

Integrated Paving Concepts Inc.

Rapid Sprayer II Operations Manual



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Introduction

The *Rapid Sprayer II* is a second generation spray system designed exclusively for applying StreetBond coatings. A Wilden air-operated double diaphragm pump is used on this machine which draws from the bottom of the 10 gallon (40 liter) hopper tank. Coatings are distributed through the RSG3 spray gun made by Graco.

- Fill on the go reduces stopping
- Built in strainer removes lumps and potential clogs
- Bottom draw reduces settlement.
- Rugged construction and large pneumatic tires for rough terrain
- Easy cleaning and maintenance
- Recirculates coating when not spraying – reduces hardening and issues.
- Adjustable pump and spray gun pressures allows maximum spraying flexibility.



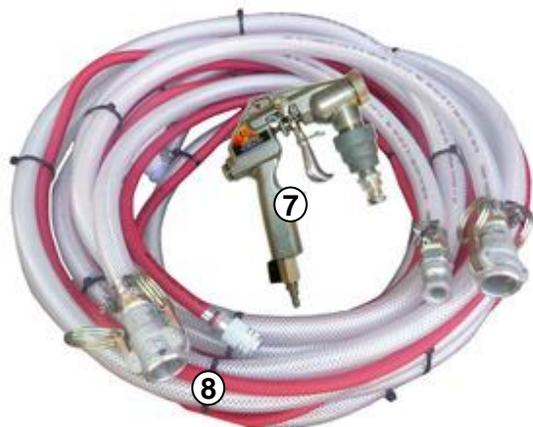
Power Requirements: The air supply is from a compressor (not supplied) which is capable of supplying at least 12-14 cfm (0.3 cubic meters/ min.) of continuous air at 60-80 psi. (400 – 550 atmospheres).



1. Read this manual before assembly, start-up and maintenance.
2. Always wear safety goggles when using this product. If diaphragm ruptures coating may be forced out of the air exhaust
3. Never exceed 125 psig (8.5 bar) air supply pressure. Recommended maximum pressure is 90 psi (6.2 bar).
4. Pump noise can exceed 75 dba under certain operating conditions, such as high air pressure supply and low discharge head. Over an extended period of time this can cause hearing damage. Always wear hearing protection.
5. Check all fasteners on the pump periodically to ensure that all the fasteners meet the torque specifications given in the “Pump Reassembly” section of this manual.
6. All operators must be properly trained and employ safe working and operating practices as outlined in this manual and the safety instructions that come with the StreetBond coating products

The *Rapid Sprayer II* includes the following parts:

1. Main Pump and Hopper Assembly
2. Handle
3. Stainless Steel Screen
4. Jiffler Mixing Paddle
5. Cleaning Brush
6. Blue Coating Brush
7. Rapid Sprayer Gun 3 (RSGIII)
8. RSG Hose Assembly



Assembly Instructions

1. Install handle.



2. Connect the RSG gun to the hose and the 3 hoses to the Hopper Assembly.



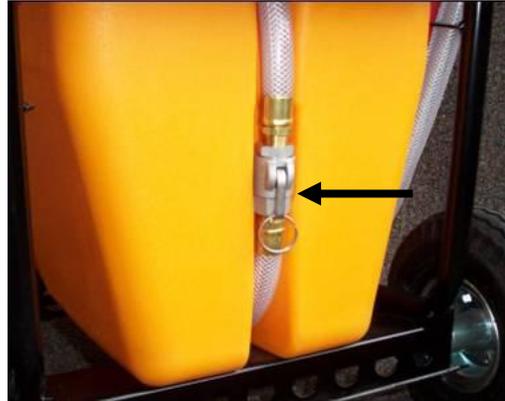
3. Connect the air supply.



Operating Procedure



Ensure return feed hose is placed in hole at top of hopper.



Check that the draw tube hose cam lock is securely connected



Make sure the air filter has been purged of water. To drain, press button on underside as shown.

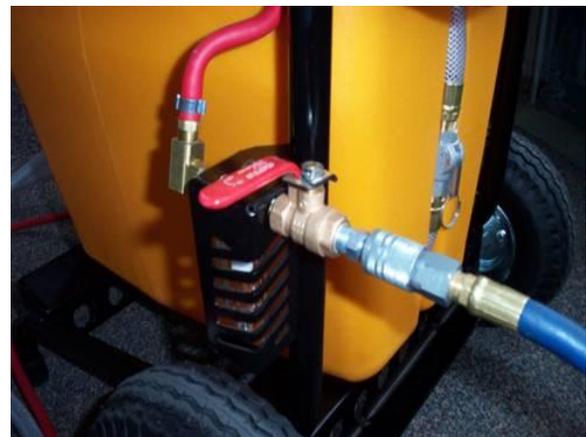


Connect the recirculation hose, discharge hose and air hose to the hopper and pump as shown



Connect the two hoses to the RSG Gun as shown

(The New RSGIII connects exactly the same as the old RSG)



Connect the compressor hose as shown. **CAUTION: Do not exceed 120 psi inlet pressure.**

Operating Procedure – Cont'd

Pouring Coating into the Hopper:

