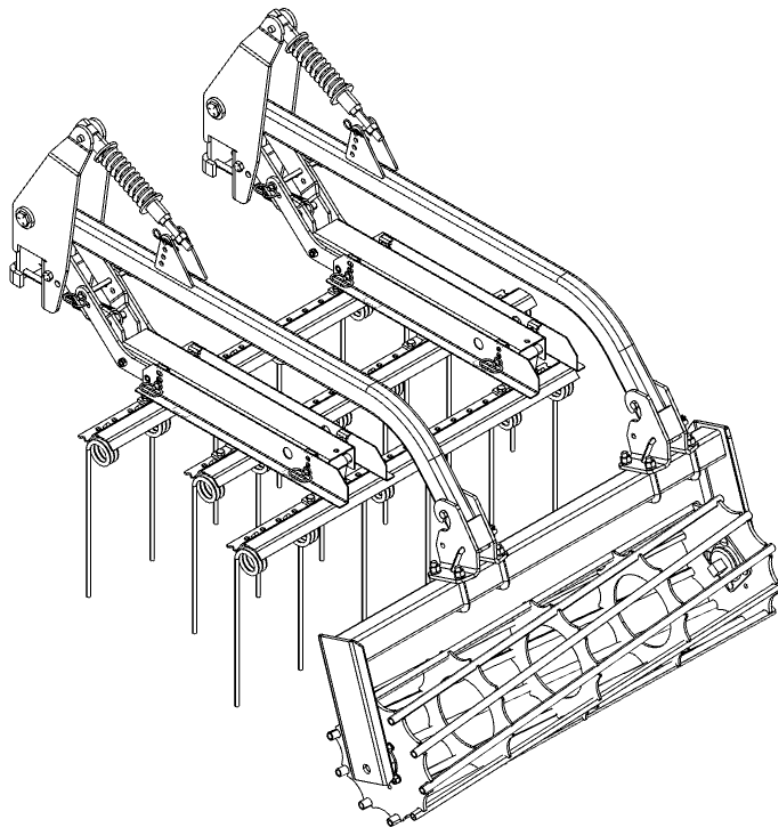




WIL-RICH®

OPERATORS MANUAL



3-BAR COIL TINE HARROW WITH BASKET (INCLUDES HYDRAULIC OPTION)

AGCO-Amity JV LLC LIMITED WARRANTY TERMS AND CONDITIONS – UNITED STATES AND CANADA

EFFECTIVE FOR EQUIPMENT RETAILED AND DELIVERED AFTER JANUARY 1, 2020

WHAT IS WARRANTED AGCO Amity JV warrants its new equipment to be free of defects in material and workmanship at time of delivery to the first retail purchaser, renter, or lessee. These terms apply to all 10K, Amity, Concord, Wil-Rich and Wishek brands of new equipment originally marketed in the United States and Canada.

WARRANTY PERIOD

- 12 Months from the date of delivery to the first retail purchaser, renter or lessee.
- 483 Disk Chisel, Field Cultivator and Disk Cultivators: 3 years on main frames, wing frames, and shank assemblies
- Precision Shank Drill: 3 years on main frame, wing frame, and rockshafts.

EXCEPTIONS FROM THIS WARRANTY

- **Freight Charges** - This warranty does not cover freight charges.
- **Improvements, Changes, or Discontinuance** AGCO Amity JV reserves the right to make changes and improvements in design or changes in specifications at any time to any product without incurring any obligations to owners of products previously sold.
- **Repairs and Maintenance Not Covered Under Warranty** - This warranty does not cover conditions resulting from misuse, natural calamities, use of non-AGCO-Amity JV parts, negligence, alteration, accident, use of unapproved attachments, usage which is contrary to the intended purposes, or conditions caused by failure to perform required maintenance. Replacement of Wear or Maintenance items (unless defective) such as but not limited to, filters, hoses, belts, lubricants, light bulbs, wheel alignment, tightening of nuts, belts, bolts, and fittings, service tune-up, computer parameter adjustments and general adjustments which may from time to time be required are not covered.
- **Rubber Tire Warranty** - Rubber tires are warranted directly by the respective manufacturer only and not by AGCO Amity JV.
- **Satellite Outages** - Interruptions in satellite interfaces and satellite communications are outside the control of this product and are not covered by this warranty. The company is not responsible for issues or degradation of system performance resulting from such interruptions in satellite interfaces and satellite communications where the issues are not related to defects in this product.

OWNER'S OBLIGATION

It is the responsibility of the Owner to transport the equipment or parts to the service shop of an authorized AGCO Amity JV Dealer or alternatively to reimburse the Dealer for any travel or transportation expense involved in fulfilling this warranty. This Warranty does NOT cover rental of replacement equipment during the repair period, damage to products which have been declared a total loss and subsequently salvaged, overtime labor charges, freight charges for replacement parts, or special handling requirements (such as, but not limited to, the use of cranes).

EXCLUSIVE EFFECT OF WARRANTY AND LIMITATION OF LIABILITY

THIS WARRANTY IS IN LIEU OF ALL WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PURPOSE OR OTHER REPRESENTATIONS, WARRANTIES OR CONDITIONS, EXPRESSED OR IMPLIED. The remedies of the Owner set forth herein are exclusive. The Company neither assumes nor authorizes any person to assume for it any other obligation or liability in connection with the sale of covered machines. Correction of defects, in the manner and for applicable period of time provided above, shall constitute fulfillment of all responsibilities of AGCO Amity JV to the Owner, and AGCO Amity JV shall not be liable for negligence under contract or in any manner with respect to such machines. IN NO EVENT SHALL THE OWNER BE ENTITLED TO RECOVER FOR INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES SUCH AS BUT NOT LIMITED TO, LOSS OF CROPS, LOSS OF PROFITS OR REVENUE, OTHER COMMERCIAL LOSSES, INCONVENIENCE OR COST OF RENTAL OR REPLACEMENT EQUIPMENT.

Some States or Provinces do not permit limitations or exclusions of implied warranties or incidental or consequential damages, so the limitations or exclusions in this warranty may not apply.

"AGCO Amity JV" AS REFERRED TO HEREIN WITH RESPECT TO SALES IN: UNITED STATES and CANADA: AGCO Amity JV LLC
PO Box 1030
Wahpeton, ND 58074

Additional Warranty Information

New Equipment Warranty - Equipment is eligible for warranty service only if it qualifies under the provisions of the New Equipment Warranty. The selling dealer will deliver this Warranty to the original retail purchaser at the time of sale, and the dealer will register the sale and Warranty with AGCO Amity JV LLC.

