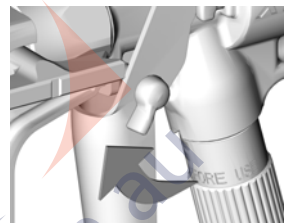
See FIG. 5. Always engage gun trigger lock when you stop spraying to prevent gun from being triggered accidentally by hand or if dropped or bumped.

Gun Trigger Safety Locked



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Gun Trigger Safety Unlocked



TI5048a

**FIG. 5. Trigger Lock**

# Flush



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

## Flush the Pump Before First Use

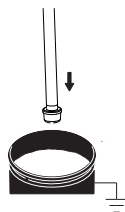
The pump is tested with lightweight oil, which is left in to protect the pump parts. If the fluid you are using may be contaminated by the oil, flush it out with a compatible solvent. See **Flush** on page 11.

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.

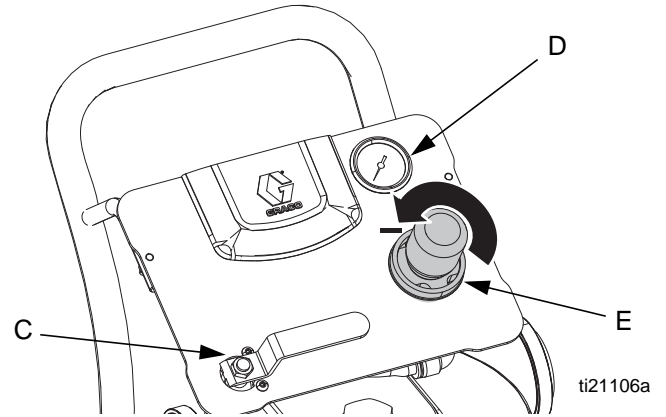
Flush at the lowest pressure possible. Flush with a fluid that is compatible with the fluid you are pumping and with the wetted parts in your system. Check with your fluid manufacturer or supplier for recommended flushing fluids and flushing frequency.

1. Follow **Pressure Relief Procedure**, page 10.
2. See FIG. 1. Lock gun trigger. Remove tip guard and spray tip from gun (H). Refer to gun manual.
3. Place suction tube in a compatible solvent.

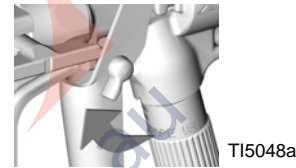


**NOTE:** Do not stretch hose tight; let it hang to assist fluid flow into pump.

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



5. Open bleed type master air valve (C).
6. Flush hose and gun:
  - a. Disengage gun trigger lock. Hold gun against a grounded metal pail.



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

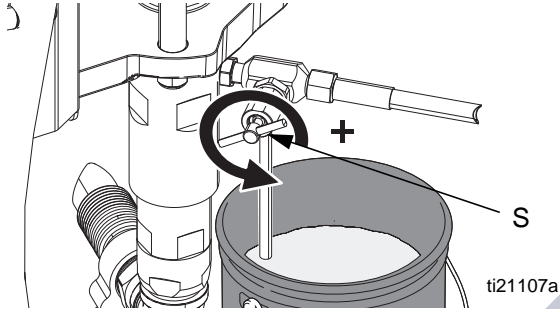


- c. After solvent is running clean, stop pump by turning the regulator adjustment knob (E) counter-clockwise until it stops and the gauge (D) reads zero. Once the material stops flowing, release the trigger and engage the trigger lock. Stop pump with rod buried in the pump.
  - d. Close bleed type master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

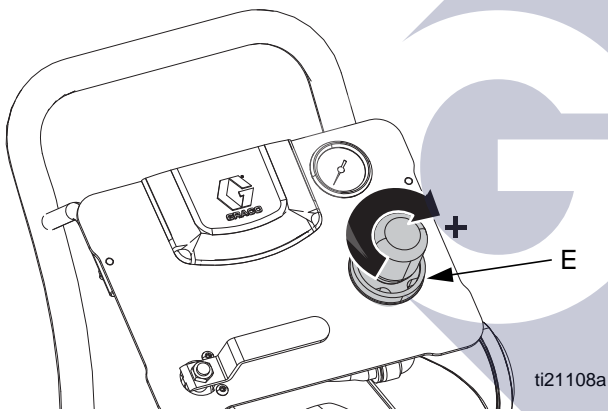
7. If flushing through drain/purge valve:

- a. Place drain tube in a grounded waste pail.

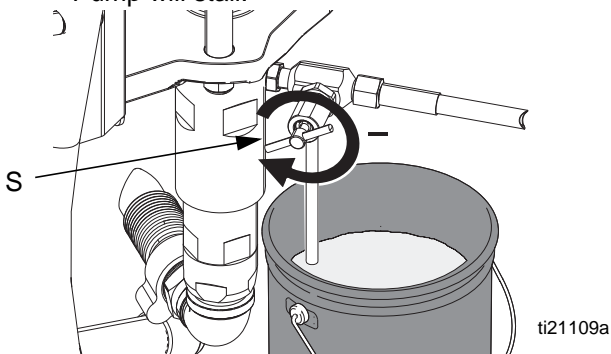
Open drain/purge valve (S) slightly by rotating counterclockwise.



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

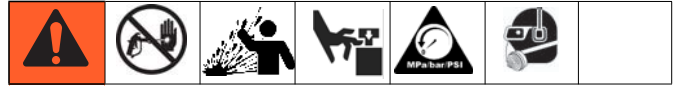


- c. When clean solvent flows from drain tube close drain/purge valve (S) by rotating clockwise. Pump will stall.

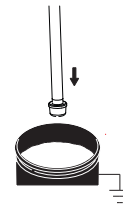


- d. Stop pump with rod buried in pump.  
 e. Follow **Pressure Relief Procedure**, page 10. Leave solvent in and store sprayer.

## Prime

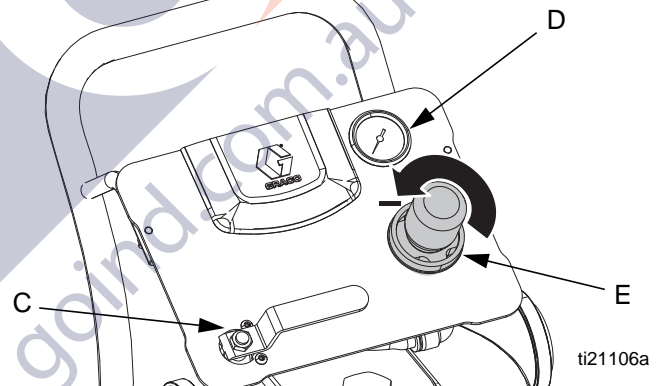


1. Follow **Pressure Relief Procedure**, page 10.
2. See FIG. 1. Lock gun trigger. Remove tip guard and spray tip from gun (H). Refer to gun manual.
3. Place suction tube in the material that will be sprayed.