Mix coating well according to the instructions on the container

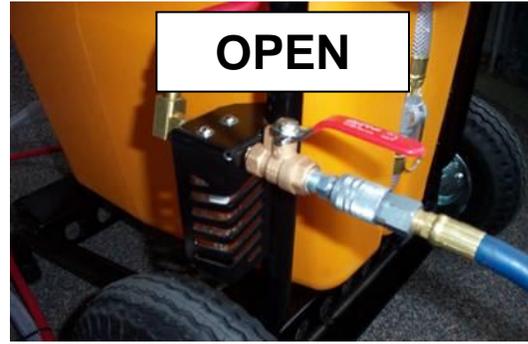
IMPORTANT: To avoid potential blockages always place the stainless steel screen over the opening when pouring coating into the hopper (rinse screen immediately after use)



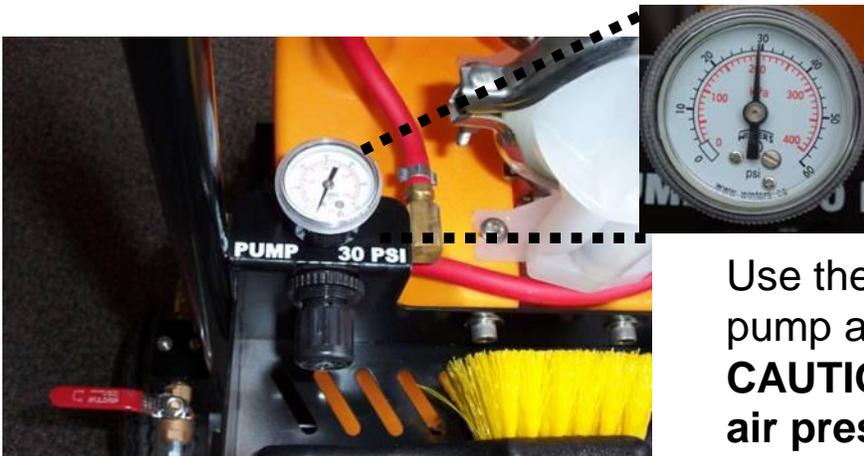
Recommended Maximum fill line. The hopper will hold more coating than this (10 gallons), but the unit is more difficult to move around the job site.

Operating Procedure –Cont'd

Starting the pump



With compressor running, open the air valve to start the pump. Coating should begin to recirculate, with the pump “ticking” over at a slow rate.



Use the regulator to set the pump air pressure to 30 psi.
CAUTION: Never exceed 80 psi air pressure.



Set gun air pressure to between 30 and 40 psi.

Operating Procedure – Cont'd

Using the Rapid Sprayer II on the Job Site



To attain the optimum spray pattern spray back into the hopper while adjusting air pressure and material flow on the gun.



Place the compressor at the finish point of the job as shown to best keep the hoses out of the way.

Always use the Stainless Steel Screen when filling the hopper. Always rinse screen immediately after use.

Clean Up



When finished using sprayer and gun, pump remaining coating into bucket and turn off pump. Pour clean water into hopper and clean with supplied yellow gong brush to remove as much coating as possible.



Cycle the water through the system making sure that both the gun hose and the recycle hose are thoroughly flushed of coating.

Clean Up – Cont'd

If there are any blockages it may be necessary to “kink” the return hose to force the pressure to the gun.



Empty out the water into buckets. Add more clean water and repeat the process until the water remains clear and the hoses are all clear of coating. Undo all cam lock couplers and clean them thoroughly to ensure a good seal on next use.

Dispose of waste water in an environmentally responsible manner – check local by laws. Never pour waste water down storm drains or into the sewer system.

