



OPERATOR'S MANUAL



**GERINGHOFF* NORTHSTAR SERIES
CORN HEADS**

TABLE OF CONTENTS

Introduction	2
Warranty	2
Safety Section	2
Before Operation	3
Components List	4
Step 1 – Disassembly of Current Components	5
Step 2 – Modifying Row Frame Units and Stalk Roll Spirals	6
Step 3 – Installing Calmer BT Chopper® Stalk Roll Shells and Transition Plate	9
Step 4 – Installing Calmer Spiral Grass Knives	12
Step 5 – Installing Calmer Stripper Plates	14
Step 6 – Installing Calmer Drive Sprockets	15
Helpful Corn Head Settings and Adjustments	16

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.



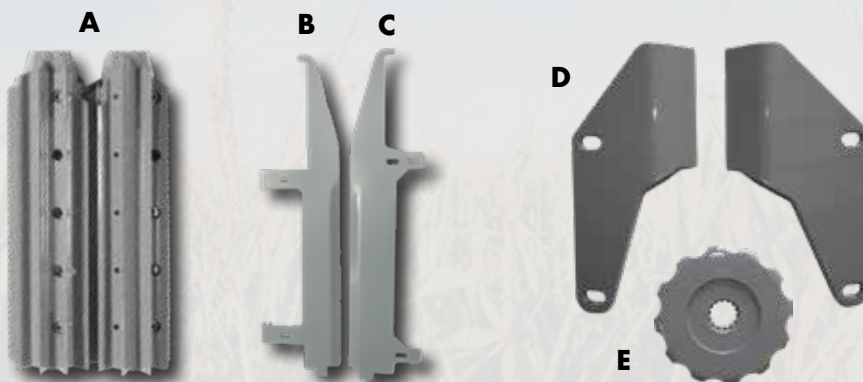
BEFORE OPERATION

- 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.

Geringhoff NorthStar Upgrade Kit



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

- D (2) Spiral Grass Knives
- E (2) 12-Tooth Drive Sprockets



- (1) 32-TOOTH CROWN GEAR
- (2) FOR DUAL-DRIVE HEADS



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

- (1) THERMO GUN



- (1) CROWN GEAR SEAL
- (2) FOR DUAL-DRIVE HEADS



- (1) 5/16" HEX BIT SOCKET



- (2) CUT-RESISTANT GLOVES



- (1) TRANSITION PLATE

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.

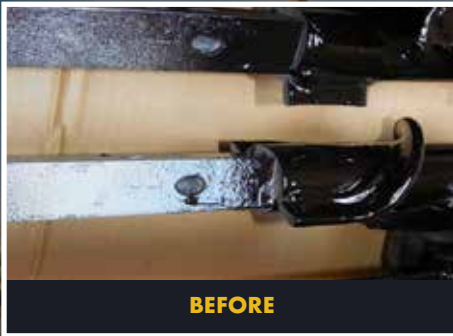
1. Attach the corn head to your combine in accordance with the instructions in the manufacturer's owner's manual. **It is critical to lock the lift cylinder in the raised position before making any further adjustments.**
2. Raise and secure or remove the corn head dividers and hoods.
3. Remove chain guides.
4. Remove idler blocks, chain guide, and cover plate assembly.
5. Remove stripper plates.
6. Remove stripper transition plate (at gear box).
7. Remove grass knives.
8. Remove stalk roll knives. **Do not remove stalk roll shaft!**

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

Modifying Row Frame Units and Stalk Roll Spirals

STEP 2

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. See page 7 for detailed instructions on modifying factory spirals.



Modify the row frame unit by removing 5/8" from the left stripper plate support tab and 1/4" from the right stripper plate support tab. These are the tabs closest to the gear box.



