# **OPERATOR'S MANUAL**

# RM051S-XXX-XX-B

# INCLUDING: OPERATION, INSTALLATION AND MAINTENANCE.

INCLUDE MANUALS: S-635 General Information (pn 97999-635).

# RM051S-XXX-XX-B SINGLE POST LIFT / RAM

For use with 5 gallon / 20 liter drums (tapered or straight)

# READ THIS MANUAL CAREFULLY BEFORE INSTALLING, OPERATING OR SERVICING THIS EQUIPMENT.

It is the responsibility of the employer to place this information in the hands of the operator. Keep for future reference.

# SERVICE KITS

- Use only genuine ARO<sup>®</sup> replacement parts to assure compatible pressure rating and longest service life.
- 104468 for repair of filter section of P39124 -120 filter / regulator.
- **104302** for repair of regulator section of P39124 -120 filter / regulator.
- 104453 for repair of P39344-110 filter / regulator.
- 637465 for repair of lift / ram seals.

# SPECIFICATIONS

Model Series RM051S-XXX-XX-B Maximum Working Pressure 125 psig (8.6 bar)
Maximum Temperature
Limits 10° F to 180° F
(-12° C to 82° C)
<b>Base Dimensions</b>
(381 mm x 482.6 mm)
Height
(lowered) (RM051S-BXX-XX-B)40.686" (1033.4 mm)
(RM051S-CXX-XX-B) 42.759" (1086.1 mm)
(raised) (RM051S-BXX-XX-B) 65.686" (1668.4 mm)
(RM051S-CXX-XX-B) 67.759" (1721.1 mm)
<b>Stroke</b>
Weight 102 lbs (46.3 kgs)
Noise Level @ 125 psig
(continuous duty)

① The pump sound pressure levels published here have been updated to an Equivalent Continuous Sound Level (LA<sub>eq</sub>) to meet the intent of ANSI S1.13-1971, CAGI-PNEUROP S5.1 using four microphone locations.

# **GENERAL DESCRIPTION**

The ARO model RM051S-XXX-XX-B single post lift / ram uses a 3-1/4" air powered cylinder, which is welded to a heavy gauge base. It is normally used to raise and lower a fluid handling pump and follower in and out of a standard 5 gallon / 20 liter drum, or when used as a ram, it can force high viscosity flow-able material into the pump inlet.

When properly secured (see "General Information - Air Operated Lifts and Rams"), this unit has the ability to raise a pump to clear a standard 5 gallon / 20 liter drum. The operator is then able to easily remove the pump from the drum.

This lift / ram uses a rotary 3-way control valve which controls the air necessary to raise and lower the lift / ram. This unit includes an auxiliary manual air valve which is used to supply a controlled amount of air pressure to the bottom of the follower plate. When the control valve is in the "up" position,

 INGERSOLL RAND COMPANY INC

 209 NORTH MAIN STREET – BRYAN, OHIO 43506

 ① (800) 495-0276 • FAX (800) 892-6276

 ◎ 2021

 arozone.com

a small amount of air pressure applied under the follower plate will help raise the follower plate, pump and lift / ram by relieving the vacuum (see page 3).

#### **IMPORTANT**

This is one of four documents which support the system. Replacement copies of these forms are available upon request.

☑ RM051S-XXX-XX-B Model Operator's Manual (pn 97999-1790)

□ S-635 General Information - Air Operated Lifts and Rams (pn 97999-635)

P393XX-XXX Piggyback Filter / Regulator Operator's Manual (pn 100400-69)

□ R371X1-XXX Regulator Operator's Manual (pn 100400-57)

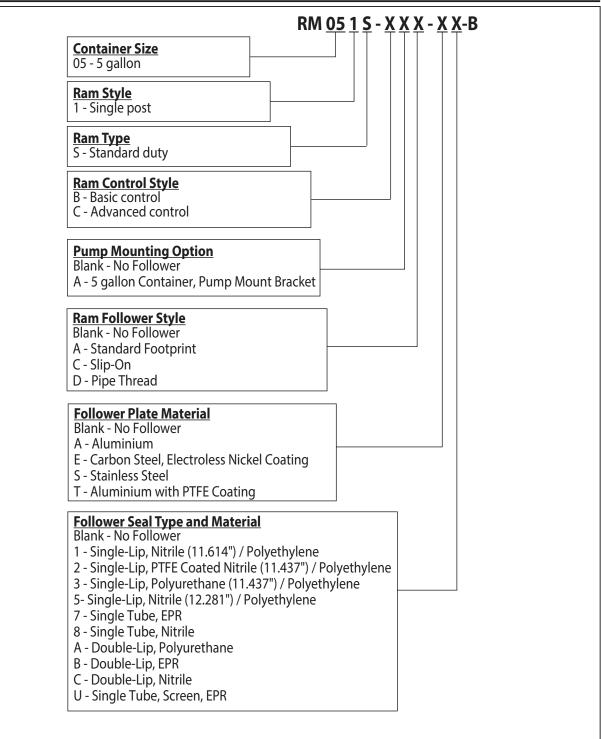
# RMO51S-XXX-XX-B Single Post Lift / Ram



