

Multiple Animal Scale-Mobile

MAS-M Animal Livestock Scale

Wheel Swing Arm Replacement



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1.0 Introduction

This manual is intended for use by service technicians responsible for installing and servicing the MAS-M Animal Scale.

The following instructions will guide the operator through the replacement of the wheel swing arm on the MAS-M Animal Scale. Approximate time for replacement is 30 minutes per wheel swing arm.



Manuals and additional resources are available from the Rice Lake Weighing Systems website at www.ricelake.com

Warranty information can be found on the website at www.ricelake.com/warranties

1.1 Safety

Safety Signal Definitions:



DANGER Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. Includes hazards that are exposed when guards are removed.



WARNING Indicates a potentially hazardous situation that, if not avoided, could result in serious injury or death. Includes hazards that are exposed when guards are removed.



CAUTION Indicates a potentially hazardous situation that, if not avoided, could result in minor or moderate injury.



IMPORTANT Indicates information about procedures that, if not observed, could result in damage to equipment or corruption to and loss of data.

General Safety



Do not operate or work on this equipment unless this manual has been read and all instructions are understood. Failure to follow the instructions or heed the warnings could result in injury or death. Contact any Rice Lake Weighing Systems dealer for replacement manuals.



Failure to heed could result in serious injury or death.

Do not allow minors (children) or inexperienced persons to operate this unit.

Do not operate without all shields and guards in place.

Do not use for purposes other than weighing.

Do not place fingers into slots or possible pinch points.

Do not place hands, feet or any body part underneath the scale at any time. The scale could be lowered, crushing body parts.

Do not use any load bearing component that is worn beyond 5% of the original dimension.

Do not use this product if any of the components are cracked.

Do not exceed the rated load limit of the unit.

Do not make alterations or modifications to the unit.

Do not remove or obscure warning labels.

Keep hands, feet and loose clothing away from moving parts.

Ensure that everyone is clear of any moving parts when lowering the scale.

Use two hands when gripping the lift handle to raise or lower the scale.

Be sure the gates are latched or tied inward before transporting the scale.



Ensure all three hitch lock pins are installed and the suspension stops are in the transport position before moving the scale.

List of Tools Required

- 1-1/16 in socket-1/2 in drive
- 1-1/16 in standard wrench
- 1-1/2 in socket-1/2 in drive
- 1-1/8 in socket-1/2 in drive
- 1-1/8 in standard wrench
- 1/2 in drive ratchet
- 11/16 in wrench
- 12 x 12 in parts tray
- 13/16 in deep wall socket
- Two jack stands with cups
- 3/4 in standard socket 3/8 in drive
- 3/8 in drive ratchet
- 4 in electric grinder
- 9/16 in deep socket 3/8 in drive
- Alignment gauge
- Ball peen hammer
- Bent 3/4 in wrench
- Brake tester
- Channellocks
- Cold chisel
- Cordless drill
- Cordless impact or lug wrench
- Drive screws/drill bit
- Extension cords
- Extra battery pack for drill
- Extra bolts, nuts, washers (possibly wheel bearings/seals)
- Extra brake line
- Extra drill bits
- Extra grease zerks
- Flat screwdriver
- Floor jack
- Generator
- Loctite®
- Moly grease (assembly)
- Shrink tube
- Solder/flux
- Soldering gun
- Spare studs and nuts for brake backing plate
- Two Stools
- Torch
- Torque wrench
- Touch up paint
- Wheel bearing grease
- Wheel chocks
- Wire brush
- Wire cutter/stripper

2.0 Replacement

2.1 Wheel Swing Arm Removal

1. Raise frame up enough to place jack stands or blocks in front of and behind the axle.
2. Remove pressure from the air spring to set on blocks.
3. Remove the wheel (Figure 2-1) from the wheel swing arm. Retain for re-installation.

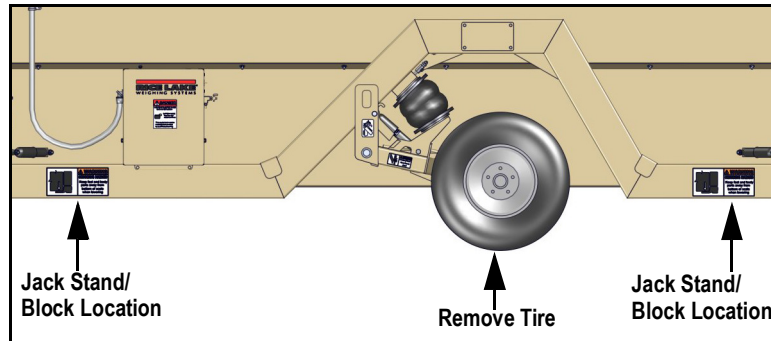


Figure 2-1. Jack Stand or Block Locations

4. Pull some slack in the brake wires.
5. Cut the brake wires behind the hub. Remove the shrink tube (not shown) with a utility knife to find the first soldered joint. Leave enough wire behind the hub (2-3 in) to reconnect wires when reassembling. One wire should be left longer than the other for ease of re-installation.

