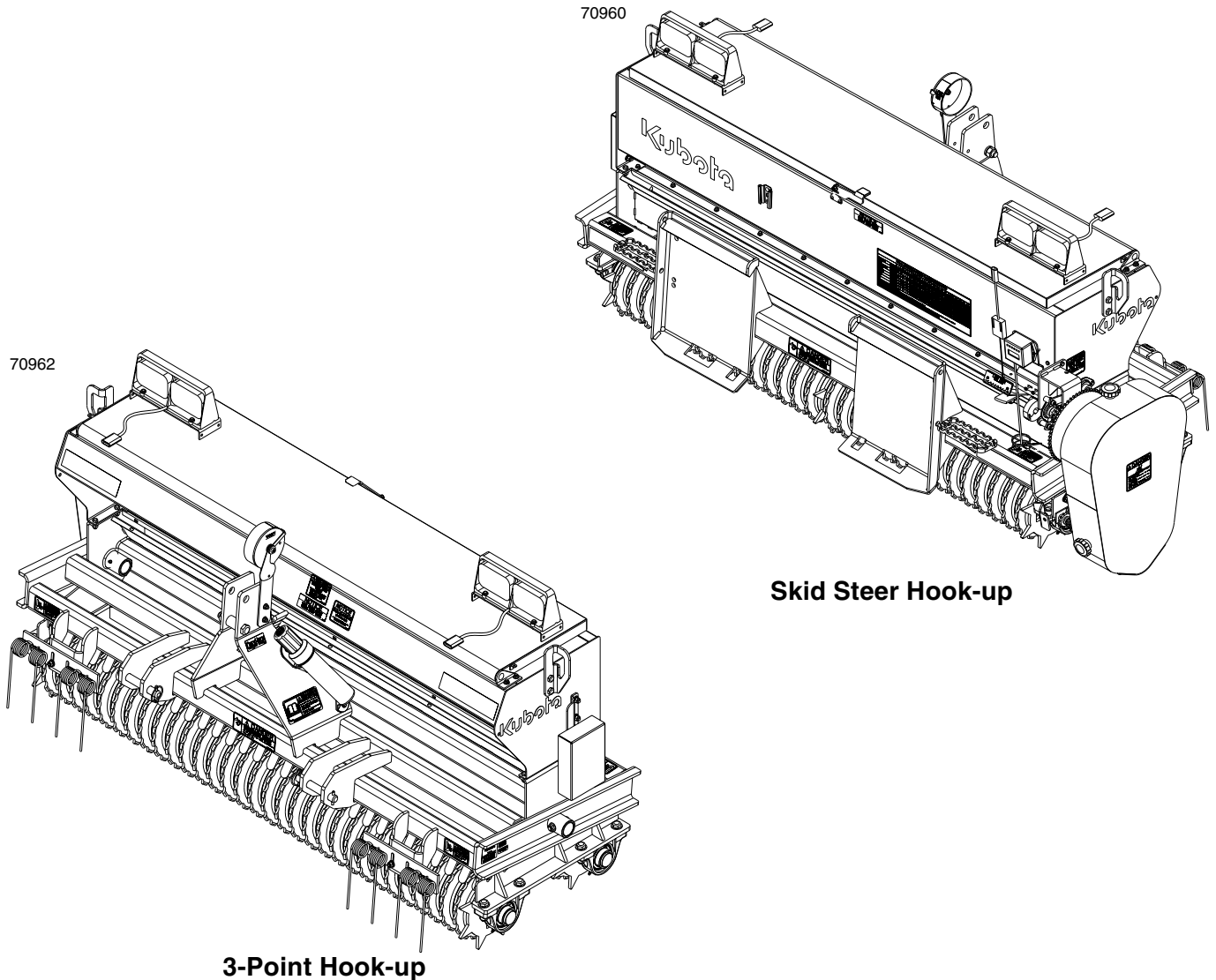


Primary Seeders

AP-PS2072 & AP-PS2086



313-805MK Operator's Manual



Read the Operator's Manual entirely. When you see this symbol, the subsequent instructions and warnings are serious - follow without exception. Your life and the lives of others depend on it!

Cover photo may show optional equipment not supplied with standard unit.

For an Operator's Manual and Decal Kit in French Language, please see your Kubota dealer.

Kubota®

Machine Identification

Record your machine details in the log below. If you replace this manual, be sure to transfer this information to the new manual.

If you, or the dealer, have added Options not originally ordered with the machine, or removed Options that were originally ordered, the weights and measurements are no longer accurate for your machine. Update the record by adding the machine weight and measurements provided in the Specifications & Capacities Section of this manual with the Option(s) weight and measurements.

Model Number	
Serial Number	
Machine Height	
Machine Length	
Machine Width	
Machine Weight	
Delivery Date	
First Operation	
Accessories	<hr/> <hr/> <hr/>

Dealer Contact Information


Name: _____

Street: _____

City/State: _____

Telephone: _____

Email: _____

California Proposition 65
 WARNING: Handling passenger or off-highway motor vehicle parts can expose you to chemicals such as phthalates and lead, which can cause cancer and reproductive harm. To minimize exposure, service the vehicle in a well-ventilated area, wear gloves, and wash your hands. For more information see www.P65Warnings.ca.gov/motor-vehicle-parts .

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Printed in the United States of America.

See previous page for Table of Contents.



Parts Manual QR Locator

The QR (Quick Reference) code on the left will take you to the Parts Manual for this equipment. Download the appropriate app on your smart phone. Scan the QR code and take a picture.



Dealer QR Locator

The QR code to the left will link you to available dealers for Kubota products. Refer to Parts Manual QR Locator on this page for detailed instructions.

Listed below are common practices that may or may not be applicable to the products described in this manual.

Safety at All Times

Careful operation is your best assurance against an accident.

All operators, no matter how much experience they may have, should carefully read this manual and other related manuals before operating the power machine and this attachment.

- ▲ Thoroughly read and understand the "Safety Label" section. Read all instructions noted on them.
- ▲ Do not operate the equipment while under the influence of drugs or alcohol, as they impair your ability to safely and properly operate the equipment.
- ▲ Operator should be familiar with all functions of the tractor/skid steer and attachment and be able to handle emergencies quickly.
- ▲ Make sure all guards and shields appropriate for the operation are in place and secured before operating attachment.
- ▲ Keep all bystanders away from equipment and work area.
- ▲ Start tractor/skid steer from the driver's seat with steering levers and hydraulic controls in neutral.
- ▲ Operate tractor/skid steer and controls from the driver's seat only.
- ▲ Never dismount from a moving tractor/skid steer or leave machine unattended with engine running.
- ▲ Do not allow anyone to stand between the attachment and tractor/skid steer while connecting to the attachment.
- ▲ Keep hands, feet, and clothing away from power-driven parts.
- ▲ While transporting and operating equipment, watch out for objects overhead and along the sides such as fences, trees, buildings, wires, etc.
- ▲ Store attachment in an area where children normally do not play. When needed, secure attachment against falling with support blocks.



Look for the Safety Alert Symbol

The SAFETY ALERT SYMBOL indicates there is a potential hazard to personal safety and extra precaution must be taken. When you see this symbol, be alert and carefully read the message that follows it. 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.

Be Aware of Signal Words

A signal word designates a degree or level of hazard seriousness. They are:

- ▲ **DANGER:** Indicates a hazardous situation that, if not avoided, will result in death or serious injury.
- ▲ **WARNING:** Indicates a hazardous situation that, if not avoided, could result in death or serious injury.
- ▲ **CAUTION:** Indicates a hazardous situation that, if not avoided, may result in minor or moderate injury.

Be Aware of Special Notices

Special notices are intended to point out important and helpful information that should be followed. They are usually placed inside a box. They are:

- IMPORTANT:** Indicates that equipment or property damage could result if instructions are not followed.
- NOTE:** Indicates supplementary explanations that will be helpful when using the equipment.

Safety Precautions for Children

Tragedy can occur if the operator is not alert to the presence of children. Children generally are attracted to attachments and their work.

- ▲ Never assume children will remain where you last saw them.
- ▲ Keep children out of the work area and under the watchful eye of a responsible adult.
- ▲ Be alert and shut the attachment and skid steer/track loader down if children enter the work area.
- ▲ Never carry children on the power machine or attachment. There is not a safe place for them to ride. They may fall off and be run over or interfere with the control of the power machine.
- ▲ Never allow children to operate the power machine, even under adult supervision.
- ▲ Never allow children to play on the power machine or attachment.
- ▲ Use extra caution when backing up. Before the power machine starts to move, look down and behind to make sure the area is clear.

Listed below are common practices that may or may not be applicable to the products described in this manual.

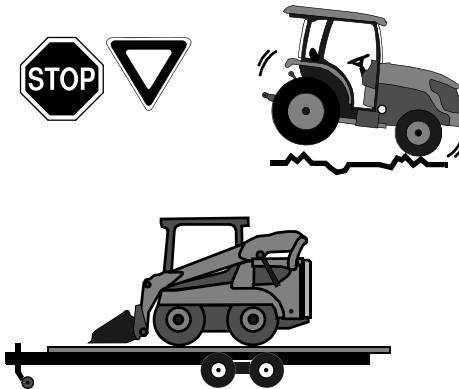
Dig Safe - Avoid Underground Utilities

- ▲ USA: Call 811
CAN:
<http://www.clickbeforeyoudig.com>
- ▲ Always contact your local utility companies (electrical, telephone, gas, water, sewer, and others) before digging so that they may mark the location of any underground services in the area.
- ▲ Be sure to ask how close you can work to the marks they positioned.



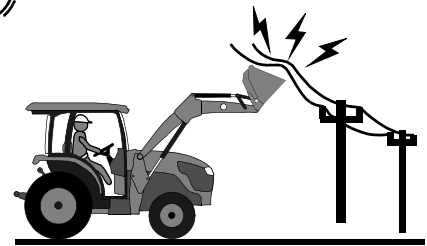
Towing Safely

- ▲ Comply with federal, state, and local laws.
- ▲ Use towing vehicle and trailer of adequate size and capacity. Secure equipment towed on a trailer with chocks, tie downs, and chains.
- ▲ **IMPORTANT:** Do not tow a load that is more than double the weight of the vehicle towing the load.
- ▲ Sudden braking can cause a towed trailer to swerve unexpectedly. Reduce speed if trailer is not equipped with brakes.



Transport Safely

- ▲ Comply with federal, state, and local laws.
- ▲ Avoid contact with any overhead utility lines or electrically charged conductors.
- ▲ Always drive with attachment on the end of the loader arms low to the ground.
- ▲ Follow recommendations in the power machine Operator's Manual when driving uphill or downhill and when parking on an incline.
- ▲ Never travel at a speed which does not allow adequate control of the load, steering, and stopping. Some rough terrains require a slower speed.



Tire Safety

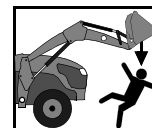
- ▲ Tire changing can be dangerous and must be performed by trained personnel using the correct tools and equipment.
- ▲ Always properly match the wheel size to the properly sized tire.
- ▲ Always maintain correct tire pressure. Do not inflate tires above recommended pressures shown in the Operator's Manual.
- ▲ When inflating tires, use a clip-on chuck and extension hose long enough to allow you to stand to one side and NOT in front of or over the tire assembly. Use a safety cage if available.
- ▲ Securely support the attachment when changing a wheel.
- ▲ When removing and installing wheels, use wheel handling equipment adequate for the weight involved.
- ▲ Make sure wheel bolts have been tightened to the specified torque.



Practice Safe Maintenance

- ▲ Understand procedure before doing work. Refer to the Operator's Manual for additional information.
- ▲ Work on a level surface in a clean dry area that is well-lit.
- ▲ Lower attachment to the ground and follow all shutdown procedures before leaving the operator's seat to perform maintenance.
- ▲ Do not work under any hydraulically supported equipment. It can settle, suddenly leak down, or be lowered accidentally. If it is necessary to work under the equipment, securely support it with stands or suitable blocking beforehand.
- ▲ Use properly grounded electrical outlets and tools.
- ▲ Use correct tools and equipment for the job that are in good condition.
- ▲ Allow equipment to cool before working on it.

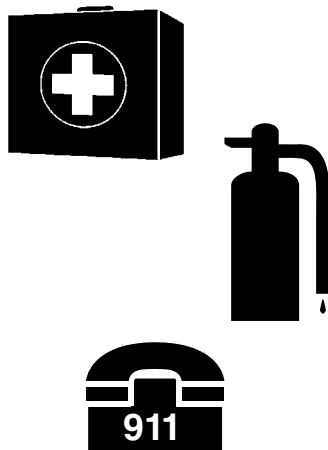
- ▲ Disconnect battery ground cable (-) before servicing or adjusting electrical systems or before welding on equipment.
- ▲ Inspect all parts. Make certain that parts are in good condition & installed properly.
- ▲ Replace parts on this attachment with genuine Kubota parts only. Do not alter this attachment in a way which will adversely affect its performance.
- ▲ Do not grease or oil attachment while it is in operation.
- ▲ Remove buildup of grease, oil, or debris.
- ▲ Always make sure any material and waste products from the repair and maintenance of the attachment are properly collected and disposed.
- ▲ Remove all tools and unused parts before operation.



Listed below are common practices that may or may not be applicable to the products described in this manual.

Prepare for Emergencies

- ▲ Be prepared if a fire starts.
- ▲ Keep a first aid kit and fire extinguisher handy.
- ▲ Keep emergency numbers for doctor, ambulance, hospital, and fire department near phone.



Wear Personal Protective Equipment (PPE)

- ▲ Wear protective clothing and equipment appropriate for the job such as safety shoes, safety glasses, hard hat, dust mask, and ear plugs.
- ▲ Clothing should fit snug without fringes and pull strings to avoid entanglement with moving parts.
- ▲ Prolonged exposure to loud noise can cause hearing impairment or hearing loss. Wear suitable hearing protection such as earmuffs or earplugs.
- ▲ Operating a machine safely requires the operator's full attention. Avoid wearing headphones while operating equipment.



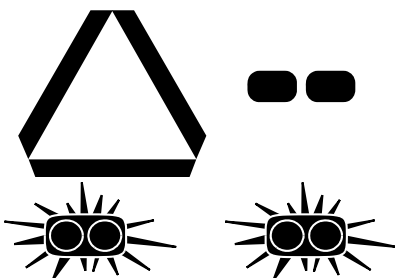
Avoid High Pressure Fluids

- ▲ Escaping fluid under pressure will penetrate the skin or eyes causing serious injury.
- ▲ Relieve all residual pressure before disconnecting hydraulic lines or performing work on the hydraulic system.
- ▲ Make sure all hydraulic fluid connections are properly tightened/torqued and all hydraulic hoses and lines are in good condition before applying pressure to the system.
- ▲ Use a piece of paper or cardboard, NOT BODY PARTS, to check for suspected leaks.
- ▲ Wear protective gloves and safety glasses or goggles when working with hydraulic systems.
- ▲ **DO NOT DELAY.** If an accident occurs, seek immediate emergency medical care or gangrene may result.



Use Safety Lights and Devices

- ▲ A slow moving power machine can create a hazard when driven on public roads. They are difficult to see, especially at night.
- ▲ Flashing warning lights and turn signals are recommended whenever driving on public roads.
- ▲ For tractors and other agriculture equipment, a Slow Moving Vehicle (SMV) sign is required when traveling on public roads.



Use Seat Belt and ROPS

- ▲ Land Pride recommends the use of a CAB or roll-over-protective-structures (ROPS) and seat belt in almost all power machines. Combination of a CAB or ROPS and seat belt will reduce the risk of serious injury or death if the power machine should be upset.
- ▲ If ROPS is in the locked-up position, fasten seat belt snugly and securely to help protect against serious injury or death from falling and machine overturn.



Keep Riders Off Machinery

- ▲ Never carry riders on the power machine or attachment.
- ▲ Riders obstruct operator's view and interfere with the control of the power machine.
- ▲ Riders can be struck by objects or thrown from the equipment.
- ▲ Never use the power machine or attachment to lift or transport riders.



These are common practices that may or may not be applicable to the products described in this manual.

Avoid Crystalline Silica (Quartz) Dust

Because crystalline silica is a basic component of sand and granite, many activities at construction sites produce dust containing crystalline silica. Trenching, sawing, and boring of material containing crystalline silica can produce dust containing crystalline silica particles. This dust can cause serious injury to the lungs (silicosis).

There are guidelines which should be followed if crystalline silica (quartz) is present in the dust.



- ▲ Be aware of and follow OSHA (or other local, State, or Federal) guidelines for exposure to airborne crystalline silica.
- ▲ Know the work operations where exposure to crystalline silica may occur.
- ▲ Participate in air monitoring or training programs offered by the employer.
- ▲ Be aware of and use optional equipment controls such as water sprays, local exhaust ventilation, and enclosed cabs with positive pressure air conditioning if the machine has such equipment. Otherwise respirators shall be worn.
- ▲ Where respirators are required, wear a respirator approved for protection against crystalline silica containing dust. Do not alter respirator in any way. Workers who use tight-fitting respirators can not have beards/mustaches which interfere with the respirator seal to the face.
- ▲ If possible, change into disposable or washable work clothes at the work site; shower and change into clean clothing before leaving the work site.
- ▲ Do not eat, drink, use tobacco products, or apply cosmetics in areas where there is dust containing crystalline silica.
- ▲ Store food, drink, and personal belongings away from the work area.
- ▲ Wash hands and face before eating, drinking, smoking, or applying cosmetics after leaving the exposure area.

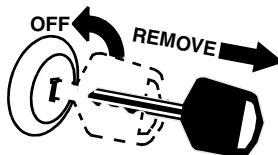
Handle Chemicals Properly

- ▲ Protective clothing should be worn.
- ▲ Handle all chemicals with care.
- ▲ Follow instructions on container label.
- ▲ Agricultural chemicals can be dangerous. Improper use can seriously injure persons, animals, plants, soil, and property.
- ▲ Inhaling smoke from any type of chemical fire can be a serious health hazard.
- ▲ Store or dispose of unused chemicals as specified by the chemical manufacturer.



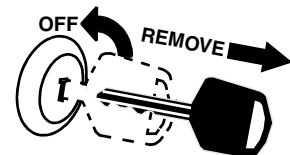
Tractor Shutdown & Storage

- ▲ Reduce engine speed and shut-off all power to the attachment.
- ▲ Park on solid, level ground and lower attachment to ground or onto support blocks.
- ▲ Put tractor in park or set park brake.
- ▲ Turn off engine and remove ignition key to prevent unauthorized starting.
- ▲ Relieve all hydraulic pressures.
- ▲ Wait for all components to stop before leaving operator's seat.
- ▲ Use steps, grab-handles and anti-slip surfaces when stepping on and off the tractor.



Skid Steer Shutdown And Storage

- ▲ Reduce engine speed and shut-off all power to the attachment.
- ▲ Park on solid, level ground and lower attachment until it is flat on the ground or support blocks.
- ▲ Turn off engine. Do not remove ignition key at this time.
- ▲ Turn ignition key to the "RUN" position. Relieve all hydraulic pressure by moving both joysticks.
- ▲ Turn ignition key to Off and remove to prevent unauthorized starting.
- ▲ If included, raise seat bar and move controls until both lock.
- ▲ Wait for all components to stop before leaving operator's seat.
- ▲ Use steps, grab-handles and anti-slip surfaces when stepping on and off the skid steer.



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Safety Labels

Your Seeder comes equipped with all safety labels in place. They are designed to help you safely operate your attachment. Read and follow their directions.

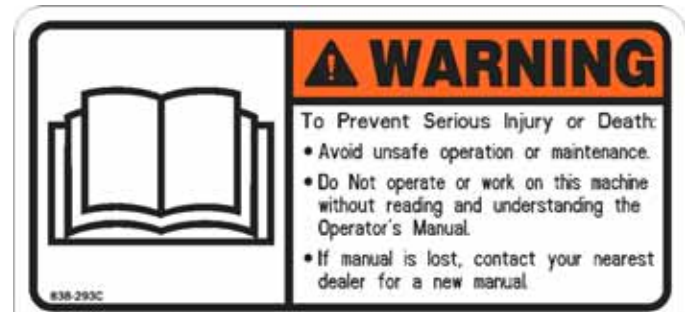
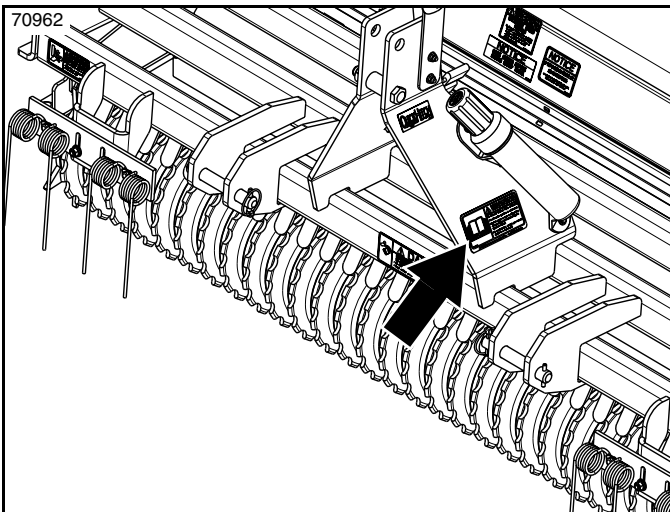
1. Keep all safety labels clean and legible.
2. Refer to this section for proper label placement. Replace all damaged or missing labels. Order new labels from your nearest Kubota dealer. To find your nearest dealer, visit our dealer locator at www.landpride.com.
3. Some new equipment installed during repair requires safety labels to be affixed to the replaced component as

specified by Kubota. When ordering new components make sure the correct safety labels are included in the request.

