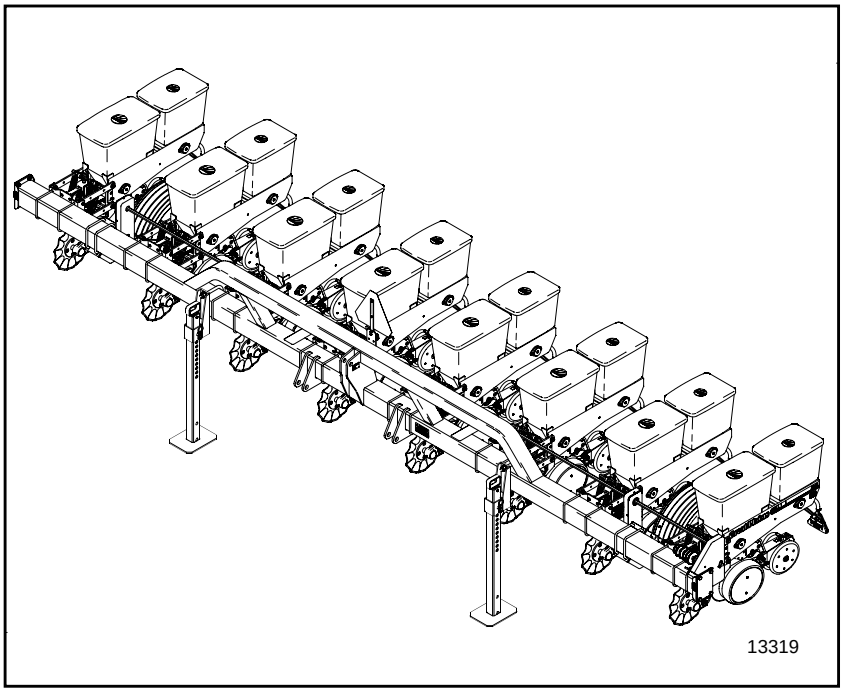
Operator's/Parts Manual

8-Row 36", 38", 40" & 10-Row 30"
3-Point Wide Row Planter

Great Plains
Manufacturing, Inc.
P.O. Box 5060 ● Salina, Kansas 67402-5060

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!

Great Plains



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

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General Information

Important Notice

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Printed in the United States of America.

For your convenience, record your Serial Number, Model Number and the Date Purchased in the spaces provided below. Have this information available when calling your Great Plains Authorized Dealer.

This Operator’s Manual applies to the 8-Row/10-Row 3-Point Wide Row Planter listed below:

8040	**8-Row 40" Planter**
8038	**8-Row 38" Planter**
8036	**8-Row 36" Planter**
1030	**10-Row 30" Planter**

Owner’s Information

Name: _____

Address _____

City_____State ____ Zip _____

Phone_____

Serial Number _____

Model Number _____

Date Purchased_____

Name of Dealership _____

Dealer’s Name _____

Address _____

City_____State ____ Zip _____

Phone_____

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Using this Manual

For your safety and to help in developing a better understanding of your equipment we highly recommend that you read the operator sections of this manual. Reading these sections not only provides valuable training but also familiarizes you with helpful information and its location. The parts sections are for reference only and don't require cover to cover reading. After reviewing your manual store it in a dry, easily accessible location for future reference.

Introduction

This manual has been prepared to instruct you in the safe and efficient operation of your 8-Row/10-Row 3-Point Wide Row Planter. Read and follow all instructions and safety precautions carefully.

The parts on your 8-Row/10-Row 3-Point Wide Row Planter have been specially designed and should only be replaced with genuine Great Plains parts. Therefore, should your 8-Row/10-Row 3-Point Wide Row Planter require replacement parts go to your Great Plains Dealer.

The right hand and left hand as used throughout this manual is determined by facing in the direction the machine will travel when in use unless otherwise stated.

Serial Number
The serial number plate is located on the left hand side of the upper hitch plate. It is suggested that the serial number and purchase date also be recorded for your convenience in the space provided on the checklist page at the beginning of this manual.

The serial number provides important information about your Planter and may be required to obtain the correct replacement part. Always use the serial number and model number when sending correspondence or when ordering parts from your Great Plains Dealer.

The SAFETY ALERT SYMBOL indicates that there is a potential hazard to personal safety involved and extra safety precautions must be taken. When you see this symbol, be alert and carefully read the message that follows it. In addition to design and configuration of equipment; hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of equipment.

Watch for the following safety notations throughout your Operators Manual:

DANGER!
Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. This signal word is limited to the most extreme situations.

WARNING!
Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION!
Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

NOTE: Indicates a special point of information which requires your attention.

Section 1 *Safety Rules*

Most accidents are the result of negligence and carelessness, usually caused by failure of the operator to follow simple but necessary safety precautions. The following safety precautions are suggested to help prevent such accidents. The safe operation of any machinery is a big concern to consumers and manufactures. Your 3-Point Planter has been designed with many built-in safety features. However, no one should operate this product before carefully reading this Operators Manual.

General Operation & Repair

1. *Practice safety by always thinking before acting.*
2. *Never allow the planter to be operated by anyone who is unfamiliar with the operation of all functions of the unit. All operators should read and thoroughly understand the instructions given in this manual prior to moving the unit.*
3. *Make sure safety rules are understood before operating machine or tractor.*
4. *Never permit any persons other than the operator to ride on the tractor.*
5. *Regulate your speed to the field conditions, maintaining complete control at all times.*
6. *Always lower the implement and shut off the tractor engine before making any adjustments.*
7. *After repairing or adjusting, make sure all tools and parts are removed from the implement before attempting to operate it.*
8. *Never work under a raised planter.*
9. *Do not grease or oil machine while it is in operation.*
10. *Loose fitting clothing should not be worn as it may catch in moving parts.*
11. *Never attempt to operate the implement unless you are in the driver's seat.*
12. *Never dismount from a moving tractor.*
13. *Do not leave the tractor or the implement unattended with the engine running.*
14. *Do not stand between the tractor and the implement during hitching.*
15. *Always make sure there are no persons near the planter when the marker assemblies are in operation.*
16. *Watch for obstructions such as wires, tree limbs etc., when folding markers.*
17. *Disk edges are sharp! Be careful when working in this area.*
18. *Detach and store implements in an area where children normally do not play. Stabilize implements by using suitable supports and block wheels.*
19. *If a hydraulic leak develops, correct it immediately. Escaping hydraulic oil can have extremely high pressure. A stream of high pressure oil may easily penetrate the skin as with modern needless vaccination equipment - but with the exception that hydraulic fluid may cause blood poisoning. It is imperative that the connections are tight and that all lines and pipes are in good condition. If an injury is caused by the escaping hydraulic fluid, see doctor at once!*
20. *Use a piece of cardboard or wood to detect leaks of hydraulic oil under pressure.*
21. *Be sure to relieve all hydraulic pressure before disconnection any lines or pipes between the implement and the tractor hydraulic system. Keep all guards and shields in place.*

Transporting

1. *Use good judgement when transporting tractor implements on the highway. Always maintain complete control of the machine.*
2. *Limit transport speed to 20 mph. Transport only with a farm tractor of sufficient size and horse power. (See* **"Section 2 Planter Operation"** *on page 6)*
3. *Always make sure "Slow Moving Vehicle" emblem, and reflectors are in place and visible prior to transporting the machine on public roads.*
4. *Know your state and local laws concerning highway safety and regulations. Comply with these laws when transporting machinery.*

Tire Handling & Repair

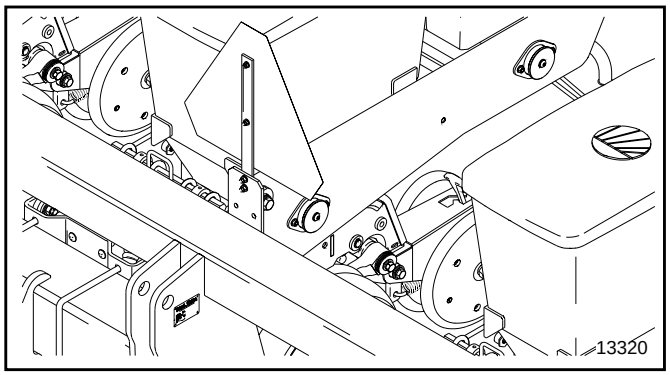
1. *Tire changing can be dangerous and should be preformed by trained personnel using the correct tools and equipment.*
2. *Do not re-inflate a tire that has been run flat or seriously under inflated. Have it checked by qualified personnel.*
3. *When removing and installing wheels, use wheel handling equipment adequate for the weight involved.*

