# OPERATOR'S MANUAL

# RM552H-XXX-XX RM552S-XXX-XX

INCLUDING: OPERATION, INSTALLATION AND MAINTENANCE.

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

# RM552H-XXX-XX & RM552S-XXX-XX TWO POST LIFT / RAM

**RELEASED: REVISED:** (REV. 03)

8-1-11

For use with 55 gallon / 200 liter drums



### 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.
- **104468** for repair of filter section of P39124 -100 filter / regulator.
- **104302** for repair of regulator section of P39124-100 filter / regulator.
- **104326** for repair of filter section of P39344 -100 filter/regulator.
- 104327 for repair of regulator section of P39344 -100 filter/ regulator.
- **637466** for repair of lift / ram seals (models RM552S-XXX-XX).
- **637472** for repair of lift / ram seals (models RM552H-XXX-XX).

#### **SPECIFICATIONS**

Model Series	RM552X-XXX-XX
Maximum Working Pressure	
<b>Maximum Temperature Limits</b> 25° F to	
Dimensional Data	see page 8
Stroke	
Weight models RM552H-C	355 lbs (161.0 kgs)
models RM552S-C-0	248 lbs (112.5 kgs)
Center of Gravity	see page 8
Noise Level @ 125 p.s.i. (continuous duty)	87.7 db(A) ①
① The pump sound pressure levels published her an Equivalent Continuous Sound Level (Lace) to	

\$1.13-1971, CAGI-PNEUROP S5.1 using four microphone locations.

#### **GENERAL DESCRIPTION**

The ARO model RM552X-X-XX two post lift / ram uses two 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 55 gallon / 200 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

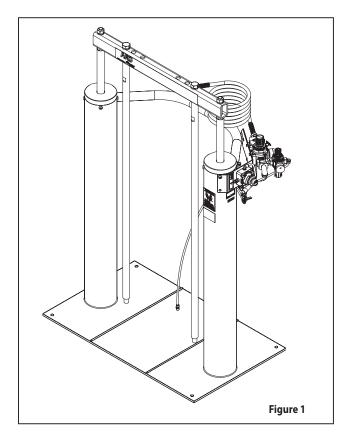
Lifts and Rams"), this unit has the ability to raise a pump to clear a standard 55 gallon / 200 liter drum. The operator is then able to easily remove the pump from the drum.

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.

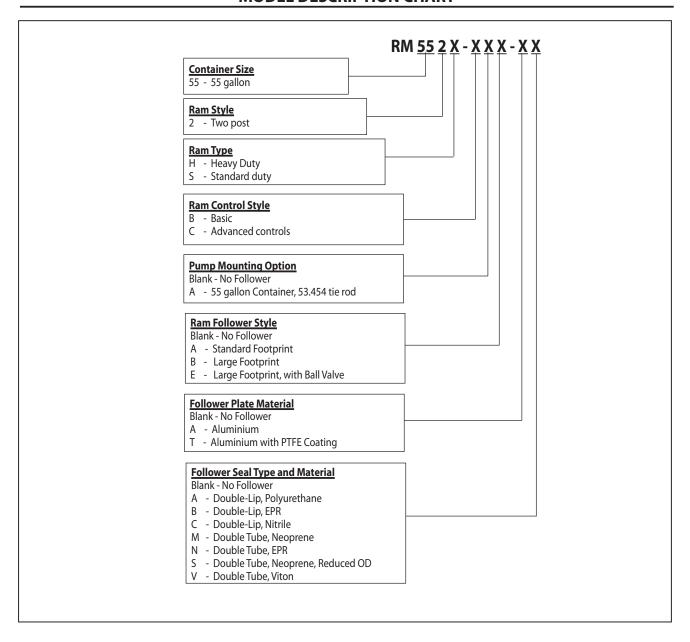
- RM552X-XXX-XX Model Operator's Manual (pn 97999-1445)
- S-635 General Information Air Operated Lifts and Rams (pn 97999-635)
- ☐ P391XX-XXX and P393XX-XXX Filter / Regulator Safety Manual (pn 100400-53)
- ☐ P391XX-XXX Product Information Manual (pn 100400-54)
- ☐ P391XX-XXX Maintenance Manual (pn 100400-55)







### **MODEL DESCRIPTION CHART**



Page 2 of 12 RM552H-X, RM552SX-XX (en)

#### **OPERATING AND SAFETY PRECAUTIONS**

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

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 IN-CLUDED 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, realign the drum and restart.

