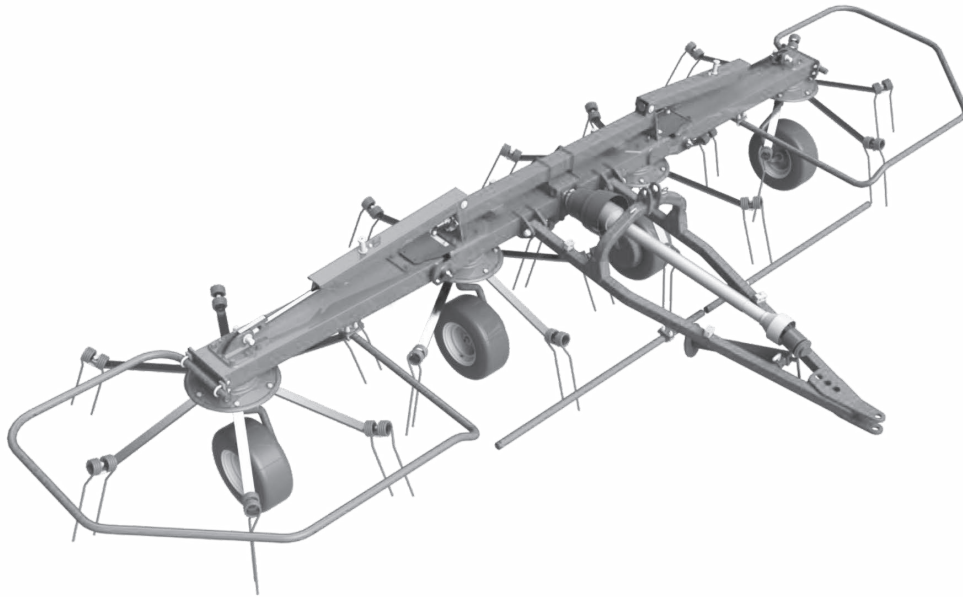


# Farm King

## OPERATOR AND PARTS MANUAL

### Tedder

Model RT17, RT19





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

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

Equipment Model:	Serial Number:	Delivery Date:
------------------	----------------	----------------

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**

- Raise and lower wings
- Adjust angle of rotary group
- Lubricate machine
- Check wheel bolt torque
- All fasteners tight
- Check tire pressure
- Check hydraulic hoses

**Safety**

- Safety chain is on hitch
- All decals installed
- Guards and shields installed and secure
- 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:
-------	-----------------------------

**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.**

# Farm King



## 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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# Farm King





## Owner's Information

Thank you for your decision to purchase a Farm King Tedder. 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.

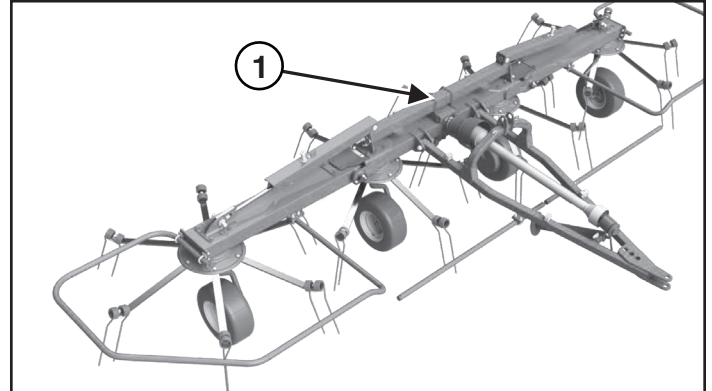
Visit our website at [www.farm-king.com](http://www.farm-king.com) for a complete list of dealers in your area.

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:** \_\_\_\_\_

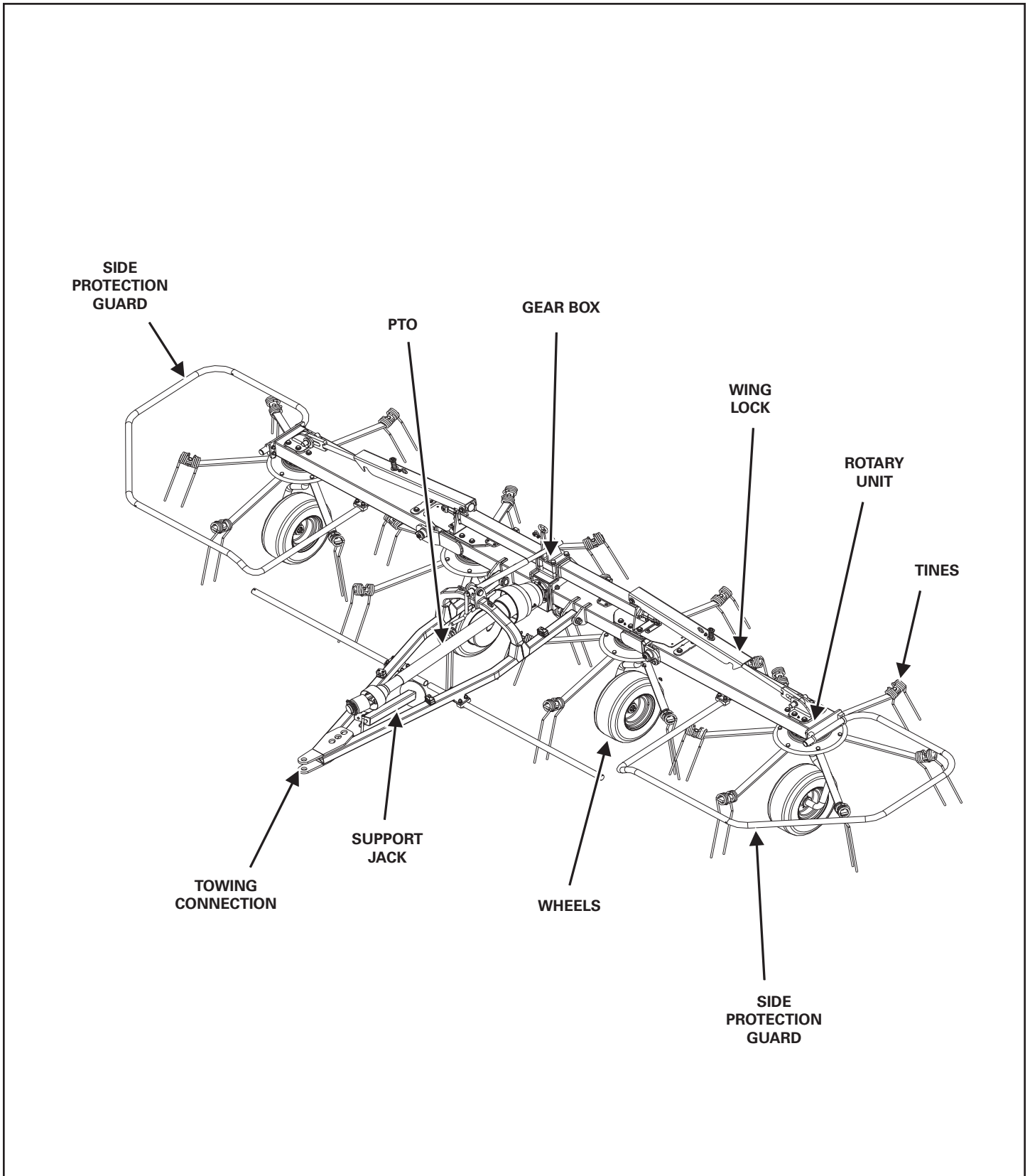
**Serial Number:** \_\_\_\_\_

The serial number plate (Item 1) [Figure 1] is located on the side of the main frame.

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

# Equipment Identification

Figure 2



# Safety


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# Farm King





## Safety Instructions

### Safety Symbols

	<b>Safety Alert Symbol</b>
<p>This symbol with a warning statement means: "Warning, be alert! Your safety is involved!" Carefully read the message that follows.</p>	


	<b>CAUTION</b>
<p>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.</p>	

	<b>DANGER</b>
<p>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.</p>	

	<b>WARNING</b>
<p>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.</p>	

	<b>IMPORTANT</b>
<p>This notice identifies procedures which must be followed to avoid damage to the machine.</p>	

### Operator Safety

	<b>WARNING</b>
<p><b>Operators must have instructions before operating the machine. Untrained operators can cause injury or death.</b></p>	

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.
- Under no circumstances should young children be allowed to work with this equipment.
- This equipment is dangerous to children and persons unfamiliar with its operation.
- 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 it 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.

## Power Take-Off (PTO) Safety

- Keep PTO shields and all guards in place. Replace damaged or missing shields and guards before operating.
- Follow warnings and instructions on machine signs (decals). Replace damaged or missing decals.
- Do not wear loose or bulky clothing around the PTO or other moving parts.
- Keep bystanders away from PTO driven equipment, and never allow children near machines.
- Read and understand the manuals for the PTO driven equipment and be aware of safe operating procedures and hazards that may not be readily apparent.
- Never operate over 540 rpm.
- Always walk around equipment to avoid coming near a turning PTO driveline. Stepping over, leaning across or crawling under a turning PTO driveline can cause entanglement.
- Position the machine and equipment hitch correctly to prevent driveline stress and separation.
- Use caution when turning. Turning too sharp can cause driveline damage.
- Use caution when raising PTO driven equipment.
- Excessive driveline angle can cause driveline damage. Use stops if needed.

## Machine Requirements And Capabilities

- Fasten seat belt securely. If equipped with a foldable 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.
- Operate this equipment with a machine equipped with an approved Roll-Over Protective Structure (ROPS). Always wear seat belt when the ROPS is up. Serious injury or death could result from falling off the machine.
- 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. Rollaway can occur because the transmission may not prevent machine movement.

## Transport Safety

- Do not exceed 20 mph (32 kph) during transport. 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.

### Fire Extinguishers

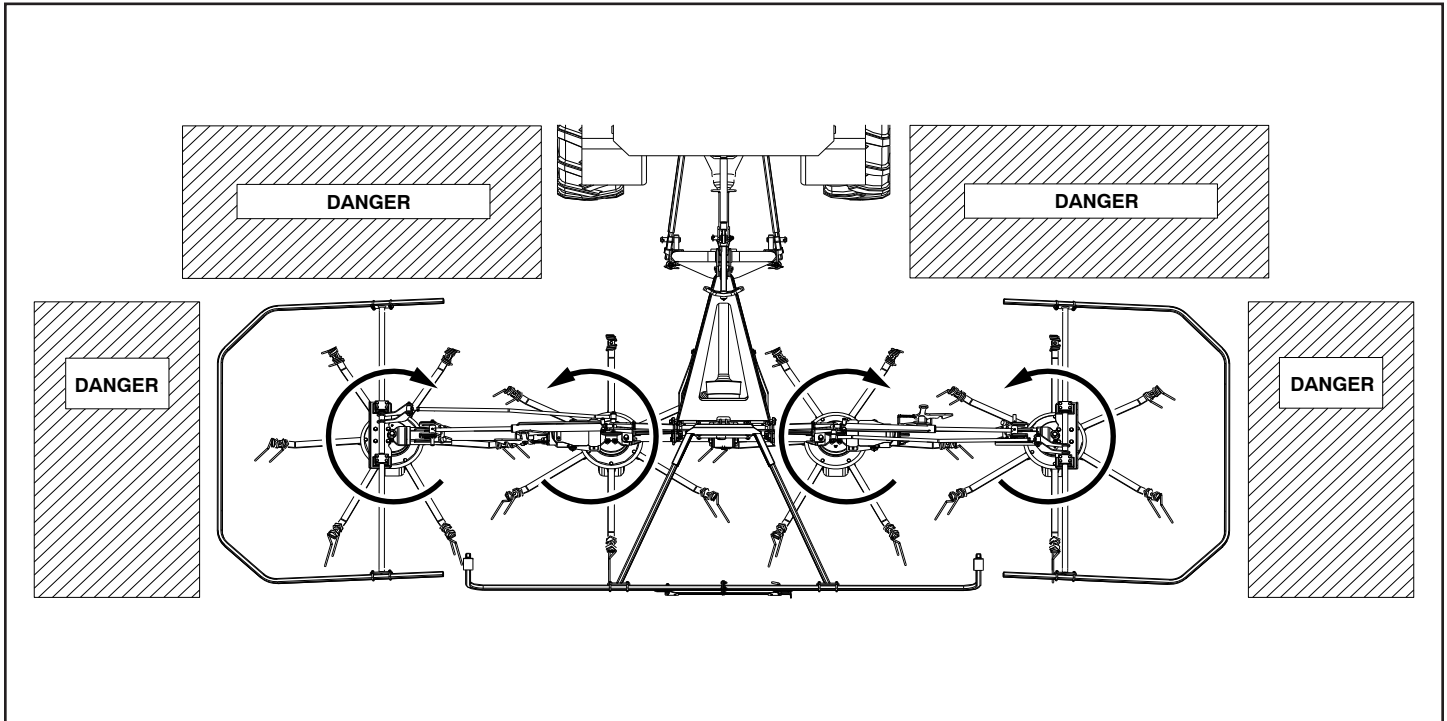


- Know where fire extinguishers and first aid kits are located and how to use them. Inspect the fire extinguisher and service the fire extinguisher regularly. Obey the recommendations on the instructions plate.



## Danger Zones


Figure 3



If anyone enters the danger zone the operator must immediately disengage the PTO and stop the tractor [Figure 3].

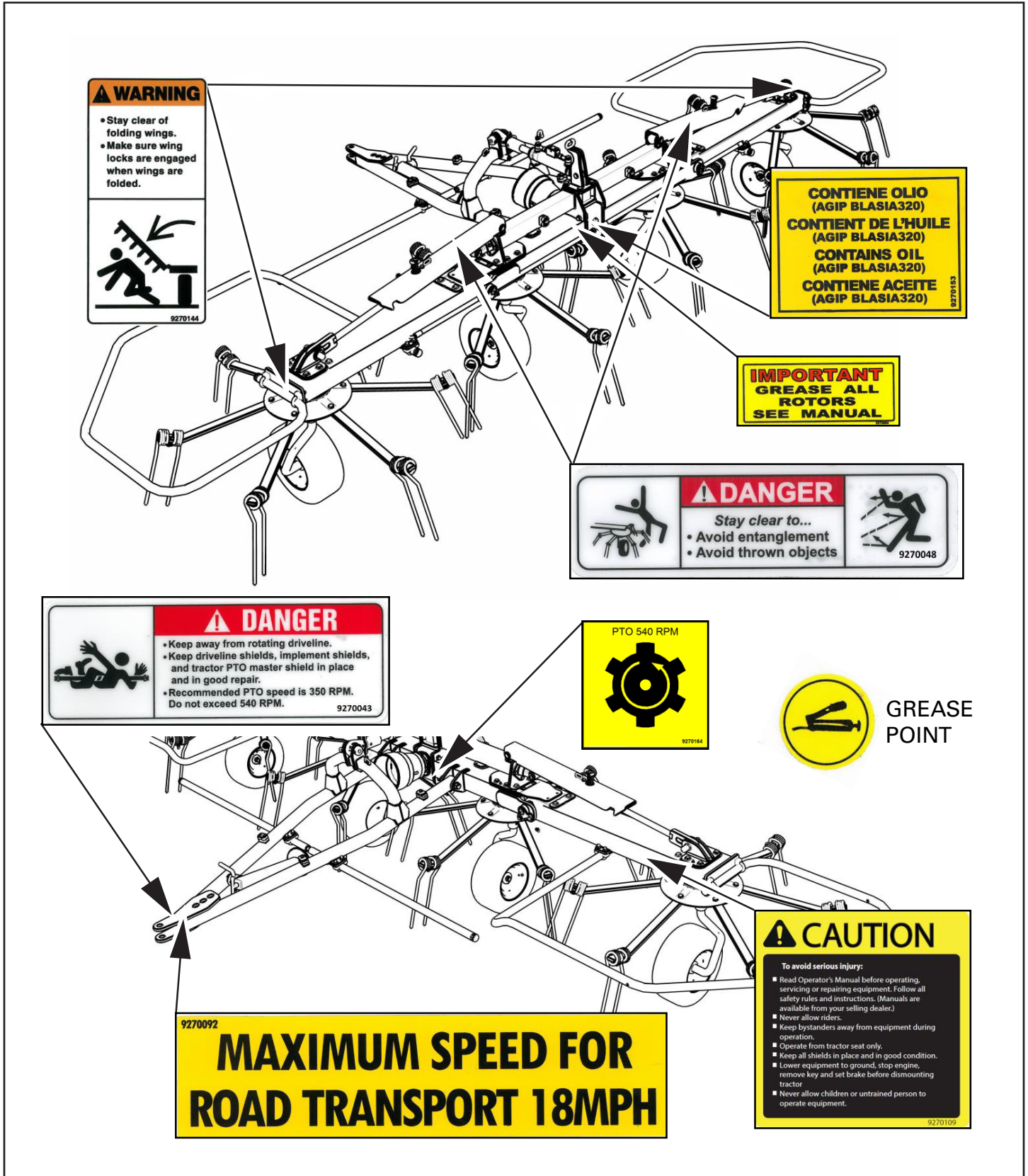
Do not resume operation until the danger zones are clear and free of any bystanders.

