

Montgomery Industries International, Inc  
P.O. Box 3687 2017 Thelma Street  
Jacksonville, Florida 32206 U.S.A.  
(904) 355-5671 FAX (904) 355-0401

---

OPERATING, MAINTENANCE, LUBRICATION, AND SAFETY  
INSTRUCTIONS

---

for

**Powered Feed Roll**

FS-HZF/HD-HZF/PM-HZF

**Bulletin 23-72-99**

---

OPERATING, MAINTENANCE, LUBRICATION, AND SAFETY INSTRUCTIONS FOR  
THE MONTGOMERY LRW WOOD GRINDER

---

**TABLE OF CONTENTS**

<b>SAFETY PRECAUTIONS</b>	<b>3</b>
<b>INSTALLATION</b>	<b>5</b>
• ELECTRICAL WIRING	5
• INTERLOCK FEED ROLL WITH CURRENT SENSING UNIT	5
• REMOVE THE LOCKING PADEYE BOLT	5
• SETTING THE FEED HEIGHT ADJUSTER	6
• ADJUSTING THE COUNTERWEIGHT SYSTEM	8
• CHECK LIST PRIOR TO START-UP	10
<b>NORMAL OPERATION OF THE FEED ROLL</b>	<b>11</b>
<b>MAINTENANCE PROCEDURES</b>	<b>12</b>
• REPLACING FEED ROLL INSERT SPIKES	12
• GAINING ACCESS TO ANVILS	13
• GAINING ACCESS TO THE REAR DOOR	14
• REPLACING THE PIVOT ARM BUSHING	15
• FEED ROLL BEARING AND GEAR REDUCER	16
<b>WARRANTY INFORMATION</b>	<b>17</b>

---

Montgomery Industries International, Inc.  
P.O. Box 3687 • 2017 Thelma Street  
Jacksonville, Florida 32206 U.S.A.

---

OPERATING, MAINTENANCE, LUBRICATION, AND SAFETY INSTRUCTIONS FOR  
THE MONTGOMERY POWERED FEED ROLL

---

**SAFETY PRECAUTIONS**

**IMPORTANT:** ANY MALFUNCTION OR OPERATION PROBLEM NOT COVERED IN THIS MANUAL SHOULD BE REPORTED TO THE FACTORY. OUR TRAINED ENGINEERS ARE AVAILABLE TO ASSIST YOU.

**IMPORTANT:** READ AND FOLLOW ALL INSTRUCTIONS IN THIS MANUAL BEFORE USING THIS EQUIPMENT.

- ö Check insert spikes in rotor monthly to make certain they are tight. Prolonged operation may cause these parts to loosen. If not re-tightened on a timely basis, the parts may come loose and enter the hog, causing damage to the unit and possibly causing severe injury to personnel in the area.
- ö Do **not** perform any maintenance work or any other operations on this equipment unless it is completely stopped and all electrical circuits are deactivated and locked out. We recommend that the person performing the maintenance work keep the lockout key on his person to ensure that no one else engages power without knowledge of maintenance work being performed.
- ö Do **not** operate this or other machinery without proper training and complete understanding of all instructions contained in this manual.
- ö Do **not** operate this or other machinery without all guards being installed.
- ö Do **not** turn rotor over by hand or power with any part of the body between the insert spikes and housing. This is a **high inertia** rotor and cannot be stopped easily, once in motion. **Even when barely moving, it has enough momentum to cut off a finger.**
- ö Do **not** look into the machine when rotor is turning. Wear safety glasses any time you are working on or in near proximity to operating equipment.
- ö Wear gloves any time you are working on this equipment.
- ö Be careful when installing new insert spikes on shaft as fingers are easily smashed.
- ö Never wear loose clothing, especially a necktie, which could get entangled in moving machinery.
- ö Do **not** poke sticks, poles, etc. into any access opening on unit while it is operating. Feed roll and hog should be completely stopped before attempting to clear any blockages.

---

Montgomery Industries International, Inc.  
P.O. Box 3687 • 2017 Thelma Street  
Jacksonville, Florida 32206 U.S.A.

---

OPERATING, MAINTENANCE, LUBRICATION, AND SAFETY INSTRUCTIONS FOR  
THE MONTGOMERY POWERED FEED ROLL

---

- ö **Do not allow steel to enter the grinding area.** Steel (or other materials of similar strength) creates a safety hazard for personnel in the area and may cause major damage to the unit.