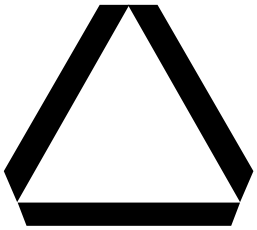
Agricultural Chemicals

1. *Agricultural chemicals can be dangerous. Always select the correct chemical for the job. Improper usage of fertilizers, fungicides, herbicides, insecticides, and pesticides could cause injury to all living things.*
2. *Always read instructions supplied by the manufactures before opening chemical containers. Read and follow instructions supplied by the chemical manufacturer carefully before each use.*
3. *Apply the same precautions when adjusting, servicing, cleaning, or storing the planter as you would when putting chemicals into the planter.*
4. *Inform anyone who may come in contact with chemicals, or a planter with chemicals, of any potential hazard or safety precaution that should be observed.*
5. *Avoid inhaling smoke from any type of chemical fire.*
6. *Store or dispose of all unused chemicals as specified by the chemical manufacturer.*

Safety Decals

1. *Your 3-Point Planter comes equipped with all safety decals in place. They were designed to help you safely operate your planter. Read and follow their directions.*
2. *Keep safety decals clean and legible.*
3. *Replace all damaged or missing safety decals. To order new safety decals go to your Great Plains Dealer and refer to the parts section for safety decal package part number.*
4. *Replace these decals whenever they become worn or unreadable. See the parts section for the correct location of these decals. To install new safety decals:*
   a. *Clean the area the decal is to be placed*
   b. *Peel backing from the decal. Press firmly on to surface being careful not to cause air bubbles under the decal.*





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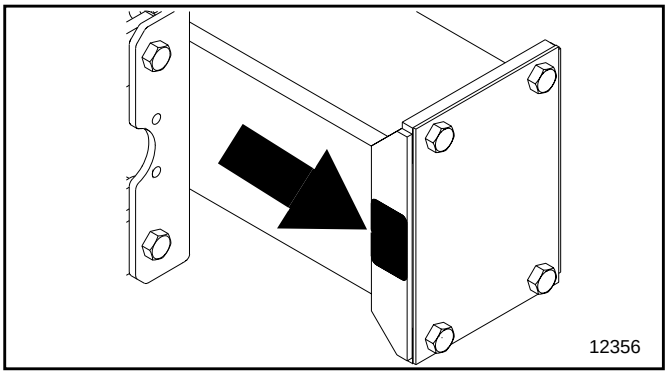
Slow Moving Vehicle Emblem



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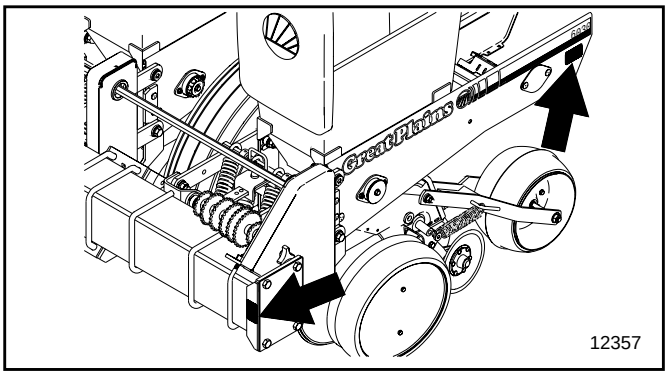
Red Reflectors



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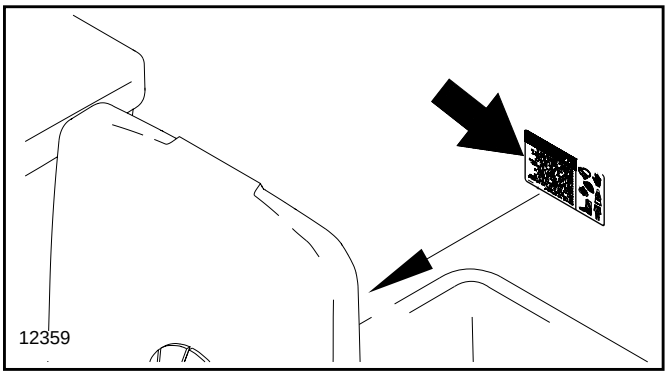
Amber Reflectors



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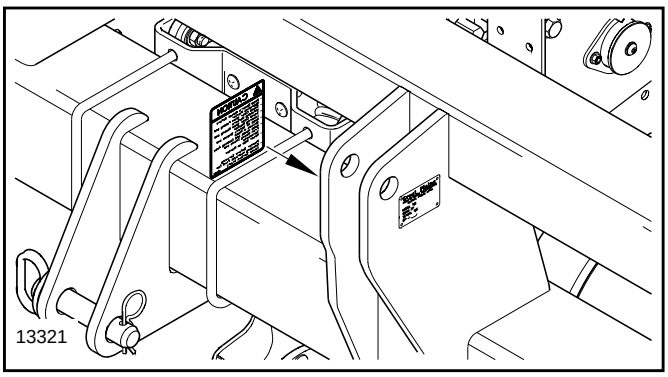
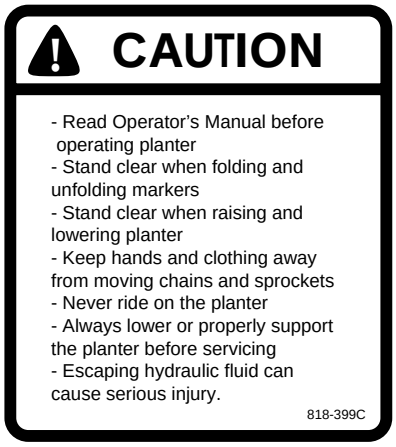
Ag Chemicals Caution

(Located inside the chemical lid)





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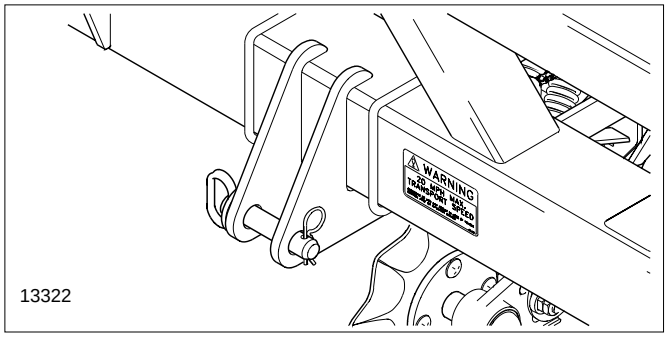
Planter
Operational Cautions



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Transport Speed Warning

Section 2 *Planter Operation*

The following section was written to provide general information on the planter and tractor operation.

Initial Preparation of the Planter

- Lubricate the planter and markers as shown in **“Section 6 Lubrication”** on page 26.
- Check the tires for proper inflation, refer to the Tire Inflation Chart in **"Section 9 Specifications"** on page 33.
- Check the chains for proper tension and alignment as shown in **"Section 7 Maintenance"** on page 28.
- Perform all beginning of season and daily planter service as discussed in **“Section 8 Storage”** on page 32.
- Check over the planter and replace worn or damaged parts before going to the field.
- All nuts, bolts and screws should be checked per the Torque Value Chart in **"Section 9 Specifications"** on page 28.
- The legs of the cotter pins should be spread.

Tractor Preparation

Recommended Tractor Horsepower

Minium required draw bar horsepower for field work

8-row planter	100 - 140 HP
10-row planter	120 - 160 HP

NOTE: The tractor must have adequate Category III 3 point hitch lift capacity to lift the machine weight, attachments, seeds and dry chemicals. Shipping weights, (refer to **“Section 9 Specifications”** on page 33), do not include seed, dry chemicals or optional attachments.

For tractor front end stability additional tractor ballast may be required. Add front ballast according to your tractor's operator’s manual.