These areas remain at risk during maintenance or adjustments, non-authorized individuals must not stand / move around the vicinity of the machinery.


	<h1 style="margin: 0;">DANGER</h1>
<h3 style="margin: 0;">THROWN OBJECTS</h3> <p style="margin: 0;">Arm rotation may pick up and throw objects from the work site. Minimum safe distance is 65 ft. (20 m).</p>	

# Equipment and Safety Decals

Figure 4



**Safety Sign-Off Form**

	WARNING
<p><b>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.</b></p>	

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 Rotary Rake 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

# Farm King



# Operation

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# Farm King





## Pre - Operation Checklist

Before operating the Rotary 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 equipment hitch for damaged, loose or missing parts. Repair as needed before operation.

**Note:** Do not operate with leaks.

3. Make sure that all guards and shields are in place, secured and functioning as designed.
4. Check condition of all hydraulic components for leaks. Repair as required.


	<b>WARNING</b>
	
<p><b>HIGH PRESSURE FLUID HAZARD</b></p> <p>Leaking fluids under pressure can enter the skin and cause serious injury or death. Immediate medical attention is required. Wear goggles. Use cardboard to check for leaks.</p>	

**Note:** Do not operate with hydraulic leaks.

6. Check that all electrical connections are tight.
7. Check the tines. Remove any twine, wire or other material that has become entangled.
8. Check the wheel bolt torque.

## Entering The Operator’s Position

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

	<b>IMPORTANT</b>
<p>Follow the instructions in your tractor’s operation manual for the correct procedure.</p>	


## Leaving The Operator’s Position

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

	<b>WARNING</b>
<p><b>AVOID INJURY OR DEATH</b></p> <p>Before you leave the operator’s position:</p> <ul style="list-style-type: none"> <li>• Always park on a flat level surface.</li> <li>• Place all controls in NEUTRAL.</li> <li>• Engage the park brake.</li> <li>• Stop the engine and remove the key.</li> <li>• Wait for all moving parts to stop.</li> </ul>	

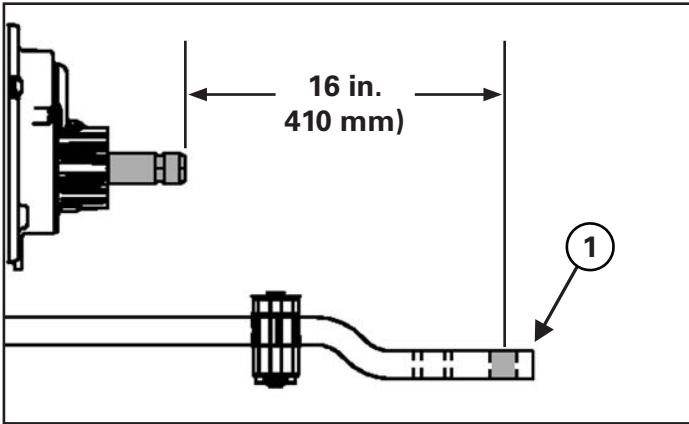
## Tractor Requirements

The RT17 requires 30–40 HP. The RT19 requires 35–45 HP.

	<b>IMPORTANT</b>
<p>Towing Vehicle / Tractor must have adequate braking capacity to safely control Gross Vehicle Weight (GVW) trailing load.</p> <p>Do not tow over 20 mph (32 km/h). Towing Vehicle / Tractor unit should weigh approximately 67% of GVW.</p>	

## Connecting to Tractor

Figure 5



Adjust the tractor's drawbar in / out, until the center of the hitch pin hole (Item 1) is 16 inches (410 mm) from the end of the tractor's PTO shaft. See your tractor's owner's manual for correct adjustment procedures [Figure 5].

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

Enter the operator's position (See "Entering The Operator's Position" in Operation section).

Move the tractor into position in front of the equipment.


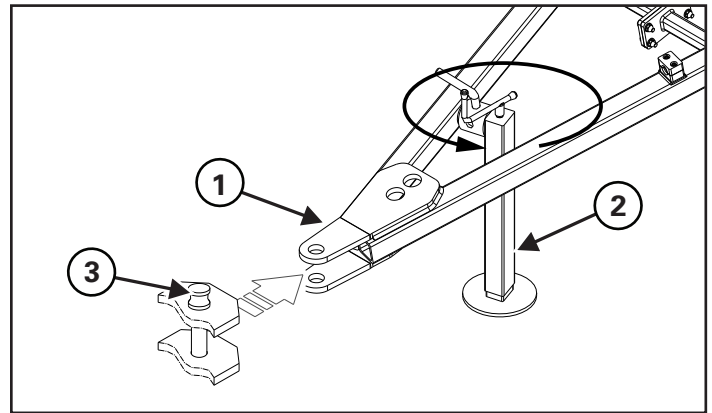
	<h1 style="margin: 0;">WARNING</h1>
<h3 style="margin: 0;">AVOID INJURY OR DEATH</h3>	
<p><b>Before moving the tractor, look in all directions and make sure no bystanders, especially small children are in the work area.</b></p>	
<p><b>Do not allow anyone between the tractor and the equipment when backing up to the equipment for connecting.</b></p>	
<p><b>Keep fingers and hands out of pinch points when connecting and disconnecting equipment.</b></p>	

Figure 6



Move the tractor backwards, aligning the drawbar with the equipment hitch (Item 1). Lower or raise the support jack (Item 2) to properly align the drawbar and hitch [Figure 6].

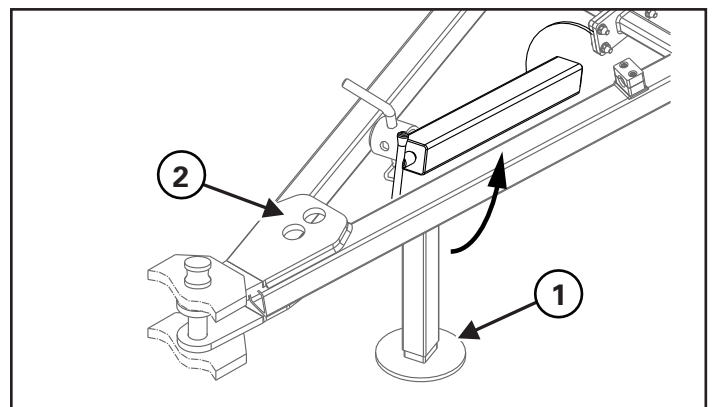
Move the tractor backwards, aligning pin holes with the equipment hitch pin holes.

Leave the operator's position (See "Leaving The Operator's Position" in Operation section).

Install the hitch pin (Item 3) [Figure 6] and retaining pin to securely fasten the equipment hitch to the tractor drawbar.

**Note:** Always use a hitch pin of adequate size and strength and a retaining pin with a locking device.

Figure 7




Raise the support jack (Item 1). Rotate and secure the support jack in the storage position. Connect the safety chain to the holes (Item 2) on the hitch [Figure 7].




## Connecting PTO Driveline

Stop the engine and leave the operator's position (See "Leaving The Operator's Position" in Operator's section).

**Note:** The PTO shafts are shipped with the slip clutch disengaged. Engage the slip clutch.

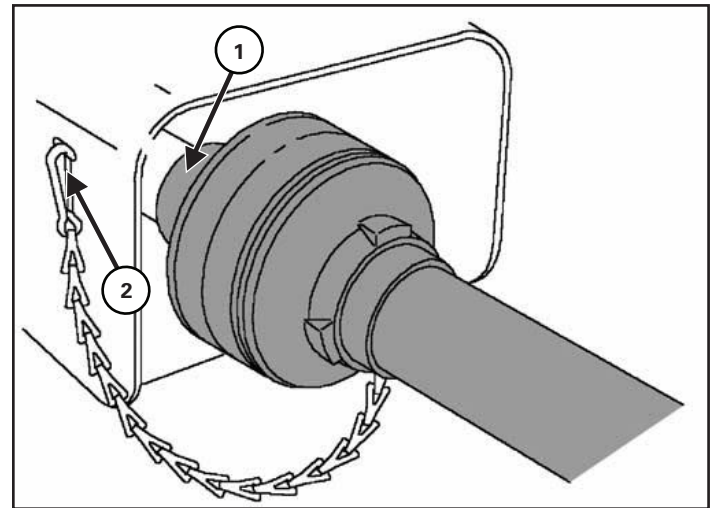
	<b>WARNING</b>
<b>AVOID INJURY OR DEATH</b>	
Warnings on the machine and in the manuals are for your safety. Failure to obey warnings can cause serious injury or death.	

**Note:** Clean and grease tractor's PTO shaft and PTO driveline coupling each time driveline is connected.

	<b>IMPORTANT</b>
<b>Improper hitch installation can cause PTO driveline damage.</b>	
<ul style="list-style-type: none"> <li>• Do not modify the three point hitch.</li> <li>• Make sure the PTO driveline is of adequate length and that u-joints are in the correct phase.</li> </ul>	

Remove the PTO driveline from the storage position (if applicable).


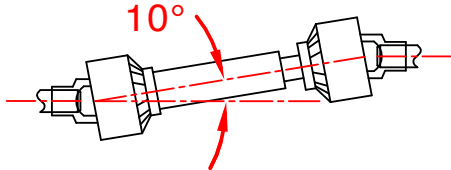
Figure 8



Retract the collar (Item 1) [Figure 8] and slide the PTO driveline onto the tractor PTO shaft. Release the collar and the driveline will lock onto the shaft. Push and pull the PTO driveline back and forth several times and make sure it is securely attached to the PTO shaft.

Install PTO driveline safety chain (Item 2) [Figure 8].

**Note:** The PTO driveline must have a means to retain it to the PTO shaft on the tractor.

	<b>WARNING</b>
<ul style="list-style-type: none"> <li>• Do NOT exceed 540 RPM PTO.</li> <li>• Keep PTO shields and all guards in place.</li> <li>• Keep away from moving parts.</li> <li>• Keep bystanders away.</li> <li>• Do NOT connect the PTO at an angle higher than 10° between the two connections.</li> </ul>	
	

## PTO Driveline Length Check

Due to variations in distances between tractor PTO shafts and implement input shafts, drivelines may need to be shortened or a longer shaft may be required.

When fitting the implement to the tractor, the PTO driveline, with telescoping sections, must be inspected. When the sections are at the most compressed operating position, the sections must not “bottom out”.

At its shortest length, there must be at least 2 in. (50.8 mm) of clearance between each section end and opposite section end at the most compressed operating position.

When the sections are at the most extended position, there must be sufficient engagement between the sections.

At its farthest operating extension, a minimum section engagement of 33% of shaft length must be maintained.



## WARNING

### AVOID INJURY OR DEATH

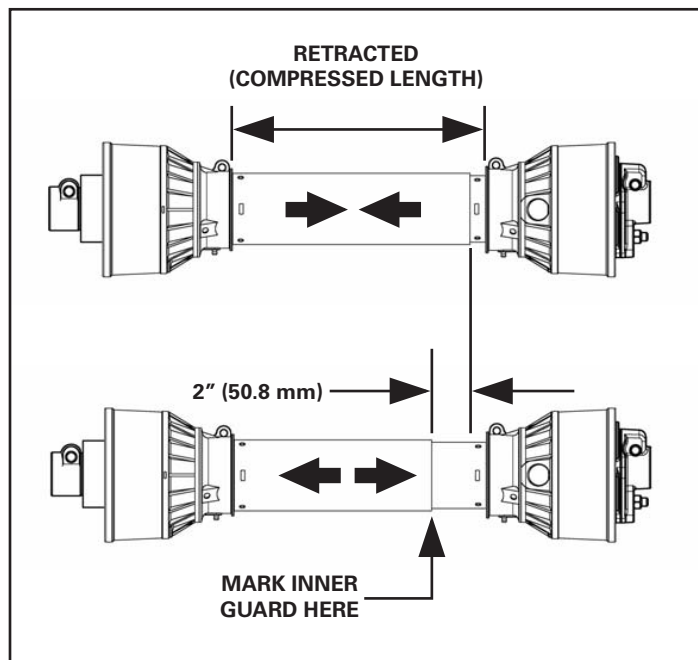
- Do NOT exceed the rated implement PTO speed.
- Stay clear of rotating driveline.
- Keep bystanders away.
- Keep hands, feet, clothing and long hair away.
- Keep PTO shields and all guards in place.
- Disengage PTO, move the tractor controls to the Neutral position, stop the engine and make sure all rotating components are stopped before leaving the operator's position.
- Do NOT service the tractor or implement with the PTO engaged.
- Do NOT service the implement in a raised position unless properly blocked and with all rotating components stopped.
- Disengage PTO for road travel.

## PTO Driveline Bottoming Out Check

Stop the engine and leave the operator's position (See “Leaving The Operator's Position” in Operation section).

Make sure the PTO driveline and all rotating components have come to a complete stop before leaving the operator's position (if applicable).

Figure 9



1. Disconnect the PTO driveline from the tractor and slide the PTO driveline together until fully retracted (compressed).
2. Measure the retracted (compressed) length of PTO driveline [Figure 9].
3. Extend the PTO driveline 2 in. (50.8 mm) from the retracted length and place a mark on the inner guard at the end of the outer guard [Figure 9].
4. Reattach the PTO driveline to the tractor PTO shaft.
5. Enter the operator's position. Start the engine.
6. With the rear PTO DISENGAGED, raise and lower the implement and watch the PTO driveline extend and retract.
7. If the outer PTO driveline guard slides in (retracts) over the mark at any point of travel, the PTO driveline needs to be shortened.

### Reducing The PTO Driveline Length

Stop the engine and leave the operator’s position (See “Leaving The Operator’s Position” in the Operation section). Make sure the PTO driveline and all rotating components have come to a complete stop before leaving the operator’s position.

WARNING

AVOID INJURY OR DEATH

- Do NOT exceed the rated implement PTO speed.
- Stay clear of rotating driveline.
- Keep bystanders away.
- Keep hands, feet, clothing and long hair away.
- Keep PTO shields and all guards in place.
- Disengage PTO, move the tractor controls to the Neutral position, stop the engine and make sure all rotating components are stopped before leaving the operator’s position.
- Do NOT service the tractor or implement with the PTO engaged.
- Do NOT service the implement in a raised position unless properly blocked and with all rotating components stopped.
- Disengage PTO for road travel.

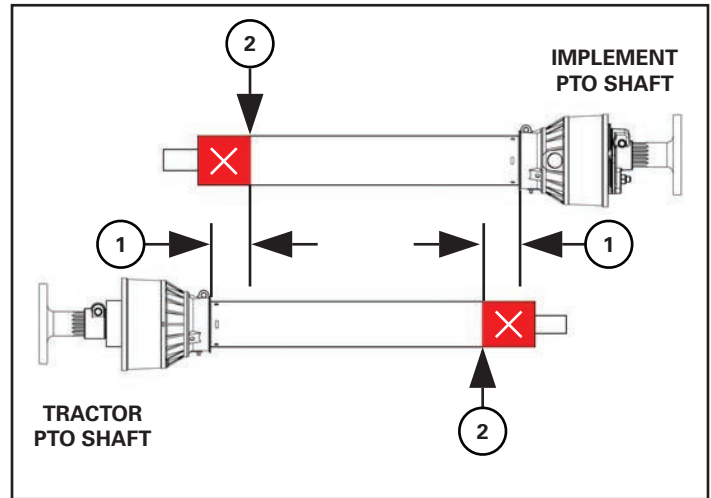
Remove the PTO driveline from the tractor and place in storage position (if equipped).

Enter the operator’s position (See “Entering The Operator’s Position” in the Operation section). Start the engine.

Raise or lower the three-point implement to get the shortest distance between the tractor PTO shaft and three-point implement gearbox PTO shaft. Stop the engine and leave the operator’s position.