(IR) Ingersoll Rand®

RELEASED: 11-18-16 REVISED: 7-23-21 (REV: D)

#### **MODEL DESCRIPTION CHART**



## **OPERATING AND SAFETY PRECAUTIONS**

	= Hazards or unsafe practices which could result in severe personal injury, death or
	substantial property damage.
<b><u>A</u> CAUTION</b>	= Hazards or unsafe practices which could
	result in minor personal injury, product or property damage.
NOTICE	= Important installation, operation or mainte-
	nance information.

• Read and heed all warnings, cautions and safety precautions before operating.

**WARNING** READ THE GENERAL INFORMATION MANUAL INCLUDED FOR OPERATING AND SAFETY PRECAUTIONS AND OTHER IMPORTANT INFORMATION.

**<u>A WARNING</u>** Store and operate the lift on a level surface.

- ▲ WARNING ANCHOR THE LIFT BASE OF STATIONARY UNITS SECURELY TO A CONCRETE FLOOR. An improperly secured lift could be unsafe. Do not attempt to use the lift until all possible measures have been taken to insure that the lift has been properly installed and the base has been secured. It is the duty of the installer to provide anchor bolts / studs (not included) and for them to be securely embedded in concrete which is more than 2" (50.8 mm) thick.
- ▲ WARNING When using a portability kit with a 5 gallon / 20 liter pail and the lift in the extended position, caution must be used due to the potential danger of tipping / tilting the unit.

	Shock hazard.	Keep the area
	Striking electrical	overhead clear of
4	fixtures can cause	electrical devices.
¥	injury.	

**WARNING** PREVENT ELECTRICAL SHOCK. Be certain the area above the lift is clear of electrical fixtures, devices and wiring. Examine the working area and take necessary action to assure adequate clearance for the lift and pump assembly to raise to the fullest limit and function properly.

Pinch hazard. Follower can descend quickly, causing injury.

Keep hands clear when aligning with container. ▲ WARNING PINCH HAZARD. Follower can descend quickly, causing injury. Keep hands clear when aligning with container. In the raising and lowering function, the lift could get hung up or the descent could be temporarily restricted. The lift could, in some situations, drop suddenly and be hazardous. If the follower plate does not enter the drum properly, DO NOT ATTEMPT TO RE-POSITION IT WITH YOUR HANDS. Release the downward pressure, raise the lift, re-align the drum and restart.

**WARNING** STAND CLEAR. When raising or lowering the lift, keep clear and operate from a safe position.



Hazardous pressure. Can result in injury or property damage. Do not exceed maximum inlet air pressure.

- ▲ WARNING HAZARDOUS PRESSURE. Do not exceed maximum inlet air pressure of 125psig (8.6 bar). Operating lift at higher pressure may cause lift damage and / or personal injury and / or property damage. Do not service or clean pump, hoses or dispensing valve while the system is pressurized.
- ▲ WARNING DO NOT EXCEED DRUM PRESSURE LIMITS. Know the pressure limitations of the drum and regulate the air pressure within safe limits when supplying air to the follower plate.
- ▲ WARNING Place the main valve in the "neutral" (center) position before air pressure is directly connected or turned on to the system.
- ▲ WARNING Depressurize the lift / ram before performing maintenance by disconnecting the main air line and rotating the main valve to relieve pressure. Replacement warning label ("Depressurize" / pn 97165) is available upon request.
- **CAUTION** Be certain all operators of this equipment have been trained for safe working practices, understand it's limitations and wear their safety goggles / equipment as required.
- **NOTICE** To extend seal life, lubricate seals with Gadus<sup>®</sup> S2 U1000 grease upon reassembly.
- **NOTICE** To prevent premature failure of the piston rod and / or seals, it is good practice to keep the piston rod clean and free of debris and any other type of contamination.

# LIFT / RAM INSTALLATION

#### ▲ WARNING Failure to properly install the lift assembly can result in severe injury and property damage. Read the warnings above.

