

3 & 4 Bar Roller Flex Harrow (3BR, 3BHDR, 3BRBR) (4BR, 4BHDR, 4BRBR)



Setup/Owner's Manual

Our Tradition is Quality Driven and Field Proven Manual # - MAN-34BR-DFC-005

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***PART DIAGRAMS**

Scan the QR Code or visit our website to view our parts book: https://www.remlingermfg.com/agricultural-products/downloads/





Before using this attachment, make certain that every operator:

- Is instructed in safe and proper use of this attachment.
- Reads and understands the manual pertaining to the attachment.
- Reads and understands ALL (if applicable) Safety Decals on the attachment.
- Clears the area of all other people before operating the implement and attachment.
- Learns and practices safe use of the attachment in a safe clear open area before operating the implement and attachment in the field.



This symbol indicates an important Safety Alert Message in this Manual. Carefully read and understand the message that follows. The potential for series injury or death is possible.



- Never attempt to operate or adjust the attachment without reading this manual.
- Do not attempt to adjust the attachment while it is in motion.
- The addition of this attachment will make the implement rear-end heavy.
- <u>Caution</u> is required when hooking up or un-hooking the attachment. A rear jack stand is recommended but not provided.
- Always use any transport locks that are provided on the attachment or implement.
- Always place all safety decals and reflectors in their proper locations. Clean and replace as necessary.
- Never allow anyone to ride on the implement or attachment.
- Always slow down when turning and traveling over rough terrain.
- Always support the implement when mounting or working on the attachment.
- Be careful around teeth, tines, sweeps, and blades: they get sharper with wear.

To the Owner

Your new harrow attachment was carefully designed to give years of dependable service. This manual contains important information about the safe assembly, adjustment, operation, and maintenance of your attachment. To keep it operating efficiently, read the instructions in this manual. Parts of the attachment have been partially assembled at the factory. The use of this manual describes how to complete the remaining assembly. This manual should be considered a permanent part of your implement and should remain with the implement when it is sold. Additional diagrams may also be included for specific applications. Please contact the dealer or Remlinger Manufacturing for any questions at **1-800-537-7370**.

Any unauthorized modification to any part of the attachment could cause serious injury and void any warranty consideration. Please refer to the Warranty Policy referenced below. For additional manuals or to replace a lost or damaged manual, please contact your dealer. The manual number is referenced on the lower right-hand corner of each page.

Warranty Policy

Remlinger Mfg. will warrant all products against defects in material and workmanship manufactured and sold by it. Warranty will only be granted after examination by appropriate personnel. This warranty is expressly limited to the replacement of defective products. This warranty does not obligate Remlinger Manufacturing to cover cost of labor to replace these parts.

Remlinger Mfg. reserves the right to change specifications, add improvements or discontinue manufacture of any of its equipment without notice or obligation to purchasers of its equipment. This warranty gives you specific legal rights. You may also have other rights which vary according to state or province.

WARRANTY EXCLUSIONS: Labor, transportation, or any cost related to a service call is not provided by Remlinger Mfg. This Limited Warranty does not apply to damage resulting from misuse, neglect, normal wear, accident or improper installation or maintenance.

BASIC WARRANTY: All Remlinger manufactured products are warranted for one year from date of purchase.

UNAPPROVED PARTS OR MODIFICATION: All obligations of Remlinger Mfg. under this Warranty are terminated if unapproved parts are used or if equipment is modified or altered in any way not approved by Remlinger Mfg.

Mounting the Harrow

Field Cultivator - Chisel

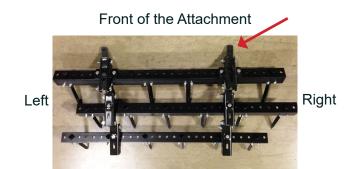
1. The harrow sections have been factory assembled and rolled into bundles.





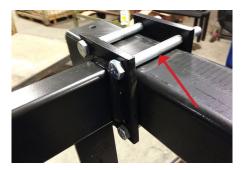
2. Each bundle has the section size stenciled on the rear of the last bar. Left hand and right hand sides are determined by standing behind the implement and facing forward. The chain pulls on the front of the attachment should face forward, pointing towards the implement.