Attaching the Planter to the Tractor

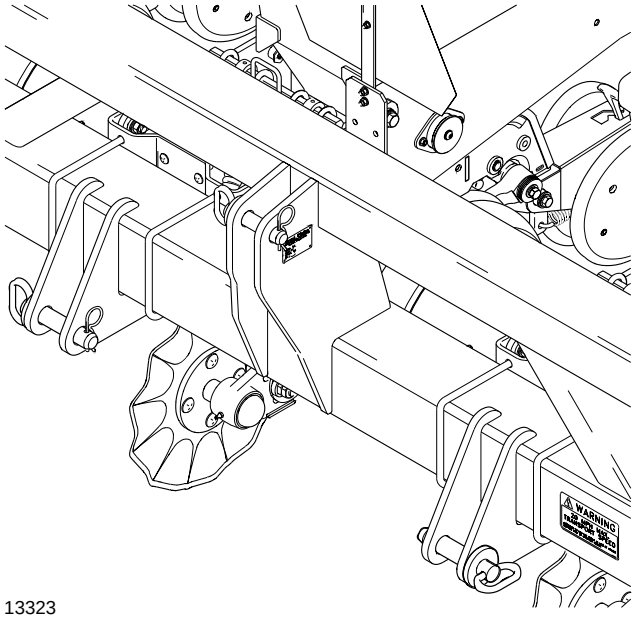
For the planter to function properly, attach the planter to the tractor in the following manner.

1. Set the tractor wheels at double the planter row spacing. Example: For a planter with 30" rows the front and rear wheels should be set at 60" center to center. This prevents soil compaction on the rows. On hillsides and steep slopes set the wheels as wide as possible for maximum stability.
2. Adjust the tractor lower lift links to maximize lifting height.

NOTE: To keep the planter level make sure that the lower lift links are adjusted evenly.

Set the tractor sway blocks to minimize side sway. Position the lift controls in float position.

3. Back the tractor up to the planter. Align the lower links with the lower hitch holes on the planter. Insert the hitch pins and the spacers, supplied with the planter, according to the category of your tractor, Figure 2-1. Lock the pins in place.
4. The tractor Category III top link is attached in the hole in the mast. Figure 2-1.To attach the top link some adjustment may be required.
5. Raise the planter and look for any interference while standing between the planter row units. Remove the pin holding the parking stand and raise the stands to the transport position. Put the pin in the lowest hole in each stand, see. Never work under a raised Planter.
6. On level ground, lower the planter onto the gauge wheels. If the planter is not level see Leveling the Planter page 7.



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Hitch on Planter
Figure 2-1

Transporting

CAUTION!

The planter should never be transported faster than 20 miles per hour!

Before transporting the planter, check and practice the following items:

- The planter can be transported with full boxes of seed. It is best NOT to because the extra weight increases the chances for problems on the road. **Do not exceed 20 miles per hour.**

NOTE: In order to maintain steering control, ballast may need to be added to tractor front end. To determine the amount of ballast required refer to your tractor's operator manual.

- Check to see that the gauge tires on the planter have the proper inflation as listed in the Tire Inflation Chart in **"Section 9 Specifications"** on page 28.
- Comply with all Federal, State and Local Safety Laws when traveling on public roads.
- Remember, the planter is wider than the tractor and extreme care must be taken to allow for safe clearance.

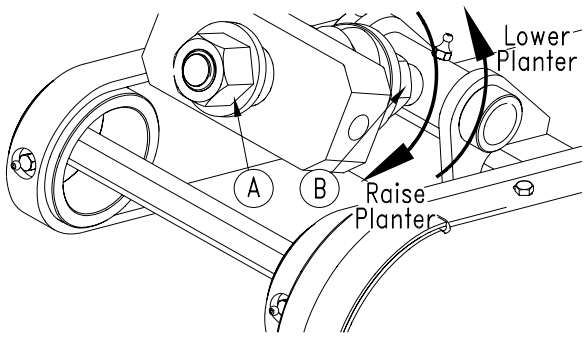
Leveling the Planter

The planter must be level for the row units to function correctly. Before leveling the planter check tire pressures as specified in the Tire Inflation Chart in **"Section 9 Specifications"** on page 33.

Adjust the lower links on the tractor to level the planter side to side. It is best to adjust the links evenly before the planter is attached to the tractor.

After setting the row units to the proper planting depth in the field, stop the tractor on flat ground with the planter lowered. Check the front-to-back level of the planter. The bottom of the frame tube should be parallel to the ground. If this is not parallel, adjust the upper link on the tractor accordingly.

If the row unit arms are not parallel to the ground, the gauge wheel modules must be adjusted equally. Measure the vertical distance between the front pivot and rear pivot of a row unit arm, see Figure 2-3. This is the amount that the gauge wheel needs to be adjusted. Raise the planter and loosen the jam nut (A) on the wheel module. To lower the planter, turn the nut (B) at the opposite end of the link counter-clockwise and clockwise to raise the planter, see Figure 2-2. Tighten the jam nut after reaching the desired wheel location.



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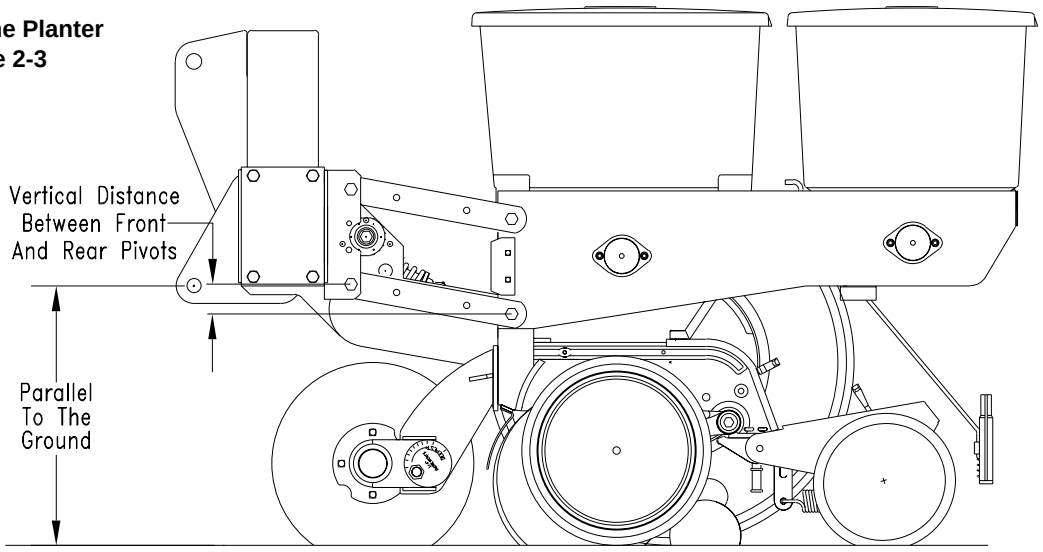
Gauge Wheel Module Adjustment
Figure 2-2

WARNING!

Never work under the planter while in the raised position.

Leveling the Planter
Figure 2-3



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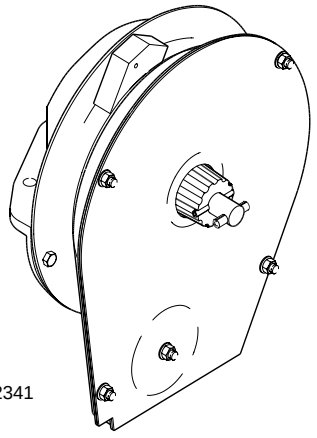
Section 3 *Row Unit Operation*

Finger Pickup Meter

This planter is equipped with a 12 finger mechanical corn meter see Figure 3-1. Refer to the Planter Rate for Finger Pickup Corn Meter chart in **"Section 4 Adjusting Planting Rates"** on page 14 for adjusting the planting rates and sprocket combinations.

IMPORTANT: To extend the life and maximize efficiency of the finger pickup meter, sprinkle 1 teaspoon of powdered graphite on top of the seeds in the hopper, see Figure 3-2. The graphite will work its way down to lubricate the meter mechanism.

For more information on the meter, see **"Section 5 Troubleshooting"** on page 25 & **"Section 7 Maintenance"** on page 28.