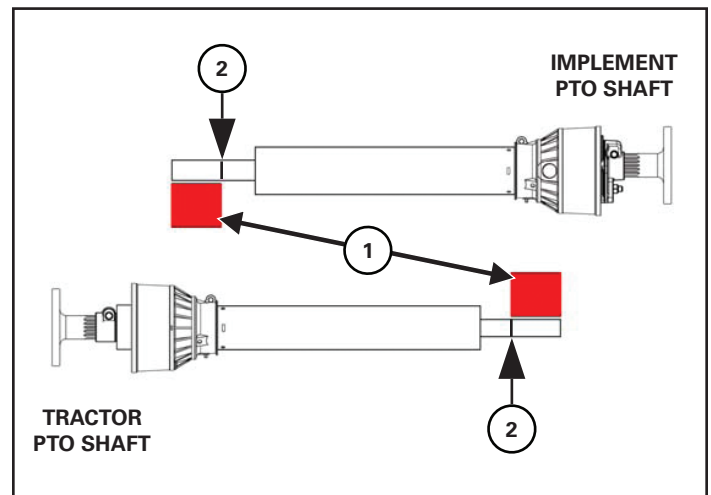
Pull the PTO driveline apart and reinstall each individual section; one half to the tractor PTO shaft and one half to the implement gearbox PTO shaft.

Figure 10



1. Hold PTO driveline sections parallel to one another and measure back 2 in. (50.8 mm) (Item 1) [Figure 10] from the yoke of each section and place mark on opposite section. Cut the plastic shield at this length (Item 2) [Figure 10].

Figure 11




2. Using the plastic guard lengths that were cut off in [Figure 10], align the cut off lengths (Item 1) [Figure 11] with the end of the inner & outer shafts. Place a mark (Item 2) [Figure 11] on the inner & outer shafts and cut the inner & outer shafts off at this length.
3. Round off all sharp edges and deburr.
4. Thoroughly grease and install the PTO driveline halves together.
5. Recheck for proper operation.

### PTO Driveline Engagement Check

Stop the engine and leave the operator’s position (See “Leaving The Operator’s Position” in the Operation section).

Make sure the PTO driveline and all rotating components have come to a complete stop before exiting the tractor.

	<h2 style="margin: 0;">WARNING</h2>
<h3 style="margin: 0;">AVOID INJURY OR DEATH</h3>	
<ul style="list-style-type: none"> <li>• Do NOT exceed the rated implement PTO speed.</li> <li>• Stay clear of rotating driveline.</li> <li>• Keep bystanders away.</li> <li>• Keep hands, feet, clothing and long hair away.</li> <li>• Keep PTO shields and all guards in place.</li> <li>• Disengage PTO, move the tractor controls to the Neutral position, stop the engine and make sure all rotating components are stopped before leaving the operator’s position.</li> <li>• Do NOT service the tractor or implement with the PTO engaged.</li> <li>• Do NOT service the implement in a raised position unless properly blocked and with all rotating components stopped.</li> <li>• Disengage PTO for road travel.</li> </ul>	

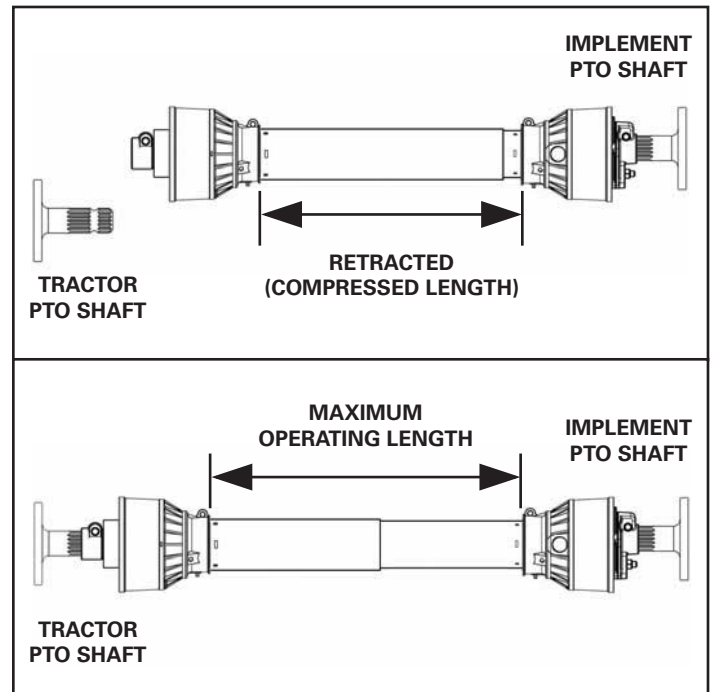
1. Disconnect the PTO driveline from the tractor and fully slide the driveline sections together (retracted).
2. Measure the retracted (compressed) length of the PTO driveline between the bases of the plastic guards [Figure 12].
3. Multiply the retracted driveline length by 1.667 to determine the PTO driveline Maximum Operating Length. (i.e.: 25.5 in. (647.7 mm) x 1.667= 42.5 in. (1079.7 mm) Maximum Operating Length).
4. Attach the PTO driveline to the tractor PTO output shaft.
5. Enter the operator’s position. (See “Entering The Operator’s Position” in the Operation section)

6. With the PTO driveline attached, position the three-point implement to where the telescoping PTO driveline is at its maximum operating extension.
7. Stop the engine and leave the operator’s position. Make sure the PTO driveline and all rotating components have come to a complete stop before leaving the operator’s position.
8. Measure the length of the PTO driveline between the bases of the plastic shields [Figure 12] to determine the maximum operating length.

If the measured maximum operating length is less than the Maximum Operating Length calculation (from Step 3), the PTO driveline has adequate engagement

If the measured maximum operating length is equal to or more than the Maximum Operating Length calculation (from Step 3), the PTO driveline does not have adequate engagement and should be replaced with a longer driveline. See your Farm King dealer for available PTO drivelines.

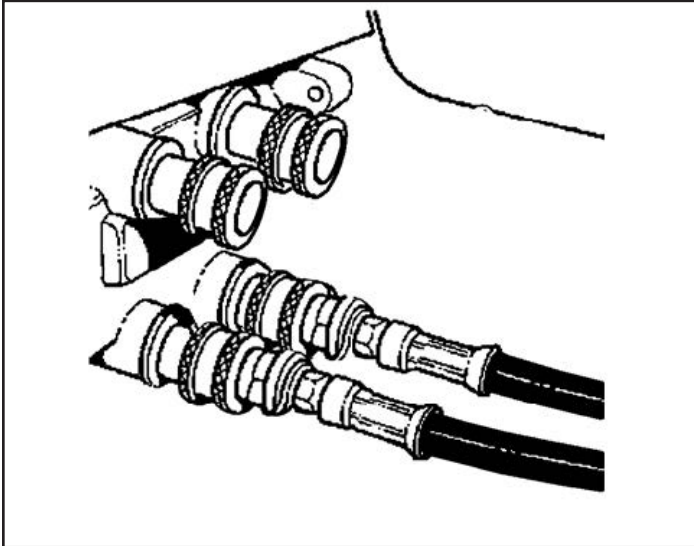
**Figure 12**



## Connecting Hydraulic Hoses

Tedders are equipped with a hydraulic wing lift system and optional hydraulic frame tilt system.

Figure 13



Push the male couplers into female couplers on the tractor until they are fully engaged and locked [Figure 13].

**Note:** Make sure the quick couplers are fully engaged. If the quick couplers do not fully engage, check to see that the couplers are the same size and type.

<b>!</b>	<b>IMPORTANT</b>
<p>Contain and dispose of any oil leakage in an environmentally safe manner.</p> <p>Thoroughly clean the quick couplers before making connections. Dirt can quickly damage the system.</p>	

Release pressure and pull the male couplers out to disconnect.

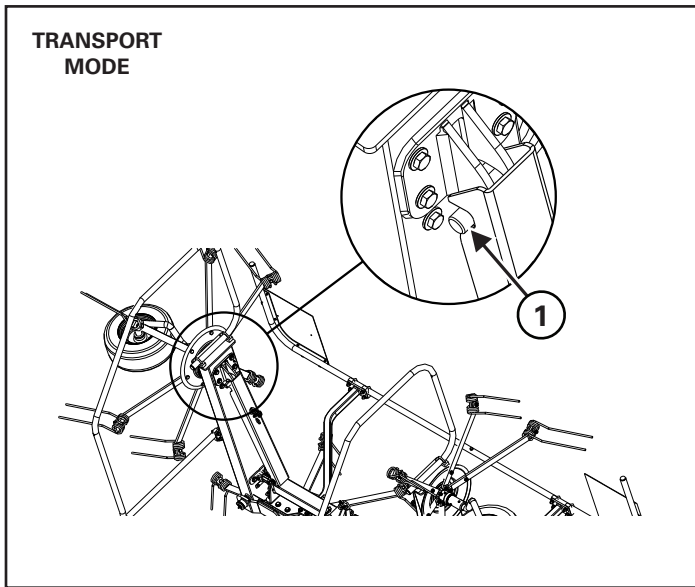
<b>!</b>	<b>WARNING</b>
<p><b>AVOID BURNS</b></p> <p>Hydraulic fluid, tubes, fittings and quick couplers can get hot when running equipment. Be careful when connecting and disconnecting quick couplers.</p>	

<b>!</b>	<b>WARNING</b>
<p><b>HIGH PRESSURE FLUID HAZARD</b></p> <p>To prevent serious injury or death from high pressure fluid:</p> <ul style="list-style-type: none"> <li>• Relieve pressure on system before repairing or adjusting.</li> <li>• Wear proper hand and eye protection when searching for leaks. Use wood or cardboard instead of hands.</li> <li>• Keep all components in good repair.</li> </ul>	

## Work Configuration

Transport the Tedder to the area of work (See "Transport Mode" in Operation section). Always comply with federal, state, local and provincial laws regarding the transport of farm equipment on public roadways.

**Figure 14**

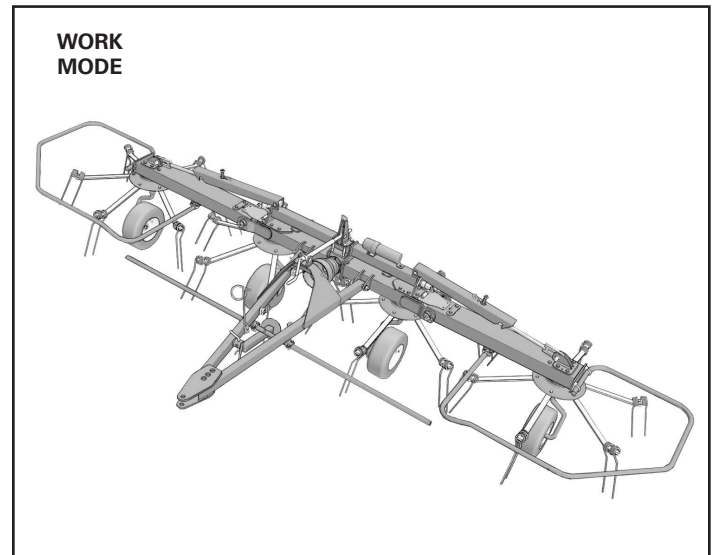


The equipment must be configured into Work Mode for proper field operation.

From the operator's position, manually and simultaneously pull the two strings to unlock the rams from their mechanical locking devices (Item 1) on each wing [Figure 14].

	<b>WARNING</b>
<b>AVOID INJURY OR DEATH</b>	
<p>Before unlocking the wings, look in all directions and make sure no bystanders, especially small children, are in the work area.</p>	

**Figure 15**



The wings will descend once unlocked [Figure 15].

Pull-Type Models - Verify the equipment inclination in respect to the ground with tines skimming the soil. Make sure the support jack is in the storage position.

## Field Operation

Make sure the tractor is properly connected to the equipment.

Enter the operator's position. See "Entering the Operator's Position" in the Operation section.

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

Leave the operator's position. See "Leaving the Operator's Position" in the Operation section.

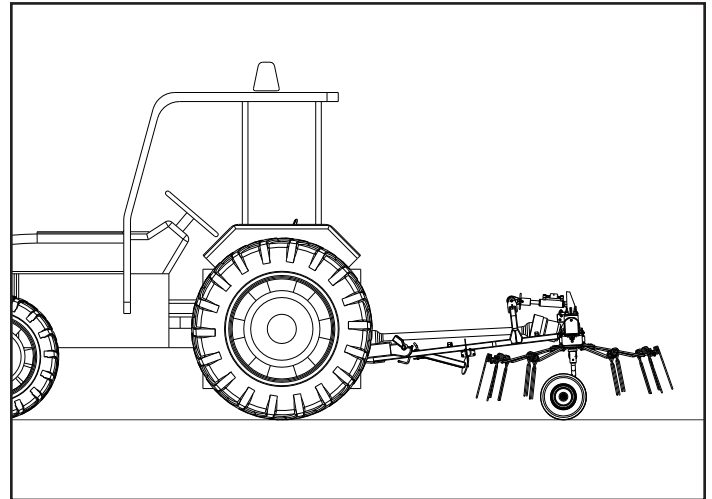
Make adjustments for the desired performance and verify that the correct equipment angle. See "Adjustments" in the Operation section.

**Operate only at 540 RPM.**

**Operate at a maximum working speed of 3–6 mph (5–10 kph).**

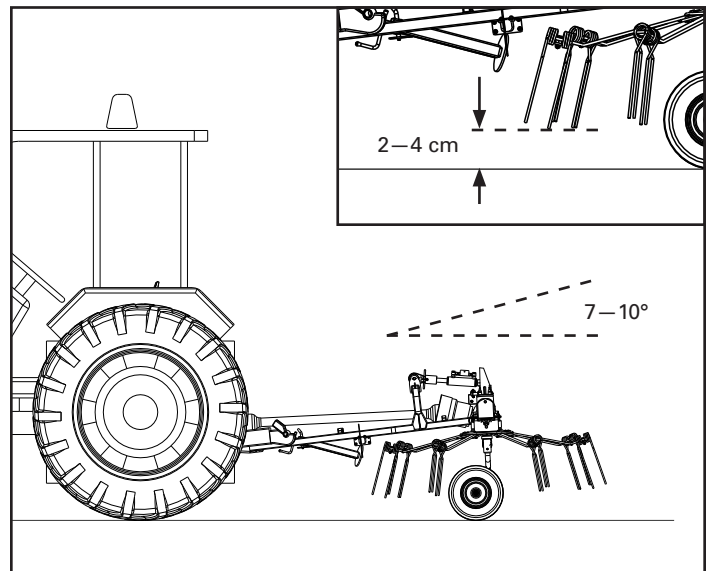
	<h1>CAUTION</h1>
<ul style="list-style-type: none"> <li>• Read operator and parts manual before operating the implement.</li> <li>• Do not permit riders.</li> <li>• Keep all guards and shields in place.</li> <li>• Keep hands, feet, clothing and hair away from moving parts.</li> <li>• Stop engine, set brake, remove key and wait for all moving parts to stop before servicing, adjusting, repairing and unplugging.</li> <li>• Remove bystanders, especially children, before starting or while operating.</li> <li>• Block up before working beneath unit.</li> <li>• Review safety instructions annually.</li> </ul>	

**Figure 16**



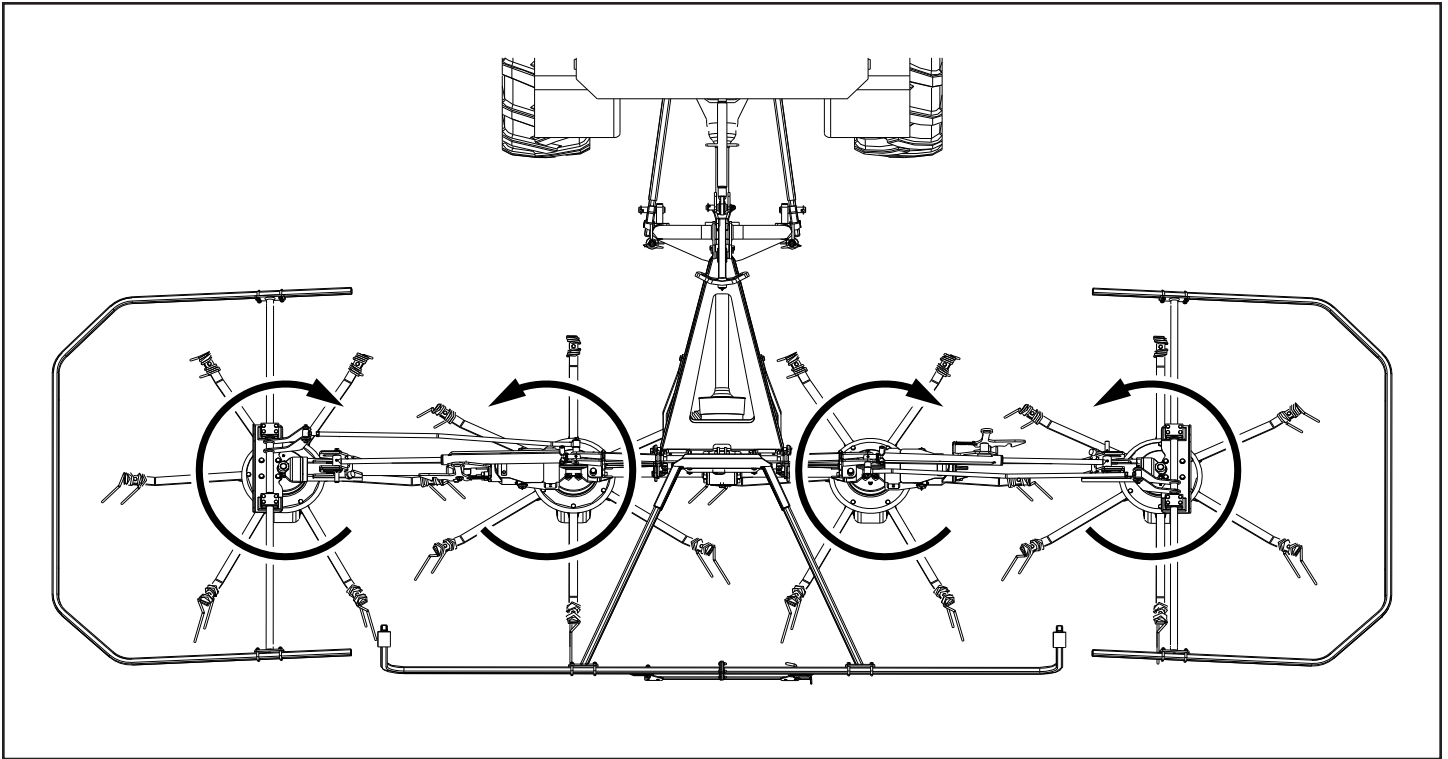
The tines scrape the ground and collect the cut material. The material is pushed to the rear and spread evenly [Figure 16].

