OPERATOR'S MANUAL RM052S-XXX-XX

INCLUDING: OPERATION, INSTALLATION AND MAINTENANCE.
INCLUDE MANUALS: S-635 General Information (pn 97999-635).

RELEASED: 12-5-08
REVISED: 4-30-21
(REV: J)

RM052S-XXX-XX
TWO 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® replacement parts to assure compatible pressure rating and longest service life.
- **104217** for repair of P39124-120 filter / regulator.
- **104453** for repair of P39344-110 filter / regulator.
- **637466** for repair of lift / ram seals.

SPECIFICATIONS

Model Series	RM052S-XXX-XX
Maximum Working Pressure	125 psig (8.6 bar)
Maximum Temperature Limits	10° F to 180° F (-12° C to 82° C)
Base Dimensions	19-3/4" x 24" (501.7 mm x 609.6 mm)
Height (lowered)	35-9/16" (903.2 mm)
(raised)	53-13/32" (1356.5mm)
Stroke	17-27/32" (453.2 mm)
Weight	145 lbs (65.8 kgs)
Center of Gravity	13-1/4" high (336.6 mm)
Noise Level @ 125 psig (continuous duty)	82.4 dB(A)①

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

GENERAL DESCRIPTION

The ARO model RM052S-XXX-XX two post lift / ram uses two 3-1/4" air powered cylinders connected by a steel cross member and welded to a heavy gauge base plate. 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 flowable 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, 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.

- ☒ RM052S-XXX-XX Model Operator's Manual (pn 97999-1345)
- ☐ S-635 General Information - Air Operated Lifts and Rams (pn 97999-635)
- ☐ P391XX-XXX Piggyback Filter / Regulator Operator's Manual (pn 100400-59)
- ☐ P393XX-XXX Piggyback Filter / Regulator Operator's Manual (pn 100400-69)

RM052S-XXX-XX Two Post Lift / Ram

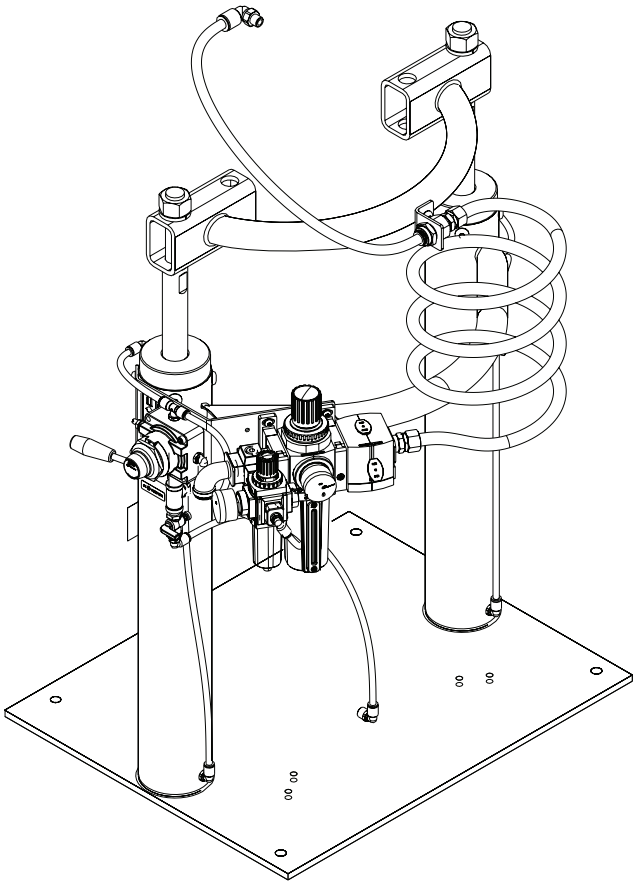


Figure 1

INGERSOLL RAND COMPANY INC
209 NORTH MAIN STREET – BRYAN, OHIO 43506
(800) 495-0276 • FAX (800) 892-6276

CCN 15295801
arozone.com

ARO Ingersoll Rand

MODEL DESCRIPTION CHART

RM 05 2 S - X X X - X X

Container Size
05 - 5 gallon

Ram Style
2 - Two post

Ram Type
S - Standard duty

Ram Control Style
B - Basic
C - Advanced controls

Pump Mounting Option
Blank - No Follower
A - 5 gallon Container, Top Mount
B - 5 gallon Container, 6.250 tie rod
C - 5 gallon Container, 7.750 tie rod
D - 5 gallon Container, 10.500 tie rod
E - 5 gallon Container, Bottom Mount

Ram Follower Style
Blank - No Follower
A - Standard Footprint
C - Slip-On
D - Pipe Thread

Follower Plate Material
Blank - No Follower
A - Aluminium
E - Carbon Steel, Electroless Nickel Coating
S - Stainless Steel
T - Aluminium with PTFE Coating

Follower Seal Type and Material
Blank - No Follower
1 - Single-Lip, Nitrile (11.614") / Polyethylene
2 - Single-Lip, PTFE Coated Nitrile (11.437") / Polyethylene
3 - Single-Lip, Polyurethane (11.437") / Polyethylene
5- Single-Lip, Nitrile (12.281") / Polyethylene
7 - Single Tube, EPR
8 - Single Tube, Nitrile
A - Double-Lip, Polyurethane
B - Double-Lip, EPR
C - Double-Lip, Nitrile
U - Single Tube, Screen, EPR

OPERATING AND SAFETY PRECAUTIONS

⚠WARNING = Hazards or unsafe practices which could result in severe personal injury, death or substantial property damage.