Subsequent Owners - This Warranty covers the first retail purchaser and all subsequent owners of the equipment during the specified warranty period. Should the AGCO Amity JV Dealer sell this equipment to a subsequent owner, the Dealer must deliver the warranty document to the subsequent owner so the subsequent owner can register ownership with AGCO Amity JV and obtain the remaining warranty benefits, if available, with no intermission in the Warranty Period. Subsequent Owner Procedure will apply. It is the responsibility of the subsequent owner to transport the equipment to the service shop of an authorized AGCO Amity JV Dealer or alternatively to reimburse the Dealer for any travel or transportation expense involved in fulfilling this warranty. This Warranty does NOT cover charges for rental or replacement equipment during the repair period, products which have been declared a total loss and subsequently salvaged, overtime labor charges, freight charges for replacement parts, or units sold at auction.

Warranty Service - To be covered by Warranty, service must be performed by an authorized AGCO Amity JV Dealer. It is recommended that you obtain warranty service from the Dealer who sold you the equipment because of that Dealer's continued interest in you as a valued customer. In the event this is not possible, warranty service may be performed by any other authorized AGCO Amity JV Dealers in the United States or Canada. It is the responsibility of the Owner to transport the equipment to the service shop of an authorized AGCO Amity JV Dealer or alternatively to reimburse the Dealer for any travel or transportation expense involved in fulfilling this warranty.

Maintenance Service - The Owner's Manual furnished to you with the equipment at the time of delivery contains important maintenance and service information. You must read the manual carefully and follow all the maintenance and service recommendations. Doing so will result in greater satisfaction with your equipment and help avoid service and warranty problems. Please remember that failures due to improper maintenance of your equipment are not covered by warranty.

Maintenance Inspections - To insure the continued best performance from your agricultural equipment, we recommend that you arrange to make your equipment available to your selling Dealer for a maintenance inspection 30 days prior to warranty expiration.

COIL TINE HARROW WITH HYDRAULIC BASKET

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General Information

Orientation:

Any reference to left (L) or right (R) sides or components is to be understood as being viewed from behind the implement and looking forward.

Serial Number Break:

Every Implement has a serial number located on the body of the frame. These serial numbers are consecutively assigned to the implements as they are manufactured. To aid in part ordering, we reference the serial number at the point the change occurred to provide an accurate means of determining proper parts.

Consumables:

P357194 – CHASIS GREY
SPRAY CAN

P351481 – RED PAINT
SPRAY CAN

P240799 – 460EP
GREASE

To the Owner

It is the responsibility of the user to read the operators manuals and comply with the correct operating procedures as pertains to the operation, lubrication and maintenance of the product according to the information outlined in the Operator's Manual.

If this machine is used by an employee or is loaned or rented, make certain that the operator(s), prior to operating, is instructed in the proper use and reviews and understands the Operator's Manual. This machine should only be operated by a trained operator that has been qualified to operate this machine.

The user is responsible for inspecting the machine and for having parts repaired or replaced when continued use of this product would cause damage or excessive wear to the other parts.

The word NOTE is used for information that is special such as specifications, techniques, or reference information of supplementary nature.

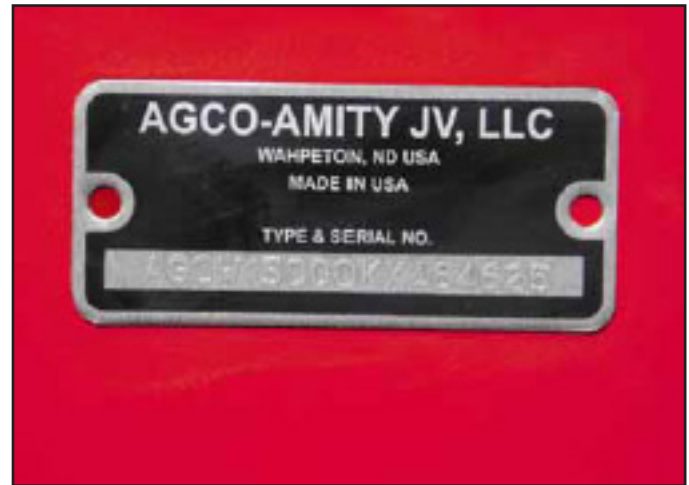
The word IMPORTANT is used for information that must be read and procedures followed for the safe and proper operation of the machine.

References to the right (RH) or left (LH) on the machine are from the view of the operator sitting in the cab of the tractor.

Disclaimer

It is company policy to improve its products whenever possible and practical to do so. We reserve the right to make changes, improvements and modifications at any time without incurring obligation to make such changes, improvement on any equipment sold previously.

Serial Number



When in need of parts, always specify the model and serial number. The serial number plate is located on the front rank of the mainframe on the left hand side.

1.1 Safety Symbol

The safety symbol tells you about a potentially hazardous area!

Look for the safety symbol in this manual and on the machine. The safety symbols tell you that there is important safety instructions in the manual.

1.2 Safety Messages

The words DANGER, WARNING, or CAUTION are used with the safety symbol. Learn these safety messages and obey the recommended precautions and safety instructions.



DANGER:

If you do not obey the recommended precautions and safety instructions, DEATH or INJURY will occur.



WARNING:

If you do not obey the recommended precautions and safety instructions, DEATH or INJURY will occur.



CAUTION:

If you do not obey the recommended precautions and safety instructions, INJURY can possibly occur.



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CMDJAD11063301

1.3 Information Messages

The words important and note are not related to personal safety, and are used to give information about the operation and servicing of the machine.

IMPORTANT: Identifies special instruction or procedures which, if not followed, can cause damage to the machine, the process, or the area around the machine.

NOTE: Information to make procedures easier.

1.4 Safety signs



WARNING:

Do not remove the safety signs. Replace safety signs that you cannot read, are damaged, or are missing.

Clean the machine surface with a weak soap and water solution before you replace the safety signs. Replacement safety signs are available from your dealer.

Always make sure that safety signs are in the correct locations and that you can read the safety signs. Illustrations of the safety signs are in this section.

1.5 This Manual

This manual covers general safety instructions for this machine. Keep this manual with the machine.

Right and Left, as used in this manual, are given as if you are in the operator seat.

The photos and illustrations used in this manual were up to date when published, but in-line production changes can make your machine have small differences. The manufacturer reserves the right to redesign and change the machine as necessary without notification.