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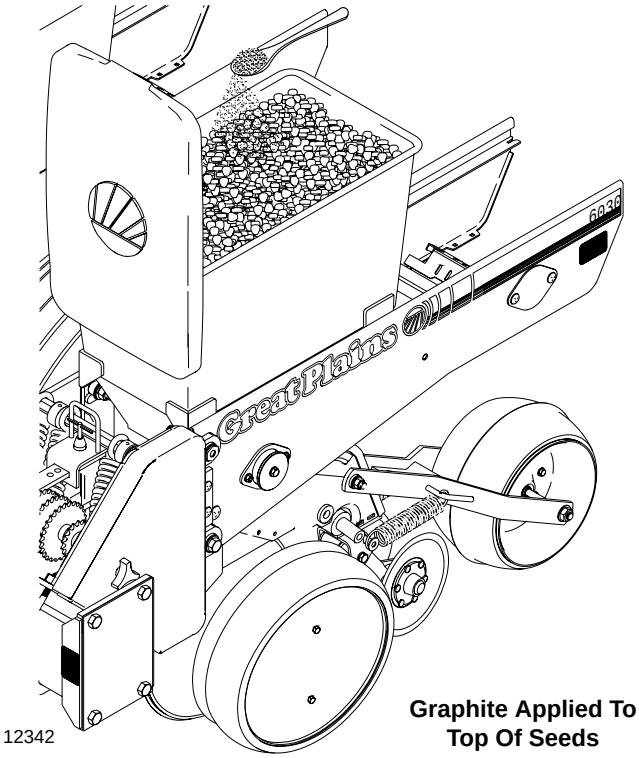
Finger Pickup Meter
Figure 3-1



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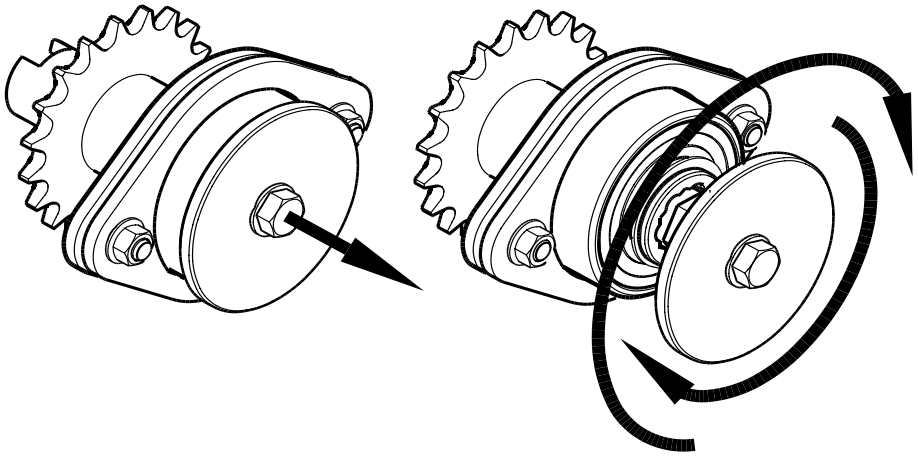
Graphite Applied To Top Of Seeds
Figure 3-2

Meter Clutches

To disengage either the seed hopper clutch or the chemical hopper clutch pull the knob and rotate 30 degrees clockwise or counter-clockwise until the points on the hex shaft align with the indentations in the end of the drive hub then release knob. See Figure 3-3.

To engage the clutches, pull and rotate the knob until the shaft aligns with the drive hub then release.



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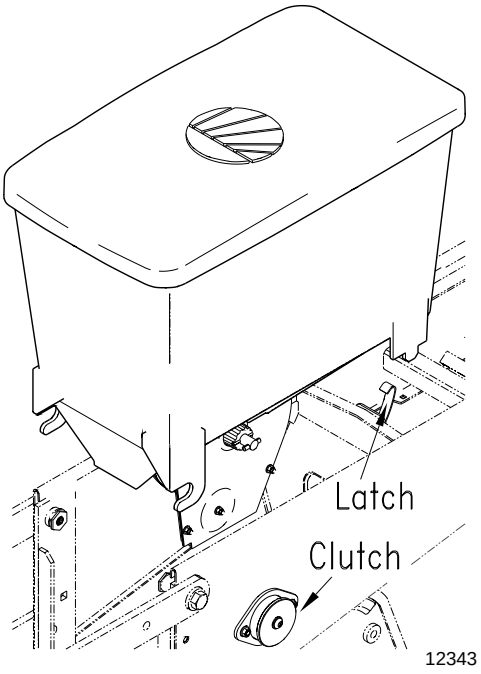
Disengage Meter Clutch
Figure 3-3

Seed Hopper

The row unit is equipped with one 2-bushel seed hopper.

Before filling the seed hopper, clear it of foreign objects. After filling the hopper with clean seeds always replace the hopper lid. Operating with the lids attached prevents objects from entering the hopper and also aids in keeping out moisture.

Empty the contents of the hopper periodically to avoid the collection of dirt and other materials. To remove the hopper, disengage the meter drive clutch and the hopper latch, see arrows Figure 3-4.



Meter Clutch, Latch & Seed Hopper
Figure 3-4

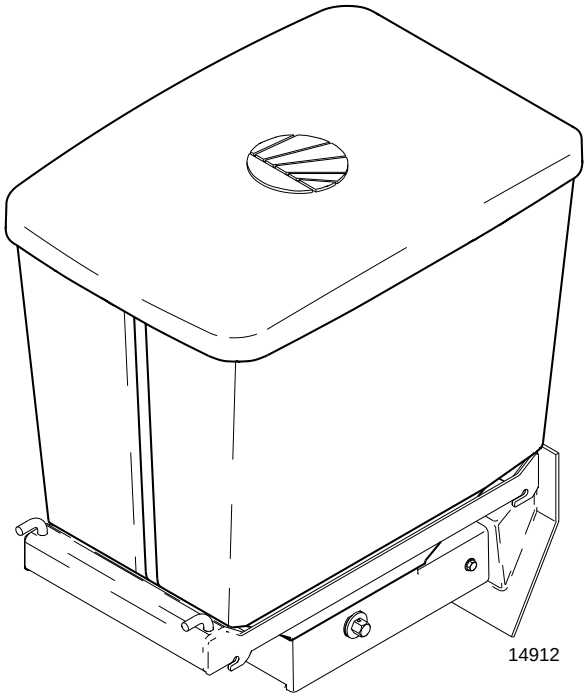
Chemical Hopper

The optional chemical hopper comes in 2 versions:

- 1 chemical meter and an 80 lb. capacity hopper
- 2 chemical meters and 1 divider that separates the 80 lb. hopper into 2 compartments - approximately 40 lbs. each.

Before filling the chemical hopper(s) clear it/them of foreign objects. After filling the hopper(s) replace the hopper(s) lid(s). Operating with the lids attached prevents objects from entering the hopper and also aids in keeping out moisture

Empty the contents of the hopper(s) periodically to avoid the collection of dirt and other materials. To remove the hopper(s), disengage the meter drive clutch and the 2 latch pins at the front of the hopper, see Figure 3-5.



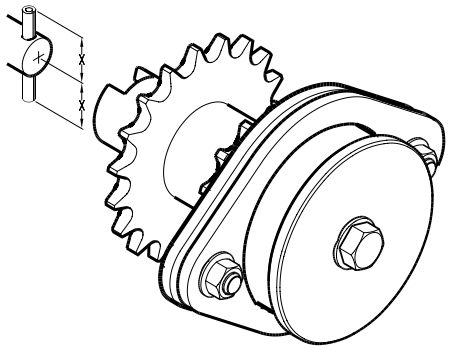
Meter Clutch, Latch & Chemical Hopper
Figure 3-5

Seed and Chemical Meter Drive Adjustments

The alignment between the meter clutch and the input shaft is important. If there is misalignment the meter will not function properly. Excessive wear and damage can also occur to the meter housings. When replacing the meter the vertical and horizontal alignment should be checked.

Check for Vertical Alignment (Refer to Figure 3-6)**:**

1. Latch the appropriate hopper into place on the support.
2. The roll pin in the end of meter input shaft should be centered (equal distances of the roll pin should protrude from both sides of the shaft).
3. Rotate the input shaft so that the roll pin is vertical.
4. Rotate the drive coupler so that the slots are vertical.
5. Release the clutch to engage the drive coupler with the input shaft.



