



Shut down the tractor and remove the key before repairing, servicing, lubricating or cleaning the machine.

Relieve all hydraulic pressure in the hoses. Disconnect the hydraulic hoses from the tractor before going near the machine.

Securely block the machine to avoid any movement while doing the work.



**Do Not Enter Tub While Parts Are Rotating**

Before entering the tub:

- Turn off the tractor and remove the key.
- Wait for rotating parts to stop

Contact with the rotating flail drum will cause serious injury or death.



### Lock the Flail Drum

There are 2 types of flail drum locks:

- Spring loaded pin lock
- Removable pin lock

#### Spring Loaded Pin Lock

- Turn the lock pin to release the roll pin from the slot.
- Allow the spring to push the lock pin into the processing chamber.
- Manually rotate the flail drum until the lock pin snaps into place locking the flail drum.

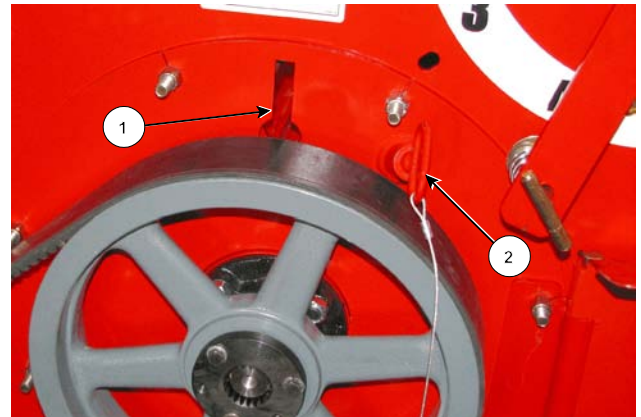


Engage Spring Loaded Pin Flail Drum Lock

212064

### Removable Pin Lock

- Place the flail drum lock pin (2) into the tube on the front tub wall.
- Allow the lock pin to slid into the processing chamber.
- Manually rotate the flail drum until the lock pin drops into place locking the flail drum.
- Push the lock pin down firmly to ensure it is fully engaged into the flail drum.



Place Removable Pin to Lock Flail Drum

213019C

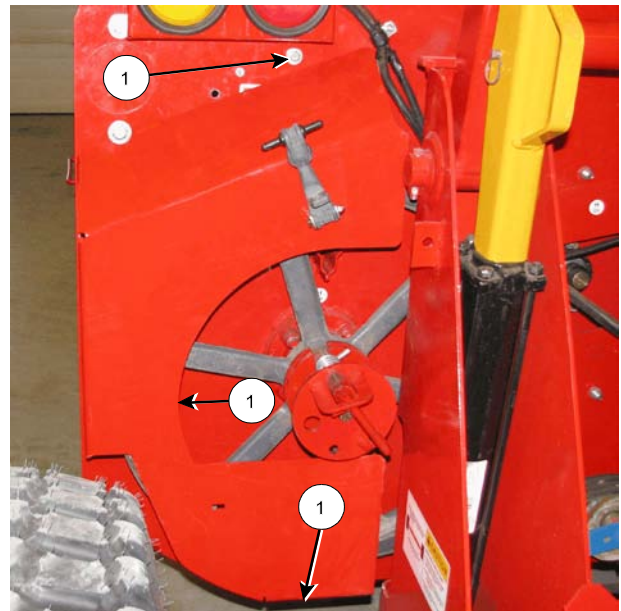
### **Removing Components at the Rear of the Machine**

#### 1. Remove the left sheave shield.

- Remove the 3 fasteners that hold the left shield (1).
- Top of shield
- Inside shield
- Bottom underside of shield

Note: The fold down clutch shield does not need to be removed. The picture shows it removed for clarity only.

Keep the carriage bolts, flat washers and locknuts to be re-used when re-installing the shield.

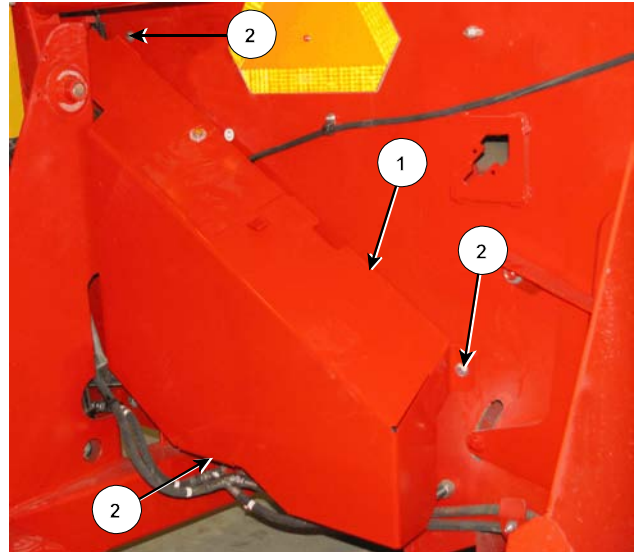


Remove Left Sheave Shield (Clutch Shield Shown Removed for Clarity Only)

213080C

## Installation of the Fast Flail Drum Kit on a CFR651 with a Feed Chopper

2. For machines with bolted on right rear shield (1) remove the carriage bolts, flat washers and locknuts (2).
  - Keep these fasteners to be re-used when re-installing the shield.
3. For machines that have a hinged right rear shield, open the shield to have access to the drive belt and chopper sheave.
4. Remove the chopper drive belt.
  - Loosen the tensioner by loosening the top bolt in the plate.
    - Loosen the bolt in the slot.
  - Place a wrench on the tensioner lug to move the tensioner and relieve tension on the belt.
5. Remove the chopper belt tensioner by removing the fasteners as shown in the diagram.
  - Keep the fasteners and tensioner to be re-used.