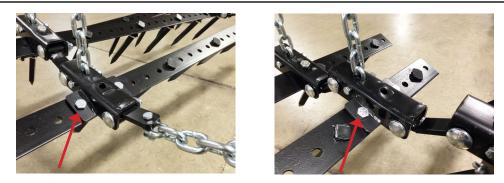
** Start at center of the implement and work out from there.

3. Lay the harrow sections out behind the implement. Mount the mounting arms to the rear frame tool. The mounting arm must be directly above the channel brackets on the attachment. Use the 3/4" - 10 x 6 1/2" hex cap bolts and mounting plates. See common adapters below.





If there are obstacles, mount the lift arm as close to where it needs to be and move the channel brackets on the harrow. The channel bracket with 2 ears welded to it doesn't have to be on the front bar.



4. Place the lift chains (17 link) into the slots in the channel brackets. Use the $3/8" - 16 \ge 2/4"$ hex cap bolts with lock nuts. Next, attach the other end of the lift chain to the mounting arm. <u>Remove any twist in the chain.</u> Use $3/8" - 16 \ge 1/4"$ hex cap bolts with lock nuts. Be certain to use the 3/8" flatwasher to help hold the chain.



5. Attach the pull chain (31 link) to the underside of the chain pull link. Use the 3/8" - $16 \times 1 1/2$ " hex cap bolts with lock nuts. Again, make certain to use the 3/8" flatwasher to help hold the chain. Use the 7/16" lynch pin to connect the pull chain to the pull bracket on the mounting arm. <u>Remove any twist in the chain.</u>





6. Periodically check for loose or worn bolts, replace as necessary. Torque all bolts to recommended torque settings. See chart on <u>page 10</u>.



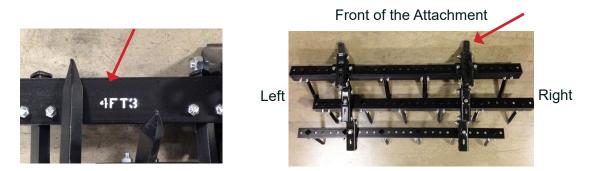
Do not allow the chain to get twisted. Chain twist will cause the inside of the links to rub together. This rubbing will cause the links to wear prematurely and will not be covered by warranty.

Disk - Disk Chisel

1. The harrow sections have been factory assembled and rolled into bundles.

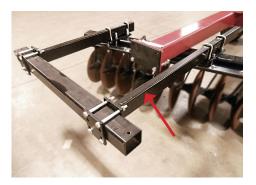


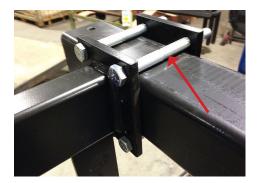
2. Each bundle has the section size stenciled on the rear of the last bar. Left hand and right hand sides are determined by standing behind the implement and facing forward. The chain pulls on the front of the attachment should face forward, pointing towards the implement.



** Start at center of the implement and work out from there.

3. Lay the harrow sections out behind the implement. The adapters mount to the rear frame of the implement. The adapter must be mounted directly above the channel brackets on the attachment. Use the $3/4^{\circ}$ - 10 x 6 $1/2^{\circ}$ hex caps bolts to attach the mounting arm to the adapter tube.







If there are obstacles, mount the lift arm as close to where it needs to be and move the channel brackets on the harrow. The channel bracket with 2 ears welded to it doesn't have to be on the front bar.



4. Place the lift chains (17 link or 23 link) into the slots in the channel brackets. Use the $3/8^{\circ}$ - 16 x 2 3/4" hex cap bolts with lock nuts. Next, attach the other end of the lift chain to the mounting arm. Remove any twist in the chain. Use $3/8^{\circ}$ - 16 x 1 1/4" hex cap bolts with lock nuts. Be certain to use the $3/8^{\circ}$ flatwasher to help hold the chain.