1.6 Prepare for Operation

Read and understand all operation instructions and pre cautions in this manual before you operate the machine or do the servicing.

Make sure that you know and understand the positions and operations of all controls. Make sure that all controls are in neutral and that the parking brake is applied before you start the machine.

Make sure that all persons are away from your area of work before you start and operate the machine. Examine and learn the controls in an area that is clear of persons and obstacles before you start work. Know the machine dimensions and make sure that you have sufficient space available to operate the machine. Do not operate the machine at high speeds in crowded areas.

It is important to know and use the correct procedures when you do work around and operate the machine. Do not let children or unqualified persons operate the machine. Keep others, especially children, away from your area of work. Do not let others ride on the machine.

Make sure that the machine is in good condition for operation. Refer to the operator manual. Make sure that the machine has the correct equipment required by local regulations.

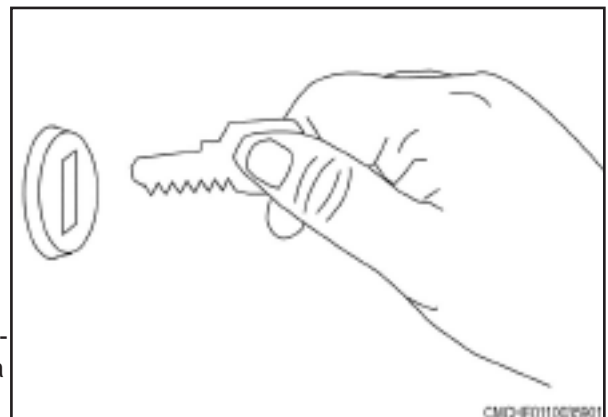
All equipment has a limit. Make sure you understand the speed, brakes, steering, stability and load characteristics of this machine and the tractor before you start.

1.7 General Information

When parking, park the machine and the tractor on a solid level surface. Put all controls in neutral and apply the tractor park brake. Stop the tractor engine and take the key with you.

Make sure the tractor and implement are in the proper operating condition according to the operator manuals. Make sure the tractor brakes and the machine brakes are adjusted correctly.

The tractor must have enough weight and braking capacity, especially when operating on roads and terrain that is not even. Use a tractor of recommended size and weight to tow the machine.



Tractor must be equipped with rollover protective structure (ROPS) and a seat belt. Use seat belt during operation. Do not dismount from moving machinery. Always operate the machine with the terminal turned on. Never start the tractor with the PTO engaged or terminal turned on.

Stay off slopes too steep for operation.

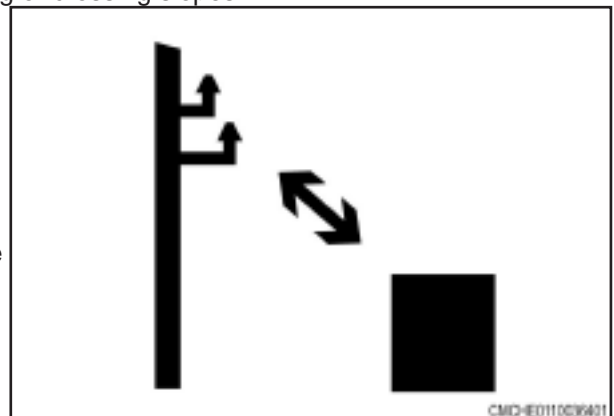
Where possible avoid operating the machine near ditches, embankments, and holes. Reduce ground speed when operating on rough, slippery, or muddy surfaces and when turning or crossing slopes.

Be aware of the size of the machine and have enough space available to allow for operation.

Always lower the machine when not in use and relieve the pressure in the hoses and cylinders.

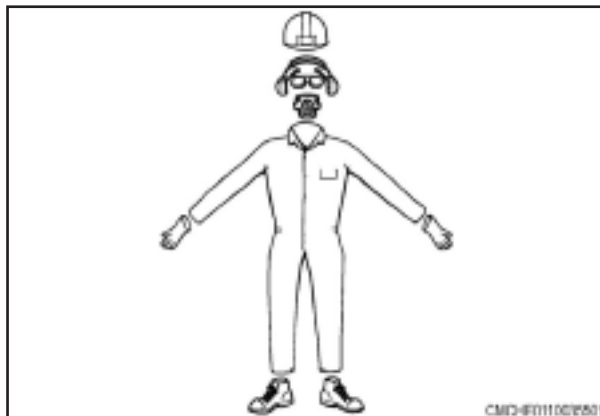
Do not stand between the tractor and the implement to install the hitch pin when the tractor engine is running.

Avoid contact with electrical power lines. Contact with electrical power lines can cause electrical shock, resulting in very serious injury or death.



1.8 Personal Protective Equipment

Put on all personal protective equipment (PPE) and protective clothes that are supplied to you or that are necessary for the conditions and by applicable laws. PPE includes equipment to prevent injury to your eyes, lungs, ears, head, hands and feet.



1.9 Shields and Guards



WARNING:
Entanglement hazard. Belts and components that rotate.

Severe personal injury or death can occur.

Do not open, remove, or put your hand behind shields if the engine is running. Stop the machine before doing service.

All shields and guards must be in the correct position and in good condition. Keep away from the components that rotate.



DANGER:
Entanglement hazard. Rotating components

Severe personal injury or death can occur.

Do not make adjustments or repairs to components while they are moving. Stop the machine before doing service to the machine.



1.10 Flying Debris



WARNING:
Be careful when you operate along the side of a road or structures. Rocks and other materials can be thrown from the machine during operation and can cause injury.

Stay away from the machine during operation. Some materials can be thrown from the machine during operation and cause injury.



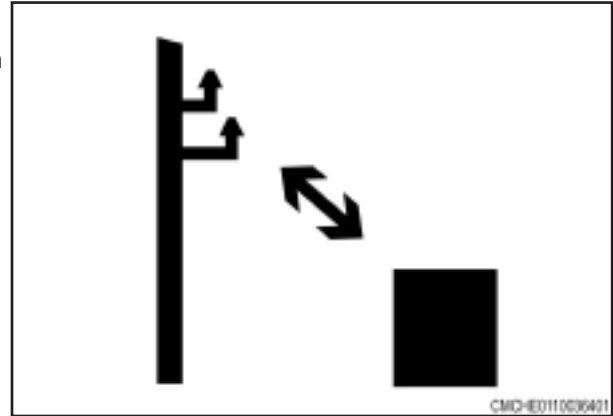
1.11 Travel on Public Roads

Make sure you understand the speed, brakes, steering, stability, and load characteristics of this machine before you travel on public roads.