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Vertical Alignment
Figure 3-6

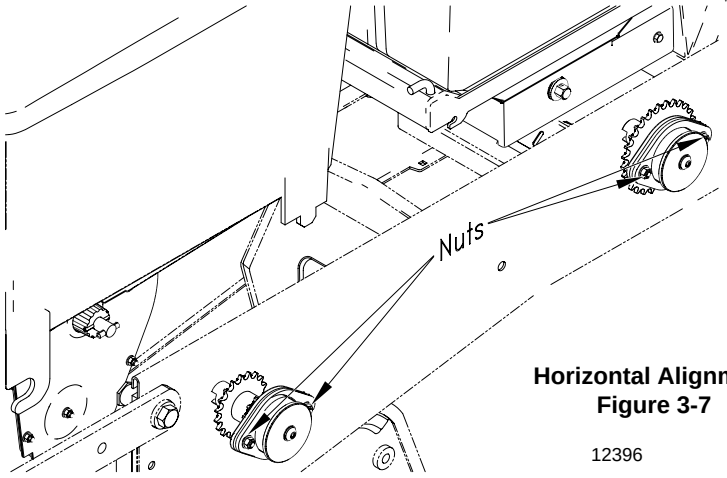
If the alignment is correct the coupler will engage with the shaft freely and the roll pin will extend equally on each side of the coupler. Disengage the clutch and check the horizontal alignment.

Check for Horizontal Alignment (Refer to Figure 3-7):

1. Latch the appropriate hopper into place on the hopper support.
2. The roll pin in the end of meter input shaft should be centered (equal distances of the roll pin should protrude from both sides of the shaft).
3. Rotate the input shaft so that the roll pin is horizontal.
4. Rotate the drive coupler so that the slots are horizontal.
5. Release the clutch to engage the drive coupler with the input shaft.

To adjust alignment:

- With the hopper in place loosen the two 5/16" nuts.
- Engage the clutch to the meter input shaft.
- Align clutch with shaft and tighten 5/16" nuts to torque values in the Specifications section.



Horizontal Alignment
Figure 3-7

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Down Force Row

Standard Spring Package

The standard down force spring package, consists of 2 non-adjustable springs applying approximately 90 lbs. of down force.

Optional Medium and Heavy Duty Spring Package

The medium and heavy duty spring packages consist of 2 or 4 adjustable springs, respectively. The medium duty package can be adjusted from approximately 100 to 200 lbs. down force. The heavy duty package can be adjusted from approximately 200 to 400 lbs. of down force.

Spring Adjustments

- All spring adjustments must be made with the planter in the fully raised position.

NOTE: The maximum down force stated before is reached when the parallel arms are all the way up.

- The spring package is adjustable from 90 lbs. to 325 lbs. of down force when the parallel arms are horizontal. Consult the Down Force Pressure Chart on page 11 to obtain the desired down force.

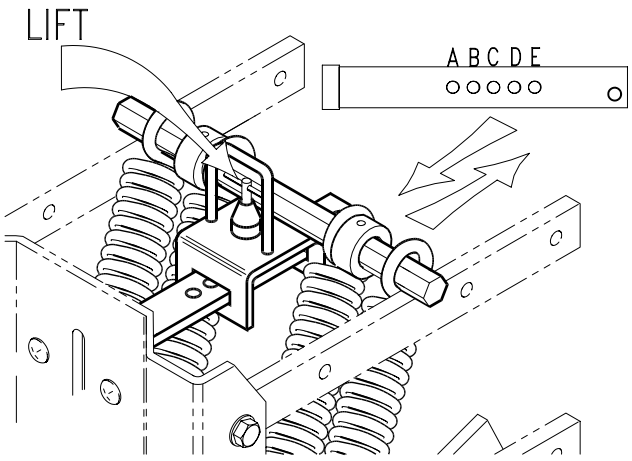
NOTE: To adjust the spring tension, lift the plunger by pulling up on the roll pin handle and sliding the handle adjustment assembly into the appropriate hole, see Figure 3-8.

- Two springs can be purchased at your Great Plains Dealer to make the medium duty package into a heavy duty package or two springs can be removed from the heavy duty package to make a medium duty package. Add or subtract springs by removing the cotter key at the end of the spring pivot rod. Slide the rod inward to add or remove a spring from each side. Then attach or remove the other spring end on the hex bar support.

Down Force Pressure Chart

To Obtain This * Down Force	Use This # of Springs	In This Hole
90 lbs.	2	A
105 lbs.	2	B
125 lbs.	2	C
140 lbs.	2	D
160 lbs.	2	E
185 lbs.	4	A
215 lbs.	4	B
245 lbs.	4	C
285 lbs.	4	D
325 lbs.	4	E

***** *Force when arms are parallel.*



12137

Adjustment Bar
Figure 3-8

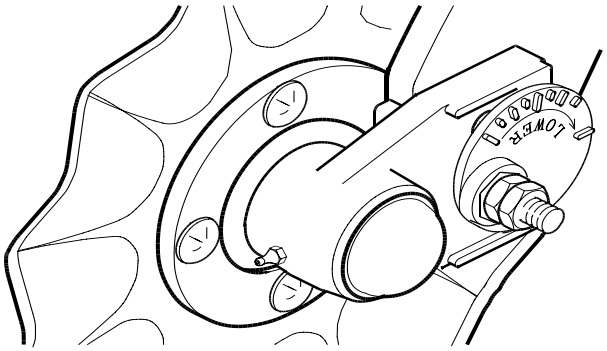
Reinstall the spring rod and snap ring on each side.

Row Unit Mounted Coulter

The optional coulter allows the planter to penetrate tough ground conditions. It is recommended that either the medium duty or heavy duty spring package be used in conjuction with this coulter.

Coulter Adjustments

1. To adjust the coulter vertically, loosen the 3/4" jam nut and the 3/4" x 3" long hex bolt, see Figure 3-9.
2. By turning the cam hex, rotate the cam casting to set the desired height. For wavy coulter blades, it is recommended that the coulter blade should be run even to 1" below the disks on the row unit.
3. Tighten the bolt and jam nut to torque values in the Torque Value Chart in **"Section 9 Specifications"**



12208

Row Unit Mounted Coulter
Figure 3-9

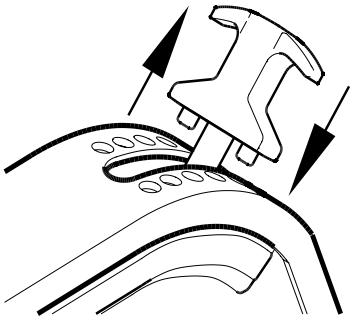
on page 28.

Depth Adjustment

The planting depth of the row unit is controlled by 2 walking gauge tires located next to the disks.

Adjust the planting depth as follows:

1. Raise the planter to remove weight from the gauge tires.
2. Raise the T-handle and move it forward to decrease the planting depth, see Figure 3-10. Moving the handle rearward increases the planting depth. Small increments of depth adjustment can be made by walking the T-handle from side to side.
3. After one row is set to the desired depth, move the T-handle on the other rows to the same location.



12345

T-Handle Adjustment
Figure 3-10

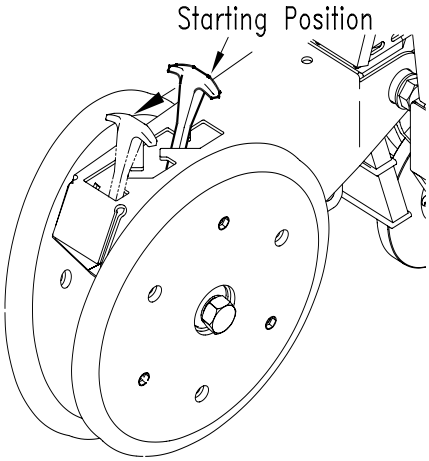
1 x 12 Closing Wheel Adjustments

The 1 X 12 closing wheel option can be adjusted for down force, alignment, and offset.

Closing Wheel Down Force Adjustment

Adjust the closing wheel down force to permit proper closing of the seed trench. It is recommended to start with

the T-handle in the first of 4 notches, see Figure 3-11. If the seed trench is not closing move the handle to the next notch back and try again. Keep moving the handle back until the seed trench is closing, by doing this eliminates unnecessary down force and compaction. In some field conditions, the T-handle can be left in the forward slot to minimize down force.