5. Attach the pull chain (31 link) to the underside of the chain pull link. Use the 3/8" - $16 \times 1 1/2$ " hex cap bolts with lock nuts. Again, make certain to use the 3/8" flatwasher to help hold the chain. Use the 7/16" lynch pin to connect the pull chain to the pull bracket on the mounting arm. <u>Remove any twist in the chain.</u>





6. Periodically check for loose or worn bolts, replace as necessary. Torque all bolts to recommended torque settings. See chart on <u>page 10</u>.



Do not allow the chain to get twisted. Chain twist will cause the inside of the links to rub together. This rubbing will cause the links to wear prematurely and will not be covered by warranty.

Adjusting the Attachment

Pull Chain

- Use the 7/16" Lynch Pin to adjust the chain to the desired length.
- Allow the attachment to float back to a minimum of 10" behind closest blade, sweep or shank.
- The freshly turned soil and residue should come to rest on the ground in front of the attachment bars. Landing on top of the bars may result in plugging.
- Do not allow twist in the chain. Always allow an even number of links to hang free.





Lift Chain

- Use the 3/8" 16 x 1 1/4" Hex Cap Bolt on the mounting arm to adjust the chain to the desired height.
- The attachment teeth should be just touching the ground when the implement is set down on a level surface.
- In normal conditions the lift chains will be loose in the field.
- In heavy residue, the first and/or second chain may need to be shortened to help carry the bar through residue. Normally the first bar causes the plugging issues.
- Carrying the attachment bars in the field with the lift chains may cause premature chain wear.
- Do not allow twist in the chain. Always allow an even number of links to hang free.



Pull Link

Position A - Allows maximum flexibility in heavy trash conditions (factory set).



Position B - Maintains maximum rigidity for better soil shattering.





Do not allow the chain to get twisted. Chain twist will cause the inside of the links to rub together. This rubbing will cause the links to wear prematurely and will not be covered by warranty.

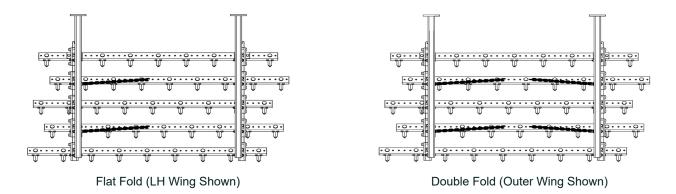
Recommended Torque Specifications

SAE Grade No.	5		8	
Bolt Head Identification	$\bigcirc \bigcirc $			
Bolt Size	Lb - Ft	N - m	Lb - Ft	N - m
1/4"	9 - 11	12 – 15	12 - 15	16 - 20
5/16"	17 - 20.5	23 – 28	24 - 29	33 - 39
3/8"	35 – 42	48 - 57	45 - 54	61 - 73
7/16"	54 – 64	73 - 87	70 - 84	95 - 114
1/2"	80 - 96	109 - 130	110 - 132	149 - 179
5/8"	150 – 180	203 - 244	220 - 264	298 - 358
3/4"	270 – 324	366 – 439	380 - 456	515 - 618
7/8"	400 – 480	542 – 651	600 - 720	814 - 976
1"	580 - 696	787 – 944	900 - 1080	1220 - 1464
1-1/8"	800 - 880	1085 – 1193	1280 - 1440	1736 - 1953
1-1/4"	1120 – 1240	1519 – 1681	1820 - 2000	2468 - 2712
1-3/8"	1460 – 1680	1980 – 2278	2380 - 2720	3227 - 3688
1-1/2"	1940 - 2200	2631 – 2983	3160 - 3560	4285 - 4827

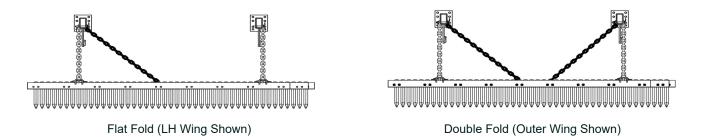
Optional Harrow Accessory Kits

Cross Chains for Flat Fold & 5 Section Double Fold Wing Implements Only (Optional Kit)

Cross Chains are required on Flat Folding and Double Wing Folding Implements. The chains retain the harrow sections while the wing folds for transport on flat fold models and the harrow sections while the secondary wing folds for transport. These chains are only required on the outside arm on each wing for flat folding wings and only required on the secondary wing on 5 section double fold models. **Note: Views are shown from standing behind the implement!**



The diagram above shows the location of the cross chains on a 5 Bar Harrow section (2nd & 4th Bars). On the 3 & 4 Bar Harrow sections, place the chains on the 1st & 3rd bars. The cross chain kit contains (8) 31 links of chain and required hardware needed within the complete harrow kit for implements using this kit.