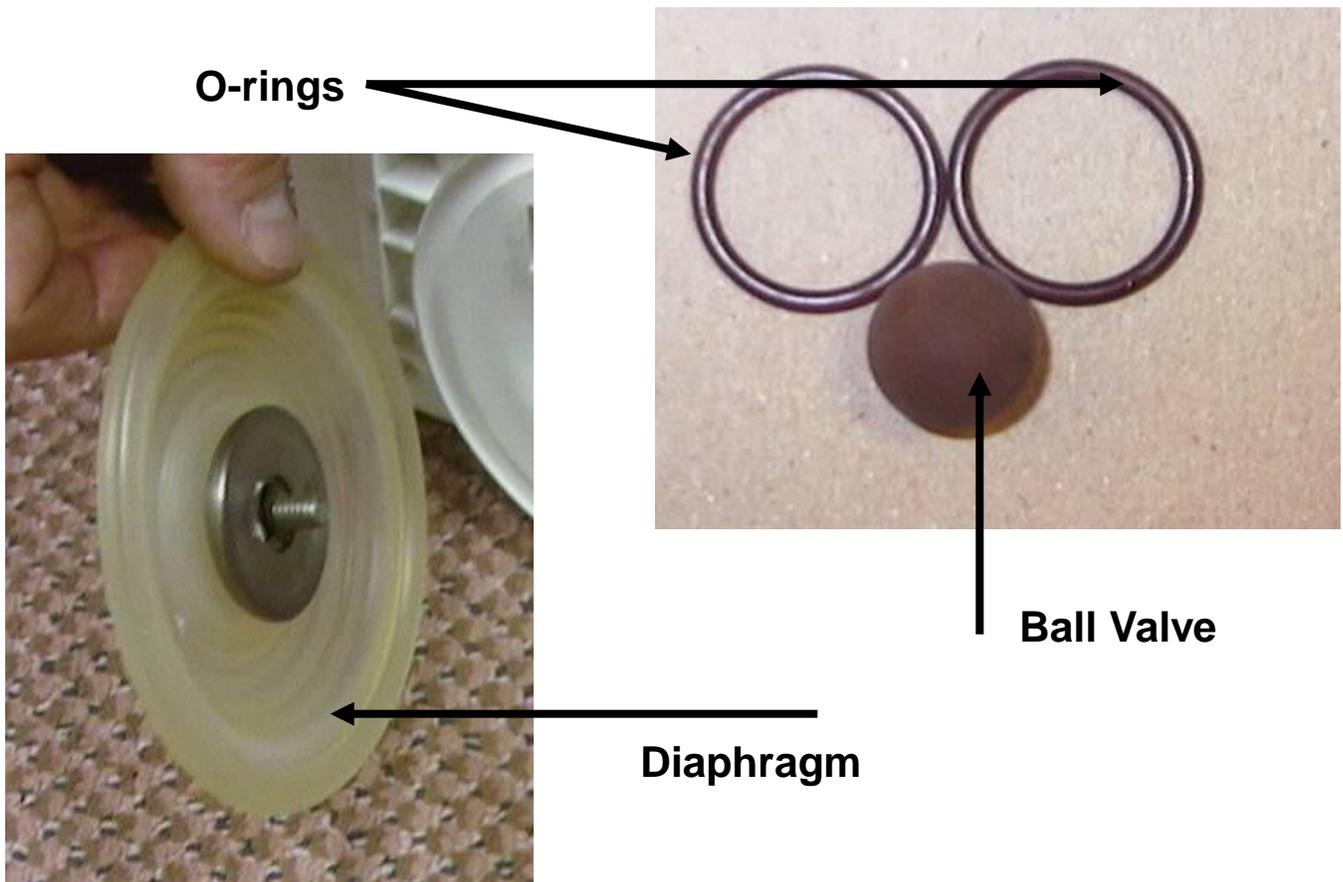
Pump Maintenance

Caution:

Before any repair or maintenance is attempted, the compressed air line to the pump should be disconnected and all air pressure allowed to bleed from the pump. Drain the pump and remove hoses.

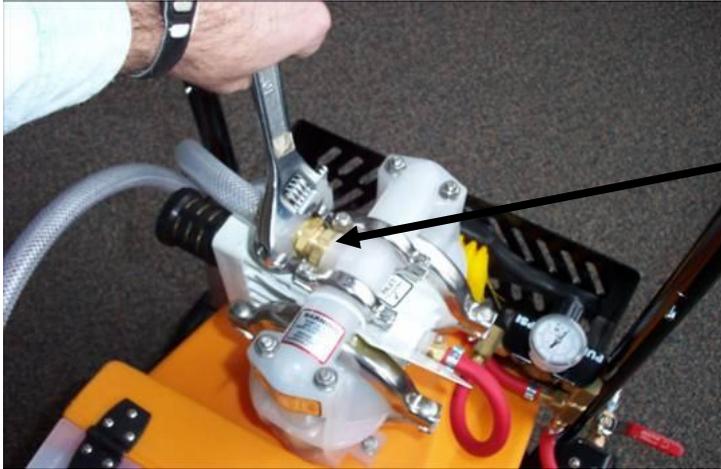
Maintenance schedules for the Wilden pump are dependent upon how frequently the pump is used. However, regular inspections and maintenance will help to prevent unscheduled pump downtime.

Periodic part replacement is recommended i.e. ball valves, o-rings, diaphragms and gaskets (see below). All of these parts will wear, due to the abrasive aggregates contained in the coating.



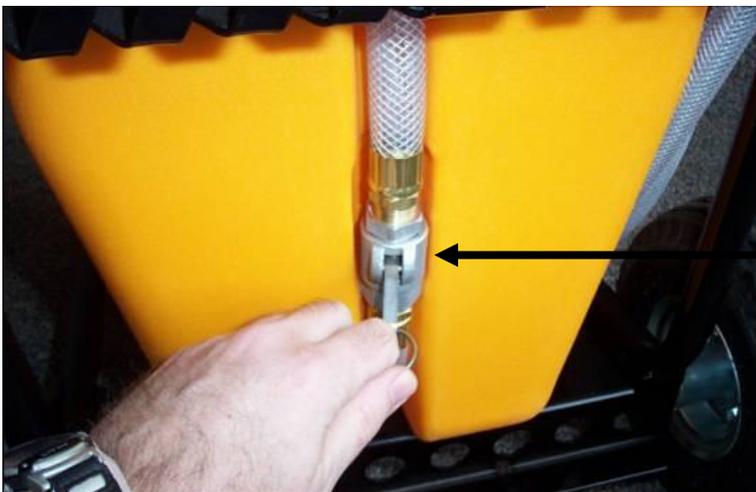
Pump Disassembly

To remove the pump from the hopper:



Detach the discharge hose on the top of the pump (this is a regular garden hose fitting)