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

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

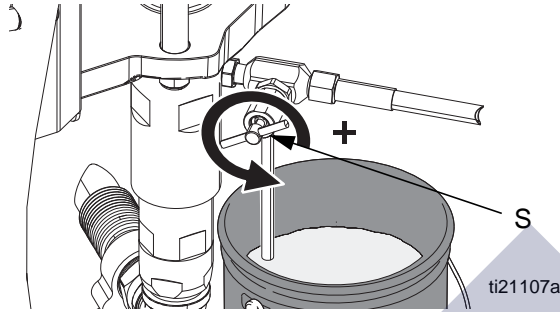


5. Open bleed type master air valve (C).

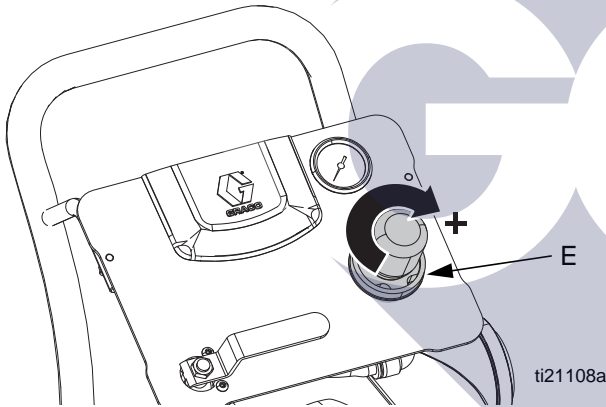
6. Prime through drain valve, if necessary (usually for one component, high viscosity materials):

a. Place drain tube in a grounded waste pail.

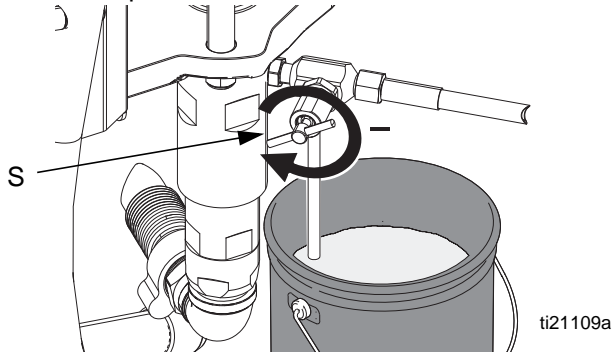
Open drain/purge valve (S) slightly by rotating counterclockwise.



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

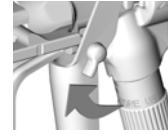


c. When clean material flows from drain tube close drain/purge valve (S) by rotating clockwise. Pump will stall.



7. Prime hose and gun:

a. Disengage gun trigger lock.



b. Trigger gun slowly open regulator adjustment knob (E) until pump begins to cycle. Trigger gun into grounded pail until a steady stream comes from gun.



c. Engage trigger lock.

8. Equipment is now ready to spray; go to **Spray**, page 14.

**NOTICE**

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

### Install the Spray Tip



Follow **Pressure Relief Procedure**, page 10. Install the spray tip and tip guard as explained in your separate gun manual, supplied.

The fluid output and pattern width depend on the size of the spray tip, the fluid viscosity, and the fluid pressure. Use the Spray Tip Selection Chart in your gun instruction manual as a guide for selecting an appropriate spray tip for your application.

### Maximum Tip Size

Larger tips can be used with less viscous material.

Model	Maximum Tip Size
Merkur X72	0.021
Merkur X48	0.025

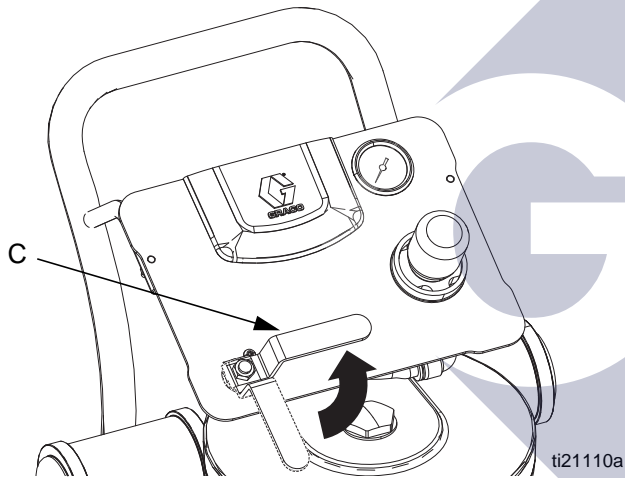
## Spray



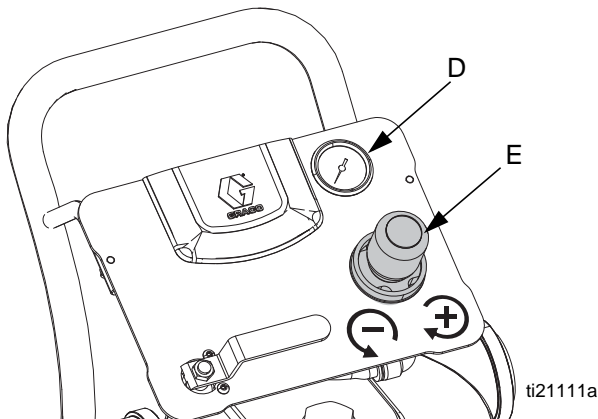
### NOTICE

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

1. Prime. See **Prime**, page 12.
2. Follow **Pressure Relief Procedure**, page 10.
3. Install tip and tip guard on gun.
4. Open bleed type master air valve (C).



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



6. Disengage gun trigger lock.



7. Spray a test pattern. Adjust pressure as necessary. Read fluid manufacturer's recommendations.



8. Flush when done spraying. See **Flush**, page 11.
9. Follow **Pressure Relief Procedure**, page 10.

## Shutdown



Follow **Pressure Relief Procedure**, page 10.

Always flush the pump before the fluid dries on the displacement rod. See **Flush** on page 11.

# Maintenance

## Preventive 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.

Replace lens covers on regulator gauge lenses when dirt makes gauges difficult to read.

## Tighten Threaded Connections

Before each use, check all hoses for wear or damage. Replace as necessary. Check that all threaded connections are tight and leak-free.

## Wet Cup

Fill the wet cup one-half full with Graco Throat Seal Liquid (TSL). Maintain level daily.



