



OPERATOR'S MANUAL



JOHN DEERE* 600/700/C 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.



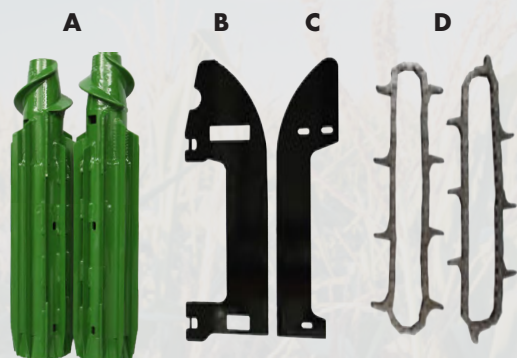
BEFORE OPERATION

- 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

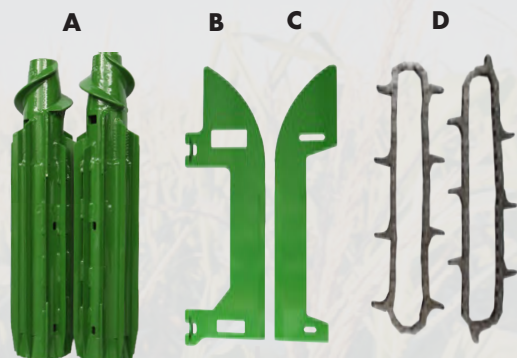
Note: Your reference for right and left (stalk rolls) is as you are sitting in the combine cab looking at the corn head.

600 Old Frame Kit



- A (2) BT Chopper[®] Stalk Rolls
- B (1) Left Hydraulic Stripper Plate
- C (1) Right Manual Stripper Plate
- D (2) Chrome-Pin Gathering Chains

600 New Frame/ 700/C Kit



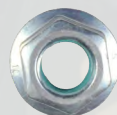
- A (2) BT Chopper[®] Stalk Rolls
- B (1) Left Hydraulic Stripper Plate
- C (1) Right Manual Stripper Plate
- D (2) Chrome-Pin Gathering Chains (600 only)



(2) GRASS KNIVES



(2) CUT-RESISTANT GLOVES



(2) BT CHOPPER[®]
HARDWARE SETS
(Only for Old Frame)



(1) SHIELD



(4) SHIMS

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.

1. Attach the corn head to your combine in accordance with the instructions in the manufacturer's owner 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. Remove nuts and washers inside the end of the spirals (30 mm socket).
5. Pull stalk rolls off the shafts with a 2 jaw puller.
6. Clean rust from pinion shafts.

STEP 2

Installing Calmer BT Chopper® Stalk Rolls



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.

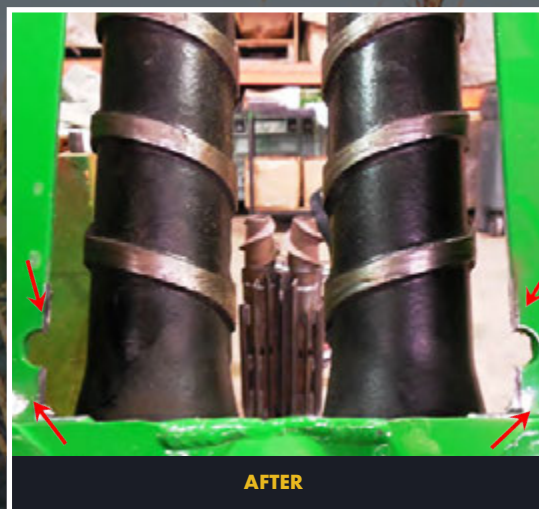
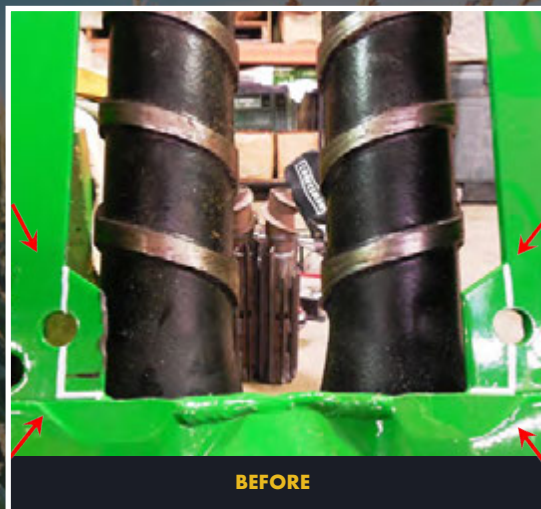
! CAUTION: BT Choppers® are extremely sharp! Make sure that you are wearing the gloves provided with your order and that you handle the stalk rolls with extreme care.