---

OPERATING, MAINTENANCE, LUBRICATION, AND SAFETY INSTRUCTIONS FOR  
THE MONTGOMERY POWERED FEED ROLL

---

**INSTALLATION**

· **ELECTRICAL WIRING**

1. Power wiring from the disconnect switch to the feed roll motor starter must be provided by others. Power wiring from the feed roll motor starter to the three-phase, 60 HZ, 230/460 VAC motor was done at the factory.

· **INTERLOCK FEED ROLL WITH CURRENT SENSING UNIT**

The Current Sensing Unit is a control device which is designed to monitor the amperage load of the hog motor and stop the feed roll and infeed conveyor when the hog motor reaches a field adjusted preset amperage level. In addition, the Current Sensing Unit automatically restarts the feed roll and infeed conveyor after the hog motor amperage falls below that preset level.

It is the customer's responsibility upon installation of the Current Sensing Unit to determine the hog motor amperage level at which to stop the feed roll and infeed conveyor.

Refer to *Bulletin 23-70-99* (Installation and Operating Instructions for Current Sensing Unit).

Follow the instructions for wiring the infeed conveyor starter relay to the Current Sensing Unit and wire the feed roll starter relay in series to the interlock circuit. Verify that the starter coil voltages are compatible.

· **REMOVE THE LOCKING PADEYE BOLT**

1. The feed roll is shipped in its fully upright position at a maximum distance away from the infeed chute bed plate. The feed roll is secured in this position with a 1" NC X 5" Hex Head Capscrew, Lockwasher, and Hex Nut, which are attached to the locking padeye.

*(Refer to Figure 1 - next page)*

---

Montgomery Industries International, Inc.  
P.O. Box 3687 • 2017 Thelma Street  
Jacksonville, Florida 32206 U.S.A.

---

## OPERATING, MAINTENANCE, LUBRICATION, AND SAFETY INSTRUCTIONS FOR THE MONTGOMERY POWERED FEED ROLL

---

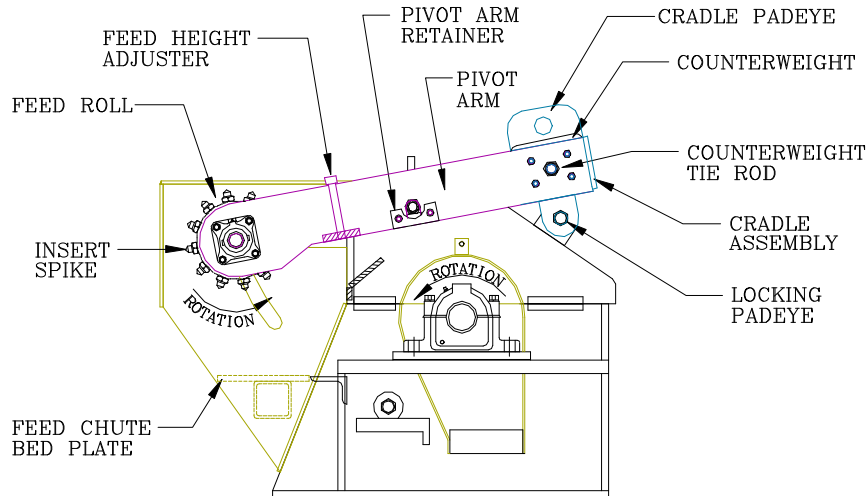


Figure 1

2. Secure the feed roll assembly to an external lifting device using the cradle padeye. Remove the bolt from the locking padeye and gently lower the feed roll to its down position.

If the feed height adjuster has not been utilized, the insert spikes should be approximately 1/8" above the feed chute bed plate in the down position.

### **SETTING THE FEED HEIGHT ADJUSTER**

Using a feed roll, the maximum thickness of scrap that can be processed is 7-7/8" for a FS/HD-HZF hog and 9-3/8" for a PM-HZF hog.