⚠ CAUTION = Hazards or unsafe practices which could result in minor personal injury, product or property damage.

NOTICE = Important installation, operation or maintenance 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.

⚠WARNING 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.

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

⚠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 125 psig (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® 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.
2. 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.
4. Assemble the pump to the mounting plate. **NOTE:** The combined weight of the piston pump and accessories (follower plate, etc.) **must not** exceed 250 lbs (113.4 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.

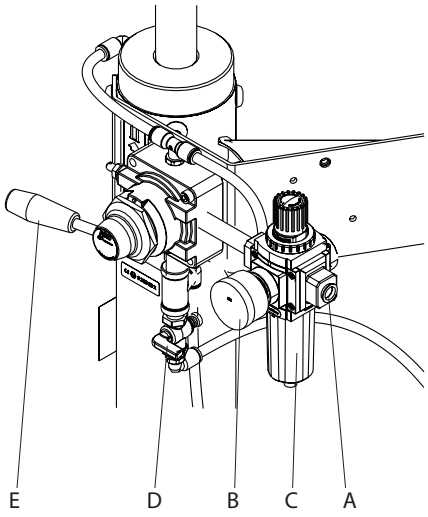
NOTE: If material leakage occurs around the follower plate, check the lift / ram air pressure and check all fittings and fasteners to be sure they are secure.

OPERATING INSTRUCTIONS / INITIAL SETUP PROCEDURE.

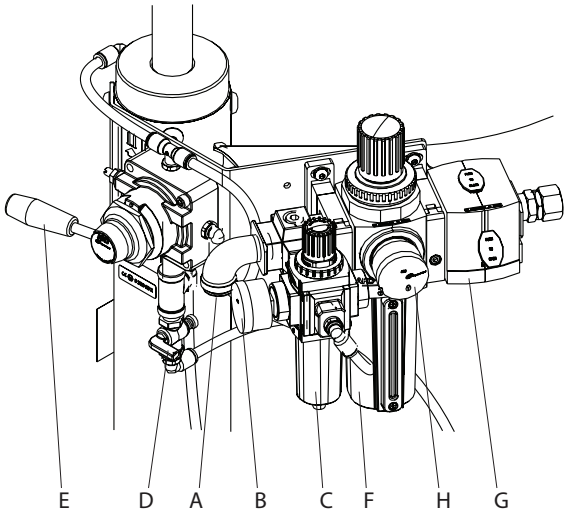
⚠WARNING STAND CLEAR WHEN RAISING OR LOWERING THE LIFT. Read the warnings on page 2.

LIFT / RAM, PUMP AND FOLLOWER PLATE AIR CONTROLS

Models RM052S-BXX-XX



Models RM052S-CXX-XX



A - Air inlet (RM052S-BXX-XX - 1/4 - 18 NPT) (RM052S-CXX-XX - 1/2 - 14 NPT)
B - Lift / ram pressure gauge
C - Lift / ram air filter / regulator
D - Follower plate air supply valve
E - Lift / ram control lever
F - Pump air filter / regulator
G - Pump air supply valve
H - Pump pressure gauge

Follower plate air supply valve

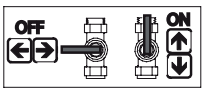


Figure 2

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 2.
2. Connect the air supply (125 psig / 8.6 bar maximum) to the air inlet. Adjust the air pressure on the lift / ram pressure regulator (turn knob clockwise) to 20 psig (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.
6. 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

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 RM052S-CXX-XX: 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 RM052S-CXX-XX: 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.

PARTS LIST / RM052S-XXX-XX

Item	Description (size)	Qty	Part No.
1	**Nut** (M24 x 3 - 6h)	(4)	96693
2	**Lock Washer** (24.5 mm i.d. x 40 mm o.d.)	(4)	94036746
3	**Washer** (25 mm i.d. x 44 mm o.d.)	(2)	96705611
❸ 4	**"O" Ring** (3/16" x 3-1/4" o.d.)	(4)	Y325-336
5	**Piston**	(2)	96677
❸ 6	**"O" Ring** (1/8" x 1-1/4" o.d.)	(2)	Y325-214
7	**Stop**	(2)	96233
8	**Piston Rod**	(2)	96730
9	**Base and Cylinder Assembly**	(1)	96829
10	**Tubing** (5/16" o.d. x 18-1/4")	(1)	94980-(❶)
11	**Tee** (1/4 - 18 NPT x 5/16" o.d. tube)	(2)	59757-158
12	**Pipe Tee** (1/4 - 18 NPT)	(1)	Y43-32-C
13	**Bracket Assembly**	(1)	97088
14	**Rotary Lever Valve**	(1)	M512LR
15	**Male Elbow** (1/4 - 18 NPT x 5/16" o.d. tube)	(5)	59756-158
16	**Tubing** (5/16" o.d. x 6-3/4")	(1)	94980-(❶)
17	**Nipple** (1/4 - 18 NPT x 1-1/2")	(1)	Y27-52-C
18	**Mounting Assembly**	(1)	96733
19	**Tubing** (5/16" o.d. x 45")	(1)	94980-(❶)
20	**Tubing** (5/16" o.d. x 49")	(1)	94980-(❶)
21	**Clamp Spacer Kit**	(2)	104394
22	**Pipe Adapter**	(1)	104474-2
23	**Cap**	(2)	96704
❸ 24	**Wear Ring** (1-1/4" i.d. x 1-3/8" o.d.)	(2)	96755
❸ 25	**"U" Cup** (5/32" x 1-9/16" o.d.)	(2)	96754
26	**Tubing** (5/16" o.d. x 30")	(1)	94980-(❶)
29	**Nipple** (1/4 - 18 NPT x 2-1/2") (models RM052SB-XX-X only)	(1)	Y44-12-C
30	**Shut-Off Valve** (1/4 - 18 NPT)	(1)	Y28-1
31	**Cap Screw** (M6 x 1 - 6g x 40 mm)	(2)	96719
32	**Button Head Screw** (M10 x 1.5 - 6g x 18 mm)	(9)	96696
33	**Gauge** (0 - 160 psig/ 0 - 11 bar)	(1)	29850
34	**Piggyback Filter / Regulator** (1/4 - 18 NPT)	(1)	P39124-120