Remove the Right Bolt-On Shield

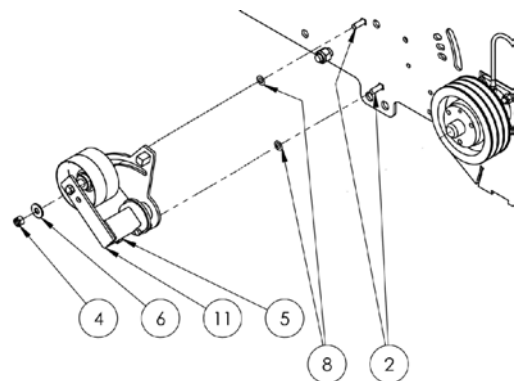
213079C



Open the Right Rear Shield

217136

| ITEM | DESCRIPTION                 | QTY. |
|------|-----------------------------|------|
| 2    | BOLT,CARR,1/2X1-1/2,UNC,GR5 | 2    |
| 4    | NUT,NYLOCK,1/2,UNC,ZP       | 1    |
| 5    | NUT,NYLOCK,3/8,UNC,ZP       | 1    |
| 6    | WASHER,FLAT,1/2,ZP          | 1    |
| 8    | RETAINER,BOLT,1/2           | 2    |
| 11   | ASSY,TENSIONER,FEED         | 1    |



Remove Tensioner

45636\_C1

## Installation of the Fast Flail Drum Kit on a CFR651 with a Feed Chopper

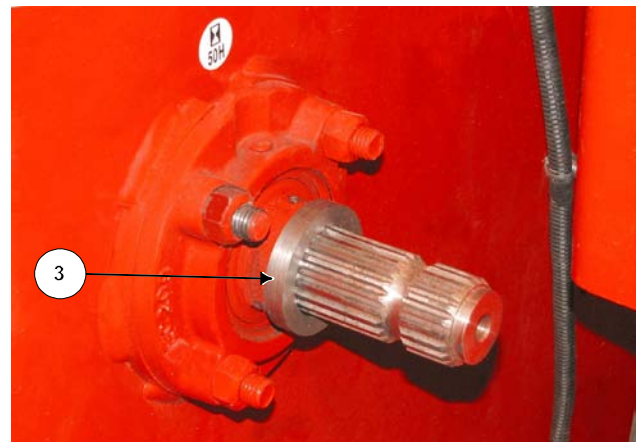
6. Remove the bolt (1) holding the large sheave/clutch to the flail drum shaft.
7. Pull the sheave (with the clutch attached) from the flail drum shaft.
  - The sheave and clutch can be discarded as a new sheave and clutch will be installed later.



Remove Bolt, Sheave with Clutch

218186C

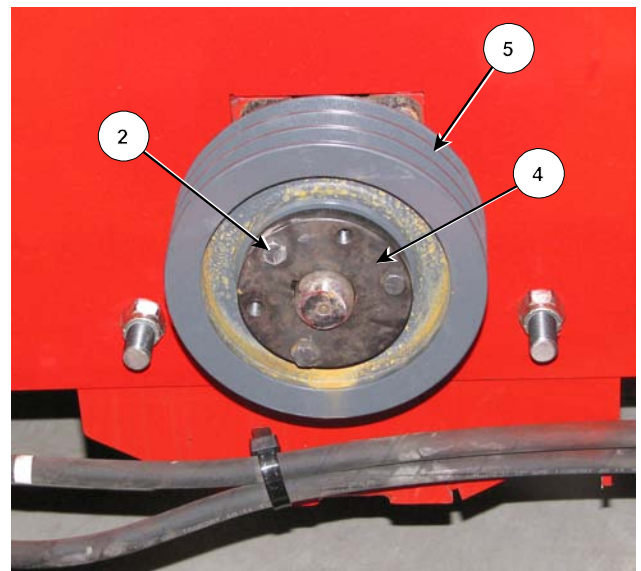
8. Remove the drive spacer ring (3) from the flail drum shaft.
  - Discard this spacer ring.



Remove the Drive Spacer Ring from Shaft

213048C

9. Remove the feed chopper sheave from the chopper shaft.
  - Loosen the bolts on the bushing (2).
  - Remove the bushing and the key (4).
  - Remove the chopper sheave (5).
  - Discard these items.

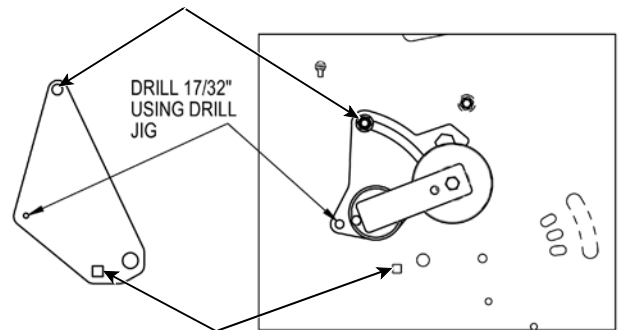


Remove Chopper Sheave

218187C

### **Drill A New Mounting Hole for the Rear Tub Wall Tensioner**

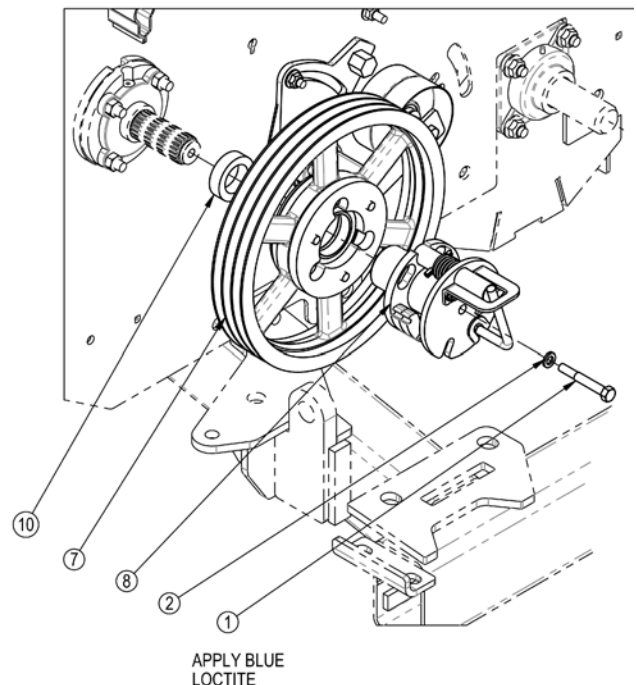
1. Place the supplied drill template over the holes on the rear tub wall as shown in the diagram.
2. Drill a 17/32" hole into the rear tub wall through the drill jig as shown in the diagram.
3. Mount the tensioner.
  - Attach with a 1/2" x 1-1/2" carriage bolt and locknut through the hole that was drilled.
  - Leave loose to allow for adjustment later.
  - Attach the top with a 1/2" x 1-1/2" carriage bolt through the curved slot.
  - Leave loose to allow for adjustment later.