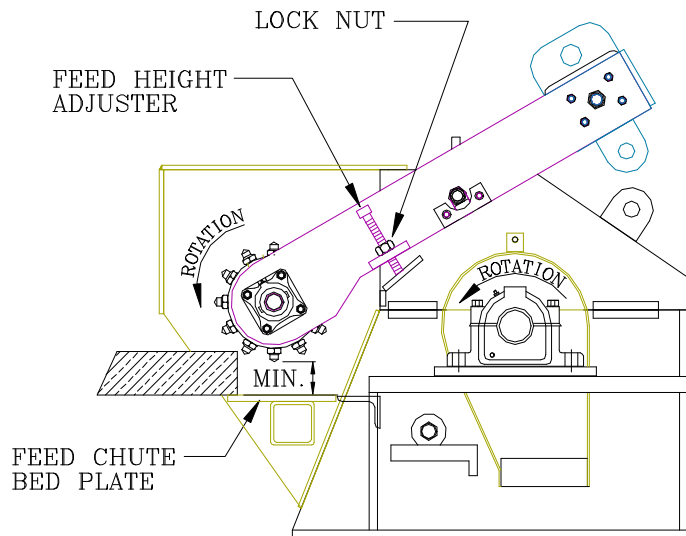
In the fully lowered position, the minimum distance between the feed roll insert spike and the feed chute bed plate is approximately 1/8". This minimum distance may be increased as needed by using the feed height adjuster.

Use of the feed height adjuster may become necessary when the scrap to be processed is of such a thickness that operation of the feed roll becomes more efficient by increasing the minimum distance between the feed chute bed plate and the bottom of the feed roll.

---

OPERATING, MAINTENANCE, LUBRICATION, AND SAFETY INSTRUCTIONS FOR  
THE MONTGOMERY POWERED FEED ROLL

---



*Figure 2*

1. Move the feed roll to the fully upright position and secure in place using the locking padeye, locking bolt, lockwasher, and hex nut.
2. Loosen the lock nuts on the feed height adjusters. There will be one on each side of the infeed opening.
3. Rotate the feed height adjusters until the adjusting bolts extend beyond the pivot arms by the desired length. Make sure that both adjusting bolts extend equally.
4. Tighten the lock nuts on the feed height adjusters to secure their positions.
5. After securing the feed roll using an external lifting device attached to the cradle padeye, loosen the locking bolt from the locking padeye and remove.
6. Gently lower the feed roll to its down position. The feed height adjusters should now make contact with the stop plates on the hog housing.
7. With the feed roll in the down position, verify that the desired distance between the bottom of the feed roll insert spike and the infeed chute bed plate has been achieved.
8. If the desired minimum distance in the down position has not been achieved, repeat steps 1 through 7, adjusting the feed height adjuster as necessary.

---

Montgomery Industries International, Inc.  
P.O. Box 3687 • 2017 Thelma Street  
Jacksonville, Florida 32206 U.S.A.

### ADJUSTING THE COUNTERWEIGHT SYSTEM

The feed roll uses a mechanical counterweight system in order to control the amount of downward pressure that is applied from the feed roll to the incoming material.

When the cradle contains all of the counterweights, the system is in near balance about the pivot arm, and a minimum amount of downward pressure is applied from the feed roll to the incoming material.

In this configuration the feed roll can easily "walk" up material, allowing for large variations in the thickness of scrap that can be successfully processed without using the feed height adjuster.

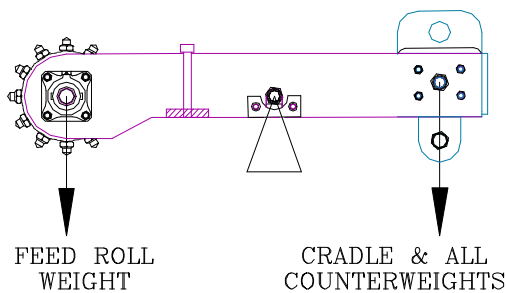


Figure 3

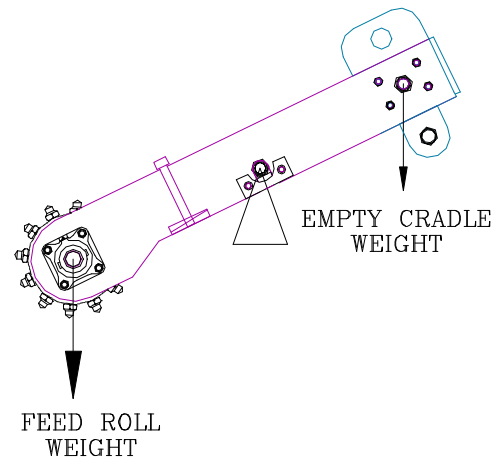


Figure 4

When the cradle contains none of the counterweights, the system applies a maximum amount of downward pressure from the feed roll to the incoming material. The force exerted is nearly equal to the full weight of the feed roll.