4. Refer to this section for proper label placement.

To install new labels:

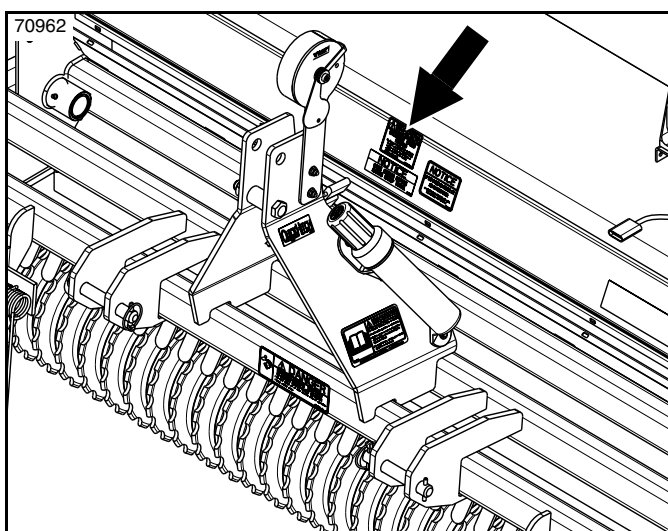
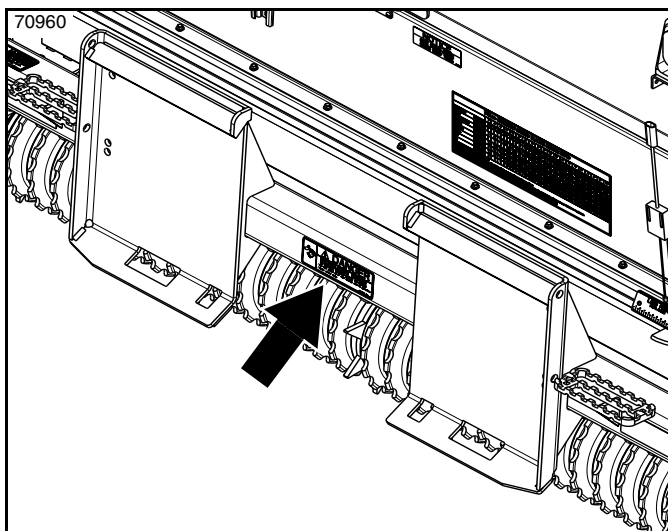
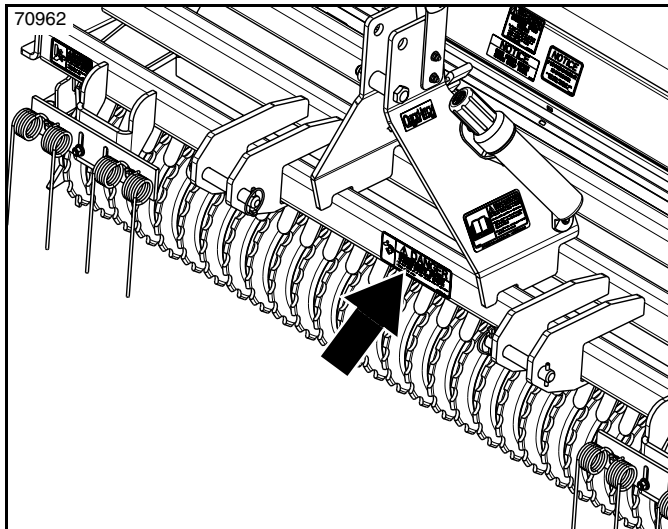
- a. Clean surface area where label is to be placed.
- b. Spray soapy water onto the cleaned area.
- c. Peel backing from label and press label firmly onto the surface.
- d. Squeeze out air bubbles with edge of a credit card or with a similar type of straight edge.



838-293C

Warning: Read Operator's Manual

1 Place



818-254C

Danger: Entanglement Hazard

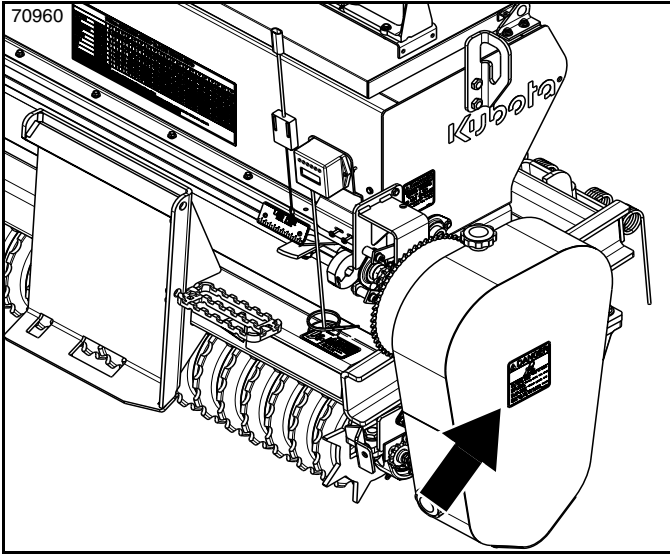
2 Places: Centered on the 3-point hitch and centered on the seeder hitch plate



818-337C

Warning: Excessive Speed Hazard

1 Place

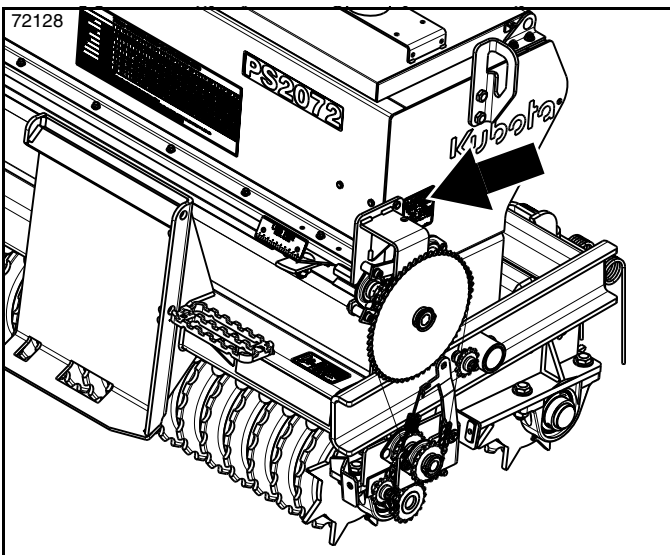


70576



838-111C

Danger: Keep Away - Moving Parts Hazard
1 Place

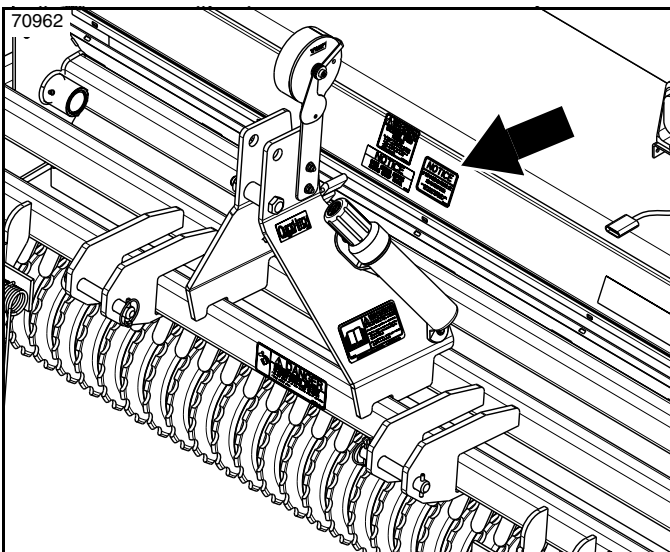


7035E



818-543C

Danger: Guard Missing Hazard - Do not Operate
1 Place

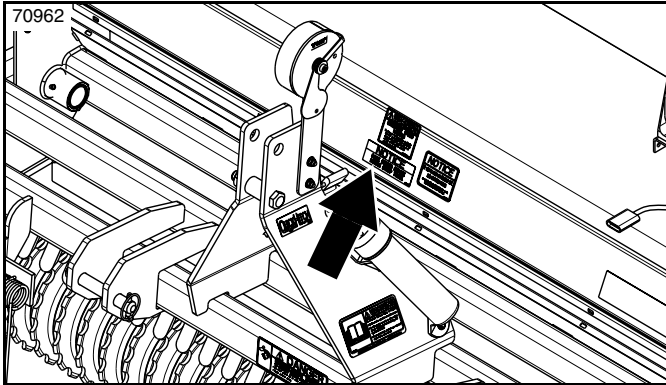


70964



858-899C

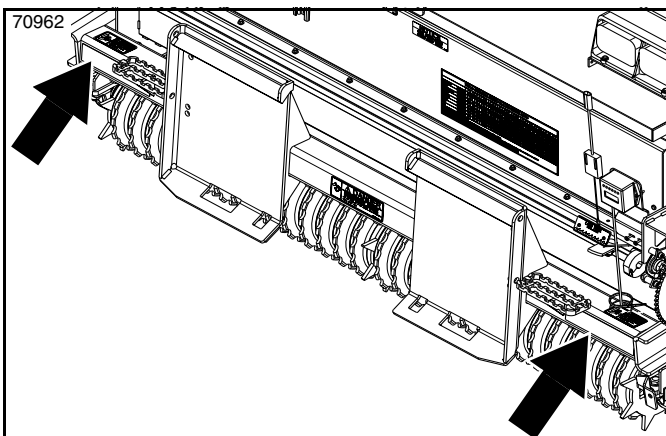
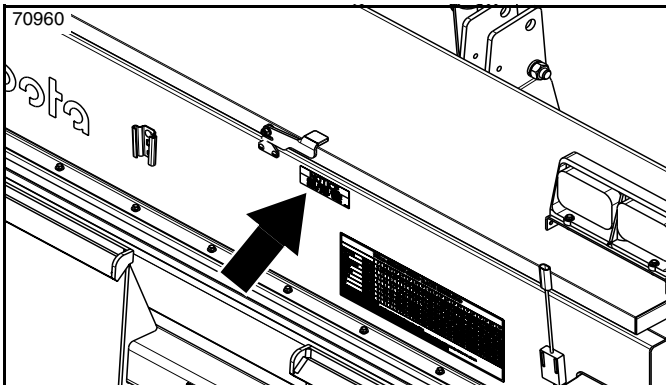
Notice: Light Kit Safety Hazard
1 Place:



70963

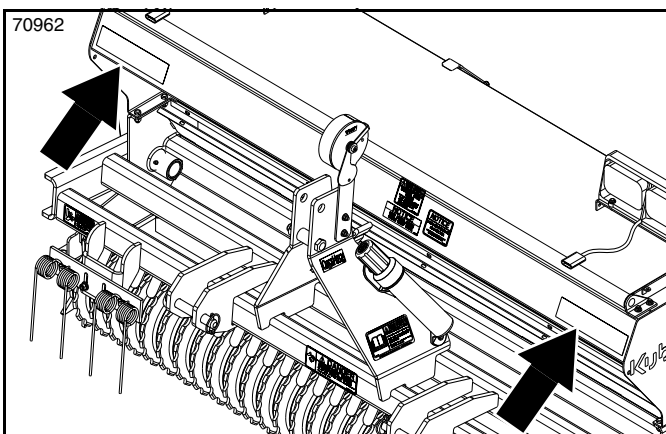
858-382C

Notice: Raise Seeder Before Making Sharp Turns
2 Places: Centered on both sides of the seeder box



838-614C

Red Reflector: 2" x 9"
2 Places: On the back side at both ends of the quick hitch mainframe

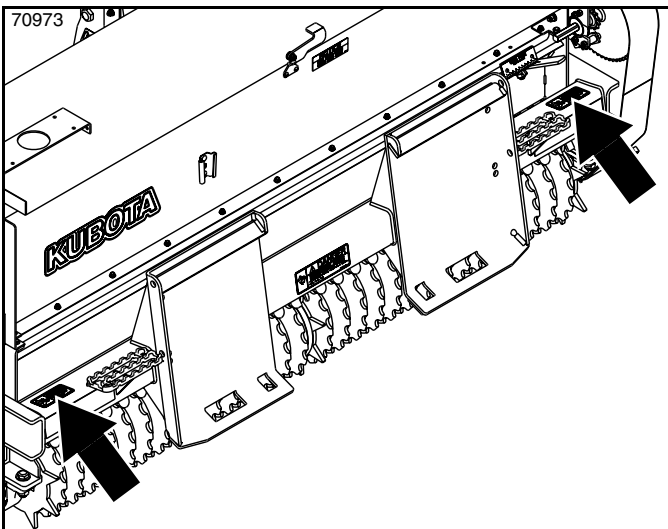
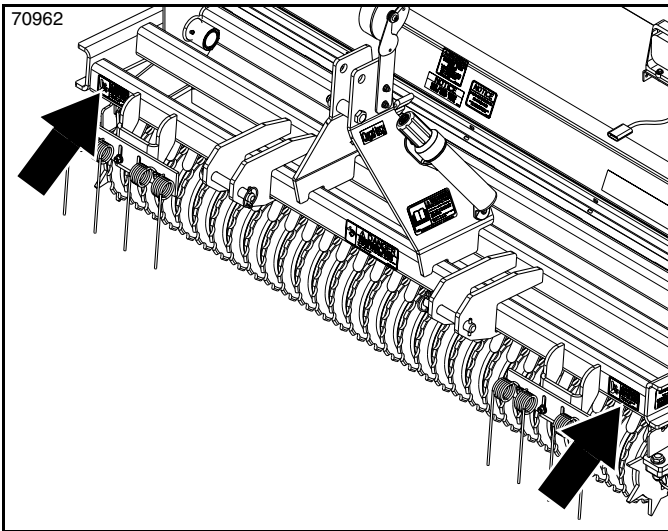


838-615C

Amber Reflector: 2" x 9"
2 Places: On the front side at both ends of the seedbox



73138



818-798C

Warning: Pinch Point Hazard

4 Places: On all four corners of the pivot hitch frame

Introduction

Kubota welcomes you to the growing family of new product owners. This Primary Seeder has been designed with care and built by skilled workers using quality materials. Proper assembly, maintenance, and safe operating practices will help you get years of satisfactory use from this product.

Application

The AP-PS2072 and AP-PS2086 Primary Seeders are excellent planting tools for professional contract landscapers, professional turf managers, and municipal grounds keepers. Their narrower widths make them very effective in seeding applications on urban lots, grassy medians, grassy right-of-ways, community parks, sporting facilities, and golf courses. Unlike wider models of seeders these units will do a more effective job of planting in areas where undulations, moguls, and depressions are prevalent. The seed box is equipped with bi-directional fluted seed cups and an agitator enabling highly accurate and uniform delivery of most turf grass seeds as well as a wide variety of other seeds ranging from alfalfa to oats.

The Primary Seeder will hook up to a skid steer or a tractor 3-point.

See “**Specifications & Capacities**” on page 39 and “**Features & Benefits**” on page 40 for additional information and performance enhancing options.

Patented

This Primary Seeder is protected by one or more of the following patent numbers.

- US 10,190,876
- US 10,973,164

Using This Manual

- This Operator’s Manual is designed to help familiarize you with safety, assembly, operation, adjustments, troubleshooting, and maintenance. Read this manual and follow the recommendations to help ensure safe and efficient operation.
- The information contained within this manual was current at the time of printing. Some parts may change slightly to assure you of the best performance.
- To order a new Operator’s or Parts Manual, contact your authorized dealer. Manuals can also be downloaded, free-of-charge, from our website at www.landpride.com

Terminology

“Right” or “Left” as used in this manual is determined by the direction the operator faces while sitting in the operator’s seat looking forward unless otherwise stated.

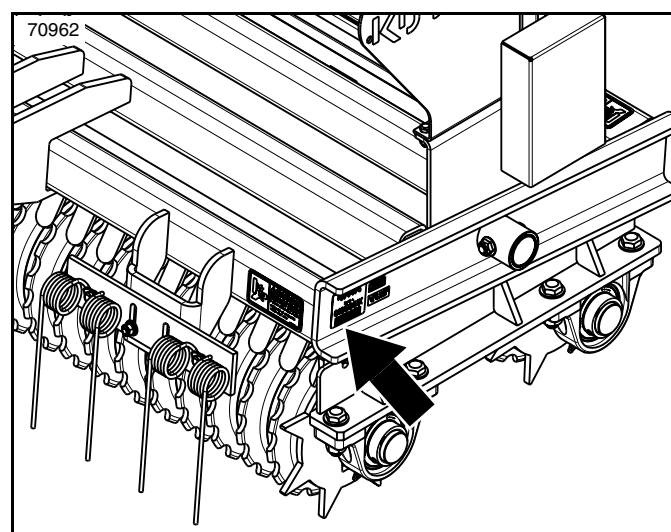
Owner Assistance

The dealer should complete the Online Warranty Registration at the time of purchase. This information is necessary to provide you with quality customer service.

The parts on your Seeder have been specially designed by Kubota/Land Pride and should only be replaced with genuine Kubota parts. Contact a Kubota dealer if customer service or repair parts are required. Your Kubota dealer has trained personnel, repair parts, and equipment needed to service this implement.

Serial Number

For quick reference and prompt service, record model and serial number on the inside cover page and again on the warranty page. Always provide model number and serial number when ordering parts and in all correspondences with your Kubota dealer. For location of your serial number plate, see Figure 1.



AP-PS20 Series Serial Number
Figure 1

Further Assistance

Your dealer wants you to be satisfied with your new attachment. If for any reason you do not understand any part of this manual or are not satisfied with the service received, the following actions are suggested:

1. Discuss any problems you have with your attachment / implement with your dealership service personnel so they can address the problem.
2. If you are still not satisfied, seek out the owner or general manager of the dealership, explain the question/problem, and request assistance.
3. For further assistance write to:

**Kubota by Land Pride
Service Department**

1525 East North Street
P.O. Box 5060
Salina, Ks. 67402-5060

E-mail address
lpSERVICE@landpride.com

Tractor/Skid Steer Requirements

The Primary Seeder is designed to attach to a tractor 3-point and to skid steer loaders with the following minimum requirements:

Skid Steer Requirements

Horsepower	35-95 hp (26.1-70.8 kW)
Hitch type	Skid steer quick attach, ISO 24410
Lift Capacity	
AP-PS2072	Empty weight 1464 lbs (664.1 kg)
AP-PS2086	Empty weight 1677 lbs (760.7 kg)
Skid steer weight	See Warnings below

Tractor Requirements

Make certain tractor's 3-point lifting capacity and weight is capable of lifting and controlling the seeder under all operating conditions. Refer to **"Specifications & Capacities"** on page 39 for seeder weight.

Tractor horsepower and hitch category should be within the range noted below. Tractors outside the horsepower range must not be used.

3-Point Hitch Minimum Horse Power	
AP-PS2072	25-60 hp (18.6-44.7 kW)
AP-PS2086	40-70 hp (29.8-52.2 kW)

3-Point Hitch Category	
AP-PS2072	Cat. I
AP-PS2086	Cat. I

IMPORTANT: The lower 3-point arms must be stabilized to prevent side-to-side movement. Most tractors have sway blocks or adjustable chains for this purpose.

WARNING

To avoid serious injury or death:

- Consult your power machine Operator's Manual for operating capacity, lifting capacity, and operating specifications. Exceeding rated capacities and specifications can result in loss of control, roll-over or other serious hazard.
- Power machines outside the listed horsepower range must not be used. Higher horsepower machines can damage the attachment. Under horsepower machines make the job more difficult.
- Lightweight power machines with a front loader attachment may need weight added to the rear to maintain steering control and prevent forward/side tipping. Consult your power machine Operator's Manual to determine proper weight requirements and maximum limitations.
- Lightweight tractors with rear attached implements may need weights added to the front to maintain steering control. Consult your tractor Operator's Manual to determine weight requirements and maximum limitations.

Torque Requirements

Refer to **"Torque Values Chart"** on page 42 to determine correct torque values when tightening hardware.

Before You Start



WARNING

To avoid serious injury or death:

Allow only persons to operate this attachment who have fully read and comprehended this manual, and who have been properly trained in the safe operation of this attachment. Serious injury or death can result from failure to read, understand, and follow instructions provided in this manual.

Make sure the intended skid steer or tractor conforms to the **"Tractor/Skid Steer Requirements"** stated above. Read and understand the operator's manual for your Seeder. An understanding of how it works will aid in the assembly and setup.

Go through the **"Pre-Assembly Checklist"** on this page before assembling the Seeder. Speed up your assembly task and make the job safer by having all needed parts and equipment readily at hand.