# Troubleshooting



**NOTE:** Check all possible problems and causes before disassembling the pump.

Problem	Cause	Solution
Pump fails to operate.	Restricted line or inadequate air supply; closed or clogged valves.	Clear line or increase air supply. Check that the valves are open.
	Obstructed fluid hose or gun; fluid hose ID is too small.	Open, clear*; use hose with larger ID.
	Fluid dried on the displacement rod.	Clean; always stop the pump at the bottom of its stroke; keep the wet-cup 1/2 filled with Graco throat seal liquid (TSL).
	Dirty, worn, or damaged air motor parts.	Clean or repair air motor. See air motor manual.
Pump operates, but output is low on both strokes.	Restricted line or inadequate air supply; closed or clogged valves.	Clear line or increase air supply. Check that the valves are open.
	Obstructed fluid hose or gun; fluid hose ID is too small.	Open, clear*; use hose with larger ID.
	Worn packings in displacement pump.	Replace packings. See displacement pump manual.
Pump operates, but output is low on downstroke.	Held open or worn ball check valves or piston packings.	Clear valve; replace packings. See displacement pump manual.
Erratic or accelerated pump speed.	Exhausted fluid supply.	Refill and prime.
	Held open or worn ball check valves or packings.	Clear valve, replace packings; see displacement pump manual.
Fluid being pumped is visible in the TSL reservoir.	Worn throat packings.	Replace throat packings. See displacement pump manual.

\* To determine if the fluid hose or gun is obstructed, relieve the pressure. Disconnect the fluid hose and place a container at the pump fluid outlet to catch any fluid. Turn on the air just enough to start the pump. If the pump starts when the air is turned on, the obstruction is in the hose or gun.



# Repair

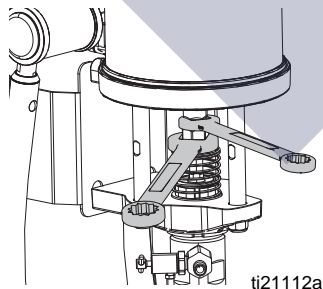


## General Information

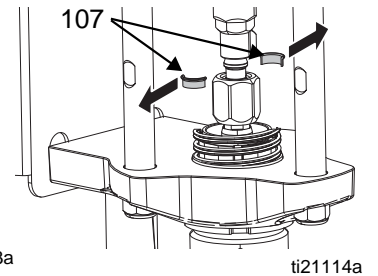
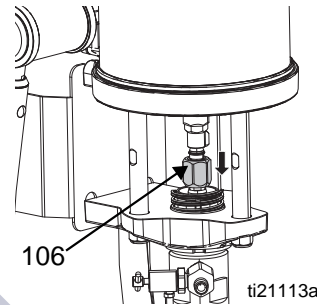
- Reference numbers and letters in parentheses in the text refer to the callouts in the figures and the parts drawing.
- Always use Genuine Graco Parts and Accessories, available from your Graco distributor. If you supply your own accessories, be sure they are adequately sized and pressure rated for your system.

## Disconnect the Displacement Pump

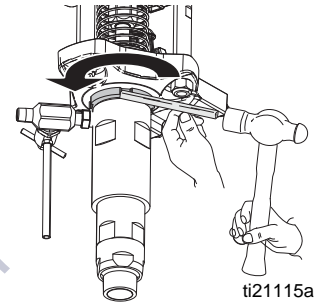
1. Stop the pump in the middle of the stroke.
2. Flush the pump, if possible. See **Flush**, page 11. Relieve the pressure. See **Pressure Relief Procedure**, page 10.
3. Disconnect the air and fluid hoses and the ground wire (109).
4. Move the spring guard (118) upwards or downwards. Hold the flats of the air motor piston rod with a wrench. Use another wrench to loosen the coupling nut (106).



5. Lower the coupling nut (106) enough to remove the coupling collars (107), and then remove the coupling nut (106).



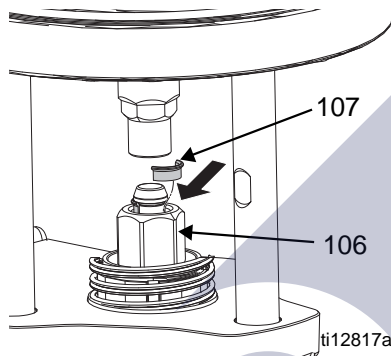
6. Use a hammer and brass rod to loosen the jam nut (105). Unscrew the jam nut as far as possible.
7. Unscrew the displacement pump by hand and place on work bench.



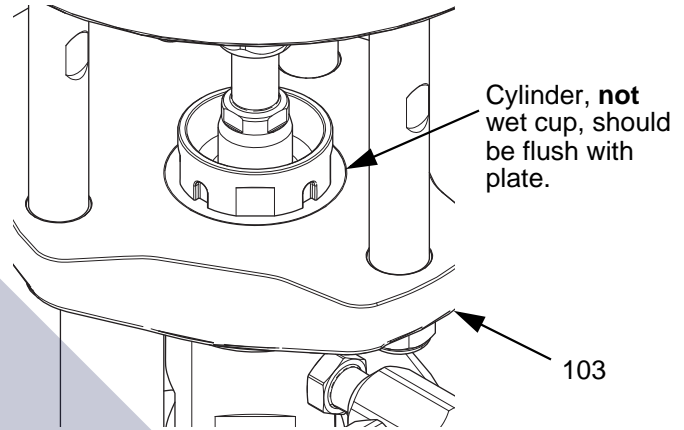
Threads are very sharp. To avoid cuts, use a rag to protect hands when hand turning or carrying the displacement pump.					

## Reconnect the Displacement Pump

1. Tilt the air motor onto its back, then hand turn the displacement pump into the adapter plate. Set the pump upright again.
2. Hold the air motor piston rod up with one hand. With your other hand, put the coupling nut (106) on the displacement rod.
3. Put the coupling collars (107) into the coupling nut (106) so large flanges point upward.
4. Place spring (118) over coupling nut (106). Hold spring down to connect the air motor rod and coupling nut (106).
5. Gently let the air motor piston rod drop onto the displacement rod. Hand tighten the coupling nut (106).



6. Screw the displacement pump into the adapter plate (103) until the cylinder top is flush with the top of the adapter plate.