In this configuration, the feed roll would tend to *restrain* the rate at which the material is pulled into the hog and use of the feed height adjuster may be required.

Depending upon each particular application, the optimum number of counterweights required to achieve the desired downward pressure will vary. Determining this number will require a

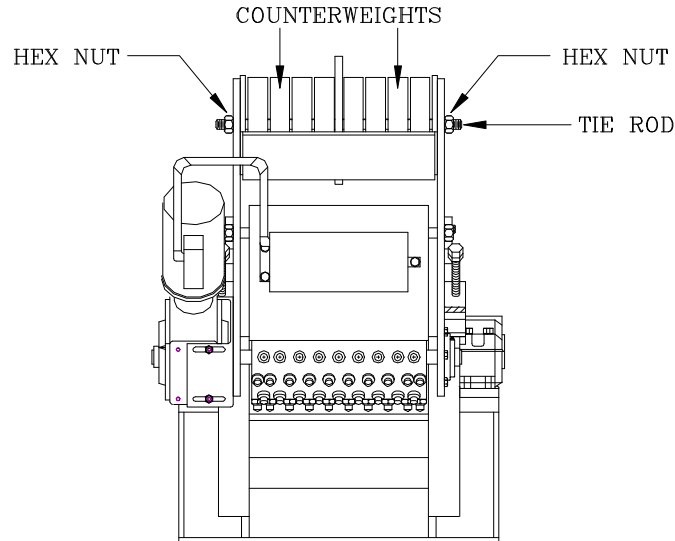


---

OPERATING, MAINTENANCE, LUBRICATION, AND SAFETY INSTRUCTIONS FOR  
THE MONTGOMERY POWERED FEED ROLL

---

trial-and-error process. For reference, each counterweight weights approximately 26 pounds.



*Figure 5*

1. In order to add or remove counterweights from the cradle, move the feed roll to the fully upright position and secure in place using the locking padeye, locking bolt, lockwasher, and hex nut.
2. Remove the hex nuts from the counterweight tie rod. **Do not remove the bolts connecting the counterweight cradle to the pivot arms.**
3. Remove the threaded counterweight tie rod.
4. Remove or add counterweights as needed. Each counterweight weighs approximately 26 lbs.
5. Insert the threaded counterweight tie rod through all of the counterweights in the cradle and tighten the hex nuts on each end.

**Do not operate the feed roll unless all counterweights have been secured.**

---

OPERATING, MAINTENANCE, LUBRICATION, AND SAFETY INSTRUCTIONS FOR  
THE MONTGOMERY POWERED FEED ROLL

---

6. After securing the feed roll using an external lifting device attached to the cradle padeye, loosen the locking bolt from the locking padeye and remove.
7. Gently lower the feed roll to its down position.

**CHECK LIST PRIOR TO NORMAL OPERATION**

1. Check power wiring to feed roll motor starter.
2. Make certain that all guards are in place and secure.
3. Turn on feed roll and verify that rotation is correct.

---

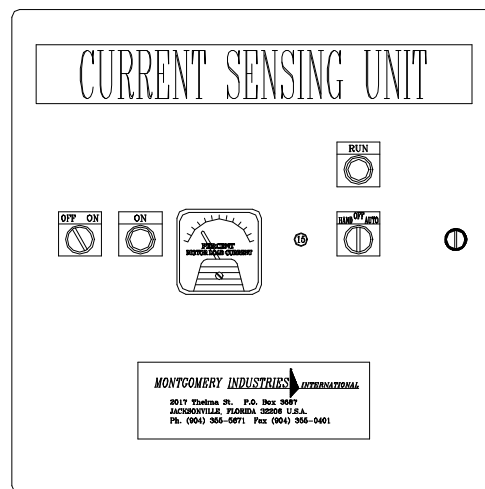
OPERATING, MAINTENANCE, LUBRICATION, AND SAFETY INSTRUCTIONS FOR  
THE MONTGOMERY POWERED FEED ROLL

---

**NORMAL OPERATION OF THE FEED ROLL**

It is recommended that the feed roll be interlocked with the infeed conveyor through a Current Sensing Unit. Refer to *Bulletin 23-70-99* (Installation and Operating Instructions for Current Sensing Unit).

1. Turn on discharge equipment.
2. Turn the hog motor on and wait for the hog motor to get up to operating speed.
3. Turn on the power to the feed roll motor and starter.
4. Turn on the power to the infeed conveyor motor and starter.



