



Farmer Invented. Farmer Tested. Farmer Proven.®

**RESIDUE MANAGEMENT UPGRADE KIT
INSTALLATION MANUAL**

**CASE IH* 3000 & NEW HOLLAND* 98D SERIES
CORN HEADS**



www.CalmerCornHeads.com

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After Hours/Weekends - Marion's Cell (309) 368-1182**

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INTRODUCTION

Thank you for purchasing Calmer's BT Chopper® Upgrade Kit for your corn head. We hope you will get many years of productive use from it. The purpose of this upgrade kit is to improve your corn head's performance and accelerate corn residue decomposition. All product users must read and understand this manual prior to equipment operation. This manual is considered part of your machine and should remain with the machine at all times. Do not allow anyone to operate or maintain this equipment who has not fully read and comprehended this manual. Failure to follow the recommended procedures may result in personal injury or death or equipment damage.

Information in this manual is designed to help owners and operators to obtain the best results and safe operation from their investment. The life of these products depends largely on the care it is given and we suggest that the manual should be read and understood and referred to frequently. If for any reasons you do not understand the instructions and safety requirements, please contact us at any time. The intent of this manual is to provide guidelines to cover general use and to assist in avoiding accidents and injuries.

There may be times when circumstances occur that are not covered in the manual. At those times it is best to use common sense and contact our factory.

The requirements of safety cannot be emphasized enough in this publication. We urge you to make safety your top priority when using and maintaining this equipment.


WARRANTY

Calmer Corn Heads, Inc. has been in business since 2004 and has an excellent reputation for quality and workmanship. Please contact us (the manufacturer) if you feel a component has not lasted to your expectation. These concerns will be handled on a case-by-case basis. Please contact our factory directly at (309) 629-9000 for replacement parts.



SAFETY

Read and understand this manual and all safety signs before maintaining and operating. Review the safety instructions and precautions annually.

TAKE NOTE!  THIS SAFETY ALERT SYMBOL FOUND THROUGHOUT THIS MANUAL IS USED TO CALL YOUR ATTENTION TO INSTRUCTIONS INVOLVING YOUR PERSONAL SAFETY AND THE SAFETY OF OTHERS. FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN INJURY OR DEATH.



THIS SYMBOL MEANS: ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

Note the use of the signal words DANGER, WARNING and CAUTION with the safety messages. The appropriate signal word for each has been selected using the following guidelines:



DANGER: Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations typically for machine components which, for functional purposes, cannot be guarded.



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



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

NOTICE is used to address safety practices not related to personal safety.

This equipment is dangerous to children and persons unfamiliar with its operation. The operator should be a responsible adult familiar with farm machinery and trained in this equipment's operations. **Do not allow persons to operate or assemble this unit until they have read this manual and have developed a thorough understanding of the safety precautions of how it works.**



SAFETY SIGNS

Sharp Objects signs are placed on the exterior of all stalk roll boxes. See the sign, right, for reference and understand the associated cutting dangers with the enclosed product.



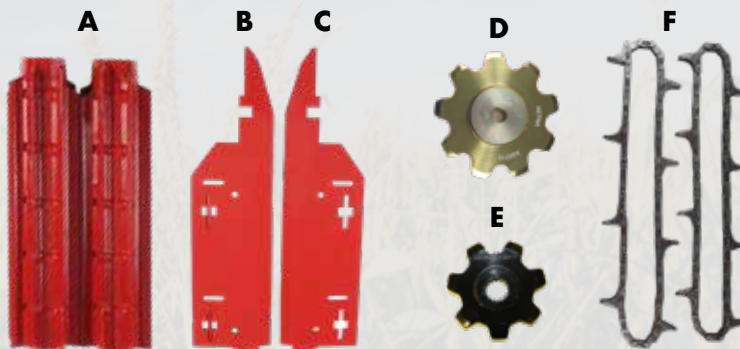
BEFORE OPERATION

- Carefully study and understand this manual.
- Do not wear loose-fitting clothing which may catch on moving parts.
- Always wear protective clothing and substantial shoes.
- Always wear provided cut-resistant gloves when installing stalk rolls

THE COMPLETE CALMER RESIDUE MANAGEMENT DELUXE UPGRADE KIT INCLUDES PER ROW:

