

Farm King

OPERATOR AND PARTS MANUAL

Wheel Rake

Model RP2, RP4, RP5

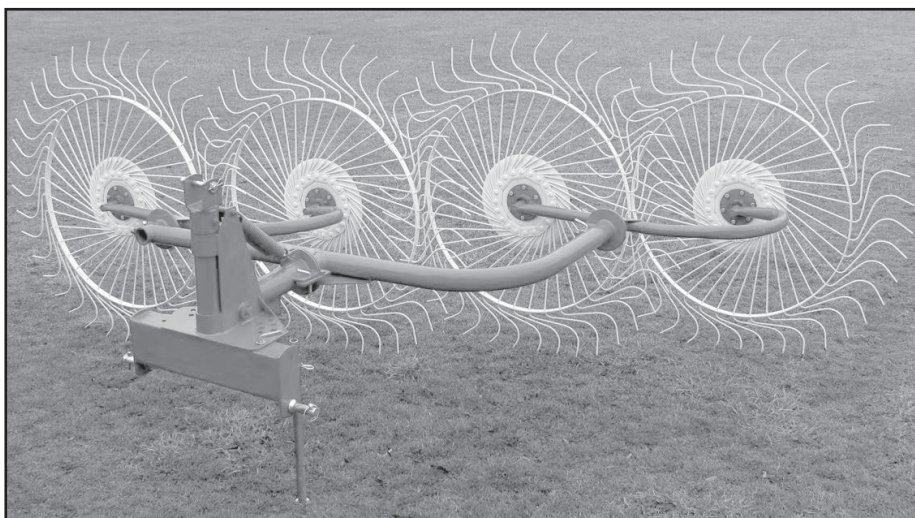


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Manufacturer's Statement: For technical reasons, Buhler Industries Inc. reserves the right to modify machinery design and specifications provided herein without any preliminary notice. Information provided herein is of descriptive nature. Performance quality may depend on soil fertility, applied agricultural techniques, weather conditions, and other factors.

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Warranty Registration Form

This form must be filled out by the dealer and signed by both the dealer and the customer at the time of delivery.

Customer Name:		Dealer Name:	
Customer Address:		Dealer Address:	
City:	Prov / State:	City:	Prov / State:
Postal / Zip Code:	Phone:	Postal / Zip Code:	Phone:

Equipment Model:	Serial Number:	Delivery Date:
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I have thoroughly instructed the buyer on the above described equipment which review included the Operator and Parts Manual content, equipment care, adjustments, safe operation and applicable warranty policy.

Dealer Inspection Report

☐	Rake wheels spin freely
☐	Fasteners tightened
☐	Grease points lubricated
☐	Rake tines properly oriented
☐	Rake arms pivot freely
☐	Inspect three-point hitch

Safety

☐	Safety chain on hitch
☐	Decals installed
☐	Guards and shields installed
☐	Lights and reflectors installed
☐	Review operating and safety instructions

Date:	Dealer Rep. Signature:
-------	------------------------

The above equipment and Operator And Parts Manual have been received by me and I have been thoroughly instructed as to care, adjustments, safe operation and applicable warranty policy.

Date:	Customer / Owner Signature:
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Remove this Warranty Registration Form from the Operator And Parts Manual. Make two copies of the form. Send original Warranty Registration Form to Farm King. Give one copy to the customer and the dealer will keep one copy.

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Introduction

This Operator And Parts Manual was written to give the owner / operator instructions on the safe operation, maintenance and part identification of the Farm King equipment. READ AND UNDERSTAND THIS OPERATOR AND PARTS MANUAL BEFORE OPERATING YOUR FARM KING EQUIPMENT. If you have any questions, see your Farm King dealer. This manual may illustrate options and accessories not installed on your Farm King equipment.

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Owner's Information

Thank you for your decision to purchase a Farm King Hay Rake. To ensure maximum performance of your equipment, it is mandatory that you thoroughly study the Operator And Parts Manual and follow the recommendations. Proper operation and maintenance are essential to maximize equipment life and prevent personal injury.

Operate and maintain this equipment in a safe manner and in accordance with all applicable local, state, and federal codes, regulations and / or laws. Follow all on-product labeling and instructions.

Make sure that all personnel have read this Operator And Parts Manual and thoroughly understand safe and correct operating, installation and maintenance procedures.

Farm King is continually working to improve its products. Farm King reserves the right to make any improvements or changes as deemed practical and possible without incurring any responsibility or obligation to make any changes or additions to equipment sold previously.

Although great care has been taken to ensure the accuracy of this publication, Farm King makes no warranty or guarantee of any kind, written or expressed, implied or otherwise with regard to the information contained within this manual. Farm King assumes no responsibility for any errors that may appear in this manual and shall not be liable under any circumstances for incidental, consequential or punitive damages in connection with, or arising from the use of this manual.

Keep this manual available for frequent reference. All new operators or owners must review the manual before using the equipment and annually thereafter. Contact your Farm King Dealer if you need assistance, information, or additional copies of the manual.

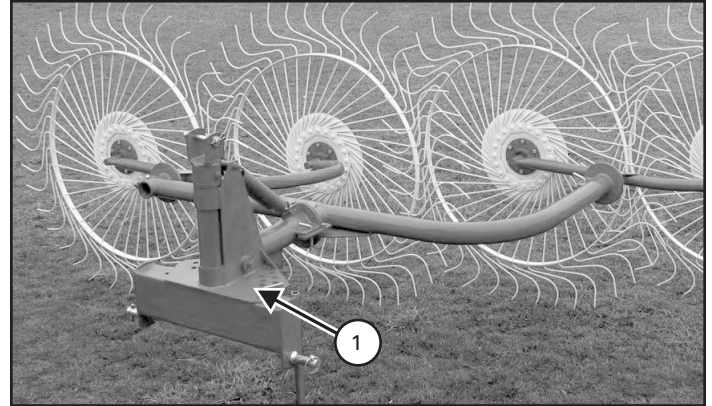
Visit our website at **www.farm-king.com** for a complete list of dealers in your area.

The directions left, right, front and rear, as mentioned throughout this manual, are as viewed by the operator sitting in the tractor seat while towing the implement.

Serial Number Location

Please enter the model and serial number in the space provided for easy reference.

Figure 1



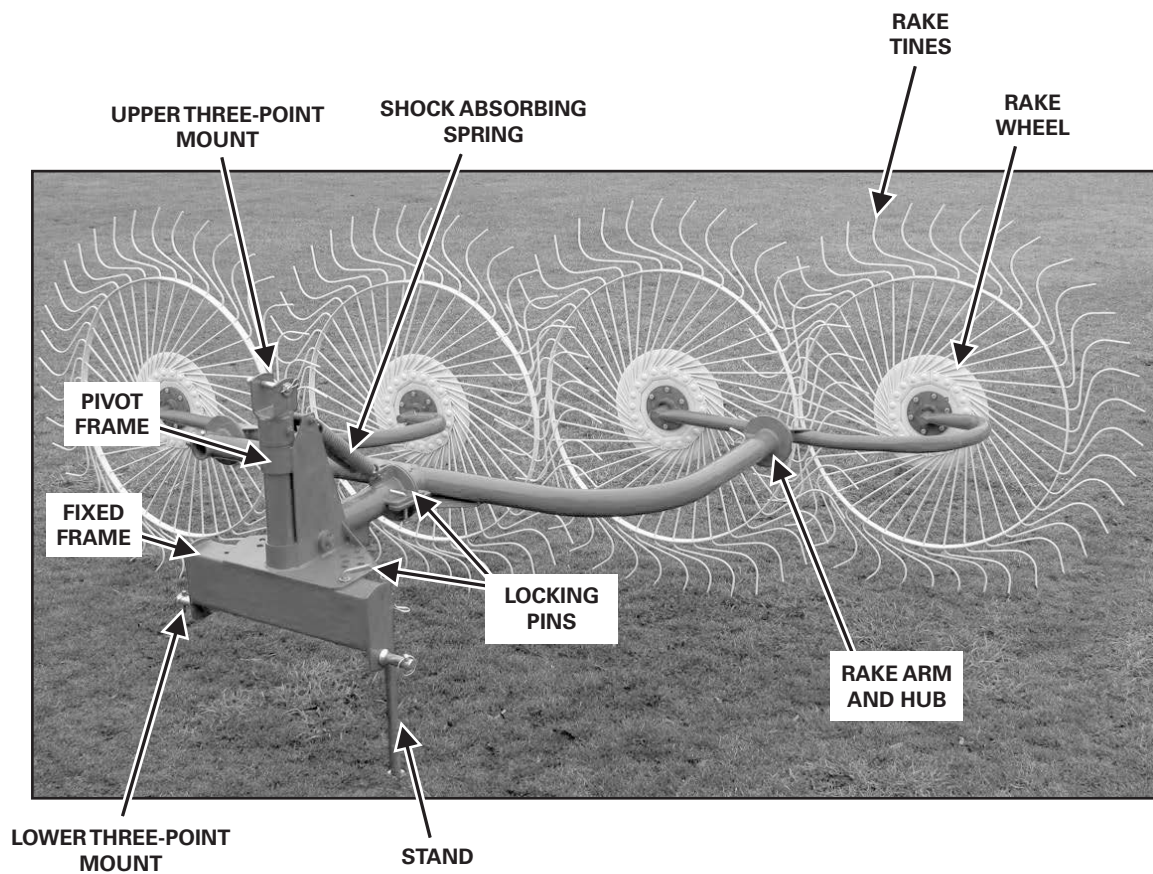
Model Number: _____

Serial Number: _____

The serial number plate (Item 1) is located on the front of the hitch frame **[Figure 1]**.

Always use your serial number when requesting information or when ordering parts.

Equipment Identification



RP4 HAY RAKE PICTURED

Safety

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Safety Instructions

Safety Symbols



Safety Alert Symbol

This symbol with a warning statement means: "Warning, be alert! Your safety is involved!" Carefully read the message that follows.



CAUTION

The signal word CAUTION on the machine and in the manuals indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.



DANGER

The signal word DANGER on the machine and in the manuals indicates a hazardous situation which, if not avoided, will result in death or serious injury.



WARNING

The signal word WARNING on the machine and in the manuals indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



IMPORTANT

This notice identifies procedures which must be followed to avoid damage to the machine.

Operator Safety



WARNING

Operators must have instructions before operating the machine. Untrained operators can cause injury or death.

For an operator to be qualified, he or she must not use drugs or alcohol which impair alertness or coordination while working. An operator who is taking prescription drugs must get medical advice to determine if he or she can safely operate a machine and the equipment.

Understand the written instructions, rules and regulations:

- The written instructions from Farm King include the Warranty Registration, Dealer Inspection Report, Operator And Parts Manual and machine signs (decals).
- Check the rules and regulations at your location. The rules may include an employer's work safety requirements. Regulations may apply to local driving requirements or use of a Slow Moving Vehicle (SMV) emblem. Regulations may identify a hazard such as a utility line.

Have Training with Actual Operation:

- Operator training must consist of a demonstration and verbal instruction. This training is given by the machine owner prior to operation.
- The new operator must start in an area without bystanders and use all the controls until he or she can operate the machine safely under all conditions of the work area. Always fasten seat belt before operating.

Know the Work Conditions:

- Clear working area of all bystanders, especially small children and all obstacles that might be hooked or snagged, causing injury or damage.
- Know the location of any overhead or underground power lines. Call local utilities and have all underground power lines marked prior to operation.
- Wear tight fitting clothing. Always wear safety glasses when doing maintenance or service.

Safety Rules

- Read and follow instructions in this manual and the tractor's Operators Manual before operating.
- This equipment is dangerous to children and persons unfamiliar with its operation. Under no circumstances should young children be allowed to work with this equipment.
- Check for overhead and / or underground lines before operating equipment (if applicable).
- In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of equipment.
- Check that the equipment is securely fastened to the tractor / towing vehicle.
- Make sure all the machine controls are in the NEUTRAL position before starting the machine.
- Operate the equipment only from the operator's position.
- Operate the equipment according to the Operator And Parts Manual.
- When learning to operate the equipment, do so at a slow rate in an area clear of bystanders, especially small children.
- DO NOT permit personnel to be in the work area when operating the equipment.
- The equipment must be used ONLY on approved tractors / transport vehicles.
- DO NOT modify the equipment in any way. Unauthorized modification may impair the function and / or safety and could affect the life of the equipment.
- Stop tractor engine, place all controls in neutral, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing, unplugging or filling.
- DO NOT make any adjustments or repairs on the equipment while the machine is running.
- Keep shields and guards in place. Replace if damaged.
- Keep hands, feet, hair and clothing away from all moving parts.