*Figure 6*

4. Current Sensing Unit (Refer to Bulletin 23-70-99):

Turn the "**OFF/ON**" switch to the "**ON**" position. The green "**ON**" indicating light should illuminate.

Turn the "**HAND/OFF/AUTO**" switch to the "**AUTO**" position. The feed roll and infeed conveyor should start to operate and the green "**RUN**" light should illuminate.

---

OPERATING, MAINTENANCE, LUBRICATION, AND SAFETY INSTRUCTIONS FOR  
THE MONTGOMERY POWERED FEED ROLL

---

**MAINTENANCE PROCEDURES**

- **IMPORTANT:** MAKE CERTAIN THAT ALL POWER AND DISCONNECT SWITCHES ARE IN THE "OFF" POSITION SO THAT THE UNIT CANNOT BE ACCIDENTALLY STARTED!
- **IMPORTANT:** MAKE CERTAIN THAT THE HOG AND FEED ROLL ROTORS ARE COMPLETELY STOPPED AND SECURED BEFORE ATTEMPTING TO REMOVE OR INSTALL INSERT SPIKES AND/OR ANVILS!
- **IMPORTANT:** SECURE HOG AND FEED ROLL ROTOR SO THEY CANNOT SHIFT PRIOR TO BEGINNING WORK ON THE UNIT. THE ROTOR IS TOO HEAVY FOR A MAN TO LIFT WITHOUT MECHANICAL ADVANTAGE. ALWAYS USE A SUITABLE LIFTING DEVICE!

**REPLACING FEED ROLL INSERT SPIKES**

- Be careful when installing new insert spikes on shaft as fingers are easily smashed.
  - Check insert spikes in rotor monthly to make certain they are tight. Prolonged operation may cause these parts to loosen. If not re-tightened on a timely basis, the parts may come loose and enter the hog, causing damage to the unit and possibly causing severe injury to personnel in the area.
1. Insert spikes should be removed before weld on jam nut is worn off.
  2. Move the feed roll to the fully upright position and secure in place using the locking padeye, locking bolt, lockwasher, and hex nut.
  3. Use a piece of 4" X 4" lumber, cut to length, to block the feed roll and prevent it from rotating.
  4. Remove insert spikes using a 1-1/8" deep well impact socket.
  5. Whenever insert spikes are removed, Vibra-Tite (or equivalent) should be used on the threads when reinstalling in order to provide additional protection against the insert spikes vibrating loose.
  6. Torque insert spikes to 100 ft-lbs.

---

Montgomery Industries International, Inc.  
P.O. Box 3687 • 2017 Thelma Street  
Jacksonville, Florida 32206 U.S.A.

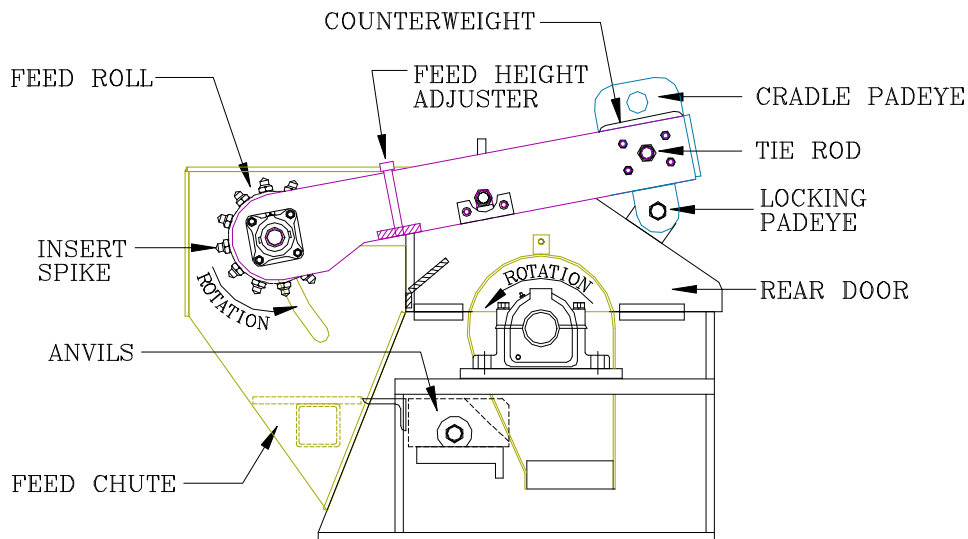
---

## OPERATING, MAINTENANCE, LUBRICATION, AND SAFETY INSTRUCTIONS FOR THE MONTGOMERY POWERED FEED ROLL

---

7. After securing the feed roll using an external lifting device attached to the cradle padeye, loosen the locking bolt from the locking padeye and remove.
8. Gently lower the feed roll to its down position.