**MARNING** 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 p.s.i. (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 pres-

**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 fol-

**WARNING** Place the main valve in the "neutral" (center) position before air pressure is directly connected or turned on to the system.

**AWARNING** 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.

**A 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 elec-
- 3. THE LIFT MOUNTING BASE PLATE MUST BE SECURELY AN-**CHORED TO THE CONCRETE FLOOR.** The mounting plate itself can be used as a template for establishing the proper anchor
- 4. Assemble the pump to the mounting plate. NOTE: The combined weight of the piston pump and accessories (follower plate, etc.) must not exceed 400 lbs (181.4 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.

RM552H-X, RM552SX-XX (en) Page 3 of 12

#### **OPERATING INSTRUCTIONS**

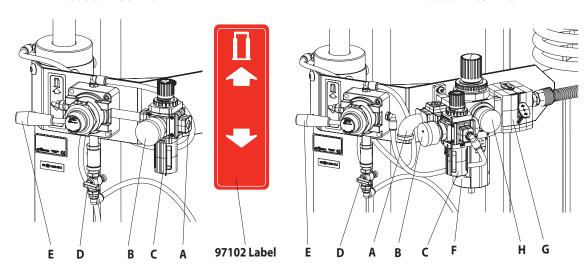
**OPERATING INSTRUCTIONS / INITIAL SETUP PROCEDURE.** 

**MARNING** STAND CLEAR WHEN RAISING OR LOWERING THE LIFT. Read the warnings on page 2.

## LIFT / RAM, PUMP AND FOLLOWER PLATE AIR CONTROLS

#### Models RM552X-BXX-XX

#### Models RM552X-CXX-XX



- A Air inlet (RM552X-BXX-XX 1/4 18 NPT) (RM552X-CXX-XX - 3/4 - 14 NPT)
- B Lift / ram pressure gauge C - Lift / ram air filter / regulator

D - Follower plate air supply valve

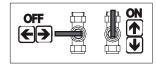
E - Lift / ram control lever

F - Pump air filter / regulator / lubricator

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 p.s.i. / 8.6 bar maximum) to the air inlet. Adjust the air pressure on the lift / ram pressure regulator (turn knob clockwise) to 20 p.s.i. (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
- 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 2.

**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.
- Replace the vent plug once the material begins to ooze from the vent opening.
- Models RM552X-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 RM552X-CXX-XX: Close the pump air supply valve.
- Shift the control valve lever to the "up" position.
- 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.
- Open the follower plate air supply valve to allow air under the follower plate.
- Shift the control valve lever to the "up" position.
- Place and center a new drum into position. Remove cover.

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#### PARTS LIST / RM552X-X

Item	Description (size)	Qty	Part No.	
1	Nut (3/4" - 16)	(2)	Y11-12-C	
2	Lock Washer (3/4")	(2)	Y14-750	
3	Wear Ring (models RM552H-XXX-XX only)	(2)	97166	
<b>③</b> 4	"O" Ring (models RM552S-XXX-XX) (3/16" x 3-1/4" o.d.)	(4)	Y325-336	
	(models RM552H-XXX-XX) (0.275" x 5.525" o.d.)	(4)	Y325-429	
5	Piston Rod Assembly (models RM552H-XXX-XX)	(2)	67477	
	(models RM552S-XXX-XX)	(2)	67476	
7	Stop	97163		
9	Base and Cylinder Assembly			
	(models RM552H-XXX-XX)	(1)	96768	
	(models RM552S-XXX-XX)	(1)	67419	
10	Tubing (5/16" o.d. x 37")	(1)	94980-( 🛈 )	
10a	Tubing (5/16" O.D x 59.75")	(1)	94980-( 🛈 )	
10b	Tubing (5/16" O.D x 64.25")	(1)	94980-( 10 )	
10c	Tubing (5/16" O.D x 26.25")	(1)	94980-( 10 )	
10d	Tubing (5/16" O.D x 44")	(1)	94980-( 10 )	
10e	Tubing (5/16" O.D x 29.50")	(1)	94980-( 10 )	
10f	Tubing (5/16" O.D x 35")	(1)	94980-( 10 )	
10g	Tubing (5/16" O.D x 22.50")	(1)	94980-( 10 )	
10h	Tubing (5/16" o.d. x 11")	(1)	94980-( 10 )	
12	Pipe Tee (1/4 - 18 NPT)		Y43-32-C	
13	Bracket Assembly	(1)	67432	
14	Rotary Lever Valve	(1)	M512LR	
15	Male Elbow (1/4 - 18 NPT x 5/16" o.d. tube)	(7)	59756-158	
17	Nipple (1/4 - 18 NPT x 1-1/2")	(1)	Y27-52-C	
18	Mounting Arm	(1)	96729	
21	Clamp Spacer Kit	(2)	104394	
22	Pipe Adapter	(1)	104474-2	
23	Cap (models RM552H-XXX-XX)	(2)	96766	
	(models RM552S-XXX-XX)	(2)	97168	
<b>©</b> 24	Wear Ring (1-3/8" i.d. x 1-1/2" o.d.)	(2)	96753	
<b>⑤</b> 25	"U" Cup (3/16" x 1-3/4" o.d.)	(2)	96752	