Equipment Safety

- Be aware of hooking or entanglement. With the rotating of the raked wheels, the teeth may hook on to clothes or other objects worn by personnel in charge;
- Be aware of launch of objects. With the rotating of the rake wheels, objects may be launched by the teeth.
- Fasten seat belt securely. If equipped with a folding Roll-Over Protective Structure (ROPS), only fasten seat belt when ROPS is up and locked. DO NOT wear seat belt if ROPS is down.
- Stop the machine and engage the parking brake. Install blocks in front of and behind the rear tires of the machine. Install blocks underneath and support the equipment securely before working under raised equipment.
- Keep bystanders clear of moving parts and the work area. Keep children away.
- Use increased caution on slopes and near banks and ditches to prevent overturn.
- Make certain that the Slow Moving Vehicle (SMV) emblem is installed so that it is visible and legible. When transporting the equipment, use the flashing warning lights (if equipped) and follow all local regulations.
- Before leaving the operator's position:
 1. Always park on a flat level surface
 2. Place all controls in neutral
 3. Engage the parking brake
 4. Stop engine
 5. Wait for all moving parts to stop
- Carry passengers only in designated seating areas. Never allow riders on the machine or equipment. Falling off can result in serious injury or death.
- Start the equipment only when properly seated in the operator's seat. Starting a machine in gear can result in serious injury or death.
- Operate the machine and equipment from the operator's position only.
- The parking brake must be engaged before leaving the operator's seat. Roll away can occur because the transmission may not prevent machine movement.

Transport Safety

- Do not exceed 20 mph (32 kph) during road transportation. Reduce speed on rough roads and surfaces.
- Comply with state and local laws governing highway safety and movement of machinery on public roads.
- The use of flashing amber lights is acceptable in most localities. However, some localities prohibit their use.
- Local laws should be checked for all highway lighting and marking requirements.
- Always yield to oncoming traffic in all situations and move to the side of the road so any following traffic may pass.
- Always enter curves or drive up or down hills at a low speed and at a gradual steering angle.
- Never allow riders on either tractor or equipment.
- Keep tractor / towing vehicle in a lower gear at all times when traveling down steep grades.
- Maintain proper brake settings at all times (if equipped).

Fire Prevention



Maintenance

- The machine and some equipment have components that are at high temperatures under normal operating conditions. The primary source of high temperatures is the engine and exhaust system. The electrical system, if damaged or incorrectly maintained, can be a source of arcs or sparks.
- Flammable debris (leaves, straw, etc.) must be removed regularly. If flammable debris is allowed to accumulate, it can cause a fire hazard. Clean often to avoid this accumulation. Flammable debris in the engine compartment is a potential fire hazard. The operator's area, engine compartment and engine cooling system must be inspected every day and cleaned if necessary to prevent fire hazards and overheating.
- All fuels, most lubricants and some coolant mixtures are flammable. Flammable fluids that are leaking or spilled onto hot surfaces or onto electrical components can cause a fire.

Operation

- The Farm King machine must be in good operating condition before use.
- Check all of the items listed on the service schedule under the 8 hour column before operation (see Maintenance section).
- Do not use the machine where exhaust, arcs, sparks or hot components can contact flammable material, explosive dust or gases.

Starting

- Do not use ether or starting fluids on any engine that has glow plugs. These starting aids can cause explosion and injure you or bystanders.
- Use the procedure in the tractor's operator's manual for connecting the battery and for jump starting.

Electrical



- Check all electrical wiring and connections for damage. Keep the battery terminals clean and tight. Repair or replace any damaged part or wires that are loose or frayed.
- Battery gas can explode and cause serious injury. Do not jump start or charge a frozen or damaged battery. Keep any open flames or sparks away from batteries. Do not smoke in battery charging area.

Hydraulic System

- Check hydraulic tubes, hoses and fittings for damage and leakage. Never use open flame or bare skin to check for leaks. Hydraulic tubes and hoses must be properly routed and have adequate support and secure clamps. Tighten or replace any parts that show leakage.
- Always clean fluid spills. Do not use gasoline or diesel fuel for cleaning parts. Use commercial nonflammable solvents.

Fueling



- Stop the engine and let it cool before adding fuel. No smoking! Do not refuel a machine near open flames or sparks. Fill the fuel tank outdoors.

Welding And Grinding

- Always clean the machine and equipment, disconnect the battery, and disconnect the wiring from the machine controls before welding. Cover rubber hoses, battery and all other flammable parts. Keep a fire extinguisher near the machine when welding.
- Have good ventilation when grinding or welding painted parts. Wear dust mask when grinding painted parts. Toxic dust or gas can be produced.
- Dust generated from repairing nonmetallic parts such as hoods, fenders or covers can be flammable or explosive. Repair such components in a well ventilated area away from open flames or sparks.

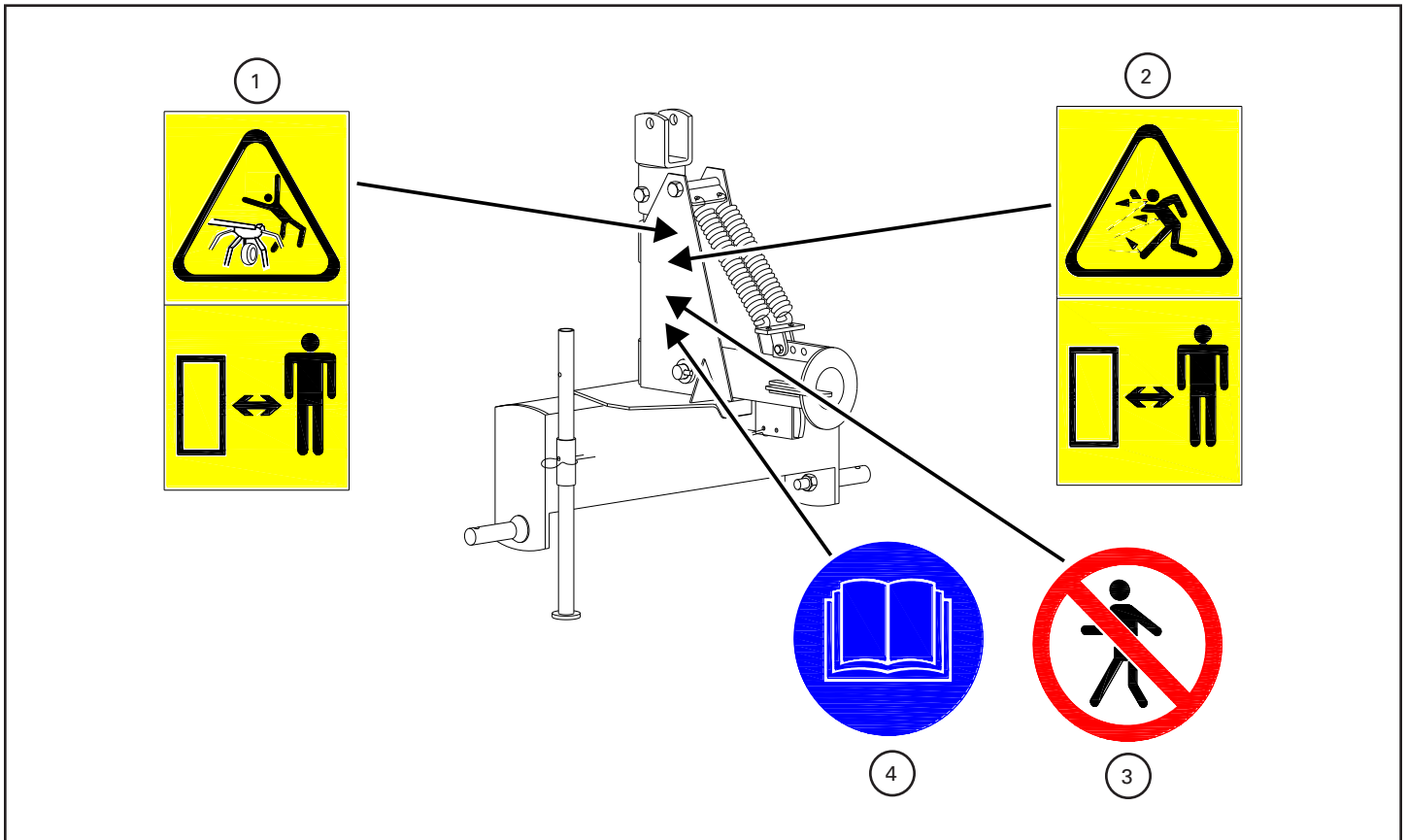
Fire Extinguishers



- Know where fire extinguishers and first aid kits are located and how to use them. Inspect the fire extinguisher and service the fire extinguisher regularly. Obey the recommendations on the instructions plate.

Equipment and Safety Decals

Figure 2



Decals [Figure 2]:

Dange of hooking or entanglement (Item 1)

- With the rotating of the rake wheels, the rake tines may hook on to clothes or other objects worn by personnel in charge.

Danger of projectiles (Item 2)

- With the rotating of the rake wheels, objects may be launched by the rake tines.

Keep bystanders away (Item 3)

- It is forbidden for persons not in charge to stand or move inside the operational area of the hay rake. Stand at a safe distance.

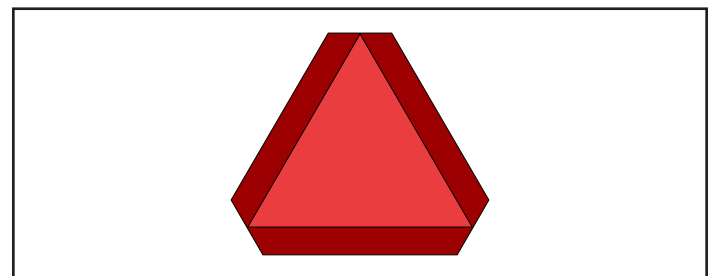
Read manual (Item 4)

- Obligation to read the use the operator's manual.

Farm King logo (not pictured)



SMV sign (not pictured)



Safety Sign-Off Form



WARNING

Instructions are necessary before operating or servicing equipment. Read and understand the Operator And Parts Manual and safety signs (decals) on equipment. Follow warnings and instructions in the manuals when making repairs, adjustments or servicing. Check for correct function after adjustments, repairs or service. Untrained operators and failure to follow instructions can cause injury or death.

Farm King follows the general Safety Standards specified by the American Society of Agricultural and Biological Engineers (ASABE) and the Occupational Safety and Health Administration (OSHA). Anyone who will be operating and / or maintaining the equipment must read and clearly understand ALL Safety, Operating and Maintenance information presented in this manual.

Annually review this information before the season start-up and make these periodic reviews of SAFETY and OPERATION a standard practice for all of your equipment. An untrained operator is unqualified to operate this machine.

The following sign-off sheet is provided for your record and to show that all personnel who will be working with the equipment have read and understand the information in this Operator And Parts Manual and have been instructed in the operation of the equipment.

SIGN-OFF SHEET		
Date	Employee's Signature	Employer's Signature

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Pre - Operation Checklist

Before operating the Rake for the first time and each time thereafter, check the following items:

1. Lubricate the equipment per the schedule outline in the Maintenance Section.
2. Check the hitch for damaged, loose or missing parts. Repair as needed before operation.
3. Make sure that all guards and shields are in place, secured and functioning as designed.
4. Check that all electrical connections are tight.
5. Check the tines. Remove any twine, wire or other material that has become entangled.

Entering The Operator's Position

Enter the operator's position, start the engine, and release the parking brake.



IMPORTANT

Follow the instructions in your tractor's operation manual for the correct procedure.

Leaving The Operator's Position

Always perform the following steps when leaving the operator's position:



WARNING

AVOID INJURY OR DEATH

Before you leave the operator's position:

- Always park on a flat level surface
- Place all controls in NEUTRAL
- Engage the park brake
- Stop the engine and remove the key
- Wait for all moving parts to stop

Tractor Requirements

The tractor must satisfy the following requirements, depending on model.

RP2:

- 25 HP, Cat.1 or 2 three-point hitch

RP4:

- 40 HP, Cat.1 or 2 three-point hitch

RP5:

- 40 HP, Cat.1 or 2 three-point hitch

Connecting To Tractor

Always inspect the tractor's hitch and equipment's hitch before connecting.

Move the tractor drawbar into the storage position or remove (if necessary) to prevent interference with operation (see the tractor's operator's manual for the correct procedure).

Move the tractor into position in front of the equipment.

Leave the operator's position.



AVOID INJURY OR DEATH

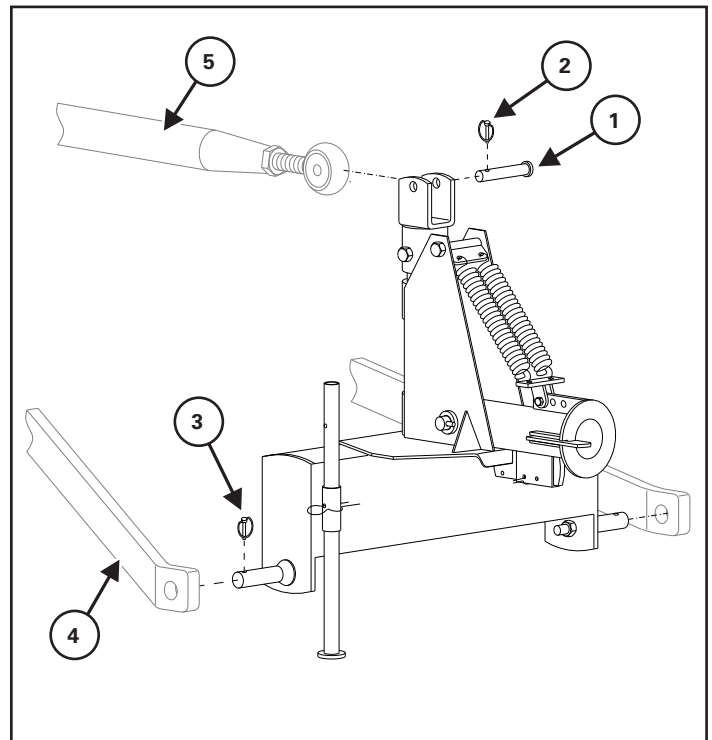
Before moving the tractor, look in all directions and make sure no bystanders, especially small children are in the work area.