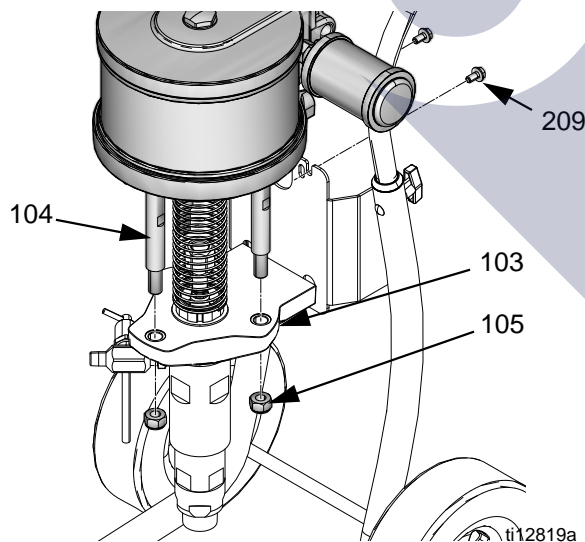
**FIG. 6. Align cylinder and adapter plate.**

7. Align fluid outlet as shown and tighten the jam nut.
8. Hold the flats of the motor rod with a wrench. Use another wrench to tighten the coupling nut (106). Torque to 75-80 ft-lb (102-108 N•m).

## Disconnect the Air Motor

1. Flush the pump, if possible. See **Flush**, page 11. Relieve the pressure. See **Pressure Relief Procedure**, page 10.
2. Disconnect the air hose, fluid hoses, and the ground wire (109).
3. Hold the flats of the air motor piston rod with a wrench. Use another wrench to loosen the coupling nut (106).
4. Use a 23 mm socket to remove the tie rod nuts (105).
5. Use a 13 mm socket to remove the top two mounting screws (209).
6. Lift up on the air motor to remove it. The tie rods (104) and will remain attached.

**NOTE:** Remove the two screws on the arms and tip back or remove the air control panel for easier removal of the air motor.



7. Use a socket on the flats of the tie rods (104) to remove them from the bottom cover of the air motor.

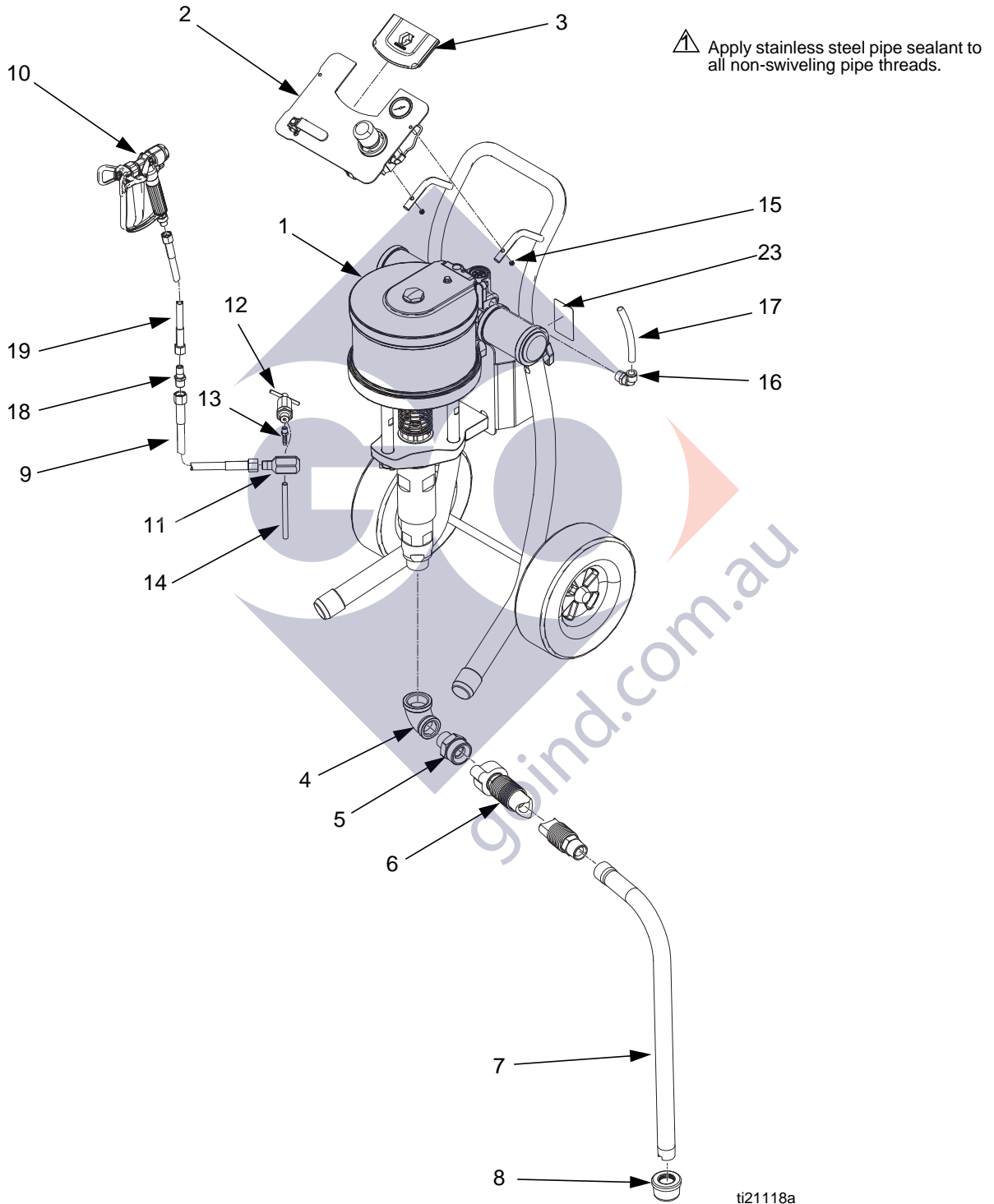
**NOTE:** See air motor manual for service and parts information.

## Reconnect the Air Motor

1. Screw the tie rods (104) into the bottom cover of the air motor. Torque to 50-55 ft-lb (68-75 N•m).
2. Align the tie rods (104) with the holes in the pump adapter (103). Carefully lower the air motor into place.
3. Attach the tie rod nuts (105) and torque to 50-60 ft-lb (68-81 N•m).
4. Tighten the mounting screws (209).
5. Hand tighten the coupling nut (106), then torque to 75-80 ft-lb (102-108 N•m).
6. Connect the air hose, fluid hose, and the ground wire.