Use Drill Jig to Drill Hole for Rear Tensioner 43857\_AC

### **Install the New Rear Flail Drum Sheave and Clutch**

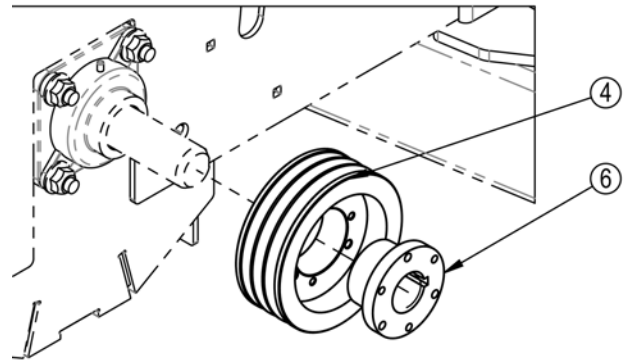
1. Place the new spacer (10) onto the rear flail drum.
2. Place the sheave assembly (with bearings inside the sheave) (7) onto the rear flail drum.
  - The sheave is 16" in diameter.
3. Slide the clutch assembly (8) onto the splines of the flail drum shaft.
4. Apply blue Loctite onto the 1/2" x 3-1/2" bolt (1).
5. Install the 1/2" x 3-1/2" bolt (1) and lockwasher (2) to fasten the clutch to the flail shaft.
  - Torque to 75 lbs-ft.



Install Rear Flail Drum Sheave and Clutch 43857\_A

### **Install the Feed Chopper Sheave**

1. Place the feed chopper sheave (4) onto the shaft up against the spacer.
  - The sheave is 6-3/4" diameter.
2. Place the bushing (6) onto the shaft and into the sheave.
3. Tighten the bushing to the sheave with the bolts to secure the sheave to the shaft.

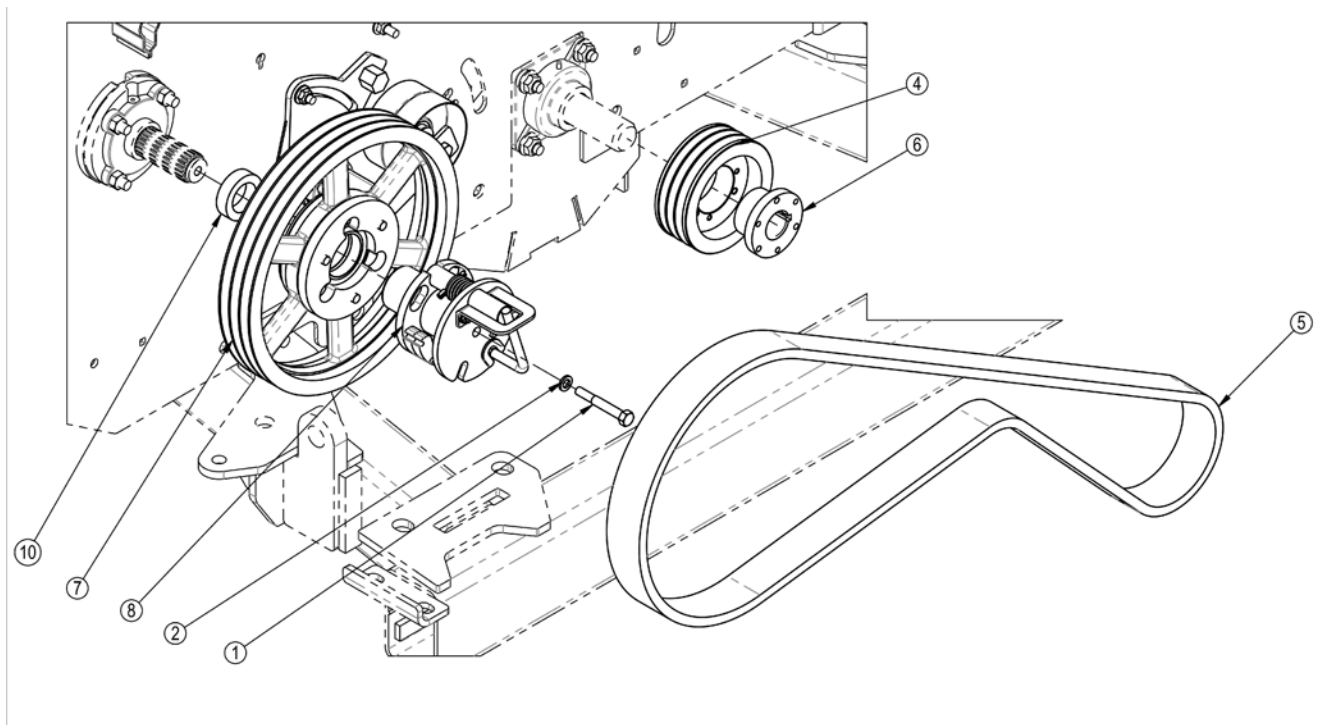


Install Feed Chopper Sheave

43857\_A2

### **Place the Rear Drive Belt Over the Sheaves**

1. Place the rear drive belt over the flail drum sheave and the feed chopper sheave.
2. Place the belt over the idler on the belt tensioner.
3. The belt will be tensioned later.