Item	Description (size)	Qty	Part No.	
27	Connector (1/4 - 18 NPT x 5/16" o.d. tube)	(1)	59474-158	
29	Nipple (1/4 - 18 NPT x 2-1/2") (models RM552X-BXX-XX 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 p.s.i. / 0 - 11 bar)	(1)	29850	
34	Piggyback Filter / Regulator (1/4 - 18 NPT)	(1)	P39124-100	
35	Decal (warning)(not shown)	(1)	93922	
36	Muffler (1/4 - 18 NPT)	(1)	20313-2	
37	Rod	(2)	94016	
38	Screw (7/8" - 14 x 4")	(2)	94009	
39	Lock Washer (7/8")	(2)	Y14-875	
40	Connector (Tee)	(2)	97162	
ı	tems listed below used on models RM552X-	CXX-	XX only	
41	Hose Assembly (1/2" i.d. x 12")	(1)	628023-12	
42	Male Elbow (1/4 - 18 NPT x 5/16" o.d. tube)	(2)	59756-158	
43	Filter / Regulator / Lubricator (1/2 - 14 NPT)	(1)	P39344-100	
44	Gauge (0-160)	(1)	29850	
45	Bushing		Y45-9-C	
46	Street Elbow (1/2 - 14 NPT)	(1)	Y43-4-C	
48	Manifold Block	(1)	104413-4-2	
51	Lock-Out Valve (3/4 - 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)	(4)	97105	
56	Washer	(4)	97115	
0	Bulk Tubing (5/16" o.d. x 100')	(1)	94980-100	
0	Items not shown			
€	Gadus S2 U1000 grease packet	(2)	94833	
€	Items included in service kit	(1)	637466	
	Items included in service kit	(1)	637472	

#### **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 RM552S-CXX-XX: Disconnect (41) hose from (51) lock-out valve and from (45) reducing pipe connector.
- 4. Disconnect (26) tubing from follower and remove pump from ram.
- 5. Unthread (1) nut and remove (2) washer.
- 6. Remove (18) mounting arm and components.
- 7. Disconnect (10, 16, 19 and 20) tubing.
- 8. Remove (32) screws, releasing (13) bracket assembly and ram air control components.
- 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 (4) "O" ring and (3) wear strip (where applicable).

#### **REASSEMBLY**

- 1. Grease and assemble (4) "O" ring and (3) wear strip (where applicable) to (5) piston.
- 2. Carefully slide (8) piston rod and components into (9) base and cylinder assembly.
- 3. Grease and assemble (4) "O" ring, (25) "U" cup (note the lip direction) and (24) wear strip to (23) cap.
- 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.
- 5. 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)
- Assemble (18) mounting arm and components to (8) piston rods.
- 7. Assemble (2) lock washer and (1) nut. NOTE: Tighten (1) nut to 75 ft lbs (101.7 Nm).
- 8. Reconnect all tubing.