Pre-Assembly Checklist

✓	Check	Reference
<input type="checkbox"/>	All major frame components	Operator's Manual
<input type="checkbox"/>	Location of fasteners and pins. NOTE: All hardware from the factory has been installed in its proper location. If a part is temporarily removed for assembly reasons, remember where it goes. Keep parts separated.	Operator's Manual
<input type="checkbox"/>	Be sure the part gets used in the correct location. Use parts manual to identify location of parts that have been removed. By double checking while you assemble, you will lessen the chance of using a part incorrectly that may be needed later.	Parts Manual
<input type="checkbox"/>	All working parts are moving freely, bolts are tight and cotter pins are spread.	Operator's Manual
<input type="checkbox"/>	All grease fittings are in place and lubricated.	Page 36
<input type="checkbox"/>	Proper take-up and alignment of all drive chains.	Page 34
<input type="checkbox"/>	Safety and reflector decals are correctly located and legible. Replace if damaged.	Page 6

Power Machine Shutdown Procedure

The following are basic power machine shutdown procedures. Follow these procedures and any additional shutdown procedures provided in your power machine Operator's Manual before leaving the operator's seat.

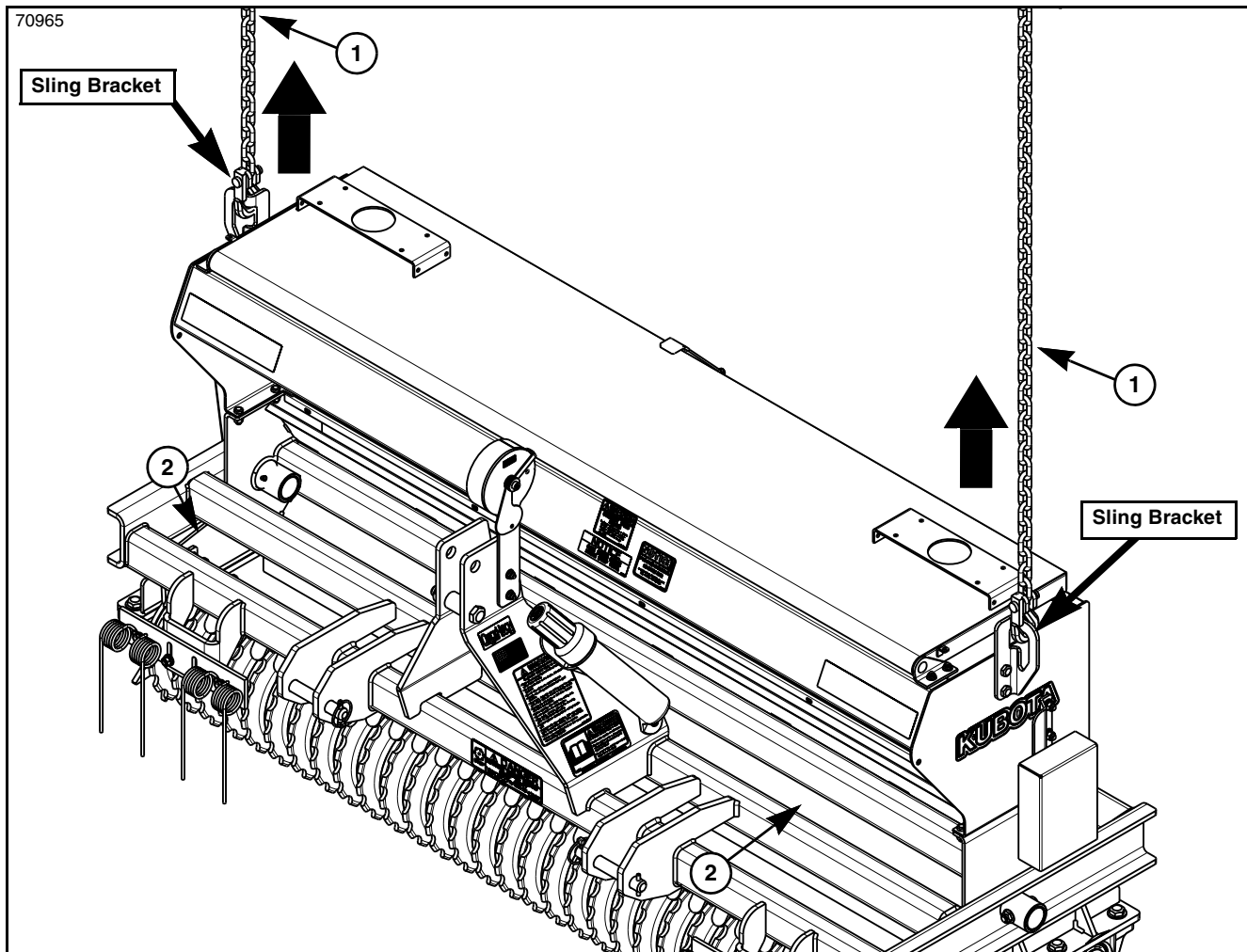
1. Reduce engine speed and shut-off all power to the attachment.
2. Park on solid, level ground and lower attachment until it is flat on the ground or on non-concrete support blocks.

Skid Steer and Track Loader

- a. Turn off engine. Do not remove ignition key at this time.
- b. Turn ignition key to the "RUN" position. Relieve all hydraulic pressure by moving both joysticks.
- c. Turn ignition key off and remove to prevent unauthorized starting.
- d. If included, raise seat bar and move controls until both lock.

Tractor

- a. Put tractor in park or set park brake.
 - b. Turn off engine, and remove ignition key to prevent unauthorized starting.
 - c. Relieve all hydraulic pressures to auxiliary hydraulic lines.
3. Wait for all components to come to a complete stop before leaving the operator's seat.
 4. Use steps, grab-handles, and anti-slip surfaces when stepping on and off the power machine.



Proper Lifting Method Using Sling Brackets

Figure 1-3

Sling Bracket

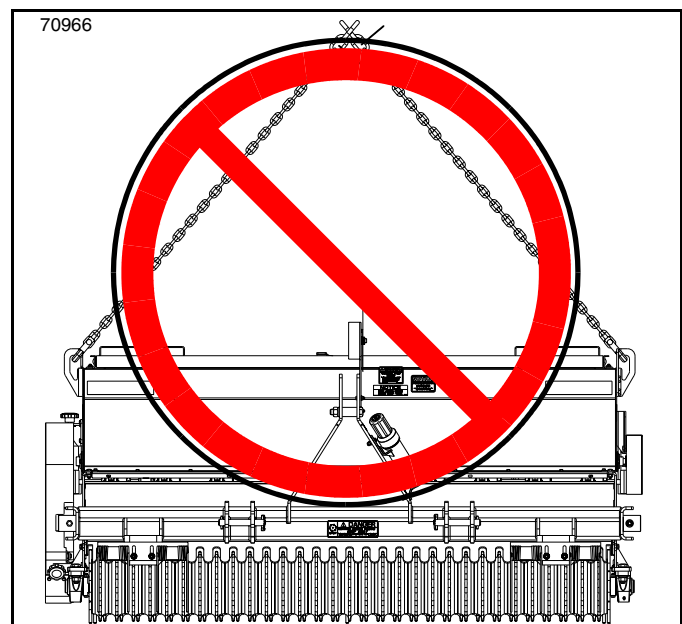
IMPORTANT:

Reference Figure 1-2: Using lift chains that pull at an angle to the sling brackets will bend the brackets and can damage the seedbox.

Reference Figure 1-3: Always use a spreader bar to keep lift chains vertical while lifting the seeder off the ground.

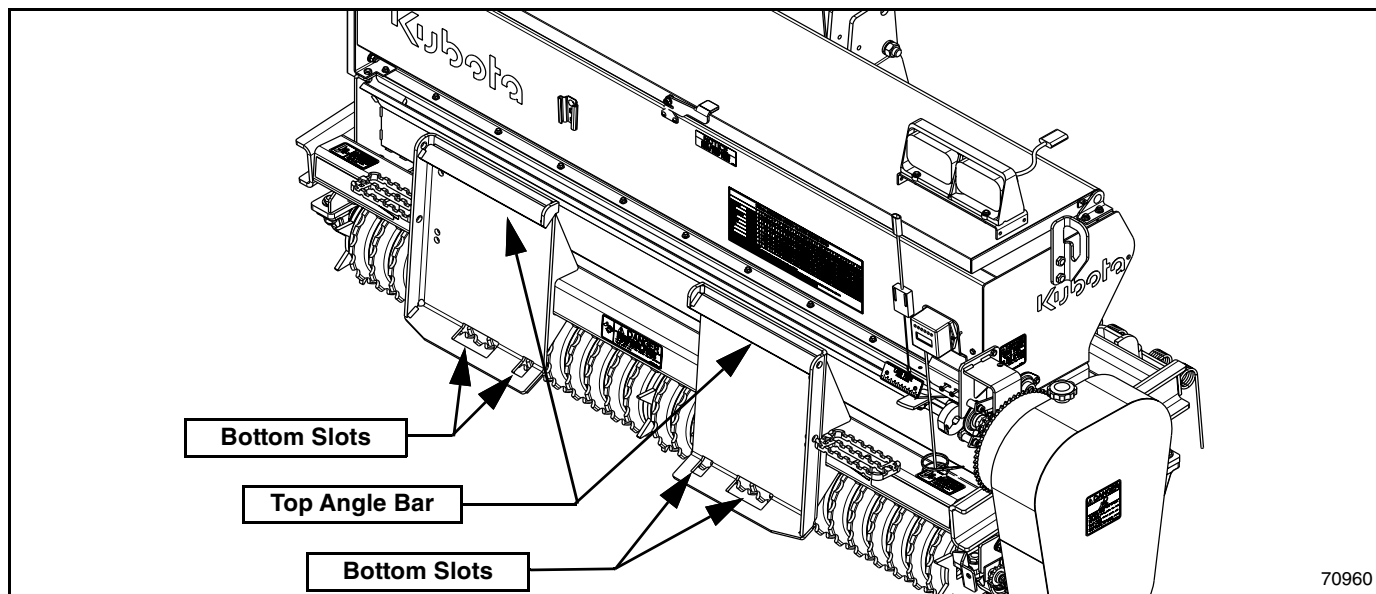
Refer to Figure 1-3:

The sling brackets on the seedbox provide lifting points for hooking lift chains (#1) and lifting the Seeder off the ground. The chains should be hooked to a spreader bar vertically above the seedbox sling brackets. Make sure lift chains (#1) stay vertical while lifting the seeder.



Improper Lifting Method

Figure 1-2



Primary Seeder Skid Steer Hook-up

Figure 1-4

Skid Steer Hook-up

Refer to Figure 1-4:



DANGER

To avoid serious injury or death:

A crushing hazard exists when connecting and disconnecting the attachment. Do not allow anyone to stand between attachment and power machine while approaching or backing away from the attachment. Do not operate hydraulic controls while someone is near the power machine and/or attachment.



WARNING

To avoid serious injury or death:

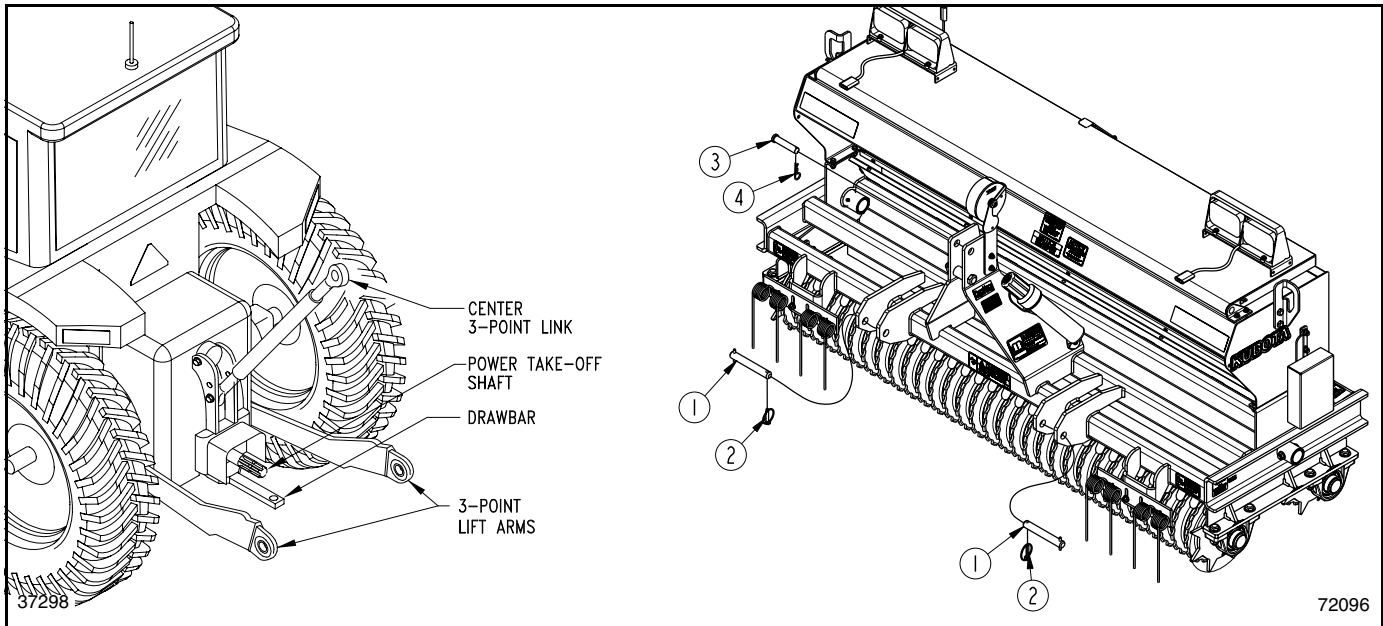
- Check hitch fit-up frequently. An improper fit-up can cause the attachment to come loose from the loader hitch plate and fall.
 - Use steps, grab-handles, and anti-slip surfaces on the power machine and attachment to get on and off the power machine. Using unapproved stepping surfaces and/or handholds can result in a falling hazard.
1. Check the skid steer and Primary Seeder hitch plates before hooking-up the Seeder. Make sure all hitch components are in good working condition:
 - a. Check for and remove any debris in the loader and Primary Seeder hitch plates.
 - b. Check hitch plates for structural cracks and bent or broken pieces. They can weaken a hitch plate and prevent full and complete hook-up. Repair or replace damaged hitch plates.
 - c. Check operation of lock pins in the loader hitch plate. Lock pins must move freely and extend fully into the bottom slots in the Primary Seeder hitch plate.
 2. If lock mechanism is mechanical, raise lock handles on the loader hitch fully up.
 3. Start skid steer.
 4. If lock mechanism is hydraulic, use auxiliary hydraulic controls to raise lock pins fully up.
 5. Drive slowly to the Primary Seeder hitch plate while making sure the loader hitch is parallel with the top angle bars on the Primary Seeder hitch plate.
 6. Rotate top of loader hitch plate slightly forward.
 7. Place top of loader hitch plate under the Primary Seeder top angled bars and slowly raise loader arms up until loader hitch plate is seated under the top angle bars.
 8. Rotate top of loader hitch plate back until the Primary Seeder hitch plate makes full contact with loader hitch plate and the Primary Seeder is slightly off the ground.
 9. Engage lock mechanism:

Hydraulic Lock Mechanism:

 - a. Engage quick hitch locking mechanism hydraulically.

Mechanical Lock Mechanism:

 - a. Shut skid steer down before dismounting. Refer to “**Power Machine Shutdown Procedure**” on page 13.
 - b. Push lock handles down to drive lock pins through bottom slots in the Seeder hitch plate. Make sure handles are locked down.
 10. Shut the skid steer down before dismounting. Refer to “**Power Machine Shutdown Procedure**” on page 13.



Primary Seeder Tractor 3-Point Hook-up
Figure 1-5

Tractor 3-Point Hook-up

Refer to Figure 1-5:

WARNING

To avoid serious injury or death:

Lightweight tractors with rear attached implements may need weights added to the front to maintain steering control. Consult your tractor Operator's Manual to determine weight requirements and maximum limitations.

NOTE: Land Pride's Quick Hitch can be attached to the tractor to provide quick and easy 3-point hook-up and detachment. See your nearest Land Pride dealer to purchase a Quick Hitch.

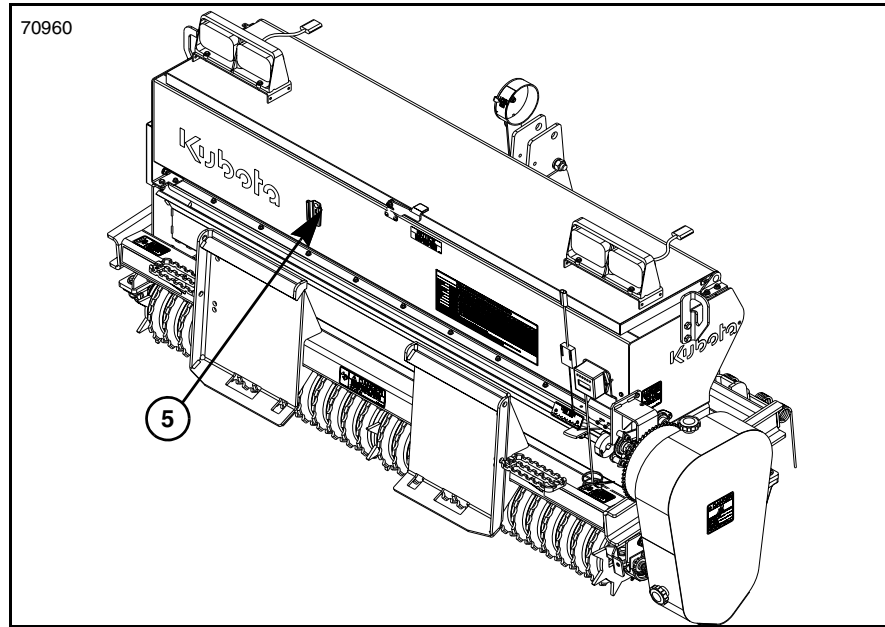
A 3-point Category I hitch is required. The tractor's lower 3-point arms must be stabilized to prevent side-to-side movement. Most tractors have sway blocks or adjustable chains for this purpose.

1. Slowly back tractor up to the Primary Seeder while using 3-point hydraulic controls to lower and position lift arm hitch holes between clevis plates and in-line with clevis hitch holes.
2. Shut tractor down properly before dismounting. Refer to "**Power Machine Shutdown Procedure**" on page 13.
3. Attach lower lift arms to clevises with hitch pin (#1) and secure with linchpin (#2). Make sure wire retainer is rotated down to secure linchpin.
4. Adjust length of top center 3-point link to align center link hitch hole with upper hitch hole on the Primary Seeder.

NOTE: Center clevis pin (#3) and pin keeper (#4) are customer supplied.

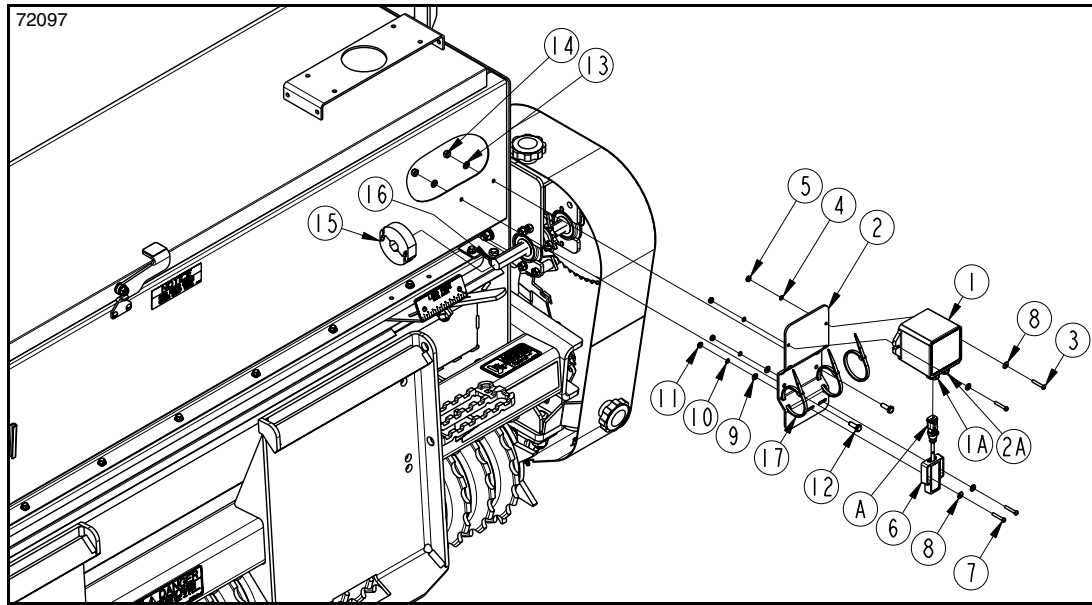
5. Attach top center link to the seeder using **customer supplied 3/4" diameter clevis pin (#3) and pin keeper (#4)**.
6. Start tractor and slowly operate controls to raise and lower the Primary Seeder to make sure it clears the tractor tires, frame, and drawbar.
7. If the drawbar interferes with the Primary Seeder, shut tractor down properly. Refer to "**Power Machine Shutdown Procedure**" on page 13. Move the drawbar out of the way or remove it from the tractor. Refer to the Tractor Operator's Manual for instructions on moving or removing the drawbar.
8. If not parked on level ground, restart the tractor and move to level ground.
9. Lower the Primary Seeder until unit is resting on the ground.
10. Shut tractor down properly before dismounting. Refer to "**Power Machine Shutdown Procedure**" on page 13.
11. Place a level across the main frame running from left to right.
12. Manually adjust one of the lower lift arms up or down until the Primary Seeder is level from left to right.

