2014 Trash Reduction/Decomposition Kit™

Installation 40/90 Instructions

Thank you for purchasing Calmer Corn Head products to reduce residue problems at your farm.

Calmer Corn Heads

Weekday 8-5pm-Office (309) 629-9000

After Hours/Weekends-Marion’s cell (309) 368-1182

Patent # 7,886,510, 8,171,708, 8,220,237, 8,464,505 and Patent Pending Components
The Complete Calmer
Trash Reduction and Decomposition Kit™
Includes per row:

Hydraulic Kit

A-(1) Left Calmer BT Chopper®
B-(1) Right Calmer BT Chopper®
C-(1) Hydraulic Left Stripper Plate
D-(1) Manual Right Stripper Plate
E-(2) 9 Tooth Idler Sprockets
F-(2) 48 Standard Gathering Chains
G-(2) 6 Tooth Drive Sprockets

Manual Kit

A-(1) Left Calmer BT Chopper®
B-(1) Right Calmer BT Chopper®
C-(1) Manual Left Stripper Plate
D-(1) Manual Right Stripper Plate
E-(2) 9 Tooth Idler Sprockets
F-(2) 48 Pitch Gathering Chains
G-(2) 6 Tooth Drive Sprockets

Your reference for Right and Left is as you are sitting in the combine looking at the corn head.

J Lower Idler Spring Washer
K- Hex Bit Socket
L- (4) Hex Bolts
M- (2) Chopper Continuous Roll Pins

A-(1) Left Calmer BT Chopper®
B-(1) Right Calmer BT Chopper®
C-(1) Manual Left Stripper Plate
D-(1) Manual Right Stripper Plate
E-(2) 9 Tooth Idler Sprockets
F-(2) 48 Pitch Gathering Chains
G-(2) 6 Tooth Drive Sprockets

I- Anti-Hariball Insert
H- Weed Knives
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Disassembly

1. Remove the corn head dividers and hoods. Some farmers use a loader and chain to tip the corn head to the vertical position for overhaul. 

   (or)

   Attach the corn head to your combine in accordance with the instructions in the manufacturer’s owner manual and lock the lift cylinders in the raised position.

   **Do not crawl under the header without the cylinder locks securely in place.**

2. Clean gathering chain tightener area with compressed air. Lubricate the John Deere 8 tooth gatherer chain drive sprocket shafts and gathering chain tightener threads with a penetrating type lubricant.

3. Release gathering chain tension. Turn **Nut A** until it is against the leg of the idler supportstrap. Remove gathering chain and idler

4. Remove the snap ring from the 8-tooth gathering chain drive sprocket shaft.

5. Remove the Factory gathering chain drive sprocket. If the sprocket is rusted to the shaft apply heat to the upper portion of the hub.

6. Remove idler blocks  
7. Remove chain guards

8. Remove stripper plates  
9. Remove weed knives

10. Remove stalk rolls

   a. **Tapered & Straight fluted Stalk Rolls** - Consult your JD dealer for use of 
   b) **Pixall Removal** –Pixalls have a threaded doughnut inside of the nose cone. By using a fine thread bolt (1”x9”) this will create its own self- pulling system when screwed into the nose cone. 
   c) **JD Knife Rolls Shells** – unbolt from stub shaft and remove stub shaft.

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11. Clean rust from Pinion Shafts and Lubricate. Check for leaks and replace seals.
12. Inspect gathering chain drive shaft and bushing for wear.
13. Check seals on Gathering Shafts and Pinions for leakage replace as necessary.

**Check Pinion Timing**

Before beginning assembly steps, check the timing by making sure the pinions are exactly 90 degrees from each other. (*place bolts in each roll pin hole to see more clearly*)

If the timing is not correct; loosen housing bolts and lift barrell 1/2”.

Rotate one shaft 180 degrees for proper timing.

To Correct The Problem:
-leave the gear box on the corn head
- remove the stalk rolls
- clean around the stalk roll housing
- remove stalk roll housing bolts, and frame mounting bolts
- raise the stalk roll housing high enough to rotate the pinion 180 degrees then set back down
- install bolts, check for exact roll pins placement at 90 degrees
- re-install stalk rolls, and check for correct intermesh

Then clamp knife roll rear donut onto gearbox shaft with the allen head bolts (2 per knife roll), using the Hexbit socket provided.