Do not allow anyone between the tractor and the equipment when backing up to the equipment for connecting.

Keep fingers and hands out of pinch points when connecting and disconnecting equipment.

Remove any attached hitch pins.

Figure 3



Remove the top implement mounting pin (Item 1) and lynch pin (Item 2) from the equipment [Figure 3].

Remove the lynch pins from the left and right lower mounts (Item 3) [Figure 3].

Enter the operator's position.

Move the tractor backwards, aligning the tractor's three-point hitch and equipment's three-point mounts.

Leave the operator's position.

Install the left and right lower three-point mounts (Item 4) of the tractor to the equipment's left and right lower mounting pins. Reinstall the lynch pins [Figure 3].

Lower the top link (Item 5) of the three-point hitch until it aligns with the equipment's upper mount [Figure 3].

Reinstall the mounting pin and lynch pin.

NOTE: It may be necessary to lengthen or shorten the top link to align it with the equipment's mounting hole (see the tractor's operator's manual for the correct procedure).

The equipment can be leveled front to back by adjusting the top link (see the tractor's operator's manual for the correct procedure).

Adjust the lower link sway chains or blocks on the tractor to restrict side movement of the equipment when operating.



IMPORTANT

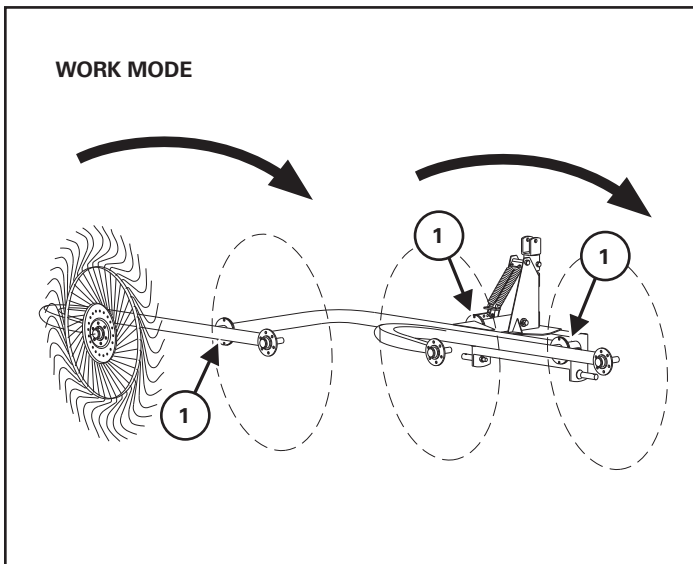
Always use a hitch pins of adequate size and strength and a retaining pin with a locking device.

Work Configuration

Transport the equipment to the area of work (see **“Transport Configuration”** in Operation section).

Always comply with federal, state, local and provincial laws regarding the transport of farm equipment on public roadways.

Figure 4

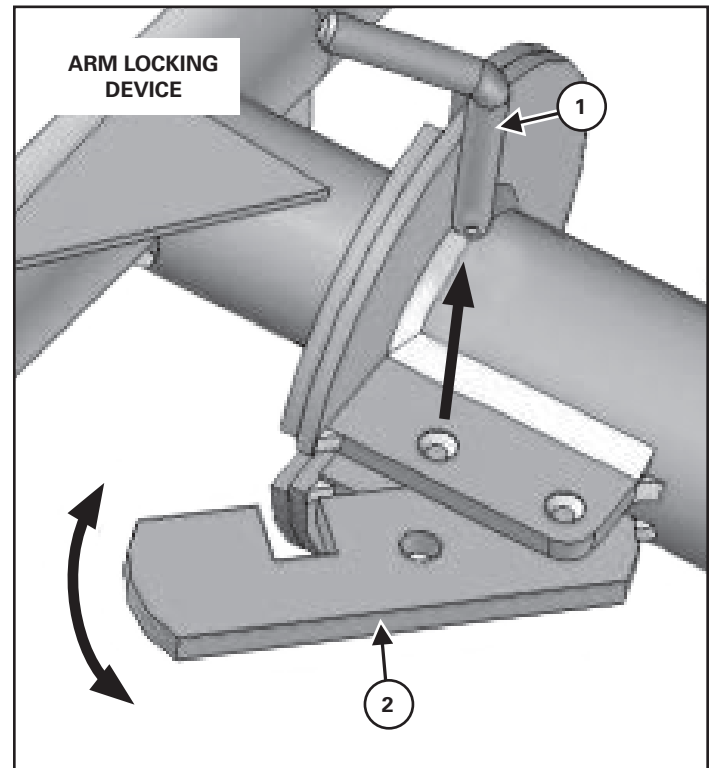


The equipment must be configured from Transport Mode into Work Mode for proper field operation [Figure 4].

Release the arm locking devices (Item 1) on the equipment [Figure 4].

Rotate all the arm assemblies into the horizontal position.

Figure 5



The arm locking devices are released by removing the pin (Item 1) and removing the locking bracket (Item 2) [Figure 5].



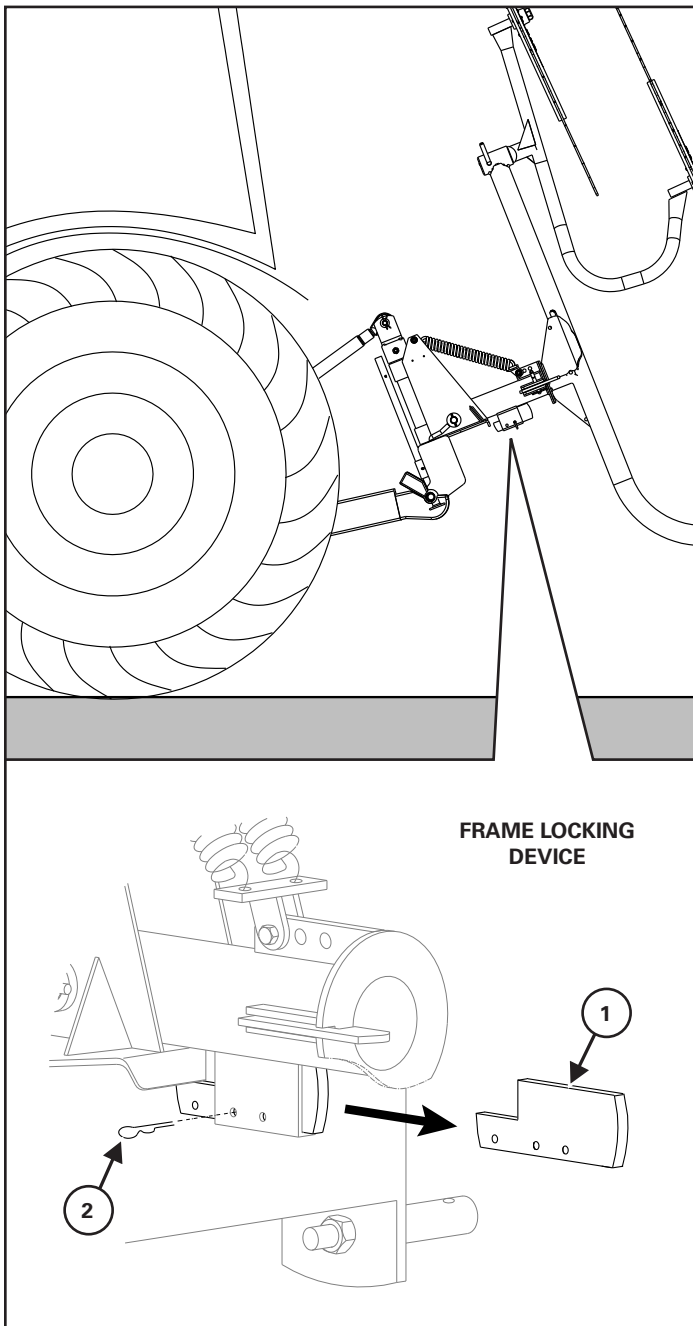
IMPORTANT

Reattach each locking device once rake is in work mode.

DO NOT operate rake without arm locking devices secured in the locked position with retaining pin.

Use the tractor hydraulic lift to lower the rake until the rake wheels slightly contact the ground.

Figure 6



Release the frame lock by using the locking device underneath the hitch.

Remove the locking bracket (Item 1) and cotter pin (Item 2) [Figure 6].

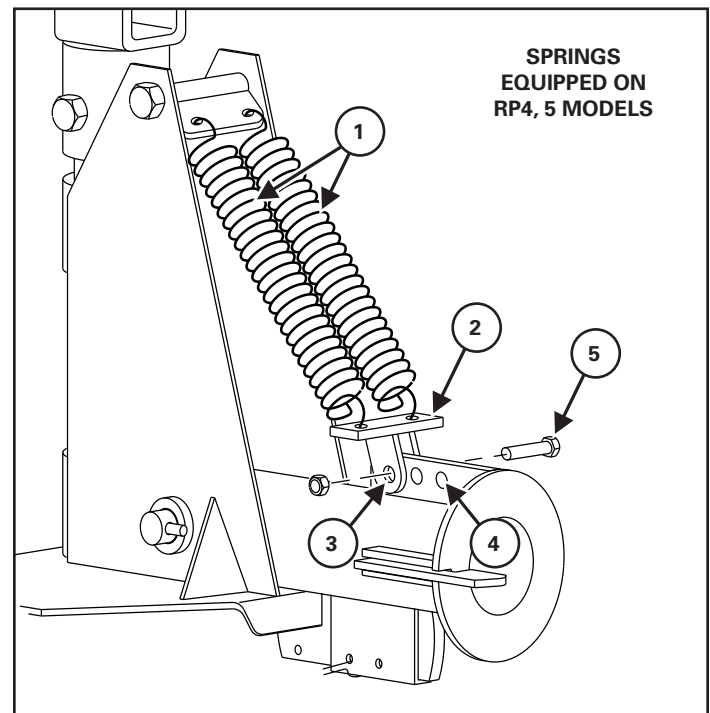


IMPORTANT

Releasing the frame lock will allow the rake frame to tilt upwards (against the springs) following the profile of the terrain.

DO NOT operate rake without releasing the frame lock.

Figure 7



Adjust the pressure of the rake wheels against the terrain by adjusting the tension of the springs (Item 1) [Figure 7].

Adjust the tension of the springs by moving the spring mount (Item 2) to one of the three holes (Item 3). Attach the mount using one M12 x 40 hex bolt (Item 5) and M12 nut [Figure 7].

At position (Item 3), spring tension is lessened and rake wheels will exert greater pressure against the terrain [Figure 7].

At position (Item 4), spring tension is increased and rake wheels will exert less pressure against the terrain [Figure 7].

Field Operation

Make sure the tractor is properly connected to the equipment. See **“Connecting To Tractor”** in Operation Section.

Enter the operator’s position. See **“Entering The Operator’s Position”** in the Operation Section.

Configure the Rake into Work Mode.

1. Rotate the rake arms
2. Lower the rake wheels to the ground

When starting work, operate the Rake for a short distance and check the result.



IMPORTANT

Operate at a maximum speed of 9 mph (14 kph).

Leave the operator’s position. See **“Leaving The Operator’s Position”** in the Operation Section.

Make adjustments as desired. See **“Adjustments”** in the Operation Section:

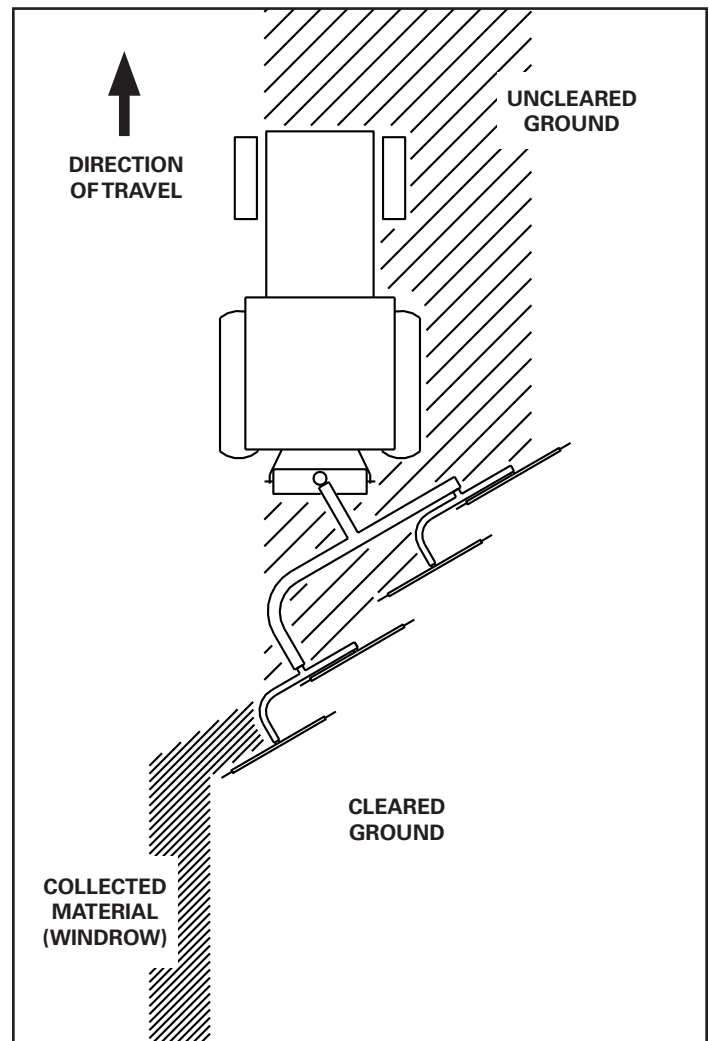
- Make adjustments for the desired windrow width
- Verify that the rake is operating parallel to the ground



CAUTION

- Read operator and parts manual before operating the implement.
- Do not permit riders.
- Keep all guards and shields in place.
- Keep hands, feet, clothing and hair away from moving parts.
- Stop engine, set brake, remove key and wait for all moving parts to stop before servicing, adjusting, repairing and unplugging.
- Remove bystanders, especially children, before starting or while operating.
- Review safety instructions annually.