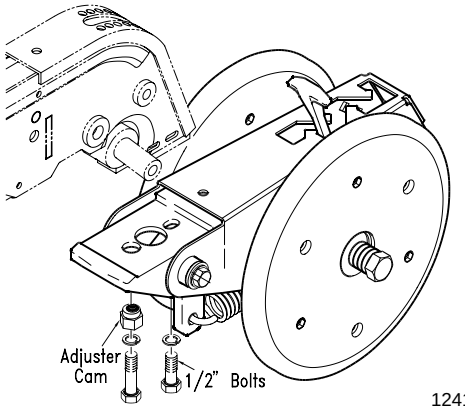
12346

Closing Wheel Adjuster
Figure 3-11

Closing Wheel Alignment (Refer to Figure 3-12)

If one closing wheel is running in the seed trench or the wheels are not centered over the seed trench, adjust the closing wheels as follows:

1. Raise the planter slightly to remove weight from the closing wheels.
2. Loosen the two 1/2" bolts.
3. Turn the press wheel adjuster left or right to center the wheels over the seed trench.
4. Tighten the 1/2" bolts to the correct torque value listed in theTorque Values Chart in **"Section 9 Specifications"** on page 28.



12418

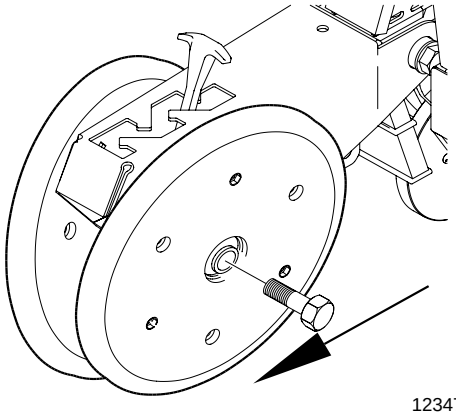
Closing Wheel Alignment
Figure 3-12

Closing Wheel Offset

The 1x12 wheels can be offset to help prevent trash from plugging the closing wheels. If the closing wheels are not offset, the wheels should be located in the front holes of the press wheel arm.

To offset the wheels, do as follows:

1. Raise planter slightly to remove weight on the closing wheels.
2. Remove the 3/4” bolt holding the wheel, see Figure 3-13.
3. Move the wheel to the rear hole and attach with the 3/4" bolt. Tighten the bolt to the correct torque value listed in theTorque Values Chart in **"Section 9 Specifications"** on page 28.



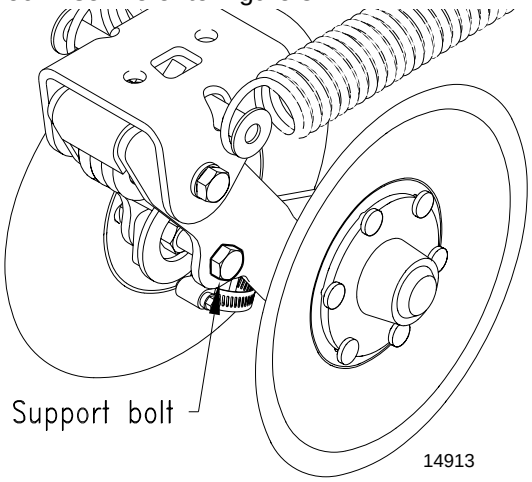
12347

Closing Wheel & Offset
Figure 3-13

Closing Disk Adjustments

The closing disk options consists of two disks and a 6 1/2 x 12 press wheel. The disk down pressure can be adjusted to provide closing of the seed trench.

To adjust the down pressure, ratchet the spring cam to the next cam height by turning the head of the support bolt clockwise. Refer to Figure 3-14.



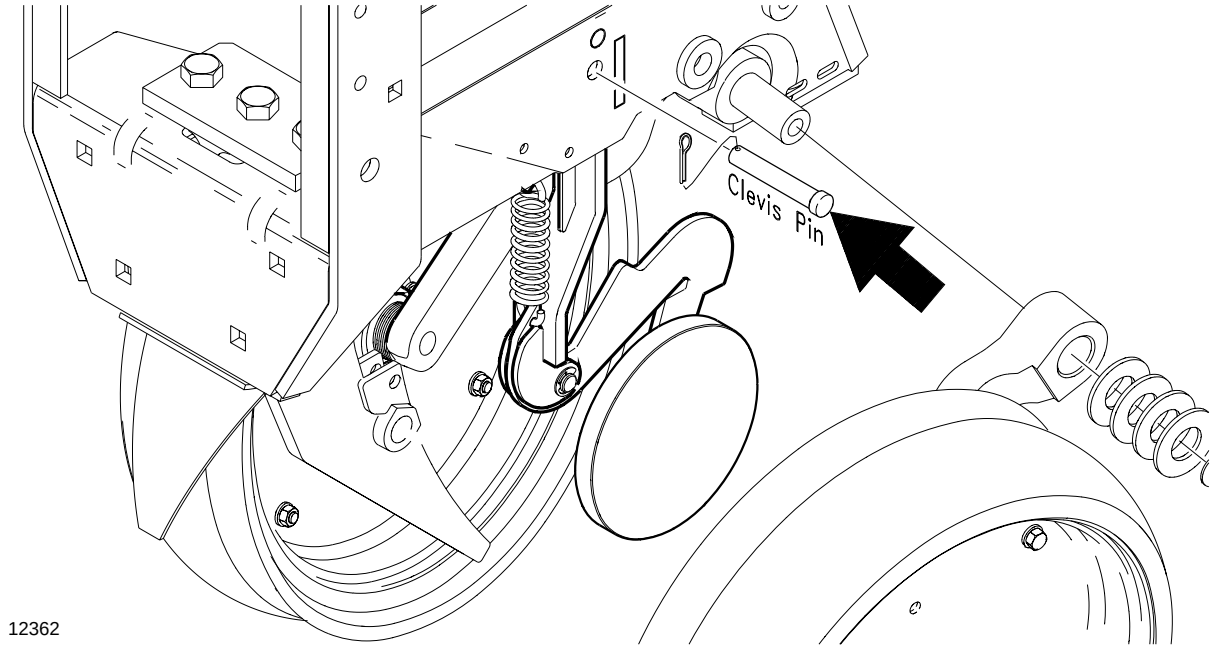
14913

Closing disk & Tube Holes
Figure 3-14

Seed Lok

The seed lok option provides additional seed to soil contact. The seed lok is spring loaded and does not require adjusting. In some wet and sticky conditions the wheel may accumulate soil and may require removal of the seed lok until conditions improve.

The seed lok is attached to the shank with a 1/2" clevis pin, see Figure 3-15. To remove the seed lok, remove the clevis pin and pull down on the seed lok mount. Reattach in the reverse order.



Seed Lok Assembly
Figure 3-15

Section 4 *Adjusting Planting Rates*

This section discusses the adjustments and settings for seeding and chemical rates.

Planting Rates

Please read the following sections. Complete understanding of this process will help to prevent problems.

Transmission Adjustment

Planting population changes are accomplished by setting the sprocket transmission. By changing the combination of sprockets the desired planting populations can be achieved.

To change the sprocket combination, do as follows:

1. Select the sprocket combination for your planting population from the**" Planting Rates for Finger Pickup Corn Meter Chart"** in this section on page 21 and 22.
2. Remove the cover from the transmission by loosening the knob on the cover.
3. Release the spring tensioner on the idler, see Figure 4-1.
4. Remove the chain and sprockets.
5. Exchange the sprockets with the desired sprockets, selected in step 1, on the storage bracket.

Note: When not in use, keep all extra sprockets on the storage bracket.