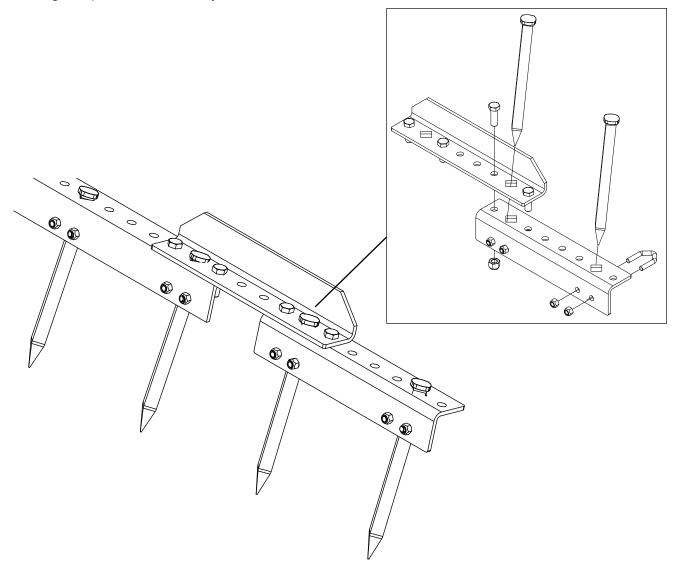
The final diagram shows where to attach the cross chains. Remove the $3/8" \times 3"$ bolt that attaches the lift chain to the mounting arm (see top diagram for proper location). Place the cross chain on the side opposite of the lift (inside position). Use the $3/8" \times 3 1/2"$ bolt, locknut and two flat washers. Place the flat washers to the outside to help hold both chains. Attach other end of the cross chain to the corresponding bar. Use $1/2" \times 1 1/4"$ bolt, lock nut and flat washer. When attaching the remaining end, stretch chain towards the center of the harrow section. The chains should not move the section left or right. The lift chains should still hang straight down.

Bolt - On 18" & 36" Extension Kit Optional Kit - Required to Extend an Existing Harrow

The extension is added when standard size harrow sections will not appropriately cover the cut of the implement. The extension comes in 18" or 36" lengths. The 18" extension provides an additional 9" per side. The 36" extension (shown) provides an additional 18" per side. The extension bolts to any existing 3, 4 or 5 bar Angle Iron Flexible Harrow.

Extension Kit (Rigid): Remove the outside tooth from one end of each bar. Use (2) 1/2" x 1 1/2" hex head bolts with locknuts to attach the L-A0055 connecting bracket to the end of each bar as shown. Again use (2) 1/2" x 1 1/2" hex head bolts with locknuts to attach extension to each connecting bracket as shown. Finally, replace the teeth and tighten them into place using the special "V" shaped U-bolt.

Note: Also can be used to connect (2) complete sections together if mounting arm confliction arises when attaching complete harrow kit to your machine.



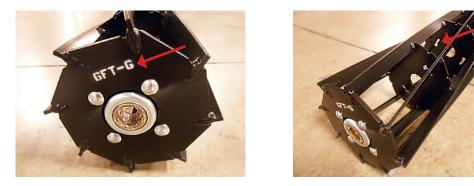
Mounting the Roller Harrow

1. The roller sections with bearings have been factory assembled and palletized. Roller Arms and required hardware are packed in a sturdy cardboard box.





2. Each roller section has the size stenciled on the end. There is an arrow cut into each inner plate of each roller size. The direction of the arrow indicates the Aggressive Mode. Most mounted roller sections are attached to implement in the Aggressive Mode. The arrows should face forward, pointing towards the implement.