RM552H-X, RM552SX-XX (en) Page 5 of 12

### PARTS LIST / RM552X-XXX-XX

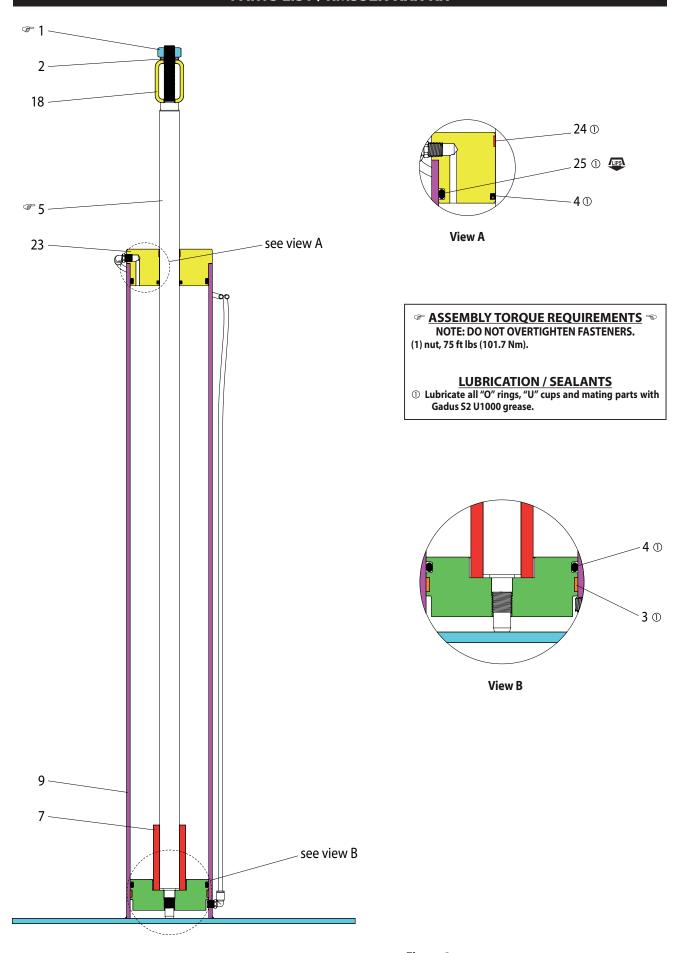
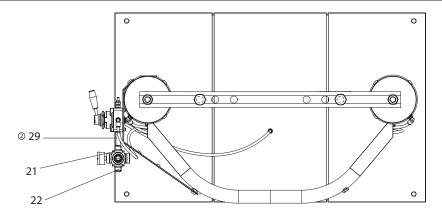


Figure 3

Page 6 of 12 RM552H-X, RM552SX-XX (en)

### PARTS LIST / RM552X-XXX-XX



#### **☞ ASSEMBLY TORQUE REQUIREMENTS** ♥

### NOTE: DO NOT OVERTIGHTEN FASTENERS.

- (21) screw, 4 in. lbs (0.45 Nm).
- (21) screw, 4 m. ibs (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). (38) screw, 75 ft lbs (101.7 Nm).

- (48) screw, 22 in. lbs (2.5 Nm).
- (54) screw, 22 in. lbs (2.5 Nm).
- (55) button head screw, 20 ft lbs (27.1 Nm).

#### **LUBRICATION / SEALANTS**

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

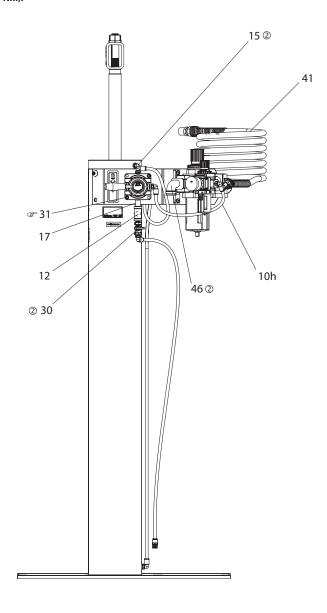
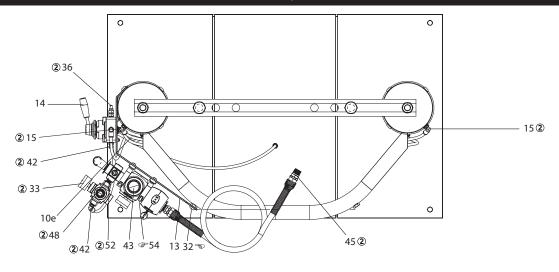