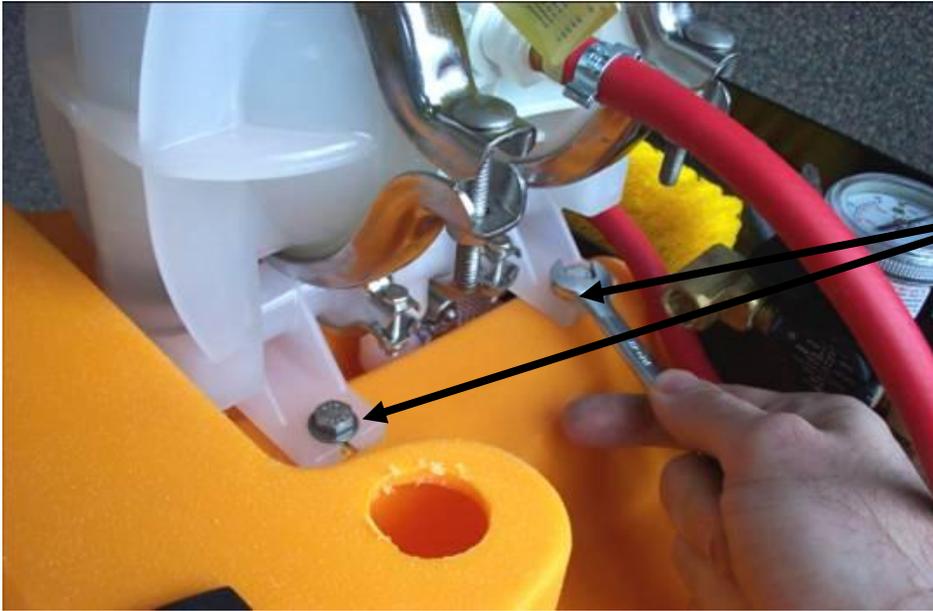
Unscrew the pump air line as shown. This has a swivel fitting on this end only



Detach the cam lock coupler on the back of the hopper

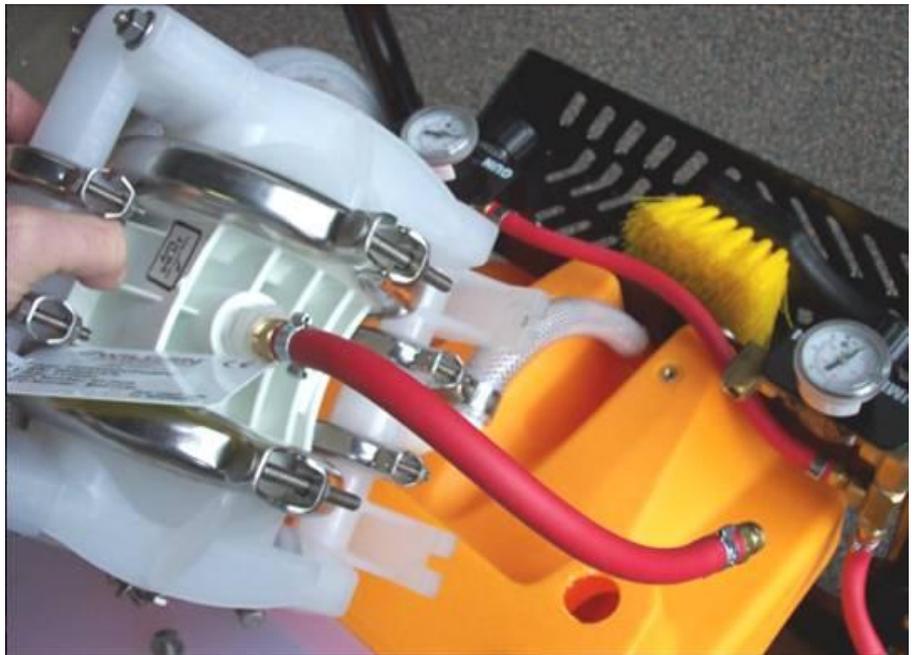
Pump Disassembly – Cont'd

To remove the pump from the hopper – Cont'd:



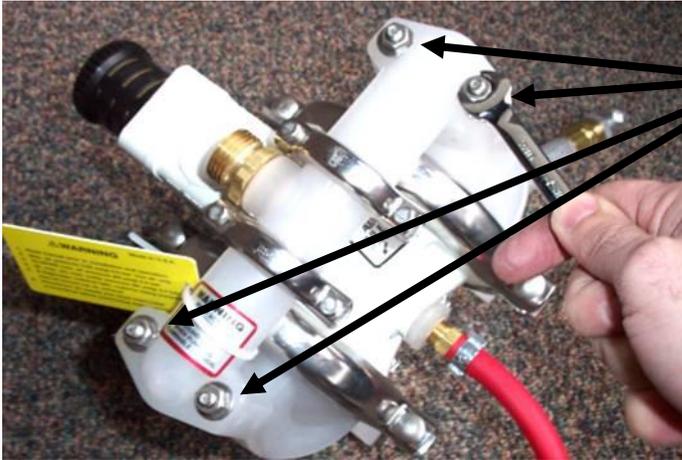
Unbolt the pump from the hopper using a 7/16" wrench (4 bolts)

Remove the pump from the hopper.



