OPERATOR’S MANUAL

RM051S-X

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. The original language of this manual is English.

SERVICE KITS

- Use only genuine ARO® replacement parts to assure compatible pressure rating and longest service life.
- 104302 for repair of R37121-100 regulator.
- 104453 for repair of P39344-100 filter / regulator.
- 637465 for repair of lift / ram seals.

SPECIFICATIONS

<table>
<thead>
<tr>
<th>Model Series</th>
<th>RM051S-X</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Working Pressure</td>
<td>125 p.s.i. (8.6 bar)</td>
</tr>
<tr>
<td>Maximum Surface Temperature</td>
<td>77º F (25º C)</td>
</tr>
<tr>
<td>Base Dimensions</td>
<td>14” x 17” (355.6 mm x 431.8 mm)</td>
</tr>
<tr>
<td>Height (lowered)</td>
<td>32-7/8” (835.0 mm)</td>
</tr>
<tr>
<td></td>
<td>(RM051S-C) 35” (888.8 mm)</td>
</tr>
<tr>
<td></td>
<td>(raised) 50-3/8” (1279.5 mm)</td>
</tr>
<tr>
<td></td>
<td>(RM051S-C) 52-1/2” (1333.3 mm)</td>
</tr>
<tr>
<td>Stroke</td>
<td>17-1/2” (444.5 mm)</td>
</tr>
<tr>
<td>Weight</td>
<td>78 lbs (35.4 kgs)</td>
</tr>
<tr>
<td>Center of Gravity</td>
<td>19.3” high (490.2 mm)</td>
</tr>
</tbody>
</table>
| Noise Level @ 125 p.s.i. (continuous duty) | 87.7 db(A) ©

© 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 RM051S-X 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 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.

RM051S-X Model Operator's Manual (pn 97999-1335)
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)

INGERSOLL RAND COMPANY LTD
P.O. BOX 151 • ONE ARO CENTER • BRYAN, OHIO 43506-0151
(800) 276-4658 • FAX (800) 266-7016 • 2008
A RO
© 2008
CCN 15288434
OPERATING AND SAFETY PRECAUTIONS

- 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.

**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.

**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.

**WARNING** PINCH HAZARD. Follower can descend quickly, causing injury. Keep hands clear when aligning with container.

**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 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.

**CAUTION** When using 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.

**CAUTION** When the lift is in the raised position, the pump mount may be rotated away from the bucket. Rotating the pump mount 360˚ may damage tubing.

**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.

**NOTICE** To extend seal life, lubricate seals with Darina® SD2 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

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.
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 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.

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-C: 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 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.

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.
### 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 RM051S-C: 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- C: Remove (51) bracket and pump air control components.
8. Disconnect (10 and 16) tubing.
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 (33) screws. NOTE: Tighten (33) screws to 75 ft lbs (101.7 Nm).
7. Models RM051S-B: Assemble (17) washers, (18) ram head and components and (28) washer to (8) piston rod. Models RM051S-C: Assemble (51) bracket and pump air control components to (18) ram head. Assemble (17) washer, (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.
ASSEMBLY TORQUE REQUIREMENTS
NOTE: DO NOT OVERTIGHTEN FASTENERS.
(1) nut, 75 ft lbs (101.7 Nm).
(31) cap screw, 95 - 100 in. lbs (10.7 - 11.3 Nm).
(32) cap screw, 20 ft lbs (27.1 Nm).
(33) screw, 20 ft lbs (27.1 Nm).

LUBRICATION / SEALANTS
1. Lubricate all "O" rings, "U" cups and mating parts with Darina SD 2 grease.
2. Apply anaerobic pipe sealant to male pipe threads at assembly.

NOTE: DO NOT OVERTIGHTEN FASTENERS.
ASSEMBLY TORQUE REQUIREMENTS

NOTE: DO NOT OVERTIGHTEN FASTENERS.

(1) nut, 75 ft lbs (101.7 Nm).
(47) cap screw, 95 - 100 in. lbs (10.7 - 11.3 Nm).
(52) screw, 17 in. lbs (1.9 Nm).

LUBRICATION / SEALANTS

1. Lubricate all “O” rings, “U” cups and mating parts with Darina SD 2 grease.
2. Apply anaerobic pipe sealant to male pipe threads at assembly.
## ACCESSORIES

### 67425 Portability Kit

<table>
<thead>
<tr>
<th>Item</th>
<th>Description (size)</th>
<th>Qty</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>Handle</td>
<td>(1)</td>
<td>96805</td>
</tr>
<tr>
<td>P2</td>
<td>Button Head Screw (M10 x 1.5 x 6g x 40 mm)</td>
<td>(4)</td>
<td>97091</td>
</tr>
<tr>
<td>P3</td>
<td>Nut (M10 x 1.5 x 6h)</td>
<td>(4)</td>
<td>96691</td>
</tr>
<tr>
<td>P4</td>
<td>External Retaining Ring</td>
<td>(2)</td>
<td>Y180-62</td>
</tr>
<tr>
<td>P5</td>
<td>Wheel (5/8” o.d. shaft x 10” diameter)</td>
<td>(2)</td>
<td>96743</td>
</tr>
<tr>
<td>P6</td>
<td>Axle Assembly</td>
<td>(1)</td>
<td>67411</td>
</tr>
<tr>
<td>P7</td>
<td>Flange Nut (M12 x 1.75 x 6h)</td>
<td>(2)</td>
<td>95053-1</td>
</tr>
<tr>
<td>P8</td>
<td>Flat Head Bolt (M12 x 1.75 x 6g x 25 mm)</td>
<td>(2)</td>
<td>96690</td>
</tr>
</tbody>
</table>

### ASSEMBLY TORQUE REQUIREMENTS

**NOTE: DO NOT OVERTIGHTEN FASTENERS.**

- (P2) screw, 80 - 85 in. lbs (9.0 - 9.6 Nm).
- (P8) bolt, 30 ft lbs (40.7 Nm).

---

*Figure 6*
**DIMENSIONAL DATA**

**DIMENSIONS**

- A - 1-1/2" (38.1 mm)
- B - 11" (279.4 mm)
- C - 14" (355.6 mm)
- D - 1-1/2" (38.1 mm)
- E - 14" (355.6 mm)
- F - 17" (431.8 mm)
- G - 21-3/16" (537.5 mm)
- H - 22-13/16" (578.7 mm)
- J - 9/16" (14.3 mm) diameter
- K - Travel - 17-1/2" (444.5 mm)
- L - 32-7/8" (835.0 mm)
- M - 35" (888.8 mm)

© models RM051S-C only

---

**Figure 7**