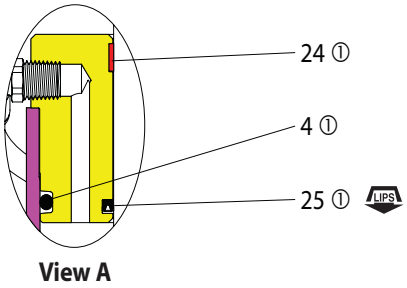
Item	Description (size)	Qty	Part No.
35	**Decal** (warning)(not shown)	(1)	93922
36	**Muffler** (1/4 - 18 NPT)	(1)	20313-2
	Items listed below used on models RM052S-CXX-X only		
40	**Male Elbow** (1/4 - 18 NPT x 1/2" o.d. tube)	(1)	59756-162
41	**Tubing** (1/2" o.d. x 33")	(1)	94978-(❷)
42	**Male Elbow** (1/4 - 18 NPT x 5/16" o.d. tube)	(2)	59756-158
43	**Piggyback Filter / Regulator** (1/2 - 14 NPT)	(1)	P39344-110
44	**Self-Storing Hose** (1/2" i.d. x 9')	(1)	628023-12
45	**Washer** (6.4 mm i.d. x 12 mm o.d.)	(4)	97115
46	**Street Elbow** (1/2 - 14 NPT)	(1)	Y43-4-C
47	**Manifold Block** (1/2 - 14 NPT)	(1)	104413-4-2
48	**Pipe Plug** (1/4 - 18 NPT x 13/32")	(3)	Y227-3-L
49	**Cap Screw** (M6 x 1 - 6g x 16 mm)	(4)	97105
50	**Gauge** (0 - 160 psig / 0 - 11 bar)	(1)	29850
51	**Lock-Out Valve** (1/2 - 14 NPT)	(1)	104392-4
52	**Nipple** (1/4 - 18 NPT x 7/8")	(1)	Y27-12-C
54	**T - Type Wall Mount**	(2)	104401
55	**Button Head Screw** (M10 x 1.5 - 6g x 18 mm)	(1)	96696
56	**Bulkhead Bracket**	(1)	97093
57	**Bulkhead Connector** (1/2 - 14 NPT x 1/2" o.d. tube)	(1)	96713
58	**Reducing Bushing** (3/4 - 14 NPT male x 1/2 - 14 NPT female)	(1)	Y45-9-C
59	**Male Elbow** (1/2 - 14 NPT x 1/2" o.d. tube)(not shown)	(1)	59756-362
76	**Tubing** (5/16" o.d. x 11")	(1)	94980-(❶)
❶	**Bulk Tubing** (5/16" o.d. x 100')	(1)	94980-100
❷	**Bulk Tubing** (1/2" o.d. x 100')	(1)	94978-100
❸	**Gadus S2 U1000 grease packet**	(1)	94833
❸	**Items included in service kit**	(1)	637466

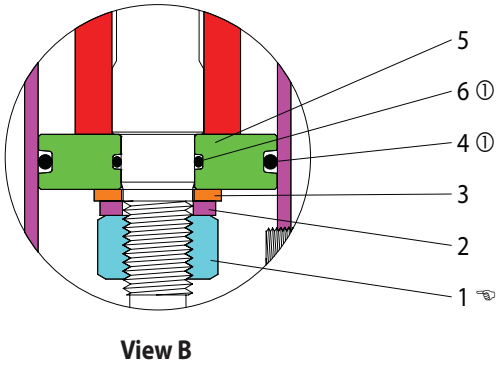
DISASSEMBLY

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.
3. Models RM052S-CXX-X: Disconnect (44) hose from (51) lock-out valve and (41) hose from (40) male elbow.
4. Disconnect (26) tubing from follower and remove pump from ram.
5. Unthread (1) nut and remove (2) washer.
6. Remove (18) mounting assembly and components.
7. Disconnect (10, 16, 19 and 20) tubing.
8. Remove (32) screws, releasing (13) bracket assembly and ram air control components.
9. Remove (23) cap from (9) base and cylinder assembly and (8) piston rod.
10. Remove (8) piston rod and components from (9) base and cylinder assembly.
11. Remove (1) nut, releasing (2 and 3) washers, (5) piston and (7) stop.