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

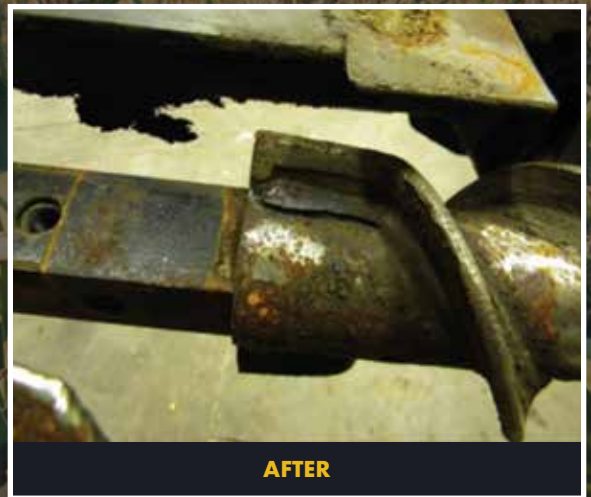
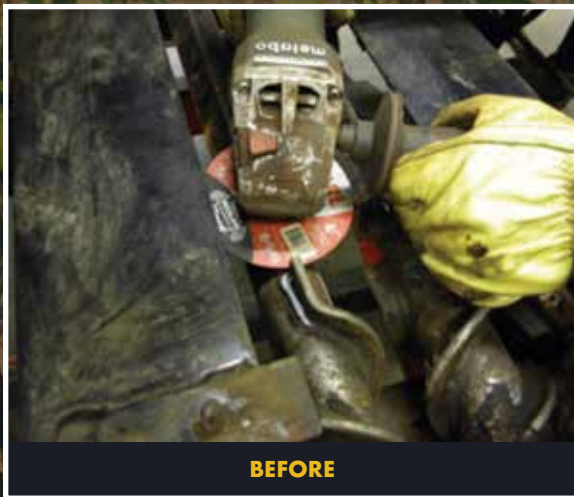
Notice: To achieve optimum performance and superior flow of cornstalks into the row unit, or if you're having issues with stalks feeding, please reference pages 17 & 18.

Spiral Modifications

Issues with stalks feeding into row unit?

This is likely caused by the flawed design of the OEM spiral, which restricts the flow of material into Calmer's patented "open-window" feeding chamber. This symptom is magnified in adverse conditions, with poor stalk quality or in down corn situations. Modifications may be made to the OEM spiral to help improve the feeding of material, which are outlined in the following steps.

1. Remove gathering chains, stripper plates and cover plates.
2. Use an angle grinder equipped with a cut-off wheel to cut under the straight portion of each heli-coid. See below before and after images.



- Using a torch, heat-up the helicoid until malleable, then bend straight portion of flighting to match the curvature of the helicoid. Helicoid should point towards one of the shorter blades. (See below image.)



- Weld helicoid into place as shown in below images.



- Re-install parts as indicated in this installation manual.

QUESTIONS? Call (309) 629-9000.

STEP 3

Installing Calmer BT Chopper® Stalk Roll Shells and Transition Plate



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!

! **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.

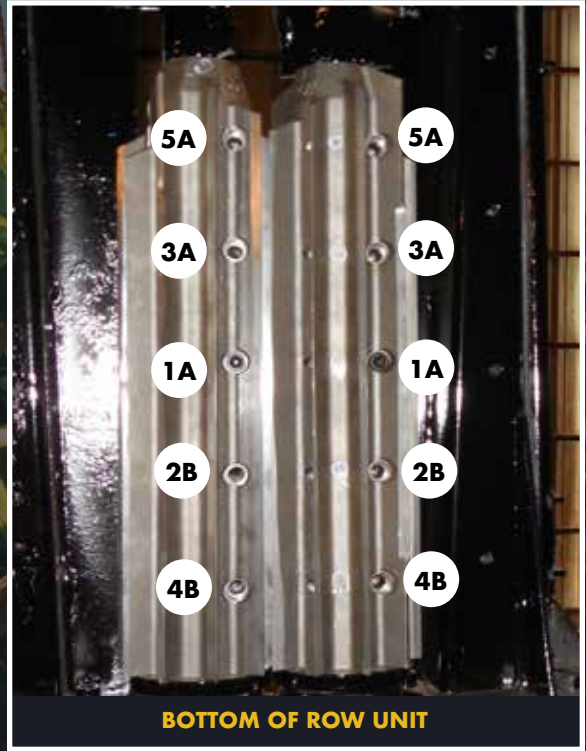
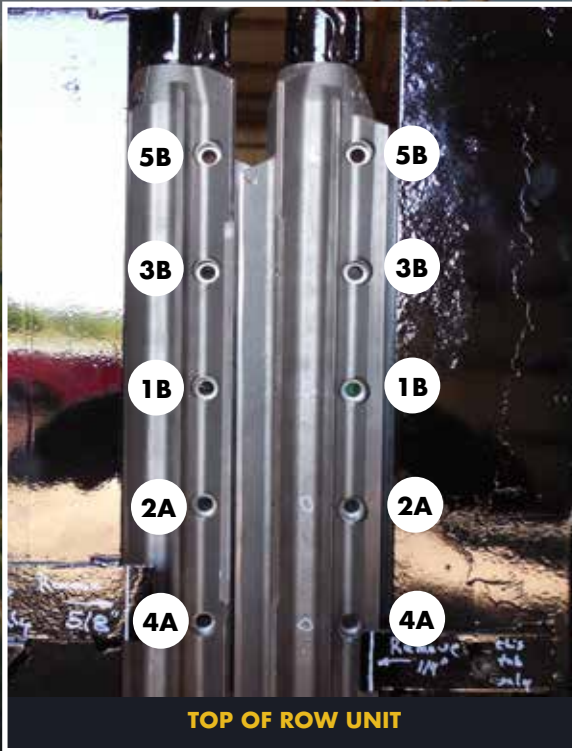