Figure 8



The rake wheels rotate and collect material as the Rake is pulled. Material is collected into single or multiple windrows (swaths) behind the rake [Figure 8].

The tractor and Rake must travel in a straight path while collecting material.

Before the end of the field, raise the rake wheels.



IMPORTANT

Rake wheels must be fully raised off the ground before turning.

Once the tractor has made a turn lower the rake wheels to continue work.

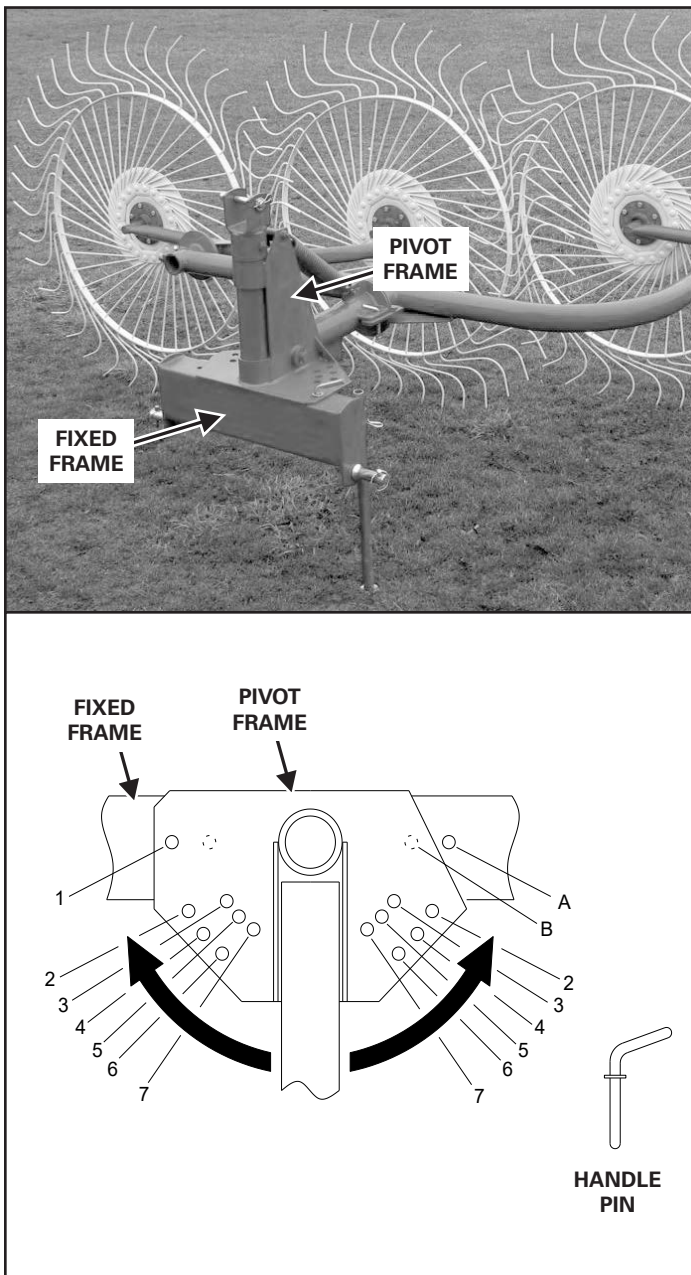
Adjustments

There are three methods of material collection including:

- Collect method
- Spread method
- Turn method

Each collection method is obtained by releasing the arm locking devices and repositioning the rake arms.

Figure 9



The working width for each collection method can be adjusted by changing the rake wheel angle.

Rotate the pivot frame left or right in relation to the fixed frame **[Figure 9]**.

Secure the pivot frame (Hole 2 to 7) to the fixed frame position (Hole A, B) using the handle pin. Secure the handle pin using a retaining pin **[Figure 9]**.

The higher the number of the used hole (from Hole 2 to 7), the lower the angle of the rake wheels **[Figure 9]**.

Low rake angle:

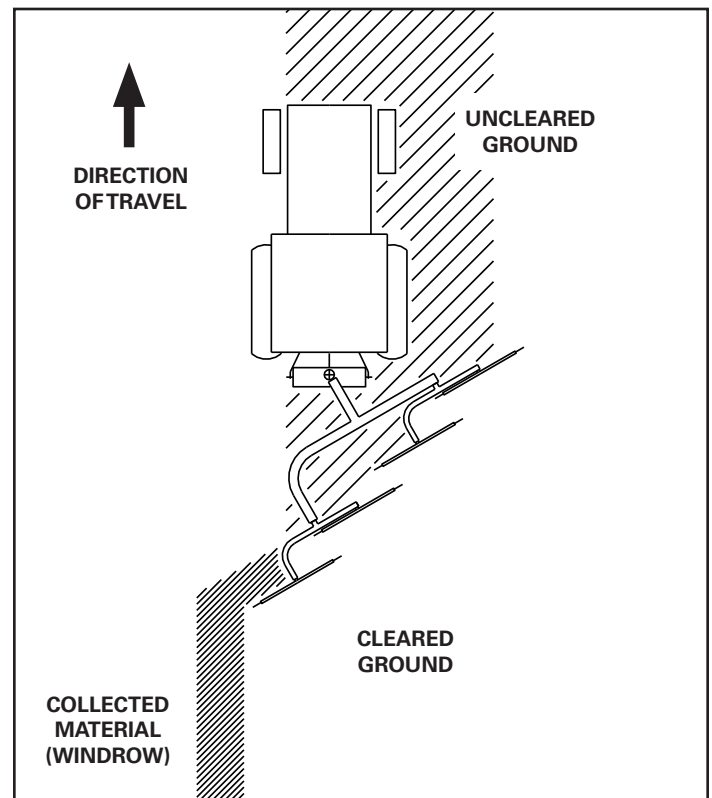
- Wide working width

High rake angle:

- Narrow working width

Collect Method

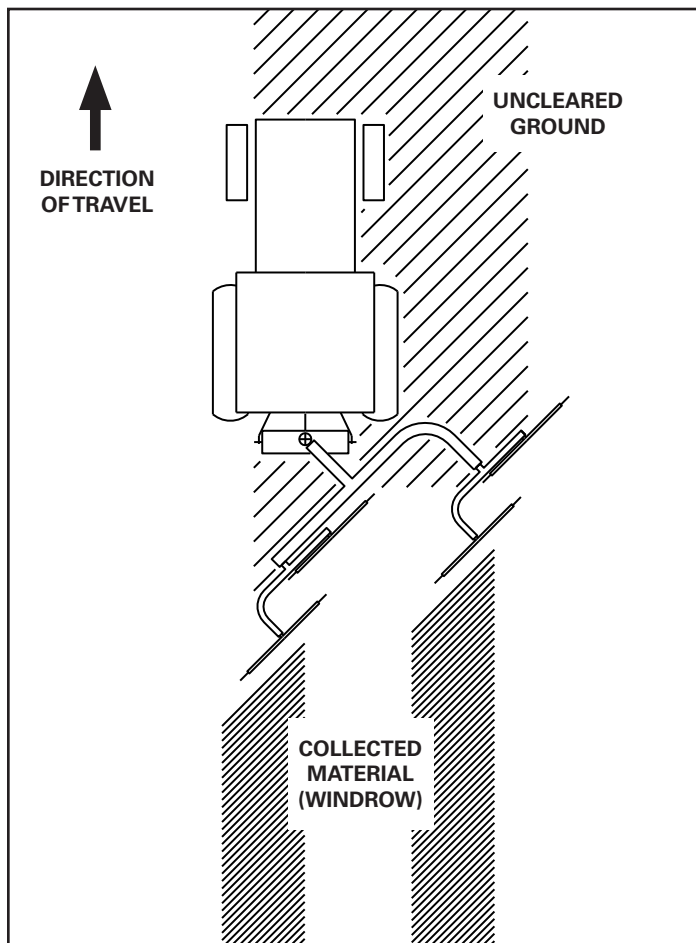
Figure 10



Collection method: Rake arms are angled in the same direction to form a single even windrow to one side **[Figure 10]**.

Spread Method

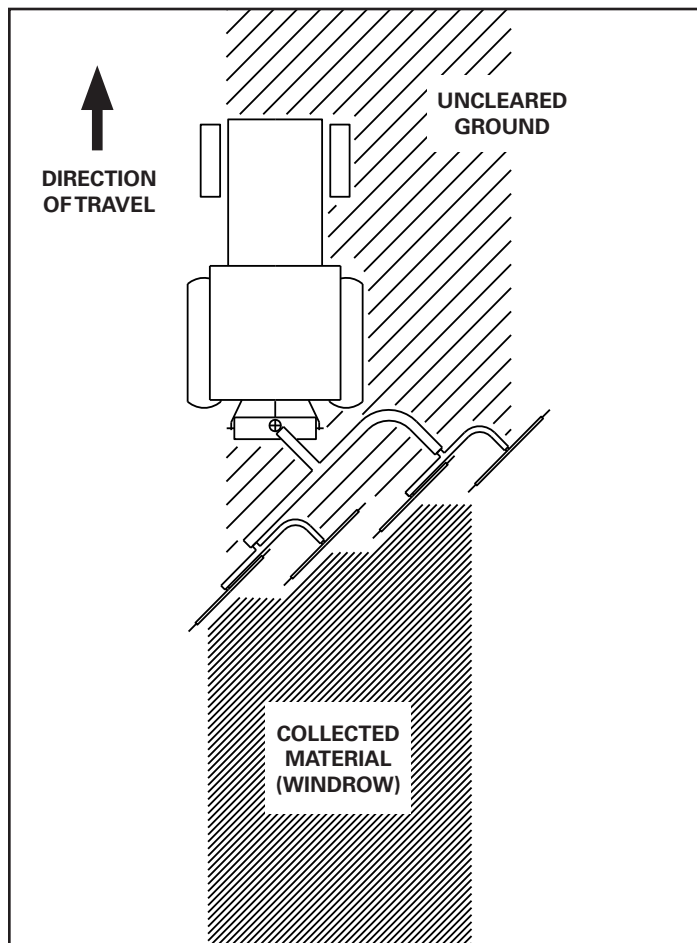
Figure 11



Spread Method: The main arm is angled opposite to the wheel arms to create two offset windrows [Figure 11].

Turn Method

Figure 12



Turn Method: Rake arms are all angled in the opposite direction to distribute collected material [Figure 12].

Transport Configuration

Always comply with federal, state, local and provincial laws regarding the transport of farm equipment on public roadways.

Verify that the tractor / tow vehicle is approved for transporting the equipment and that the equipment is securely attached to the tractor / tow vehicle and configured into Transport Mode.

Verify safety chain is installed and properly connected before transporting equipment.

Verify that the SMV (Slow Moving Vehicle) emblem, all lights and reflectors are clean and visible.



WARNING

AVOID INJURY OR DEATH

Keep bystanders away.

Do not allow riders.

Use of an unapproved hitch or tractor / tow vehicle can result in loss of control, leading to serious injury or death.

Tractor / tow vehicle and hitch must have the rated capacity to tow equipment.