! 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!

Old Row Frame Design:

There have been isolated instances on the 600 series old frame design where Calmer BT Chopper[®] Stalk Roll blades have hit the tabs on the rear of the row frame. **IF YOU HAVE THIS ISSUE, YOU MUST REMOVE THE TWO TABS!**

This can be easily achieved with any type of cutting wheel.



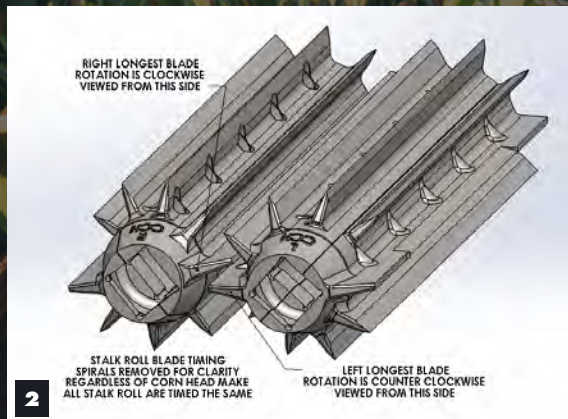
Verify Your Corn Head's Shaft Prior to Installation!





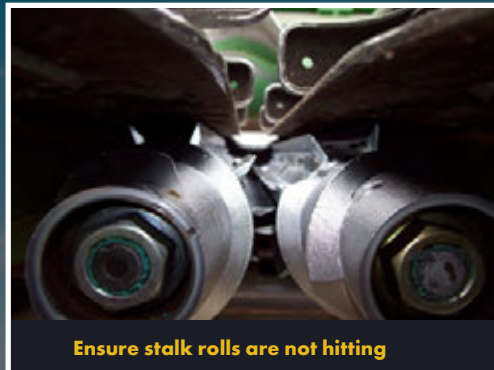
In an effort to resolve problems with the older 600 series shaft design, John Deere has updated newer 600 series corn heads with a new pinion shaft design. For this reason, it is important to verify the pinion shafts on your 600 series corn head prior to installation. Please use the pictures on the bottom of page 6 to determine if your corn head has OLD or NEW pinion shafts in the gearboxes. To determine the shaft design, take the nut off one stalk roll and remove from the pinion shaft. Then, check the spline pattern on the pinion shaft or inside the center of the stalk roll. An "X" pattern indicates an old-style shaft. A "+" pattern indicates a new-style shaft.

1. Slide the RIGHT BT Chopper® Stalk Roll part way onto the pinion shaft. The nose cone of the stalk roll is marked with an "R." Ensure the stalk roll is stable and won't fall off the shaft. (See picture 1) Do not lubricate the shaft!
2. Intermesh the LEFT BT Chopper® Stalk Roll with the Right Stalk Roll while simultaneously sliding onto the right shaft. Ensure the longest blade on the left-hand roll is leading the longest blade on the right-hand roll as you simultaneously slide the rolls onto the pinion shafts, engaging them with the splines. (See pictures 2 & 3)
3. Install enclosed washer and nut. Torque to 120 lb-ft, plus 1/6 of a turn (or 1 point).



NOTICE: Make Sure Stalk Rolls Are Not Hitting Deck Plates or Row Frame Legs:

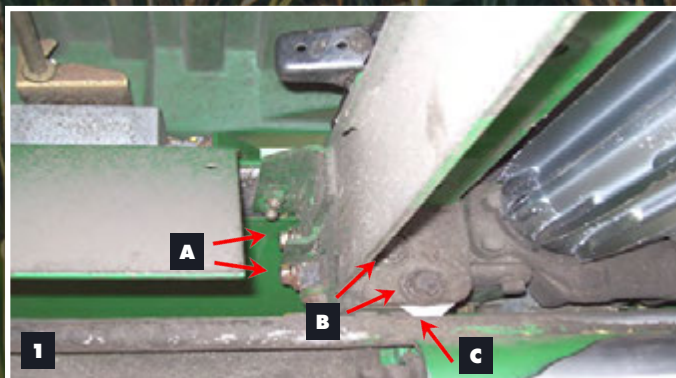
You may encounter inconsistency of row frame legs and/or stripper plates, which could cause your stalk roll blades to hit the row frame. This inconsistency could also cause your stripper plates to be out of alignment from each other. (See picture to the right)



Follow directions below to shim the row unit to fix these issues:

! 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. Loosen bolts (A) and (B). (See picture 1)
2. Lift up the front end of the row frame with a hydraulic jack. (See picture 2)
3. Add Shim (C), which is included in the kit.
4. Retighten bolts (A) and (B)



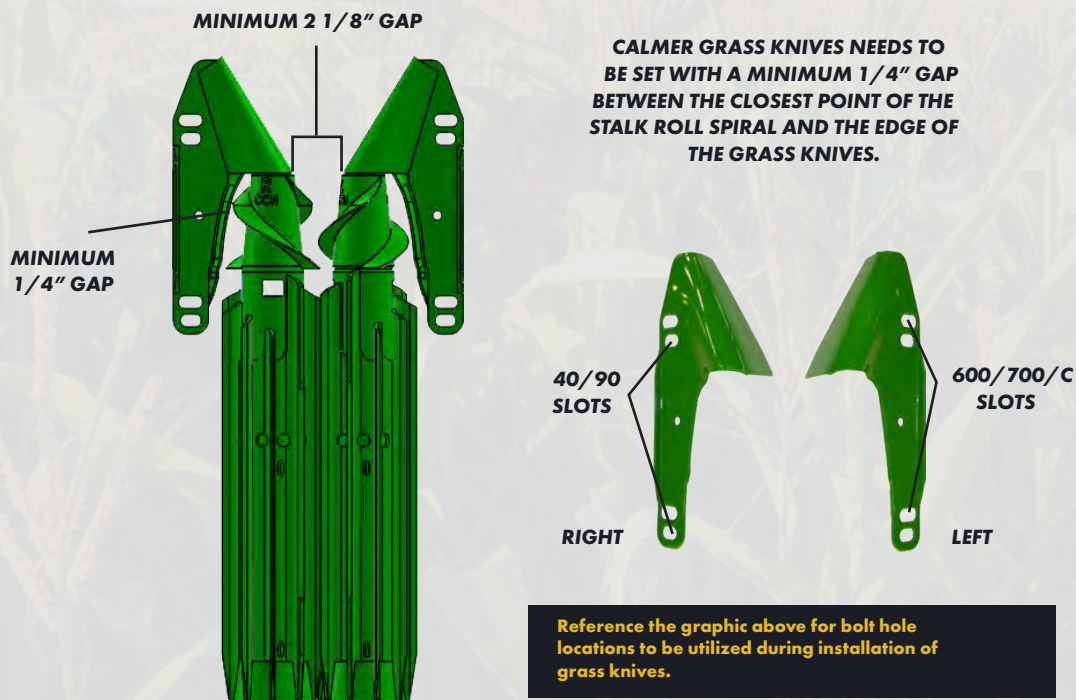
STEP 3

Installing Calmer Grass Knives

(Calmer Grass Knives will not fit on chopping corn heads)

1. Set and maintain a minimum $\frac{1}{4}$ " gap between the stalk roll spirals and the grass knives. This can be measured from the spiral point closest to the grass knives and the edge of the grass knives.

NOTICE: To prevent possible damage to stalk rolls or grass knives, there must be a minimum $\frac{1}{4}$ " gap between the stalk roll spirals and grass knives. Also, ensure a minimum $2 \frac{1}{8}$ " gap between the front of the grass knives. Grass knives bevel should face the ground. (See graphic below)



View from bottom of corn head

For JD Chopping Corn Heads:

Calmer Grass Knives will not work with JD chopping corn heads. You must purchase JD's grass knives that fit with their intermeshing stalk rolls (Part #s HXE40250-LH & HXE40239-RH) and make the following modifications.