REASSEMBLY

1. Grease and assemble (4 and 6) "O" rings to (5) piston.
2. 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.
6. Place (13) bracket assembly and ram air control components into place and secure with (32) screws. **NOTE:** Tighten (32) screws to 20 ft lbs (27.1 Nm)
7. Assemble (18) mounting assembly to (8) piston rods.
8. Assemble (2) lock washer and (1) nut. **NOTE:** Tighten (1) nut to 75 ft lbs (101.7 Nm).
9. Reconnect all tubing.





ASSEMBLY TORQUE REQUIREMENTS

NOTE: DO NOT OVERTIGHTEN FASTENERS.

(1) nut, 75 ft lbs (101.7 Nm).

LUBRICATION / SEALANTS

① Lubricate all "O" rings, "U" cups and mating parts with Gadus S2 U1000 grease.

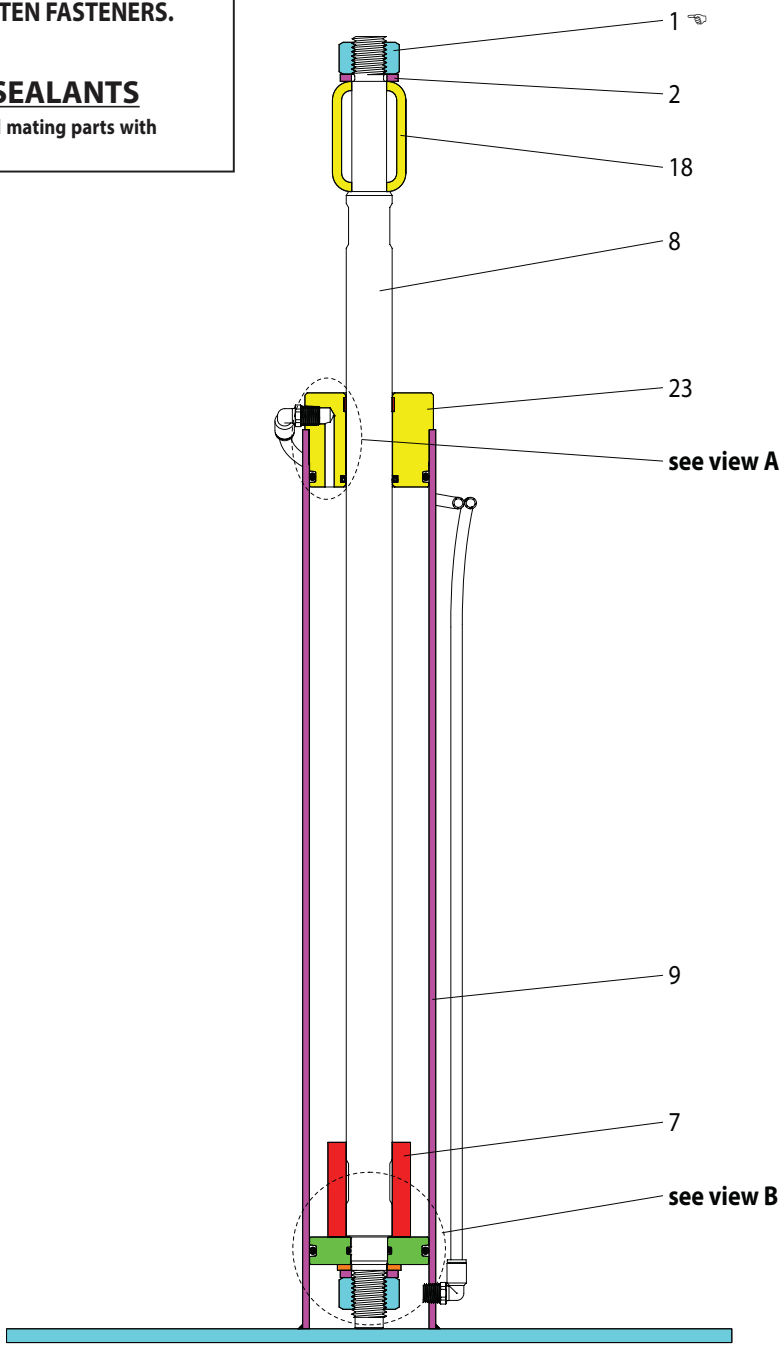
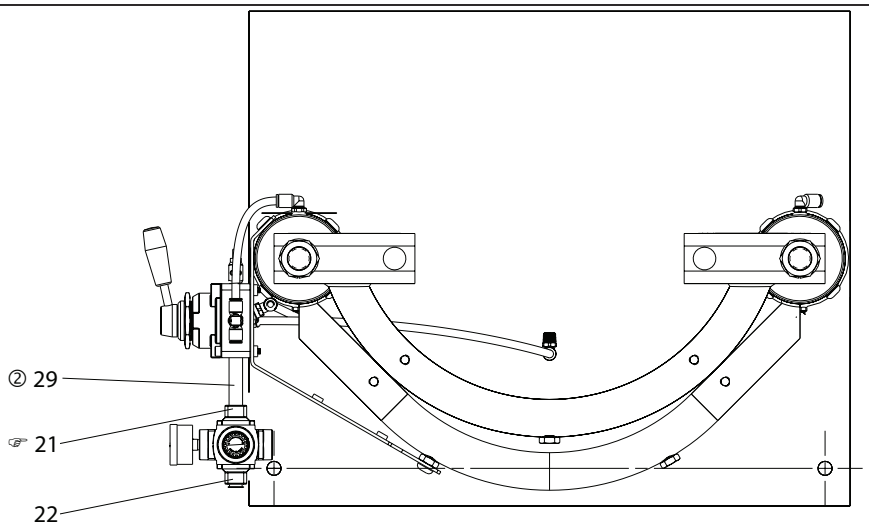