**Figure 17**



For best results, the rotary groups must operate at an angle of 7–10° from the ground [Figure 17].

The tines should be 2–4 cm from the ground.

**Figure 18**

Rotary group rotation is as shown [Figure 18].



# DANGER

## AVOID INJURY OR DEATH

During operation make sure no bystanders, especially small children, are in the work area.

Keep away from all dangerous areas around the machine.



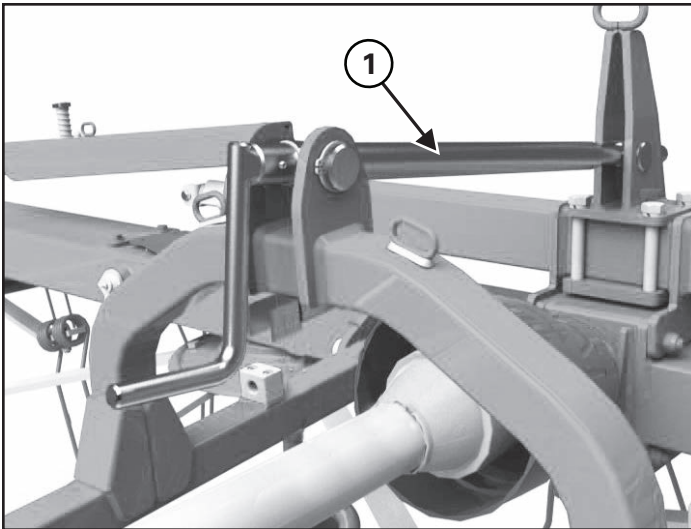
## Adjustments

	<b>WARNING</b>
<p><b>AVOID INJURY OR DEATH</b></p> <p><b>Before adjusting or servicing the machine:</b></p> <ul style="list-style-type: none"> <li>• Always park on a flat level surface.</li> <li>• Place all controls in NEUTRAL.</li> <li>• Engage the park brake.</li> <li>• Stop the engine and remove the key.</li> <li>• Wait for all moving parts to stop.</li> </ul>	

Park the tractor / equipment on a flat level surface.

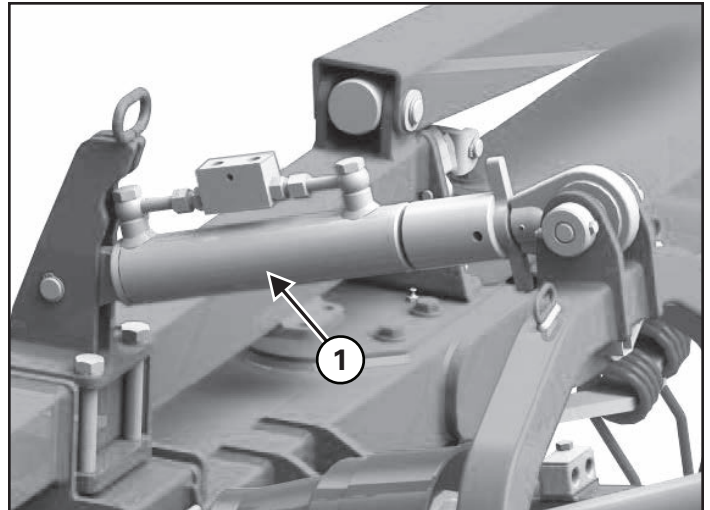
Place all controls in neutral, engage the park brake, stop the engine and wait for all moving parts to stop. Leave the operator's position.

**Figure 19**



Turn the crank (Item 1) to change the angle of the rotary groups [Figure 19].

**Figure 20**



Act on the hydraulic cylinder (Item 1) (if equipped) to change the angle of the rotary groups [Figure 20].


## 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.

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

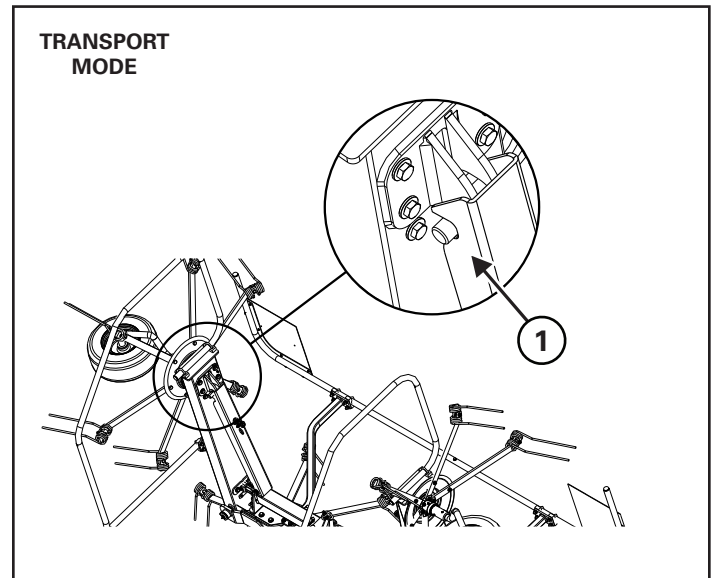
Verify that the SMV (Slow Moving Vehicle) emblem, all lights and reflectors are clean and visible.

	<h1>WARNING</h1>
<b>AVOID INJURY OR DEATH</b>	
<ul style="list-style-type: none"> <li>• Disengage PTO for road travel.</li> <li>• Keep PTO shields and all guards in place</li> <li>• Keep bystanders away.</li> <li>• Do not allow riders.</li> </ul>	

	<h1>IMPORTANT</h1>
<b>Never exceed 20 mph (32 kph) during road travel.</b>	

	<h1>WARNING</h1>
<b>Use of an unapproved hitch or tractor / tow vehicle can result in loss of control, leading to serious injury or death.</b>	
<b>Tractor / tow vehicle and hitch must have the rated capacity to tow equipment.</b>	

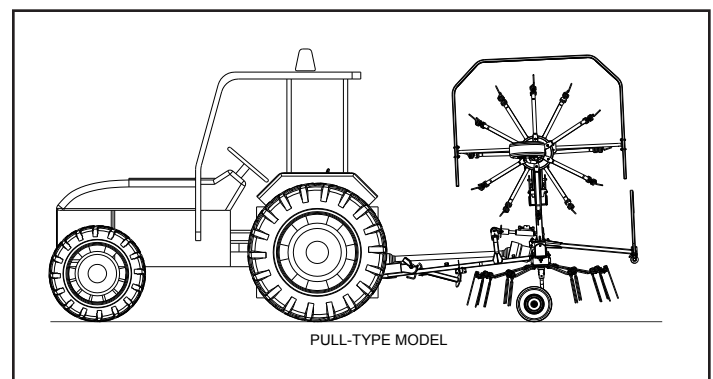
**Figure 21**



Act on the hydraulic controls and raise the left and right wings until the two mechanical locks (Item 1) snap in place [Figure 21].

	<h1>IMPORTANT</h1>
<b>Make sure both wings are securely locked in place in transport configuration, before road travel.</b>	

**Figure 22**



Pull-Type Models: Level the rotary group front to back. Make sure no tines are touching the ground [Figure 22].

The ratio of the tractor / tow vehicle weight to the loaded equipment weight plays an important role in defining acceptable travel speed.

TRAVEL SPEED - Acceptable travel speed.

WEIGHT RATIO - Weight of fully equipped or loaded implement(s) relative to weight of tractor / tow vehicle.

<b>Travel Speed</b>	<b>Weight Ratio</b>
20 mph (32 kph)	Less than 1 to 1
10 mph (16 kph)	Less than 2 to 1
DO NOT TOW	More than 2 to 1

# Farm King



# Maintenance

Service Schedule Chart.....37

Lubrication.....38

    Recommendations.....38

    Locations.....38

Tine Replacement.....40

Safety Sign (Decal) Installation.....40

Storage And Return To Service.....41


    Storage.....41

    Return To Service.....41

# Farm King



## Service Schedule Chart

	WARNING
<p><b>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.</b></p>	

**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	DRAIN
Daily Maintenance (or every 8 hours)							
1	PTO Cross and Bearings	✓		✓			
Weekly (or every 50 hours)							
2	PTO Telescoping Tubes	✓		✓			
3	Slip Clutch Connector	✓		✓			
4	PTO Quick Disconnect	✓		✓			
5	Hitch / Wing Pivot Points	✓		✓			
Monthly (or every 100 hours)							
6	Transfer Box	✓		✓			
Annually (or every 500 hours)							
5	Driveline & Gears	✓		✓			
7	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.**

**Check hydraulics regularly for leaks. Use cardboard to look for leaks, and use hand and eye protection.**

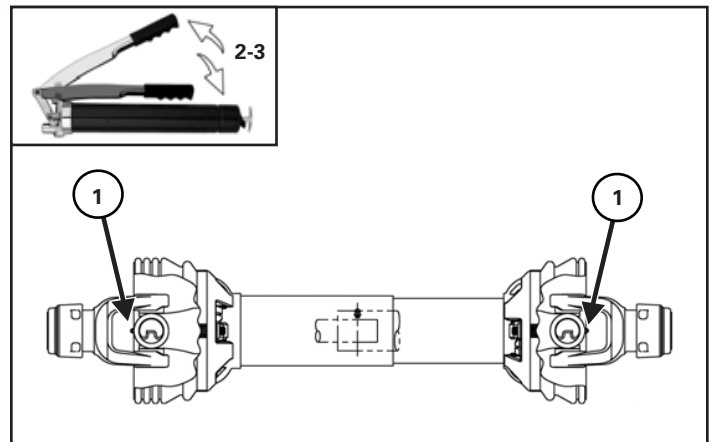
**Relieve pressure on hydraulic system before repairing or adjusting.**

### 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 23



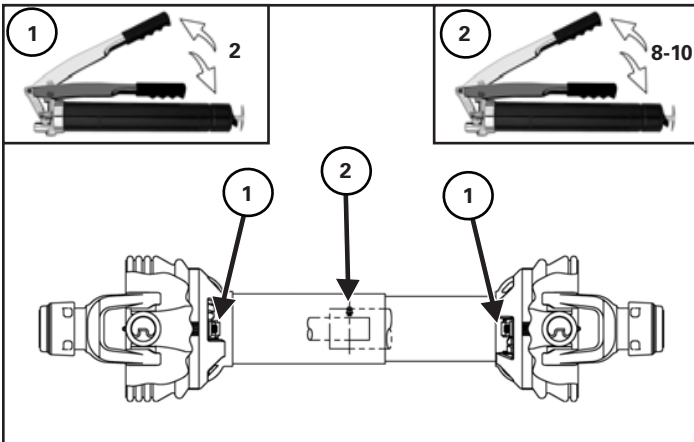
Apply two to three pumps of grease to the cross and bearings (Item 1) on the PTO driveline [Figure 23].

Grease every **8 hours**.

**Note:** Images may not show your exact PTO driveline but the procedure is correct.



**Figure 24**

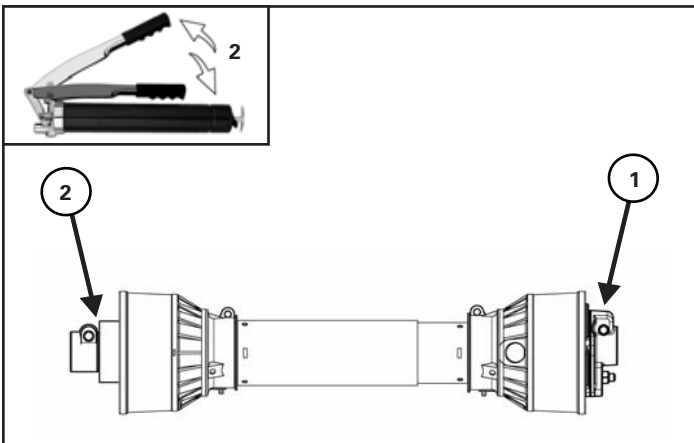


Apply two pumps of grease to the guard bushings (Item 1) [Figure 24].

Apply eight to ten pumps of grease to the telescoping member (Item 2) [Figure 24].

Grease every **50 hours**.

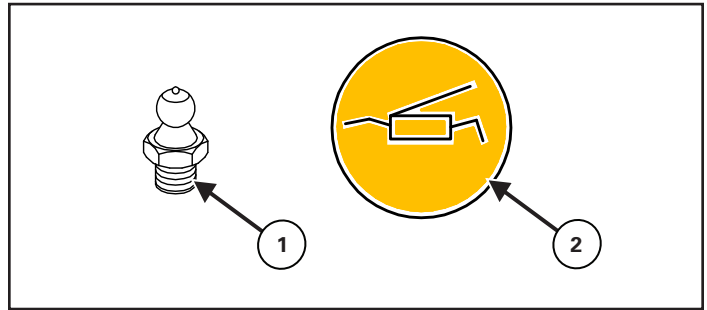
**Figure 25**



Apply two pumps of grease to the slip clutch (Item 1) and PTO quick disconnect (Item 2) [Figure 25].

Grease every **50 hours**.

**Figure 26**



Lubrication point locations (Item 1) are identified with a sticker (Item 2) [Figure 26].

Lubrication points include:

- Wheels
- Driveline mounts
- Hitch pivot points
- Wing pivot points

Grease every **50 hours**.

**Figure 27**



Check the grease in the transfer box (Item 1). Internal components must be immersed in grease [Figure 27].

Use grease type: **AGIP GREASE MU EP2**

Grease type equivalents:

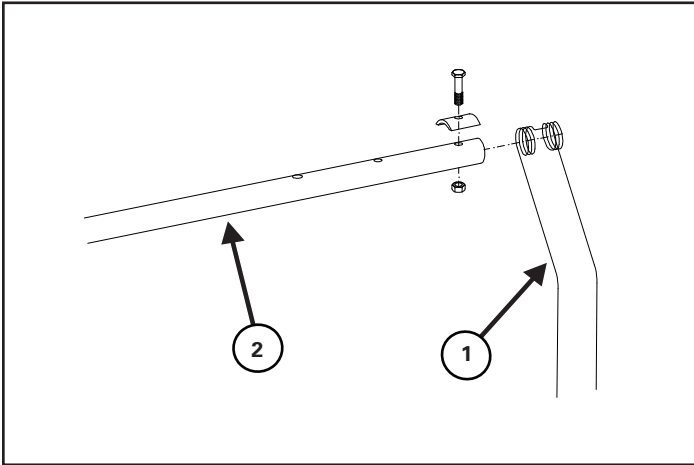
- ISO L-X-BCHB 2
- DIN 51825 KP2K-20
- CINCINNATI MILACRON P-64

Check / fill grease in gearbox every **100 hours**.

## Tine Replacement

Periodically check all tines for wear or damage.

Figure 28



Replace the tines (Item 1) by removing the bolt, nut, and retaining plate [Figure 28].

Slide the tine off of the arm (Item 2) [Figure 28].

Replace tine and attach with the bolt, nut, and retaining plate.

## Safety Sign (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.

## 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.



- 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, 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.