NOTE: See "**Level Indicator**" on page 33 for leveling the Seeder from front to back.

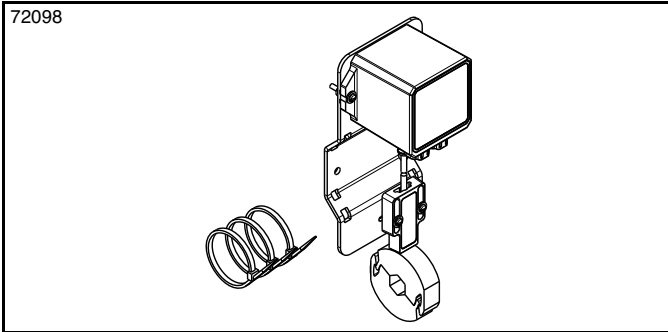


Slow Moving Vehicle Mounting Socket
Figure 1-6

13. **Refer to Figure 1-6:** Remove slow moving vehicle sign from the back of the tractor and insert it in mounting socket (#5) on the back of the seedbox.



Acre Meter Assembly
Figure 2-2



Acre Meter Bundle
Figure 2-1

NOTE: Unusual conditions and/or non-standard row spacings can cause the Acremeter tally to vary somewhat from actual number of acres or hectares seeded.

1. Attach acre meter console (#1) to acre meter mount (#2) with 8-32 X 1" round head screws (#3), flat washers (#8), lock washers (#4), and nuts (#5). Tighten nuts to the correct torque.
2. Attach Acremeter sensor (#6) to acremeter mount (#2) with 8-32 X 1" round head screws (#7), flat washers (#8), flat washers (#9), lock washers (#10), and 8-32 hex nuts (#11). Hand tighten.
3. Attach acre meter mount (#2) to the Seeder box with 1/4-20 X 3/4" GR5 bolts (#12), flat washers (#13) and 1/4-20 hex nuts (#14). Tighten nuts to correct torque.
4. Slide snap-on actuator (#15) over sprocket hub shaft (#16).

NOTE: Acremeter (#1) has two connectors under it. They are labeled 1 & 2. To avoid confusion with balloons (#1 & #2), this manual will refer to the connectors as 1A & 2A. Connector 2A is not used.

5. Connect electrical cable end (A) to connector 1A.
6. Use zip ties (#17) as needed to make sure wiring is clear of chains, sprockets, and possible pinch points.
7. Make necessary adjustments to Counter Pickup (#6) so that it does not come in contact with snap-on actuator (#15). Tight nuts (#11) to correct torque.
8. For detailed instructions, refer to the included Acremeter instruction sheet.

Electronic Acremeter (Option)

Refer to Figure 2-1:

313-831A ACRE METER BUNDLE

The Acremeter is programed to count rear roller shaft rotations and display it as acres or hectares. This meter should be used only when seeding full width.

NOTE: Unusual conditions and/or non-standard row spacings can cause the Acremeter tally to vary somewhat from actual number of acres or hectares seeded.

Refer to Electronic Acremeter Manual No. 152-355M for detailed programming and operating instructions.

Acremeter Assembly

Refer to Figure 2-2:

The Acremeter is programed to count rear drive roller shaft rotations and display it as acres or hectares. This meter should be used only when seeding full width.

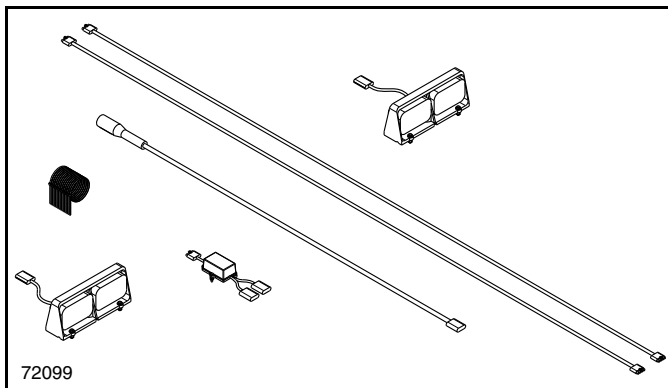
Section 2: Options**Light Kit Option****Refer to Figure 2-3:**

An optional light kit is available for this Seeder from your Kubota dealer. The light kit is a safety feature that allows for the operator to transport the Seeder on public roads.

For detailed instructions on how to assemble the light kit to the Seeder, refer to accessory manual 313-992M.

NOTE: The light kit is recommended when transporting the Primary Seeder while hooked to a Tractor 3-point. When hooked up to a skid steer the light kit is not necessary.

313-992A LIGHT KIT AP-PS20



**Light Kit
Figure 2-3**

Operating Checklist

Hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training involved in the operation, transport, maintenance and storage of the Primary Seeder. Therefore, it is absolutely essential that no one operates the Primary Seeder without first having read, fully understood and become totally familiar with the Operator's Manual. Make sure the operator has paid particular attention to:

- **Important Safety Information**, pages 1 to 7
- **Section 1: Assembly & Set-Up**, page 12
- **Section 3: Operating Procedures**, page 20
- **Section 4: Adjustments**, page 26
- **Section 5: Maintenance & Lubrication**, page 34

Make sure the operator has completed the Operating Checklist and Inspection below.

Operating Checklist

✓	Check	Page
	Read and follow all safety information carefully. Refer to "Important Safety Information".	Page 1
	Make sure all guards and shields are in place. Refer to "Important Safety Information".	Page 1
	Read and follow hook-up & preparation. Refer to "Section 1: Assembly & Set-up".	Page 12
	Read and follow all operating procedures. Refer to "Section 3: Operating Procedures".	Page 20
	Read and make all required adjustments. Refer to "Section 4: Adjustments".	Page 26
	Read and follow all maintenance instructions. Refer to "Section 5: Maintenance & Lubrication".	Page 34
	Read and follow all lubrication Instructions. Refer to "Lubrication Points".	Page 36
	Check the Primary Seeder initially and periodically for loose bolts and pins. Refer to "Torque Values Chart".	Page 42

General Safety Information



DANGER

To avoid serious injury or death:

- All guards and shields must be installed and in good working condition. Loose clothing caught on rotating components can pull a person into the machinery. Hands and other body extremities can become entangled in the machinery.
- Do not use rollers or tires as a step. They can move suddenly causing a falling hazard against metal protruding objects even when they appear to be solid against the ground.
- Do not let children play on or around the equipment including when stored. Children and/or equipment can fall.
- Always secure equipment with solid, non-concrete supports before working under it. Never go under equipment supported by concrete blocks or hydraulics. Concrete can break, hydraulic lines can burst, and/or hydraulic controls can be actuated even when power to the hydraulics is off.

- Do not allow bystanders or animals to be near the attachment, loader arms, or power machine during operation. Stop operation if bystanders are too close. They can be hit by thrown or falling objects, become entangled, crushed, ran over, etc.



WARNING

To avoid serious injury or death:

- Always be aware of your footing and surroundings when working on or around the Seeder. Be especially careful while standing on the walkway. Something as simple as a misstep can cause a person to fall and get seriously injured.
- Perform scheduled maintenance. Check for loose hardware, missing parts, broken parts, structural cracks, and excessive wear. Make repairs before putting the equipment back into service.
- Never carry riders on the equipment or power machine. Riders can obstruct the operator's view, interfere with controls, be pinched by moving components, become entangled in rotating components, struck by objects, thrown about, fall off and be run over, etc.
- Use steps, grab-handles, and anti-slip surfaces on the power machine and equipment to get on and off the power machine. Using unapproved stepping surfaces and/or handholds can result in a falling hazard.
- Make sure safety labels are in their proper location and are in good condition before operating the attached equipment. Read and obey all instructions on the labels.
- Allow only persons to operate this equipment who have fully read and comprehended this manual, and who have been properly trained in the safe operation of this attachment. Serious injury or death can result from the inability to read, understand, and follow instructions provided in this manual.
- Make sure controls are all in neutral position or park before starting the power machine.
- Always shut power machine down using the "Shutdown Procedure" provided in this manual before servicing, adjusting, cleaning, or maintaining the equipment.
- Always operate attachment while seated with seat belt properly fastened around the operator. When equipped, always lower seat/lap bar(s). This will help protect the operator against rollovers and sudden stops.
- Avoid hitting solid objects with this attachment. Solid objects can damage equipment and throw the operator forward causing loss of control, bodily injury, or death.
- Dress properly for the job. Do not wear loose fitting clothing or clothing with pull strings. Keep long hair tucked in. Clothing and hair can become entangled in rotating components. Wear footwear that will improve footing on slippery surfaces.
- Keep body, body extremities, loose clothing, pull strings, etc. away from pinch points such as rotating, extending, and/or retracting components. Secure pinch point areas to ensure they will not move before working on or near them.

Section 3: Operating Procedures

- Check hitch fit-up frequently. An improper fit-up can cause the equipment to come loose from the loader hitch plate and fall.
- Do not use this equipment to lift the front or back of the power machine off the ground. Doing so can damage the equipment, power machine, and/or cause serious injury or death.
- Do not use this equipment to lift, carry, push or tow other equipment and objects. It is not properly designed or guarded for this use.
- Avoid exposure to dust containing crystalline silica particles. This dust can cause serious injury to the lungs (silicosis). Because crystalline silica is a basic component of sand and granite, many activities at construction sites produce dust containing crystalline silica. Trenching, sawing, and boring of material containing crystalline silica can produce dust containing crystalline silica.
- Operate only power machines equipped with a certified Roll-Over Protective Structure (ROPS) and seat belt. Keep folding ROPS in the “locked up” position when appropriate. If ROPS is in the locked up position, fasten seat belt snugly and securely to help protect against serious injury or death from falling and machine overturn.
- Do not alter equipment or replace parts with other brands. Other brands may not fit properly or meet OEM (Original Equipment Manufacturer) specifications. They can weaken the integrity and impair the safety, function, performance, and life of the equipment. Replace parts only with genuine OEM parts.

IMPORTANT: Never make turns with any of the rollers in contact with the ground. Always lift unit up off the ground when making turns.

IMPORTANT: Attach seeder to a power machine before calibrating it for proper seed dispersal rate.

Transport Safety Skid Steer Mounted



DANGER

To avoid serious injury or death:

Keep attachment and/or loader arms away from overhead electrical power lines. Place an orange warning sign under overhead lines indicating type of danger above.



WARNING

To avoid serious injury or death:

- Always exercise safety, courtesy, and common sense. Be aware of pedestrian and vehicle traffic. Check blind spots before moving equipment.
- Always transport with equipment carried low to protect against rollover, hitting overhead objects, power lines, and loss of control.
- When traveling on public roadways, travel in such a way that faster moving vehicles may pass safely. Use hazard lights, clean reflectors, and a slow moving vehicle sign that is visible from the back to warn operators in other vehicles of your presence. Always comply with all federal, state, and local laws.
- Reduce ground speed when turning and leave enough clearance to avoid making contact with obstacles such as buildings, trees, fences, etc.
- Select a safe ground speed that will allow adequate control of steering and stopping. Never exceed 20 mph (32 km/h) with attached equipment. Rough terrain requires a slower speed.
- When transporting a skid steer or track loader on a trailer, use towing vehicle and trailer of adequate size and capacity. Always drive up a ramp with heavy end uphill. Engage the power machine's park brake and remove ignition key once it is loaded. Secure power machine and attachment using tie downs and chains.

Tractor 3-Point Mounted



WARNING

To avoid serious injury or death:

- Always exercise safety, courtesy, and common sense. Be aware of pedestrian and vehicle traffic. Check blind spots before moving equipment.
- When traveling on public roadways, travel in such a way that faster moving vehicles may pass safely. Use hazard lights, clean reflectors, and a slow moving vehicle sign that is visible from the back to warn operators in other vehicles of your presence. Always comply with all federal, state, and local laws.
- Transport on public roadways with your tractor's slow moving vehicle sign mounted on the back of the Seeder. It is possible for the seeder to block viewing of the sign by approaching vehicles if mounted on the back of your tractor.
- Reduce ground speed when turning and leave enough clearance to avoid making contact with obstacles such as buildings, trees, fences, etc.
- Select a safe ground speed that will allow adequate control of steering and stopping. Never exceed 20 mph (32 km/h) with attached equipment. Rough terrain requires a slower speed.

IMPORTANT: The slow moving vehicle sign should not be used when transporting equipment on a truck or trailer exceeding speeds of 25 mph (40.2 km/h). Cover or remove the sign when hauling the Seeder.

1. Relocate slow moving vehicle sign from back of your tractor to mounting socket on the back of the seeder. If needed, a slow moving vehicle sign can be purchased from your nearest Kubota dealer.
2. With tractor in park or park brake set, start tractor and operate tractor control lever to raise seeder fully up for transporting.
3. Select a safe ground travel speed when transporting from one area to another. Do not exceed 20 mph (32.2 km/h) travel speed.
4. When traveling on roadways, transport in such a way that faster moving vehicles may pass you safely.
5. Reduce tractor ground speed when turning. Leave enough clearance so the seeder does not contact obstacles such as buildings, trees, or fences.
6. Shift tractor to a lower gear when traveling over rough or hilly terrain.

Check Tractor Clearance

Refer to Figure 1-5 on page 16:

1. From the tractor seat, slowly raise and lower the Primary Seeder with hydraulic 3-point lift while watching for drawbar clearance, tire clearance, and 3-point clearance.
2. If drawbar interferes, shut tractor down properly. Refer to "**Power Machine Shutdown Procedure**" on page 13.
3. Move drawbar back, to one side, or remove drawbar.

Filling Seedbox



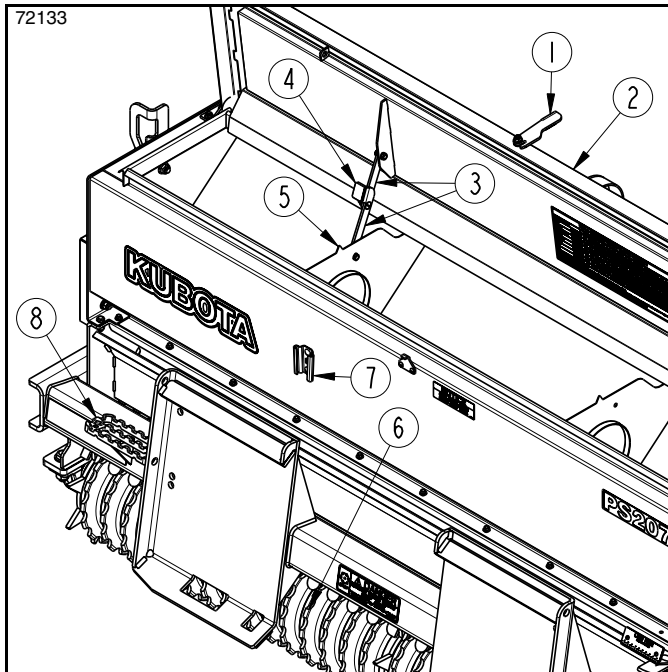
WARNING

To avoid serious injury or death:

Always lower the Seeder to the ground before filling and checking seed level in the seedbox. This will keep the rollers from turning while working around them.

Refer to Figure 3-1:

1. Always lower the Seeder to the ground, engage the power machine park brake if equipped with it, shut the power machine down, and remove key. Refer to "**Power Machine Shutdown Procedure**" on page 13.
2. Release lid latch handle (#1) and open seedbox lid (#2) until over center latch arms (#3) have locked in place. Doing this will keep the lid (#2) from falling while filling the box.
3. Fill seedbox.
 - a. When filling the seedbox while hooked up to a tractor 3-point, fill the seedbox from the rear while standing on the ground. **Do not** step or climb on the frame to fill the seedbox. **Make sure** the rollers (#6) are on the ground so they cannot turn while filling the box.
 - b. When filling the seedbox while hooked up to a skid steer, fill the seedbox while standing on the ground and use the skid steps (#8), on each side of the Primary Seeder hitch plate, to stand on if needed.
4. Open a bag of seed and pour them into the seedbox. The bag opener (#5) (sharp point on top of the baffle plate) can be used to tear open the seed bags.
5. Make certain the seedbox is filled uniformly to ensure one side does not run out of product ahead of the other side.
6. Close lid (#2) by pulling on latch arm (#4) with one hand while holding the lid (#2) up with the other hand. Lower lid (#2) gently while keeping hands and fingers clear of pinch points.
7. Lock lid (#2) down with lid latch handles (#1) to keep moisture out.



Seed Rate Adjustments
Figure 3-1

Seeder Preparation

Before proceeding with the first time set-up, or before making any adjustments mentioned in this manual, make every effort to attach the seeder to a tractor or skid steer.

IMPORTANT: It is not recommended to transport any seeder with a full seed box due to seed compaction in the box, added transport weight, and some seed loss during transport. The seed box should be filled upon reaching the site to be seeded.

1. The Primary Seeder can be transported with a full box of seeds. It is best not to do this unless necessary because the increased weight does increase the chances for problems on the road. Do not exceed 20 miles per hour.
2. Calibrate the Primary Seeder for a proper rate based on the seed you are using. Calibration information is located on the inside of your box lid or on page 27.
3. Never allow anyone to ride on the seeder.
4. Maximum seeding speed will vary according to soil conditions.
5. Check that all plugs and caps have been replaced properly.
6. Be sure all bolts and nuts are tight.
7. Be certain all guards are in place and secure.
8. Clear the area to be seeded of rocks, branches and other foreign objects.
9. At first begin seeding at a slow speed and then gradually increase to the desired speed.

How the Seeder Works

The following is a brief description of how your Primary Seeder works.

The Primary Seeder is intended for use on soil that has been worked and is prepared for seeding. Clear the area to be seeded of rocks, branches and other foreign objects.

The power to drive the bi-directional seed cups comes from the rear drive roller turning against the ground while traveling. Power is transmitted from the rear drive roller through roller chains to the bi-directional seed cups. Seed is metered out of the cups at a rate proportional to the distance driven. This ensures that the rate applied remains constant as ground speed is varied.

The seed rate is adjustable using the seed rate lever located at the rear of the Primary Seeder. The seed is dropped between two cast iron rollers. The front roller crushes clods, presses down small stones and forms a firm seedbed. The trailing roller firms the soil around the seeds. Both roller assemblies are mounted to the inner frame and pivot about the pivot shaft to follow the field terrain.

NOTE: The Primary Seeder is bi-directional. It can be operated traveling forward and also in reverse.

Operating the Seeder



DANGER

To avoid serious injury or death:

- All guards and shields must be installed and in good working condition. Loose clothing caught on rotating components can pull a person into the machinery. Hands and other body extremities can become entangled in the machinery.
- Do not use front or rear rollers as a step. They can move suddenly causing a falling hazard against metal protruding objects even when they appear to be solid against the ground.



WARNING

To avoid serious injury or death:

- Always be aware of your footing and surroundings when working on or around the Seeder. Be especially careful while standing on the walkway. Something as simple as a misstep can cause a person to fall and become seriously injured.
- Perform scheduled maintenance. Check for loose hardware, missing parts, broken parts, structural cracks, and excessive wear. Make repairs before putting the equipment back into service.
- Never carry riders on the equipment or power machine. Riders can obstruct the operator's view, interfere with controls, be pinched by moving components, become entangled in rotating components, struck by objects, thrown about, fall off and be run over, etc.

Section 3: Operating Procedures

- *Never make contact with underground utilities such as electrical power lines, gas lines, phone lines, etc. They can cause serious injury or death from electrocution, explosion, or fire. Always call 811 (USA) or local utility companies before digging so that they can mark the location of underground services in the area. For contact information, see Dig Safe in the “Important Safety Information” starting on page 1.*

IMPORTANT: Never make turns with any of the rollers in contact with the ground. Always lift unit up off the ground when making turns.

IMPORTANT: Attach seeder to a tractor or skid steer before calibrating it for proper seed dispersal rate.

1. Contact your local utility services to mark the location of any underground utility services in the area. Thoroughly inspect the work area yourself for buried pipelines, sprinkler heads, and any unforeseen objects underground. Mark any potential hazards.
2. If backing-up with attachment, make sure rear visibility is appropriate for the attachment.
3. Clear area to be seeded of rocks, branches, and other foreign objects on top the ground. Mark any potential hazards.
4. Calibrate your seed cup rate adjustment lever based on type of seed you are using. Calibration information is located on the inside of the seedbox lid and in the “Seed Rate Charts” provided in this manual.
5. Be sure all bolts and nuts are tight.
6. Be certain all guards are in place and secure.
7. Never allow anyone to ride on the seeder.
8. Do not make turns while seeder is on the ground.
9. Seeding should not be done in wet conditions as soil will stick to the rollers.
10. Lower seeder down until resting on its rollers.
11. At first begin seeding at a slow speed and gradually increase speed until desired speed is achieved. Maximum speed will vary according to soil conditions.
12. After seeding the first 10 to 15 feet (3.05 to 4.57 m), stop and check to see that the seeder is adjusted properly.