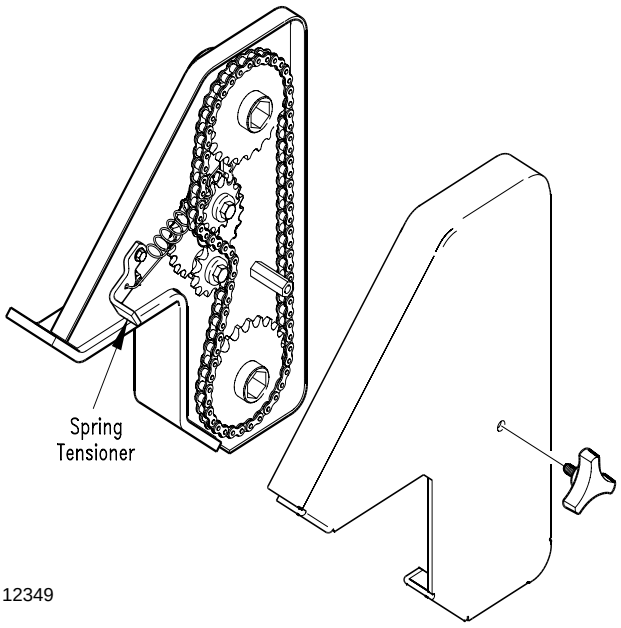
6. Place the sprockets on the drive/driven shafts according to the **" Planting Rates for Finger Pickup Corn Meter Chart"** in this section on page 21.
7. Loop the chain over the sprockets and between the 2 idlers.
8. Turn the idler plate counter-clockwise (ccw) to take up the slack. Hook the spring onto the idler plate Rotate the tensioner over center. If the chain is too loose, hook the spring onto the next notch in the plate.
9. Replace the transmission cover and hand tighten the knob.

Checking Planting Population

After setting the transmission, ALWAYS check the planting population in the field.

Follow these steps to check the planting population:

1. Tie up 1 or more closing disks or wheels with a chain or heavy wire to the hopper support. Releasing the spring pressure on the disks and wheels will make this easier. Adjust the planting depth to a shallow setting. It may be necessary to tie up the seed lok wheels so that the seeds are easier to find.
2. Plant at a normal speed for a short distance.



Spring Tensioner on Transmission
Figure 4-1

3. Measure 1/1000 of an acre. Refer to table below for conversions.

Row Planter	1/1000 of an Acre
40"	13' - 1"
38"	13' - 9"
36"	14' - 6"
30"	17' - 6"

4. Multiply the number of seeds counted by 1000. This gives you total population.

Example: (for one row)

- 30" row spacing
- 17' 6" of seed trench measured off
- 24 seeds counted in measured distance

24 Seeds Counted X 1000 =

24,000 Plant Population Per Acre

If the planting population is significantly different than the desired planting population, make the following checks:

- Check the sprocket combination in the transmission, refer to the **" Planting Rates for Finger Pickup Corn Meter Chart"** in this section on page 21 and 22.
- Check the tire pressure in the gauge wheels, see Specification in **" Section 9 Specifications"** on page 33.
- Check for meter malfunction, see Finger Pickup Corn Meter in **"Section 5 Troubleshooting"** on page 25.

Planting recommendations

To get the best planting results, follow these recommendations:

- Plant at 5 mph
- Add 1 teaspoon of graphite to each seed hopper.
- Maintain tire pressure in the gauge tires.
- Replace worn meter parts.

Adjusting Granular Chemical Rates

The optional chemical applicators are adjusted by varying the opening on the chemical meter housing. The field check is very important because temperature, humidity, speed, ground conditions, flowability of chemicals, and obstructions affect the application rate.

WARNING!

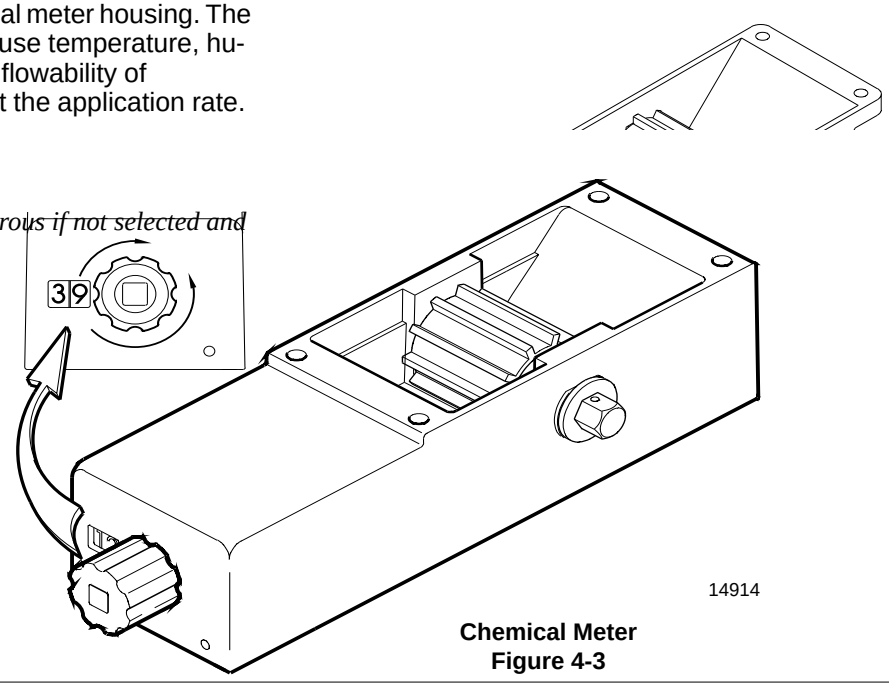
Agricultural chemicals can be dangerous if not selected and handled with care. Always read and follow directions supplied by the chemical manufacturer.

To adjust the chemical rate do as follows:

1. Select a setting from the "**Granular Chemical Rate Chart"** on pages 16 through 24, as a starting point.
2. Slide the handle on the meter to the setting, see Figure 4-2 and Granular Chemical Rate Chart on pages 23 and 24.
3. If the meter has a knob, turn until the display shows the appropriate number, see Figure 4-2 and Granular Chemical Rate Chart on pages 16 through 20.
4. Fill the hoppers with chemical.
5. Attach a plastic bag to each chemical diffuser.
6. Drive 1320' or a 1/4 of a mile at a normal planting speed.
7. Weigh the contents of the bag in ounces.
8. Multiply ounces by the factor in the table to determine the pounds per acre.