# Farm King



## Parts Identification

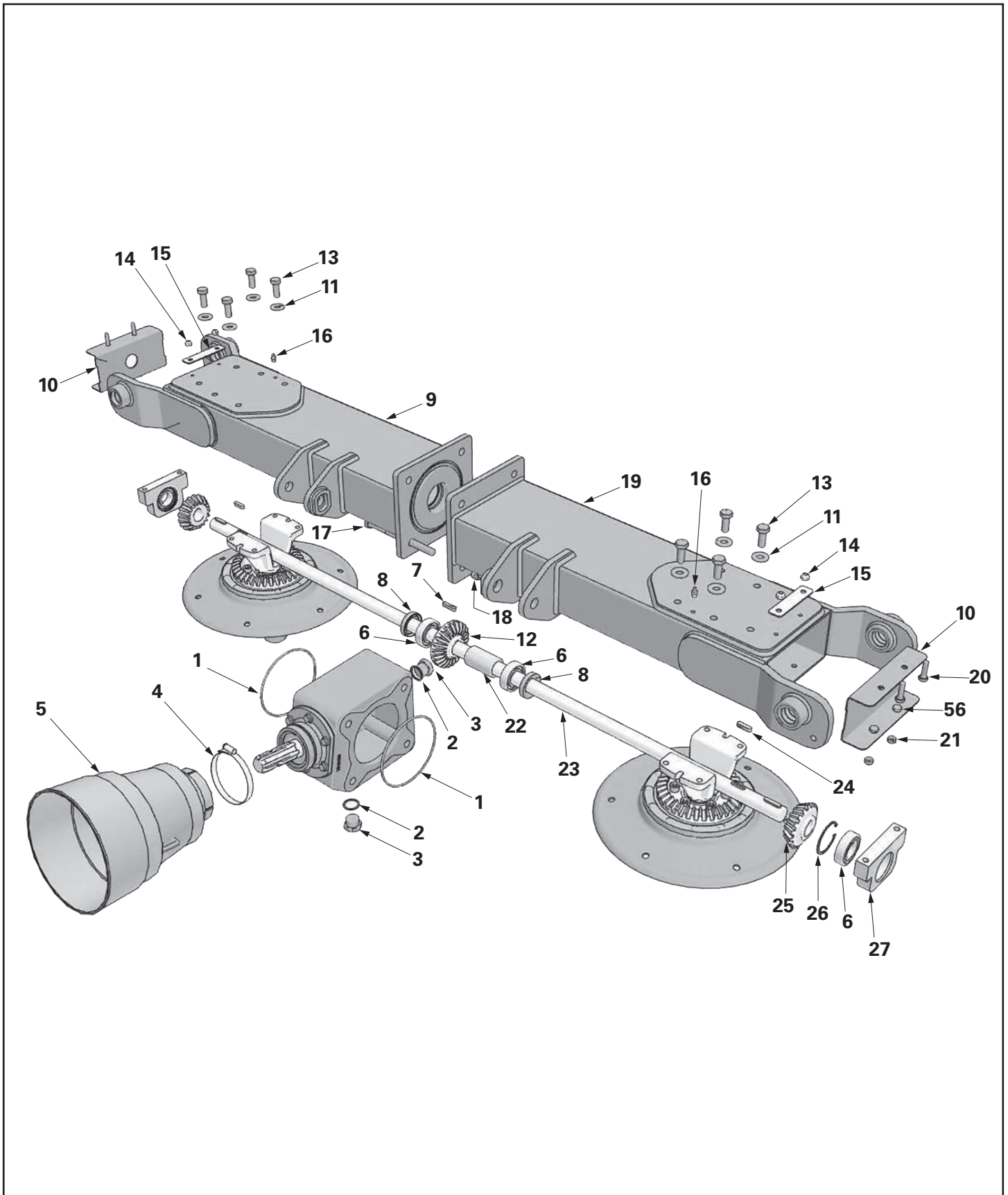
Always give your dealer the Model, Color and Serial Number of your machine to assist them in ordering and obtaining the correct parts. Use the exploded view and tabular listing of the area of interest to exactly identify the required part.

Center Frame.....	45
Lift Arms.....	50
Wheels.....	54
Hitch, Manual Tilt Adjust - RT17 Model.....	56
Hitch, Hydraulic Tilt Adjust - RT19 Model.....	58
PTO, Lift Arm Hydraulics, Lift Arm Locking Rope.....	60
Tines.....	62
Guards.....	64
Hydraulic Cylinders.....	66
PTO - RT17 Model.....	68
PTO - RT19 Model.....	69

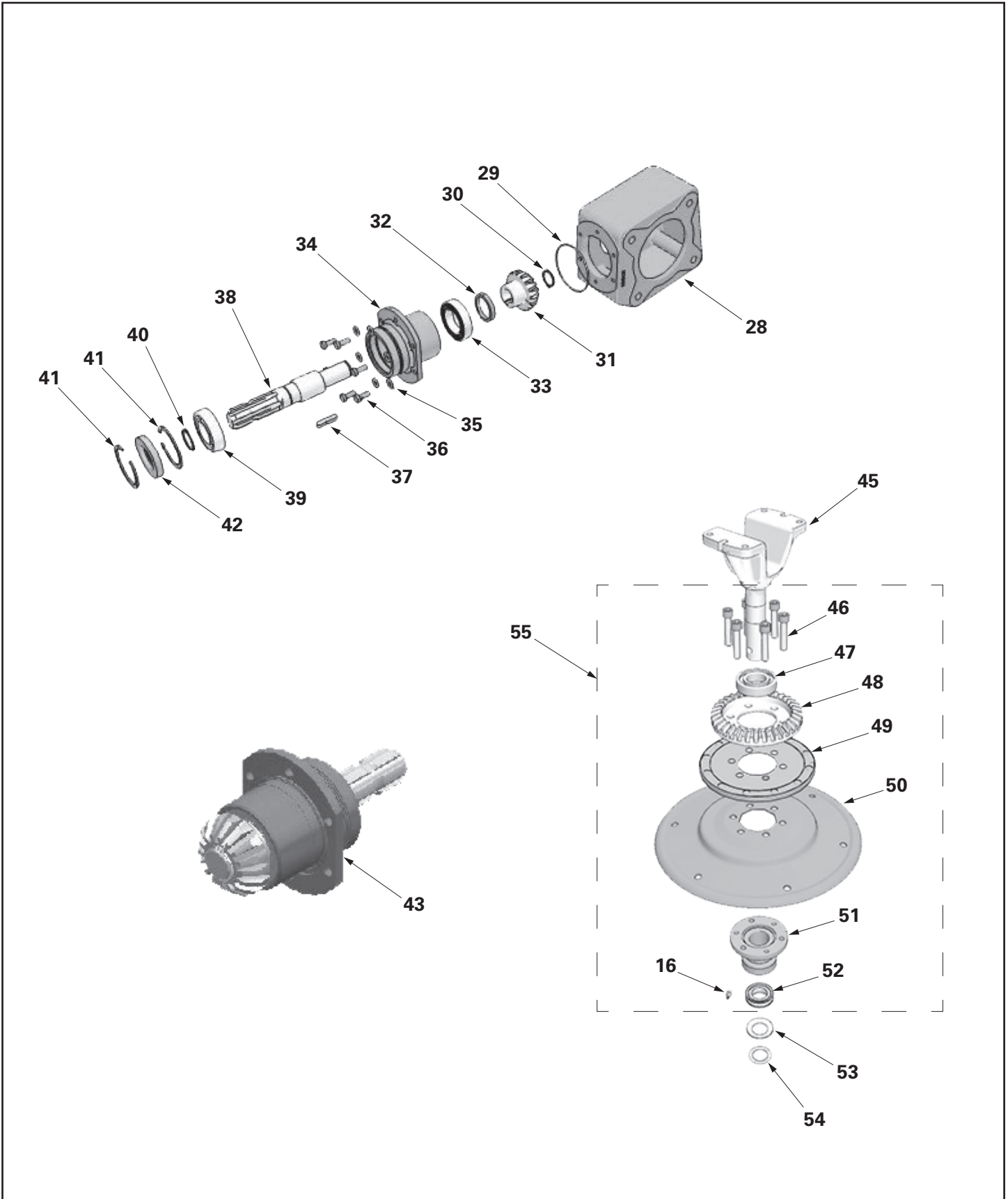
# Farm King



**Center Frame**



**Center Frame Cont.**





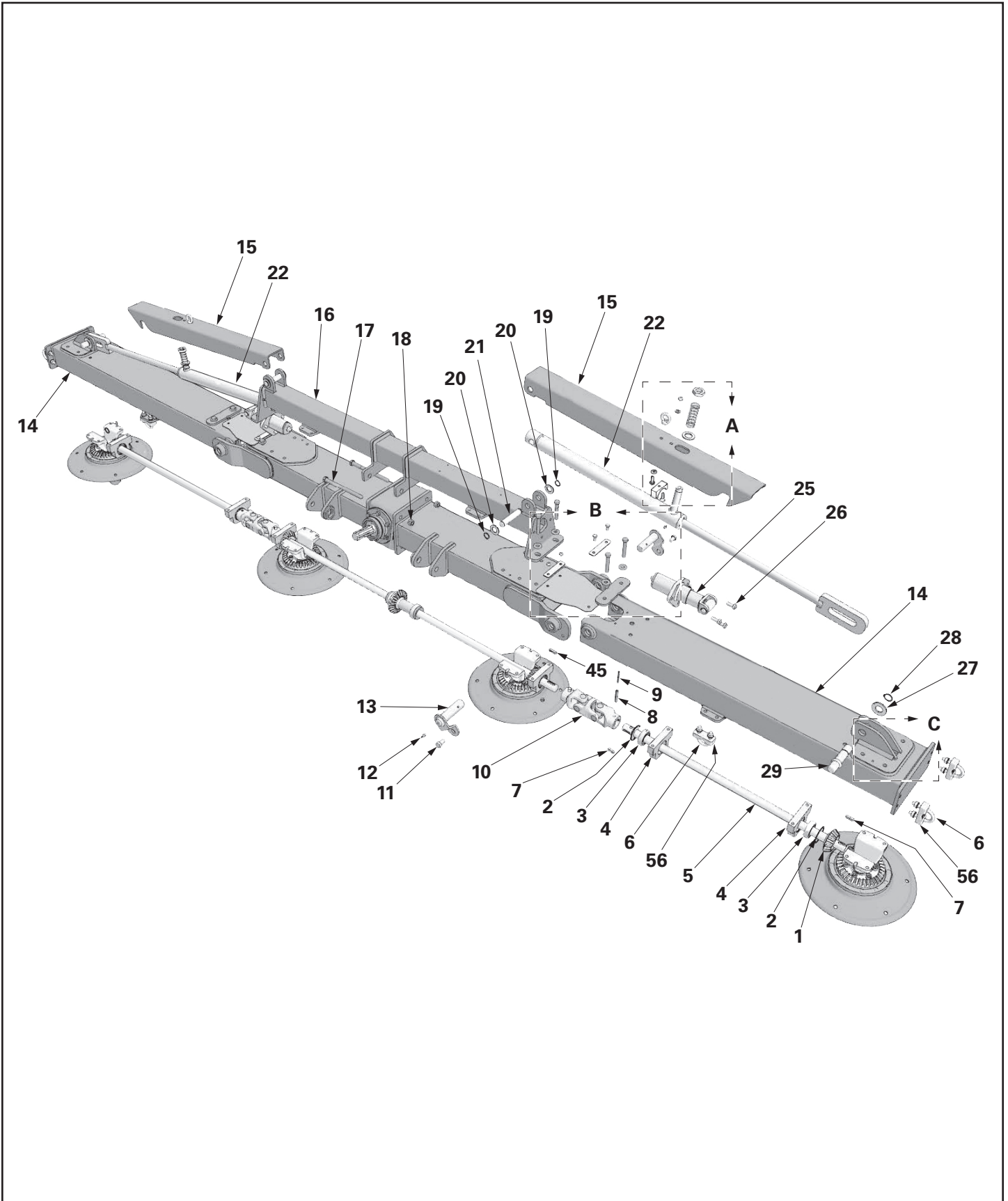
ITEM	PART NUMBER	DESCRIPTION
1	R10010702	O-RING – 2.255 142,5X3,53
2	R3030409	COPPER WASHER – 3/4"
3	R4010816	PLUG 3/4
4	R4010702	BAND
5	R9070101	COVER
6	R12240108	BEARING 6206 2RS
7	R3110002	TAB 8X7X35
	R18037523	TEMPERAD TAB 8X7X35
8	R12260002	OIL SEAL – ATG 1-553010
9	R18033479	R LATERAL ARM - RT17 MODEL
	R18033728	R LATERAL ARM - RT19 MODEL
10	R18037257 OR R1015252	CENTRAL CLOSING HOUSING
11	R3030800	WASHER M12 S.E.
12	R8010304	BEVEL PINION FOR ROTOR
13	R3010230	HH SCREW M12X40
14	R3020209	SELF LOCKING NUT M8
15	R18033544	PLATE
16	R3090101	GREASE ZERK M8X1
17	R3010813	HH SCREW M14X170 ZN
18	R3020203	SELF LOCKING NUT M10
19	R18033727	L LATERAL ARM - RT17 MODEL
	R18033729	L LATERAL ARM - RT19 MODEL
20	R3010780	HH SCREW M8X30 ZN
21	R3020302	NUT M8
22	R12070330	SPACER 42X8X74
23	R18033777	SHAFT TRASMISSION L.1560 MM - RT17 MODEL
	R12010211	SHAFT TRASMISSION L.1783 MM - RT19 MODEL
24	R3110008	TAB 8X7X30
25	R8010303	BEVEL PINION FOR ROTOR
26	R3120108	SNAP RING - I.62
27	R18033702	SUPPORT SHAFT
28	R18033776	HAYTEDDEER GEARBOX
29	R10010741	O-RING – 2154 94,92X2,62
30	R3120101	CIR CLIP Ø30
31	R8010302	BEVEL PINION CENTRAL BOX
32	R12061035	SPACER 54X45X8
33	R12240190	BEARING 6009 2RS
34	R18035940	SLEEVE
35	R3030802	WASHER M12 S.E.
36	R3010294	HH SCREW M8X20 ZN
37	R3110003	TAB 8X7X40

ITEM	PART NUMBER	DESCRIPTION
38	R12320301	PTO SHAFT
39	R12240146	BEARING 7207 B
40	R3120102	CIR CLIP D.35
41	R3120105	SNAP RING E.72
42	R12260003	OIL SEAL - ATG 1-723510
43	R18035955	TRANSMISSION UNIT
44	R18033601	COMPLETE DRAFT SUPPORT
45	R18034226	CENTRAL PIN WITH BRACKET
46	R3010605	SCREW TCEI M12X55
47	R12240109	BEARING 6207
48	R18031169	BEVEL CROWN FOR ROTOR
49	R18033532	PROTECTION SCREEN
50	R18031170	ARM CONNECTION FLANGE - RT17 MODEL
	R18037203	ARM CONNECTION FLANGE - RT19 MODEL
51	R18031171	SAFETY LOOP
52	R12240160	BEARING 32007A
53	R10011315	NILOS RING 32007 AV
54	R3120126	AXIAL WASHER PS 355205
55	R43902114	FLANGE UNIT - RT17 MODEL
	R43902139	FLANGE UNIT - RT19 MODEL
56	R3010250	HH SCREW M8X16 ZN

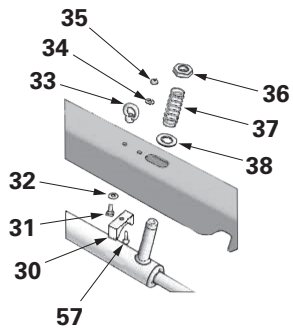
# Farm King



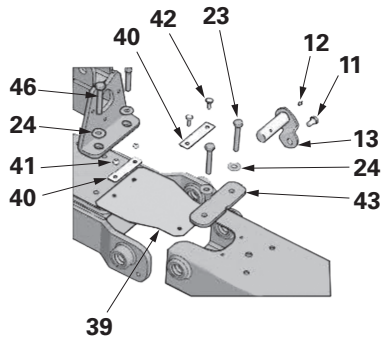
# Lift Arms



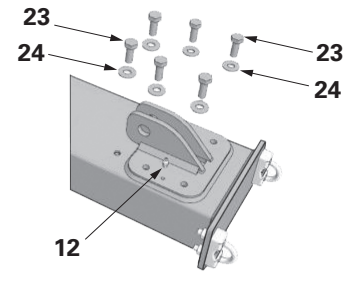
**Lift Arms Cont.**



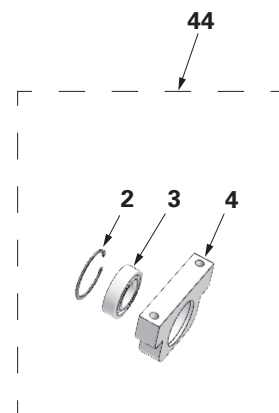
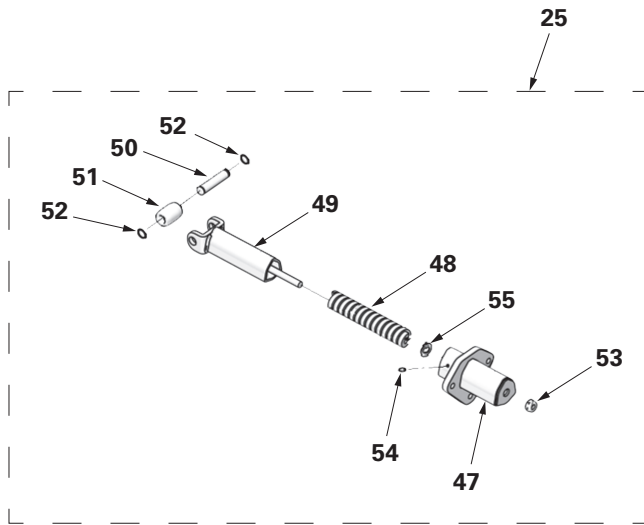
**DETAIL A**