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

Case IH 3000/New Holland 98D Upgrade Kit



- A (2) BT Chopper® Stalk Roll Shells
- B (1) Left Stripper Plate
- C (1) Right Stripper Plate

- D (2) 9-Tooth Idler Sprockets
- E (2) 7-Tooth Drive Sprockets
- F (2) 48-Pitch Chrome-Pin Gathering Chains

(2) LOWER IDLER SPRING WASHERS



(4) 1/2" x 1 1/2" ROLL PINS



(20) 3/8" - 16 x 1 3/4" SOCKET HEAD CAP SCREWS



(6) STAINLESS STEEL WASHERS

(1) 5/16" HEX BIT SOCKET



(2) CUT-RESISTANT GLOVES

(1) TRANSITION PLATE



(2) STALK ROLL COUPLERS



Disassembly of Current Components

! DANGER: Ensure the corn head is secured properly, combine lift cylinder stops are in place, equipment is turned-off, and the parking brake is engaged before attempting any adjustments. Be sure to follow all manufacturer's safety procedures when setting-up and working on the corn head.

1. Attach the corn head to your combine in accordance with the instructions in the manufacturer's owner's manual. **It is critical to lock the lift cylinder in the raised position before making any further adjustments.**
2. Raise and secure or remove the corn head dividers and hoods.
3. Remove chain guides.
4. Remove idler blocks.
5. Remove stripper plates.
6. Remove stripper transition plate (at gear box).
7. Remove all weed knives.
8. Remove stalk roll blades.

! CAUTION: Inspect all parts to be reassembled and replace excessively worn components as necessary.

! CAUTION: Inspect all stalk roll shafts, bearings, and/or stub shafts. If bearings and/or shafts are bad, replace as necessary. Ensure stalk roll shafts are parallel with each other. If they are not parallel, re-shim nose bearing support according to manufacturer's specifications. Failure to do so with void warranty!

Replacing Stalk Roll Drive Coupler

STEP 2

1. Remove the horizontal support bracket between the row frames. See below.



2. Remove bearing support bolts. See below.

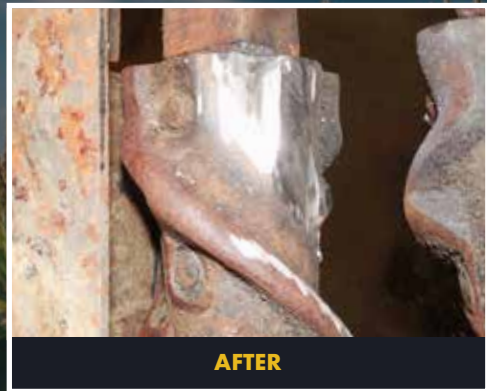
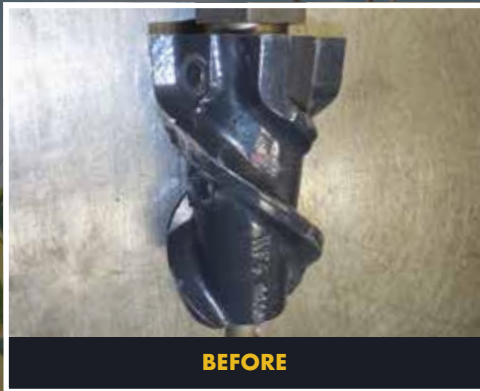


3. Slide stalk roll shaft away from gearbox to remove shaft.
4. Remove stalk roll drive coupler.
5. Install new coupler.
6. Install roll pins to attach drive coupler to stalk roll shaft.
7. Perform spiral modification (see page 7).
8. DO NOT install BT Chopper® Stalk Rolls at this time.
9. Install stalk roll shaft into row unit. Ensure stalk roll spirals are intermeshing (not opposed).
10. Install bearing support bolts and tighten making sure stalk roll bearing runs true with stalk roll drive shaft.

STEP 3

Modifying Stalk Roll Spirals

1. To ensure cornstalks flow easily with Calmer BT Chopper's® "open-window" design, modify the spiral by removing (2) short sections of the helicoid on each stalk roll. This step is strongly suggested.



2. Clean stalk roll shafts. **All material between the old blades and spiral must be removed.**

Installing Calmer BT Chopper® Stalk Roll Shells

STEP 4



Rolls are marked on the left (L) and right (R) spirals and must be installed as a set, from the same box, as packaged from Calmer Corn Heads.