Rear Flail Drum and Feed Chopper Sheaves, Tensioner and Belt

43857\_A3

## **Remove Components at the Front of the Machine**

1. Open the front access door.
2. Loosen the tensioner nut and rotate the tensioner to loosen the belt.
  - Do not remove the tensioner.

There are 2 types of tensioner mounts.

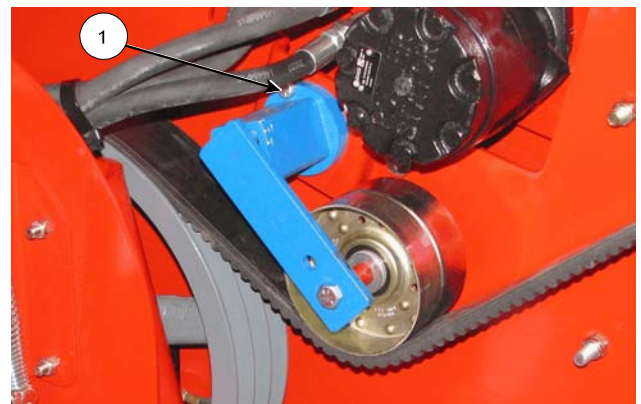
- Mounted to a bracket on tub wall.
- Mounted to a moveable plate with a slot.

### Bracket on tub wall:

- Remove the ant-rotation bolt (1) to allow the tensioner to be loose for belt removal.

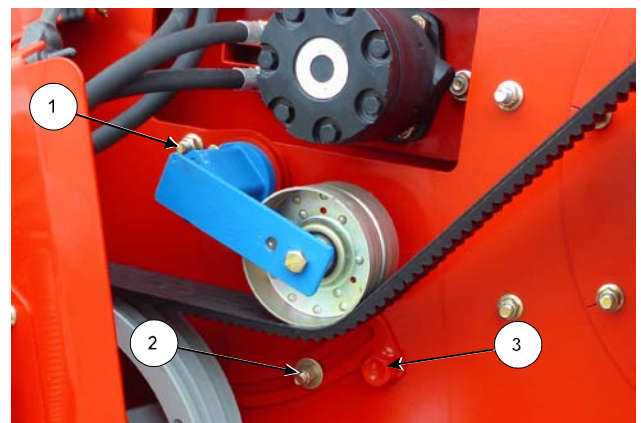
### Moveable plate with slot:

- Loosen the top nut (1).
  - Place a socket wrench onto the nut (3) on the tension adjustment arm.
    - Take up the tension of the belt when the lower nut is loosened.
  - Loosen the lower nut (2) that is within the curved adjustment arc.
  - Loosen the belt tension.
3. Remove the drive belt from the flail drum sheave.
    - The drive box/sheave mount needs to be moved to allow the drive belt to pass the bearing on the lower part of the tub wall.



Tensioner Mounted on Tub Wall Bracket

213024C



Tensioner on Moveable Plate with Slot

216206C

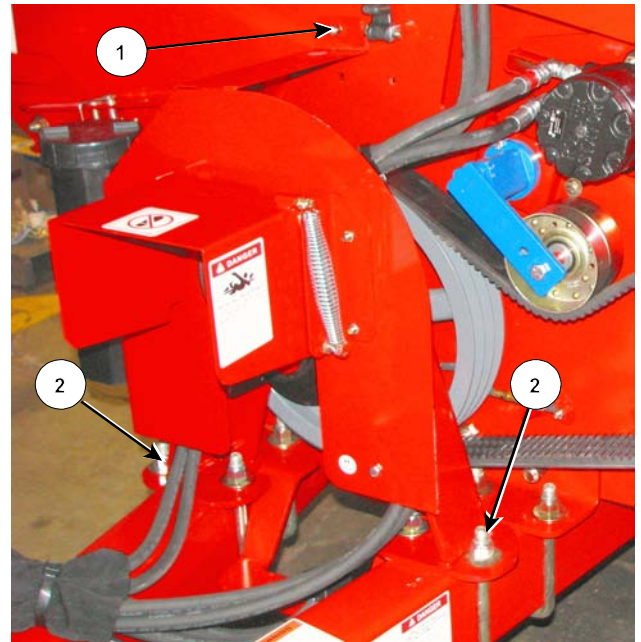
Note: There are 2 types of drive box mounting systems.

- One system has the drive box A-frame u-bolted to the hitch frame member.
- The other system has the drive box A-frame on a hinged mount on the hitch member.

## Installation of the Fast Flail Drum Kit on a CFR651 with a Feed Chopper

For the drive box A-frame u-bolted to the frame:

- Loosen the shield fastener (1) from the tub wall.
  - Do not remove the shield from the A-frame.
- Loosen the u-bolts (2) and slide the A-frame forward enough to allow the belt to clear the lower bearing on the tub wall.



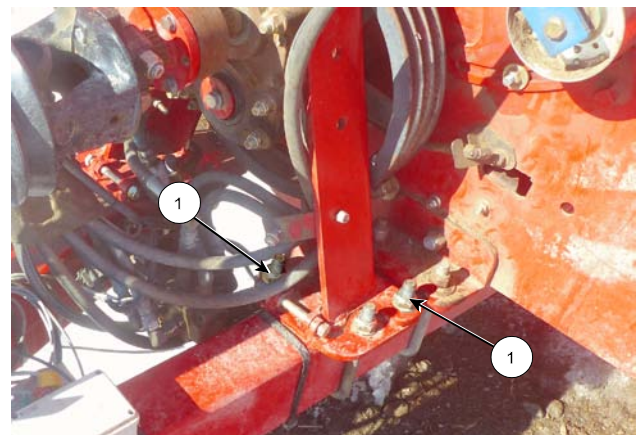
Remove Shield Fastener, Loosen U-Bolts

218188C

For the drive box A-frame on a hinged mount:

- Remove 2 of 3/4" carriage bolts (1) and flange locknuts on both sides of the drivebox mount.