# Parts

## System Packages





## System Packages


Ref	Part	Description	Quantity			
			System Packages		Bare Packages	
			16U918, Merkur X72 72:1, 50cc	16U920, Merkur X48 48:1, 75cc	16V174, Merkur X72 72:1, 50cc	16V175, Merkur X48 48:1, 75cc
1	-----	SYSTEM, pump, 48:1; see page 22		1		1
	-----	SYSTEM, pump, 72:1; see page 22	1		1	
2	16U947	KIT, air control, X72	1		1	
	16U948	KIT, air control, X48		1		1
3	277794	INSERT, control panel	1	1	1	1
4	116401	ADAPTER, elbow	1	1	1	1
5	116402	ADAPTER, quick connect	1	1	1	1
6	247301	HOSE, suction, 1 in. npt x quick connect	1	1	1	1
7	197682	TUBE, suction	1	1	1	1
8	187147	STRAINER, inlet	1	1	1	1
9	H53825	HOSE, coupled; 5600 psi, 0.375 in. (9.5 mm) ID, 25 ft (7.6 m)		1		
	H73825	HOSE, coupled; 7250 psi, 0.375 in. (9.5 mm) ID, 25 ft (7.6 m)	1			
10	XTR504	GUN, XTR5 with RAC tip		1		
	XTR704	GUN, XTR7 with RAC tip	1			
11*	15R874	FITTING, tee; 3/8 mxxf	1	1	1	1
12*	245143	VALVE, pressure, bleed	1	1	1	1
13*	116746	FITTING, barbed, plated	1	1	1	1
14*	116750	TUBE, nylon	1	1	1	1
15	105332	NUT, lock	2	2	2	2
16	15V204	FITTING, elbow, 1/2 npt x 1/2 tube	1	1	1	1
17	-----	TUBE, nylon; 1/2 OD x 3/8 ID; 0.65 ft (0.2 m)	1	1	1	1
18	164856	FITTING, nipple, reducing; 3/8 x 1/4 nptm	1	1		
19	H52506	HOSE, coupled; 5600 psi, 0.25 (6 mm) ID, 6 ft (1.8 m)		1		
	H72506	HOSE, coupled; 7250 psi, 0.25 (6 mm) ID, 6 ft (1.8 m)	1			
22	206994	FLUID, TSL 8 oz bottle	1	1	1	1
23	-----	LABEL, identification	1	1	1	1
24	-----	COVER, lens, 12 sticker sheet; (not shown), order Kit 24A540 for 5 sheets	1	1	1	1


\* Parts included in Drain Valve Kit 16U950 (purchase separately).

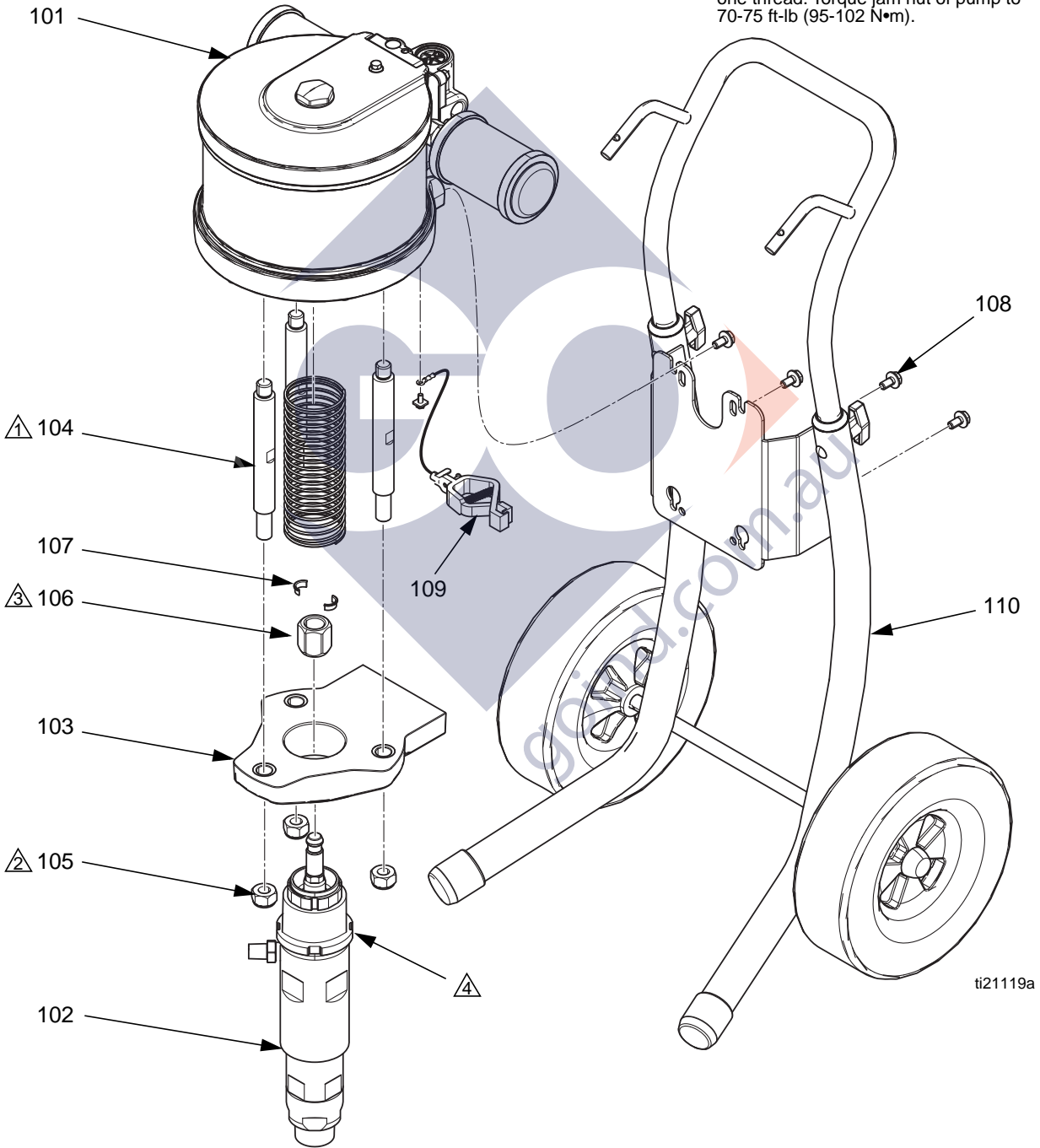
# Pump System Parts

 Torque to 50-55 ft-lb (68-75 N•m).

 Torque to 50-60 ft-lb (68-81 N•m).

 Torque to 75-80 ft-lb (102-108 N•m).