Important: Stalk rolls are to be installed from your perspective while sitting in the combine cab, looking at the corn head.

! DANGER: BT Choppers® are extremely sharp! Make sure that you are wearing the gloves provided with your order and that you handle the stalk rolls with extreme care!

! CAUTION: Stalk rolls may fall off during assembly. Follow the outlined procedure below and stay out from underneath the unbolted/unsupported stalk roll shells at all times! **DO NOT TRY AND CATCH A FALLING STALK ROLL SHELL!**

NOTICE: Corn head angle must be adjusted to 23-25 degrees in standing corn and 20 degrees in down/lodged corn for maximum performance and to avoid excessive wear on components! Failure to do so will void warranty!

Notice: The shells are designed to be installed so the seams of both rolls are both horizontal or both vertical, depending on the rotation of the rolls. Stalk rolls are improperly installed if one is horizontal and one is vertical.



1. Remove and discard 4 shipping bolts from each roll. **Do not reuse these bolts!**

2. From the top of the corn head, install 1 left half shell on the left stalk roll shaft and 1 right half shell on the right stalk roll shaft.

Note: If persuasion is necessary, tap the rolls only between the blades and bolts over the bosses as shown using a suitable punch. See image A.



3. Rotate the half shells horizontal as shown. See image B.

4. Clean oil from 1 1/2" socket head cap screws, then apply lock tight medium-strength thread locker.



5. From the bottom side of the corn head, install the right shell. See image C.

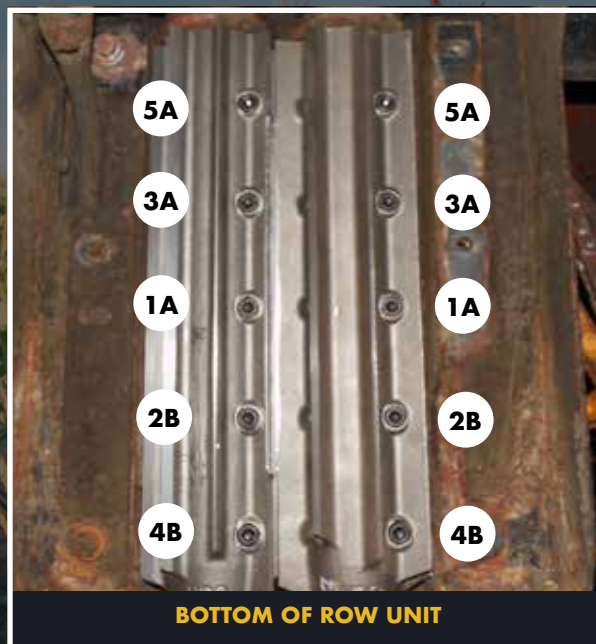
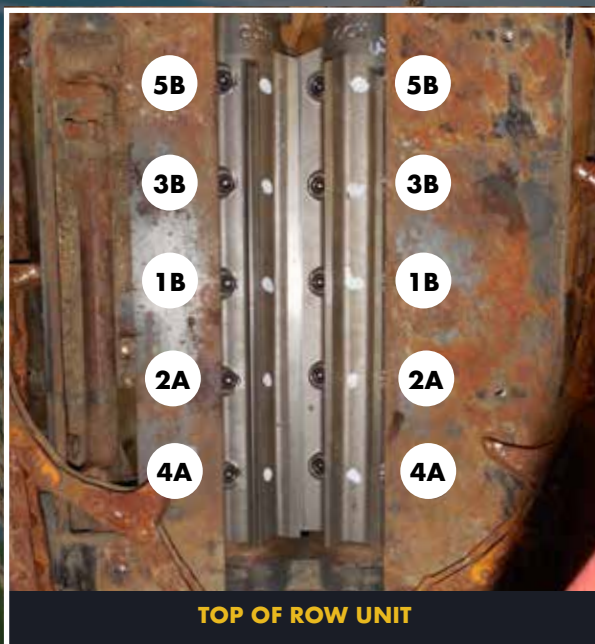
*Ensure both shells are aligned and using a 1 1/2" socket head cap screw in the middle hole, hand tighten to secure the shell. **If bolts do not start easily, slide the shell front or back to align the holes.***

6. Install the left shell following the same steps, then slide/pry the shells tight against the spiral.

7. Clean oil from remaining 1 1/2" socket head cap screws, then apply medium-strength threadlocker. Hand tighten all screws.