**DETAIL B**



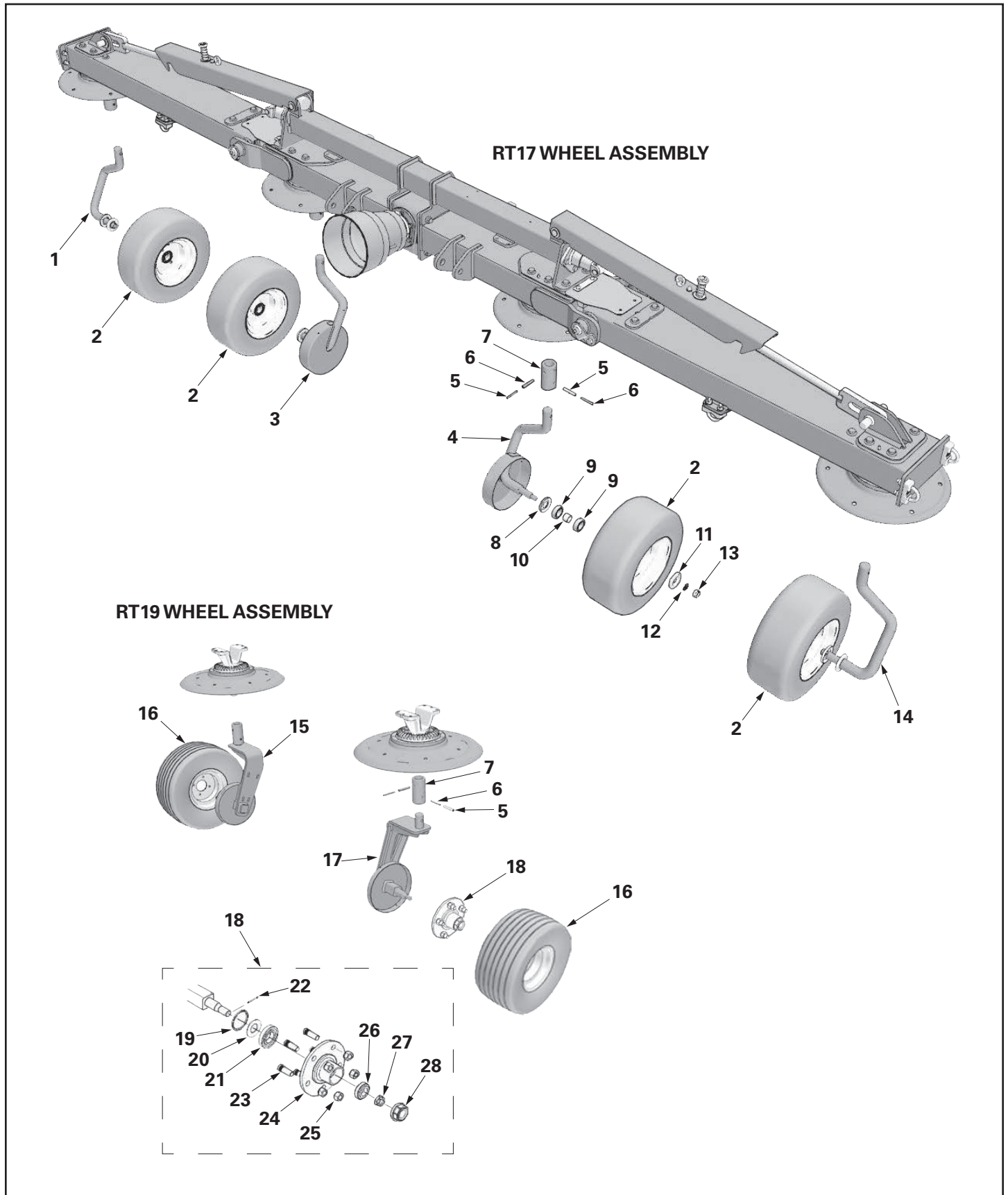
**DETAIL C**



ITEM	PART NUMBER	DESCRIPTION
1	R8010303	BEVEL PINION FOR ROTOR
2	R3120108	SNAP RING - I.62
3	R12240108	BEARING 6206 2RS
4	R18033702	SUPPORT SHAFT
5	R12010103	SHAFT L.916 MM - RT17 MODEL
	R12010104	SHAFT L.1041 MM - RT19 MODEL
6	R3070118	U BOLTO M10
7	R3110008	TAB 8X7X30
8	R3080141	ELASTIC PIN 10X55
9	R3080142	ELASTIC PIN 6X55
10	R8020702	JOINT DOUBLE DG2
11	R3011268	HH SCREW M12X120 ZN
12	R3090101	GREASE ZERK M8X1
13	R18033491	PIN Ø30 L.119
14	R18033486	LATERAL ARM - RT17 MODEL
	R18033731	LATERAL ARM - RT19 MODEL
15	R18033537	BLOCK - RT17 MODEL
	R18033733	BLOCK - RT19 MODEL
16	R18033535	HITCH CROSS L.1365 MM - RT17 MODEL
	R18033730	HITCH CROSS L.1590 MM - RT19 MODEL
17	R3010814	HH SCREW M14X190 ZN
18	R3020203	SELF LOCKING NUT M10
19	R3120157	SEEGER E20
20	R3030168	WASHER M20 ZN
21	R18033700	PIN - Ø20X100
22	R18033536	CYLINDER - RT17 MODEL
	R18033732	CYLINDER - RT19 MODEL
23	R3010230	HH SCREW M12X40
24	R3030800	WASHER M12 S.E.
25	R18033540	OPENING SYSTEM UNIT - RT17, RT19 MODEL
26	R3011211	SCREW
27	R3030115	WASHER 53X26X5
28	R3120127	RING SEEGER D.25
29	R18033538	PIN
30	R12061030	END POINT - Ø60
31	R3011251	HH SCREW M8X20 ZN
32	R3030805	WASHER M8 ZN
33	R3210108	EYEBOLT M8
34	R3030156	WASHER M8 ZN
35	R3020209	SELF LOCKING NUT M8
36	R18033542	STOP FRAME

ITEM	PART NUMBER	DESCRIPTION
37	R11010906	SPRING D.27 L.78
38	R3030176	WASHER M22 ZN
39	R9170006	DUST COVER CUP
40	R18033544	PLATE
41	R3020209	SELF LOCKING NUT M8
42	R3011221	SCREWTE M8X16 ZN
43	R1015143	SHEET METAL SCROLL
44	R18033601	COMPLETE DRAFT SUPPORT
45	R3110002	TAB 8X7X35
46	R3011660	HH SCREW M12X60
47	R18033541	SEAT SHAFT - RT17, RT19 MODEL
48	R11010635	SPRING - RT17, RT19 MODEL
49	R18032378	SLIDING SHAFT - RT17, RT19 MODEL
50	R18033704	PIN HYDRAULIC CYLINDER - Ø16X72
51	R18032373	ROLLER
52	R3120128	RING SEEGER - Ø16
53	R3020202	SELF LOCKING NUT M12
54	R3090102	GREASE ZENK M6X1
55	R3030800	WASHER S.E. M12
56	R12881497	BASE COLLAR
57	R3010936	SCREW TPSEI M8X25 ZN

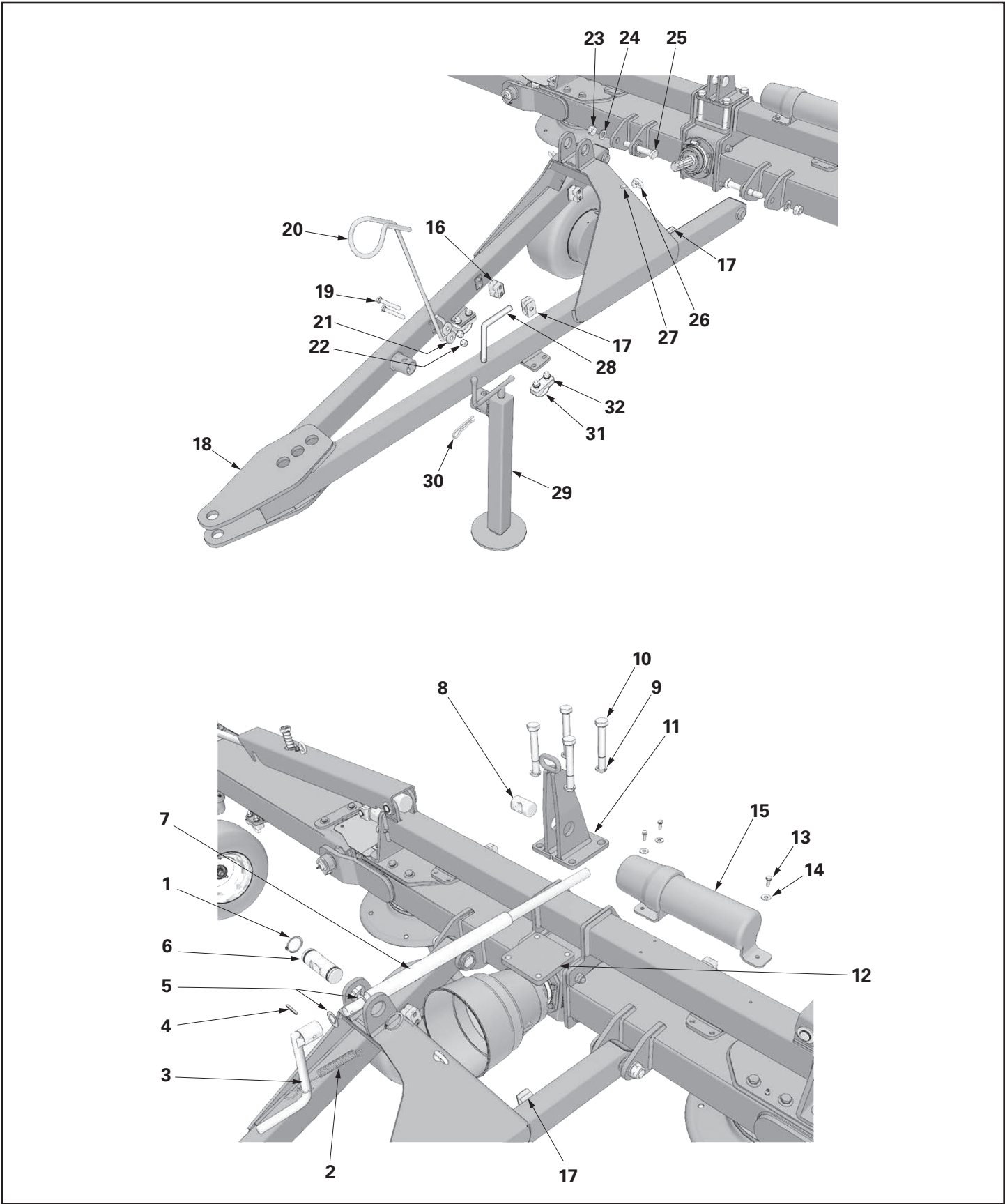
# Wheels





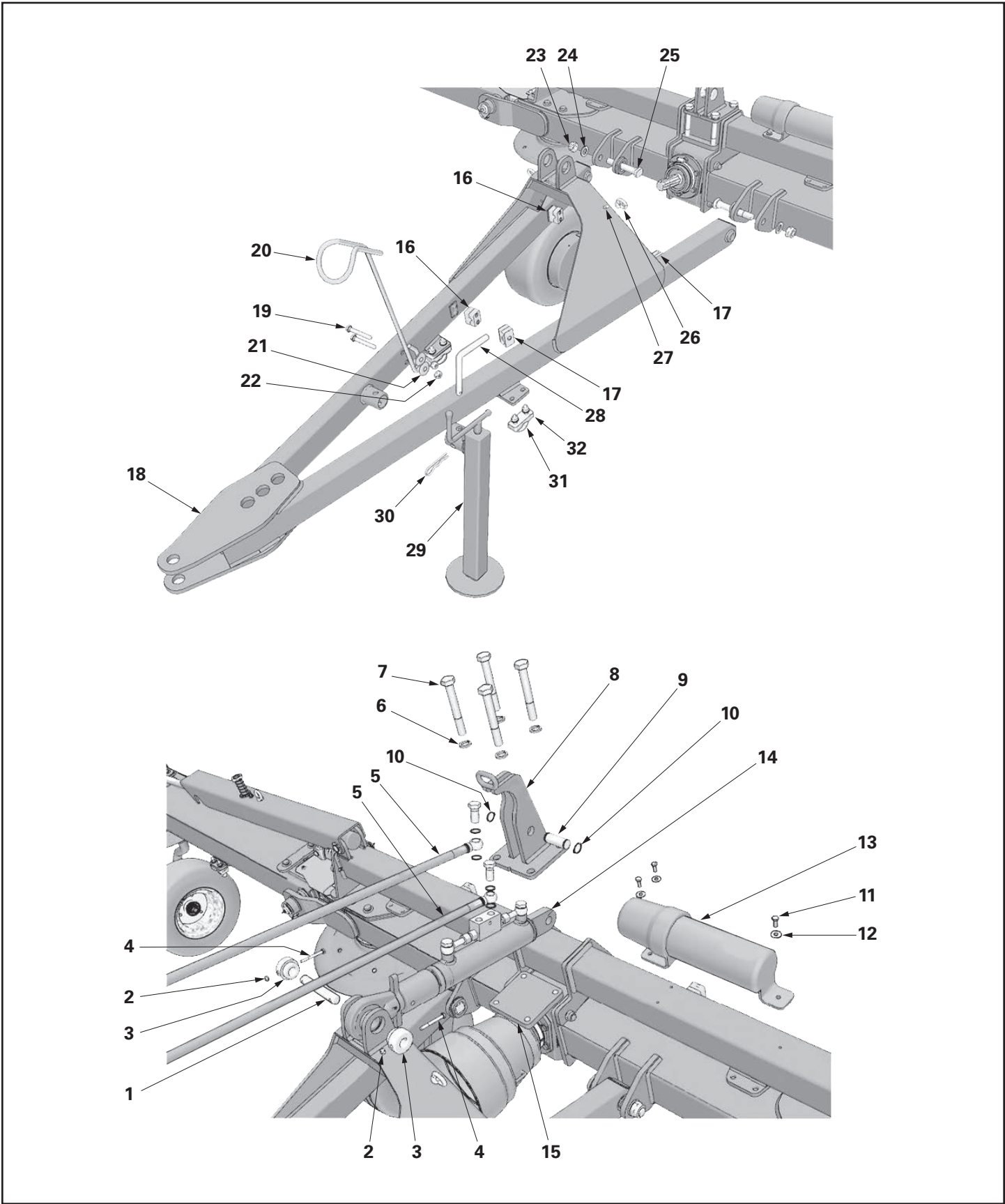
ITEM	PART NUMBER	DESCRIPTION
1	R18032318	RIGHT OUTSIDE AXLE - RT17, RT19 MODEL
2	R12170106	WHEEL COMPLETE 16.650.8 - RT17, RT19 MODEL
	R12070327	TIRE 16.650.8
	R12070326	AIRTUBE 16.650.8
	R12070325	WHEEL RIM
3	R18032315	RIGHT INSIDE AXLE + FENDER - RT17 MODEL
4	R18032307	LEFT INSIDE AXLE + FENDER - RT17 MODEL
5	R3080141	ELASTIC PIN 10X55
6	R3080142	ELASTIC PIN 6X55
7	R18032308	BUSH Ø55X105
8	R12070314	INTERNAL SHIELD
9	R12240128	BEARING 6205 2RS
10	R12070307	SPACER
11	R12070315	EXTERNAL SHIELD
12	R3030175	WASHER M16 ZN
13	R3020204	SELF LOCKING NUT M16
14	R18032316	LEFT OUTSIDE AXLE - RT17, RT19 MODEL
15	R18037528	RIGHT INSIDE AXLE - RT19 MODEL
16	R12170122	WHEEL COMPLETE 18.5X8.5-8 - RT19 MODEL
	-	TIRE 18.5X8.5-8
	-	AIRTUBE 18.5X8.5-8
	-	WHEEL RIM
17	R18037525	LEFT INSIDE AXLE - RT19 MODEL
18	R14020487	COMPLETE WHEEL HUB - RT19 MODEL
19	R18037709	INTERNAL SHIELD
20	R18037708	SPACER
21	R12240144	BEARING 30206
22	R3040103	ELASTIC PIN 4X40
23	R18037704	WHEEL BOLT
24	R18037706	WHEEL HUB
25	R18037705	SELF LOCKING NUT M12
26	R12240118	BEARING 30204
27	R3020210	SELF LOCKING NUT M18
28	R18037703	HUB CUP