The right-hand grass knife needs to be cutoff below the middle bolt in order to clear the stalk roll and gearbox. (See figure 2 below)

NOTICE: To prevent possible damage to stalk rolls, ensure a minimum 2 1/8" gap at the front of the grass knives. There should be a minimum 1/4" gap between the stalk roll blades and grass knives.

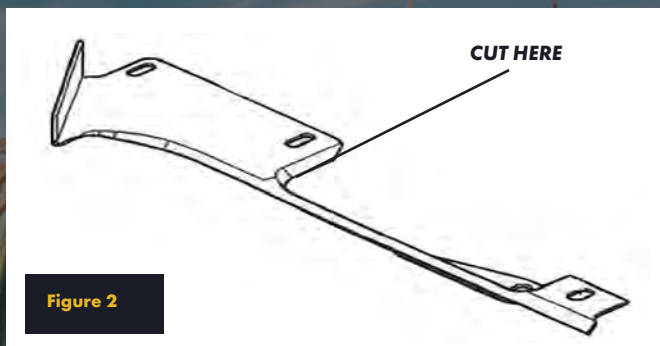


Figure 2

Modifying JD Grass Knives – OLD FRAME:

If Calmer Grass Knives were not purchased, modifications may be necessary in order to achieve proper clearance between Calmer Stalk Rolls and JD grass knives. First, ensure a minimum 1/4" clearance between the grass knives and the stalk roll blades. If proper clearance can't be achieved, cut grass knives along lines shown below to achieve proper clearance.



Modifying JD Grass Knives – NEW FRAME:

If Calmer Grass Knives were not purchased, modifications may be necessary in order to achieve proper clearance between Calmer Stalk Rolls and JD grass knives. John Deere grass knives that fit with intermeshing stalk rolls are the only JD grass knives that will work after modification with JD new frame corn heads. Reference the picture below and cut grass knives along lines shown to achieve proper clearance.



STEP 4

Installing Shield

The shields included in your order are to be installed as illustrated in the pictures below. The purpose of this shield is to prevent the buildup of material between the frame and the hydraulic stripper plate shaft. If the hydraulic cylinder is located directly under the row unit on one row of your corn head, you will have an extra shield that will not be utilized.

NOTICE: Add silicone thread sealant to all bolts when reinstalling.



Installing/Adjusting Calmer Stripper Plates

STEP 5



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.

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:

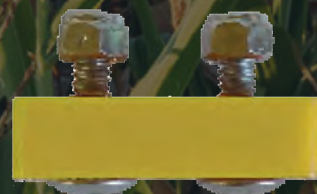
1. More capacity
2. More air to top sieve
3. Less separator loss
4. Less cracks in dry corn
5. Less grinding in wet corn
6. Less plugging of return elevator in wet corn

Calibrate 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.

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.





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.



Cross Auger Flighting: The cross auger should be vertically adjusted to have 1 3/4-inch clearance between flighting and tray at the tightest point to reduce ear slicing. Also, adjust rearward as far as possible. 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 the end rows, there should be a layer of ears between flighting and tray.



Reducing Ear Toss:

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 the cross auger to the feeder house chain, thus reducing ear toss.

Add half and/or full links to lengthen the feeder chain. This will reduce the dead air space between the feeder chain and cross auger flighting.

Stay on the fast setting (large sprocket) for the feeder house chain speed when harvesting corn to decrease ear toss. This can be adjusted on the lower right-hand side of the feeder house.

Note: It is possible for feeder house ear tossing to increase as a result of minimal trash intake.

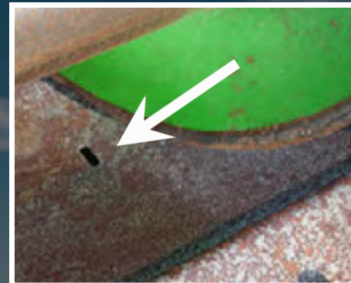




Feeder Drive Speed

Standing Corn: 600-610 RPM on variable speed. As stated before, we suggest staying on the (fast setting) sprocket for feeder chain speed when harvesting.

1. Corn head must have the heavy-duty reverser.
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 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 speed.

Gear Box Lubricant

See manufacturer's owner's manual for proper lubricant specifications.



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*"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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CALL 309-368-1182**

July 2026