- 1. This lift /ram assembly comes completely assembled.
- Establish the desired location for the lift / ram and pay special attention to the work area above. This area above the lift must be open, without obstructions and safely away from any electrical devices.
- 3. THE LIFT MOUNTING BASE PLATE MUST BE SECURELY ANCHORED TO THE CONCRETE FLOOR. The mounting plate itself can be used as a template for establishing the proper anchor locations.
- Assemble the pump to the pump mounting plate. NOTE: The combined weight of the piston pump and accessories (follower plate, etc.) must not exceed 150 lbs (68.0 kg).

- 5. Install the pump air hose and follower plate air hose from the control valve.
- 6. Assemble the vent plug to the follower plate.

**NOTE:** When assembling air line to the lift / ram air inlet, hold the air inlet port with a wrench to eliminate possible damage to filter - regulator connections.

**NOTE:** The ram was tested at the factory. The unit should be generally checked over for leakage, because the fittings on the system may have loosened in shipment.

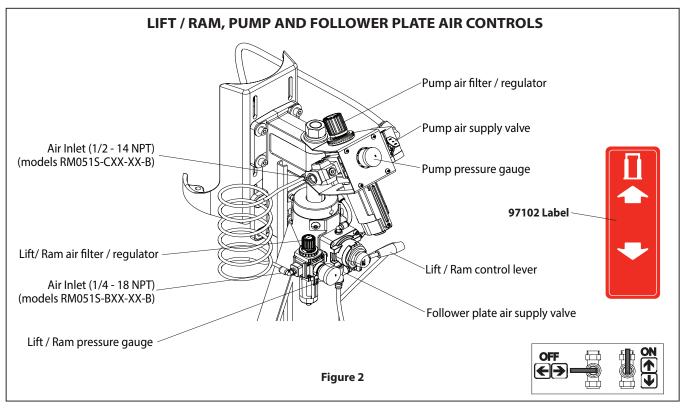
**NOTE:** Re-torque all fasteners before operation.

**NOTE:** If material leakage occurs around the follower plate, check the lift / ram air pressure and check all fittings and fasteners to be sure they are secure.

#### **OPERATING INSTRUCTIONS**

#### **OPERATING INSTRUCTIONS / INITIAL SETUP PROCEDURE.**

**WARNING** STAND CLEAR WHEN RAISING OR LOWERING THE LIFT. Read the warnings on page 3.



#### TO RAISE LIFT, (THE FIRST TIME):

- 1. Take note of the pump / drum clearance above. Be certain the lift / ram is clear of any objects above. Also, refer to "Operating and Safety Precautions", found on page 3.
- 2. Connect the air supply (125psig / 8.6 bar maximum) to the air inlet. Adjust the air pressure on the lift / ram pressure regulator (turn knob clockwise) to 20psig (1.4 bar).
- 3. Shift the control valve lever to the "up" position.
- 4. Raise the lift / ram high enough to clear the height of the drum. Stop the lift upward travel by moving the control valve lever to the "neutral" (center) position.
- 5. Once the lift / ram assembly and pump are in the "up" position, place and center an opened drum of material on the lift / ram base.
- Lubricate the lower follower wiper plate seal with grease. NOTE: Make certain the grease is compatible with the material being dispensed. This ensures a smooth fit into the drum, as well as prevents curing type compounds from bonding to the seal.
- 7. Check the vent plug on the follower plate to be sure it easily threads in and out. It is recommended to lubricate the threads of the plug to help prevent possible set up of the compound at this point.

#### TO LOWER LIFT:

# **WARNING** PINCH HAZARD. Follower can descend quickly, causing injury. Keep hands clear when aligning with container. Read the warnings on page 3.

**NOTE:** Be certain the follower plate vent plug has been removed so that the air trapped between the follower and the material is allowed to escape from this vent.

**NOTE:** The lift / ram may hesitate momentarily before starting downward. The air pressure inside the post air chamber must decrease before it will begin to descend.

- 1. Shift the control valve lever to the "down" position and proceed to lower the pump.
- 2. Replace the vent plug once the material begins to ooze from the vent opening.
- 3. Models RM051S-CXX-XX-B: The unit is now ready for operation. Open the pump air supply valve. Adjust the air pressure on the pump filter / regulator (turn the pump regulator knob clockwise) until the pump begins to cycle.
- 4. Trigger the gun to prime the pump with material.