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Step 1 - Install BT Choppers®

Rolls are marked on the spiral Left and Right

Your reference for Right and Left is as you are sitting in the combine looking at the corn head.

CAUTION: Bt Choppers are extremely sharp, make sure you are wearing the enclosed gloves during installation, and handle with extreme care.

1. Apply any anti-seize substance on the shaft. This will make removal of knife rolls easier in the future when checking seals on gearboxes.

2. Slide Calmer BT Choppers onto gearbox shaft. (See Figure 1, pg 6)

3. Install the provided continuous roll pins into knife roll allowing for equal recession on each side, securing knife roll to gearbox shaft.

4. If after installation your stalk roll flutes contact each other, and do not inter-mesh correctly, then the gearbox has probably been re-worked. The pinions are not correctly timed. The roll pin holes in the pinions need to be exactly 90 degrees from each other (Not almost 90 degrees, see pg 4). The pinions have an odd number of teeth on them, and are most likely 180 degrees out. To correct the problem see page 4.

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**ONLY Torque to 55 ft-lbs. (3/8”bolt)**

we recommend medium grade lock tight (blue) on the bolts

**NOTE**-Hand start the bolts on the countersink side of the Stalk Roll. Start both bolts at the same time (front and back)
DANGER: Never make any adjustments on the corn head when the equipment is in operation. Be sure corn head is securely blocked, combine is turned off, and parking brake is engaged before attempting any adjustments.

CALMER WEED KNIVES

5. **ATTENTION! To prevent possible damage to knife rolls;**
   a. **CALMER Weed Knives Need to be Set with a 1/4” space.** *(See Figure 2 below)*

Stripper Plate Clearance

7. **Check the clearance between the Calmer BT Chopper and the Calmer beveled stripper plate.** Shim the row unit if there is no clearance.

   **NOTE**-If using JD Weed Knives, only JD straight knives can be used, and may need modification. Maintain 1/4” front gap between the knife roll and weed knife. This is measured from the tip of longest blade to the rear edge. *(rear edge can be at 1/4” - 1/8”)*.

-Repeat above steps to attach the remaining knife rolls

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**Figure 1**

**CALMER Weed Knives**

*Need to be Set with a 1/4” space.*

**Figure 2**

1/4”
Step 2 - Install Stripper Plates / Adjustments

1. In 2003 we did side-by-side testing on stripper plate gap settings in Illinois.

**Testing Period** - October 5 through October 18.

**Hybrid** - Pioneer 33P67

**Yield Range** - 200-225 bushel/acre

**Moisture** - 19-21%

**Time of Day** - 1:00 - 4:00

**# of Kill Stops** - 13

_Data on header loss and trash intake were both recorded and evaluated simultaneously._

The following is my recommendation for stripper gap adjustment.

**Adjustment:** Starting Recommendation

1. **Manual Plates For various Yield and Conditions**
   - **Down Corn** open wider 1 1/4 at bottom - 1 3/8” at top
   - **Large Ears 2+D** 160-200 bushels/acre corn. 1 3/16” at bottom, 1 1/4” top
   - **Medium Sized Ears** 120-160 bushels/acre corn. 1 1/8” at bottom, 1 3/16” top
   - **90-120 bushels/acre corn. 1” at bottom, 1 1/16” top**
   - **Small Ears Seed Corn** 0- 90 bushels/acre corn. 7/8” at bottom, 15/16” top

2. **Hydraulic Plates** - There has been some improper adjustments in this area in the past, so I want to give you my thoughts on what I think is proper adjustment for hydraulic plates.
   a. The center of the stripping tunnel should be directly above the center of the stock rolls. Therefore, the non-movable stripper plate should be set first and adjusted at the top of manual plate so there is a 2 3/4” from the edge of row unit frame to the edge of stripper plate. Install hydraulic plate and adjust manual plate so bottom gap 1/8” narrower than top gap. (If the stripping tunnel is not centered over the stalk rolls we are shifting the corn stalk to one side, and my data indicates that trash intake scores will go up.
   b. Now we can hydraulically move the movable plate in as close as possible. Then push outward to remove any slop in the linkage. Adjust so all rows have equal gaps.
   c. Then adjust so stripper gap is 1 1/4” then mark indicator on frame for future reference. This is the ideal spot for 200 bushel corn.
**Hairball At The Ski Jump** - This is a term that I use to describe the mass of corn stalks that gathers and hair pins at the top of the stripping tunnel on a damp morning or rainy day.