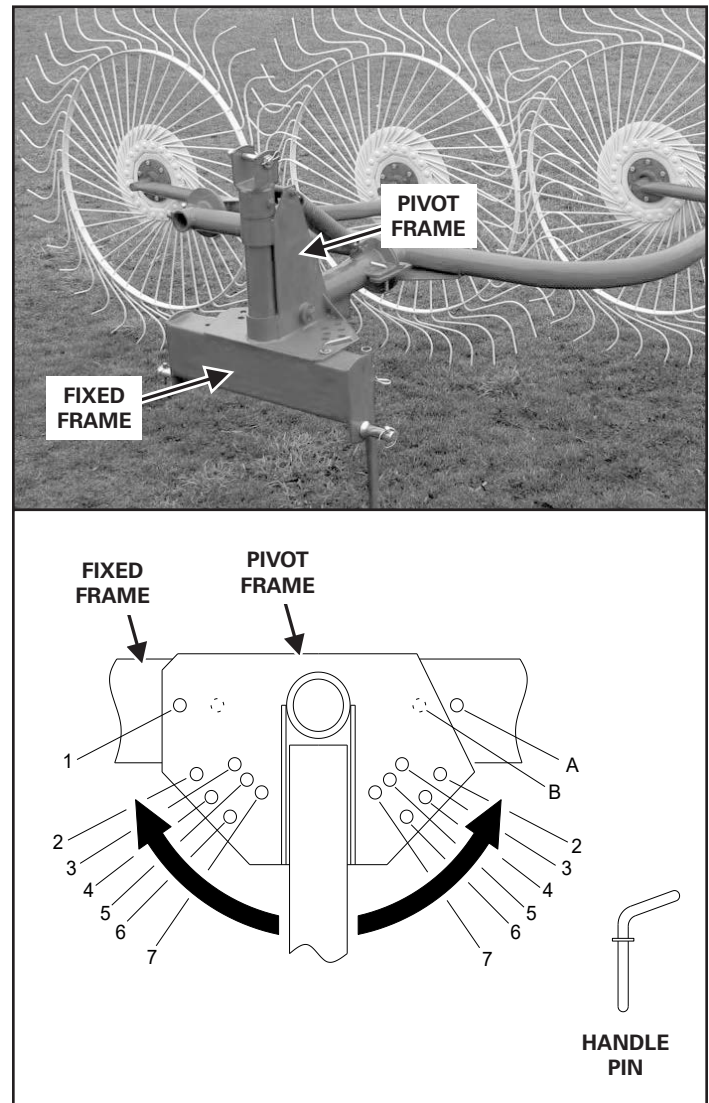


IMPORTANT

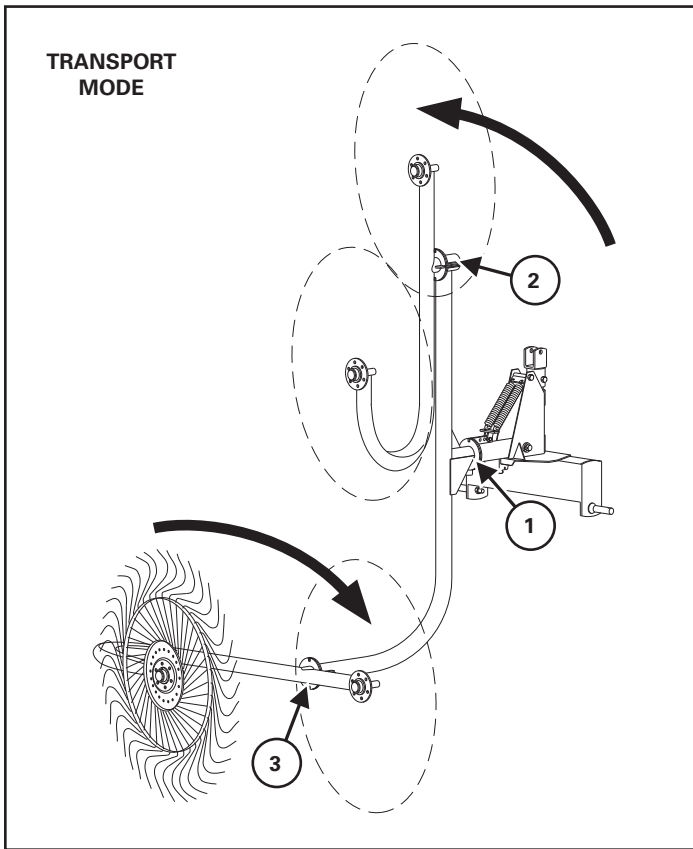
Never exceed 20 mph (32 kph) during road travel.

The equipment must be configured from Work Mode into Transport Mode for proper road transportation.

Figure 13



Rotate the pivot frame to be perpendicular to the fixed frame. Secure the pivot frame in position by installing the handle pin to Hole 1. Secure the handle pin with a retaining pin [Figure 13].

Figure 14

Release the locking device (Item 1) on the hitch and rotate the complete arm assembly into the vertical position [Figure 14].

Release the locking device (Item 2) on the inner arm and rotate into the vertical position [Figure 14].

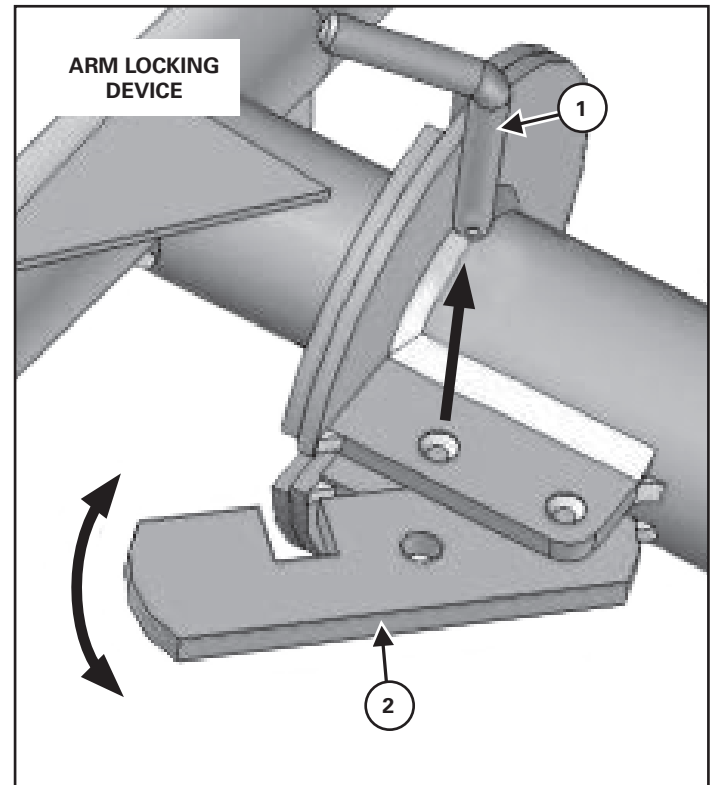
Release the locking device (Item 3) on the outer arm and rotate into the horizontal position [Figure 14].



IMPORTANT

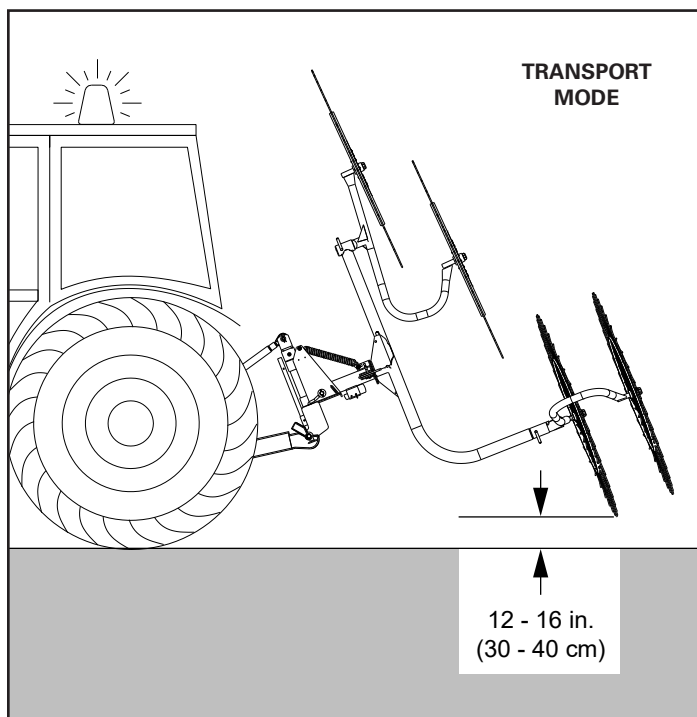
Re-secure each locking device once rake is in transport mode.

DO NOT transport rake without locking devices secured in the locked position with retaining pin.

Figure 15

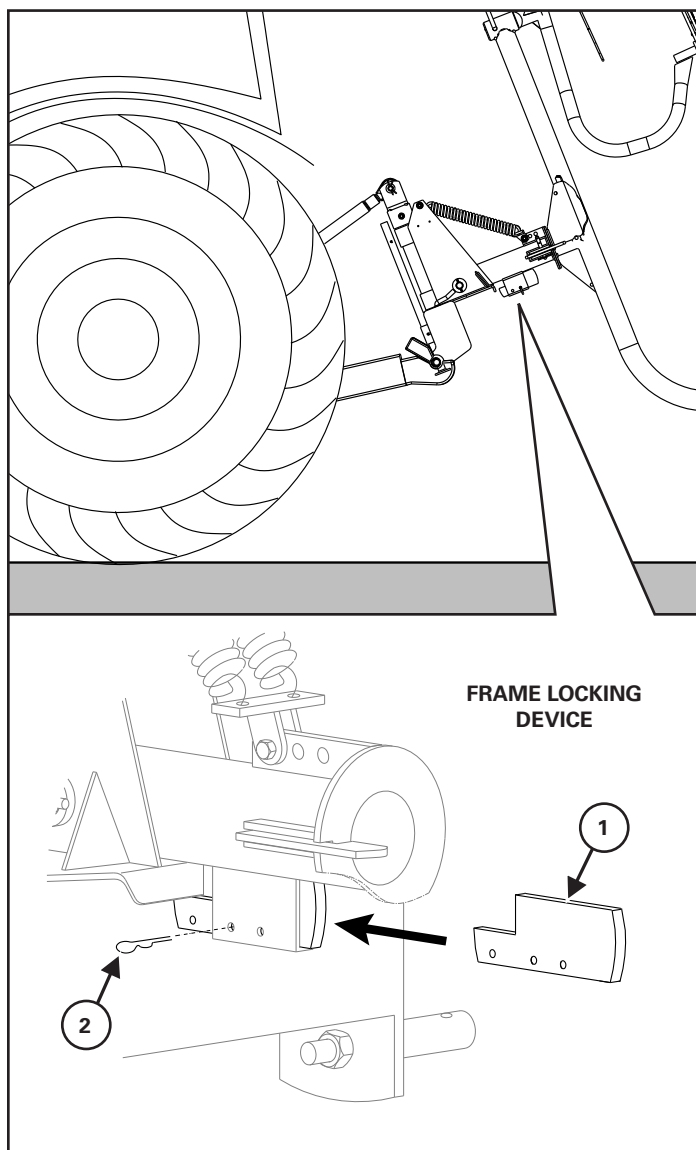
The arm locking devices are released by removing the pin (Item 1) and removing the locking bracket (Item 2) [Figure 15].

Figure 16



Use the tractor hydraulic lift to raise the rake until the lowest point is twelve to sixteen inches off the ground **[Figure 16]**.

Figure 17



Secure the frame using the locking device underneath the hitch.

Insert the locking bracket (Item 1) and attach one cotter pin (Item 2) **[Figure 17]**.



IMPORTANT

The frame locking device will prevent movement of the rake during transport.

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Maintenance

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Service Schedule Chart



WARNING

Instructions are necessary before operating or servicing equipment. Read and understand the Operator And Parts Manual and safety signs (decals) on equipment. Follow warnings and instructions in the manuals when making repairs, adjustments or servicing. Check for correct function after adjustments, repairs or service. Untrained operators and failure to follow instructions can cause injury or death.

Note: If a problem is encountered that is difficult to solve, even after having read through this troubleshooting section, please call your local distributor, dealer or factory. Before you call, please have this Operator And Parts Manual and the serial number of your machine at hand.

Maintenance work must be done at regular intervals. Failure to do so will result in excessive wear and early failures. The service schedule is a guide for correct maintenance of the equipment.

#	DESCRIPTION	SERVICE PROCEDURES				
		CHECK	CLEAN	LUBE	CHANGE	COVER
Daily Maintenance (or every 8 hours of use)						
1	Three-point Hitch Pins	✓				
2	Rake Wheel Tines	✓	✓			
3	Fasteners	✓				
4	Rake Arm Pivots	✓		✓		
Annually (or every 500 hours of use)						
5	Entire Machine	✓	✓			

Lubrication

Recommendations

Always use a good quality multi-purpose / lithium base grease when lubricating the equipment.

- Always use a hand-held grease gun.
- Clean fitting before greasing, to avoid injecting dirt and grit.
- Replace and repair broken fittings immediately.
- If fittings will not take grease, remove and clean thoroughly. Replace fitting if necessary.



WARNING

AVOID INJURY OR DEATH

Stop engine, set brake, remove ignition key, and wait for all moving parts to stop before servicing, adjusting, repairing, or unplugging.

Support the equipment with blocks or safety stands before working beneath it.

Follow good shop practices:

- Keep service area clean and dry
- Be sure electrical outlets and tools are properly grounded
- Use adequate light for the job

Use only tools, jacks, and hoists of sufficient capacity for the job.

Replace and secure all shields removed during servicing before operating.

Use heavy leather gloves to handle sharp objects.

