



OPERATOR'S MANUAL



***CASE IH* 2200/2400 &
NEW HOLLAND* 96C/98C/996
SERIES CORN HEADS***

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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 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. Reference the danger sign on the left, and understand the cutting dangers with the enclosed product.



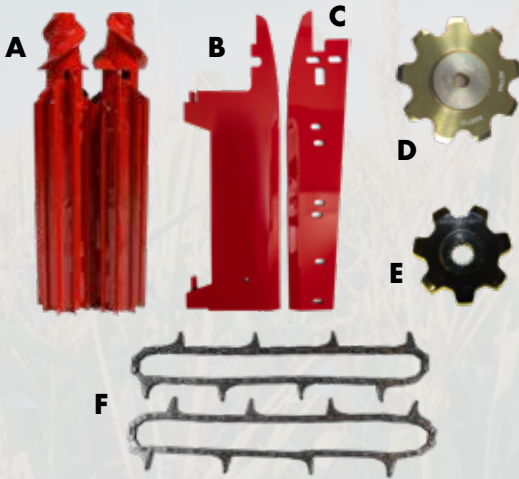
BEFORE OPERATION

- 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 CALMER UPGRADE KIT INCLUDES THE FOLLOWING PARTS PER ROW:

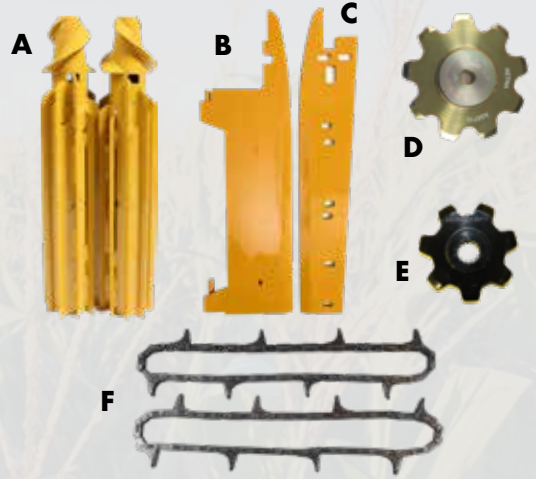
Your reference for left and right stalk rolls is from your perspective while sitting in the combine cab looking at the corn head.

Case IH Upgrade Kit



- A (2) BT Chopper® Stalk Rolls
- B (1) Left Hydraulic Stripper Plate
- C (1) Right Manual Stripper Plate
- D (2) 9-Tooth Idler Sprockets
- E (2) 7-Tooth Drive Sprockets
- F (2) 48-Pitch Chrome-Pin Gathering Chains

New Holland Upgrade Kit



- A (2) BT Chopper® Stalk Rolls
- B (1) Left Hydraulic Stripper Plate
- C (1) Right Manual 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



(6) STAINLESS STEEL WASHERS



(2) 1/2" X 6 1/2" GRADE 8 BOLTS (15226)



(2) WASHERS (1133817)

(2) CUT-RESISTANT GLOVES



STEP 1

Removing Old Stalk Rolls

! 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.

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. Remove the corn head dividers and hoods.

3. Remove grass knives.



4. Clean-out the nose of the spiral cones.



5. Un-bolt spirals.



6. Remove spirals.

7. Install a short 1/2" bolt to protect threads when using puller.



8. Attach a 2 jaw puller to the open slots on stalk roll knives, tighten down, and pull off the pinion shafts.



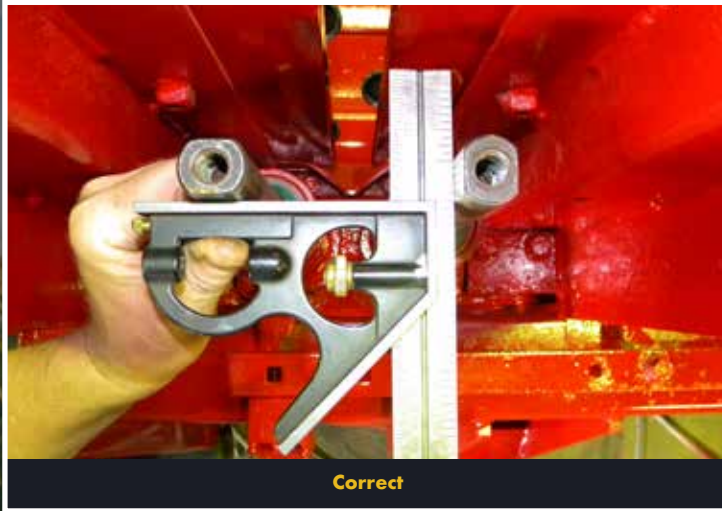
9. Clean rust from pinion shafts.