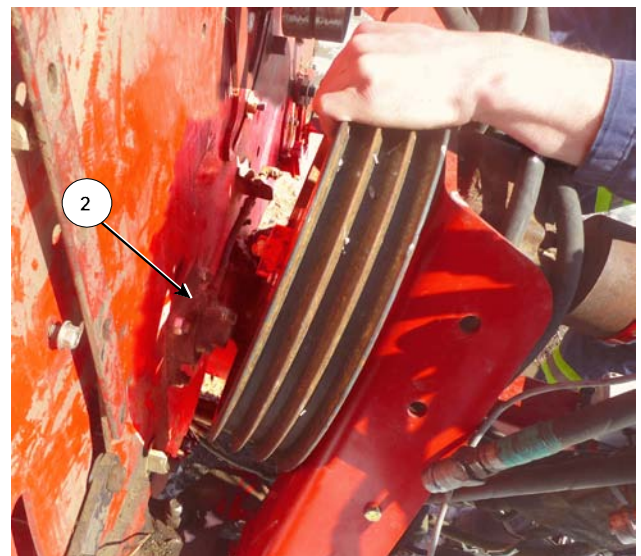
Note: - Do not loosen the u-bolts holding the drivebox plate to the frame.  
- Do not remove the hinge bolts.



Remove Carriage Bolts from Hinged Mount

218065C

- Tilt the drivebox mount forward for clearance to remove the old drive belt.
- The belt needs to go past the bearing (2) mounted on the tub wall.
- Remove the belt from both sheaves.



Tilt the Drivebox Hinged Mount For Clearance

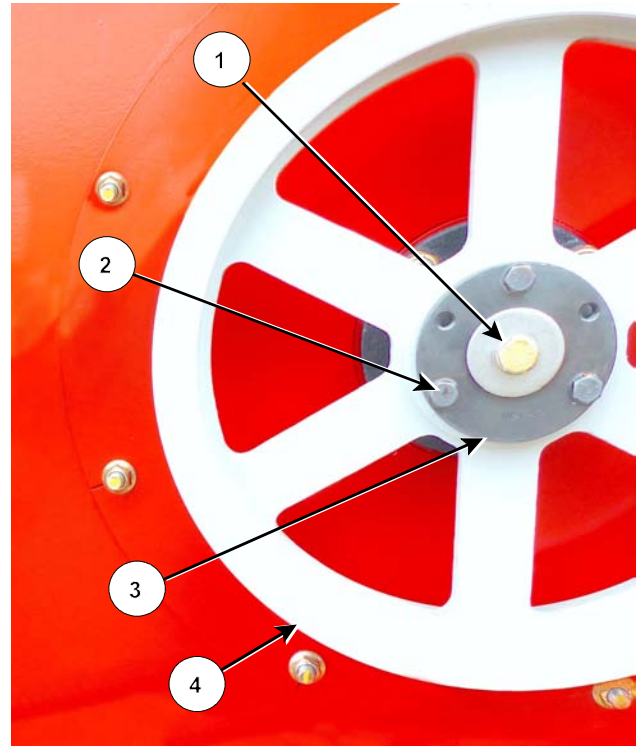
218064C

## **Remove the Front Flail Drum Sheave**

1. Remove the bolt, lock washer, large flat washer (1) and outer spacer (if present) from the flail drum shaft.
  - Keep these fasteners and spacers to be re-used later.
2. Remove the 3 bolts (2) holding the drive bushing to the flail drum sheave.
  - Keep the bolts to be re-used.
3. Remove the drive bushing (3).
  - Keep the bushing to be re-used.

Note: Leave the rear sheave spacer on the flail drum shaft.

4. Remove the flail drum sheave (4).
  - Discard this sheave. A new sheave will be installed.
5. Leave the inner spacer on the flail shaft (if present).

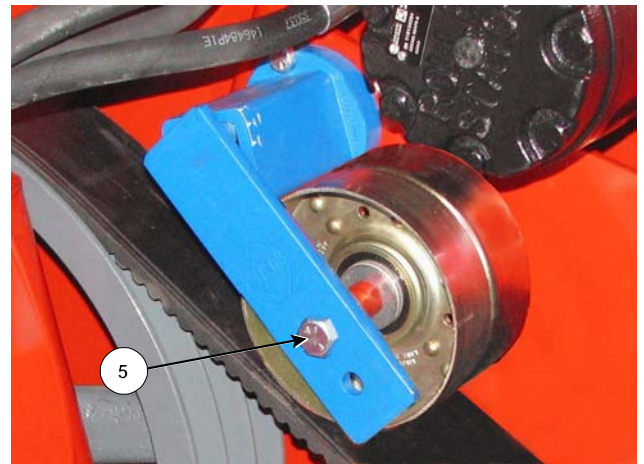


Remove Front Flail Sheave

218189-1C

## **Move the Front Tension Idler**

1. Move the front tension idler from the outer hole of the arm to the inner hole.
  - Loosen the nut and remove the bolt, washer and spacer.
  - Move the bolt washer and spacer to the inner hole (5) and fasten the idler with the nut.