Figure 3



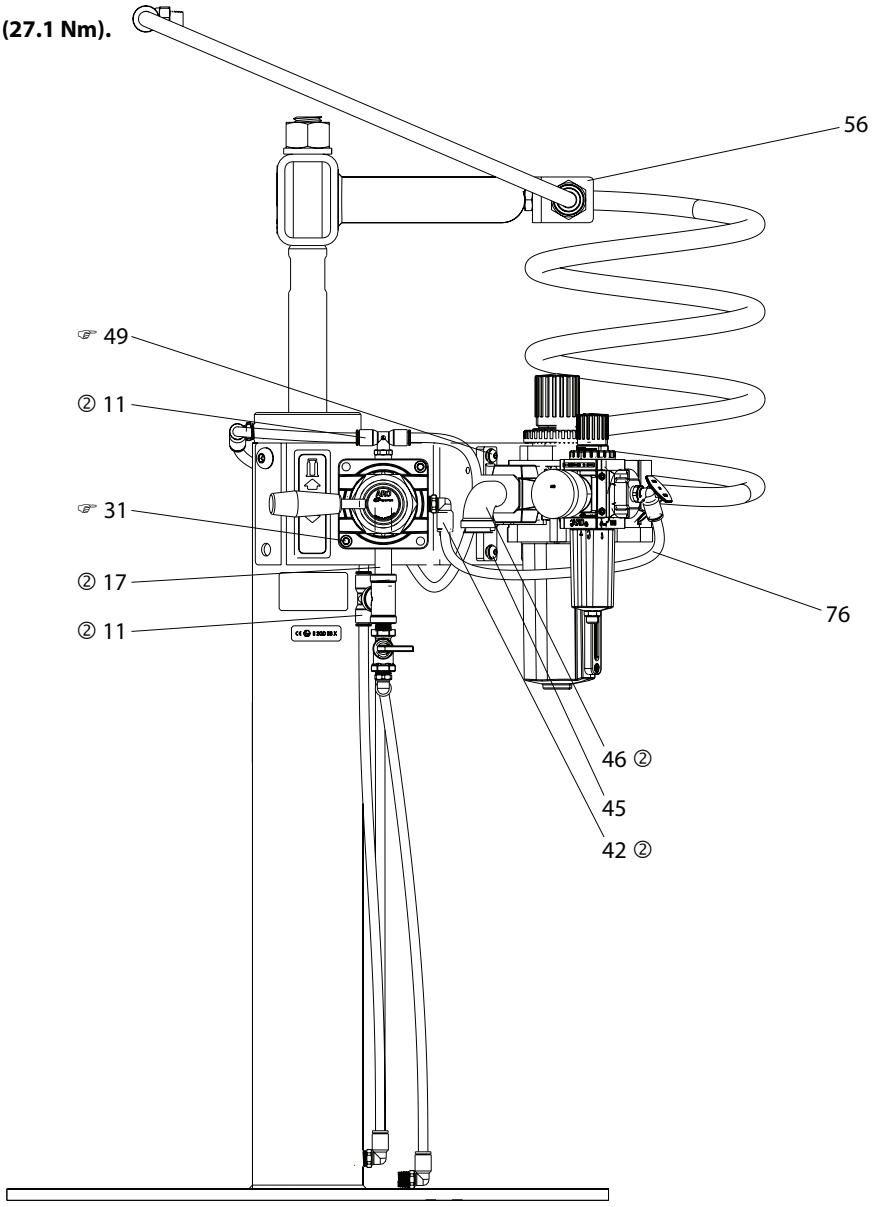
☞ ASSEMBLY TORQUE REQUIREMENTS ☜

NOTE: DO NOT OVERTIGHTEN FASTENERS.

(21) screw, 4 in. lbs (0.45 Nm).
(31) cap screw, 95 - 100 in. lbs (10.7 - 11.3 Nm).
(32) button head screw, 20 ft lbs (27.1 Nm).
(49) cap screw, 95 - 100 in. lbs (10.7 - 11.3 Nm).
(54) screw, 17 in. lbs (1.9 Nm).
(55) button head screw, 20 ft lbs (27.1 Nm).

LUBRICATION / SEALANTS

② Apply anaerobic pipe sealant to male pipe threads at assembly.