1. Remove and discard 4 shipping bolts from each roll. **Do not reuse these bolts!**
2. From the top of the corn head, install 1 left half shell on the left stalk roll shaft (image A) and 1 right half shell on the the right stalk roll shaft (image B).
Note: If persuasion is necessary, tap the rolls only between the blades and bolts over the bosses as shown using a suitable punch.
3. Rotate the half shells horizontal as shown. See image C.
4. Clean oil from 1 3/4" socket head cap screws, then apply medium-strength threadlocker.
5. From the bottom side of the corn head, install the right shell. Ensure both shells are aligned and using a 1 3/4" socket head cap screw in the middle hole, hand tighten to secure the shell.
6. Install the left shell following the same steps, then slide/pry the shells tight against the spiral.
7. Clean oil from remaining 1 3/4" socket head cap screws, then apply lock tight medium-strength threadlocker. Hand tighten all screws.

8. Ensure the shells are against the spiral, then torque the bolts to 55 lb-ft, 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

When installed correctly, the seams of the stalk roll shells should be facing the same direction/parallel to each other.



Install Calmer Transition Plate to the top of row unit after installing stalk rolls.



Installing Calmer Spiral Grass Knives

STEP 4

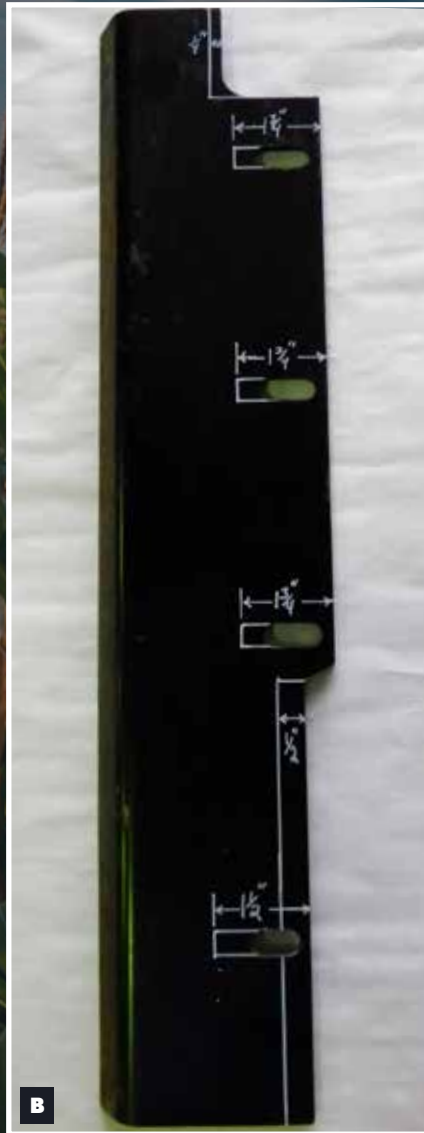
1. Install Calmer Grass Knives using existing hardware bolts. See Image A.
2. Set and maintain a minimum 1/8" gap between the stalk roll spirals and the grass knives. This can be measured from the spiral point closest to the grass knives and the edge of the grass knives.