#### TO RAISE LIFT, (NORMAL OPERATION):

- 1. Models RM051S-CXX-XX-B: Close the pump air supply valve.
- 2. Shift the control valve lever to the "up" position.
- 3. Raise the lift / ram high enough to clear the height of the drum. Stop the lift upward travel by moving the control valve lever to the "neutral" (center) position.

#### **TO CHANGE DRUM:**

**NOTE:** The control valve lever should be in the "neutral" position and the pump air supply valve should be closed.

- 1. To avoid damage, **DO NOT OVER-PRESSURIZE THE DRUM.**
- 2. Open the follower plate air supply valve to allow air under the follower plate.
- 3. Shift the control valve lever to the "up" position.
- 4. Place and center a new drum into position. Remove cover.

• ARO® is a registered trademark of Ingersoll-Rand Company • Gadus® is a registered trademark of the Shell Oil Company •

# PARTS LIST / RM051S-XXX-XX-B

			3 LI31 / K
Item	Description (size)	Qty	Part No.
1	Nut (M24 x 3 - 6h)	(2)	96693
2	Lock Washer (24.5 mm ID x 40 mm OD)	(2)	94036746
3	Washer (25 mm ID x 44 mm OD)	(1)	96705611
<b>6</b> 4	<b>"O" Ring</b> (3/16″ x 3-1/4″ OD)	(2)	Y325-336
5	Piston	(1)	96677
6	<b>"O" Ring</b> (1/8″ x 1-1/4″ OD)	(1)	Y325-214
7	Stop	(1)	96679
8	Piston Rod	(1)	96671-1
9	Base and Cylinder Assembly	(1)	96828-1
10	Tubing (5/16" OD x 26")	(1)	94980-( ① )
11	Connector (1/4 - 18 NPT x 5/16" OD tube)	(2)	59474-158
12	Pipe Tee (1/4 - 18 NPT)	(1)	Y43-32-C
13	Bracket Assembly	(1)	97095
14	Rotary Lever Valve	(1)	M512LR
15	Male Elbow (1/4 - 18 NPT x 5/16" OD tube)	(3)	59756-158
16	Tubing (5/16" OD x 3-3/4")	(1)	94980-( 🛈 )
17	Washer (models RM051S-BXX-XX-B)	(1)	75682
18	Ram Head	(1)	97543-1
19		(8)	96756
20	Lock Washer (10.2 mm ID x 18.1 mm OD)	(4)	96753918
21	Nut (M10 x 1.5 - 6h)	(4)	96691
22	Pump Mount	(1)	96692
23		(1)	96674
<b>6</b> 24		(1)	96753
<b>6</b> 25		(1)	96752
26	<b>Tubing</b> (5/16″ OD x 38″)	(1)	94980-( 🛈 )
28	Washer	(1)	75682
29		(2)	Y27-12-C
30		(1)	Y28-1
31		(2)	96719
32	Cap Screw (M10 x 1.5 - 6g x 35 mm)	(4)	96702170
33	Button Head Screw (M10 x 1.5 - 6g x 18 mm)	(4)	96696