### **GAINING ACCESS TO ANVILS**



*Figure 7*

1. Remove feed roll guard covers.
2. Remove feed roll infeed chute.
3. Move the feed roll to the fully upright position and secure in place using the locking padeye, locking bolt, lockwasher, and hex nut.
4. Remove and replace the anvils as instructed in the hog operating and maintenance manual.
5. After securing the feed roll using an external lifting device attached to the cradle padeye, loosen the locking bolt from the locking padeye and remove.
6. Gently lower the feed roll to its down position.
7. Reinstall the feed roll infeed chute.

---

Montgomery Industries International, Inc.  
P.O. Box 3687 • 2017 Thelma Street  
Jacksonville, Florida 32206 U.S.A.

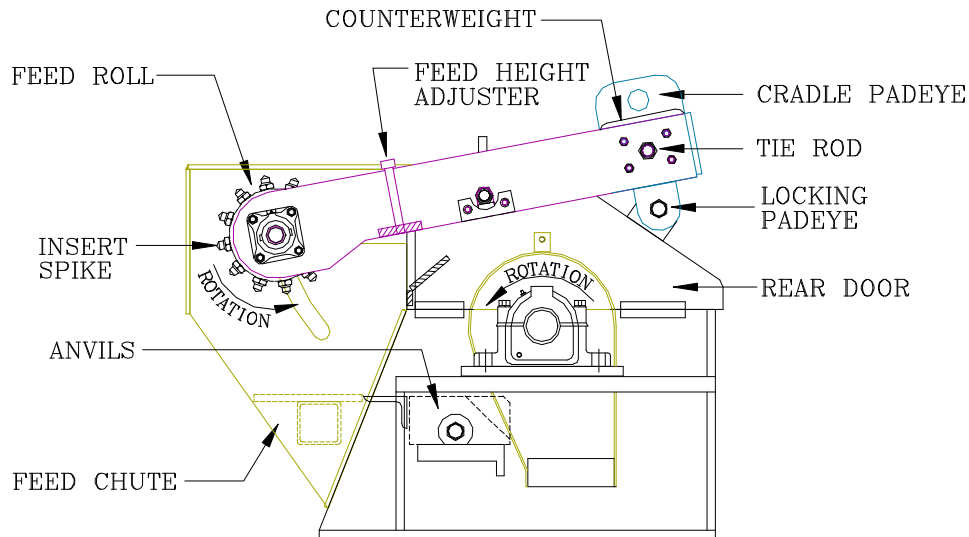
---

OPERATING, MAINTENANCE, LUBRICATION, AND SAFETY INSTRUCTIONS FOR  
THE MONTGOMERY POWERED FEED ROLL

---

8. Reinstall the feed roll guard covers.

**GAINING ACCESS TO THE REAR DOOR**



*Figure 7*

1. Move the feed roll to the fully upright position and secure in place using the locking padeye, locking bolt, lockwasher, and hex nut.
2. Remove the hex nuts from the counterweight tie rod. **Do not remove the bolts connecting the counterweight cradle to the pivot arms.**
3. Remove the threaded counterweight tie rod.
4. Remove the counterweights. Each counterweight weighs approximately 26 lbs.
5. Loosen the lock nuts on the feed height adjusters. There will be one on each side of the infeed opening.
6. Rotate the feed height adjusters until the adjusting bolts no longer extend beyond the pivot arms.
7. After securing the feed roll using an external lifting device attached to the cradle padeye, loosen the locking bolt from the locking padeye and remove.

---

Montgomery Industries International, Inc.  
P.O. Box 3687 • 2017 Thelma Street  
Jacksonville, Florida 32206 U.S.A.

---

## OPERATING, MAINTENANCE, LUBRICATION, AND SAFETY INSTRUCTIONS FOR THE MONTGOMERY POWERED FEED ROLL

---

8. Gently lower the feed roll to its down position.
9. Secure the cradle using an external lifting device attached to the cradle padeye.
10. Remove the bolts attaching the cradle assembly to the pivot arms, alternating from the inboard to the outboard side of the cradle.