### PROBLEM

- Gaps at the end of the stripping tunnel
- In wet conditions debris (hair ball) is caught

### SOLUTION

- Anti-hairball insert

### INSTRUCTIONS

1. Disconnect Battery! Weld enclosed anti-hairball insert, and fill in any gap

2. Tac weld both manual plates to anti-hairball insert
   - Grind insert flush with deck

3. Tac weld ONLY manual plate to anti-hairball insert
   - Hydraulic plate must be able to move
   - Grind insert flush with deck

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Data on header loss and trash intake were both recorded and evaluated simultaneously.

Down Corn open wider
- 1/4 at bottom
- 3/8" at top

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Step 3 - Install Calmer 6 Tooth Drive Sprocket, 9 Tooth Idler, and Gathering Chain Assembly

1. Remove gathering chain guides during installation.
   A. On the first and last rows only, after careful angle iron removal, move in 1/2 inch and reweld for hood supports.
   B. **40 series only** - Remove angle iron (see picture 1 in gathering chain drive sprocket area).

2. Inspect chain guards for chain wear. (You can use a Mig Welder to fill the valleys)
   A. Inspect Idler Blocks for chain wear.

   **1. Idler blocks** - the wear tracks in an Idler block can be filled in with a mig welder and ground smooth if you wish to rebuild them.

   ![Idler blocks image]

   Install bolt, then “O” ring, then 9 tooth idler, then collar, and then the nut.

   **NOTE: The Calmer idlers are greasable**- Lube once a day or every 10 hours! (just 1 or 2 pumps) It is necessary to make sure you have, or that you get the greasable collar (JD part #AH204016), the “O” ring (JD part #R375R), and a longer bolt (JD part #10H1082). (See picture at left to see parts needed) Do not over grease and force “O” ring to break.
Gathering Chain Tighteners-
Gathering Chain Tighteners occasionally lock up. This is caused when the spring vibrates and augers itself into the hole between the bolt and the flat strap. This can be fixed by adding a second washer (enclosed) at the bottom of the pipe spacer identical to the washer that is currently at the top of the pipe spacer. Apply Never Seize or lubricate the bolt threads for future adjustment.

Remove Idler Bolt & add lower pipe spacer washer as shown in the below photo. This will eliminate Idler lock up.

Gathering Chain Tightener

3. **Newer 90 Series corn heads with hydraulic plates** (1997 and up). **Remove lower snap rings to achieve required height. Make sure this does not make the chain run too high on the chain guard.** Pictures #1 and #2 show the addition of a washer to shim up the chain guard to keep it from pushing the chain down.

4. Oil the gathering chain drive shaft.

5. Place the gathering chain around the idler sprocket.

6. Insert the 6-tooth sprocket in the chain at the drive end. picture #3

   *Some farmers get concerned that the tighter wrap on the 6-Tooth sprocket might cause excessive wear on the top end of the chain guard. Calmer’s response to this is that there might be some initial wear, but the rollers on the gathering chain will eventually run on the chain guard, and keep it from wearing any more. Calmer’s use to run 5-Tooth at the top, and haven’t had any trouble with excessive wear.*
7. **Lug Timing:**

**For Standing Corn**- time the gathering chain lugs so the lugs are staggered.

**For Down Corn**- With 9-tooth idlers, time the lugs so they are almost horizontally opposed from each other. Adding plastic paddles will also help in harvesting down corn. *See page 16*

8. Replace the top snap ring on the shaft. Ensure the snap ring is properly seated on the hex shaft.

9. Reinstall gathering chain guides (*Adjust the top of the gathering Chain guides as far away from the center of the row unit as possible.*)

10. Tighten the gatherer chain tightener until there is 3/16” clearance between pipe spacer and washer. Re-lube threads with grease for future adjustment.