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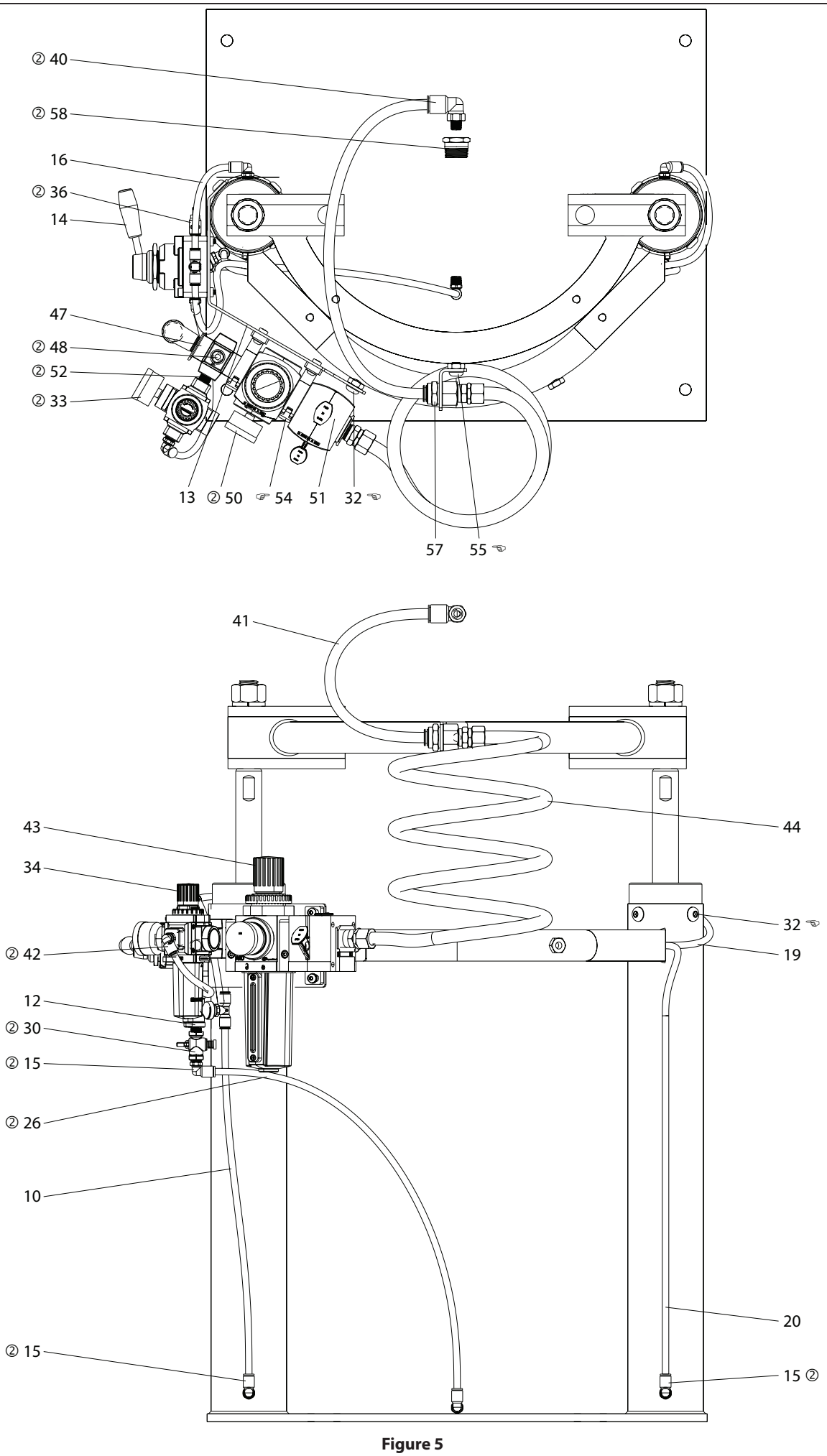
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Figure 5

MODEL DESCRIPTION / FOLLOWER PLATE OPTIONS

Model	Description	Follower plate Material	Seal Type	Seal Material	Seal Diameter	Follower Asm.
RM052S-XXA-A7	Standard Footprint "A"	Aluminum	Single Tube	EPR	11.440" (290.6 mm)	67347-2
RM052S-XXA-A8				Nitrile		67347-1
RM052S-XXA-T7		Aluminum with PTFE Coating		EPR		67347-12
RM052S-XXA-T8				Nitrile		67347-11
RM052S-XXA-TU				EPR		67532-1
RM052S-XXA-E1		Carbon Steel, Electrloess Nickel Coating	Single Lip	Nitrile / Polyethylene	11.614" (295.0 mm)	67485-2
RM052S-XXA-E3				Polyurethane / Polyethylene	11.437" (290.5 mm)	67485-1
RM052S-XXA-E5				Nitrile / Polyethylene	12.281" (311.9 mm)	67485-3
RM052S-XXA-S2		Stainless Steel		PTFE Coated Nitrile / Polyethylene	11.437" (290.5 mm)	67536-1
RM052S-XXA-EA		Carbon Steel, Electrloess Nickel Coating	Double Lip	Polyurethane	11.609" (294.9 mm)	66732-1
RM052S-XXA-EB				EPR		66732-2
RM052S-XXA-EC				Nitrile		66732
RM052S-XXC-E1	Slip-On "C"	Carbon Steel, Electroless Nickel Coating	Single Lip	Nitrile / Polyethylene	11.614" (295.0 mm)	67486-2
RM052S-XXC-E3				Polyurethane / Polyethylene	11.437" (290.5 mm)	67486-1
RM052S-XXC-E5				Nitrile / Polyethylene	12.281" (311.9 mm)	67486-3
RM052S-XXC-EA			Double Lip	Polyurethane	11.609" (294.9 mm)	66731-1
RM052S-XXC-EB				EPR		66731-2
RM052S-XXC-EC				Nitrile		66731
RM052S-XXC-S2		Stainless Steel	Single Lip	PTFE Coated Nitrile / Polyethylene	11.437" (290.5 mm)	67487-1
RM052S-XXD-S2	Pipe Thread "D"					67518-1