**Do not remove all the bolts from one side of the cradle at once as an undue amount of torque could be applied to the opposite pivot arm.**

**Do not remove the bolts from the cradle until the cradle is fully supported by an external lifting device.**

11. Separate the cradle assembly from the pivot arms.
12. With the cradle assembly removed, the rear door may now be opened in order to gain access into the hog.

### REPLACING THE PIVOT ARM BUSHING

The power feed roll is supported by a pivot stud that is part of the upper housing. An oil permeated bronze bushing, 1.5" O.D. X 1.0" I.D., is used to prevent wear on the pivot studs. The bushings should be replaced once the I.D. reaches eccentric wear greater than 1/16".

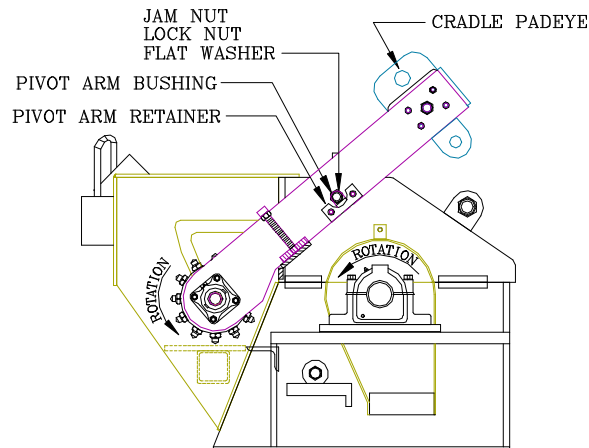


Figure 8

---

Montgomery Industries International, Inc.  
P.O. Box 3687 • 2017 Thelma Street  
Jacksonville, Florida 32206 U.S.A.

---

## OPERATING, MAINTENANCE, LUBRICATION, AND SAFETY INSTRUCTIONS FOR THE MONTGOMERY POWERED FEED ROLL

---

1. Remove the feed roll guard covers.
2. Secure the feed roll assembly using an external lifting device attached to the cradle padeye.
3. Remove the 1" Jam Nuts, 1" Hex Nuts, and 1" Flat Washers from the pivot studs on each side of the machine.
4. Remove the pivot arm retainers.
5. Using the external lifting device attached to the cradle padeye, lift the feed roll approximately 2", providing clear access to the pivot studs and bushings.
6. Slide the worn bushings off of the pivot studs and install the new bushings.
7. Using the external lifting device, gently lower the feed roll assembly over the bushings and reassemble the pivot arm retainers.
8. Reassemble the 1" Hex Nuts, 1" Jam Nuts, and 1" Flat Washers. **Hand tighten only.**

### **FEED ROLL BEARING AND GEAR REDUCER**

1. No periodic maintenance is required of the gear reducer other than visual inspections for hardware security and oil leakage.

Build-up of dirt and dust will cause overheating and can be prevented by occasional wash down.

2. The feed roll bearing should be lubricated with Shell Alvania #2 lubricant or equivalent.



---

OPERATING, MAINTENANCE, LUBRICATION, AND SAFETY INSTRUCTIONS FOR  
THE MONTGOMERY POWERED FEED ROLL

---

**WARRANTY INFORMATION**

The Warranty on parts manufactured by Montgomery Industries is for one year from date of shipment excluding normal wear and tear and excluding abuse of the equipment.

The Warranty on parts manufactured by Montgomery Industries covers replacement cost of the parts only. No labor expense incurred in replacing the parts under Warranty is covered.

The Warranty on parts not manufactured by Montgomery Industries is the standard Warranty offered by the actual manufacturer of the parts. These parts include electrical components and mechanical drive components.

Do not attempt to alter the equipment in any way or do anything you are not specifically qualified to do. If there is any question whatsoever concerning the safety or advisability of your intended action, do not proceed without written permission from Montgomery Industries.

Any malfunction or operation problems not covered in this manual should be reported to the factory as a quick and simple answer may save many hours of unsatisfactory operation.

A factory engineer is always available for discussion of any problems which may arise.

**USING PARTS NOT MANUFACTURED BY MONTGOMERY INDUSTRIES OR ITS  
LICENSEES ENDANGERS THE SAFETY OF PERSONNEL AND VOIDS ALL  
WARRANTIES.**