#### DISASSEMBLY

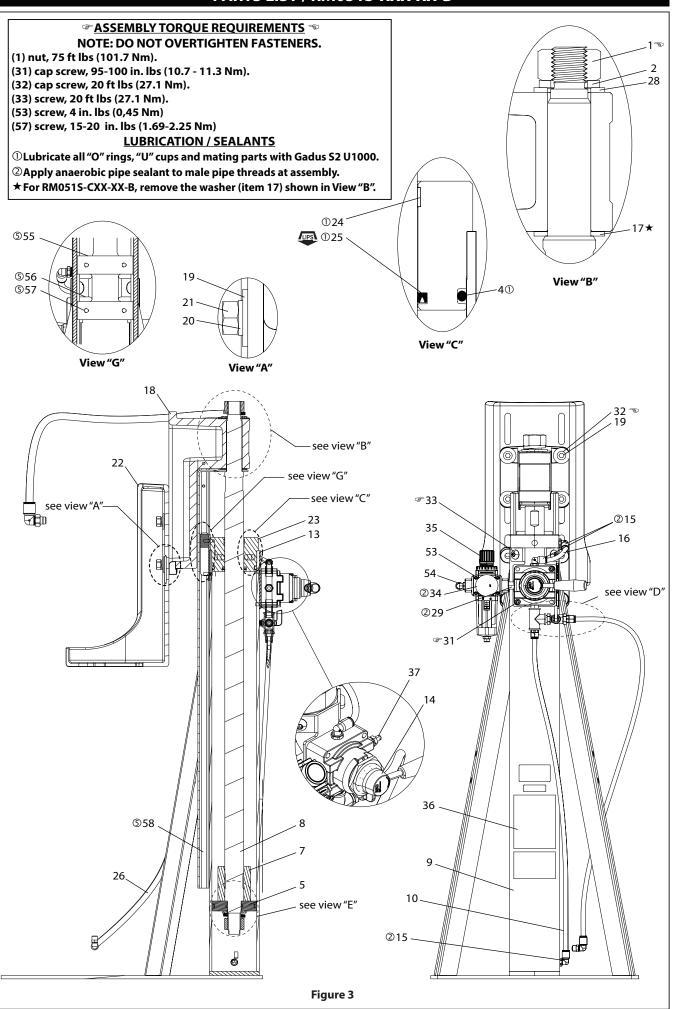
- 1. Raise the pump, follower and ram out of the drum.
- 2. Disconnect the air supply and depressurize the ram by rotating the (14) valve into the "up" and "down" positions.
- Models RM051S-CXX-XX-B: Disconnect (39) tubing from (50) male elbow and (42) hose from (40) male elbow.
- 4. Disconnect (26) tubing from follower and remove pump from ram.
- 5. Unthread (1) nut and remove (2 and 28) washers.
- 6. Remove (22) pump mount and components and (17) washers.
- 7. Models RM051S-CXX-XX-B: Remove (51) bracket and pump air control components.
- 8. Remove (58) channel and (33) screws to release Guide Bracket Assembly (56) from (9) Base and Cylinder Assembly.
- 9. Disconnect (10 and 16) tubing.
- 10. Remove (33) screws, releasing (13) bracket assembly and ram air control components.
- 11. Remove (23) cap from (9) base and cylinder assembly and (8) piston rod.
- 12. Remove (8) piston rod and components from (9) base and cylinder assembly.
- 13. Remove (1) nut, releasing (2 and 3) washers, (5) piston and (7) stop.

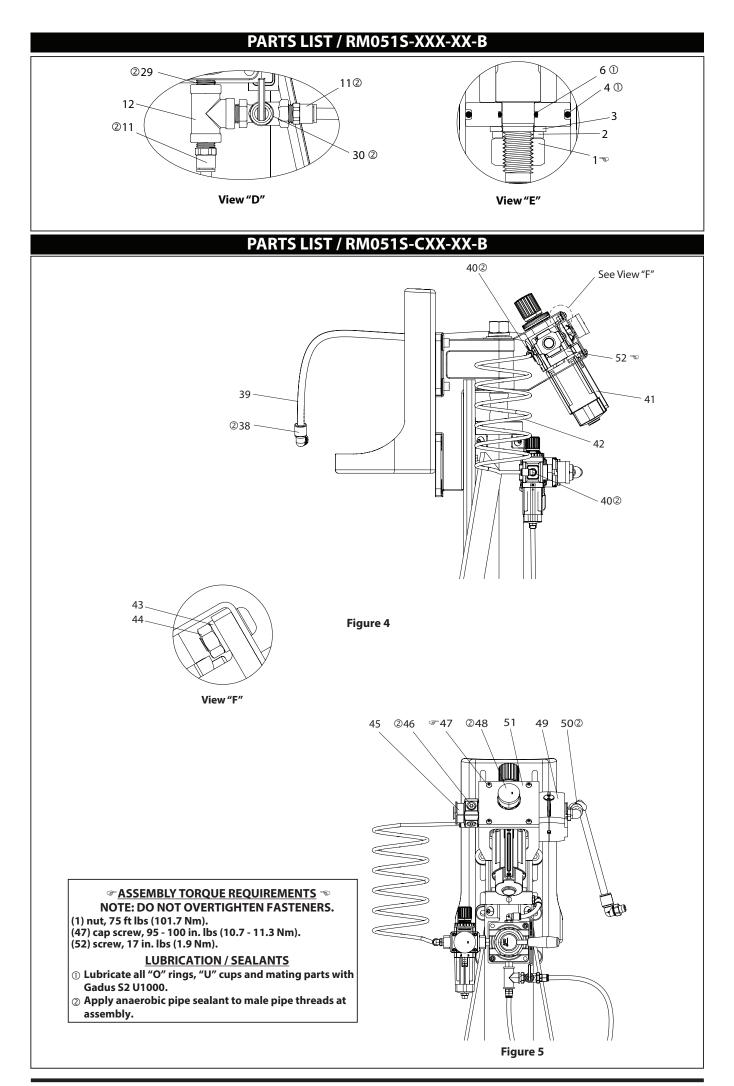
Item					