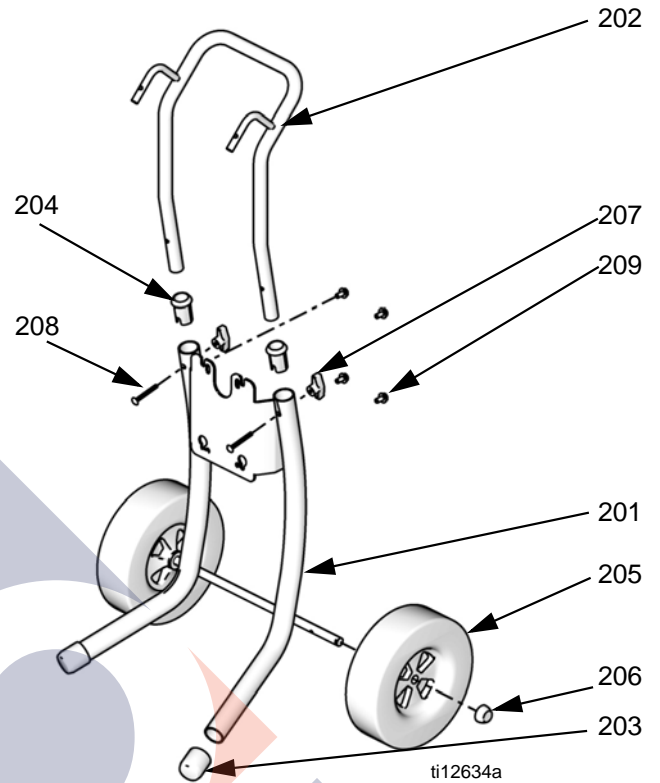
 Assemble pump (102) to top of within +/- one thread. Torque jam nut of pump to 70-75 ft-lb (95-102 N•m).



**16V175, Merkur X48 Pump System**  
**16V174, Merkur X72 Pump System**

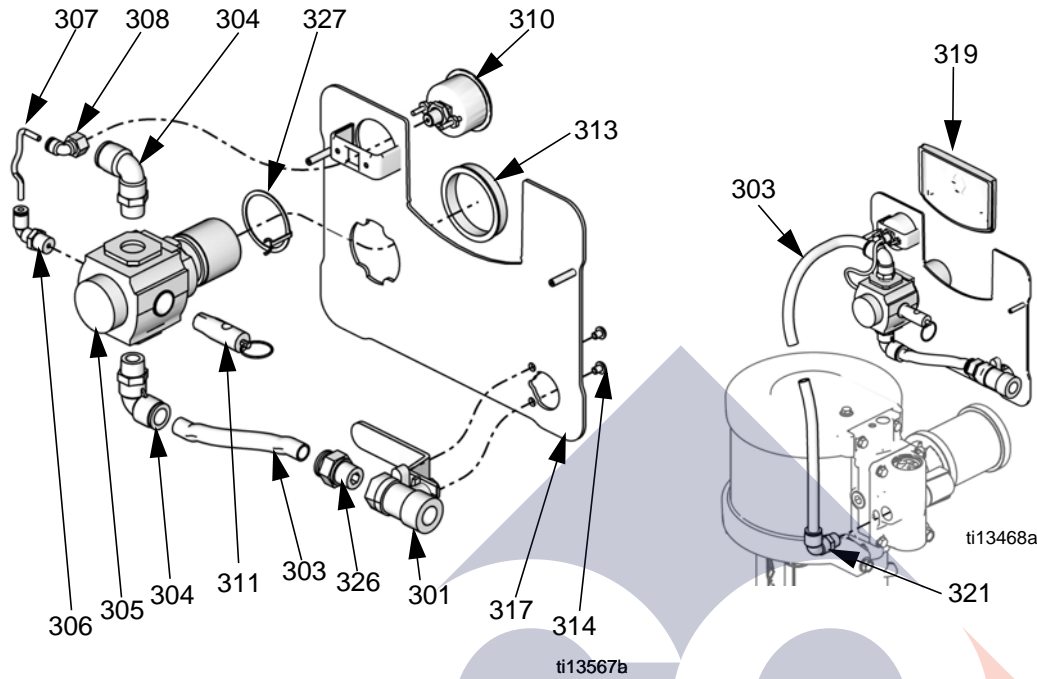
**Cart Mount Kit 289694**

Ref.	Part	Description	Qty.
101	M18LN0	MOTOR, air, 7.5 in	1
102	16U916	LOWER, assy, 50cc; 16V174	1
	16U917	LOWER, assy, 75cc; 16V175	1
103	15T392	ADAPTER, pump lower	1
104	15M662	ROD, tie	3
105	15U606	NUT, lock, m16 x 2	3
106	15T311	NUT, coupler	1
107	184128	COLLAR, coupling	2
108	111799	SCREW, cap, hex hd	4
109	238909	WIRE, grounding assembly	1
110	289694	KIT, cart	1
118	16U944	GUARD, spring	1



Ref.	Part	Description	Qty
201	----	CART, frame	1
202	----	HANDLE, cart	1
203	15C871	CAP, leg	2
204	----	SLEEVE, cart handle	2
205	119451	WHEEL, semi-pneumatic	2
206	119452	CAP, hub	2
207	115480	KNOB, t-handle	2
208	116630	SCREW, carriage	2
209	111799	SCREW, cap, M8 x 1.25	4

## Pump Only Control Panel Kits



### 16U948, X48 Air Control Kit 16U947, X72 Air Control Kit

Ref. Part	Description	Qty.
301	114362 VALVE, ball	1
303	----- TUBE, 1/2 OD, cut to fit, order Tubing Kit 24D496	1.5 ft.
304	121212 ELBOW, swivel, 1/2T x 3/8 npt(m)	2
305	15T536 REGULATOR, air, 3/8 npt	1
306	----- ELBOW, swivel, 5/32 T x 1/4 npt	1
307	----- TUBE, black, cut to fit, order Tubing Kit 24D496	5 in.
308	----- SWIVEL, 90°, 5/32T x 1/8 npt(f)	1
310	15T500 GAUGE, pressure	1
311	113498 VALVE, safety	1
313	15T538 NUT, regulator	1
314	114381 SCREW, cap, button head	2
317	----- PANEL	1
318	----- LABEL, panel (not shown)	1
319	----- INSERT	1
320	105332 NUT, lock (not shown)	2
321	----- ELBOW, 1/2T x 1/2 npt	1
322	----- COVER, lens, 12 sticker sheet (not shown), order Kit 24A540 for 5 sheets	1
326	----- FITTING, straight, 1/2T x 3/8 npt(m)	1
327	24P814 RING, grounding	1

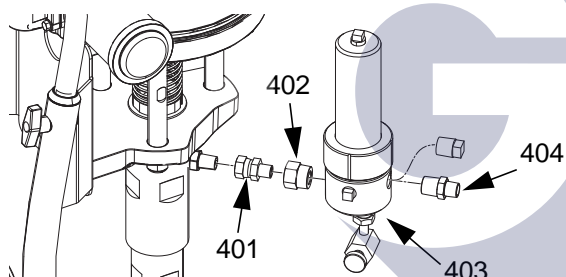


## Repair Kits

Description	Sprayer Models	
	Merkur X48	Merkur X72
<b>Drain Valve Kit</b> Includes tee fitting (11), bleed valve (12), barbed fitting (13), and nylon tube (14).	16U950	16U950
<b>Displacement Pump Rebuild Kit</b> See manual displacement pump manual.	16U925	16U924
<b>XTR Gun Repair Kit</b> See gun manual.	248837	248837

## Accessories

### Fluid Outlet Filter, 16V583



▲ Apply thread sealant to all pipe threads.