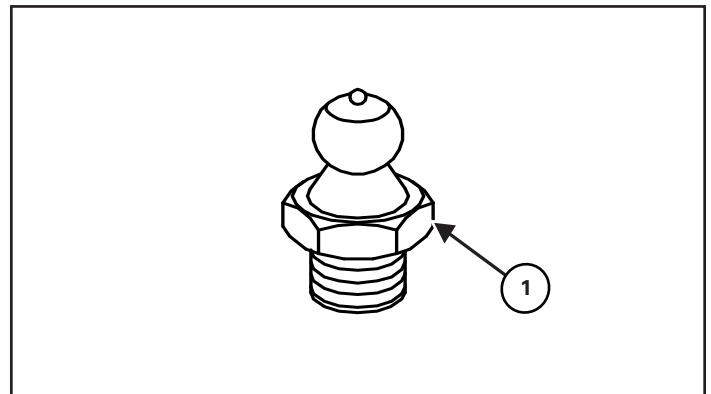
Locations



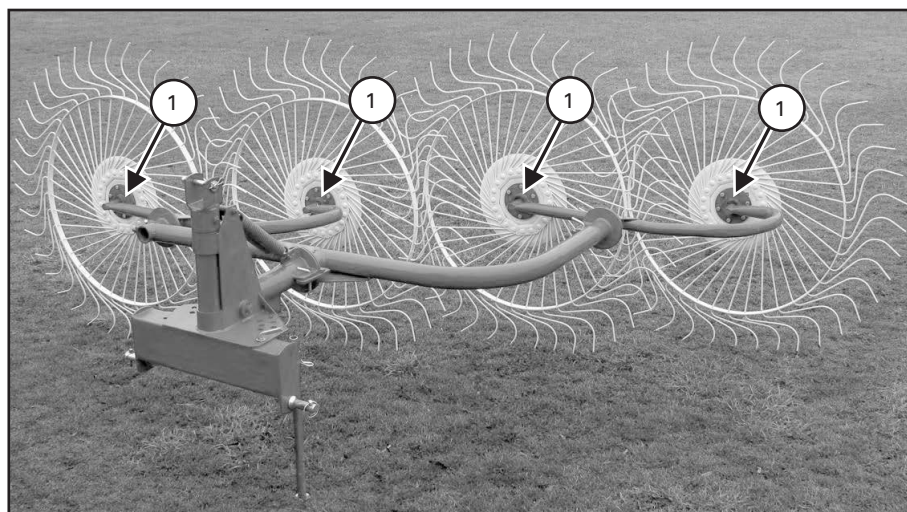
IMPORTANT

Fluid such as engine oil, hydraulic fluid, coolants, grease, etc. must be disposed of in an environmentally safe manner. Some regulations require that certain spills and leaks on the ground must be cleaned in a specific manner. See local, state and federal regulations for the correct disposal.

Figure 18



Lubrication points (Item 1) [Figure 18].

Figure 19


Apply two to three pumps of grease to all lubrication points. Repeat for multiple locations of each component **[Figure 19]**:

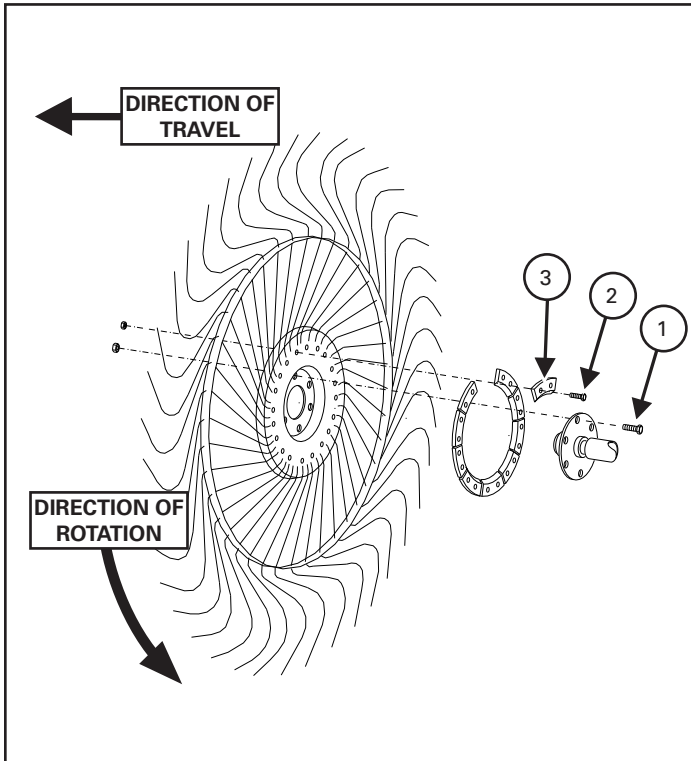
- Rake wheel hubs (Item 1)

Grease daily (or every 8 hours of use).

Rake Wheels

Periodically check all rake tines for wear or damage.

Figure 20



Rake Wheels

Remove the M10 x 25 mm hex bolts (Item 1), 10 mm washers, and M10 nuts from the rake wheel. Replace the rake wheel **[Figure 20]**.

Rake Tines

Remove the two M10 x 25 mm carriage bolts (Item 2), fastener plate (Item 3), and M10 lock nuts from the retaining plate. Replace the tine **[Figure 20]**.



IMPORTANT

Take note of tine orientation in regards to direction of rotation when replacing rake wheels or tines.

Tines angle away from the direction of rotation.

Storage And Return To Service

Storage

Sometimes it may be necessary to store the equipment for an extended period of time. Below is a list of items to perform before storage.



IMPORTANT

DO NOT permit children to play on or around the stored machine.

- Thoroughly wash the machine with a pressure washer or water hose to remove all dirt, mud, debris or residue.
- Lubricate all bushings to remove any water residue from washing.
- Remove any material that has become entangled around any moving part.
- Place hydraulic hoses or electrical connector (if applicable) in the storage brackets.
- Inspect the hitch and all welds on the equipment for wear and damage.
- Check for loose hardware, missing guards, rake tines, or damaged parts.
- Check for damaged or missing safety signs (decals). Replace if necessary.
- Replace worn or damaged parts.
- Touch up all paint nicks and scratches to prevent rusting.
- Place the equipment in a dry protected shelter.

Note: If a dry protected shelter is not available, cover with a waterproof tarp and tie down securely.

- Place the equipment flat on the ground.
- Support the jack / frame with planks if required.

Return To Service

After the equipment has been in storage, it is necessary to follow a list of items to return the equipment to service.

- Be sure all shields and guards are in place.
- Lubricate the equipment.
- Connect to a tractor and operate equipment, verify all functions operate correctly.
- Repair as needed.

Decal Installation



IMPORTANT

When replacing safety signs (decals), the temperature must be above 10° C (50° F).

- Remove all portions of the damaged safety sign (decal).
- Thoroughly clean the area with adhesive remover and glass cleaner. Remove all adhesive residue.
- Allow the area to dry completely before installing the new safety sign (decal).
- Position the safety sign (decal) in the correct location.
- Remove a small portion of the backing paper on the safety sign (decal).
- Press on the safety sign (decal) where the backing paper has been removed.
- Slowly remove the remaining backing paper, pressing on the safety sign (decal) as the backing paper is removed.
- Using the backing paper, pressing firmly, move the backing paper over the entire safety sign (decal) area.

Note: Small air pockets can be pierced with a pin and smoothed out using the piece of the backing paper.

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Parts Identification

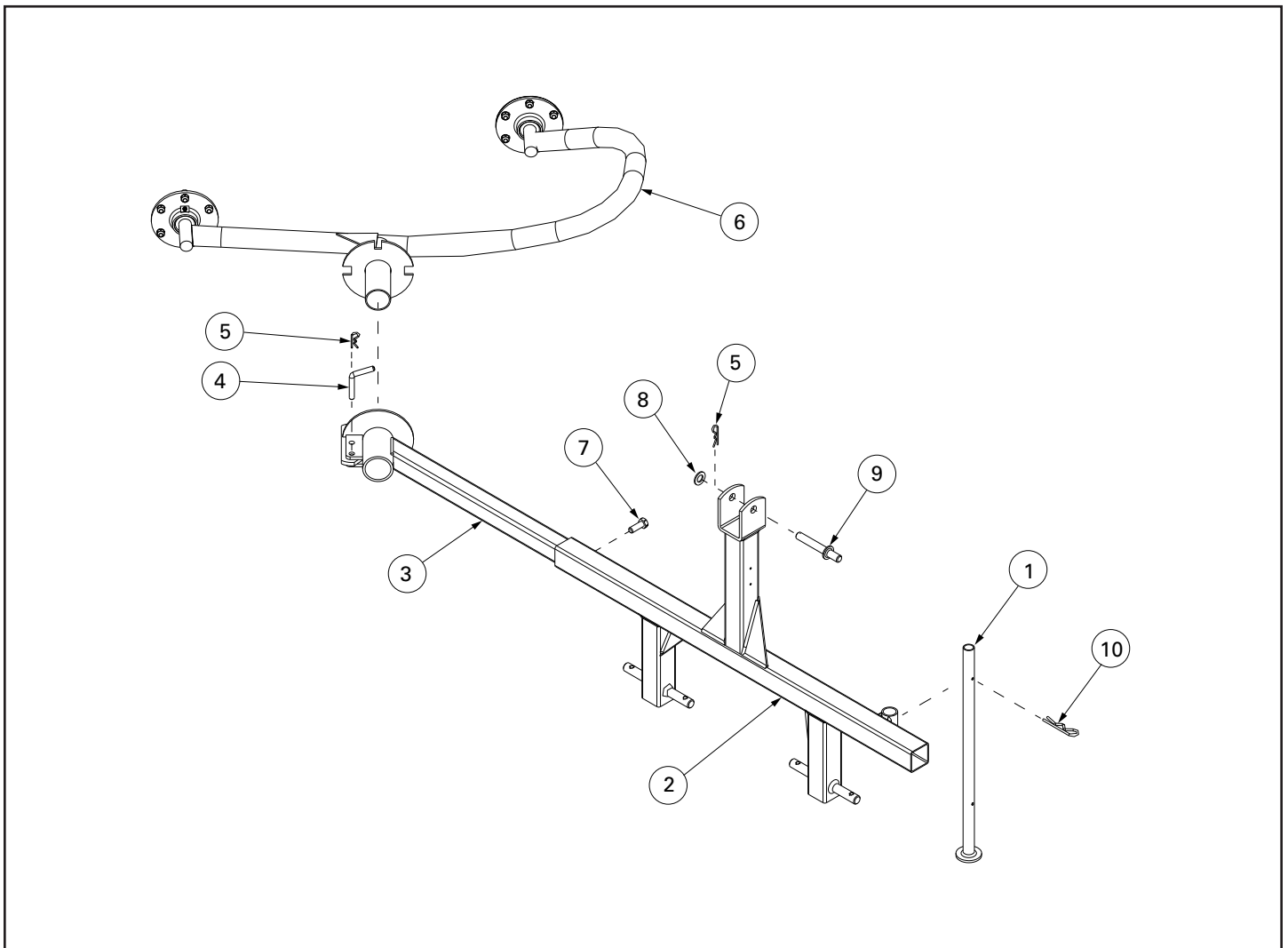
Always give your dealer the Model, Color and Serial Number of your machine to assist them in ordering and obtaining the correct parts. Use the exploded view and tabular listing of the area of interest to exactly identify the required part.

Hitch, Arm - RP2.....	43
Hitch - RP4, RP5.....	44
Arms - RP4, RP5.....	46
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Farm King