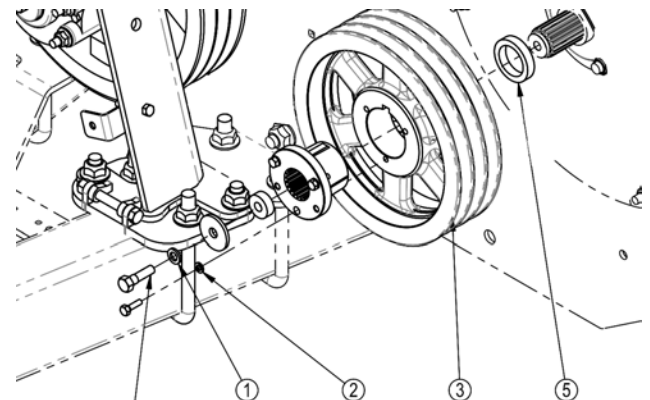


Move the Front Tension Idler  
(Belt Shown Not Removed)

213024-1C

### **Install the New Front Flail Drum Sheave**

1. Place the inner spacer on the flail shaft.
  - If there was not an inner spacer on the machine use the supplied spacer (5).
2. Place the new flail drum sheave (3) onto the shaft.
  - The sheave has an outside diameter of 12.4" (12-13/32").
3. Insert the drive bushing (that was removed before) into the sheave.
  - Align the keyway into the sheave and the splines of the bushing onto the flail drum shaft.
  - Attach the bushing to the sheave with 3 bolts that were removed earlier and new 5/16" lockwashers.
4. Fasten the bushing/sheave to the flail drum shaft with the existing spacer, flat washer, new 1/2" lockwasher (2) and 1/2" x 1-3/4" bolt.
  - Apply blue Loctite to the threads of the bolt before installing.
  - Torque to 75 lbs-ft.

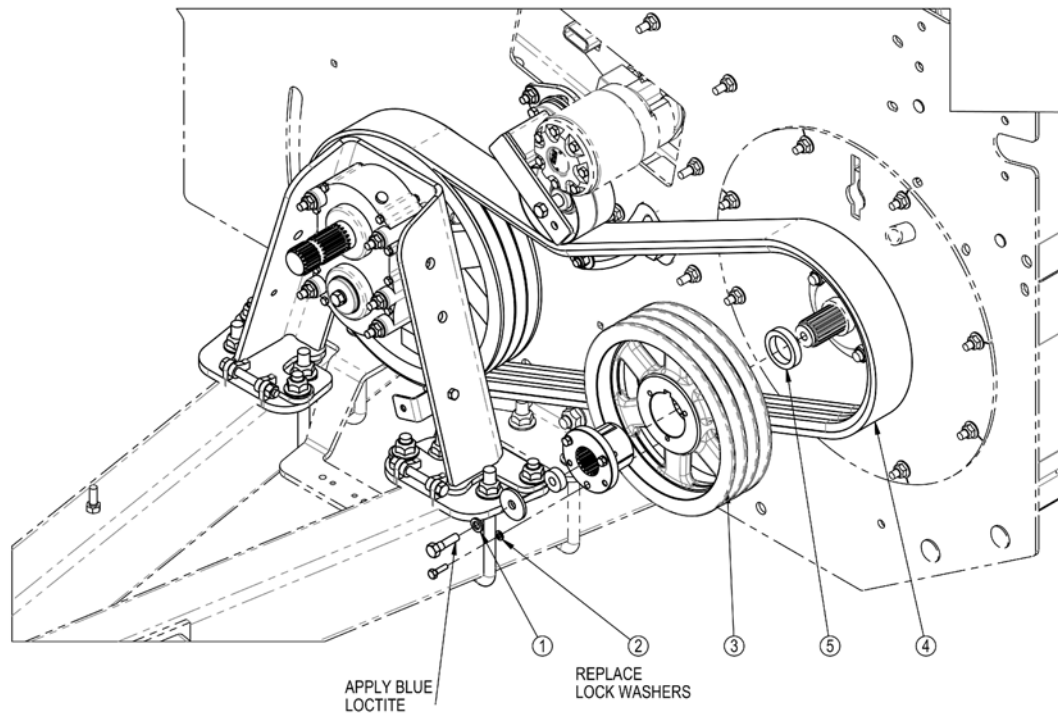


APPLY BLUE LOCTITE  
REPLACE LOCK WASHERS  
Install the New Front Flail Drum Sheave

43859\_A

### **Install the Front Drive Belt**

1. Install the drive belt over the drive and flail sheave and under the tensioner.
  - For drive boxes on the hinge mount, pivot the drive box back to allow room for the belt to get past the bearing on the tub wall.
2. Leave the tensioner loose.
  - The belt will be tightened after the sheaves have been aligned.



Front Feed Chopper Sheave, Tensioner and Belt

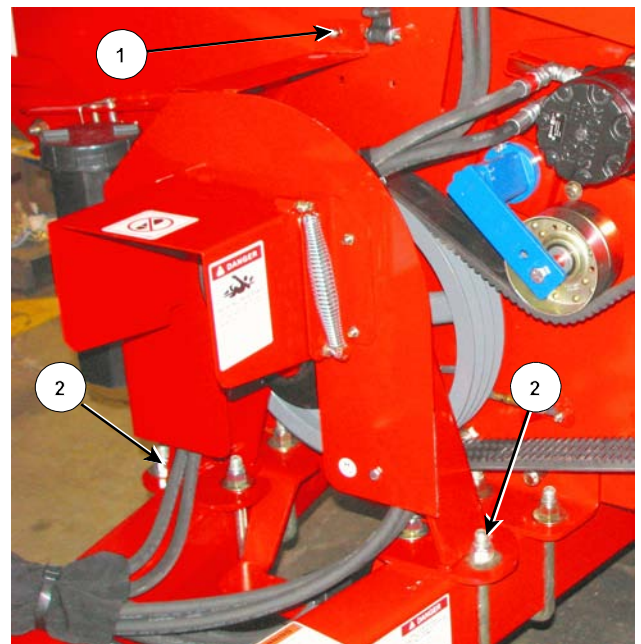
43859\_A

### **Align the Drive Sheave to the Flail Sheave**

This step is only for drive box A-frames u-bolted to the hitch.

- See below for drive boxes on hinge mount.