FOLLOWER PLATES

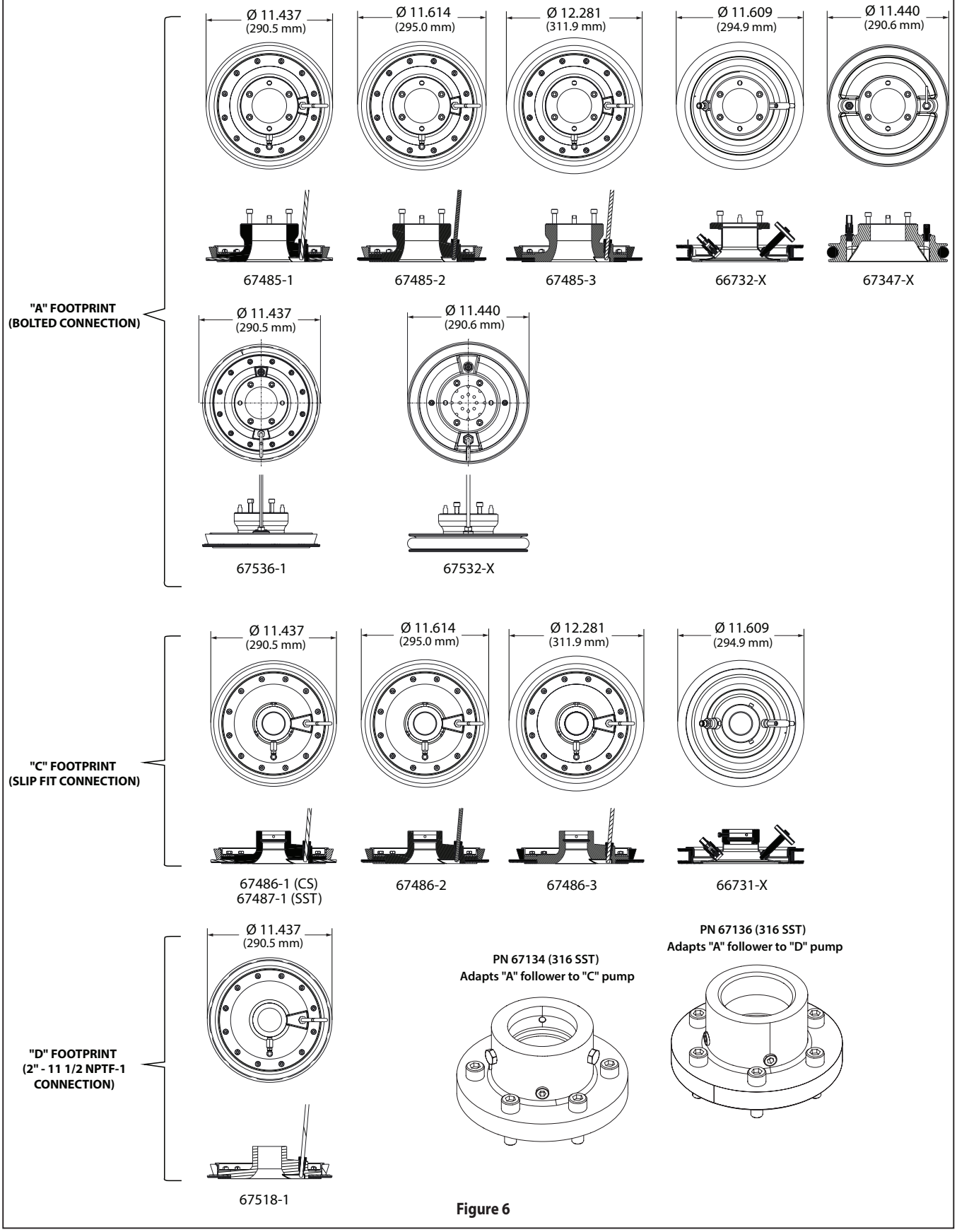
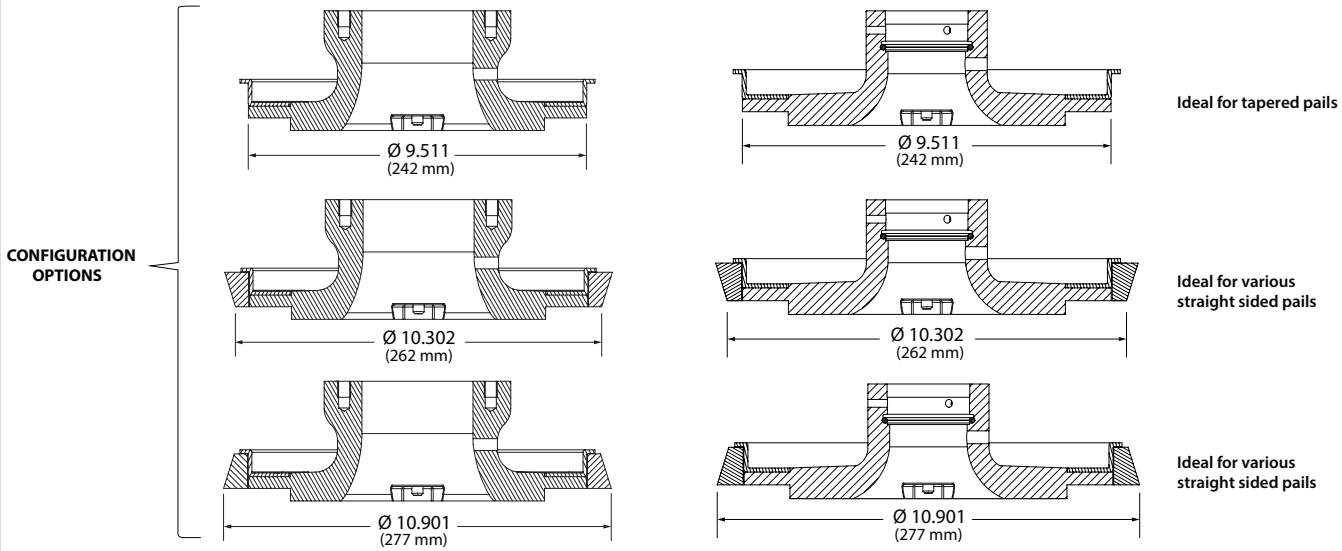