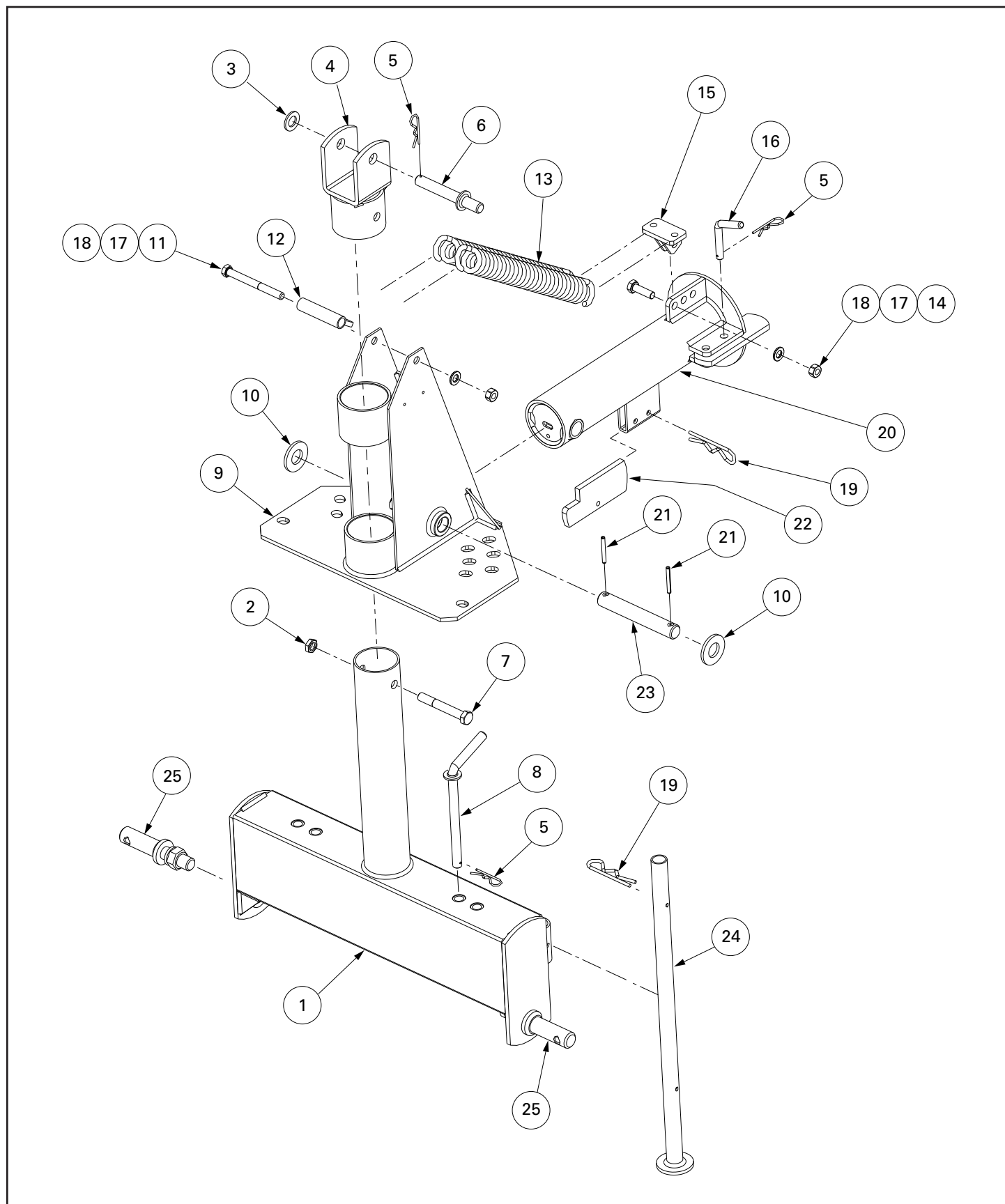


Hitch, Arm - RP2



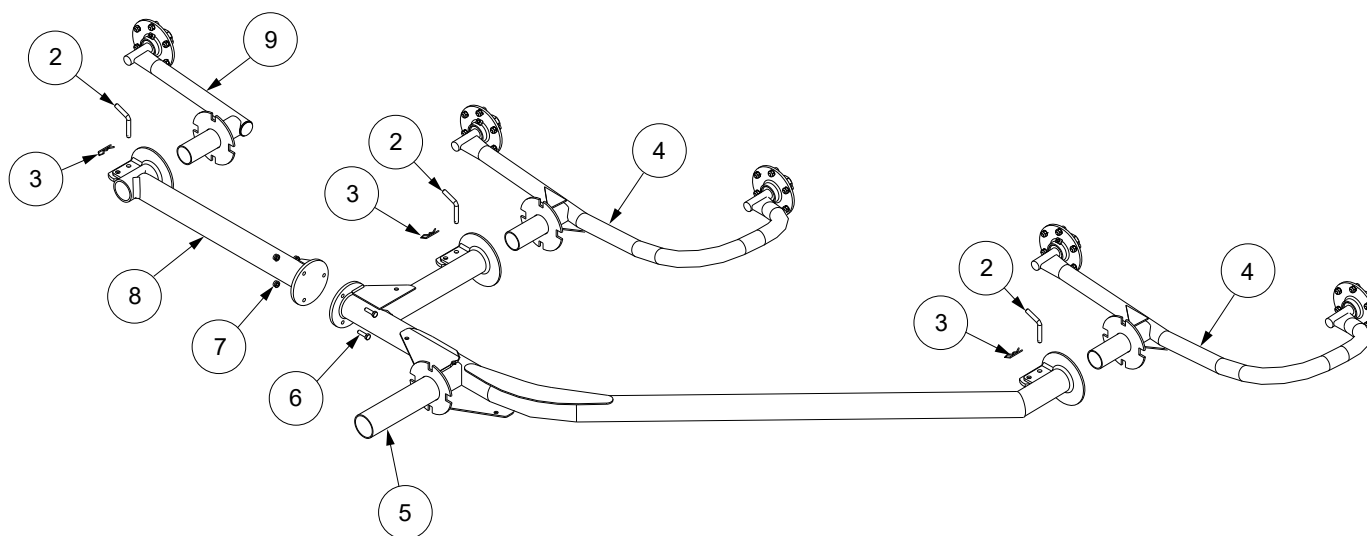
ITEM	PART NUMBER	DESCRIPTION	QTY.
1	R17011102	JACK	*
2	R17012201	3 POINT HITCH	*
3	R17010405	ARM CARRIER	*
4	R12120503	PIN Ø12 L.125	*
5	R3040201	CLIP PIN 3X60	*
6	R17010801	ARM WITH HUB	*
7	R3011615	SCREW/TE M14X40	*
8	R3030610	WASHER Ø18	*
9	R12120508	CAP PIN Ø18 L.140	*
10	R3040202	SPLIT PIN 5X100	*

Hitch - RP4, RP5

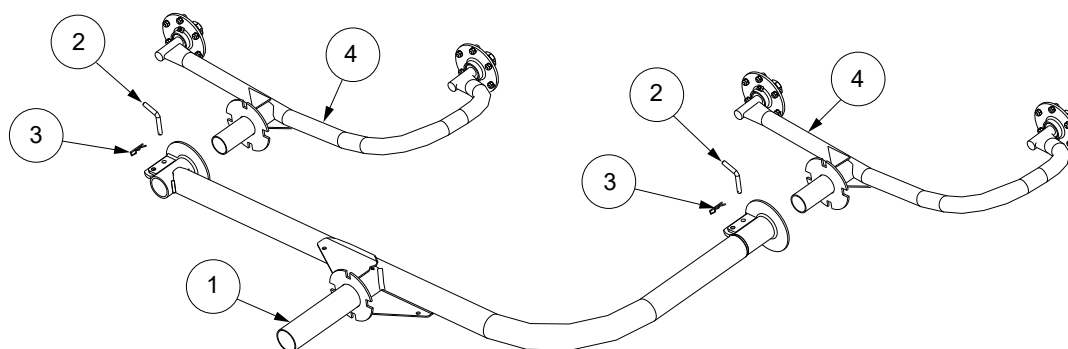


ITEM	PART NUMBER	DESCRIPTION	QTY.
1	R18030417	BASE	*
2	R3020319	NUT M14	*
3	R3030610	WASHER Ø18	*
4	R18030451	CAP	*
5	R3040201	SPLIT PIN 3X60	*
6	R18033298	PIN 3° P	*
7	R3010221	SCREWTE M14X100	*
8	R18033268	PIN	*
9	R18030418	FRAME HOLDERS HITCH	*
10	R3030115	WASHER Ø24	*
11	R3010292	SCREWTE M12X120	*
12	R18030452	UPPER SPRING LINKAGE	*
13	R11010501	SPRING	*
14	R3010216	SCREWTE M12X40	*
15	R18030453	LOWER SPRING LINKAGE	*
16	R12120503	PIN Ø12	*
17	R3030127	WASHER Ø12	*
18	R3020304	NUT M12	*
19	R3040202	SPLIT PIN 5X100	*
20	R18030454	FRAME HITCH BUSCH	*
21	R3080103	SPRING PIN 6X40	*
22	R18030456	FRAME LOCKING GUIDE	*
23	R18034728	PIN Ø25	*
24	R17011102	JACK	*
25	R12310307	PIN 2° CAT.	*

Arms - RP4, RP5



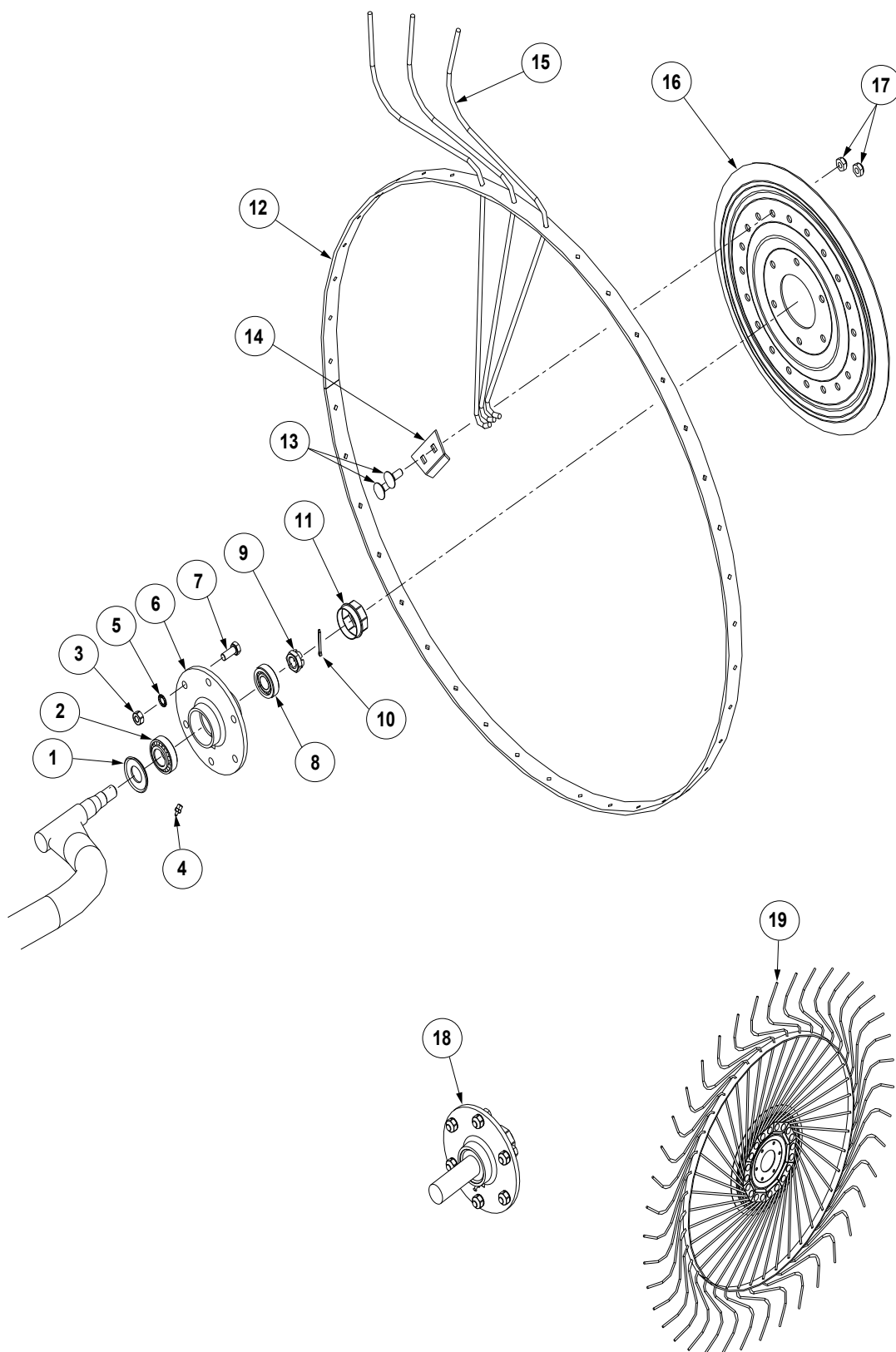
FIVE WHEEL RAKE



FOUR WHEEL RAKE

ITEM	PART NUMBER	DESCRIPTION	QTY.
1	R17011401	FOUR WHEEL RAKE FRAME	*
2	R12120503	PIN Ø12	*
3	R3040201	SPLIT PIN 3X60	*
4	R18030404	RIGHT WHEEL ARM	*
	R18033283	LEFT WHEEL ARM	*
5	R18031198	FIVE WHEEL RAKE FRAME	*
6	R3011260	SCREWTE M10X35	*
7	R3020201	SELF-LOCKING NUT. M10	*
8	R18031199	FIVE WHEEL FRAME EXTENSION	*
9	R18030405	FIVE WHEEL ARM EXTENSION	*

Rake Wheels



ITEM	PART NUMBER	DESCRIPTION	QTY.
1	R12860001	CORTECO 52X25	*
2	R12240119	BEARING 30205	*
3	R3020328	NUT M10	*
4	R3090101	GREASE M8X1	*
5	R3030227	WASHER Ø10	*
6	R12150103	HUB	*
7	R3011209	SCREWTE M10X25	*
8	R12240118	BEARING 30204	*
9	R3020210	NUT SLOTTED M18X1.5	*
10	R3040114	SPLIT PIN 4X35	*
11	R12360001	DUST SEAL D.52	*
12	R18031113	RAKING WHEEL RING (VICONTOOTH Ø 6.9)	*
13	R3010105	SCREWTTQS M10X25	*
14	R18030416	TEETH FASTENER PLATE	*
15	R18030415	VICONTOOTH Ø6.9	*
16	R12160101	RAKING WHEEL FLANGE	*
17	R3020224	SELF LOCKING NUT M10 CONELOX	*
18	R12150101	COMPLETE HUB	*
19	R18036078	COMPLETE RAKE WHEEL (RIGHT VICON Ø6.9)	*
	R18036079	COMPLETE RAKE WHEEL (LEFT VICON Ø6.9)	*

Farm King



Specifications And Shipping Kit Numbers

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Specifications

MODEL	RRP2	RRP4	RRP5
Rake Wheels	2	4	5
Working Width	52" (131 cm)	102" (260 cm)	134" (340 cm)
Transport Width	91" (230 cm)	93" (235 cm)	93" (235 cm)
Tines Per Rake Wheel	40		
Rake Wheel Diameter	55" (140 cm)		
Tine Size	0.25" (6.5 mm)		
HP Requirements	25 HP	40 HP	40 HP
Weight	198 lbs (90 kg)	392 lbs (178 kg)	463 lbs (210 kg)

Note: Dimensions are approximate measurements.