Use good judgment when traveling on public roads. Maintain complete control of the machine at all times. Never coast down hills.

The maximum speed of farm equipment is governed by local regulations. Adjust travel speed to maintain control at all times.

Familiarize yourself with and obey all road regulations that apply to your machine. Consult your local law enforcement agency for local regulations regarding movement of farm equipment on public roads. Use head lamps, flashing warning lamps, tail lamps and turn signals, day and night, unless prohibited by local law.



Make sure all the flashers are operating prior to driving on the road. Make sure reflectors are correctly installed, in good condition, and wiped clean. Make sure the Slow Moving Vehicle (SMV) emblem is clean, visible, and correctly mounted on the rear of the machine.

Lock brake pedals together (if equipped with dual brake pedals) so both wheel brakes will be applied at the same time.

Raise implements to transport position and lock in place. Place all implements into narrowest transport configuration. Disengage the power take-off and differential lock.

With towed implements, use a proper hitch pin with a clip retainer and safety transport chain

Use a safety transport chain with a strength rating equal to or more than the gross weight of the towed machine.

Connect the safety transport chain to the tractor drawbar and use a retainer on the hitch pin.

Supply only enough slack in the safety transport chain to permit turning.

Do not use the safety transport chain as a tow chain for towing.

Be aware of other traffic on the road. Keep well over to your own side of the road and pull over, whenever possible, to let faster traffic pass.

Be aware of the overall width, length, height, and weight of the machine. Be careful when transporting the machine on narrow roads and across narrow bridges.

Watch for overhead wires and other obstructions. Avoid contact with electrical power lines. Contact with electrical power lines can cause electrical shock, resulting in very serious injury or death.

1.12 General Maintenance Information

Before you do maintenance, lubricate, do servicing, clean, or make adjustments:

- Park the machine on a solid, level surface.
- Make sure that all the controls are in the neutral position and apply the parking break.
- Make sure that the machine and the attachments are lowered to the ground.
- Stop the engine and take the key with you.
- Look and Listen! Make sure that all parts have stopped moving.
- Put chocks in front of and behind the wheels of the machine before you do work on or below the machine.

Stay near the machine when the tractor is in operation.

Know the dimensions and weights of parts when you do the servicing. Do not stand below or near a part while it is moved with a hoist or other lift equipment.

After you do work on the machine, remove all tools from the machine.

Make sure that electrical connectors are clean before you connect them.

Do a check for loose, broken, missing, or damaged parts. Make sure that the machine is in good repair. Make sure that all guards and shields are in position.

Always lift the machine, stop the tractor engine, apply the parking brake, move to the park position (or neutral) remove the key and install the cylinder lockup stops before you do work around the machine.

Do not go below the machine. If you must go below the machine, make sure that the machine is blocked and the cylinder lockup channels are in position.

Do not do the servicing, examine or adjust chains or belts while the engine is in operation.

Do not operate the machine with the drive shaft shields open or removed. Entanglement in drive shafts that rotate can cause injury or death.

Stay clear of components that rotate

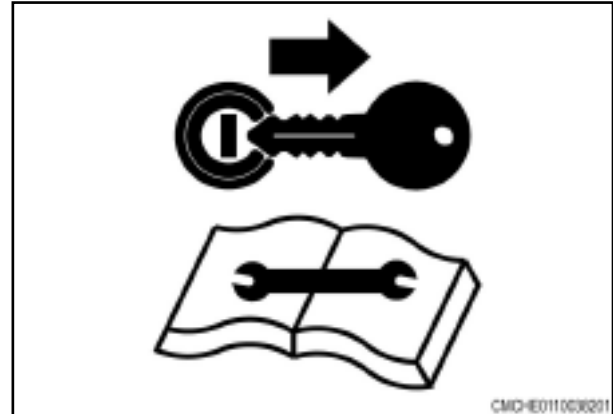
Make sure that guards that rotate can rotate freely.

A loose yoke can come off a shaft and result in injury to persons or damage to the machine.

When you install a quick disconnect yoke, the spring activated locking pins must move freely and be in the groove on the shaft. Pull on the driveline to make sure that the quick disconnect yoke cannot be pulled off of the shaft.

Remove all spilled oil, antifreeze or fuel immediately from the steps, platforms and other access areas.

Keep all access areas clean of unwanted materials.



1.13 Tire Safety

Examine tires for cuts, bulges, and correct pressure. Replace worn or damaged tires. When tire service is needed, have a qualified tire mechanic service the tire. Tire changing can be very hazardous and must be done by qualified tire mechanic using proper tools and equipment.

Tire explosion and/or serious injury can result from over inflation. Do not exceed the tire inflation pressures.

Do not inflate a tire that is seriously under inflated or has been run flat. Have the tire examined by qualified tire mechanic.

Do not weld on the rim when a tire is installed. Welding will make an air/gas mixture that can cause an explosion and burn with high temperatures. This hazard applies to all tires, inflated or deflated. Removing air or breaking the bead is not enough. The tire must be completely removed from the rim prior to welding.

When seating tire beads onto rims, never exceed 35 psi (2.4 bar) or the maximum inflation pressure specified on the tire. Inflation beyond this maximum pressure may break the bead, or even the rim, with explosive force.

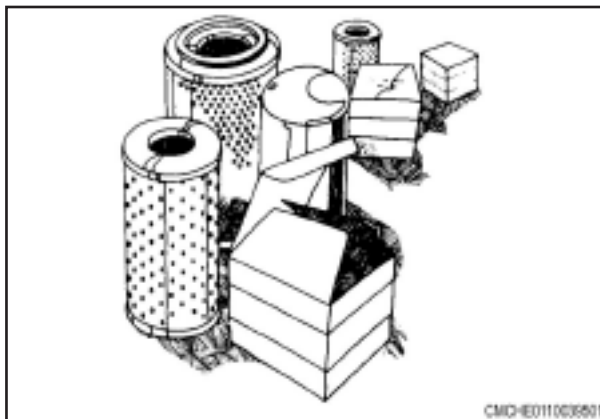


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1.14 Replacement parts

Where replacement parts are necessary for machine maintenance and servicing, you must use original equipment replacement parts.

The manufacturer will not accept responsibility for installation of unapproved parts and/or accessories and damages as a result of their usage.