Figure 4

## PARTS LIST / RM552X-X



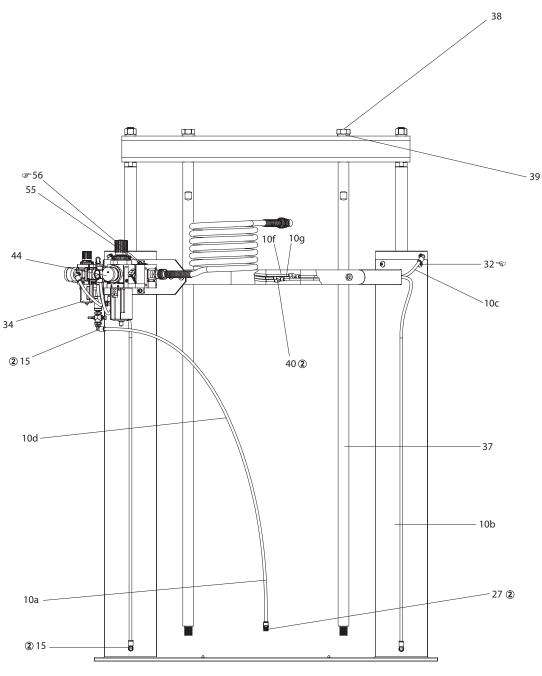


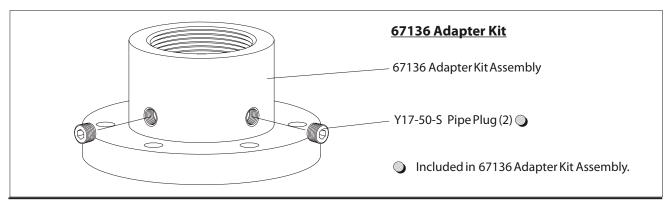
Figure 5

#### **GENERAL DESCRIPTION**

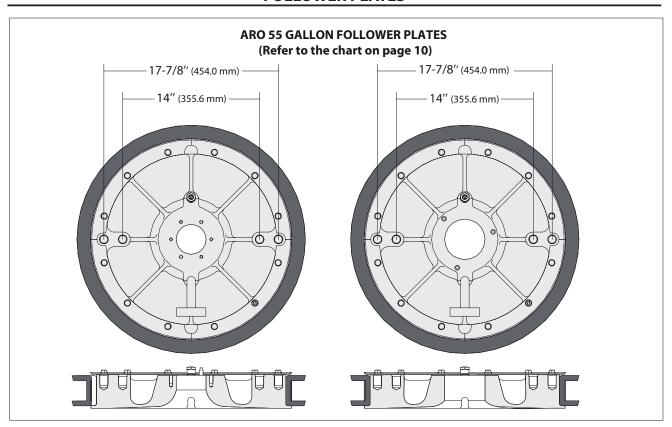
Cast Aluminium followers are fitted with a dual lip seal or dual "O" ring seal to wipe the drum clean and seal off the material from the atmosphere. Several material options are available for the follower plate outer seal. Select a compatible seal for the material being pumped. The model chart shows the pump motors they will generally accommodate.

### **OPTIONAL EQUIPMENT**

Polyethylene Follower Plate seal protector sheets (included)
 91363-10 Pkg of 10 – 20" dia. (5 gal. drum)
 91363-10 Pkg of 10 – 32" dia. (55 gal. drum)