Item	Description (size)	Qty	Part No.		
	Gauge (0 - 160psig / 0 - 11 bar)	(1)	29850		
	Filter/ Regulator (1/4 - 18 NPT)	(1)	P39124-120		
	Decal (warning)	(1)	93922		
37	Muffler (1/4 - 18 NPT)	(1)	20313-2		
	Clamp Spacer Kit	(2)	104394		
54	Pipe Adapter	(1)	104474-2		
55	Guide	(2)	96947		
56	Bracket Assembly	(1)	96949		
57	Screw	(4)	96704754		
	Channel		96951-1		
	s listed below used on models RM05 <sup>°</sup>	IS-CX	X-XX-B only		
38	Male Elbow (1/4 - 18 NPT x 1/2" OD tube)	(1)	59756-162		
	Tubing (1/2" OD x 35")	(1)	94978-( 🕑 )		
	Male Elbow (1/4 - 18 NPT x 5/16" OD tube)	(2)	59756-158		
41	Filter / Regulator (1/2 - 14 NPT)	(1)	P39344-110		
42	Self-Storing Hose (5/16" OD x 60")	(1)	628005-7		
43	Washer (6.4 mm ID x 12 mm OD)	(4)	97115		
44	Nut (M6 x 1 - 6h)	(4)	97118		
45		(1)	104413-4-2		
	Pipe Plug (1/4 - 18 NPT x 13/32")	(3)	Y227-3-L		
	Cap Screw (M6 x 1 - 6g x 16 mm)	(4)	97105		
48		(1)	29850		
49	Lock-Out Valve (1/2 - 14 NPT)	(1)	104392-4		
50		(2)	59756-362		
51		(1)	96694		
52	T - Type Wall Mount	(2)	104401		
0		(1)	94980-100		
0		(1)	94978-100		
Θ	Gadus S2 U1000 packet	(1)	94833		
Θ	Items included in service kit	(1)	637465		