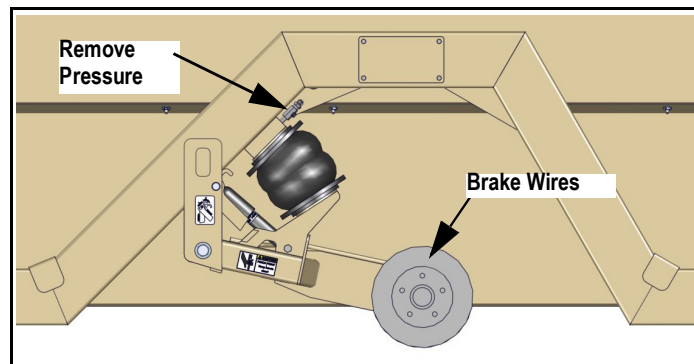


Figure 2-2. Cut Brake Wires and Remove Pressure

6. Disconnect the air spring from the wheel swing arm by removing the hardware securing it. Retain for re-installation.
7. Disconnect the bottom end of the shock from the wheel swing arm.

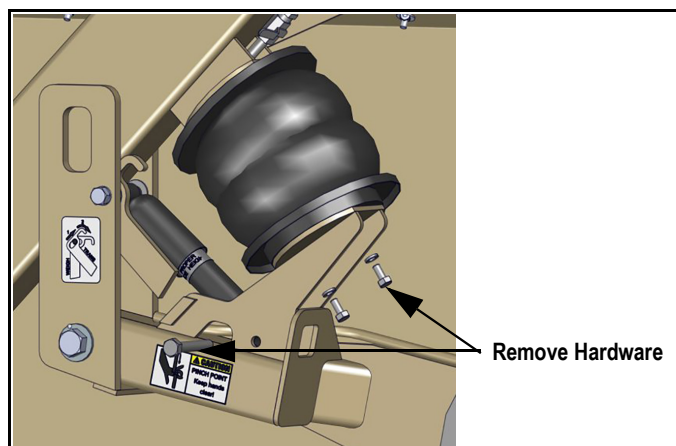


Figure 2-3. Disconnect Air Spring and Shock

8. Pull the brake wires from the wheel swing arm.
9. Remove the pivot bolt, leaving the bushing in place.
10. Pull the wheel swing arm from the frame.

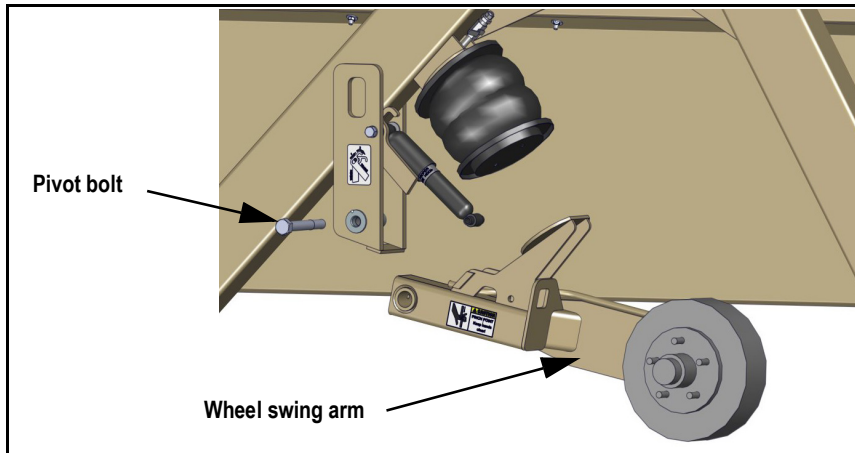


Figure 2-4. Remove Wheel Swing Arm

2.2 Wheel Swing Arm Installation

Note All hardware should be reinstalled with Loctite Threadlocker Blue 242.