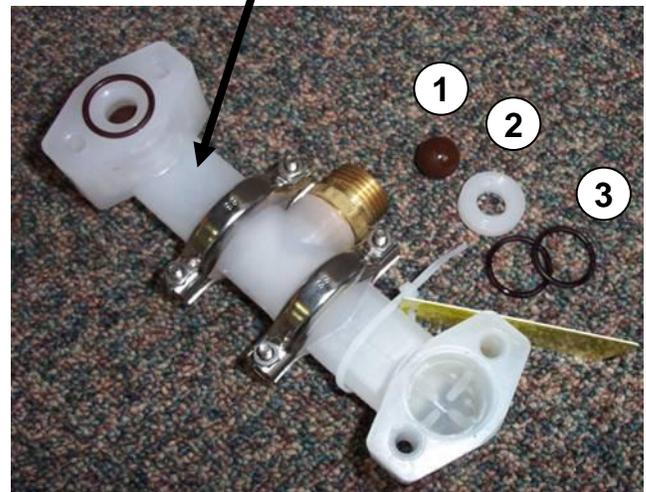
Pump Disassembly – Cont'd

To change ball valves and diaphragms:



Remove the long 1/4" bolts and nuts using a 7/16" wrench as shown.

Discharge Manifold

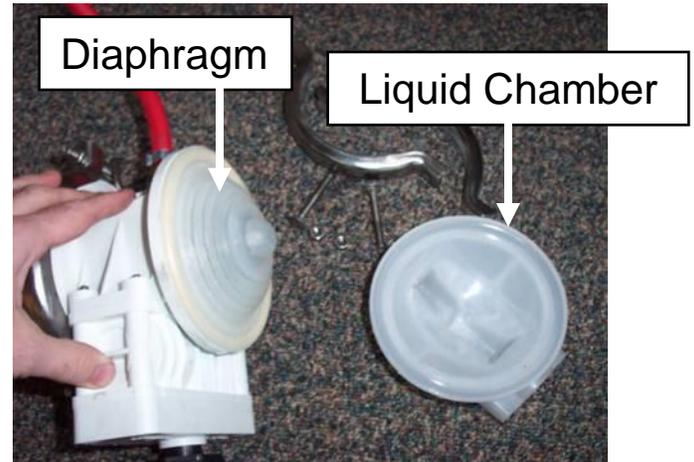


The ball (1), seat (2) and O-rings (3) are shown removed from one side of the discharge manifold (right) and the liquid chamber (below)



Liquid Chamber

Pump Disassembly – Cont'd



Use a 7/16" wrench to remove the clamp bands securing the liquid chambers to the center section. Lift the chamber away from the center section to expose the diaphragm and outer piston. The diaphragm should be cleaned with warm water to remove built up coating. If the diaphragm shows signs of splitting or abrasive wear it should be replaced.



Use a 7/8" wrench and socket to remove the diaphragm from the shaft and piston. Use a vise (**with protective jaws to prevent any damage to the shaft**) to remove the diaphragm from the other side.

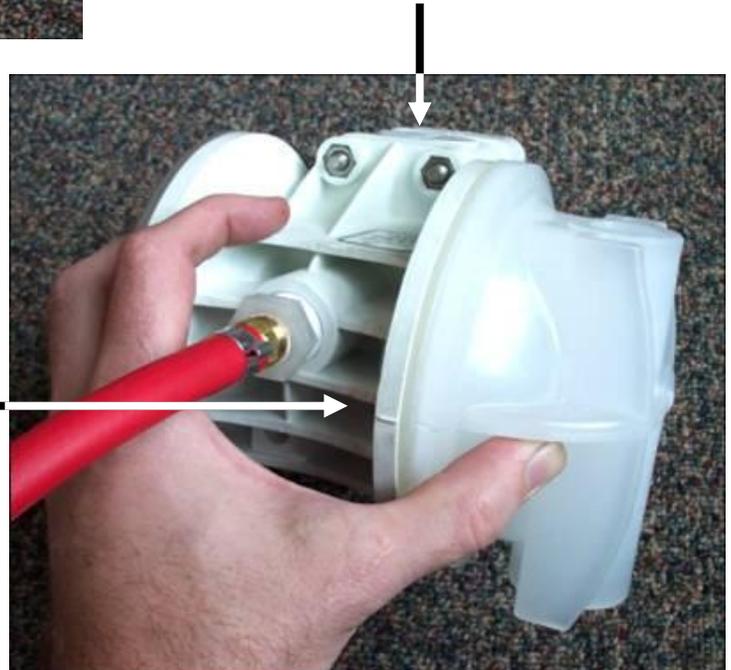
Pump Reassembly

Installing New Diaphragms



Make sure that the inner piston (shown left) is positioned with the rounded edge toward the inside of the diaphragm. Do not exceed 90 in-lbs (10.7 N-m) when securing to shaft.

Top of pump



Position the liquid chamber with the center section as shown. Line up the the two molded in lines shown by the arrow

Do not exceed 65 in-lbs (7.3 N-m) torque when tightening clamp bands

Note:

For a full breakdown on engineering, operation and maintenance specifications see the Wilden web site at www.wildenpump.com

Pump Reassembly – Cont'd

Installing New Ball Valves



Instructions show the ball valve installation on the liquid chamber. The same applies to the discharge manifold. Insert one o-ring

Insert one o-ring...

Then a ball...