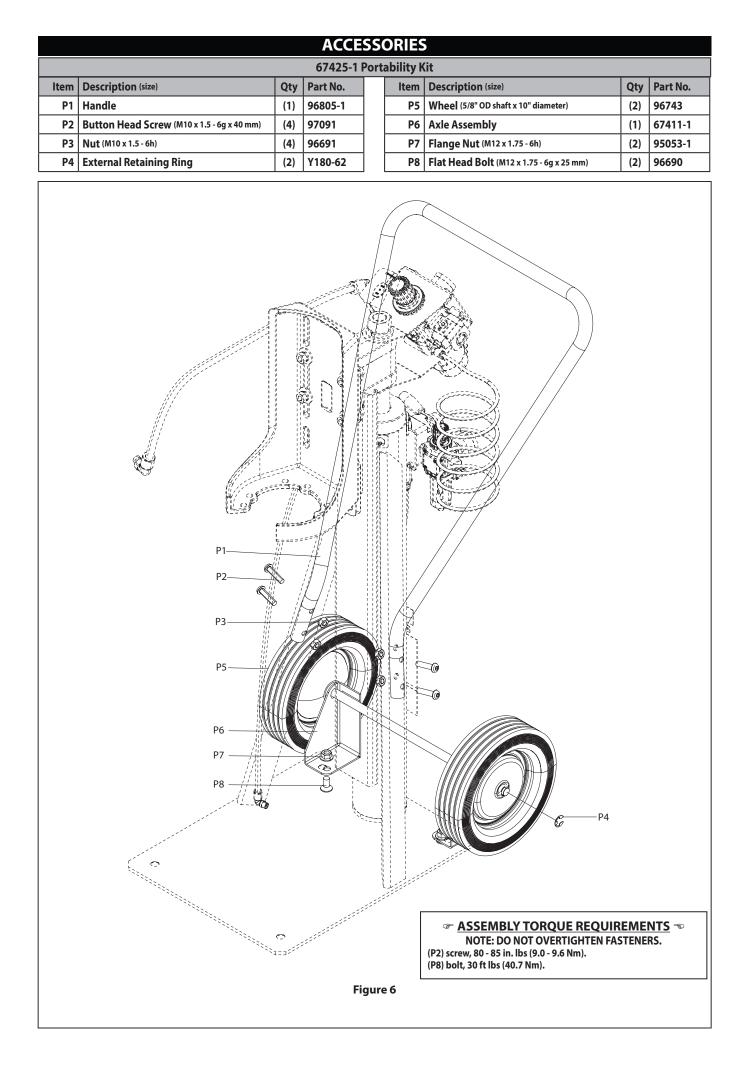
### REASSEMBLY

- 1. Grease and assemble (4 and 6) "O" rings to (5) piston.
- Assemble (7) stop, (5) piston and (3) washer to (8) piston rod, securing with (2) lock washer and (1) nut. NOTE: Tighten (1) nut to 75 ft lbs (101.7 Nm).
- 3. Carefully slide piston rod and components into (9) base and cylinder assembly.
- 4. Grease and assemble (4) "O" ring, (25) "U" cup (note the lip direction) and (24) wear strip to (23) cap.
- 5. Assemble (23) cap over the end of (8) piston rod and into (9) base and cylinder assembly, being careful not to damage (25) "U" cup.
- Place (13) bracket assembly and ram air control components into place and secure with (33) screws. NOTE: Tighten (33) screws to 20 ft lbs (27.1 Nm)
- Models RM051S-BXX-XX-B: Assemble (58) channel with (56) bracket assembly into (8) piston rod, tighten (33) screws to 20 ftlbs (27.1 Nm), one (17) washer, (18) ram head and components and (28) washer to (8) piston rod. Models RM051S-CXX-XX-B: Assemble (58) channel with (56) bracket assembly into (8) piston rod, tighten (33) screws to 20 ftlbs (27.1 Nm), (51) bracket and pump air control components to (18) ram head. Assemble (18) ram head and components, (51) bracket and components and (28) washer to (8) piston rod.
- 8. Assemble (2) lock washer and (1) nut. **NOTE:** Tighten (1) nut to 75 ft lbs (101.7 Nm).
- 9. Assemble pump to (22) pump mount.
- 10. Reconnect all tubing.