# Hitch, Manual Tilt Adjust - RT17 Model



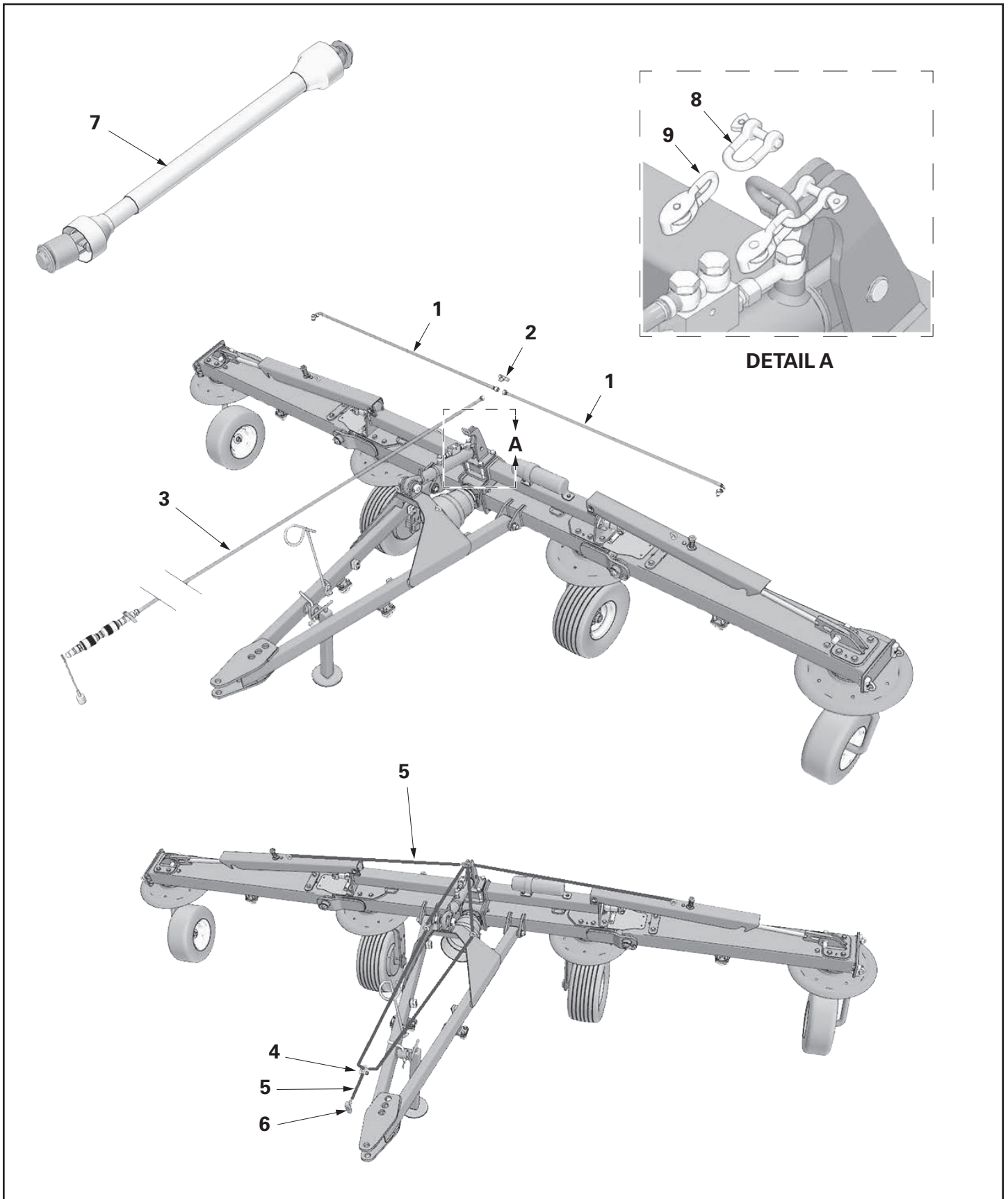
ITEM	PART NUMBER	DESCRIPTION
1	R3120146	SEEGER Ø35
2	R11010523	HOOK SPRING
3	R18030697	HANDLE
4	R3080102	ELASTIC PIN 6X36
5	R12280003	WASHER AS2035
6	R18033711	FRONTE SNAIL
7	R18033712	SCREW REGULATION
8	R18033714	SNAIL Ø35X55 M24
9	R3030322	GROWER WASHER M16
10	R3010408	H.H. SCREW M16X110 ZN
11	R18034347	TILT ADJ WELDMENT
12	R18035418	PLATE ATTACK
13	R3011672	H.H. SCREW M6X16 ZN
14	R3030160	WASHER M6
15	R9080022	MANUAL HOLDER
16	R18033216	COLLAR C3
17	R18033342	COLLAR CF2
18	R18037602	HELM
19	R3011686	HH SCREW M12X80 ZN
	R3030162	WASHER M12 ZN
20	R18037319	SUPPORT FOR HYDRAULIC PIPING
21	R18033240	WASHER
22	R3020202	M12 NUT
23	R3020216	SELF LOCKING NUT M20
24	R3030168	WASHER M20 ZN
25	R18033636	PIN
26	R3210108	EYEBOLT
27	R3011251	HH SCREW M8X20 ZN
28	R18033195	PIN
29	R18032774	STAND
30	R3040202	ELASTIC PIN
31	R3070118	M10 SCREW
32	R12881497	BASE COLLAR

# Hitch, Hydraulic Tilt Adjust - RT19 Model



ITEM	PART NUMBER	DESCRIPTION
1	R18033321	PIN Ø25X160
2	R3020213	SELF LOCKING NUT M6
3	R18033716	BUSH
4	R3010760	SCREW TE 6X55
5	R12760723	HYDRAULIC HOSE L.3400
6	R3030322	GROWER WASHER M16
7	R3010408	H.H. SCREW M16X110 ZN
8	R18035531	TILT ADJ WELDMENT
9	R18033713	PIN HYDRAULIC CYLINDER Ø20X56
10	R3120157	SEEGER E20
11	R3011672	H.H. SCREW M6X16 ZN
12	R3030160	WASHER M6
13	R9080022	MANUAL HOLDER
14	R18033957	CYLINDER
15	R18035418	PLATE ATTACK
16	R18033216	COLLAR C3
17	R18033342	COLLAR CF2
18	R18037602	HELM
19	R3011686	HH SCREW M12X80 ZN
	R3030162	WASHER M12 ZN
20	R18037319	SUPPORT FOR HYDRAULIC PIPING
21	R18033240	WASHER
22	R3020202	M12 NUT
23	R3020216	SELF LOCKING NUT M20
24	R3030168	WASHER M20 ZN
25	R18033636	PIN
26	R3210108	EYEBOLT
27	R3011251	HH SCREW M8X20 ZN
28	R18033195	PIN
29	R18032774	STAND
30	R3040202	ELASTIC PIN
31	R3070118	CLAMP M10
32	R12881497	BASE COLLAR

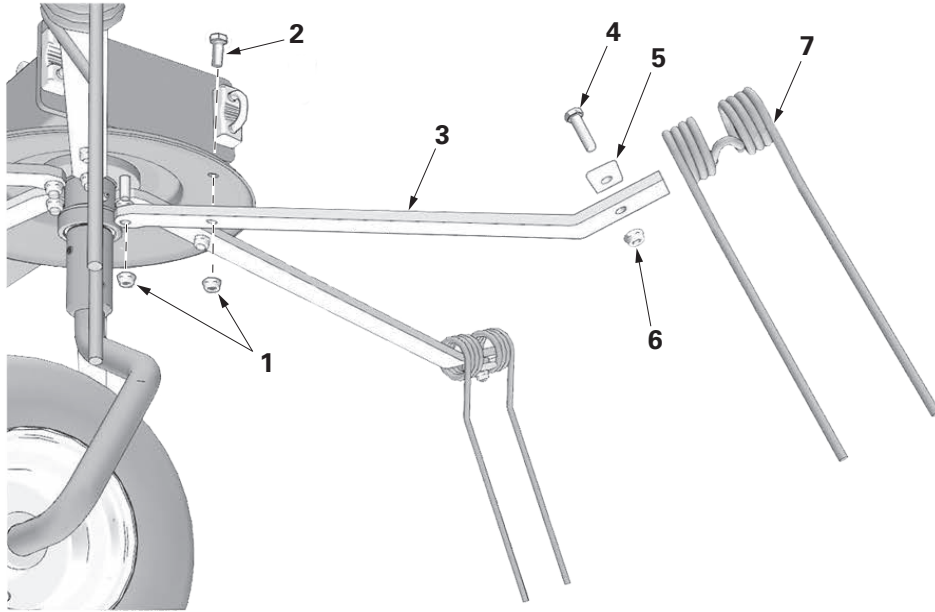
# PTO, Lift Arm Hydraulics, Lift Arm Locking Rope



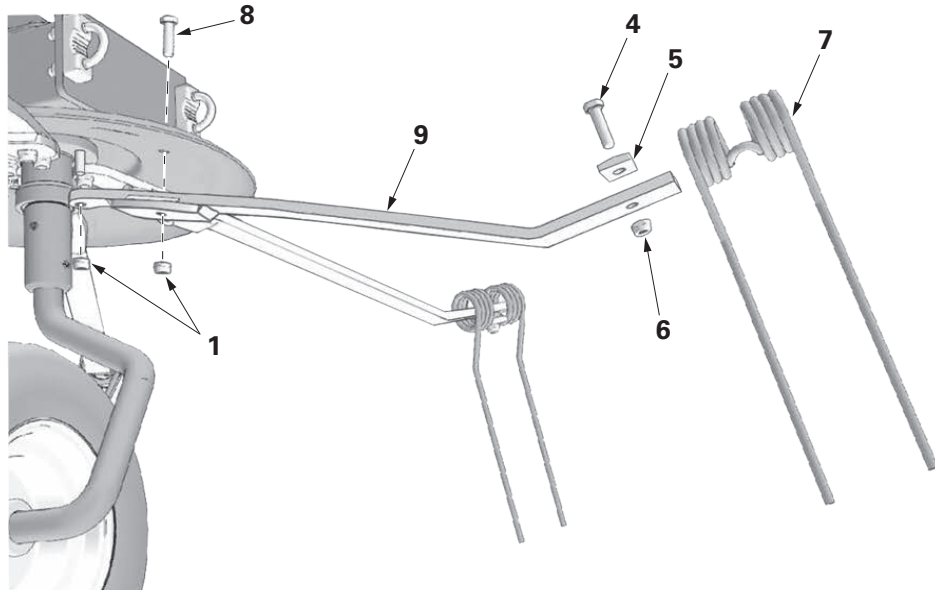
ITEM	PART NUMBER	DESCRIPTION
1	R12760724	HYDRAULIC HOSE L.1350 MM
2	R4010905	UNION T
3	R12760722	HYDRAULIC HOSE L.3400 MM PT
4	R3160101	CONNECTOR
5	R9060108	ROPE HANDLE
6	R18033715	ROPE
7	R8020438	PTO SHAFT - 900NM L.1480 - RT17 MODEL
	R8020426	PTO SHAFT - 1200NM L.1520 - RT19 MODEL
8	R3160101	CONNECTOR Ø8
9	R3070202	PULLEY Ø20

# Tines

RT17 MODEL



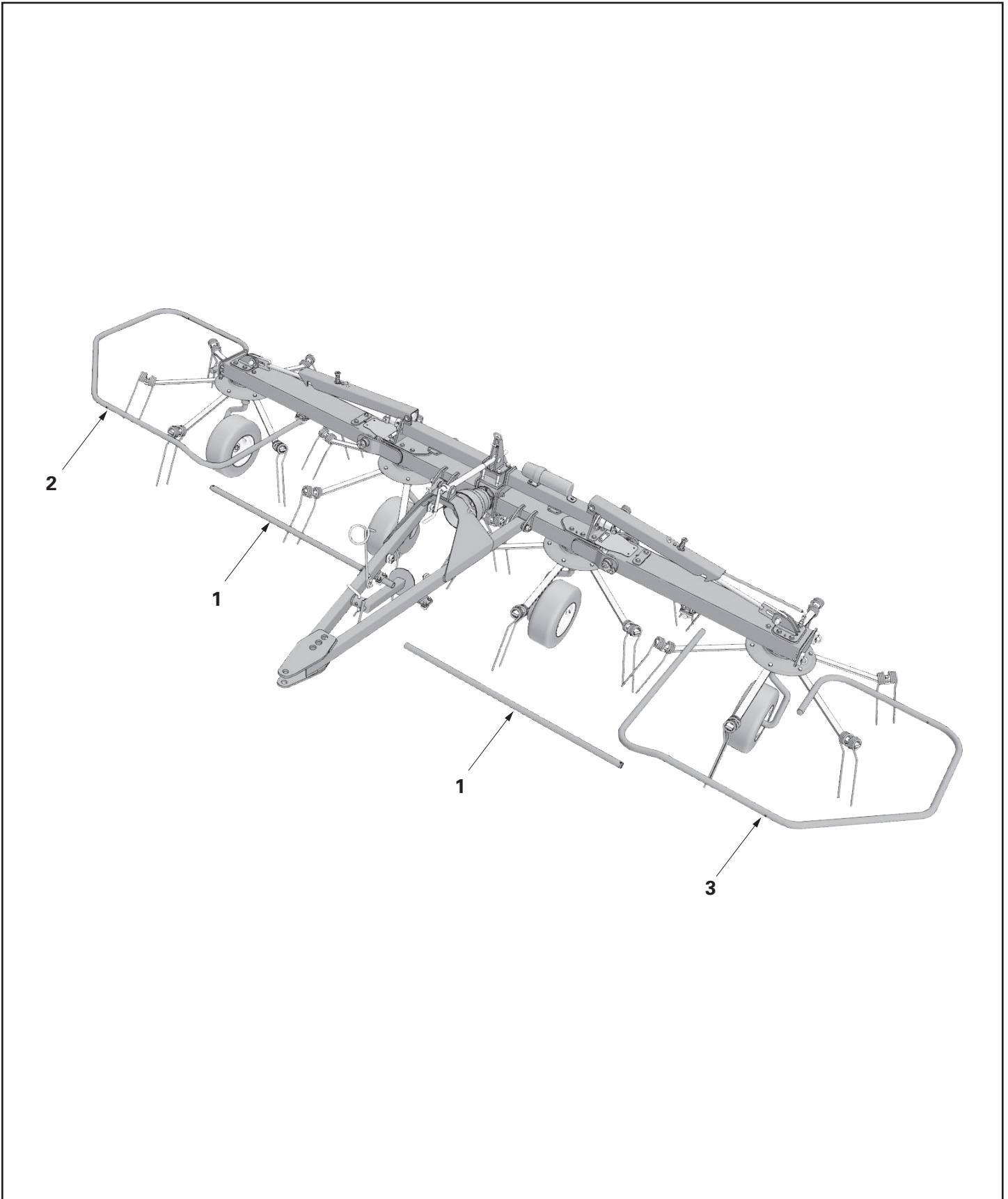
RT19 MODEL





ITEM	PART NUMBER	DESCRIPTION
1	R3020202	SELF LOCKING NUT M12
2	R3011241	HH SCREW M12X30 ZN - RT17 MODEL
3	R18030620	ARM - RT17 MODEL
4	R3011297	HH SCREW M12X45 ZN
5	R18030627	TINE FIXING PLATE
6	R3020202	SELF LOCKING NUT M12
7	R18030616	TINE
8	R3011215	HH SCREW M12X40 ZN - RT19 MODEL
9	R18032339	ARM - RT19 MODEL