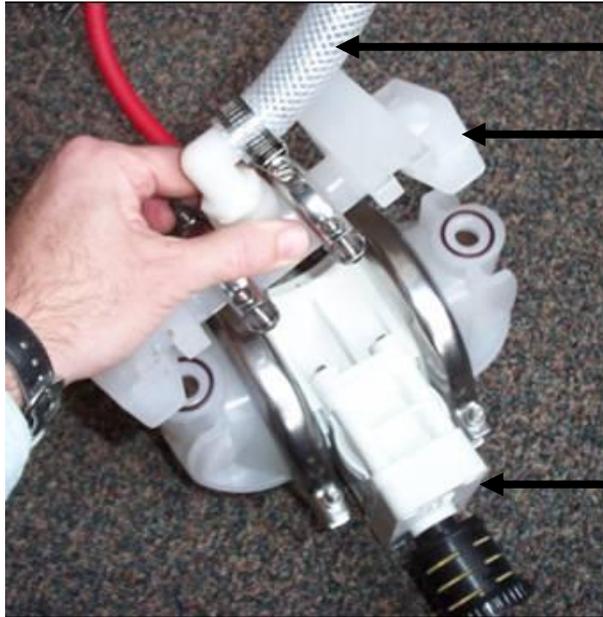


Then a valve seat and a second o-ring...



Pump Reassembly – Cont'd

Installing New Ball Valves

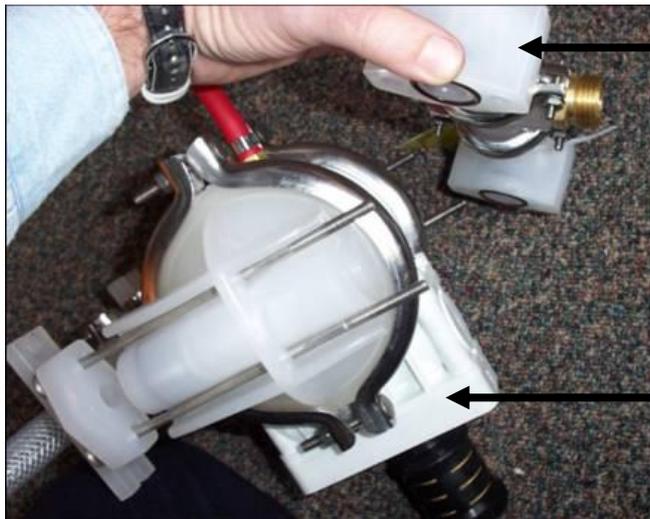


Draw tube

Inlet Manifold

Note the relative positions of the draw tube and inlet manifold to the air exhaust chamber.

Air exhaust chamber



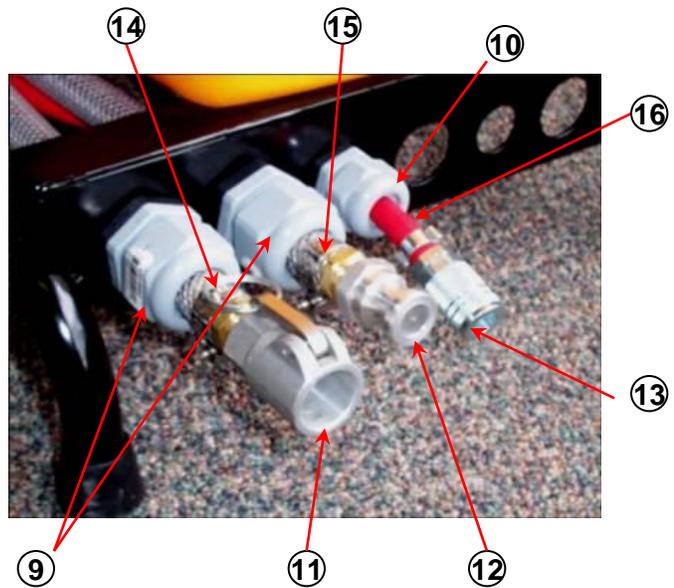
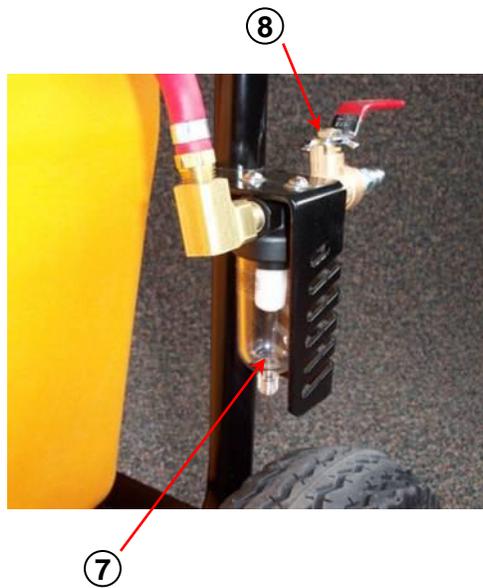
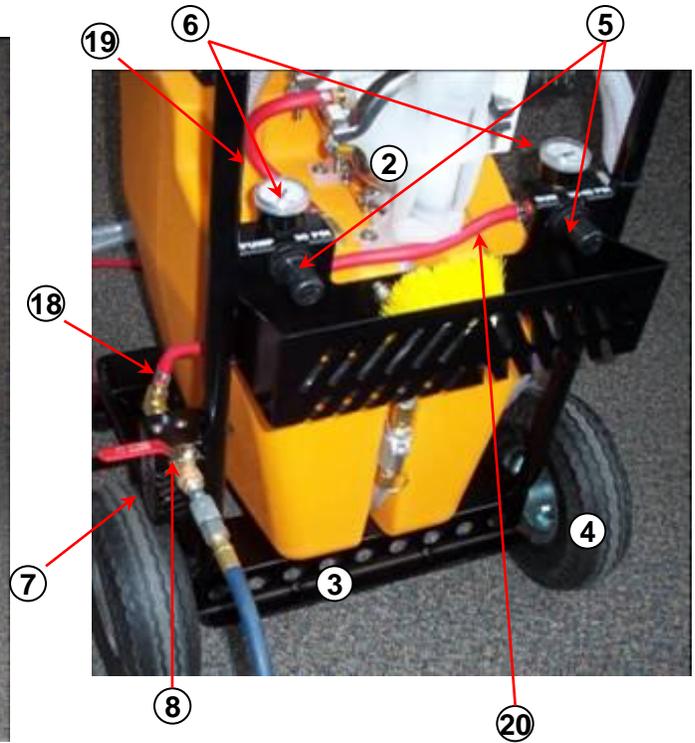
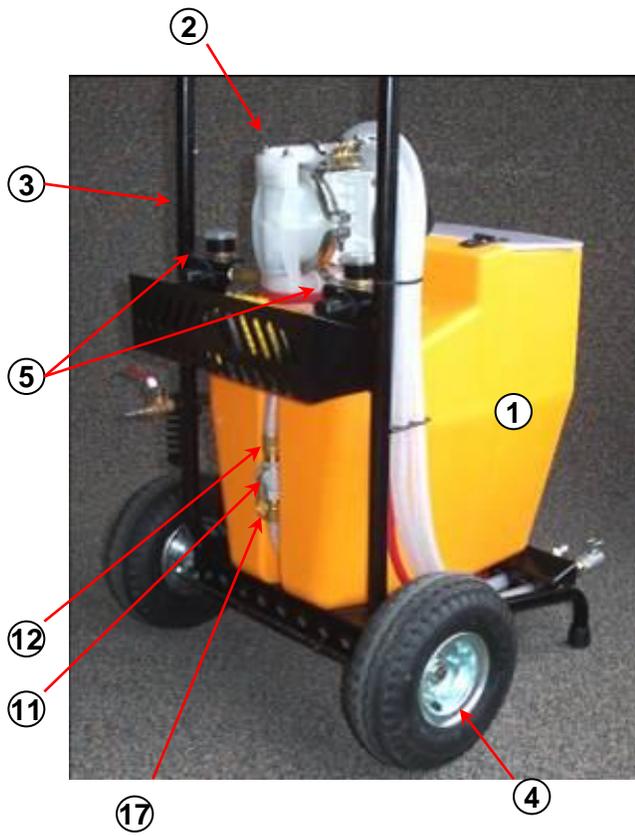
Discharge Manifold