Ref.	Part	Description	Qty
401	155665	UNION, adapter	1
402	16W395	BUSHING, PIPE, 3/4-14(m) x 3/8-18(f) npt	1
403	237069	FILTER, paint, 7252 psi (50 MPa, 500 bar)	1
404	159239	NIPPLE, pipe, reducing, 1/2 x 3/8 npt	1

Description	Sprayer Models	
	Merkur X48	Merkur X72
<b>Air Filter Kit</b> 1/2 npt(fbe) inlet and outlet, 20 micron filter. See air filter manual.	106149	106149
<b>50 ft. Fluid Hose (5200 psi rated)</b> Optional 50-foot hose, 3/8 in. ID, 5600 psi (38.6 MPa, 386 bar) maximum working pressure.	H53850	
<b>50 ft. Fluid Hose (7200 psi rated)</b> Optional 50-foot hose, 3/8 in. ID, 7250psi (50 MPa, 500 bar) maximum working pressure.		H73850
<b>Whip Hose</b> Replacement 6 ft (1.8 m) hose, 1/4 in. ID, 5600 psi (38.6 MPa, 386 bar) maximum working pressure.	H52506	
<b>Whip Hose</b> Replacement 6 ft (1.8 m) hose, 1/4 in. ID, 7250psi (50 MPa, 500 bar) maximum working pressure.		H72506

# 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.

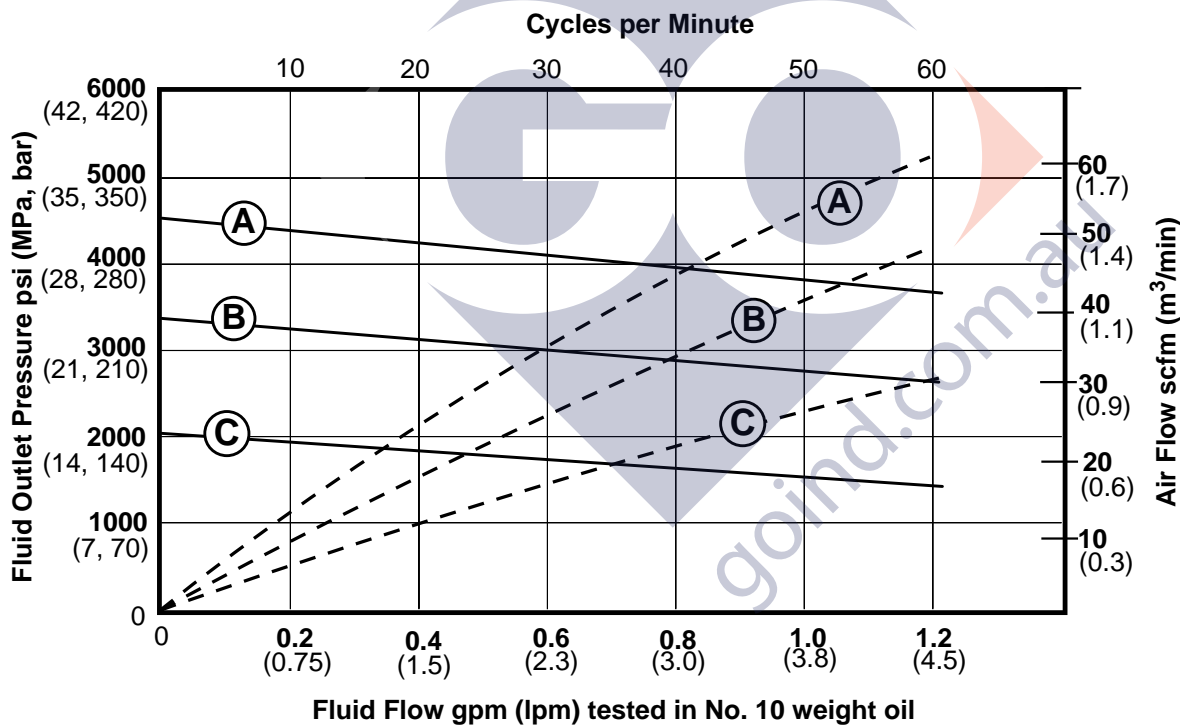
1. Locate desired flow along bottom of chart.
2. Follow vertical line up to intersection with selected fluid outlet pressure curve. Follow left to scale to read fluid outlet pressure.

## Calculate Pump Air Flow/Consumption

To calculate pump air flow/consumption (scfm or m<sup>3</sup>/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 air flow/consumption curve. Follow right to scale to read air flow/consumption