Unhook From Tractor 3-Point

Refer to Figure 1-5 on page 16:

1. Clean the seedbox and seed cups before unhooking the Primary Seeder. Refer to “Long-Term Storage” on page 35.
2. Park the tractor and Primary Seeder on level, solid ground. Preferably store the Primary Seeder inside a shed to keep moisture away from the seedbox.
3. Shut tractor down before dismounting. Refer to “Power Machine Shutdown Procedure” on page 13.
4. Chock front & back rollers to keep unit from moving.
5. Remove hitch pin keeper (#4) and hitch pin (#3). Store center link in tractor storage hook.
6. Reinstall hitch pin (#3) and keeper (#4) in the seeder’s upper 3-point center clevis.
7. Remove linchpins (#2) and hitch pins (#1).
8. Start tractor and drive forward several feet and then shut tractor down properly before dismounting. Refer to “Power Machine Shutdown Procedure” on page 13.
9. Replace hitch pins (#1) in the seeder’s lower 3-point clevises. Secure with linchpin (#2).
10. **Refer to Figure 3-1** on page 23: Remove slow moving vehicle sign from mounting socket (#7) on the back of the Primary Seeder and insert it in the mounting socket on the back of the tractor.

Unhook From Skid Steer

Refer to Figure 1-4 on page 15:

1. Clean seedbox and seed cups before unhooking the Primary Seeder. Refer to “Long-Term Storage” on page 35.
2. Park the skid steer and Primary Seeder on level, solid ground. Preferably store the Primary Seeder inside a shed to keep moisture away from the seedbox.
3. Disengage skid steer hitch lock pins.
 - a. If the skid steer hitch lock pins are hydraulic powered, raise the lock pins to disengage them from the Primary Seeders hitch plate notches. Move on to step 4.
 - b. If the skid steer hitch lock pins disengage manually, Shut the skid steer down. See “Power Machine Shutdown Procedure” on page 13. Manually disengage lock pins and move on to step 5.
4. Shut tractor down before dismounting. See “Power Machine Shutdown Procedure” on page 13.
5. Chock front & back rollers to keep unit from moving.
6. Get in and restart the skid steer.
7. Slowly lower loader arms while tilting top of hitch forward and backing up until loader hitch plate clears top angle bar on the Primary Seeder hitch plate.

Section 3: Operating Procedures

General Operating Instructions

Once you have read the Operator's Manual, installed the Primary Seeder to the tractor's 3-point hitch or skid steer hitch plate, went through the Operating Checklist, filled the box with seed, and calibrated the unit for proper seed rate delivery, it's time to do some serious seeding.

The Primary Seeder has ground driven seed delivery systems. The power to drive the Primary Seeder comes from the forward or backwards momentum of the tractor or skid steer. As the tractor or skid steer moves forwards or backwards, the ground driven roller transfers power via chain driven sprockets to the seed metering system. Seed rate remains constant and in direct proportion to the distance traveled and is affected very little by actual ground speed.

As the front rollers pass over areas to be seeded they crush clods, press down small stones and form a firm seedbed. Seed is delivered at the precise predetermined rate through the wind guarded seed drop area between the front and rear rollers. The trailing roller then presses seed into firm contact with the soil to promote a superbly high germination rate. Seeding should not be attempted in wet or muddy conditions.

Now that you understand how it works, it is time to begin seeding. You should already have removed any large stones or obstacles from the area you plan to seed. Line the tractor or skid steer up for the first pass. Lower the Seeder slowly to the ground and begin driving forward or backwards, slowly at first until you get comfortable with what you are doing. maintain a ground speed of approximately 3-5 mph (4.8-8 km/h). As you approach the end of the lane you are seeding, slow down and come to a stop while simultaneously raising the seeder off of the ground. With the Primary Seeder raised, line up for your next pass and repeat the process. Look back often and avoid making very sharp turns with your Primary Seeder, this will help with developing uniform seeding patterns. The more experienced you become the better you will get at developing beautiful seed plots and beautiful lawns.

When you are done seeding always clean the Primary Seeder out and perform all maintenance prescribed in the Operator's Manual. Never leave seed stored in the seedbox for prolonged periods. Never dismount your tractor without first coming to a full stop, turning off the tractor or skid steer, and setting the park brake. See **"Power Machine Shutdown Procedure"** on page 13.

With a little practice you should get very good at developing lush green stands of grass with your Kubota Primary Seeder.

If attachment is to be operated in reverse, make sure visibility to the rear of the power unit is appropriate for the attachment.

<p>NOTE: The Primary Seeder is bi-directional. It can be operated traveling forward and also in reverse.</p>

Section 4: Adjustments

Change Speed Range

The Primary Seeder is designed with two drive speeds to accommodate different seed sizes and dispersal rates. They are low speed range and high speed range. Use seed rate charts beginning on page 28 to determine which range is correct for the seed you are dispersing. Metric seed rates begin on page 30. Some seeds work with both ranges.

Low and High Speed Sprocket Set-up

Refer to Figure 4-1 & Figure 4-2:

The seeder is shipped from the factor set-up in the low speed range as it is the most common range used. Follow instructions below when changing from one speed range to the other.



CAUTION

To avoid minor or moderate injury:

The roller chain drive system is under spring tension. Use care when servicing the system to avoid injury caused by forces built up in the spring.

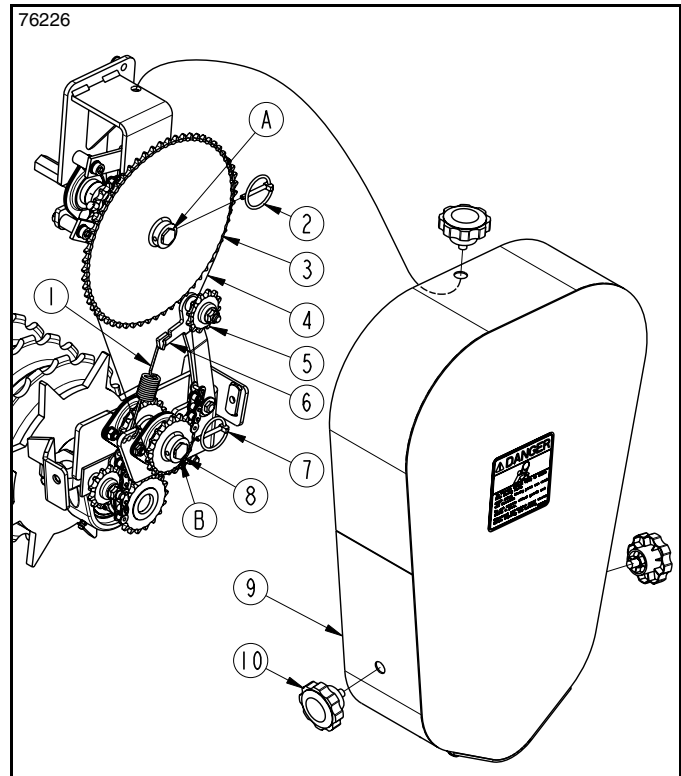
1. Shut power machine down according to “**Power Machine Shutdown Procedure**” on page 13.
2. Remove the three hand knobs (#10) and guard (#9).
3. Unhook take-up spring (#1) from take-up arm (#6).
4. Remove linchpins (#2 & #7) from hex shafts (A & B).
5. Remove roller chain (#4) and sprockets (#3 & #8) from hex shafts (A & B) at the same time.

Low Speed Range Set-up (Figure 4-1)

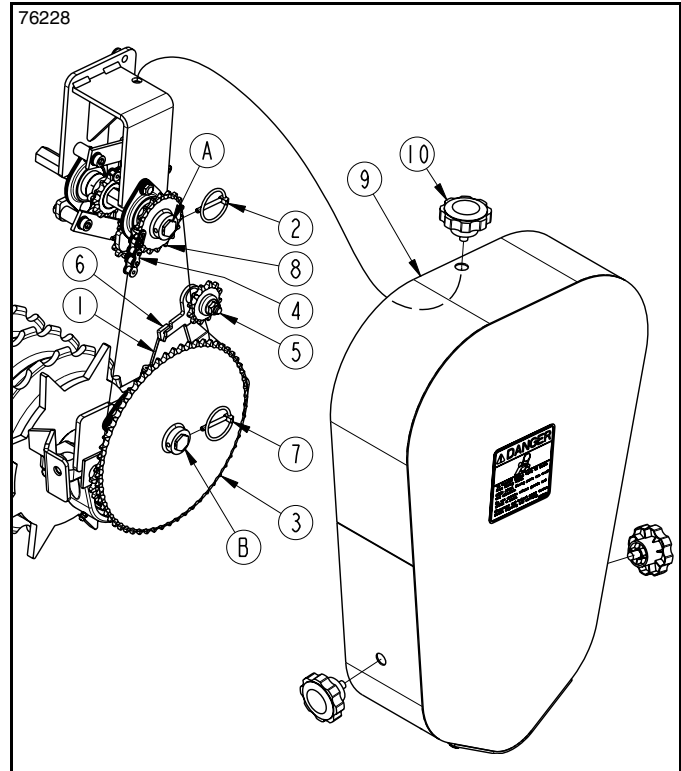
- a. With roller chain (#4) on both sprockets, install 60 tooth sprocket (#3) on upper hex shaft (A) and 18 tooth sprocket (#8) on lower hex shaft (B) at the same time.
- b. Secure sprockets with linchpins (#2 & #7).

High Speed Range Set-up (Figure 4-2)

- a. With roller chain (#4) on both sprockets, install 18 tooth sprocket (#8) on upper hex shaft (A) and 60 tooth sprocket (#3) on lower hex shaft (B) at the same time.
- b. Secure sprockets with linchpins (#2 & #7).
6. Install take-up spring (#1) to take-up arm (#6).
7. Replace chain guard (#9) and secure with the three hand knobs (#10). Hand tighten knobs.



Speed Change Sprockets (Low Range Shown)
Figure 4-1



Speed Change Sprockets (High Range Shown)
Figure 4-2

Section 4: Adjustments

Seeding Adjustments

1. Using the seed rate charts, beginning on page 28, determine the seeding rate for the seed you will be planting and make the following adjustments. Metric seed rates begin on page 30.
2. Locate the seed rate adjustment handle at the rear of the seeder and move it to the indicator number obtained from the charts, see Figure 4-3. For best results, first move adjustment handle all the way to the left. Then move the handle to the desired setting, moving from a lower to a higher number.
3. There are many factors which will affect seeding rates: seed treatment, weight of seed, surface condition of seed or roller slippage. Minor adjustments may be needed to compensate for these factors.
4. The seed rate charts are based on average size seed. This may differ from the seed you are using. Use the seed rate charts as a guide. For lighter than average seed, the setting should be increased. For heavier than average seed, the setting should be decreased.
5. Complete the following procedure to calibrate the rate for your specific seed.
 - a. Inside the seedbox, partition off three seed cups.
 - b. Pour seed over the three seed cups. **Do not** allow any seed to reach any of the other seed cups.
 - c. Raise the seeder off the ground and safely support it, leaving the rear drive roller to rotate freely.
 - d. Rotate the rear drive roller to make sure the drive system is working properly and the seed cups are free of foreign matter.
 - e. Place a drop cloth under the seeder to gather the seed as it is metered out.
- i. If Weight "A" is calculated based on:
 - 1/10 acre, then "A" x 10 = lbs/acre
 - 1000 sq ft, then "A" x 43.56 = lbs/acre
 - 1000 sq ft, then "A" x 1 = lbs/1000 sq ft
 - 1/20 hectare, then "A" x 20 = kg/hectare
 - 100 sq meters, then "A" x 100 = kg/hectare
 - 100 sq meters, then "A" x 10 = kg/1000 sq m
- j. If calculated seed rate is different than the suggested settings in the charts, then increase or decrease the seed cup adjustment lever.
6. Repeat calibration procedure if the results of the calibration vary greatly with the chart.

NOTE: Field conditions will affect seeding rates. Check amount of seed being used by noting size of area being seeded, amount of seed added to the seeder, and level of seed in the seedbox.

It may be necessary to make minor adjustments to the seeding rate if the seeder has been accurately calibrated and is seeding more or less seed than desired.

IMPORTANT: Do Not operate seed rate adjustment lever at -0- setting. Seed cup damage may occur.

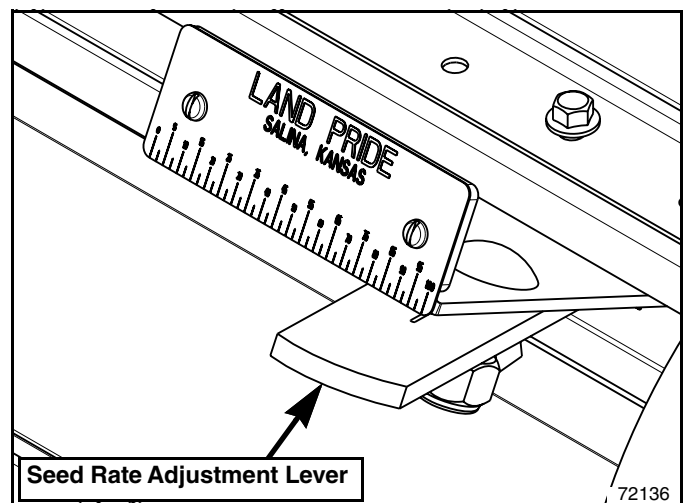
Do Not set seed rate adjustment lever to the widest open position with seed in the box unless complete clean out is desired.

Model No	No. of Drive Roller Rotations to Cover			
	1/10 Acre	1000 Sq. Ft.	1/20 Hectare	100 Sq. M
PS2072	374	86	461	93
PS2086	312	72	385	77

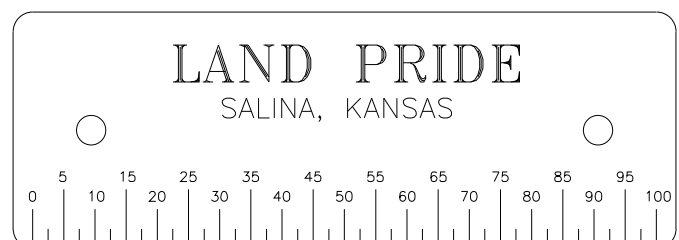
- f. Rotate rear drive roller the number of rotations noted in table above. Be sure to check the three feed cups to make sure each cup has plenty of seed coming into it.
- g. Weigh the seed which has been metered out and divide that weight by three to get the number of pounds or kilograms per seed cup.

NOTE: If total weight for 3 seed cups is in ounces, divide that weight by 48 instead of 3.

- h. Next, multiply number of pounds or kilograms per seed cup by the number of seed cups on the seedbox to arrive at weight "A."



Seed Rate Adjustment Lever
Figure 4-3



Seed Rate Chart (Standard)

Pounds per 1000 square foot and pounds per acre

Cup Setting	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Alfalfa (Pounds per Acre)																				
Low Range	0	6.7	30.8	42.6	50.1	58.1	67.1	75.6	83.4	98.2	99.8	108	116	127	138	145	152	159	166	174
High Range	10.9	64.0	166	268	355	442	535	611	683	756	837	960	1056	1137	1259	1420	1529	1605	1675	1756
Alfalfa (Pounds per 1000 Square Feet)																				
Low Range	0	0.15	0.70	0.97	1.15	1.33	1.54	1.74	1.91	2.25	2.29	2.47	2.67	2.91	3.16	3.33	3.48	3.64	3.81	4.00
High Range	0.27	1.60	4.16	6.69	8.88	11.0	13.4	15.3	17.1	18.9	20.9	24.0	26.4	28.4	31.5	35.5	38.2	40.1	41.9	43.9
Bahia Grass (Pounds per Acre)																				
Low Range	0	0.7	9.3	16.6	22.4	33.8	39.1	44	49.8	55.1	60.7	64.7	69.3	74.4	79.9	84.2	87.9	91.6	95.8	100.2
Bahia Grass (Pounds per 1000 Square Feet)																				
Low Range	0	0	0	0	0	0	0.1	0.1	0.2	0.3	0.3	0.4	0.4	0.5	0.5	0.6	0.7	0.7	0.8	0.9
Bermuda (Pounds per Acre)																				
Low Range	3.51	22.1	35.6	42.3	49.1	55.1	61.2	69.3	75.6	82.7	89	94.6	100	106	111.9	117.7	124.4	129.3	134.6	140.7
Bermuda (Pounds per 1000 Square Feet)																				
Low Range	0.08	0.50	0.81	0.97	1.12	1.26	1.40	1.59	1.73	1.90	2.04	2.17	2.29	2.43	2.57	2.70	2.85	2.97	3.09	3.23
Buffalo Grass (Pounds per Acre)																				
Low Range	0	0	0	1.9	4.2	8.4	12.2	15.2	18.1	20.5	23.3	25.4	27.9	30.1	32.3	34.4	36.5	38.2	40.5	43.3
Buffalo Grass (Pounds per 1000 Square Feet)																				
Low Range	0	0	0	0.04	0.09	0.19	0.28	0.35	0.41	0.47	0.53	0.58	0.64	0.69	0.74	0.79	0.83	0.88	0.93	0.99
Brome (Pounds per Acre)																				
High Range	0	0	0	0	0	0	3.0	8.9	15.2	23.3	52.7	60.5	84.1	95.6	117	130	140	150	163	183
Brome (Pounds per 1000 Square Feet)																				
High Range	0	0	0	0	0	0	0.07	0.21	0.35	0.54	1.21	1.39	1.93	2.20	2.69	2.98	3.22	3.45	3.75	4.21
Clover-Red (Pounds per Acre)																				
Low Range	0	24.2	39.6	58	64.6	78.6	88.3	97.2	108.1	117.2	126.3	137	146	155.1	164.6	173.3	181.2	187.9	197	201.9
High Range	11.3	59.2	169	284	380	454	547	633	734	812	908	991	1074	1140	1245	1371	1440	1529	1608	1671
Clover-Red (Pounds per 1000 Square Feet)																				
Low Range	0	0.55	0.91	1.33	1.48	1.8	2.02	2.23	2.48	2.69	2.9	3.14	3.35	3.56	3.78	3.98	4.16	4.31	4.52	4.63
High Range	0.26	1.36	3.88	6.53	8.72	10.4	12.6	14.5	16.8	18.7	20.8	22.8	24.7	26.2	28.6	31.5	33.1	35.1	36.9	38.4
Creeping Red Fescue-Fine Blade (Pounds per Acre)																				
High Range	0	0	0	0	0	1.5	4.1	6.5	18.3	46.8	108	147	150	194	200	209	257	280	325	345
Creeping Red Fescue-Fine Blade (Pounds per 1000 Square Feet)																				
High Range	0	0	0	0	0	0.04	0.10	0.15	0.42	0.42	2.48	3.37	3.45	4.45	4.58	4.79	5.90	6.42	7.45	7.93
Fescue-Fine Blade (Pounds per Acre)																				
Low Range	0	0	4.3	14.3	18.4	22.8	26.3	30.0	33.7	37.3	41.4	45.1	49.1	52.6	56.8	59.6	63.0	66.3	68.6	73.0
High Range	0	0.22	2.18	15.7	34.8	99.8	163	231	278	322	366	410	457	502	540	587	625	654	710	742
Fescue-Fine Blade (Pounds per 1000 Square Feet)																				
Low Range	0	0	0.10	0.33	0.42	0.52	0.60	0.68	0.77	0.85	0.95	1.03	1.12	1.20	1.30	1.37	1.44	1.52	1.57	1.67
High Range	0	0.005	0.05	0.36	0.80	2.29	3.75	5.30	6.38	7.39	8.41	9.41	10.5	11.5	12.4	13.5	14.3	15.0	16.3	17.0
Fescue-K31 (Pounds per Acre)																				
Low Range	0	0	0	0	0.5	1.5	3.1	5.8	11.2	18.4	21.7	24.7	27.3	30.1	31.6	34.0	37.0	39.6	41.2	43.7
High Range	0	0	0	0.9	1.3	3.3	8.7	31.4	68.6	95.4	154	216	243	290	361	399	421	448	486	505
Fescue-K31 (Pounds per 1000 Square Feet)																				
Low Range	0	0	0	0	0.01	0.03	0.07	0.13	0.25	0.42	0.50	0.56	0.63	0.69	0.72	0.78	0.85	0.91	0.94	1.00
High Range	0	0	0	0.02	0.03	0.08	0.20	0.72	1.58	2.19	3.53	4.95	5.57	6.65	8.29	9.15	9.67	10.3	11.2	11.6
Hemp (Pounds per Acre)																				
Low Range	0	0	1.4	6.3	19.1	30.7	42.8	53.0	62.1	69.5	76.7	84.9	91.1	98.4	104	111	117	123	129	136
Hemp (Pounds per 1000 Square Feet)																				
Low Range	0	0	0.03	0.14	0.44	0.70	0.98	1.21	1.42	1.59	1.76	1.95	2.09	2.26	2.39	2.55	2.68	2.82	2.96	3.11
Kentucky Blue Grass (Pounds per Acre)																				
Low Range	0	0	4.3	14.4	18.4	22.8	26.3	30.0	33.7	37.3	41.4	45.1	49.1	52.6	56.8	59.6	63.0	66.3	68.6	73.0
High Range	0	0.22	2.18	15.7	34.8	99.8	163	231	278	322	366	410	457	502	540	587	625	654	710	742
Kentucky Blue Grass (Pounds per 1000 Square Feet)																				
Low Range	0	0	0.10	0.33	0.42	0.52	0.60	0.68	0.77	0.85	0.95	1.03	1.12	1.20	1.30	1.37	1.44	1.52	1.57	1.67
High Range	0	0.005	0.05	0.36	0.80	2.29	3.75	5.30	6.38	7.39	8.41	9.41	10.5	11.5	12.4	13.5	14.3	15.0	16.3	17.0

IMPORTANT: Do Not operate seed rate adjustment lever at -0- cup setting. Seed cup damage may occur.