Note the relative positions of the discharge manifold to the air exhaust chamber.

Air exhaust chamber

When tightening the long vertical bolts, do not exceed 80 in-lbs (9 N-m) of torque.

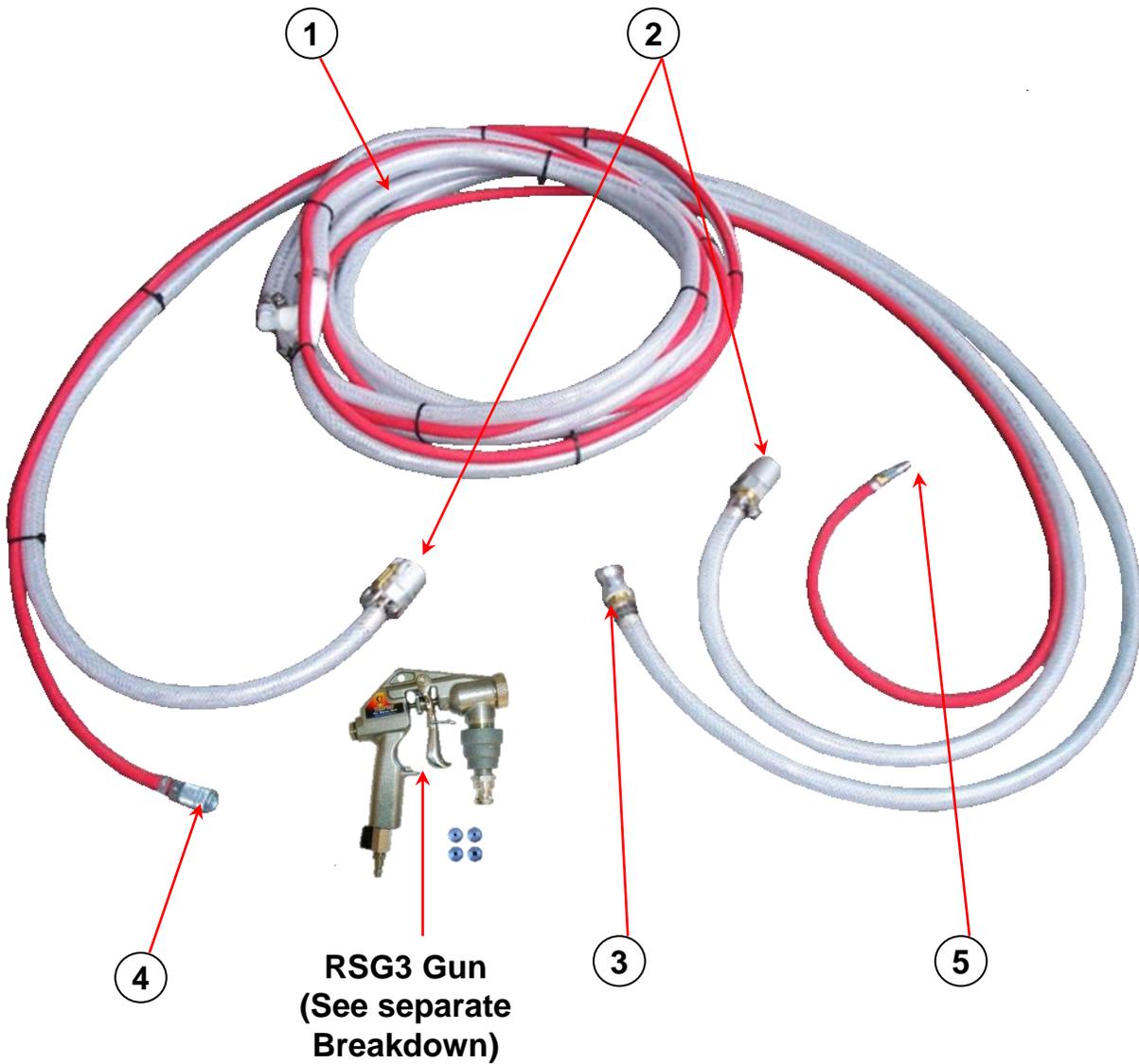
Parts Breakdown (Hopper and Pump)