8. Ensure the shells are against the spiral, then **torque the bolts to 55 ft. lbs., alternating from top to bottom of the corn head and middle to ends of the stalk rolls** in order, as shown.

*Tightening order: 1A, 1B, 2A, 2B, 3A, 3B, 4A, 4B, 5A, 5B



Weed knives for 30 corn heads can be set to 1/8" clearance. *NOTICE: To achieve 1/8" clearance, you may need to trim the rear tab of the weed knives, closest to the gear box bolts.*

Weed knives for 20 corn heads will need modified to achieve 1/8" clearance.

Installing/Adjusting Calmer Stripper Plates

1. Install Calmer Transition Plate. **OEM transition plate can no longer be used!**

CALMER TRANSITION PLATE



2. Install Calmer Stripper Plates

Recommended Stripper Plate Adjustments: Begin with normal settings of 1 1/8" gap at the front and 1 3/16" gap at the rear, then adjust accordingly to ensure plates are 1/16" wider than the diameter of the 3rd cornstalk node above the brace root. Ensure stripper plate gap is centered over the stalk rolls.

Installing Stripper Plates:

With the hydraulic plate installed and in the open position, move it towards the center of the row unit until the edge of the plate is half of the desired width from the centerline of the row unit. Next, insert a block that matches the desired plate gap between the two plates (1 1/8" gap at the front and 1 3/16" gap at the rear). Then slide the manual plate in tight to the block and tighten down to set it in place.

For Hydraulic Plates Only: Once the stripper plates are at the desired gap, mark the gauge on the frame or write down the value given in the cab for future reference. This is the ideal spot for the hydraulic stripper plates to match your initial settings.

Installing Calmer 7-Tooth Drive and 9-Tooth Idler Sprockets and Gathering Chains

STEP 6

1. Inspect chain guides & idler blocks for wear.

Important: You must use stainless steel washers with Calmer's 9-Tooth Idler. Some modification may be required when installing. (See below)

2. Disassemble the old idler sprocket.

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 removing the idler bolt and adding a second washer (enclosed) at the bottom of the pipe spacer, which is identical to the washer at the top of the pipe spacer (See photo below). Apply anti-seize or lubricant to the bolt threads for future adjustments.



3. Inspect to see if plow bolt shoulder extends above the idler strap.
 - If the plow bolt shoulder extends above the idler strap then you must smooth-out the shoulder with a grinder until flush with the idler strap.
 - If the plow bolt shoulder is flush or does not extend above the idler strap, no further modification is required.



4. Reassemble the 9-tooth idler sprocket by inserting the plow bolt through the idler strap.



5. Reinstall factory washer on plow bolt then install 2 stainless steel washers (provided) below the sprocket.



6. Install the 9-tooth idler sprocket with the **teeth beveled on 3 sides facing up.**



7. Place 1 stainless steel washer (provided) on top of the 9-tooth idler sprocket.



8. Reinstall 5/8" lock washer and nut (some heads have regular 5/8" washer and a lock nut) and torque to 100 ft. lbs. (Slight resistance when turning sprocket by hand is normal)

9. Oil the gathering chain drive shaft.

10. Place the gathering chain around the idler sprocket.

11. Insert the 7-tooth sprocket in the chain at the drive end.

12. Lug Timing

For Standing Corn: Install the gathering chain lugs so the lugs are staggered.

For Down Corn: Install the gathering chain lugs so they are directly opposed from each other. Adding plastic paddles will also help in harvesting down corn. **These oversized down corn plastic gathering chain paddles are available for purchase from Calmer Corn Heads.**

13. Reinstall bolt and washer into top of gathering shaft to secure 7-tooth sprocket.

14. Tighten the gathering chain tightener until there is a 3/16" clearance and washer. Apply anti-seize or lubricant to threads for future adjustments.

15. Test for proper installation of components. To ensure proper installation of components, using the feeder house reverser, operate corn head for 10 seconds. Next, operate corn head normally at idle then gradually increase to full speed.

HELPFUL CORN HEAD SETTINGS & ADJUSTMENTS

Marion's Recommended Sieve Adjustments for Corn: I personally disagree with the suggested sieve settings in many owner's manuals. Below is what I've found to be most successful throughout my years of farming.