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1.15 Operation Safety

Use extreme care when making adjustments

When working under or around the machine always install transport cylinder locks and lower the machine.

After servicing, be sure all tools, parts or servicing equipment is removed from the machine.

Before and during operation be sure no one is on or around the implement. Serious injury can result from improper use.

Reduce speed when cornering on field ends and when operating on or across dead furrows.

Do not attempt to remove any obstruction while the machine is in motion.

Use extreme care when operating close to ditches, fences or on hillsides.

No one other than the operator should ride on the tractor.

1.16 Transporting Safety

Always place the machine in the transport position with the wings folded up.

Install transport cylinder locks.

Comply with your state and local laws governing highway safety when moving machinery on a highway.

Reduce road speed on corners.

Drive at a reasonable speed to maintain complete control of the machine at all times. Maximum transport speed is 25 MPH (40.23 Km/h)

A S.M.V emblem must be used at all times while traveling on public roads.

Be sure the safety lights are working.

Obey all local, state and federal lighting requirements.

1.17 General Maintenance Safety Practices

NOTE: Read the entire section before beginning work.

Before you begin

YOU ARE RESPONSIBLE for the safe maintenance of the implement.

DO NOT ALLOW CHILDREN or other unauthorized persons within the implement operational area

WEAR PERSONAL PROTECTIVE EQUIPMENT which includes eye protection, work gloves and steel toed boots with slip resistant soles.

DO NOT MODIFY the equipment or substitute parts in any way. Unauthorized modification may impair the function and/or the safety of the machine.

USE SUITABLE LIFTING DEVICE for components which could cause personal injury by pinching, crushing or weight. **BE SURE** lifting device is rated to handle the weight.

BLOCK UP ANY RAISED PART of the machine. Be sure machine is stable after blocking.

ALWAYS INSPECT LIFTING CHAINS AND SLINGS for damage or wear.

STOP ENGINE, place all controls in neutral, set parking brakes, remove ignition key before servicing or adjusting.

BE SURE PRESSURE IS RELIEVED from hydraulic circuits before servicing or disconnecting from tractor.

USE EXTREME CARE when assembling, servicing or adjusting.

1.18 Hydraulic Safety

Inspect all hydraulic hoses and fittings for cracks and abrasions at least once a year. Tighten or replace as needed.

Do not over-tighten hydraulic fittings, excessive torque may cause them to crack.

Care must be taken to prevent twisting when tightening hose connections. Straighten any hose that appears twisted immediately. A twisted hose can burst under pressure.

When connecting the hoses to the cylinders, tubing or fittings; always use one wrench to prevent the hose from twisting and another wrench to tighten the union. Excessive twisting will shorten hose life and loosen hose fittings.



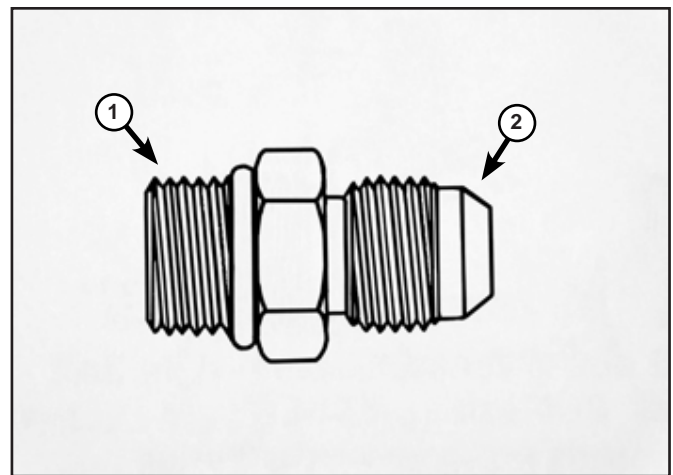
CAUTION: Hydraulic fluid escaping under pressure can have enough force to penetrate the skin. Hydraulic fluid may also infect a minor cut or opening in the skin. If injured by escaping fluid, see a doctor at once. Serious infection or reaction can result if medical treatment is not given immediately. Make sure all connections are tight and that hoses and lines are in good condition before applying pressure to the system.

To find a leak under pressure, **NEVER USE YOUR HAND**, use a small piece of cardboard or wood.

Hydraulic Connection Torques

Straight Thread O-ring Boss (ORB) (1) (example: 12MB - 12MJ is a -12 male ORB to -12 male JIC)

Dash Size	Jam Nut or Straight Fitting Torque	
	Ft / Lbs	Newton Meters
-04	13-15	18-20
-05	14-15	19-21
-06	23-24	32-33
-08	40-43	55-57
-10	43-48	59-64
-12	68-75	93-101



SAE 37°C (JIC) (2)

(example: 8FJ - 8FJ is -08 female JIC)

Dash Size	Jam Nut or Straight Fitting Torque	
	Ft / Lbs	Newton Meters
-04	11-12	15-16
-05	15-16	20-22
-06	18-20	24-28
-08	38-42	52-58
-10	57-62	77-85
-12	79-87	108-119

IMPORTANT: SAE 37° fittings can be damaged if over torqued.

2. Preparation

Before using the implement a careful inspection must become routine.

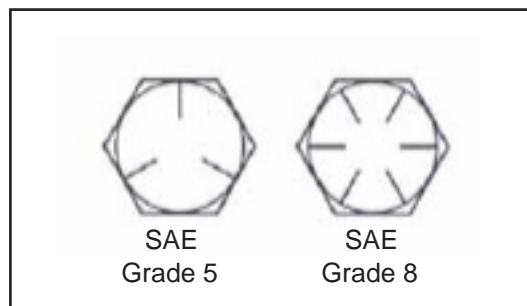
Check to be sure that all hardware is securely tightened and moving parts properly lubricated.

Tighten all loose nuts and bolts and replace any bent or broken parts.

When tightening bolts, they must be torques to the proper number of foot-pounds as indicated in the table unless specified. It is important that all bolts be kept tight.

On new machines, all nuts and bolts must be rechecked after a few hours of operation.

When replacing a bolt, use only a bolt of the same grade or higher. Except in shear bolt applications where you must use the same grade bolt.



Bolts with no marking are grade 2.

Grade 5 bolts furnished with the machine are identified by three radial lines on the head.

Grad 8 bolts furnished with the machine are identified by six radial lines on the head.

All U-bolts are grade 5.