3. Lay the roller sections out behind the implement. Reference additional layout sheet for proper location of each roller section. Rollers should match the size of the flex harrow. The Roller mounting arm is attached directly to the lift arm. Use the 5/8"-11 x 2" hex cap bolts. Recommendation is to leave spring arms slightly loose, this allows up and down movement until roller frame is attached to each pair of arms.

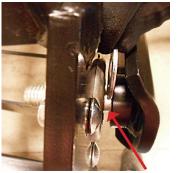




If there are obstacles, place the mounting arm as close to where it needs to be on the roller section. Typically, mounting arms should be 6"-10" from each end of the roller section. Roller sections can be moved around to better fit the implement.

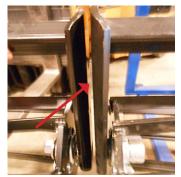
4. Place the proper roller frame around the matching roller section. Tighten one end of the frame to the roller. Use the 1"-8 x 3 3/4" hex cap bolts with spacer bushings, large flat washers & lock nuts. Next, determine if the thin flat washer (one provided for each roller section) will easily slide in between the frame and the end of bearing. Do not force if gap is narrower than thin flat washer er!!! Not all sections may need this flat washer. Proceed to tighten frame to roller section. Each roller section should spin freely without bearings dragging or squeaking. Repeat this for each roller section provided.







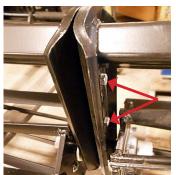
5. Attach a complete roller section to a pair of matching arms. Use the 1/2"-13 x 2" x 3 1/2" U-bolts with lock washers and hex nuts. Repeat this for each section of roller. Note: Rollers sections need a minimum of $\frac{1}{4}$ " gap between the frames in the non-wing fold hinge areas. In the wing fold hinge areas of your implement, it is recommended to have a wider gap of 2"-3" for more contoured ground and wings that flex. Certain applications require smaller frame sizes to be bolted together. Note: (2) 1/2" x 1 1/4" bolts are used.



1/4" Gap (Non-Hinge)



2"-3" Gap (Hinge Fold)



Bolted Frame (3 arm)

6. Center the base section(s) of the roller(s) and then tighten in desired place. Then move to each wing. Torque all bolts to recommended torque settings. See chart on <u>page 18</u>.

Do not over tighten bolts on one side more than the other, this will leave unleveled mounting arms and bending of plates. Tighten all fasteners properly and evenly. Improper tightening of bolts may cause plates to deform, which will not be covered under warranty.

Setting the Roller Harrow

Roller Height and Depth

The roller harrow and all its components are tightened to the machine, it is now time to set the roller to the desired working depth for your machine application. Several steps are involved to properly set your roller harrow. Improper settings can cause damage to harrow, which will not be covered under warranty. Read carefully and follow each step to correctly set your Remlinger roller harrow.

1. Determine the operating depth your implement. This is key, mounted roller harrows work best when the depth setting of the roller harrow is approximately 2 inches. Roller harrows that are set less than 2" have a tendency of leaving an unsatisfactory finish. Roller harrows that are set more than 2" deep can cause premature stress on the harrow components and cause failure that will not be covered under warranty.

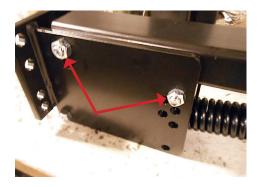
2. On a hard level surface, lower the implement down onto shovels, blades, shanks, etc. With implement resting on the ground, a formula is used to decide how thick of spacer boards are needed to set the roller height to obtain the recommended 2" roller working depth. For example, implement is going to be working 4" deep in the ground, to obtain a 2" roller working depth, lay 2 spacer boards on the ground underneath each end of one roller section. This spacer board should be approx. 2" in thickness. This will be repeated for each roller section mounted. Note: Spacer boards from roller pallets are ideal to use.

Formula: Implement Work Depth – 2" Roller Work Depth = Spacer Thickness



Steps 3, 4 and 5 will be done simultaneously before moving onto the next roller section.