## Merkur X48 48:1 Ratio, 75 cc/cycle

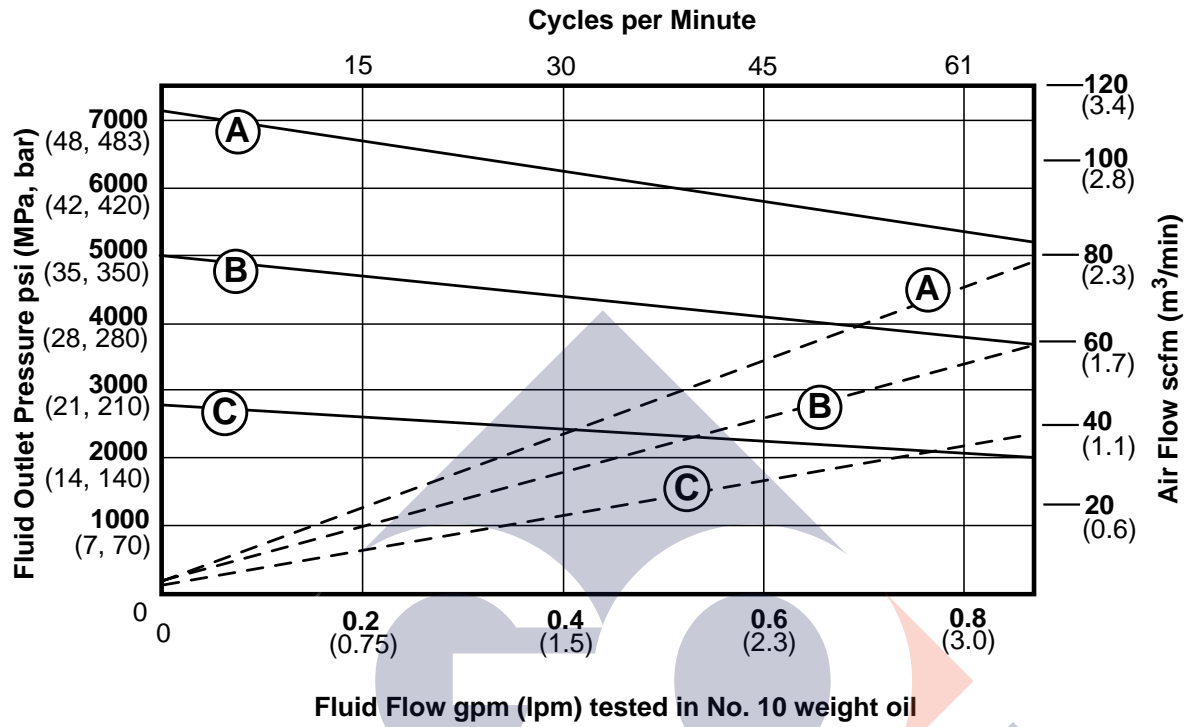


**Key:**

- A 100 psi (0.69 MPa, 6.9 bar)
- B 70 psi (0.48 MPa, 4.8 bar)
- C 40 psi (0.28 MPa, 2.8 bar)
- Fluid Flow
- - - Air Flow

# Merkur X72

## 72:1 Ratio, 50 cc/cycle



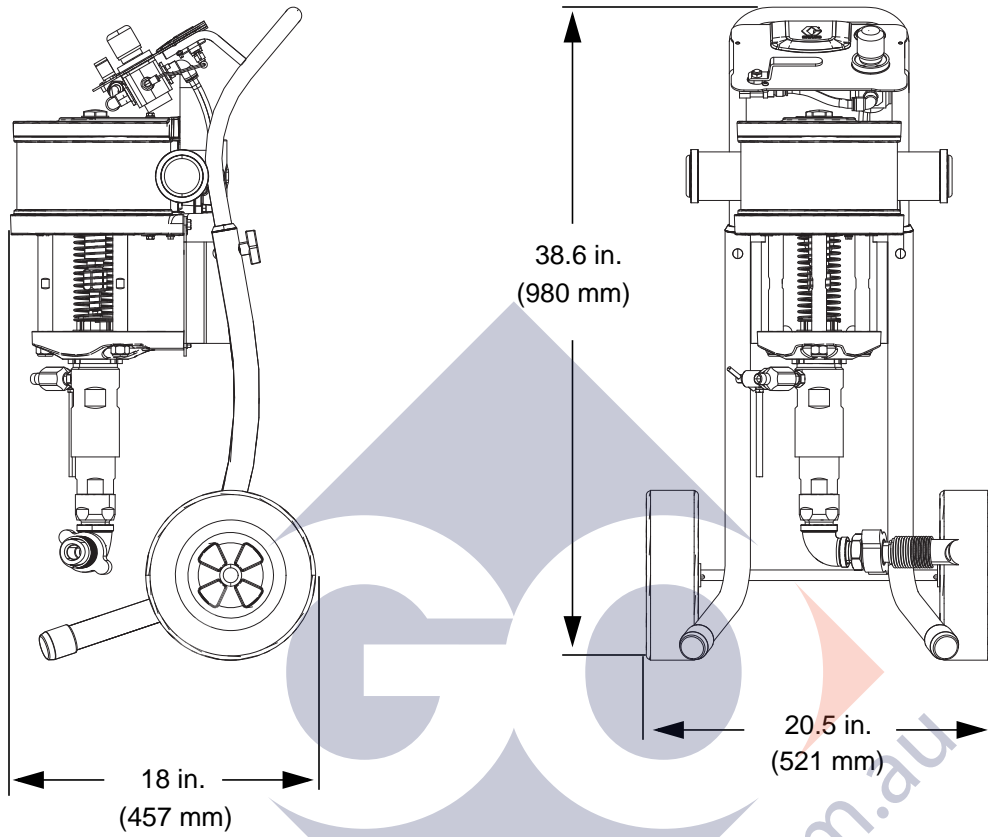
**Key:**

- A 100 psi (0.69 MPa, 6.9 bar)
- B 70 psi (0.48 MPa, 4.8 bar)
- C 40 psi (0.28 MPa, 2.8 bar)

- Fluid Flow
- - - Air Flow

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# Dimensions



# Technical Data

<b>Merkur High Pressure Sprayers</b>		
	<b>US</b>	<b>Metric</b>
Maximum pump air inlet pressure	100 psi	0.7 MPa, 7 bar
Ambient air temperature range	35°–120°F	2°–49°C
Maximum fluid temperature	160°F	71°C
Sound data	See Merkur Air Motor Technical Data	
Weight	99 lb	45 kg
<b>Maximum fluid working pressure</b>		
16U920, 16V175	4800 psi	33 MPa, 330 bar
16U918, 16V174	7200 psi	50 MPa, 500 bar
<b>Ratio</b>		
16U920, 16V175	48:1	
16U918, 16V174	72:1	
<b>Wetted Parts</b>		
Displacement pump	Stainless steel, plated carbon steel, tungsten carbide with 6% nickel, UHMWPE, PTFE	
Spray gun	See manual XTR guns technical data	
Fluid hoses	nylon	
Suction assembly	carbon steel, aluminum, nylon	

# 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.

**THIS WARRANTY IS EXCLUSIVE, AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.**

Graco's sole obligation and buyer's sole remedy for any breach of warranty shall be as set forth above. The buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss) shall be available. Any action for breach of warranty must be brought within two (2) years of the date of sale.

**GRACO MAKES NO WARRANTY, AND DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, IN CONNECTION WITH ACCESSORIES, EQUIPMENT, MATERIALS OR COMPONENTS SOLD BUT NOT MANUFACTURED BY GRACO.** These items sold, but not manufactured by Graco (such as electric motors, switches, hose, etc.), are subject to the warranty, if any, of their manufacturer. Graco will provide purchaser with reasonable assistance in making any claim for breach of these warranties.

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For patent information, see [www.graco.com/patents](http://www.graco.com/patents).

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**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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