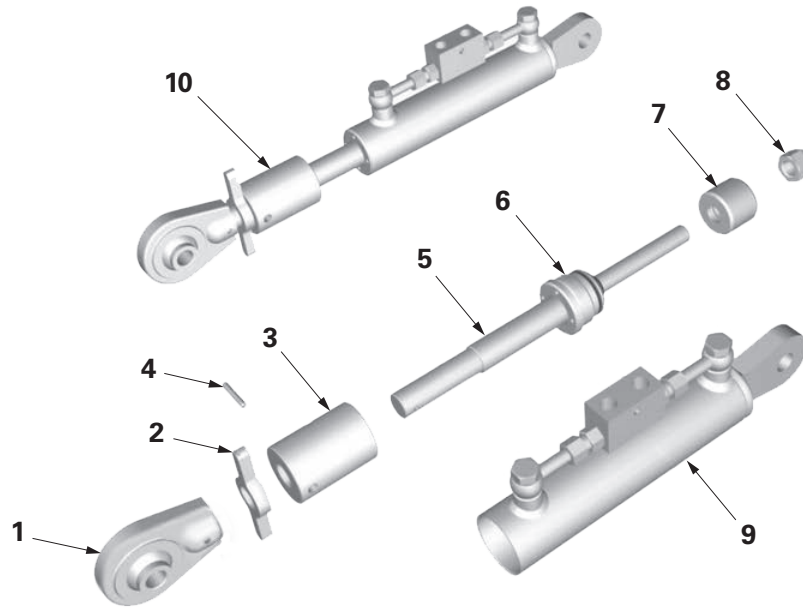
## Guards



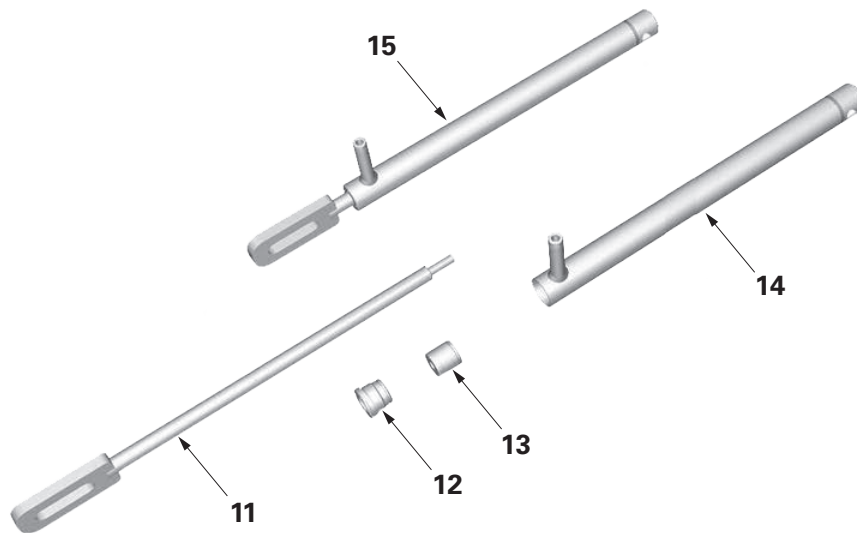
ITEM	PART NUMBER	DESCRIPTION
1	R4390265	FRONT PROTECTION
2	R4390259	PROTECTION SX
3	R4390258	PROTECTION DX

## Hydraulic Cylinders

### TILT ADJUST CYLINDER - RT19 MODEL

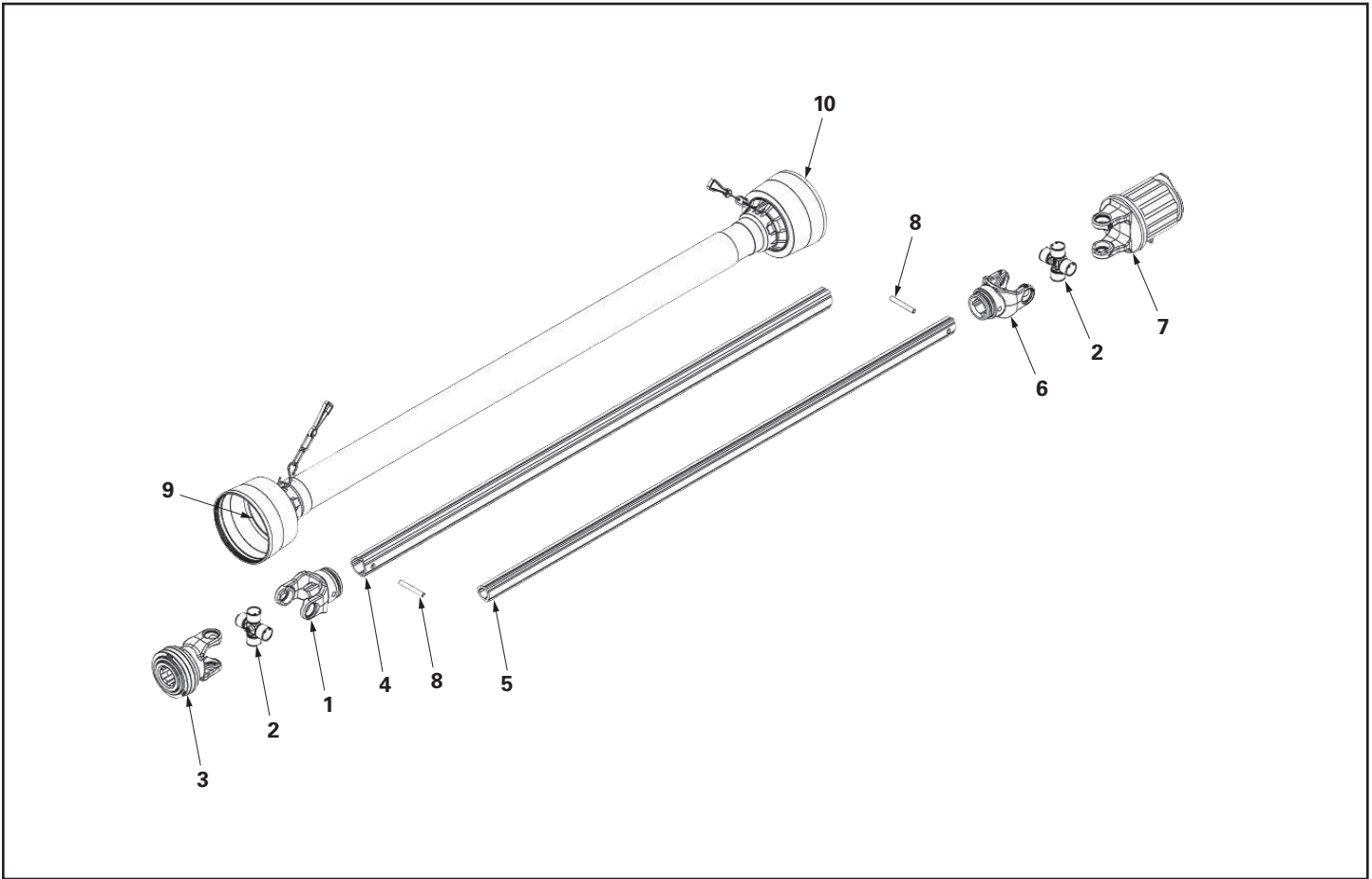


### LIFT ARM CYLINDER - RT17, RT19 MODEL



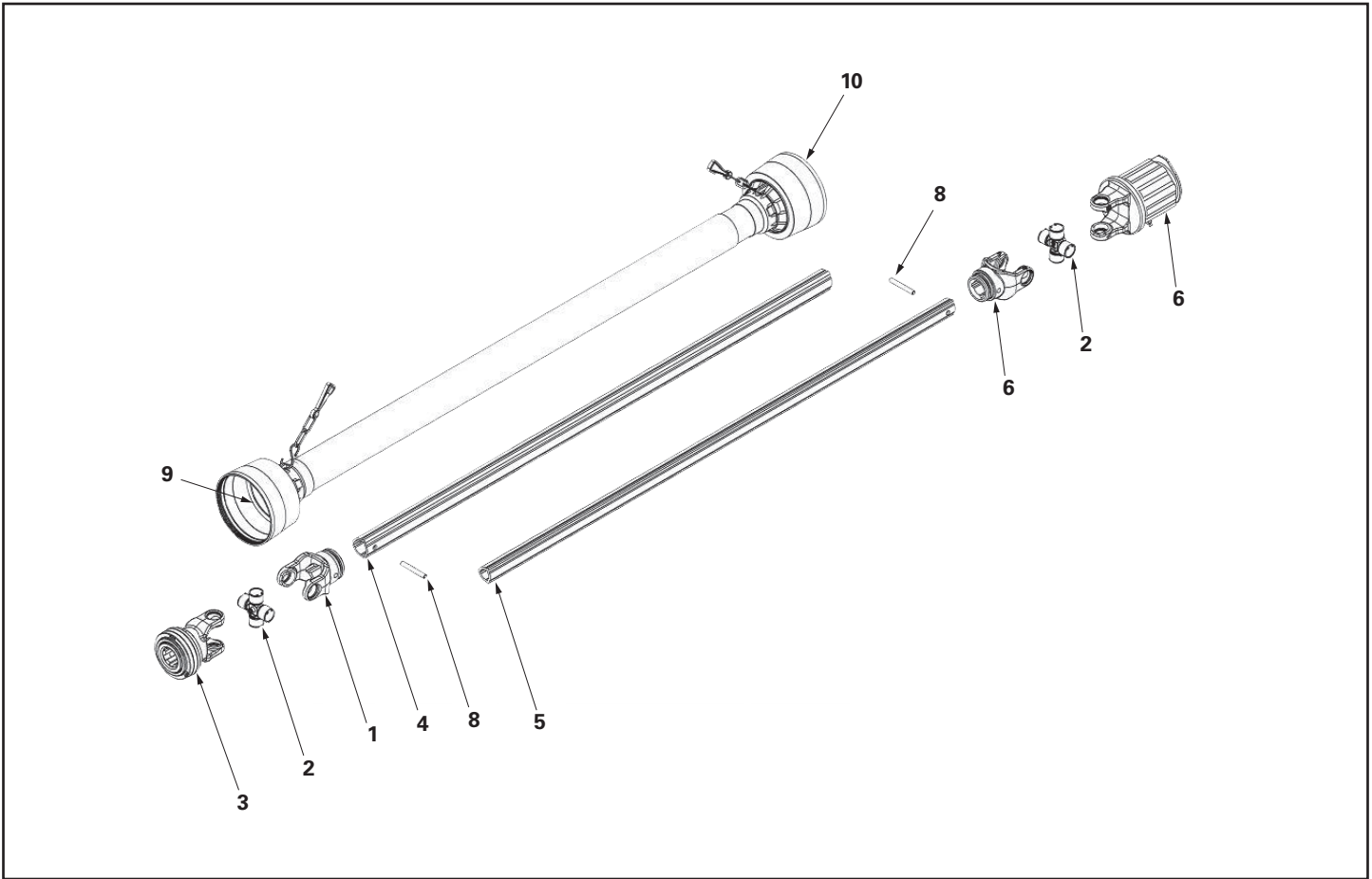
ITEM	PART NUMBER	DESCRIPTION
1	R18053185	SUPPORT
2	R18053179	HANDLE
3	R18053180	BUSH
4	R3080103	ELASTIC PIN 6X40
5	R18053181	ROD
6	R18053182	HEAD
7	R18033666	SEAL KIT COMP.
8	R3020232	SELF LOCKING NUT M20
9	R18053184	CYLINDER WITH VALVE
10	R18033957	COMPLETE CYLINDER Ø50 C.100
11	R18053172	ROD - RT17 MODEL
	R18053174	ROD - RT19 MODEL
12	R18053175	HEAD
13	R18033665	SEAL KIT - RT17 MODEL
	R18033667	SEAL KIT - RT19 MODEL
14	R18053177	CYLINDER - RT17 MODEL
	R18053178	CYLINDER - RT19 MODEL
15	R18033536	COMPLETE CYLINDER - RT17 MODEL
	R18033732	COMPLETE CYLINDER - RT19 MODEL

## PTO - RT17 Model



ITEM	PART NUMBER	DESCRIPTION
1	R12881456	FORK
2	R12881457	CROSS
3	R12881458	FORK SPLINED
4	R12881459	TUBE EXT. L.1085
5	R12881460	TUBE INT. L.1085
6	R12881461	FORK INT.
7	R12881462	LIMITING
8	R12881463	ELASTIC PIN 8X55 DIN 1481
9	R12881464	EXTERNAL PROTECTION L.1210
10	R12881465	INTERNAL PROTECTION L.1210
-	R8020438	PTO SHAFT COMPLETE - 900NM L.1480 - RT17 MODEL

**PTO - RT19 Model**



ITEM	PART NUMBER	DESCRIPTION
1	R12881466	FORK
2	R12881467	CROSS
3	R12881468	FORK SPLINED
4	R12881469	TUBE EXT. L.1060
5	R12881470	TUBE INT. L.1060
6	R12881471	FORK INT.
7	R12881472	LIMITING
8	R12881473	ELASTIC PIN 8X65 DIN 1481
9	R12881474	EXTERNAL PROTECTION L.1210
10	R12881475	INTERNAL PROTECTION L.1210
-	R8020426	PTO SHAFT COMPLETE - 1200NM L.1520 - RT19 MODEL

# Farm King





## Specifications And Shipping Kit Numbers

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# Farm King



## Specifications

MODEL	RT17	RT19
Working Width	17 ft (520 cm)	19 ft (570 cm)
Transport Width	9.8 ft (300 cm)	10.5 ft (320 cm)
Rotors	4	4
Arms Per Rotor	6	6
Tines Total	24	24
Working Speed	3–6 mph (5–10 kph)	3–6 mph (5–10 kph)
Tires	4, 16 x 6.50 x 8 ply	4, 16 x 6.5 x 8 ply
HP Requirements	30–40 HP	35–45 HP
PTO	540 RPM	540 RPM
Weight	1080.3 lbs (490 kg)	1157.4 lbs (525 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
17' Pull Type Hydraulic Fold & Manual lift		
1	RT417VTFK	Body Assembly
19' Pull Type Hydraulic Fold & Hydraulic Lift		
1	RT419VTFK	Body Assembly

# Hardware Torque Values

## Metric Chart

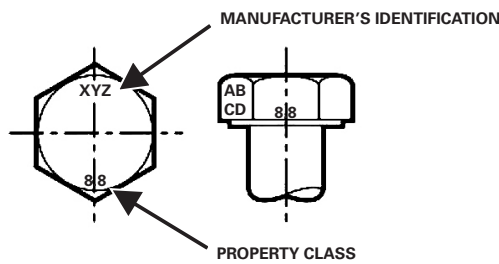
**NOTE: Do not use the values listed in the charts if a different torque value or tightening procedure is specified in this manual for a specific application. Torque values listed are for general use only.**

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.**

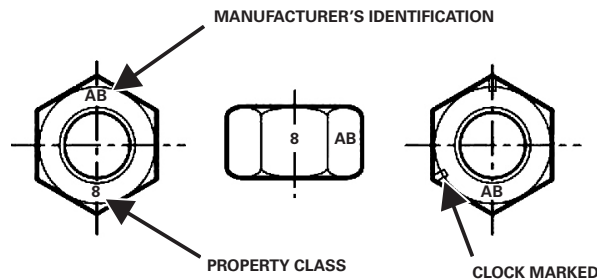
Nominal Size	CLASS 5.8		CLASS 8.8		CLASS 10.9		LOCK NUTS
	Unplated	Plated W / ZnCr	Unplated	Plated W / ZnCr	Unplated	Plated W / ZnCr	CL.8 W/ CL. 8.8 Bolt
M4	1.7 (15*)	2.2 (19*)	2.6 (23*)	3.4 (30*)	3.7 (33*)	4.8 (42*)	1.8 (16*)
M6	5.8 (51*)	7.6 (67*)	8.9 (79*)	12 (102*)	13 (115*)	17 (150*)	6.3 (56*)
M8	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

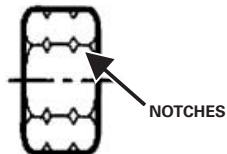


GRADE 5 SAE HEX NUTS

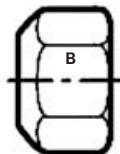


GRADE 8 SAE HEX NUTS

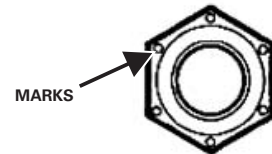
### Identification of Hex Nuts and Lock Nuts



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 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.



[www.farm-king.com](http://www.farm-king.com)

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