BOLT SIZE	WRENCH SIZE	GRADE 5		GRADE 8	
		lb-ft	N•m	lb-ft	N•m
1/4 in.	7/16 in. or 3/8 in.	7	9.5	12	17
5/16 in.	1/2 in.	15	20	25	34
3/8 in.	9/16 in.	30	41	45	61
7/16 in.	5/8 in. or 11/16 in.	45	61	70	95
1/2 in.	3/4 in.	70	95	105	142
9/16 in. wheel bolts	7/8 in.	170	231	-	-
5/8 in.	15/16 in.	170	231	210	285
5/8 in. wheel nuts	1-1/16 in.	240	325	-	-
3/4 in.	1-1/16 in.* or 1-1/8 in.*	250	339	375	509
7/8 in.	1-5/16 in.	350	475	600	814
1 in.	1-1/2 in.	450	610	880	1193
1-1/4 in.	1-7/8 in.	500	678	-	-
1-1/2 in.	2-3/4 in.	570	773	-	-
2 in.	3-1/8 in.	1200	1627	-	-

2.3 Bleeding Air from the Hydraulic Lift System

Before starting the procedure.

WARNING:

Leaking fluid under pressure can enter the skin causing serious injury. Release pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure. Keep hands and body away from pinholes and nozzles which eject fluids under high pressure. Wear correct hand and eye protection when looking for leaks. Use a piece of card board or paper instead of your hand. Any fluid injected into the skin can cause gangrene. The fluid must be removed by a doctor familiar with this type of injury.

WARNING:

Be careful of sweeps or blades when folded to prevent serious injury. Never keep the machine with the wings in the folded position.

To bleed the air from the hydraulic system, connect the machine to a tractor that is the correct size to operate the machine. See the information for minimum tow vehicle weight.

Completely bleed the hydraulic system of air when:

The lift system is filled with hydraulic oil for the first time.

Air has entered the hydraulic system through a leak or through repair of the hydraulic system.

Procedure

1. Park the machine on a flat, level surface that is large enough for the machine when unfolded.

2. Set the tractor hydraulic flow to less than 20gal/min (75.7 L/min).

IMPORTANT: If the hydraulic flow is set to more than 20gal/min (75.7 L/min) the hydraulics will not operate correctly.

3. Connect the lift system hoses to the tractor.

4. Make sure the tractor reservoir is full of the hydraulic oil required by the manufacturer.

IMPORTANT: Do not loosen any hydraulic fitting to bleed air from the system.

5. Raise the baskets. Continue to hold the tractor lever to let oil bypass and fill each basket lift cylinder.

6. Lower the baskets. Make sure the cylinders move at the same time through the cycle.

7. Hold the hydraulic lever with the cylinders fully extended.

8. If the cylinders are not operating together, cycle the cylinders to remove the remaining air.

IMPORTANT: Do not loosen any hydraulic fittings to bleed air from the system.

9. Make sure all lift cylinders are operating together before starting any field operation.

3. Operation

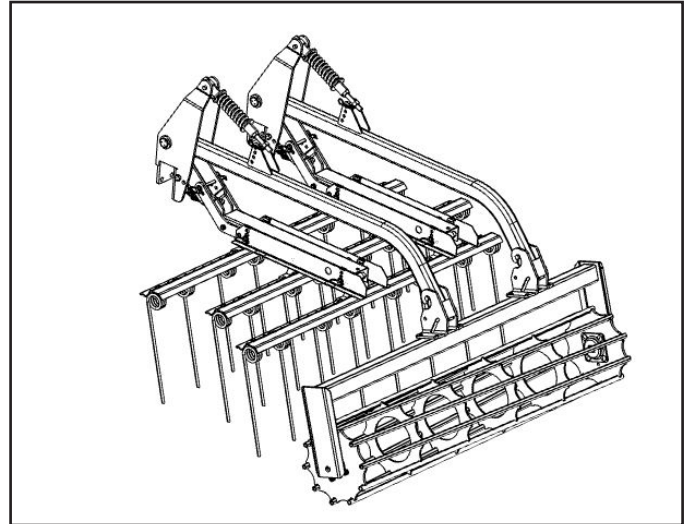
Coil Tine Harrow with Basket

Three rows of 7/16 x 18 inch tines level the soil profile and distribute residue, while the basket reduces clod size and firms the seedbed.

The number of harrow sections and reels installed on the machine and the width of the harrow sections and reels will change depending on the width of the machine.

Each harrow section can be adjusted two ways: the section level and the coil tine angle.

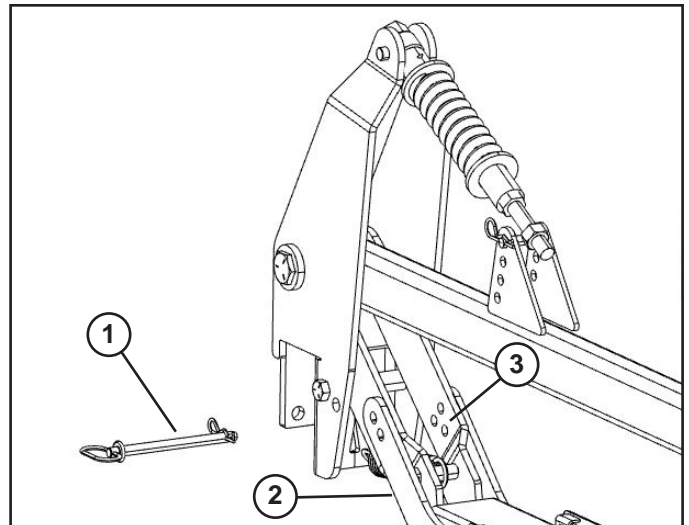
Each reel can be adjusted three ways: the operating depth, the down pressure, and the reel angle.



3.1 Coil Tine Harrow Section Level

Adjust the position of the pins (1) holding the front of the harrow arms (2) to the inner harrow brackets (3) to adjust the level of the harrow section. Adjust the level of the harrow section to be as close to parallel to the ground as possible when the machine is at operating depth.

NOTE: Do not adjust the harrow section level when the machine is in the raised or transport position. The machine carries the front of the harrow section higher when in the raised position to add additional transport clearance.