Seed Rate Chart (Standard)

Pounds pounds per acre and per 1000 square foot

Cup Setting	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Millet (Pounds per Acre)																				
Low Range	0	5.7	26.6	35.6	43.8	51.4	59.3	66.3	74.4	81.9	89.5	97.9	105	113	120	127	135	141	146	155
Millet (Pounds per 1000 Square Feet)																				
Low Range	0	0.13	0.61	0.81	1.00	1.18	1.36	1.52	1.70	1.88	2.05	2.24	2.41	2.58	2.74	2.92	3.09	3.23	3.36	3.55
Oats (Pounds per Acre)																				
Low Range	0	0	0	1.4	2.9	5.9	10.5	16.3	22.2	29.6	36.8	41.7	46.1	51.6	56.7	61.1	64.9	68.6	73.7	79.3
High Range	0	0	0	6.3	18.3	39.6	68.4	99.3	148	189	228	270	300	323	365	401	405	425	441	482
Oats (Pounds per 1000 Square Feet)																				
Low Range	0	0	0	0.03	0.07	0.13	0.24	0.37	0.51	0.68	0.84	0.95	1.06	1.18	1.30	1.40	1.49	1.57	1.69	1.82
High Range	0	0	0	0.15	0.42	0.91	1.57	2.28	3.39	4.35	5.24	6.20	6.89	7.41	8.38	9.20	9.30	9.76	10.1	11.1
Orchard Grass (Pounds per Acre)																				
Low Range	0	0	0	0	0.5	1.2	2.6	4.0	6.6	11.4	17.0	19.1	21.4	23.0	24.9	26.8	28.2	29.6	31.7	34.5
High Range	0	0	0	0	0	1.3	3.5	5.7	15.0	25.0	46.4	88.4	126	143	188	218	235	246	294	303
Orchard Grass (Pounds per 1000 Square Feet)																				
Low Range	0	0	0	0	0.01	0.03	0.06	0.09	0.15	0.26	0.39	0.43	0.49	0.52	0.57	0.61	0.64	0.68	0.72	0.79
High Range	0	0	0	0	0	0.03	0.08	0.13	0.35	0.58	1.07	2.03	2.89	3.29	4.31	5.00	5.39	5.64	6.75	6.95
Ryegrass-Annual (Pounds per Acre)																				
Low Range	0	0	0	0	1.9	5.0	12.9	24.3	30.7	35.7	39.6	43.7	47.2	51.0	54.9	58.4	62.1	65.8	69.5	75.1
High Range	0	0	2.61	6.75	36.2	85.2	160	211	291	352	414	475	521	561	652	709	748	802	851	886
Ryegrass-Annual (Pounds per 1000 Square Feet)																				
Low Range	0	0	0	0	0.04	0.11	0.29	0.56	0.70	0.82	0.91	1.0	1.1	1.2	1.3	1.3	1.4	1.5	1.6	1.7
High Range	0	0	0.06	0.16	0.83	1.96	3.67	4.84	6.67	8.07	9.50	10.9	12.0	12.9	15.0	16.3	17.2	18.4	19.5	20.3
Ryegrass-Perennial (Pounds per Acre)																				
Low Range	0	0	0.5	4.9	14.9	27.1	32.8	38.4	43.8	48.9	54.0	59.3	64.6	66.6	74.7	79.5	84.1	88.8	93.5	97.4
Ryegrass-Perennial (Pounds per 1000 Square Feet)																				
Low Range	0	0	0.01	0.11	0.34	0.62	0.75	0.88	1.00	1.12	1.24	1.36	1.48	1.53	1.71	1.82	1.93	2.03	2.14	2.23
Sorghum (Pounds per Acre)																				
Low Range	0	0	1.5	9.1	21.2	32.2	40.5	46.6	53.5	59.6	66.3	72.9	79.7	86.1	92.4	98.4	104	110	114	123
High Range	0	3.7	24.4	77.8	186	298	390	482	559	624	693	764	832	891	997	1069	1143	1205	1261	1325
Sorghum (Pounds per 1000 Square Feet)																				
Low Range	0	0	0.03	0.21	0.48	0.74	0.93	1.07	1.22	1.36	1.52	1.67	1.82	1.97	2.12	2.26	2.39	2.52	2.62	2.81
High Range	0	0.09	0.56	1.79	4.27	6.83	8.96	11.1	12.8	14.3	15.9	17.5	19.1	20.5	22.9	24.5	26.2	27.7	28.9	30.4
Sudan Grass (Pounds per Acre)																				
Low Range	0	0.4	1.3	3.5	6.5	7.8	9.6	11.7	13.0	15.2	17.4	19.6	21.7	24.4	25.7	27.8	30.4	32.2	34.4	37.4
High Range	0	1.5	22.2	71.2	193	311	420	494	569	648	725	789	865	930	1043	1110	1178	1253	1320	1363
Sudan Grass (Pounds per 1000 Square Feet)																				
Low Range	0	0	0.08	0.36	0.71	0.89	1.07	1.22	1.39	1.52	1.71	1.87	2.03	2.19	2.34	2.49	2.63	2.77	2.91	3.07
High Range	0	0.04	0.51	1.64	4.42	7.14	9.64	11.3	13.1	14.9	16.7	18.1	19.9	21.4	24.0	25.5	27.0	28.8	30.3	31.3
Sunflower (Pounds per Acre)																				
Low Range	0	0	0	0	1.9	4.2	6.8	10.0	13.6	17.7	21.9	25.2	28.0	30.8	33.3	36.5	39.6	42.1	44.3	47.5
High Range	0	0	2.2	4.4	9.6	25.3	40.5	80.2	106	140	193	222	264	294	354	401	418	427	491	531
Sunflower (Pounds per 1000 Square Feet)																				
Low Range	0	0	0	0	0.04	0.09	0.15	0.22	0.31	0.40	0.50	0.58	0.64	0.70	0.76	0.83	0.90	0.96	1.01	1.09
High Range	0	0.00	0.05	0.10	0.22	0.58	0.93	1.84	2.44	3.22	4.44	5.09	6.06	6.75	8.13	9.20	9.60	9.80	11.3	12.2
Wheat (Pounds per Acre)																				
Low Range	0	0	1.7	10.7	25.2	36.1	42.9	51.7	62.8	71.4	79.4	87.7	94.4	101.7	110.7	117.6	124.7	130.4	137.2	145.3
High Range	0	2.2	14.8	71.9	160	287	410	513	590	677	758	838	917	998	1098	1174	1258	1320	1399	1461
Wheat (Pounds per 1000 Square Feet)																				
Low Range	0	0	0.04	0.24	0.58	0.83	0.98	1.18	1.44	1.63	1.82	2.01	2.16	2.33	2.54	2.70	2.86	2.99	3.14	3.33
High Range	0	0.05	0.34	1.65	3.67	6.60	9.41	11.8	13.5	15.6	17.4	19.2	21.0	22.9	25.2	27.0	28.9	30.3	32.1	33.6
Wheatgrass-Crested (Pounds per Acre)																				
Low Range	0	0	0	0.7	1.9	4.5	8.6	17.0	23.5	27.9	31.5	35.6	38.9	42.1	45.1	47.5	50.9	55.8	58.9	63.5
High Range	0	0	1.3	1.5	2.8	11.5	38.3	64.0	125	156	235	280	324	366	413	451	485	512	547	581
Wheatgrass-Crested (Pounds per 1000 Square Feet)																				
Low Range	0	0	0	0.01	0.04	0.10	0.19	0.39	0.54	0.64	0.72	0.81	0.89	0.96	1.03	1.09	1.16	1.28	1.35	1.45
High Range	0	0	0.03	0.04	0.07	0.27	0.88	1.47	2.88	3.59	5.40	6.43	7.43	8.40	9.49	10.4	11.1	11.8	12.6	13.3

IMPORTANT: Do Not operate seed rate adjustment lever at -0- cup setting. Seed cup damage may occur.

Seed Rate Chart (Metric)

Kilograms per 1000 square meter and kilograms per hectare

Cup Setting	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Alfalfa (Kilograms per Hectare)																				
Low Range	0	7.5	34.5	47.7	56.2	65.1	75.2	84.7	93.5	110	112	121	130	142	155	162	170	178	186	195
High Range	12.2	71.7	186	300	398	495	600	685	766	847	938	1076	1184	1275	1411	1591	1714	1799	1877	1968
Alfalfa (Kilograms per 1000 Square Meters)																				
Low Range	0	0.75	3.45	4.77	5.62	6.51	7.52	8.47	9.35	11.0	11.2	12.1	13.0	14.2	15.5	16.2	17.0	17.8	18.6	19.5
High Range	1.22	7.17	18.6	30.0	39.8	49.5	60.0	68.5	76.6	84.7	93.8	108	118	127	141	159	171	180	188	197
Bahia Grass (Kilograms per Hectare)																				
Low Range	0	0.8	10.4	18.6	25.1	37.9	43.8	49.3	55.8	61.8	68.0	72.5	77.7	83.4	89.6	94.4	98.5	103	107	112
Bahia Grass (Kilograms per 1000 Square Meters)																				
Low Range	0	0.1	1.0	1.9	2.5	3.8	4.4	4.9	5.6	6.2	6.8	7.3	7.8	8.3	9.0	9.4	9.9	10.3	10.7	11.2
Bermuda (Kilograms per Hectare)																				
Low Range	3.9	24.8	39.9	47.4	55.0	61.8	68.6	77.7	84.7	92.7	99.8	106	112	119	125	132	139	145	151	158
Bermuda (Kilograms per 1000 Square Meters)																				
Low Range	0.39	2.48	3.99	4.74	5.50	6.18	6.86	7.77	8.47	9.27	9.98	10.6	11.2	11.9	12.5	13.2	13.9	14.5	15.1	15.8
Buffalo Grass (Kilograms per Hectare)																				
Low Range	0	0	0	2.1	4.7	9.4	13.7	17.0	20.3	23.0	26.1	28.5	31.3	33.7	36.2	38.6	40.9	42.8	45.4	48.5
Buffalo Grass (Kilograms per 1000 Square Meters)																				
Low Range	0	0	0	0.21	0.47	0.94	1.37	1.70	2.03	2.30	2.61	2.85	3.13	3.37	3.62	3.86	4.09	4.28	4.54	4.85
Brome (Kilograms per Hectare)																				
High Range	0	0	0	0	0	0	3.4	10.0	17.1	26.1	59.1	67.9	94.2	107	131	145	157	168	183	206
Brome (Kilograms per 1000 Square Meters)																				
High Range	0	0	0	0	0	0	0.34	1.00	1.71	2.61	5.91	6.79	9.42	10.7	13.1	14.5	15.7	16.8	18.3	20.6
Clover-Red (Kilograms per Hectare)																				
Low Range	0	27.1	44.4	65.0	72.4	88.1	99.0	109	121	131	142	154	164	174	184	194	203	211	221	226
High Range	12.7	66.4	189	319	426	509	613	709	822	911	1017	1111	1204	1278	1396	1536	1614	1713	1802	1872
Clover-Red (Kilograms per 1000 Square Meters)																				
Low Range	0	2.71	4.44	6.50	7.24	8.81	9.90	10.9	12.1	13.1	14.2	15.4	16.4	17.4	18.4	19.4	20.3	21.1	22.1	22.6
High Range	1.27	6.64	18.9	31.9	42.6	50.9	61.3	70.9	82.2	91.1	102	111	120	128	140	154	161	171	180	187
Creeping Red Fescue-Fine Blade (Kilograms per Hectare)																				
High Range	0	0	0	0	0	1.7	4.6	7.3	20.5	52.5	121	165	168	217	224	234	288	313	364	387
Creeping Red Fescue-Fine Blade (Kilograms per 1000 Square Meters)																				
High Range	0	0	0	0	0	0.17	0.46	0.73	2.05	5.25	12.1	16.5	16.8	21.7	22.4	23.4	28.8	31.3	36.4	38.7
Fescue-Fine Blade (Kilograms per Hectare)																				
Low Range	0	0	4.8	16.0	20.6	25.6	29.5	33.6	37.8	41.8	46.4	50.6	55.0	59.0	63.7	66.8	70.6	74.3	76.9	81.8
High Range	0.0	0.24	2.44	17.6	39.1	112	183	259	311	361	411	459	512	563	605	658	700	733	795	832
Fescue-Fine Blade (Kilograms per 1000 Square Meters)																				
Low Range	0	0	0.48	1.60	2.06	2.56	2.95	3.36	3.78	4.18	4.64	5.06	5.50	5.90	6.37	6.68	7.06	7.43	7.69	8.18
High Range	0.00	0.024	0.24	1.76	3.91	11.2	18.3	25.9	31.1	36.1	41.1	45.9	51.2	56.3	60.5	65.8	70.0	73.3	79.5	83.2
Fescue-K31 (Kilograms per Hectare)																				
Low Range	0	0	0	0	0.6	1.7	3.5	6.5	12.6	20.6	24.3	27.7	30.6	33.7	35.4	38.1	41.5	44.4	46.2	49.0
High Range	0	0	0	1.0	1.5	3.7	9.8	35.2	76.9	107	172	242	272	325	405	447	472	502	545	566
Fescue-K31 (Kilograms per 1000 Square Meters)																				
Low Range	0.00	0.00	0.00	0.00	0.06	0.17	0.35	0.65	1.26	2.06	2.43	2.77	3.06	3.37	3.54	3.81	4.15	4.44	4.62	4.90
High Range	0.00	0.00	0.00	0.10	0.15	0.37	0.98	3.52	7.69	10.7	17.2	24.2	27.2	32.5	40.5	44.7	47.2	50.2	54.5	56.6
Hemp (Kilograms per Hectare)																				
Low Range	0	0	1.6	7.1	21.4	34.4	48.0	59.4	69.6	77.9	86.0	95.2	102	110	117	125	131	138	145	152
Hemp (Kilograms per 1000 Square Meters)																				
Low Range	0	0	0.16	0.71	2.14	3.44	4.80	5.94	6.96	7.79	8.60	9.52	10.2	11.0	11.7	12.5	13.1	13.8	14.5	15.2
Kentucky Blue Grass (Kilograms per Hectare)																				
Low Range	0	0	4.8	16.1	20.6	25.6	29.5	33.6	37.8	41.8	46.4	50.6	55.0	59.0	63.7	66.8	70.6	74.3	76.9	81.8
High Range	0	0.24	2.44	17.6	39.1	112	183	259	311	361	411	459	512	563	605	658	700	733	795	832
Kentucky Blue Grass (Kilograms per 1000 Square Meters)																				
Low Range	0	0	0.48	1.61	2.06	2.56	2.95	3.36	3.78	4.18	4.64	5.06	5.50	5.90	6.37	6.68	7.06	7.43	7.69	8.18
High Range	0	0.024	0.24	1.76	3.91	11.2	18.3	25.9	31.1	36.1	41.1	45.9	51.2	56.3	60.5	65.8	70.0	73.3	79.5	83.2

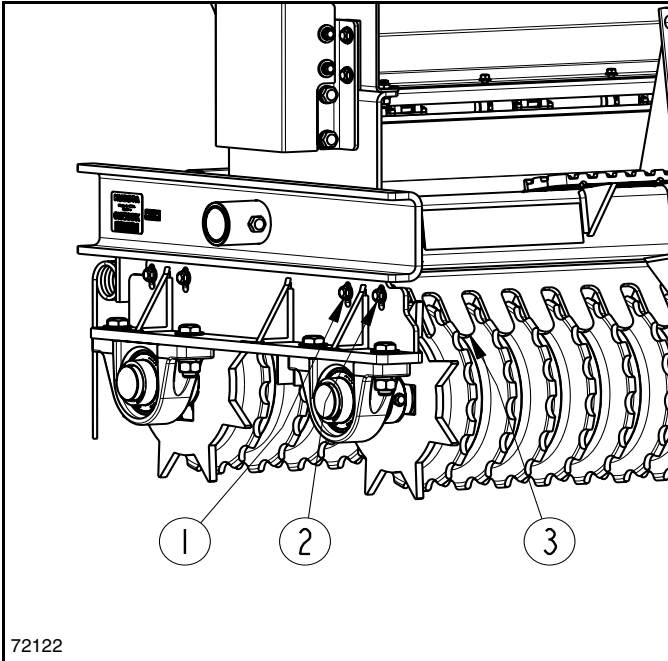
IMPORTANT: Do Not operate seed rate adjustment lever at -0- cup setting. Seed cup damage may occur.

Seed Rate Chart (Metric)