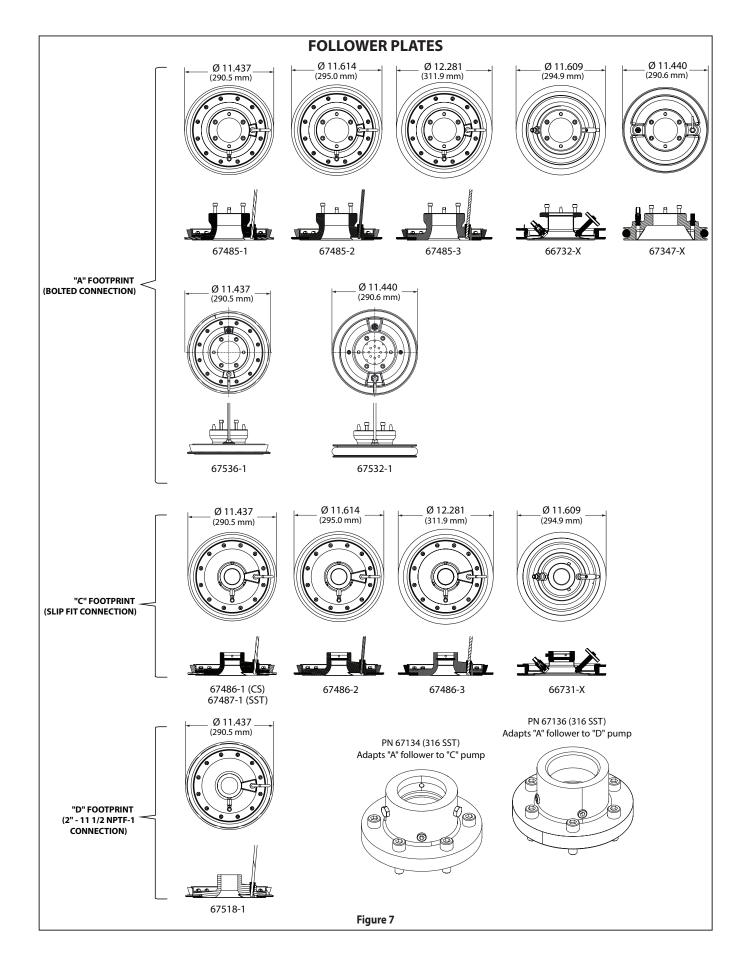
## PARTS LIST / RM051S-XXX-XX-B

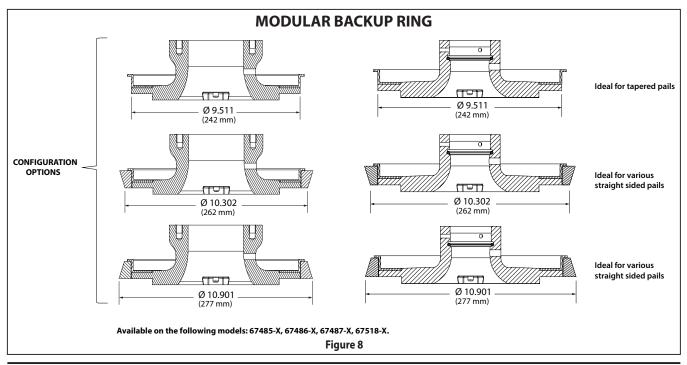




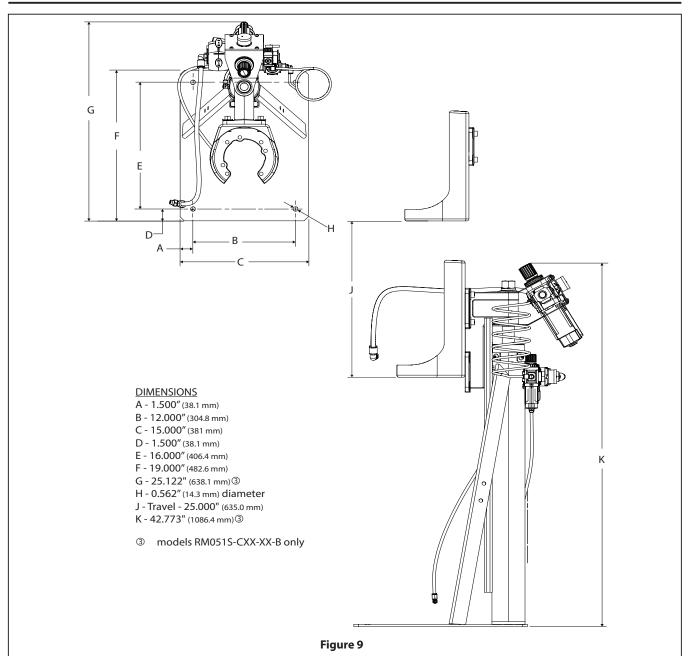


MODEL DESCRIPTION / FOLLOWER PLATE OPTIONS							
Model	Description	Follower Plate Material	Seal Type	Seal Material	Seal Diameter	Follower Asm.	
RM051S-XXA-A7-B		Aluminum	Single Tube	EPR	11.440″ (290.6 mm)	67347-2	
RM051S-XXA-A8-B		Aluminum		Nitrile		67347-1	
RM051S-XXA-T7-B		Aluminum with PTFE Coating		EPR		67347-12	
RM051S-XXA-T8-B				Nitrile		67347-11	
RM051S-XXA-TU-B	Standard Ca	The country		EPR		67532-1	
RM051S-XXA-E1-B		Footprint Carbon Steel,		Nitrile / Polyethylene	11.614″ (295.0 mm)	67485-2	
RM051S-XXA-E3-B				Polyurethane/Polyethylene	11.437" (290.5 mm)	67485-1	
RM051S-XXA-E5-B		Coating	Single Lip	Nitrile/Polyethylene	12.281" (311.9 mm)	67485-3	
RM051S-XXA-S2-B		Stainless Steel		PTFE Coated Nitrile / Polyethylene	11.437" (290.5 mm)	67536-1	
RM051S-XXA-EA-B		Carbon Steel,		Polyurethane		66732-1	
RM051S-XXA-EB-B			<b>Electrloess Nickel</b>	Double Lip	EPR	11.609" (294.9 mm)	66732-2
RM051S-XXA-EC-B		Coating		Nitrile		66732	
RM051S-XXC-E1-B				Nitrile/Polyethylene	11.614″ (295.0 mm)	67486-2	
RM051S-XXC-E3-B			Single Lip	Polyurethane/Polyethylene	11.437" (290.5 mm)	67486-1	
RM051S-XXC-E5-B		Carbon Steel, Electroless Nickel		Nitrile/Polyethylene	12.281" (311.9 mm)	67486-3	
RM051S-XXC-EA-B	Slip-On "C"	Silp-On		Polyurethane		66731-1	
RM051S-XXC-EB-B		<b>`</b>	_	Double Lip	EPR 11.609	11.609″ (294.9 mm)	66731-2
RM051S-XXC-EC-B				Nitrile		66731	
RM051S-XXC-S2-B	1		Single Lip	PTFE Coated Nitrile / Polyethylene	11.437″ (290.5 mm)	67487-1	
RM051S-XXD-S2-B	Pipe Thread "D"	Stainless Steel		PTFE Coated Nitrile / Polyethylene		67518-1	











PN 97999-1790