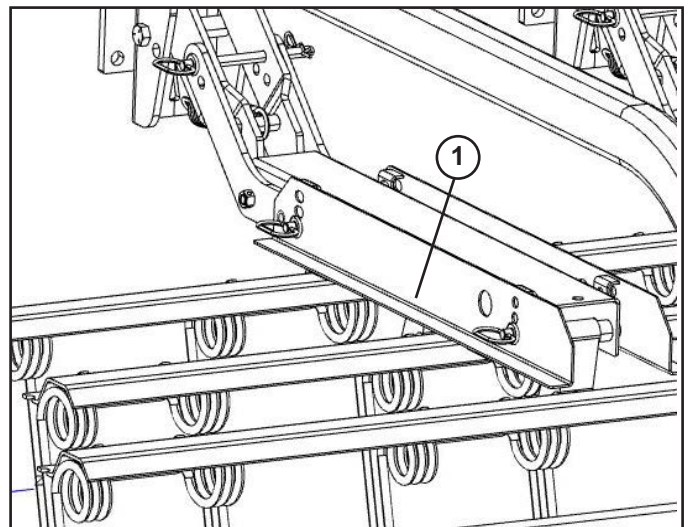
3.2 Coil Tine Harrow Angle

Adjust the tine angle brackets (1) to adjust the angle of the tines in the harrow section.

Move the tine angle bracket to the bottom position to decrease the angle of the tines. The decreased angle lets more field debris move below the tines of the harrow section. The decreased angle decreases the leveling of the soil.

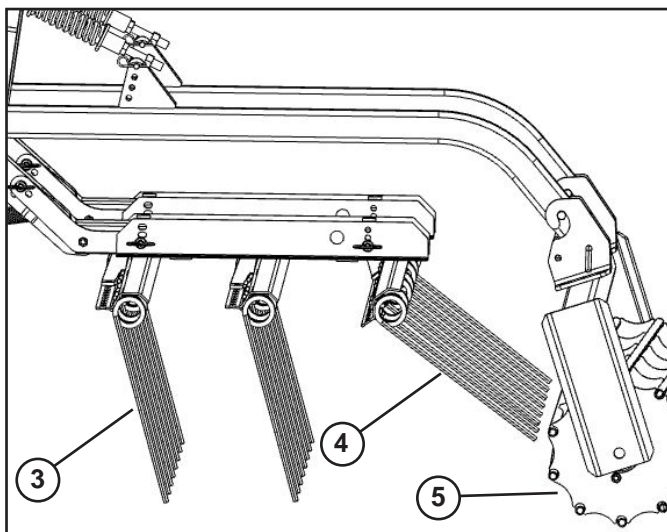
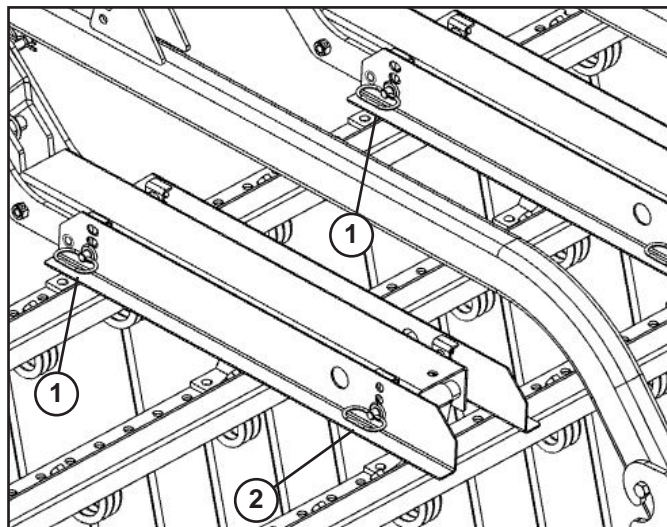
Move the tine angle bracket to the top position to increase the angle of the tines. The increased angle lets less field debris to move below the tines of the harrow section. The increased angle increases the leveling of the soil.

Adjust the front and rear of the tine angle bracket to different positions for each row of tines to have a different angle.

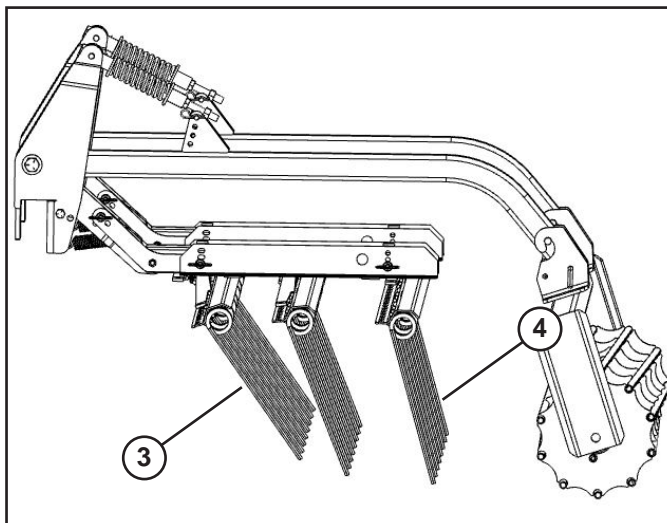


Adjust the pin on the front of the tine angle bracket (1) higher than the rear (2) for the front lines (3) to have more of an angle than the rear (4).

NOTE: Put the reel (5) in the rear position to avoid the tines from contacting the reel.



Adjust the pin on the front of the tine angle bracket (1) lower than the rear (2) for the front tines (3) to have less of an angle than the rear (4).



3.3 Reel Operating Depth

Move the position of the down pressure spring in the brackets on the reel arm to adjust the operating depth. While increasing the operating of the reel, the down pressure also increases.

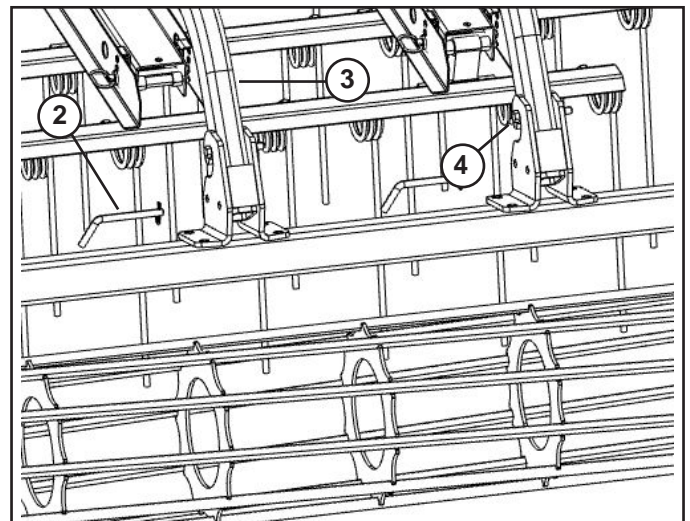
Move the down pressure spring up in the brackets on the reel arm to increase the operating depth. Move the down pressure spring toward the down in the brackets on the reel arm to decrease the operating depth.