Kilograms per 1000 square meter and kilograms per hectare

Cup Setting	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Millet (Kilograms per Hectare)																				
Low Range	0	6.4	29.8	39.9	49.1	57.6	66.5	74.3	83.4	91.8	100	110	118	126	134	143	151	158	164	173
Millet (Kilograms per 1000 Square Meters)																				
Low Range	0	0.64	2.98	3.99	4.91	5.76	6.65	7.43	8.34	9.18	10.0	11.0	11.8	12.6	13.4	14.3	15.1	15.8	16.4	17.3
Oats (Kilograms per Hectare)																				
Low Range	0	0	0	1.6	3.3	6.6	11.8	18.3	24.9	33.2	41.2	46.7	51.7	57.8	63.6	68.5	72.7	76.9	82.6	88.9
High Range	0	0	0	7.1	20.5	44.4	76.7	111	166	212	256	303	336	362	409	449	454	477	494	540
Oats (Kilograms per 1000 Square Meters)																				
Low Range	0	0	0	0.16	0.33	0.66	1.18	1.83	2.49	3.32	4.12	4.67	5.17	5.78	6.36	6.85	7.27	7.69	8.26	8.89
High Range	0	0	0	0.71	2.05	4.44	7.67	11.1	16.6	21.2	25.6	30.3	33.6	36.2	40.9	44.9	45.4	47.7	49.4	54.0
Orchard Grass (Kilograms per Hectare)																				
Low Range	0	0	0	0	0.6	1.3	2.9	4.5	7.4	12.8	19.1	21.4	24.0	25.8	27.9	30.0	31.6	33.2	35.5	38.7
High Range	0	0	0	0	0	1.5	3.9	6.3	16.8	28.1	52.0	99.1	141	161	210	244	263	275	330	339
Orchard Grass (Kilograms per 1000 Square Meters)																				
Low Range	0	0	0	0	0.06	0.13	0.29	0.45	0.74	1.28	1.91	2.14	2.40	2.58	2.79	3.00	3.16	3.32	3.55	3.87
High Range	0	0	0	0	0	0.15	0.39	0.63	1.68	2.81	5.20	9.91	14.1	16.1	21.0	24.4	26.3	27.5	33.0	33.9
Ryegrass-Annual (Kilograms per Hectare)																				
Low Range	0	0	0	0	2.1	5.6	14.5	27.2	34.4	40.0	44.4	49.0	52.9	57.2	61.5	65.5	69.6	73.8	77.9	84.2
High Range	0	0	2.9	7.6	40.5	95.5	179	236	326	394	464	533	584	629	731	795	838	899	954	993
Ryegrass-Annual (Kilograms per 1000 Square Meters)																				
Low Range	0	0	0	0	0.21	0.56	1.45	2.72	3.44	4.00	4.44	4.90	5.29	5.72	6.15	6.55	6.96	7.38	7.79	8.42
High Range	0	0	0.29	0.76	4.05	9.55	17.9	23.6	32.6	39.4	46.4	53.3	58.4	62.9	73.1	79.5	83.8	89.9	95.4	99.3
Ryegrass-Perennial (Kilograms per Hectare)																				
Low Range	0	0	0.6	5.5	16.7	30.4	36.8	43.0	49.1	54.8	60.5	66.5	72.4	74.6	83.7	89.1	94.3	99.5	105	109
Ryegrass-Perennial (Kilograms per 1000 Square Meters)																				
Low Range	0	0	0.06	0.55	1.67	3.04	3.68	4.30	4.91	5.48	6.05	6.65	7.24	7.46	8.37	8.91	9.43	10.0	10.5	10.9
Sorghum (Kilograms per Hectare)																				
Low Range	0	0	1.7	10.2	23.8	36.1	45.4	52.2	60.0	66.8	74.3	81.7	89.3	96.5	104	110	117	123	128	137
High Range	0	4.2	27.3	87.2	208	333	437	540	627	700	777	856	933	999	1118	1198	1281	1350	1413	1485
Sorghum (Kilograms per 1000 Square Meters)																				
Low Range	0	0	0.17	1.02	2.38	3.61	4.54	5.22	6.00	6.68	7.43	8.17	8.93	9.65	10.4	11.0	11.7	12.3	12.8	13.7
High Range	0	0.42	2.73	8.72	20.8	33.3	43.7	54.0	62.7	70.0	77.7	85.6	93.3	99.9	111.8	119.8	128.1	135.0	141.3	148.5
Sudan Grass (Kilograms per Hectare)																				
Low Range	0	0.4	1.5	3.9	7.3	8.7	10.8	13.1	14.6	17.0	19.5	22.0	24.3	27.3	28.8	31.2	34.1	36.1	38.6	41.9
High Range	0	1.7	24.9	79.8	216	349	471	554	638	726	813	884	969	1043	1169	1245	1320	1404	1479	1527
Sudan Grass (Kilograms per 1000 Square Meters)																				
Low Range	0	0.04	0.15	0.39	0.73	0.87	1.08	1.31	1.46	1.70	1.95	2.20	2.43	2.73	2.88	3.12	3.41	3.61	3.86	4.19
High Range	0	0.17	2.49	7.98	21.6	34.9	47.1	55.4	63.8	72.6	81.3	88.4	96.9	104.3	116.9	124.5	132.0	140.4	147.9	152.7
Sunflower (Kilograms per Hectare)																				
Low Range	0	0	0	0	2.2	4.7	7.6	11.2	15.2	19.8	24.5	28.2	31.4	34.5	37.3	40.9	44.4	47.2	49.7	53.2
High Range	0	0	2.4	4.9	10.7	28.3	45.4	89.8	119	157	217	249	296	330	397	449	469	478	550	595
Sunflower (Kilograms per 1000 Square Meters)																				
Low Range	0	0	0	0	0.22	0.47	0.76	1.12	1.52	1.98	2.45	2.82	3.14	3.45	3.73	4.09	4.44	4.72	4.97	5.32
High Range	0	0	0.24	0.49	1.07	2.83	4.54	8.98	11.9	15.7	21.7	24.9	29.6	33.0	39.7	44.9	46.9	47.8	55.0	59.5
Wheat (Kilograms per Hectare)																				
Low Range	0	0	1.9	12.0	28.2	40.5	48.1	57.9	70.4	80.0	89.0	98.3	106	114	124	132	140	146	154	163
High Range	0	2.4	16.6	80.6	179	322	459	575	661	759	850	939	1027	1119	1230	1316	1411	1479	1568	1638
Wheat (Kilograms per 1000 Square Meters)																				
Low Range	0	0	0.19	1.20	2.82	4.05	4.81	5.79	7.04	8.00	8.90	9.83	10.6	11.4	12.4	13.2	14.0	14.6	15.4	16.3
High Range	0	0.24	1.66	8.06	17.9	32.2	45.9	57.5	66.1	75.9	85.0	93.9	103	112	123	132	141	148	157	164
Wheatgrass-Crested (Kilograms per Hectare)																				
Low Range	0	0	0	0.8	2.2	5.0	9.6	19.1	26.3	31.3	35.3	39.9	43.6	47.2	50.6	53.2	57.1	62.5	66.0	71.2
High Range	0	0	1.5	1.7	3.2	12.9	43.0	71.8	140	175	264	314	363	410	463	506	543	574	613	651
Wheatgrass-Crested (Kilograms per 1000 Square Meters)																				
Low Range	0	0	0	0.08	0.22	0.50	0.96	1.91	2.63	3.13	3.53	3.99	4.36	4.72	5.06	5.32	5.71	6.25	6.60	7.12
High Range	0	0	0	0.17	0.32	1.29	4.30	7.18	14.0	17.5	26.4	31.4	36.3	41.0	46.3	50.6	54.3	57.4	61.3	65.1

IMPORTANT: Do Not operate seed rate adjustment lever at -0- cup setting. Seed cup damage may occur.



Mud Scraper Adjustments
Figure 4-4

Mud Scrapers

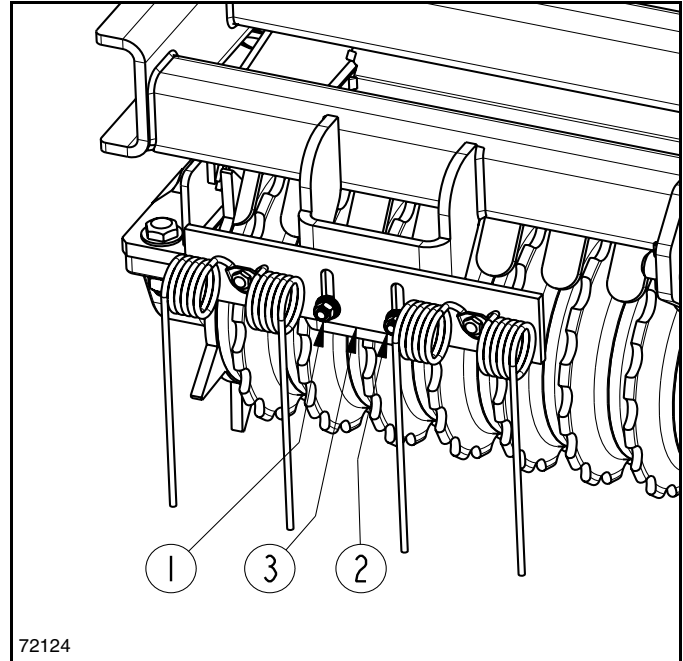
Refer to Figure 4-4:

Adjust Scrapers

1. With front and rear rollers on the ground, loosen 3/8"-16 hex bolts (#1 & #2) at both ends of the rear mud scraper (#3).

NOTE: May need to remove the chain guard to access two of the 3/8"-16 hex bolts.

2. Move the mud scraper down towards the roller to increase removal of mud and debris. Move the mud scraper up if it is interfering with the roller.
3. Tighten the four 3/8"-16 GR5 hex head bolts (#1 & #2) to the proper torque.
4. Repeat steps 1 through 3 above for the front mud scraper.



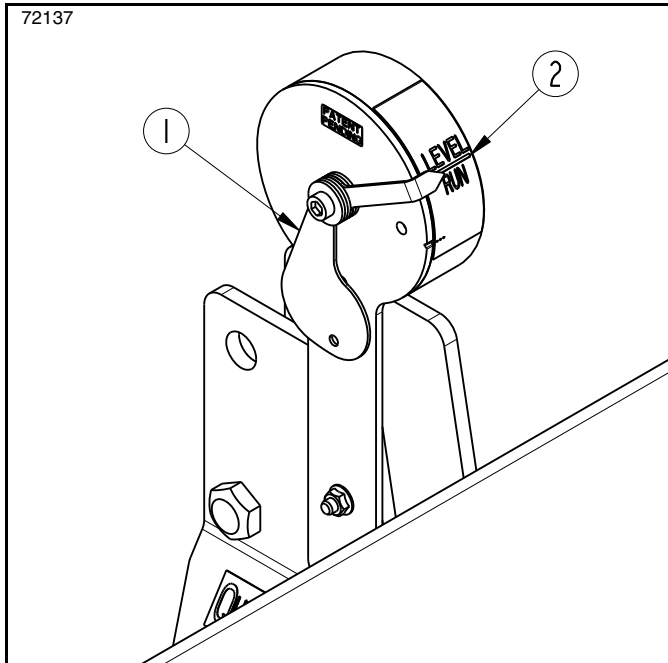
Scratcher Tine Adjustments
Figure 4-5

Scratcher Tines

Refer to Figure 4-5:

Adjust Tines

1. To adjust the height of the tines, loosen 3/8"-16 hex nuts (#1 & #2).
2. Move the scratcher tine assembly (#3) up to scratch the soil lightly or move it down to scratch the soil harder.
3. Tighten the 3/8"-16 hex nuts (#1 & #2) to the proper torque.
4. Repeat steps 1 through 3 above for the second scratcher tine assembly.



Level Indicator
Figure 4-6

Level Indicator

Refer to Figure 4-6:

The Primary Seeder operates best when its frame is level from front to back. Use the level indicator to level the unit .

Leveling when Hooked to a Skid Steer

1. Before you begin to seed, watch the weighted indicator (#1) on the level indicator while the Primary Seeder is on the ground.
 - If weighted indicator (#1) goes above level line (#2), tilt top of hitch plate slightly forward.
 - If weighted indicator falls below level line (#2), tilt top of hitch plate slightly back.
2. Once the level indicator reads level you can begin seeding. Check level indicator frequently to try and keep the Primary Seeder level throughout the operation.
3. If the weighted indicator (#1) bounces a lot and is hard to read, slow travel speed enough to stop the weighted indicator from bouncing.

Leveling when Hooked to a Tractor 3-Point

1. If not parked on level ground, start the tractor and move to level ground.
2. Lower the Primary Seeder until unit is resting on the ground.
3. Shut tractor down properly before dismounting. Refer to **“Power Machine Shutdown Procedure”** on page 13.
4. Adjust length of upper center 3-point link until the weighted indicator (#1) reads level.

Maintenance

Proper servicing and adjustments are key to the long life of your Primary Seeder. With careful inspection and routine maintenance, you can avoid costly downtime and repair.

Check all bolts and pins after using the Primary Seeder for several hours and on a regular basis thereafter to ensure they are tight and secured. Replace worn, damaged or illegible safety labels by obtaining new labels from your Kubota dealer.

DANGER

To avoid serious injury or death:

Always secure equipment with solid, non-concrete supports before working under it. Never go under equipment supported by concrete blocks or hydraulics. Concrete can break, hydraulic lines can burst, and/or hydraulic controls can be actuated even when power to the hydraulics is off.

WARNING

To avoid serious injury or death:

- *Make sure controls are all in the neutral position or park before starting the power machine.*
- *Allow only persons to perform maintenance on this equipment who have been properly trained in its safe operation.*
- *Before any adjustments or maintenance is performed, lower equipment to the ground, shut engine off, and remove ignition key. Do not attempt to make adjustments or perform maintenance with the equipment or power machine running.*
- *Do not alter equipment or replace parts with other brands. Other brands may not fit properly or meet OEM (Original Equipment Manufacturer) specifications. They can weaken the integrity and impair the safety, function, performance, and life of the equipment. Replace parts only with genuine OEM parts.*

Drive System

Refer to Figure 5-1:

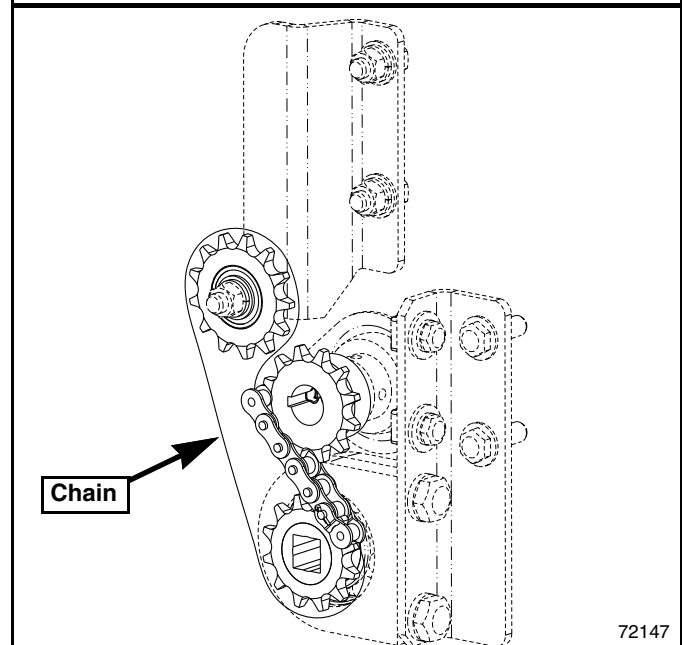
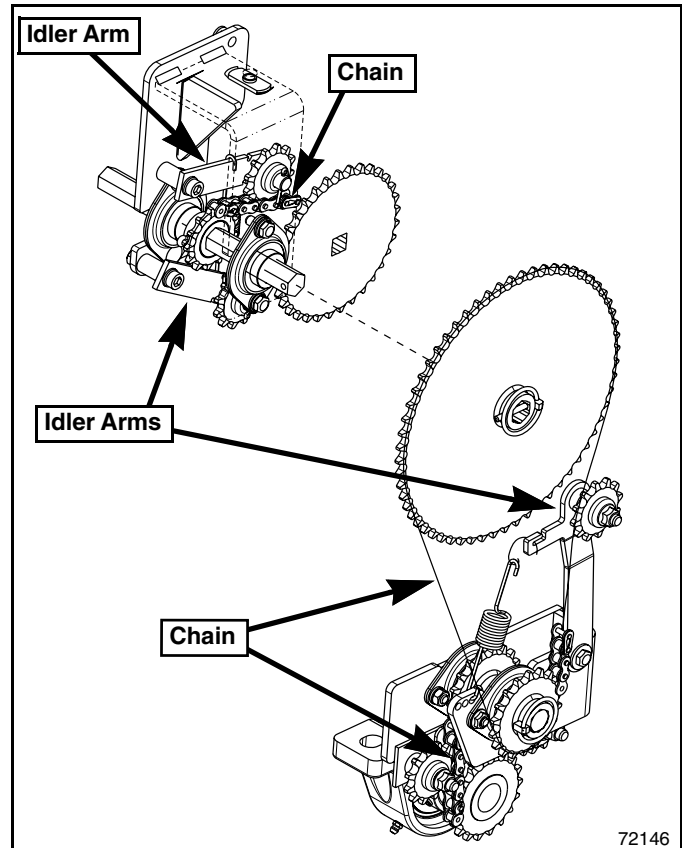
Your Primary Seeder uses 3 standard no. 40 roller chain throughout its drive system. The drive system is simple and designed for low maintenance.

1. Check all drive idler arms to ensure that they are taking up any excess chain slack.
2. Check each chain to ensure that it is not over-tightened.
3. Clean and lubricate all roller chains with chain lubricant as needed.

Packing Rollers

The front and rear packing rollers should turn freely. If they do not, investigate and remove the cause.

The inner frame should be free to pivot on its axis + or - 5 degrees to follow the ground terrain.



**Drive System
Figure 5-1**

Long-Term Storage

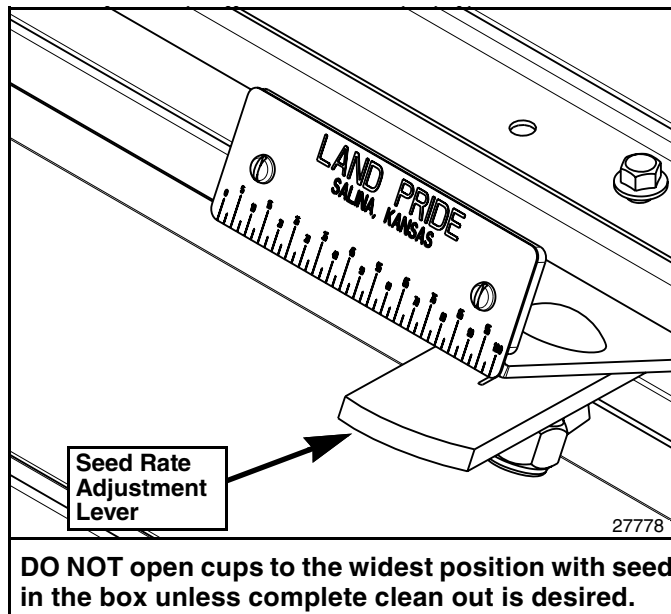
Clean, inspect, service, and make necessary repairs to the implement when storing it for long periods and at the end of the season. This will help to ensure the unit is ready for field use the next time you hook-up to it.

1. Be sure that the seed box is completely cleaned before storing. It is best to do this while still hooked to a tractor or skid steer.

- a. Scoop out any large quantities of seed left in the box. Finish by using a small broom or vacuum sweeper.

Refer to Figure 5-2:

- b. Move seeder rate adjustment lever(s) all the way to the right to fully open seed cups.
- c. Run seeder over the ground to power the seed cups to remove out-of-reach seeds.
- d. Make a final sweep or vacuum the seed cups to finish the cleaning job.



Seed Rate Adjustment Lever

Figure 5-2

2. Inspect seeder for loose, damaged, or worn parts and adjust or replace if needed with genuine Kubota parts. Do not alter Kubota equipment. Altering equipment can hinder performance and/or cause damage to the equipment.
3. Repaint parts where paint is worn or scratched to prevent rust. Ask your Kubota dealer for aerosol touch-up paint. Paint is also available in touch-up bottles with brush, quarts, and gallon sizes by adding TU, QT, or GL to the end of the aerosol part number.

Touch-Up Paint

Part No.	Part Description
821-070C	Gloss black enamel spray can
821-070CTU	Gloss black enamel bottle with brush
821-070CQT	Gloss black enamel quart
821-070CGL	Gloss black enamel gallon

4. Replace all damaged or missing decals.
5. The square bore of the seed cup drive sprocket hub should be oiled to prevent seizing. Squirt oil on to the square feed cup shaft and move seed cup adjustment lever back and forth in order to get oil back into the square. Refer to **“Seed Cup Drive Shaft”** on page 36.
6. Lubricate all grease fittings and roller chains as noted under **“Lubrication Points”** on page 36.
7. Store the Primary Seeder on a level surface in a clean, dry place. Inside storage will reduce maintenance and extend the life of the Primary Seeder.
8. Follow all unhooking instructions. Refer to **“Unhook From Skid Steer”** or **“Unhook From Tractor 3-Point”** on page 24
9. When in storage, lower the Primary Seeder with packing rollers on a board or hard surface.

Lubrication Points

Lubrication Legend



Multi-purpose
spray lube



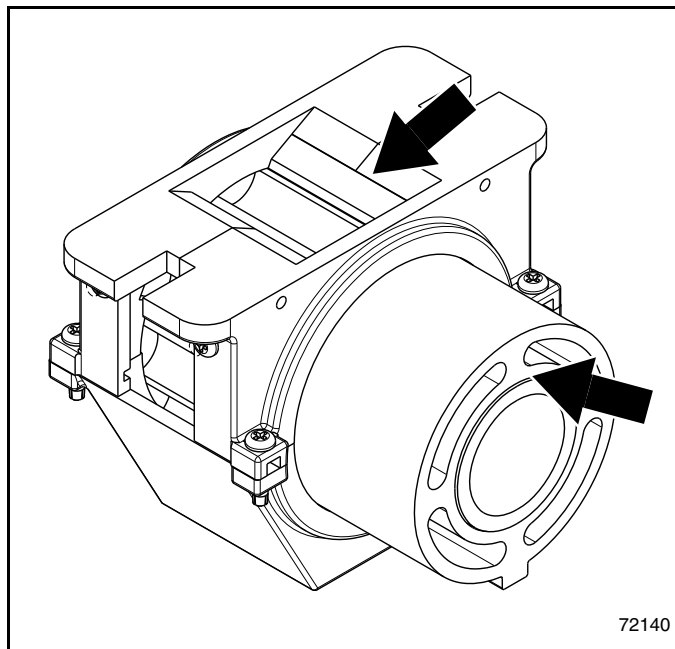
Multi-purpose
grease lube



Multi-purpose
oil lube



Intervals in hours at which
lubrication is required



**Graphite
Powder**



**As
Needed**

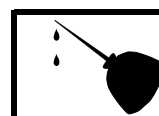
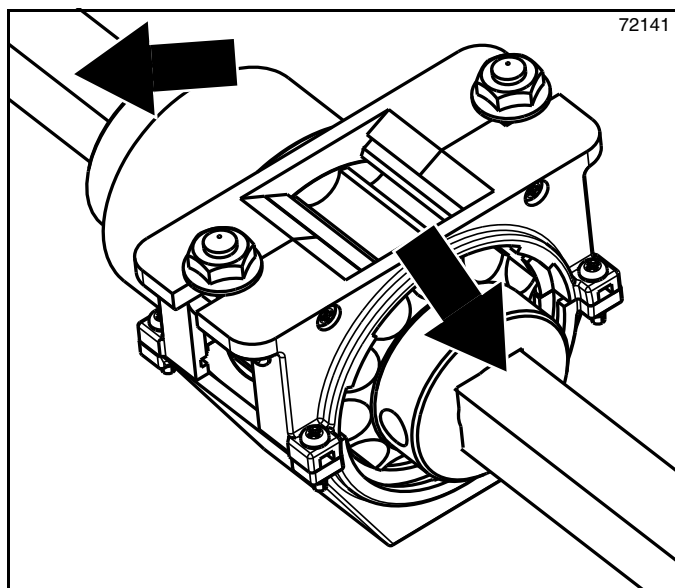
Seed Cup Sprockets

IMPORTANT: DO NOT use petroleum lubricant on plastic seed cups. Petroleum will absorb into the plastic and swell plastic components.