Figure 6

MODULAR BACKUP RING



Available on the following models: 67485-X, 67486-X, 67487-X, 67518-X.

Figure 7

DIMENSIONAL DATA

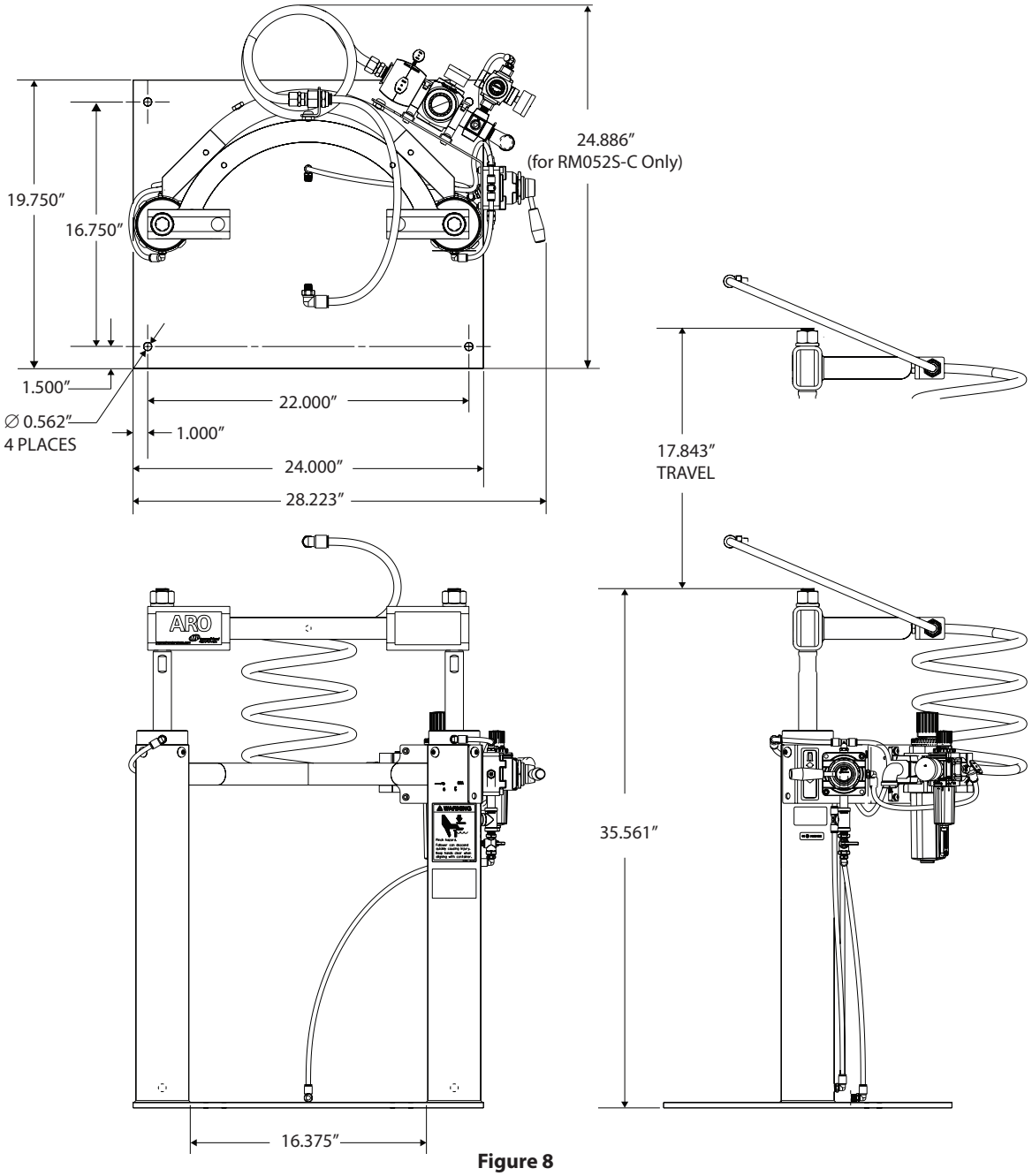


Figure 8