1. Use a long square tube or a piece of angle iron as a straight edge to align the sheaves.
2. Place the straight edge onto the backside of the drive sheave and flail drum sheave.
3. Move the drive box mount on the hitch until the straight edge has 2 points of contact on the back of the flail sheave and 2 points of contact on the back of the drive sheave.
4. Tighten the u-bolts (2) of the drive box mount to maintain the sheave alignment.
5. Tighten the shield to tub wall with the fastener (1) removed earlier.



Tighten Drive Box Mount U-Bolts

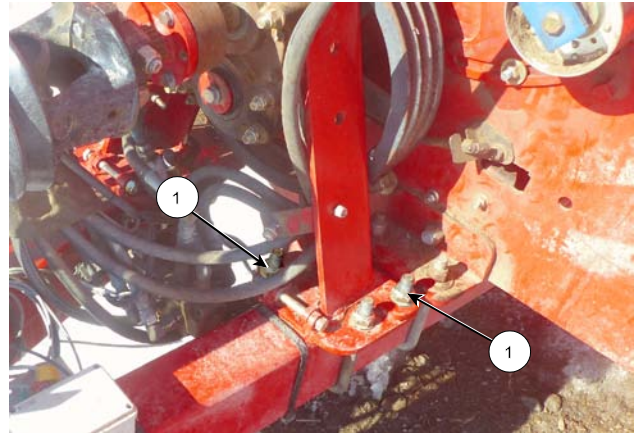
218188C

### **Pivot the Drive Box Mount on Hinges**

This step is only for drive box A-frames mounted on hinges.

1. The drive box mount on the hinged support should have maintained the sheave alignments.
2. Place 2 of 3/4" carriage bolts (1) and flange locknuts. on both sides of the drivebox mount
  - These fasteners were removed earlier.

Note: - Do not remove the hinge bolts.  
- Do not loosen the u-bolts holding the drivebox plate to the frame.



Fasten Hinged Mount with Carriage Bolts

218065C

### **Tighten Belt Tensioners**

#### **Front Flail Drum Belt**

There are 2 types of front flail drum tensioner mount systems:

- Bracket on tub wall
- Moveable plate with slot

#### **Bracket on tub wall type tensioner:**

The tensioner should be set to a tension of 25 degrees.

To change the tension:

- Remove the drive belt from the tensioner pulley.
- Remove the anti-rotation bolt (1).
- Rotate the tensioner.
- Fasten the anti-rotation bolt (1) into one of the other holes in the mount bracket.
- Replace the drive belt onto the tensioner pulley.
- Check that the belt tensioner is at the 25 degree position.



Anti-Rotation Bolt to Tighten Tensioner

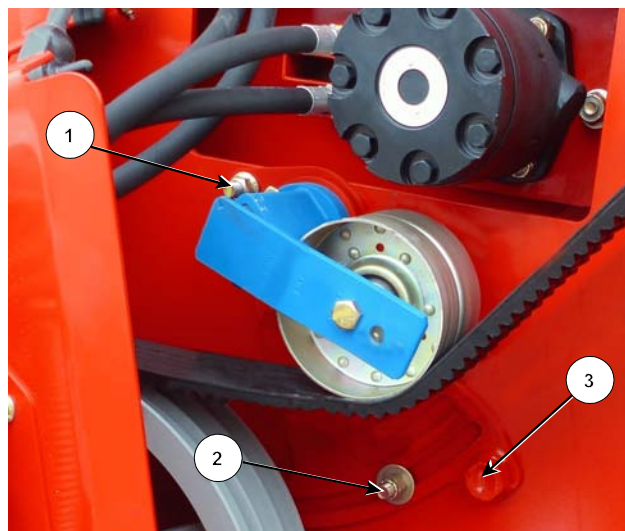
219001C

### Moveable plate with slot type tensioner:

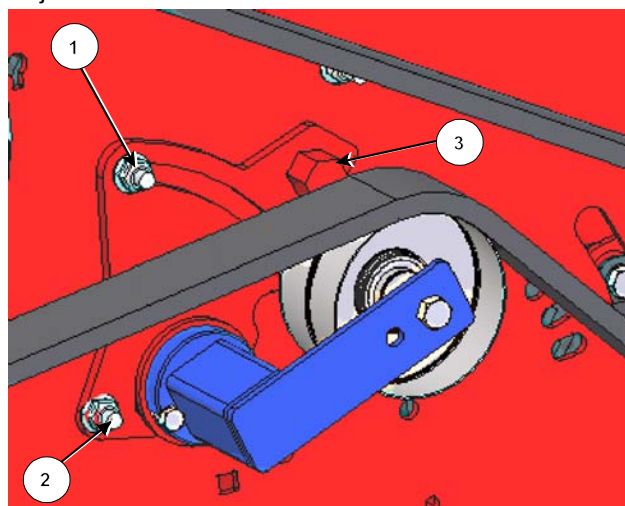
The tensioner should be set to a tension of 25 degrees.

To change the tension:

- Loosen the top nut (1).
- Place a socket wrench onto the nut (3) on the tension adjustment arm.
- Take up the tension of the belt when the lower nut is loosened.
- Loosen the lower nut that is within the curved adjustment arc (2).
- Move the socket wrench to set the belt tension to 25 degrees.
- Tighten the lower nut (2) to keep the tension.
- Tighten the upper nut (1).



Adjust Tension with Moveable Plate Tensioner 219002C



Tighten Rear Feed Chopper Tensioner 219003

### **Rear Feed Chopper Tensioner**

The tensioner should be set to a tension of 30 degrees.

To Adjust the Belt Tension:

- Loosen the top nut (1).
- Loosen the lower nut (2).
- Place a wrench onto the post (3) on the tension adjustment arm.
- Move the wrench to set the belt tension to 30 degrees.
- Tighten the lower nut (2).
- Tighten the upper nut (1).