Shipping Kit And Bundle Numbers

The following is a list of Kit Numbers for this product and the Bundle Numbers, Descriptions, and Quantities for each Kit.

Qty.	Bundle	Description
2-Wheel Rake, Ø55" Wheels, 40 Teeth		
1	RRP2FK	Body Assembly
4-Wheel Rake, Left, Ø55" Wheels, 40 Teeth		
1	RRP4LFK	Body Assembly
4-Wheel Rake, Right, Ø55" Wheels, 40 Teeth		
1	RRP4RFK	Body Assembly
5-Wheel Rake, Left, Ø55" Wheels, 40 Teeth		
1	RRP5LFK	Body Assembly
5-Wheel Rake, Right, Ø55" Wheels, 40 Teeth		
1	RRP5RFK	Body Assembly

Hardware Torque Values

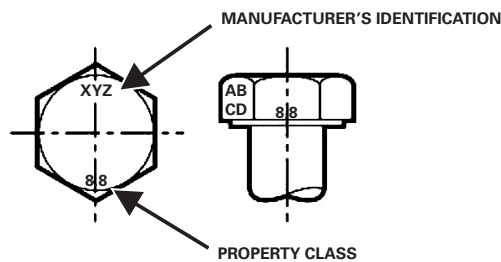
Metric Chart

NOTE: Do not use the values listed in the charts if a different torque value or tightening procedure is specified in this manual for a specific application. Torque values listed are for general use only.

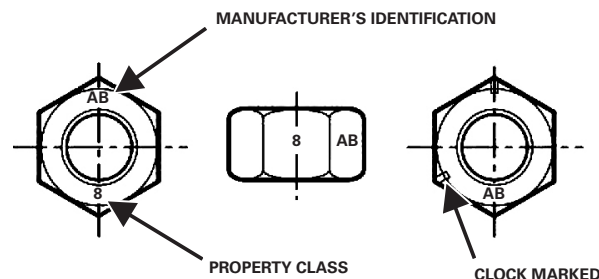
Use the following charts to determine the correct torque when checking, adjusting or replacing hardware. **Torque values are listed in newton-meters (inch* or foot pounds) for normal assembly applications.**

Nominal Size	Class 5.8		Class 8.8		Class 10.9		Lock nuts
	Unplated	Plated W / ZnCr	Unplated	Plated W / ZnCr	Unplated	Plated W / ZnCr	CL.8 W/ CL. 8.8 Bolt
M4	1.7 (15*)	2.2 (19*)	2.6 (23*)	3.4 (30*)	3.7 (33*)	4.8 (42*)	1.8 (16*)
M6	5.8 (51*)	7.6 (67*)	8.9 (79*)	12 (102*)	13 (115*)	17 (150*)	6.3 (56*)
M8	14 (124*)	18 (159*)	22 (195*)	28 (248*)	31 (274*)	40 (354*)	15 (133*)
M10	28 (21)	36 (27)	43 (32)	56 (41)	61 (45)	79 (58)	30 (22)
M12	49 (36)	63 (46)	75 (55)	97 (72)	107 (79)	138 (102)	53 (39)
M16	121 (89)	158 (117)	186 (137)	240 (177)	266 (196)	344 (254)	131 (97)
M20	237 (175)	307 (226)	375 (277)	485 (358)	519 (383)	671 (495)	265 (195)
M24	411 (303)	531 (392)	648 (478)	839 (619)	897 (662)	1160 (855)	458 (338)
NOTE: Torque values shown with * are inch pounds.							

Identification of Hex Cap Screws and Carriage Bolts - Classes 5 and up



Identification of Hex Nuts and Lock Nuts - Classes 5 and up



Hardware Torque Values (Cont'd)

Imperial Chart

NOTE: Do not use the values listed in the charts if a different torque value or tightening procedure is specified in this manual for a specific application. Torque values listed are for general use only.

Use the following charts to determine the correct torque when checking, adjusting or replacing hardware. Torque values are listed in newton-meters (inch* or foot pounds) for normal assembly applications.

Nominal Size	SAE Grade 5		SAE Grade 8		LOCK NUTS			
	Unplated or Plated Silver	Plated W / ZnCr Gold"	Unplated or Plated Silver	Plated W / ZnCr Gold"	Unplated or Plated Silver	Plated W / ZnCr Gold"	Grade W / Gr. 5 Bolt	Grade W / Gr. 8 Bolt
1/4	6.2 (55*)	8.1 (72*)	9.7 (86*)	12.6 (112*)	13.6 (121*)	17.7 (157*)	6.9 (61*)	9.8 (86*)
5/16	13 (115*)	17 (149*)	20 (178*)	26 (229*)	28 (250*)	37 (324*)	14 (125*)	20 (176*)
3/8	23 (17)	30 (22)	35 (26)	46 (34)	50 (37)	65 (48)	26 (19)	35 (26)
7/16	37 (27)	47 (35)	57 (42)	73 (54)	80 (59)	104 (77)	41 (30)	57 (42)
1/2	57 (42)	73 (54)	87 (64)	113 (83)	123 (91)	159 (117)	61 (45)	88 (64)
9/16	81 (60)	104 (77)	125 (92)	163 (120)	176 (130)	229 (169)	88 (65)	125 (92)
5/8	112 (83)	145 (107)	174 (128)	224 (165)	244 (180)	316 (233)	122 (90)	172 (127)
3/4	198 (146)	256 (189)	306 (226)	397 (293)	432 (319)	560 (413)	217 (160)	306 (226)
7/8	193 (142)	248 (183)	495 (365)	641 (473)	698 (515)	904 (667)	350 (258)	494 (364)
1	289 (213)	373 (275)	742 (547)	960 (708)	1048 (773)	1356 (1000)	523 (386)	739 (545)
NOTE: Torque values shown with * are inch pounds.								

Identification of Hex Cap Screws and Carriage Bolts



GRADE 2 SAE BOLT



GRADE 5 SAE BOLTS



GRADE 8 SAE BOLTS



GRADE 2 SAE NUTS

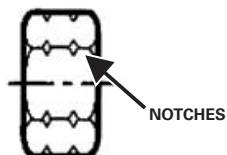


GRADE 5 SAE HEX NUTS

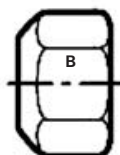


GRADE 8 SAE HEX NUTS

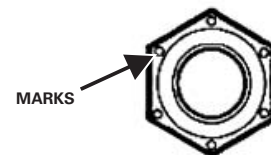
Identification of Hex Nuts and Lock Nuts



GRADE IDENTIFICATION
GRADE A: NO NOTCHES
GRADE B: ONE CIRCUMFERENTIAL NOTCH
GRADE C: TWO CIRCUMFERENTIAL NOTCHES



GRADE IDENTIFICATION
GRADE A: NO MARK
GRADE B: LETTER B
GRADE C: LETTER C



GRADE IDENTIFICATION
GRADE A: NO MARKS
GRADE B: THREE MARKS
GRADE C: SIX MARKS
MARKS NEED NOT BE LOCATED AT CORNERS

Farm King



Warranty

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Farm King



Farm King Base Limited Warranty

Farm King provides this warranty only to original retail purchasers of its products. Farm King warrants to such purchasers that all Farm King manufactured parts and components used and serviced as provided for in the Operator's Manual shall be free from defects in materials and workmanship for a period following delivery to the original retail purchaser of one (1) year. This limited warranty applies only to those parts and components manufactured by Farm King. Parts and components manufactured by others are subject to their manufacturer's warranties, if any.

Farm King will fulfill this limited warranty by, at its option, repairing or replacing any covered part that is defective or is the result of improper workmanship, provided that the part is returned to Farm King within thirty (30) days of the date that such defect or improper workmanship is, or should have been, discovered. Parts must be returned through the selling representative and the buyer must prepay transportation charges.

Farm King will not be responsible for repairs or replacements that are necessitated, in whole or part, by the use of parts not manufactured by or obtained from Farm King. Under no circumstances are component parts warranted against normal wear and tear. There is no warranty on product pump seals, product pump bearings, rubber product hoses, pressure gauges, or other components that require replacement as part of normal maintenance.

Repair Parts Limited Warranty

Farm King warrants genuine Farm King replacement parts purchased after the expiration of the Farm King Limited Warranty, and used and serviced as provided for in the Operator's Manual, to be free from defects in materials or workmanship for a period of thirty (30) days from the invoice date for the parts. Farm King will fulfill this limited warranty by, at its option, repairing or replacing any covered part that is defective or is the result of improper workmanship, provided that the part is returned to Farm King within thirty (30) days of the date that such defect or improper workmanship is, or should have been, discovered. Such parts must be shipped to the Farm King factory at the purchaser's expense.

What Is Not Covered

Under no circumstances does this limited warranty cover any components or parts that have been subject to the following: negligence; alteration or modification not approved by Farm King; misuse; improper storage; lack of reasonable and proper maintenance, service, or repair; normal wear; damage from failure to follow operating instructions; accident; and/or repairs that have been made with parts other than those manufactured, supplied, and or authorized by Farm King.

Authorized Dealer And Labor Costs

Repairs eligible for labor under this limited warranty must be made by Farm King or an authorized Farm King dealer. Farm King retains the exclusive discretion to determine whether it will pay labor costs for warranty repairs or replacements, and the amount of such costs that it will pay and the time in which the repairs will be made. If Farm King determines that it will pay labor costs for warranty work, it will do so by issuing a credit to the dealer's or distributor's account. Farm King will not approve or pay invoices sent for repairs that Farm King has not previously approved. Warranty service does not extend the original term of this limited warranty.

Warranty Requirements

To be covered by warranty, each new product must be registered with Farm King within thirty (30) days of delivery to original retail purchaser. If the customer decides to purchase replacement components before the warranty disposition of such components is determined, Farm King will bill the customer for such components and then credit the replacement invoice for those components later determined to be covered by this limited warranty. Any such replacement components that are determined not to be covered by this limited warranty will be subject to the terms of the invoice and shall be paid for by the purchaser.

EXCLUSIVE EFFECT OF WARRANTY AND LIMITATION OF LIABILITY

TO THE EXTENT PERMITTED BY LAW, FARM KING DISCLAIMS ANY WARRANTIES, REPRESENTATIONS, OR PROMISES, EXPRESS OR IMPLIED, AS TO THE QUALITY, PERFORMANCE, OR FREEDOM FROM DEFECT OF THE COMPONENTS AND PARTS COVERED BY THIS WARRANTY AND NOT SPECIFICALLY PROVIDED FOR HEREIN.

TO THE EXTENT PERMITTED BY LAW, FARM KING DISCLAIMS ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ON ITS PRODUCTS COVERED HEREIN, AND DISCLAIMS ANY RELIANCE BY THE PURCHASER ON FARM KING'S SKILL OR JUDGMENT TO SELECT OR FURNISH GOODS FOR ANY PARTICULAR PURPOSE. THE PURCHASER'S ONLY AND EXCLUSIVE REMEDIES IN CONNECTION WITH THE BREACH OR PERFORMANCE OF ANY WARRANTY ON FARM KING'S PRODUCTS ARE THOSE SET FORTH HEREIN. IN NO EVENT SHALL FARM KING BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING, BY WAY OF EXAMPLE ONLY AND NOT LIMITATION, LOSS OF CROPS, LOSS OF PROFITS OR REVENUE, OTHER COMMERCIAL LOSSES, INCONVENIENCE, OR COST OF REPLACEMENT OF RENTAL EQUIPMENT). IN NO EVENT SHALL FARM KING'S CONTRACT OR WARRANTY LIABILITY EXCEED THE PURCHASE PRICE OF THE PRODUCT. (Note that some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusion may not apply to you.) This warranty gives you specific legal rights and you may also have other rights, which vary from state to state.

Farm King neither assumes nor authorizes any person or entity, including its selling representatives, to assume any other obligations or liability in connections with the sale of covered equipment, or to make any other warranties, representations, or promises, express or implied, as to the quality, performance, or freedom from defect of the components and parts covered herein. No one is authorized to alter, modify, or enlarge this limited warranty, or its exclusions, limitations and reservations.

Corrections of defects and improper workmanship in the manner, and for the applicable time periods, provided for herein shall constitute fulfillment of all responsibilities of Farm King to the purchaser, and Farm King shall not be liable in negligence, contract, or on any other basis with respect to the subject equipment.

This limited warranty is subject to any existing conditions of supply which may directly affect Farm King's ability to obtain materials or manufacturer replacement parts.

Buhler Industries Inc. reserves the right to make improvements in design or changes in specifications to its products at anytime, without incurring any obligation to owners of units previously sold.

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