Parts Breakdown (Hopper and Pump) – Cont'd

No.	Part #	Description	Quantity
1	80-0-420R01	Roto Moulded Polyethelene Hopper and Lid Assembly	1
2	80-0-21307	Wilden P1 Pump	1
3	80-0-420B	Steel Powder Coated Frame	1
4	MC-0-0-137	10" Pneumatic Wheel	2
5	80-0-42016	Air Regulator	2
6	80-0-42006	Air Pressure Guage	2
7	80-0-42017	Air Filter	1
8	PV-1-4-105	Air Shut-Off Valve	1
9	MC-0-0-183	1" Pull-Out Protector	2
10	MC-0-0-182	3/4" Pull-Out Protector	1
11	PQ-1-2-130	1/2" Camlock Coupler	2
12	PQ-1-2-133	1/2" Camlock Plug	2
13	PQ-1-4-126	1/4" Air Coupler (CP21)	1
14	80-0-420B	Recirculation Hose Assembly (not including camlock)	1
15	80-0-420C	Discharge Hose Assembly (not including camlock)	1
16	80-0-420D	Gun Air Hose Assembly (not including coupler)	1
17	80-0-420E	Draw-Tube Hose Assembly (not including camlock)	1
18	80-0-420F	Filter to Regulator Air Hose Assembly	1
19	80-0-420G	Regulator to Pump Air Hose Assembly	1
20	80-0-420H	Regulator to Regulator Air Hose Assembly	1
21	80-0-425	Stainless Steel Screen (not shown)	1

Parts Breakdown (Gun Hose Assembly)



No.	Part #	Description	Quantity
1	80-0-420R02	RSG3 Gun Hose Assembly	1
2	PQ-1-2-130	1/2" Camlock Coupler	2
3	PQ-1-2-133	1/2" Camlock Plug	2
4	PQ-1-4-126	1/4" Air Coupler (CP21)	1
5	PQ-1-4-128	1/4" Air Coupler Plug (CP21)	1

Trouble Shooting

Problem	Checks	Fixes
Pump won't start	Check that compressor is running and has adequate pressure	Switch on or adjust compressor
	Check that the sand has not settled out in the bottom of the hopper, blocking exit hole	Pull the recirculation tube out of the way and use the mixing paddle on a drill to remix the coating in the hopper
	Check for blockages in the draw tube hose. If you have to open the cam lock on the draw tube make sure that you have a container under it to catch coating spillage. Make sure cam lock is cleaned before reconnecting	Use a piece of wire or very carefully blow compressed air into the hopper from the draw tube cam lock
	Check that the coating has not started to set and has become too viscous	Dispose of coating as quickly as possible and thoroughly flush system with clean water
Pump stalled	If you have been running the pump for a long time, unscrew the black muffler on the pump (see photo below) and check for ice build up in the muffler, or in the air exhaust chamber where the muffler is attached.	Leave muffler off until the ice has melted. Use hot water to melt ice in the air exhaust chamber.
	Check that the sand has not settled out in the bottom of the hopper, blocking exit hole	Pull the recirculation tube out of the way and use the mixing paddle on a drill to remix the coating in the hopper
	Check for blockages in the draw tube hose. If you have to open the cam lock on the draw tube make sure that you have a container under it to catch coating spillage. Make sure cam lock is cleaned before reconnecting	Use a piece of wire or very carefully blow compressed air into the hopper from the draw tube cam lock
	Check that the coating has not started to set and has become too viscous	Dispose of coating as quickly as possible and thoroughly flush system with clean water
	Check for blockages in the recirculation hose (pump starts when the spray gun is activated)	Try increasing the air pressure to the pump by turning the knob on the regulator clockwise. Hoses may require "massaging" to help resume flow
	Dissassemble pump and check for: a) debris that obstructs the movement of internal parts; b) wear on the valve balls - these can become stuck in the seats.	Clean out pump; replace valve balls and seats.

Air exhaust

Muffler



Service

Integrated Paving Concepts Inc. is committed to providing the best possible after-market service. If you require parts or service, or have any other questions please call toll free at (800) 688-5652 or visit us online at www.streetprint.com