10. After pinion shafts are clear of any rust, check for leaks and replace seals, if necessary.

STEP 2

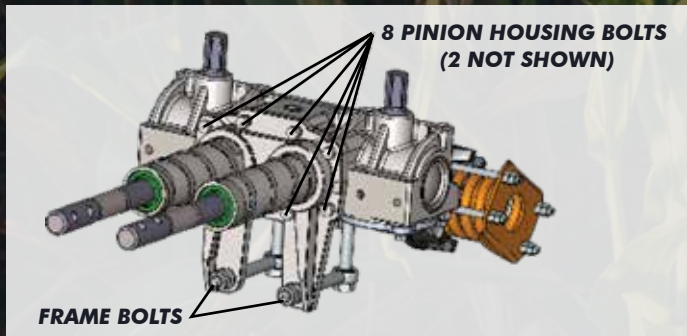
Check Pinion Shaft Timing

NOTICE: Before beginning assembly steps, check the timing with a combination square to ensure pinion shafts are exactly 90 degrees from each other.



To Correct The Problem:

- Leave the gear box on the corn head.
- Remove the stalk rolls.
- Clean around the stalk roll housing.
- Remove (8) 3/8" stalk roll housing bolts and (2) 5/8" frame mounting bolts. (See graphic below.)
- Raise the stalk roll housing high enough to rotate one pinion shaft 180 degrees then set back down.
- Recheck pinion shafts with combination square.



Installing Calmer BT Chopper[®] Stalk Rolls

STEP 3



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.

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

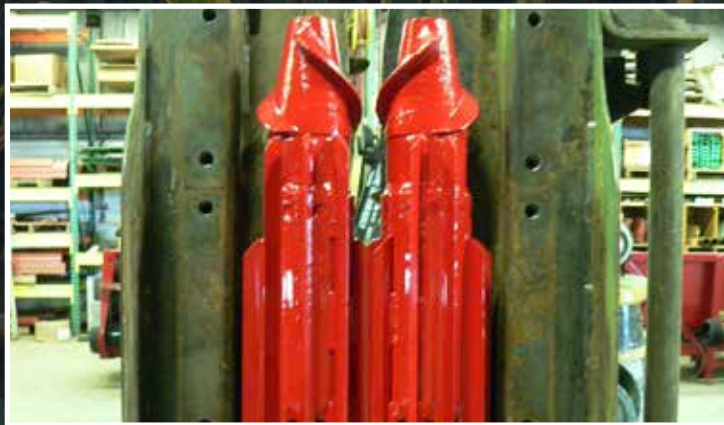


! **DANGER:** BT Choppers[®] are extremely sharp! Make sure that you are wearing the gloves provided with your order and that you handle the stalk rolls with extreme care!

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!

DO NOT APPLY any anti-seize substance on the shaft!

1. Slide Calmer BT Chopper[®] Stalk Rolls onto pinion shafts.



NOTICE: Because of the variability of the width of the flat portion at the end of the pinon shaft, that flat area may need to be polished for proper fit. If needed, flap disk sand the flat portion at the end of the pinon shaft to ensure stalk rolls slide on easily.

2. Apply medium-strength threadlocker to the threads of the 1/2" bolts provided with Calmer Stalk Rolls.
3. Install the provided washers and 1/2" bolts through the spiral at the end of the stalk rolls. **Torque to 110 lb-ft. Recheck torque every year and at least 1 time during harvest.**
4. After installation, if your stalk roll flutes contact each other and do not intermesh correctly, then it is likely that the gearbox has been re-worked. **The flat area at the end of the pinon shafts must be exactly 90 degrees from each other. For reference or to correct the problem, see page 5.**
5. Re-install grass knives and set to a 1/4" gap.

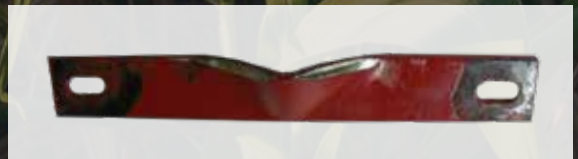
NOTICE: To prevent possible damage to stalk rolls, GRASS KNIVES MUST BE SET TO A 1/4" GAP!