3. To set the height on your roller harrow, it is important to loosen all the fasteners and springs that control the height of the arm. Loosen the 5/8" lock nut and $\frac{1}{2}$ " lock nut to allow arm to move up and down freely. To decrease any spring tension from factory assembly, loosen the 5/8" jamb nut on and turn threaded bolt counter clock-wise until spring is released of any tension.



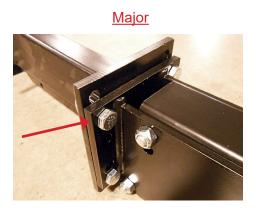




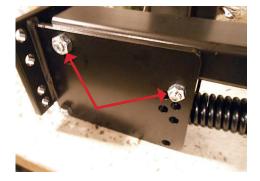
Decrease spring tension to allow easier movement of roller arm if height needs raised or lowered. If spring tension is set too extreme, attempting to raise and lower arm height may cause injury.

4. There are 2 ways to adjust the arm up and down, <u>Major</u> or <u>Minor</u> adjustments. The <u>Major</u> adjustment on field cultivators and chisel plows will vary from that of disks and disk rippers. The minor adjustment is done by removing the $\frac{1}{2}$ " bolt and arm stop spacer, locating to a higher or lower set of holes. Set each roller section down onto the spacer boards, insert arm stop spacer and $\frac{1}{2}$ " bolt back into hole setting so that a gap is underneath the arm. Tighten down the $\frac{1}{2}$ " bolt with roller still on the spacer boards. This will be repeated for each roller section. Note: A combination of both major and minor adjustments may be needed to get ideal roller height setting.

- Major Adjust the Roller Mounting Arm up or down on the rear plate of extension.
- Minor Move the Arm stop in the Roller Mounting Arm in the proper position.



<u>Minor</u>



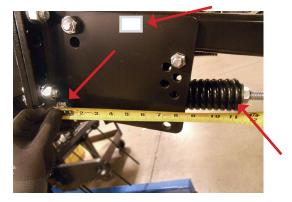






The roller arm assembly is factory assembled and will need some kind of adjustment. Settings will vary depending the implement that the roller harrow is attaching to. 5. Spring tension is a key element to having the roller harrow work properly. To accomplish this, the following is recommended. To apply spring tension on your roller harrow, the roller section must be still resting on the spacer boards and the tension bolt will look similar to the pictures above. Tighten the spring by turning threaded bolt into the spring plug. When spring assembly is snug (movement free in the arm) measure from the center of 5/8" bolt to the flat face of the spring plug, this is the starting point to apply tension to the arm. Each arm will have tension applied to it. Each roller size will be set differently depending the particular sizes attached onto the implement.





Tension Settings for Remlinger Roller Harrow Sizes 6ft-6in Roller Section....increase spring length by......1" 5ft-9in Roller Section....increase spring length by......3/4" 5ft-0in Roller Section....increase spring length by......1/2" 4ft-3in Roller Section.....increase spring length by......3/16" 3ft-6in Roller Section.....length remains the same.......0" Note: All springs on the roller section should be changed equally.

!

We recommend setting the down pressure at approximately 70lb/ft. To increase or decrease down pressure, turn bolt one complete revolution to change tension approximately 6.5lbs. (not 6.5 lbs/ft)

6. After spring tension has been set on all the arms, tighten the 5/8" jamb nut against the face of the spring plug to lock down tension settings. See above picture. Check for any other loose bolts and tighten before conducting any field work. Torque all bolts to recommended torque settings. See chart on page 18.

7.Place Remlinger Decal on harrow either top of the arm, rear of the roller cross frame or anywhere the decal can fit (optional). See Above picture for Serial # Location. Note: Serial # Decal is usually on the one side of the main mounting arm!