A

Modifying OEM Grass Knives

If you did not purchase and are not installing Calmer Grass Knives, you must reinstall OEM grass knives with the modifications shown. See Image B below.



Installing 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. Position stripper plates so the center gap between the edge of the stripper plates is located over the center of the stripping tunnel/stalk rolls. Failure to do so will void warranty.

Note: To minimize the amount of trash and stalk intake, the stripper plates must be open 1/16" wider than the diameter of the 3rd cornstalk node above the brace root.

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 6

Installing Calmer Drive Sprockets

1. Remove factory 10-tooth drive sprockets and snap ring. **Remember to save the factory snap ring.**
2. Loosen bolts on each metal bracket directly below the stub shafts. **DO NOT FULLY REMOVE BRACKETS!** See image A.
3. Slide bracket away from the sprocket as far as possible in order to achieve clearance between Calmer Sprockets and the edge of the bracket.
4. Install Calmer's 12-Tooth Drive Sprockets and secure with factory snap rings. With the outside of the sprocket cogs closest to the bracket, ensure clearance. See image B. (Some trimming may be necessary.)
5. Compress idler spring.
6. Install gathering chain onto idler sprocket, then on the 12-tooth drive sprocket. (See image C for reference.)



HELPFUL CORN HEAD SETTINGS & ADJUSTMENTS

NorthStar Crown Gear Recommendation: When using Calmer BT Chopper® Stalk Rolls, we recommend installing the 32-tooth crown gear (Part # 501532) and a new seal (Part # 41271) in the rear gear case located on the side of the corn head. This will reduce corn head speed, which will decrease ear bounce and butt shelling problems. **Notice: If you have a single-drive, 12-row corn head, we do not recommend installing the 32-tooth crown gear unless installing a 2nd drive.**

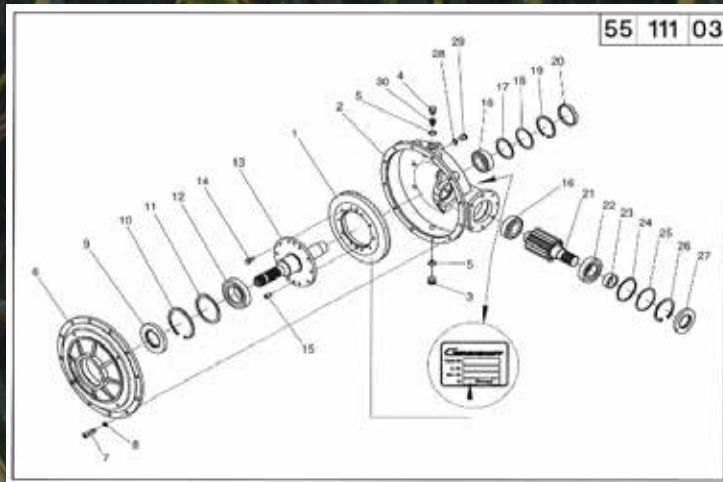


32-TOOTH CROWN GEAR (PART#501532)

SEAL FOR 32-TOOTH CROWN GEAR (PART #41271)



When installing the Geringhoff 32-tooth crown gear: It is important to ensure the crown gear shaft rotates smoothly, without binding, after installation. If the crown gear shaft cannot rotate smoothly, it must be shimmed to ensure its free movement. If shimming is necessary, a shim kit (Part # 042172) can be purchased from your Geringhoff dealer. For reference, see number 18 in the diagram below, which shows the shim kit. **Use provided thermo gun to monitor gear case temperature. Gear box should measure 110 degrees to 130 degrees. Recheck for proper installation if warmer than 130 degrees.**



Issue Spinning Clutches?

This likely means that smaller ears are falling below the stripper plates. If you're encountering this issue, narrow up the stripper plate gap.

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.

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.



Protractor placed on stripper plate to measure corn head angle

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.

Gathering Chain Replacement Recommendation: Per the manufacturer's owner's manual, it is recommended to replace gathering chains when gathering chain tensioner stretches to 4 1/2 inches.

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.

Check Lubricant Level in Gear Boxes: See manufacturer's owner's manual for proper lubricant specifications.



“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