11. Using reverser, operate corn head slowly then start and run at slow speeds..

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**Helpful Corn Head Adjustments & Modifications**

**Sieve Adjustments for Corn**- I personally dis-agree with the Owner’s manual suggested settings.

**Bottom Shoe Sieve = Wide Open!** Please try this 1 round

**Top Chaffer Sieve = Close until grain tank cleans**

**Reason**-

*In corn there is no part of the corn kernel that needs to be rethreshed! There is also no part of the corn cob that should fall below the top sieve.*

*In soybeans there are unthreshed pods that need to return for a second pass through the threshing unit, and that is the only time that the bottom sieve should be tighter than the top sieve.*

**Results**-

Helpful Corn Head Adjustments & Modifications

Corn Head Angle should be between 23 and 25 degrees for optimum performance in both standing and lodged corn. Put the combine on a level surface then lower the corn head until the row unit frame is 2-inches off the ground. Place a magnetic protractor on the stripper plate and read the angle. If the angle is too steep, pull the top of the corn head toward the combine or push the bottom out or a combination of both.

Equivalent Gathering Chain Speed to Match Ground Speed:

To calibrate RPM’s, attach the included orange paddle to a lug on a center gathering chain. Raise corn head, put combine in park, engage threshing motor to full speed. Count revolutions for 1 minute. Adjust variable speed accordingly.

<table>
<thead>
<tr>
<th>RPM’s</th>
<th>MPH</th>
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<tbody>
<tr>
<td>27</td>
<td>2</td>
</tr>
<tr>
<td>40</td>
<td>3</td>
</tr>
<tr>
<td>54</td>
<td>4</td>
</tr>
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<td>67</td>
<td>5</td>
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Problem/Solutions:

**Problem** - Stalks are wrapping. **Solution** - Install anti-hairball inserts

**Problem** - Driving over corn stalks in twin rows, popcorn, or extremely dry conditions. **Solution** - A. Put on Calmer stock rolls with revolving windows and recheck gathering chain speed. B. Recheck oil bath settings and feeder house jack shaft speeds. If this is not successful, increase gathering chain speed by removing the 6 tooth driver and 9 tooth idler and replacing with the factory 8 tooth driver and 8 tooth idler.
Cross Auger Flighting-

Cross auger should be vertically adjusted to have 1 ¾” clearance between auger flighting and tray. This significantly reduces ear slicing which is a cause of cracked kernels in the grain tank. *(You may need to increase the length of the slots in the end plate bearing hanger to allow for this adjustment. When you turn on end rows there should be a layer of ears between flighting and tray)*

**Cross auger height adjustment – 1 3/4” between flighting and tray**

Reducing Ear Toss-

1. Cross auger should be horizontally adjusted rearward as close to the feeder house chain and rear stripper as possible. This will improve the transfer of material from cross auger to the feeder house chain, thus reducing ear toss.
2. Adding Half Links to lengthen the feeder house chain will move it closer to the auger.
3. We suggest staying on the (big) sprocket for feeder chain speed when harvesting corn to decrease ear toss, located on the lower right-hand side of the feederhouse.
4. Feeder house ear tossing may increase due to the lack of trash intake.
5. **40 Series Only** - Using a 64-tooth sprocket on the cross auger instead of the factory 54-tooth will slow the auger down and help reduce ear toss. *(JD Part # AH145940)* This is for 40 series and some older 90 series corn heads. This sprocket uses a #50 roller chain. The new 90 series corn head cross augers come from the factory already slowed down with a 52-tooth sprocket that uses #60 roller chain.

Use Reverse Flighting on 30 Foot Split Cross Augers

Some older 12-row, 30-inch corn heads used rubber flaps and no flighting. The performance of that auger was poor. Other John Deere split cross augers had no reverse flighting near the bearing hanger. The short section of reverse flighting can be purchased from John Deere *(right hand part #H206301, left hand part #H206302)* and welded on see photo left.

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We DO NOT recommend using any rubber paddles.

I would recommend that you fill any holes in the tray and grind them flush. This will stop loss of kernels and kernel damage.

**Oil Bath Settings**
The corn head should have the oil bath in overdrive, the big sprocket on the back (driver), and the little sprocket on the front (driven).