### **FOLLOWER PLATES**



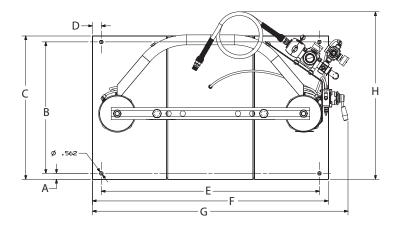
RM552H-X, RM552SX-XX (en) Page 9 of 12

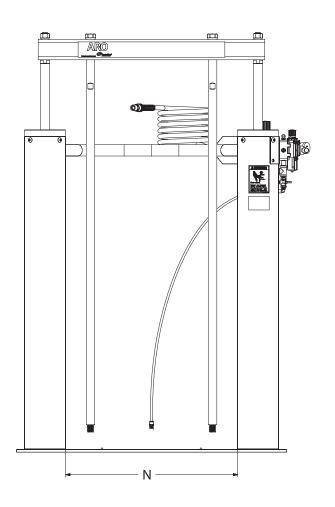
## **MODEL DESCRIPTION / FOLLOWER PLATE OPTIONS**

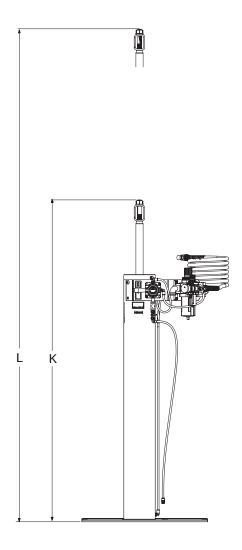
Model	Description	Pump Size	Follwer Seal Material	Seal Material	Follwer Asm.
RM 552X-XXA-AA				Polyurethane, Double Lip	66516-1
RM552X-XXA-AB		Small		EPR, Double Lip	66516-2
RM552X-XXA-AC				Nitrile, Double Lip	66516
RM552X-XXA-AM			Aluminium	Neoprene, Double Tube	67195-1
RM552X-XXA-AN				EPR, Double Tube	67195-2
RM552X-XXA-AS				Neoprene, Double Tube, reduced OD	67195-8
RM552X-XXA-AV				Viton, Double Tube	67195-3
RM552X-XXA-TA	Standard Footprint		Aluminum with PTFE Coating	Polyurethane, Double Lip	66516-6
RM552X-XXA-TB				EPR, Double Lip	66516-7
RM552X-XXA-TC				Nitrile, Double Lip	66516-5
RM552X-XXA-TM				Neoprene, Double Tube	67195-5
RM552X-XXA-TN				EPR, Double Tube	67195-6
RM552X-XXA-TS				Neoprene, Double Tube, reduced OD	67195-9
RM552X-XXA-TV				Viton, Double Tube	67195-7
RM552X-XXB-AA				Polyurethane, Double Lip	66517-1
RM552X-XXB-AB				EPR, Double Lip	66517-2
RMSS2X-XXB-AC				Nitrile, Double Lip	66517
RM552X-XXB-AM			Aluminum	Neoprene, Double Tube	67196-1
RM5S2X-XXB-AN				EPR, Double Tube	67196-2
RM552X-XXB-AS				Neoprene, Double Tube, reduced OD	67196-8
RM552X-XXB-AV	Large Footprint	Large		Viton, Double Tube	67196-3
RM552X-XXB-TA	Large rootprint	Large		Polyurethane, Double Lip	66517-6
RM552X-XXB-TB				EPR, Double Lip	66517-7
RM552X-XXB-TC			Aluminum with	Nitrile, Double Lip	66517-5
RM552X-XXB-TM			PTFE Coating	Neoprene, Double Tube	67196-S
RM552X-XX-TN				EPR, Double Tube	67196-6
RM552X-XXB-TS				Neoprene, Double Tube, reduced OD	67196-9
RM5S2X-XXB-TV				Viton, Double Tube	67196-7
RM552X-XXF-AA				Polyurethane, Double Lip	67409-1
RM552X-XXE-AB				EPR, Double Lip	67409-2
RM552X-XXE-AC				Nitrile, Double Lip	67409
RM552X-XXE-AM			Aluminum	Neoprene, Double Tube	67410-1
RM552X-XXE-AN				EPR, Double Tube	67410-2
RM552X-XXE-AS				Neoprene, Double Tube, reduced OD	67410-8
RM552X-XXE-AV	Large Footprint	Large		Viton, Double Tube	67410-3
RM552X-XXE-TA	with ball valve		Aluminum with PTFE Coating	Polyurethane, Double Lip	67409-6
RM552X-XXE-TB				EPR, Double Lip	67409-7
RM552X-XXE-TC				Nitrile, Double Lip	67409-5
RM552X-XXE-TM				Neoprene, Double Tube	67410-5
RM552X-XXE-TN				EPR, Double Tube	67410-6
RM552X-XXE-TS				Neoprene, Double Tube, reduced OD	67410-9
RMS52X-XXE-TV				Viton, Double Tube	67410-7

Page 10 of 12 RM552H-X, RM552SX-XX (en)

### **DIMENSIONAL DATA**







#### Figure 6

### **DIMENSIONS**

A - 1" (25.4 mm) F - 39,500" (1003.3 mm)
B - 22" (558.8 mm) G - see below
C - 24" (609.6 mm) H - 28.048" (712.4 mm)

D - 1.500"(38.1 mm) (for RM552H-C and RM552H-CAA-AA only)

E - 36.500" (927.1 mm)

 Model
 "G"

 RM552H-B
 42.774"
 (1086.5 mm)

 RM552H-C
 42.782"
 (1086.7 mm)

 RM552H-BAA-AA
 42.774"
 (1086.5 mm)

 RM552H-CAA-AA
 42.7824"
 (1086.7 mm)

K - 61.465" (1561.2 mm)

L - 99.215" (2520.1 mm) (extended)

N - 25.188" (639.8 mm)

RM552H-X, RM552SX-XX (en) Page 11 of 12