Recommended Torque Specifications

SAE Grade No.	5		8	
Bolt Head Identification	$\bigcirc \bigcirc $			
Bolt Size	Lb - Ft	N - m	Lb - Ft	N - m
1/4"	9 - 11	12 – 15	12 - 15	16 - 20
5/16"	17 - 20.5	23 – 28	24 - 29	33 - 39
3/8"	35 – 42	48 - 57	45 - 54	61 - 73
7/16"	54 – 64	73 - 87	70 - 84	95 - 114
1/2"	80 - 96	109 - 130	110 - 132	149 - 179
5/8"	150 – 180	203 - 244	220 - 264	298 - 358
3/4"	270 – 324	366 – 439	380 - 456	515 - 618
7/8"	400 – 480	542 – 651	600 - 720	814 - 976
1"	580 - 696	787 – 944	900 - 1080	1220 - 1464
1-1/8"	800 – 880	1085 – 1193	1280 - 1440	1736 - 1953
1-1/4"	1120 – 1240	1519 – 1681	1820 - 2000	2468 - 2712
1-3/8"	1460 – 1680	1980 – 2278	2380 - 2720	3227 - 3688
1-1/2"	1940 - 2200	2631 – 2983	3160 - 3560	4285 - 4827

Roller Bearing

Roller Harrows with Greasable Bearings

• Use a #2 multipurpose lithium grease on the bearings at least once a season or every 150 hours. Pump grease in **<u>SLOWLY</u>** until old grease and dirt are forced out around seals.

Roller Harrows with Sealed Bearings

 Inspect seals and concentricity on the bearings at least once a season or on an as needed basis. Spin <u>SLOWLY</u> to ensure bearing is working properly. Disassemble from roller assembly if necessary for closer inspection.

It is best to lubricate bearings just prior to prolonged storage. The grease fitting is a press-in style not a threaded spin-in. Worn fittings may prevent bearings from taking grease.

Replacement Parts

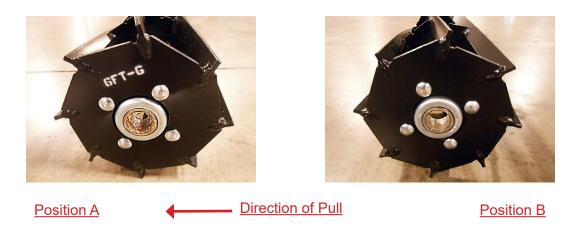
• Before and after each use of the roller attachment thoroughly look over your attachment for any worn, loose, stressed parts. Preventative maintenance can save time and expense to the attachment if issues are found before heading to the field.

Troubleshooting

Roller Harrow is leaving unsatisfactory finishing.

Roller Rotation

- **Position A** Aggressive Mode produces maximum soil shattering.
- **Position B** Passive Mode maintains maximum soil leveling.



Roller harrow is not shattering or leveling dirt. Incorrect soil movement.

Spring Tension

- Positive Tension Turn the bolt into the cast end of spring, this will increase tension.
- Negative Tension Turn the bolt out of cast end of spring, this will decrease tension.





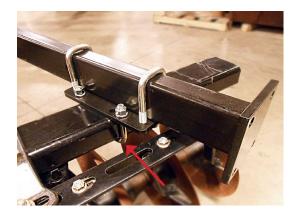
Decrease Tension -

Note: If added spring tension does not give satisfactory finish, refer to Pg. 15 & 16, Steps 3-5.



When applying more tension to spring only turn bolt head in ¼" turns at a time. Caution, extreme spring tension will cause spring to wear prematurely and may cause other damage to roller attachment and is not covered under warranty.

Common Adapter Mounts



Universal Adapter - Disk Gang (U-Bolt)



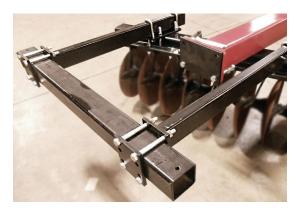
Universal Adapter - Disk Gang (U-Plate)



Butt-up Adapter - Straight Rear Frame



Butt-up Adapter - Welded Rear Plate



Universal Adapter - Rear Mount Frame



Butt-up Adapter - Rear Mount Frame

Optional Roller Harrow Accessories



Nut Protector Cup



Straight Side Roller Frame



Hydraulic Roller Option



6" Drop Pivot Bracket



14" Diameter Round Bar Roller Option



12" HD Flat/Round Bar Roller Option



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