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**Corn Head Gear Ratios:**

- **Case combine Non variable Speed**
  - 693-34 Driver; 22 Driven
  - 893- 34 Driver ; 22 Driven

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**Standing Corn:** 600-610 RPM on variable speed.

**We suggest staying on the (fast) sprocket for feeder chain speed when harvesting**

1- **Must have heavy duty reverser (8 row or above you know because it has a finned aluminum cooler (recommended by John Deere)).**
2- **Only use full synthetic oil in the reverser.**
3- **There are 2 grease fittings on the reverser. These need to be placed at the 12 o’clock and 2 o’clock positions.** Put 12 pumps of grease in the 12 o’clock and only 2 pumps of grease in the 2 o’clock. Never over grease !!!
4- **Once you start up the machine (at idle) you need to run variable speed up and down (2x) to lubricate prior to Harvest.**

**Down Corn:** 500-550 RPM on variable.
Adjusting Slip Clutch Adjustment According To JD Owner Manual-

Slip clutches protect the corn head drives. Each row unit drive and auger drive have a slip clutch.

All slip clutches are properly adjusted at the factory. The only time slip clutches will require adjusting is when they are disassembled for service. The length of the row unit slip clutch spring (A), when correctly adjusted, must be 68 mm (2-11/16-in.). The auger drive slip clutch is non-adjustable.

IMPORTANT: Do not tighten nuts to the point where the clutch will not slip. Compress the two jam nuts to compress the sporing washer. Torque to 75 N-m (55lb-ft) Grease thrust washer but do not grease clutch facings.

Gear Box Lube-

Check gear case lubricant level at inspection plugs. Lubricant must be approximately 38 mm (1 ½”) from the top of the inspection hole. Fill to approximate level using grease fitting on bottom of gear case with John Deere corn head grease. Do not over-fill, Air is needed for heat expansion. (Use type “0” [zero] extreme pressure lubricant).

NOTE-Green corn head on red combine-34 on the back (Drive), and 22 on the front (driven)

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Calmer Corn Heads Trash Reduction/Decomposition Kit Warranty-
Except as specified below, the Calmer Corn Head one (1) year from date of purchase warranty covers all defects in material and workmanship. The following are not covered: damage caused by accident, misuse, abuse, product modification or neglect; damage from failure to follow instructions contained in the instruction manual; damage resulting from the performance of repairs by someone not authorized by Calmer Corn Heads; damage caused by installation of parts that do not conform to Calmer Corn Head specifications; components not used for their intended purpose; any claims based on misrepresentations by the seller; products sold on an “as-is” or final sale basis; or the cost of installing, removing, or reinstalling the unit. Calmer Corn Heads liability is limited to the repair or replacement, at our option, of any defective product and shall not include incidental or consequential damages. Calmer Corn Heads reserves the right to replace a discontinued model with a comparable model. Any replacement units or parts may be new or rebuilt.
Calmer Corn Head Plastic Paddles
For Down Corn

Follow the instructions for assembly of plastic gathering chain paddles and attach to every other lug on each gathering chain. *(one orange paddle is used on the row left of the feeder house in front on the buddy seat for calibrating corn head speeds).*

1- Place paddles on an open vise. The paddle on the left goes on the left gathering chain and the paddle on the right, the right gathering chain. *See picture 1*

2- Install and hammer two round headed carriage bolts into each paddle, making sure that bolt shoulders are seated in paddles. Repeat for remaining paddles and bolts. Be careful not to damage threads. *See picture 1*

3- Suspend a pipe between 2 ladders and hang chains over pipe as shown in photo at lower right hand corner. This can be helpful when installing paddles to chain.

4- Install left-hand paddles on every other lug of the left Gathering chain. Secure with two lock nuts and tighten until carriage head depresses in plastic paddle. We use a standard 6 point 7/16", 3/8" drive socket with a 3” extension to install and tighten nuts. Installing the nut next to the chain first, will speed alignment and assembly. *See picture 2*

3- Install right-hand paddles on every other lug of the right gathering chain. Secure with two lock nuts and tighten until carriage head depresses in plastic paddle. We use a standard 6 point 7/16", 3/8” drive socket with a 3” extension to install and tighten nuts. Installing the nut next to the chain first, will speed alignment and assembly. *See picture 3*