NOTE: Cleaning seed cups seasonally is often all that is required to keep seed cups working properly. Remove seed from seed box and seed cups. Rinse each seed cup thoroughly with water spray from a garden hose. Allow seed cups to air dry completely before putting seeder back into service.

Type of Lubrication: Graphite Powder
Land Pride # 821-042C (1 lb. Container)

Quantity = Mix as needed, 1 teaspoon (5 mL) of powdered graphite for every 1 bushel of seed (35.2 L) in the seed box.



**50
Hours**

Seed Cup Drive Shaft

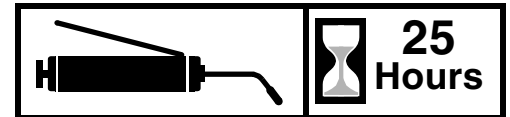
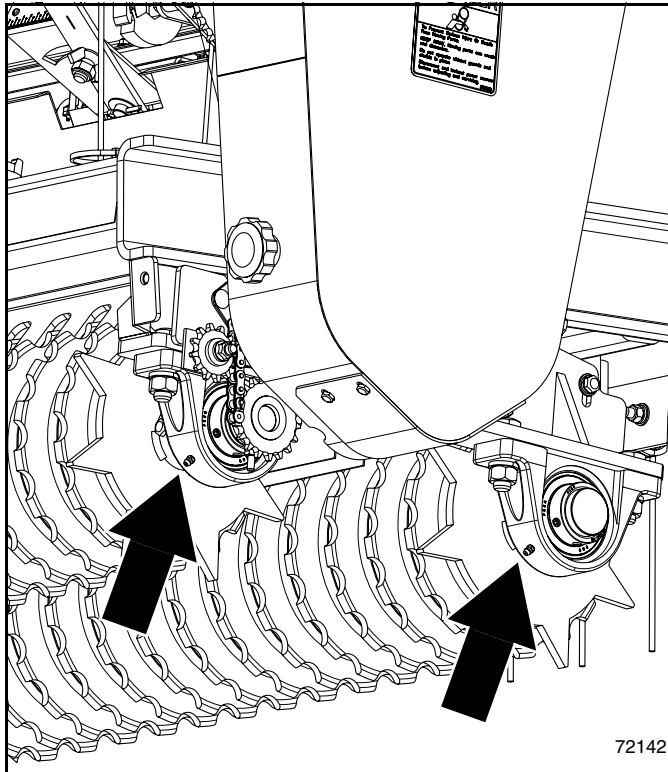
Type of Lubrication: Oil

Quantity = Generously

Type of Lubrication: Oil

IMPORTANT: DO NOT use petroleum lubricant on the plastic seed cups. Petroleum will absorb into the plastic and swell the plastic components. Mix talc with seed to lubricate the plastic seed cups.

Squirt a generous amount of oil on to the square drive shafts. Move seed rate adjustment lever back and forth to get oil back into the square bores.

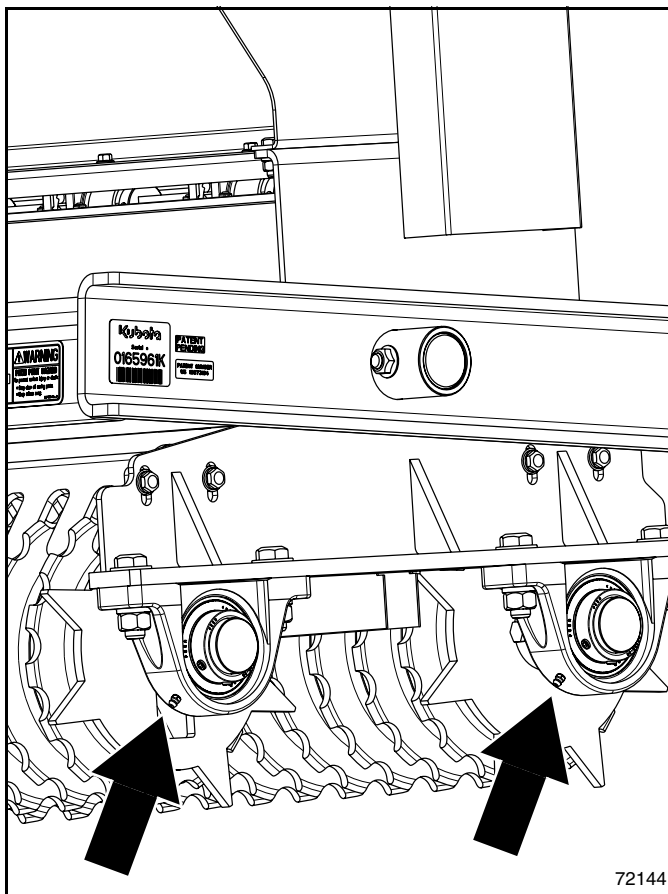


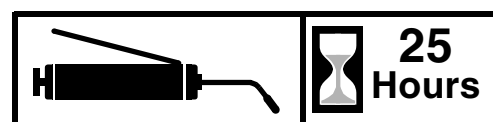
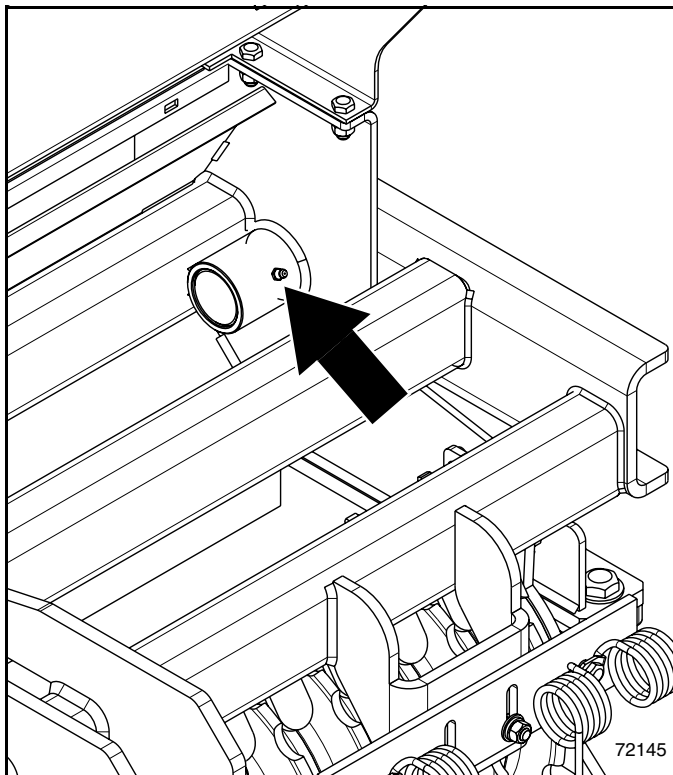
Roller Bearings

4 - Zerks (1 At each roller end)

Type of Lubrication: Multi-purpose Grease

Quantity: 4 - 5 pumps



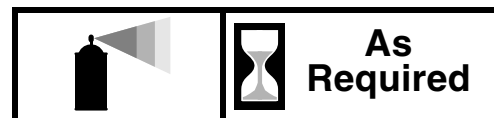
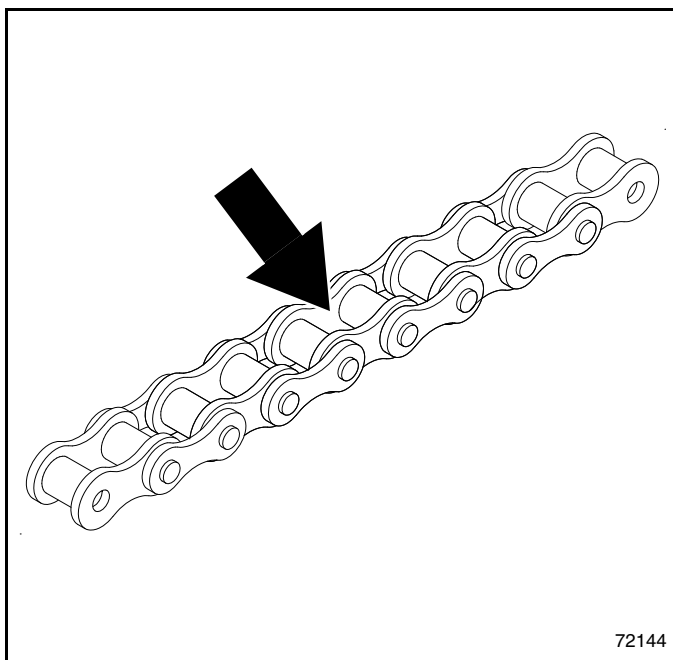


Pivot Shafts

2- Zerks (1 At each end)

Type of Lubrication: Multi-purpose Grease

Quantity: 4 - 5 pumps



Packer Roller to Seed Cup Roller Chains (3 chains)

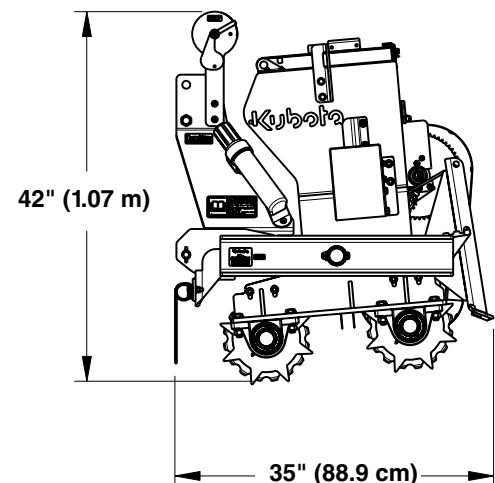
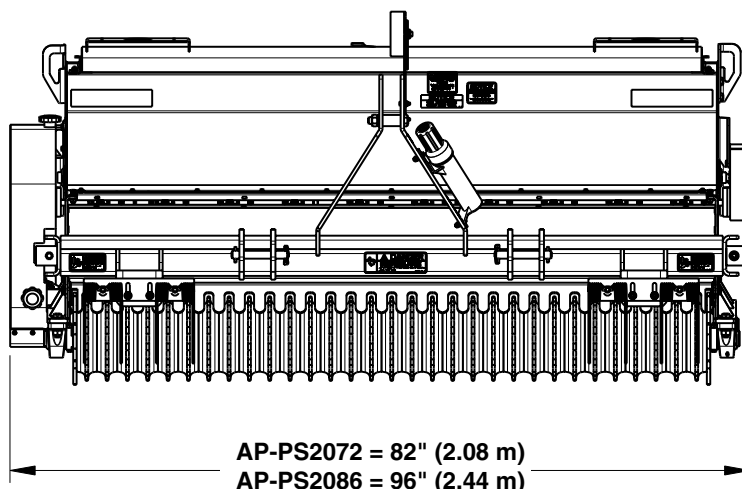
Type of Lubrication: Chain Lubricant

Quantity = Generously

AP-PS2072 & AP-PS2086

Specifications & Capacities		
Model Nos.	AP-PS2072	AP-PS2086
Skid Steer Horsepower	35-95 hp (26.1-70.8 kW)	
Tractor Horsepower*	25-60 hp (18.6-44.7 kW)	40-70 hp (29.8-52.2 kW)
Seeding Width (Broadcast)	72" (1.83 m)	86" (2.18 m)
Overall Width	82" (2.08 m)	96" (2.44 m)
Overall Height	42" (1.07 m)	
Overall Length	35" (88.9 cm)	
Empty Weight	1464 lbs (664.1 kg)	1677 lbs (760.7 kg)
Seedbox Capacity	6 Bushels (211.4 L)	7.2 Bushels (253.7 L)
3-Point Tractor Hitch	Category 1; Quick Hitch Adaptable	
Main Seedbox Construction	Continuous welded for water tight construction	
Lid construction	Heavy duty precision fit with seed splash guard	
Ground Drive Metering	Driven from right side of rear drive roller with #40 Roller chain	
Seed Cup Drive	Chain driven from right side of rear drive roller	
Seed Cup Agitation	Chain driven star type agitators above seed cups	
Seed Cups (Patent Pending) Bi-directional Fluted Cups for Accurate metering	10	12
Seed Settings	Wide range of calibration	
Seed Drop	Wind guarded	
Track Removers	Double torsion spring height adjustable and replaceable two each	
9" (22.9 cm) Notched Cast Iron Bed Forming Packer Rollers. (Front)	31	37
9" (22.9 cm) Notched Cast Iron Bed Forming Packer Rollers. (Rear)	30	36
Roller Spindles	1 3/4" with greasable bearings	
Acrometer option	Digital, battery operated.	

*The Primary Seeder is not meant for a Kubota BX tractor or comparable frame tractors.









AP-PS2072 & AP-PS2086

Features	Benefits
3-Point & Quick Attach compatible	Allows for hooking up to tractors or skid steers.
Cat. 1 Hitch	Fits Land Pride Quick Hitch for easy one person hook-up to tractor.
72" (1.83 m) & 86" (2.18 m) Seeding width	Perfect size for landscape market. Sized for smaller areas such as between the curb and sidewalk or the new community park.
Approximate machine weight	AP-PS2072 = 1,464lbs (664.1 kg) & AP-PS2086 = 1,677lbs (760.7 kg). Heavy weight helps seed to soil contact.
Lift hooks	Lift hooks on each side of the seedbox to attach chain or strap to for easy loading and unloading.
Heavy-duty lid with stay open support	Lid is precision fit to keep seeds dry and rodents out and they won't buckle or slam shut in high winds.
Seed splash guard	Seedbox lid has a guard to prevent seed from being spilled between lid and box.
Water tight Seedbox	All-welded seedbox construction. Keeps moisture out of the seedbox.
Easy seed box clean out	Seed flute is designed for easy clean out.
Large seedbox capacity	One bushel per foot. Keeps filling to a minimum and increases productivity.
Seed box agitator	Eliminates bridging of seed.
Bi-directional seed cups	Allows for seeding, traveling forward and in reverse.
Wind guarded seed drop	Protects the seed from being blown away by windy conditions. Ensures constant placement of seed across the whole width of the machine.
Seed rate adjustment	Easy adjustment of seed rates. Lever position is located on seed rate chart.
Seed rate decal	Positioned on lid. Easy access to seed rate information.
Ground driven metering	Rear packer rollers are in constant contact with the ground to ensure consistent metering of seed. Seed metering stops automatically when rear packer is raised off the ground.
Cast iron packer rollers	9" (22.9 cm) diameter rings are used to crush the clods and pack the seed in to promote seed to soil contact.
Tire track removers	Coil spring tine track removers keep their shape; allows tractor tire(s) to be scratched out.
#40 Roller chain	All drives utilize #40 roller chain for smooth running.
Spring loaded chain idler	Spring loaded idler keeps constant pressure on chain so seeding rate is consistent.
Acremeter option	Allows operator to see how many acres or hectares have been seeded.

Troubleshooting Chart

Problem	Solution
Uneven seed spacing or uneven stand.	Check for plugging in seed cup.
	Reduce ground speed.
	Check for trash or mud buildup on packer rollers.
Actual seeding rate is different than desired.	Seed treatment will affect seeding rate if the chemicals buildup in seed cup. Unless cleaned regularly, this buildup can cause breakage of the seed cup shaft.
Feed cup sprocket locked up or twisted feed cup drive shaft.	Check for foreign matter lodged in seed cup sprocket.
Packing rollers are not turning freely.	Check for trash or mud buildup on roller end.

Torque Values Chart for Common Bolt Sizes													
Bolt Size (inches)	Bolt Head Identification						Bolt Size (Metric)	Bolt Head Identification					
	 Grade 2	 Grade 5	 Grade 8	 Class 5.8	 Class 8.8	 Class 10.9							
in-tpi ¹	N · m ²	ft-lb ³	N · m	ft-lb	N · m	ft-lb	mm x pitch ⁴	N · m	ft-lb	N · m	ft-lb	N · m	ft-lb
1/4" - 20	7.4	5.6	11	8	16	12	M 5 X 0.8	4	3	6	5	9	7
1/4" - 28	8.5	6	13	10	18	14	M 6 X 1	7	5	11	8	15	11
5/16" - 18	15	11	24	17	33	25	M 8 X 1.25	17	12	26	19	36	27
5/16" - 24	17	13	26	19	37	27	M 8 X 1	18	13	28	21	39	29
3/8" - 16	27	20	42	31	59	44	M10 X 1.5	33	24	52	39	72	53
3/8" - 24	31	22	47	35	67	49	M10 X 0.75	39	29	61	45	85	62
7/16" - 14	43	32	67	49	95	70	M12 X 1.75	58	42	91	67	125	93
7/16" - 20	49	36	75	55	105	78	M12 X 1.5	60	44	95	70	130	97
1/2" - 13	66	49	105	76	145	105	M12 X 1	90	66	105	77	145	105
1/2" - 20	75	55	115	85	165	120	M14 X 2	92	68	145	105	200	150
9/16" - 12	95	70	150	110	210	155	M14 X 1.5	99	73	155	115	215	160
9/16" - 18	105	79	165	120	235	170	M16 X 2	145	105	225	165	315	230
5/8" - 11	130	97	205	150	285	210	M16 X 1.5	155	115	240	180	335	245
5/8" - 18	150	110	230	170	325	240	M18 X 2.5	195	145	310	230	405	300
3/4" - 10	235	170	360	265	510	375	M18 X 1.5	220	165	350	260	485	355
3/4" - 16	260	190	405	295	570	420	M20 X 2.5	280	205	440	325	610	450
7/8" - 9	225	165	585	430	820	605	M20 X 1.5	310	230	650	480	900	665
7/8" - 14	250	185	640	475	905	670	M24 X 3	480	355	760	560	1050	780
1" - 8	340	250	875	645	1230	910	M24 X 2	525	390	830	610	1150	845
1" - 12	370	275	955	705	1350	995	M30 X 3.5	960	705	1510	1120	2100	1550
1-1/8" - 7	480	355	1080	795	1750	1290	M30 X 2	1060	785	1680	1240	2320	1710
1-1/8" - 12	540	395	1210	890	1960	1440	M36 X 3.5	1730	1270	2650	1950	3660	2700
1-1/4" - 7	680	500	1520	1120	2460	1820	M36 X 2	1880	1380	2960	2190	4100	3220
1-1/4" - 12	750	555	1680	1240	2730	2010	<div>¹ in-tpi = nominal thread diameter in inches-threads per inch</div> <div>² N · m = newton-meters</div> <div>³ ft-lb= foot pounds</div> <div>⁴ mm x pitch = nominal thread diameter in millimeters x thread pitch</div>						
1-3/8" - 6	890	655	1990	1470	3230	2380							
1-3/8" - 12	1010	745	2270	1670	3680	2710							
1-1/2" - 6	1180	870	2640	1950	4290	3160							
1-1/2" - 12	1330	980	2970	2190	4820	3560							
Torque tolerance + 0%, -15% of torquing values. Unless otherwise specified use torque values listed above. All locknuts or lubricated fasteners: Use 75% of torque value. (i.e. 1/2"-13 GR5 = 76 ft-lb; 75% of 76 or .75 x 76 = 57 ft-lb)													

Warranty

Land Pride warrants to the original purchaser that this Land Pride product will be free from defects in material and workmanship beginning on the date of purchase by the end user according to the following schedule when used as intended and under normal service and conditions for personal use.

Overall Unit: One year Parts and Labor

Packer Rollers: Considered wear items

This Warranty is limited to the repair or replacement of any defective part by Land Pride and the installation by the dealer of any such replacement part, and does not cover common wear items such as blades, belts, tines, etc. Land Pride reserves the right to inspect any equipment or parts which are claimed to have been defective in material or workmanship.

This Warranty does not apply to any part or product which in Land Pride's judgment shall have been misused or damaged by accident or lack of normal maintenance or care, or which has been repaired or altered in a way which adversely affects its performance or reliability, or which has been used for a purpose for which the product is not designed. Misuse also specifically includes failure to properly maintain oil levels, grease points and driveline shafts.

Claims under this Warranty should be made to the dealer which originally sold the product and all warranty adjustments must be made through an authorized Kubota dealer. Kubota reserves the right to make changes in materials or design of the product at any time without notice.

This Warranty shall not be interpreted to render Land Pride liable for damages of any kind, direct, consequential, or contingent to property. Furthermore, Land Pride shall not be liable for damages resulting from any cause beyond its reasonable control. This Warranty does not extend to loss of crops, any expense or loss for labor, supplies, rental machinery or for any other reason.

No other warranty of any kind whatsoever, express or implied, is made with respect to this sale; and all implied warranties of merchantability and fitness for a particular purpose which exceed the obligations set forth in this written warranty are hereby disclaimed and excluded from this sale.

This Warranty is not valid unless registered with Land Pride within 30 days from the date of original purchase. Registration is done by your dealer.

IMPORTANT: The Online Warranty Registration should be completed by the dealer at the time of purchase. This information is necessary to provide you with quality customer service.

Model Number _____ **Serial Number** _____

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Kubota HP: <https://www.kubota.com/network/index.html>