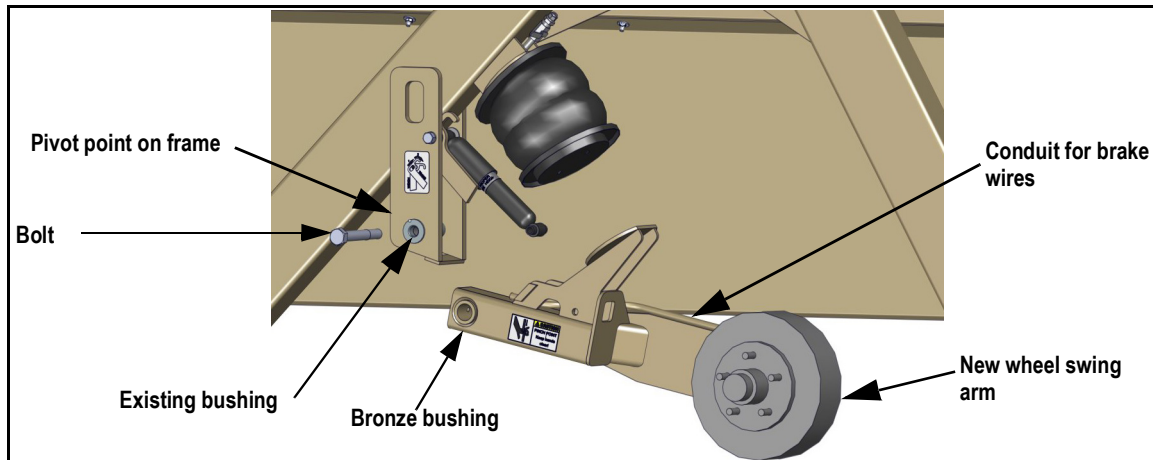


Figure 2-5. Installation

1. Remove and grease the bronze bushing with Moly grease and insert into new wheel swing arm.
2. Place the end of the wheel swing arm into the frame pivot point and install the axle bolt. Finger tighten only.
3. Install the grease zerk.
4. Push the wires through the conduit on the wheel swing arm.
5. Solder the wires together and cover with shrink tube.
6. Connect the shock to the wheel swing arm.
7. Connect the air spring to the wheel swing arm using existing hardware.
8. Reinstall the wheel on the wheel swing arm assembly. See [“Wheel Attachment” on page 6](#).
9. Grease the pivot zerk.
10. Using the marks on the rim, place the wheel with the marks in the horizontal position.
11. Set an alignment jig on the frame.
12. Measure the distance from the wheel to the alignment jig at the marked location.
13. Rotate the tire 180 degrees and using the same mark measure the difference on the opposite side.
14. This distance should be the same, if not, an offset bushing will need to be installed. See [“Wheel Swing Arm Bushing Replacement” on page 6](#).
15. If equal, torque bolt to 200 ft-lb.

Note Ensure bolt is torqued to 200 ft-lb. Failure to do so will cause damage and/or failure to wheel swing arms.

16. Rotate the tire until it stops. If the tire stops, the brakes are working. Repeat for each tire.
17. Place a jack under the wheel swing arm pivot point and jack slightly to remove the pressure on the stands.
18. Remove the stands and lower the jack.
19. Tighten wheel nuts if needed.
20. Continue on to [Section 2.3 on page 6](#) to replace the offset bushings as well.

Note Repeat the process to change all swing arms on the scale.

2.3 Wheel Swing Arm Bushing Replacement

1. Using a chisel and hammer, remove the existing bushing and rivet.
2. Place offset bushing in frame.
3. Secure wheel swing arm to frame using bolt and nut.
4. Measure wheel using steps 10 through 14 in [Section 2.2 on page 5](#).
5. Rotate bushing as required to get even distances.
6. Drill a 0.104Ø hole in the frame, at the notch on the bushing, using a #37 drill bit.
7. Using a hammer, install new rivet through the bushing into the drilled hole.

IMPORTANT

Torque the bolt to 200 ft-lb.



Note *Touch up any areas where the paint has been nicked or scratched.*

2.4 Wheel Attachment

1. Start all wheel nuts by hand to prevent cross threading.
2. Tighten wheel nuts in the sequence shown in [Figure 2-6](#).

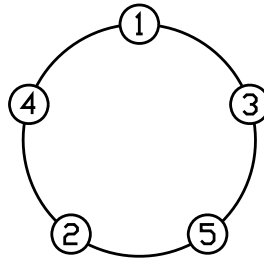


Figure 2-6. Wheel Torque Pattern



Note *The tightening of the nuts should be done in stages, following the recommended sequence, tighten fasteners per torque chart in [Table 2-1](#).*

3. Wheel nuts should be re-torqued after the first 10 miles, 25 miles and again at 50 miles.

| Wheel Torque Sequence (ft-lb) | | |
|-------------------------------|-----------|-----------|
| 1st Stage | 2nd Stage | 3rd Stage |
| 20-25 | 50-60 | 90-120 |

Table 2-1. Wheel Torque

4. Once wheel nuts have been torqued, use a white marker to mark the end of each stud to show they have been torqued.



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