Bottom Shoe Sieve: Run Wide Open (Try this one round to gauge effectiveness)

Top Chaffer Sieve: Close until sample in the grain tank is clean

Reason: When harvesting corn, the bottom sieve is not needed. There is no part of the kernel that needs to be re-threshed! Therefore, the bottom sieve should be wide open. This allows the kernels to fall directly into the clean grain auger.

Results of my Recommended Sieve Settings:

1. More capacity
2. More air to top sieve
3. Less separator loss
4. Less cracks in dry corn
5. Less grinding in wet corn
6. Less plugging of return elevator in wet corn

Corn Head Angle: A properly adjusted corn head angle is critical to its performance. For optimum performance and to retain Calmer's warranty on parts, the corn head angle **MUST** be set between 23-25 degrees in standing corn and 20 degrees in down/lodged corn.



Protractor placed on stripper plate to measure corn head angle

Setting Your Corn Head Angle: Place 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 directly on the stripper plate and read the angle. If the angle is too steep, pull the top of the corn head toward the combine, push the bottom out, or a combination of both.

Setting Gathering Chain Speed to Match Ground Speed: Begin calibration with initial gathering chain speed of 55 RPMs. If butt shelling is a problem, slow down the corn head speed until

it starts to bulldoze cornstalks, then speed back up until bulldozing stops. Note: If RPMs are too fast, trash intake and butt shelling increase. If RPMs are too slow, you may experience poor stalk chop, row unit bulldozing and ear loss.

Reducing Ear Toss:

1. For minimal ear toss, the feeder house chain must be running at maximum speed. Adjust the corn head speed to conditions in the transmission or in the oil bath.
2. Cross auger should be horizontally adjusted rearward, as close to the feeder house chain and rear stripper/stripping tunnel as possible. This will improve the transfer of material from cross auger to the feeder house chain, ultimately reducing ear toss. (Note: Adding half and/or full links to lengthen the feeder house chain will move it closer to the auger.)

Cross Auger Flighting: Cross auger should be vertically adjusted to have 1 3/4-inch clearance between the auger flighting and tray at the tightest point. This significantly reduces ear slicing which is a cause of cracked kernels in the grain tank. When you turn on the end rows, there should be a layer of ears between flighting and the tray.



Gear Box Lubricant: See manufacturer's owner's manual for proper lubricant specifications.

INSTALLING CALMER'S DOWN CORN PLASTIC GATHERING CHAIN PADDLES

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. Install and hammer the two provided carriage bolts into each paddle, ensuring the bolt shoulders are seated in the paddles. Repeat for remaining paddles and bolts, while being careful to not damage threads.
2. Install paddles on every other lug of the gathering chain, ensuring the bevel is closest to the chain. (See graphic above for reference) Use a standard 7/16" socket to install and tighten lock nuts.
3. Repeat steps for remaining rows.





“Thank you for purchasing Calmer Products to improve your corn head and residue management capabilities on your farm.”

Marion Calmer

CEO – Calmer Corn Heads, Inc.
President – Calmer Ag Research Center
Owner/Operator – Calmer Farms



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The replacement parts comprising and the methods associated with Calmer’s Residue Management Program are covered by the following patents issued by the United States Patent and Trademark Office: 7,886,510, 8,171,708, 8,220,237, 8,464,505, 8,857,139, 8,863,487, 9,554,511, 9,560,804, 9,668,414, 10,039,232, 10,045,483

Calmer Corn Heads Residue Management Upgrade Kit Limited Warranty

Calmer warrants our parts 100%. This warranty is good throughout the first season after purchase of the part. What this means is that if the part breaks within the first season of use, we will replace the part with a new one without charge to you. Calmer pays for the shipping both ways as well. In the alternative, if you wish, we will refund to you all of the money you paid to Calmer for the part. If the Calmer part does not work in a manner that you expected, we promise that we will work with you to adjust settings and to see if we can obtain satisfactory performance. In the end, if the Calmer part does not work on your farm to your complete satisfaction, we will refund your purchase price. Disclaimers: Calmer is not responsible for and does not warrant as to consequential damages or any other types of damages that may be claimed as a result of part breakage or unsatisfactory performance. In other words, except as stated herein all other warranties or liabilities, expressed or implied, oral or statutory, including any warranty of merchantability or fitness for a particular purpose are expressly denied.

**TO OBTAIN WARRANTY SERVICE
PLEASE CALL 1-309-629-9000**

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