NOTE: Make sure there is enough transport clearance after the operating depth is increased. Lower operating depths have less transport clearance.

3.4 Reel Position

The harrow reel (1) has a forward and rear position. Change the harrow reel position by removing the pins (2) from the reel arms (3) and moving the reel. Install the pins to hold the reel in position. Move the harrow reel to increase or decrease the clearance between the harrow reel and tines.

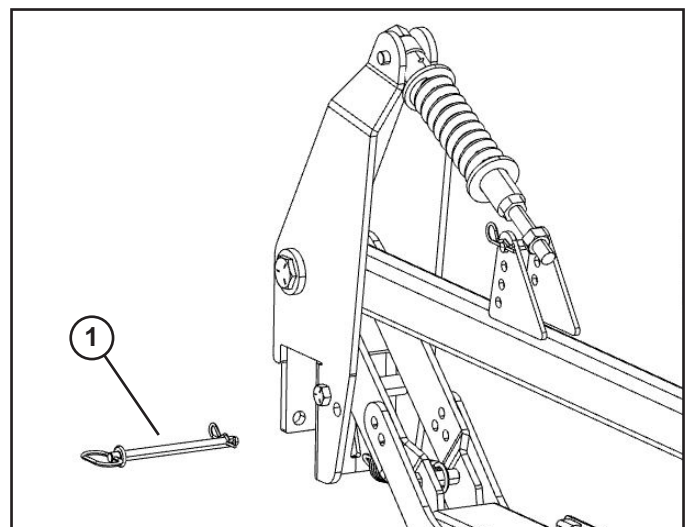
The harrow reel can be removed from the reel arms. Remove the two pins and remove the harrow reel from the pivots (4) on the reel arms.



3.5 Adjusting the coil tine harrow and reel to the initial settings.

The machine must be connected to a tractor to adjust the coil tine harrow sections to the initial settings. Adjust the coil tine harrow sections to the initial settings before making any adjustments in the field.

1. Use the tractor hydraulics to unfold the wings of the machine.
2. Stop the engine, apply the parking brake, and take the ignition key with you.
3. Remove the pins (1) holding the harrow section angle.

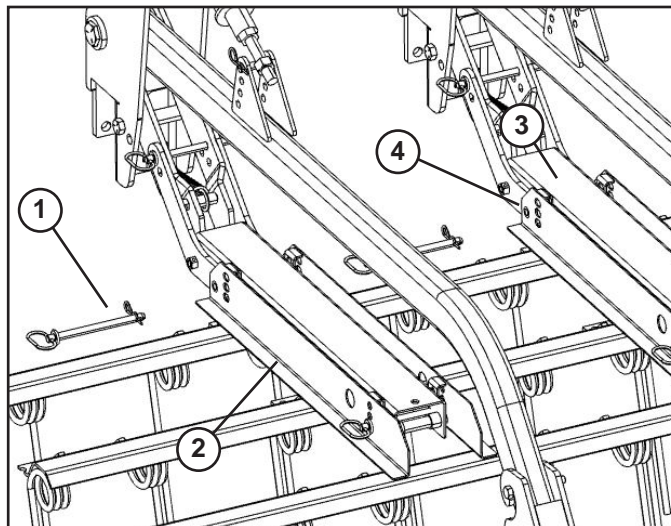


4. Remove the tine angle pins (1) from the tine angle bracket (2) and the hanger bars (3).

5. Align the holes in the harrow arms to the top hole (4) in the tine angle bracket.

6. Install the tine angle pins through the holes in the tine angle bracket and the pivot brackets.

7. While supporting the reel arms (1), remove the operating depth pin (2) from the down pressure spring (3) and the reel arms. Let the reel lower to the ground.



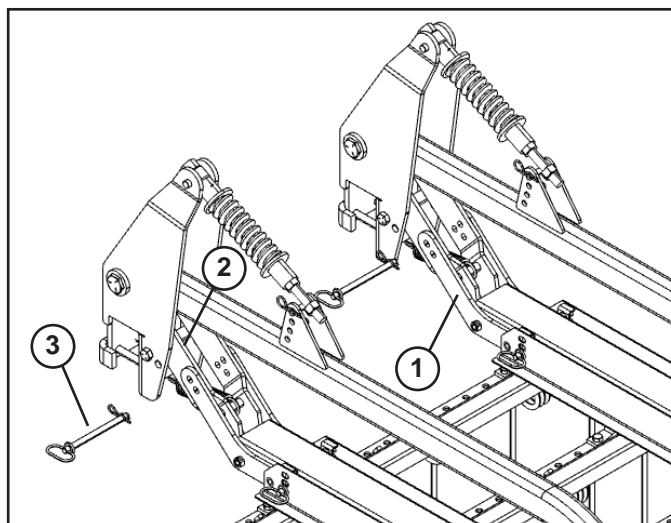
8. Align the holes in each harrow arms (1) with the nearest holes in each of the inner harrow brackets (2).

9. Install the harrow section angle pins (3) through the holes in the harrow arms and inner hanger brackets.

10. Align the hole in the end of the down pressure springs (1) to the nearest hole in the brackets (2) on the reel arms (3).

11. Install the operating depth pins (4) through the holes in the down pressure springs and the brackets on the reel arms.

12. Use the same procedure to adjust the remaining harrow sections to the initial settings.



3.6 Hydraulic Basket Operation

Install the rolling basket cylinder hoses on the tractor. Be sure the hose couplers are secured in the tractor couplers.

Lift and lower the rolling baskets.

NOTE: It is suggested that when the baskets are not lifted to place them in float mode to prevent unnecessary wear on the cylinder plates.



4.1 Maintenance

Daily

- Inspect all bolts and fasteners for tightness and damage. Replace any damaged fasteners immediately.
- Check hydraulic hoses and fittings for leaks or damage. Tighten or replace immediately.

30-40 Hours

- **Basket Bearings.** One or two shots of grease should be adequate. **DO NOT OVER GREASE THE BEARINGS AS THE SEALS CAN BE DAMAGED.** If the basket turns roughly or is noisy it is probably time to grease again.



Grease

Use Wil-Rich 460 ep lubricant as listed in all the applications. Wil-Rich 460 ep lubricant is not an all purpose grease. Because of the heavy weight of the grease, it should not be used at high-speeds or in small bearings.