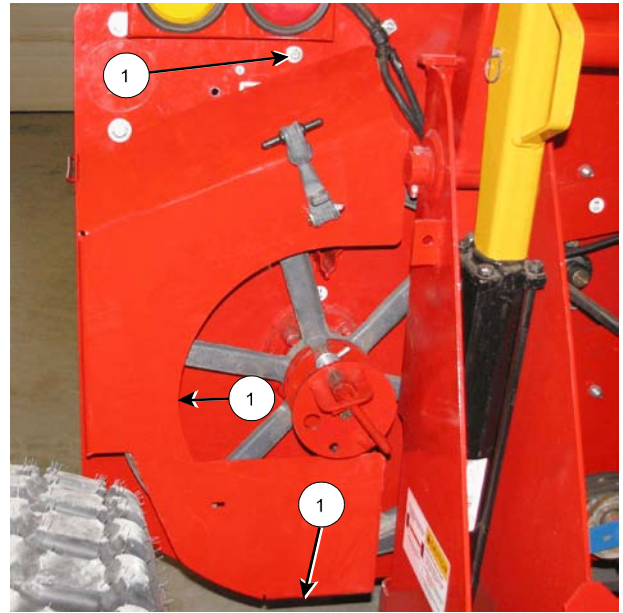
Tension Set to 30 Degrees 213202

## **Install the Shields**

### Rear Shields

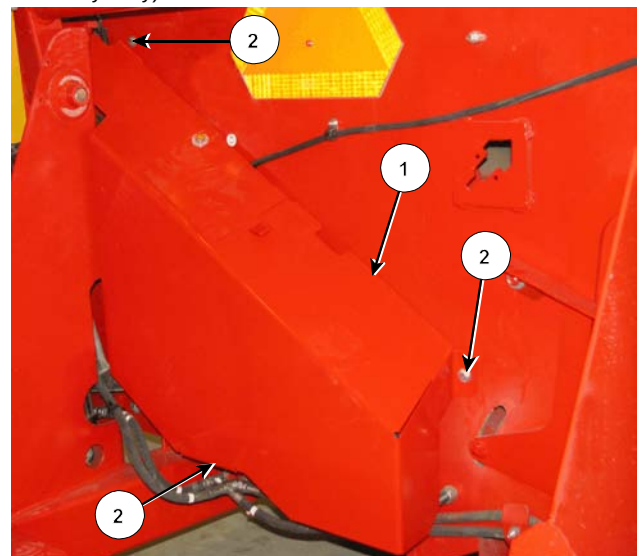
1. Install the left sheave shield.
  - Install the 3 fasteners that hold the left shield (1).
  - Top of shield
  - Inside shield
  - Bottom underside of shield

Use the carriage bolts, flat washers and locknuts that were removed earlier to fasten the shield to the tub wall.



Install Left Sheave Shield (Clutch Shield Shown Removed for Clarity Only)  
213080C

2. For machines with the bolted on right rear shield (1) use the carriage bolts, flat washers and locknuts (2) that were removed earlier to fasten the shield to the tub wall.



Install the Right Bolt-On Shield

213079C

3. For machines that have a hinged right rear shield, close the shield and fasten with the rubber latch.

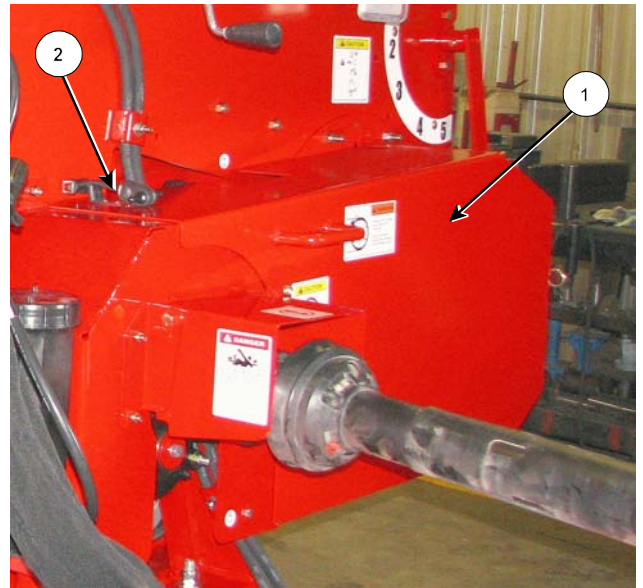


Close the Right Rear Shield

217136

### Front Drive Shield

1. Close the front drive shield (1).
  - Fasten it in place with the rubber latch (2).



### **Remove the Flail Drum Lock**

There are 2 types of flail drum locks:

- Spring loaded pin lock
- Removable pin lock

#### Spring Loaded Pin Lock

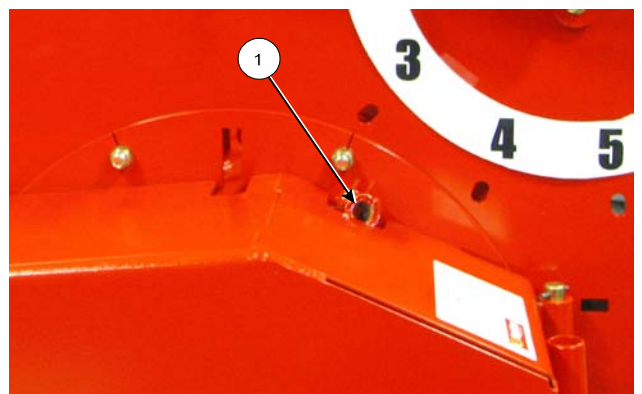
- Disengage the drum clutch pin from the flail drum drive plate.
- Pull the spring loaded pin out and rotate to place the roll pin into the slot.
  - This locks it in the disengaged position.
- Failure to unlock the flail drum will result in damage to the machine during start up.



Disengage Spring Loaded Flail Drum Lock Pin 212001

#### Removable Pin Lock

- Remove the flail drum lock pin from the tube (1) on the flail drum plate.
- Failure to unlock the flail drum will result in damage to the machine during start up.
- Place the drum lock pin into the storage holder on the outside of the drive shield. Fasten with the clip pin.



Remove the Flail Drum Lock Pin

219005C