If stalk rolls hit grass knives: Grind just enough of the weed knife to allow 1/4" gap.



If stalk rolls hit the wear plate:

Grind just enough on the wear plate to get the metal out of the way of the knives.



Installing/Adjusting Calmer Stripper Plates

STEP 4



**MULTI-ZONE
BEVELED STRIPPER
PLATES FOR CASE IH**

**MULTI-ZONE
BEVELED
STRIPPER
PLATES**

**MULTI-ZONE BEVELED
STRIPPER PLATES FOR
NEW HOLLAND**

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.

STEP 5

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

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 image.)

2. Disassemble the old idler sprocket.

Gathering Chain Tighteners

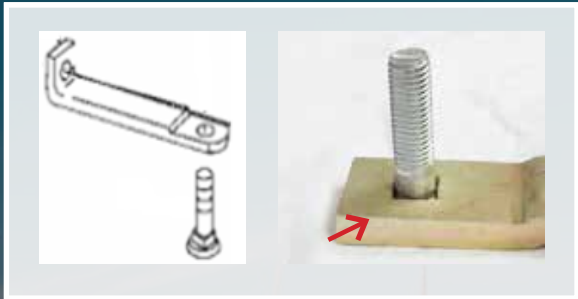
Gathering chain tighteners occasionally lock up. This is caused when the spring vibrates and augers itself into the hole between the bolt and the flat strap. This can be fixed by removing the idler bolt and adding a second washer (enclosed) at the bottom of the pipe spacer, which is identical to the 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 lb-ft. (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 oversized paddles will also help in harvesting down corn. **These oversized down corn gathering chain paddles are available for purchase from Calmer.**

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 between the pipe spacer 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.

Check Clutches:

1. Disconnect PTO shaft.
2. Wedge a 2"X4" in between the stalk rolls.
3. Use a wrench to turn the drive line.
4. Apply pressure to the slip clutch. It should slip around 350-450 lb-ft.

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.



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.



Oil Bath Settings for Case-IH 2200 Series Corn Heads:

The 2200 corn head should have the oil bath in overdrive, the large sprocket on the back (driver), and the small sprocket on the front (driven). Please refer to the following corn head gear ratios:

- 2206 and 2212 corn heads should be set to 28 Driver; 22 Driven, low side of gearbox.
- 2208 corn heads should be set to 34 Driver; 26 Driven, low side of gearbox.

Oil Bath Settings for Case-IH 2400 Series Corn Heads

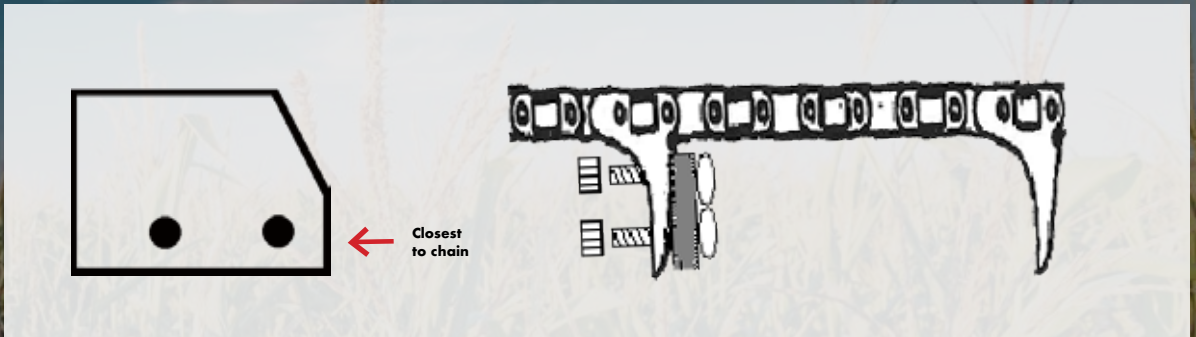
The 2400 corn head should have the oil bath in 1 to 1 ratio. Run the feeder house speed wide open.



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

INSTALLING CALMER'S DOWN CORN 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 closet 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

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 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:
CALL 309-629-9000**

**FOR EMERGENCY REPAIRS:
CALL 309-368-1182**

September 2022