Row Planter	Ounces
40"	.62
38"	.65
36"	.69
30"	.83

9. If required, adjust the meter setting and repeat steps 4 through 7 until the desired rate is reached.



Chemical Meter
Figure 4-3

Insecticide Application Rates

Clay Agrisorb 30/60 Chemical Rate Chart
Approximate Rate in Lbs/Acre

Meter Setting	30 Inch Rows			36 Inch Rows			38 Inch Rows			Ounces per 1000 Row Ft.		
	miles per hour			miles per hour			miles per hour			miles per hour		
	4	6	8	4	6	8	4	6	8	4	6	8
10	0.9	0.6	0.5	1.1	0.8	0.6	1.2	0.8	0.6	0.87	0.58	0.43
11	1.1	0.7	0.6	1.3	0.9	0.7	1.4	0.9	0.7	1.03	0.69	0.51
12	1.3	0.9	0.7	1.6	1.1	0.8	1.7	1.1	0.8	1.22	0.82	0.61
13	1.6	1.1	0.8	1.9	1.3	0.9	2.0	1.3	1.0	1.45	0.97	0.72
14	1.9	1.2	0.9	2.2	1.5	1.1	2.3	1.6	1.2	1.70	1.13	0.85
15	2.1	1.4	1.1	2.6	1.7	1.3	2.7	1.8	1.4	1.97	1.32	0.99
16	2.5	1.6	1.2	3.0	2.0	1.5	3.1	2.1	1.6	2.27	1.51	1.14
17	2.8	1.9	1.4	3.4	2.3	1.7	3.6	2.4	1.8	2.59	1.72	1.29
18	3.2	2.1	1.6	3.8	2.5	1.9	4.0	2.7	2.0	2.92	1.94	1.46
19	3.6	2.4	1.8	4.3	2.8	2.1	4.5	3.0	2.2	3.26	2.17	1.63
20	3.9	2.6	2.0	4.7	3.2	2.4	5.0	3.3	2.5	3.62	2.41	1.81
21	4.3	2.9	2.2	5.2	3.5	2.6	5.5	3.7	2.7	3.99	2.66	1.99
22	4.8	3.2	2.4	5.7	3.8	2.9	6.0	4.0	3.0	4.37	2.91	2.18
23	5.2	3.4	2.6	6.2	4.1	3.1	6.5	4.4	3.3	4.75	3.17	2.37
24	5.6	3.7	2.8	6.7	4.5	3.4	7.1	4.7	3.5	5.14	3.43	2.57
25	6.0	4.0	3.0	7.2	4.8	3.6	7.6	5.1	3.8	5.53	3.69	2.77
26	6.5	4.3	3.2	7.7	5.2	3.9	8.2	5.4	4.1	5.93	3.95	2.96
27	6.9	4.6	3.4	8.3	5.5	4.1	8.7	5.8	4.4	6.33	4.22	3.16
28	7.3	4.9	3.7	8.8	5.9	4.4	9.3	6.2	4.6	6.72	4.48	3.36
29	7.8	5.2	3.9	9.3	6.2	4.7	9.8	6.5	4.9	7.12	4.75	3.56
30	8.2	5.5	4.1	9.8	6.6	4.9	10.4	6.9	5.2	7.52	5.01	3.76
31	8.6	5.7	4.3	10.3	6.9	5.2	10.9	7.3	5.5	7.92	5.28	3.96
32	9.1	6.0	4.5	10.9	7.2	5.4	11.5	7.6	5.7	8.31	5.54	4.16
33	9.5	6.3	4.7	11.4	7.6	5.7	12.0	8.0	6.0	8.71	5.80	4.35
34	9.9	6.6	5.0	11.9	7.9	5.9	12.5	8.4	6.3	9.10	6.06	4.55
35	10.3	6.9	5.2	12.4	8.3	6.2	13.1	8.7	6.5	9.48	6.32	4.74
36	10.7	7.2	5.4	12.9	8.6	6.4	13.6	9.1	6.8	9.87	6.58	4.93
37	11.2	7.4	5.6	13.4	8.9	6.7	14.1	9.4	7.1	10.25	6.83	5.12
38	11.6	7.7	5.8	13.9	9.3	6.9	14.6	9.8	7.3	10.62	7.08	5.31
39	12.0	8.0	6.0	14.4	9.6	7.2	15.2	10.1	7.6	11.00	7.33	5.50
40	12.4	8.3	6.2	14.9	9.9	7.4	15.7	10.5	7.8	11.37	7.58	5.69
41	12.8	8.5	6.4	15.3	10.2	7.7	16.2	10.8	8.1	11.74	7.83	5.87
42	13.2	8.8	6.6	15.8	10.5	7.9	16.7	11.1	8.3	12.11	8.07	6.05
43	13.6	9.1	6.8	16.3	10.9	8.2	17.2	11.5	8.6	12.47	8.32	6.24
44	14.0	9.3	7.0	16.8	11.2	8.4	17.7	11.8	8.8	12.84	8.56	6.42
45	14.4	9.6	7.2	17.2	11.5	8.6	18.2	12.1	9.1	13.20	8.80	6.60
46	14.8	9.8	7.4	17.7	11.8	8.9	18.7	12.5	9.3	13.56	9.04	6.78
47	15.2	10.1	7.6	18.2	12.1	9.1	19.2	12.8	9.6	13.92	9.28	6.96
48	15.6	10.4	7.8	18.7	12.4	9.3	19.7	13.1	9.8	14.28	9.52	7.14
49	16.0	10.6	8.0	19.1	12.8	9.6	20.2	13.5	10.1	14.65	9.76	7.32
50	16.3	10.9	8.2	19.6	13.1	9.8	20.7	13.8	10.3	15.01	10.01	7.51
51	16.7	11.2	8.4	20.1	13.4	10.0	21.2	14.1	10.6	15.38	10.25	7.69
52	17.2	11.4	8.6	20.6	13.7	10.3	21.7	14.5	10.9	15.75	10.50	7.87
53	17.6	11.7	8.8	21.1	14.0	10.5	22.2	14.8	11.1	16.12	10.75	8.06
54	18.0	12.0	9.0	21.6	14.4	10.8	22.8	15.2	11.4	16.50	11.00	8.25
55	18.4	12.3	9.2	22.1	14.7	11.0	23.3	15.5	11.6	16.88	11.26	8.44
56	18.8	12.5	9.4	22.6	15.0	11.3	23.8	15.9	11.9	17.27	11.52	8.64
57	19.2	12.8	9.6	23.1	15.4	11.5	24.4	16.2	12.2	17.67	11.78	8.83
58	19.7	13.1	9.8	23.6	15.7	11.8	24.9	16.6	12.5	18.07	12.05	9.04
59	20.1	13.4	10.1	24.2	16.1	12.1	25.5	17.0	12.7	18.48	12.32	9.24

Clay Agrisorb 30/60 Chemical Rate Chart (Continued)
Approximate Rate in Lbs/Acre

Meter Setting	30 Inch Rows miles per hour			36 Inch Rows miles per hour			38 Inch Rows miles per hour			Ounces per 1000 Row Ft. miles per hour		
	4	6	8	4	6	8	4	6	8	4	6	8
60	20.6	13.7	10.3	24.7	16.5	12.4	26.1	17.4	13.0	18.90	12.60	9.45
61	21.1	14.0	10.5	25.3	16.8	12.6	26.7	17.8	13.3	19.33	12.89	9.67
62	21.5	14.4	10.8	25.8	17.2	12.9	27.3	18.2	13.6	19.77	13.18	9.89
63	22.0	14.7	11.0	26.4	17.6	13.2	27.9	18.6	13.9	20.22	13.48	10.11
64	22.5	15.0	11.3	27.0	18.0	13.5	28.5	19.0	14.3	20.68	13.79	10.34
65	23.0	15.4	11.5	27.6	18.4	13.8	29.2	19.4	14.6	21.16	14.10	10.58
66	23.6	15.7	11.8	28.3	18.9	14.1	29.8	19.9	14.9	21.64	14.43	10.82
67	24.1	16.1	12.1	28.9	19.3	14.5	30.5	20.3	15.3	22.14	14.76	11.07
68	24.7	16.4	12.3	29.6	19.7	14.8	31.2	20.8	15.6	22.65	15.10	11.33
69	25.2	16.8	12.6	30.3	20.2	15.1	32.0	21.3	16.0	23.18	15.45	11.59
70	25.8	17.2	12.9	31.0	20.7	15.5	32.7	21.8	16.3	23.72	15.81	11.86
71	26.4	17.6	13.2	31.7	21.1	15.9	33.5	22.3	16.7	24.27	16.18	12.13
72	27.0	18.0	13.5	32.5	21.6	16.2	34.2	22.8	17.1	24.84	16.56	12.42
73	27.7	18.5	13.8	33.2	22.1	16.6	35.0	23.4	17.5	25.42	16.95	12.71
74	28.3	18.9	14.2	34.0	22.7	17.0	35.9	23.9	17.9	26.02	17.34	13.01
75	29.0	19.3	14.5	34.8	23.2	17.4	36.7	24.5	18.4	26.63	17.75	13.31
76	29.7	19.8	14.8	35.6	23.7	17.8	37.6	25.1	18.8	27.25	18.17	13.63
77	30.4	20.3	15.2	36.5	24.3	18.2	38.5	25.6	19.2	27.90	18.60	13.95
78	31.1	20.7	15.5	37.3	24.9	18.7	39.4	26.2	19.7	28.55	19.03	14.28
79	31.8	21.2	15.9	38.2	25.5	19.1	40.3	26.9	20.1	29.22	19.48	14.61
80	32.6	21.7	16.3	39.1	26.1	19.5	41.2	27.5	20.6	29.90	19.94	14.95
81	33.3	22.2	16.7	40.0	26.7	20.0	42.2	28.1	21.1	30.60	20.40	15.30
82	34.1	22.7	17.0	40.9	27.3	20.5	43.2	28.8	21.6	31.31	20.87	15.65
83	34.9	23.3	17.4	41.9	27.9	20.9	44.2	29.4	22.1	32.03	21.35	16.01
84	35.7	23.8	17.8	42.8	28.5	21.4	45.2	30.1	22.6	32.76	21.84	16.38
85	36.5	24.3	18.2	43.8	29.2	21.9	46.2	30.8	23.1	33.50	22.33	16.75
86	37.3	24.9	18.6	44.8	29.8	22.4	47.2	31.5	23.6	34.25	22.83	17.12
87	38.1	25.4	19.1	45.7	30.5	22.9	48.3	32.2	24.1	35.00	23.33	17.50
88	38.9	26.0	19.5	46.7	31.2	23.4	49.3	32.9	24.7	35.76	23.84	17.88
89	39.8	26.5	19.9	47.7	31.8	23.9	50.4	33.6	25.2	36.53	24.35	18.27
90	40.6	27.1	20.3	48.7	32.5	24.4	51.4	34.3	25.7	37.30	24.87	18.65

Insecticide Application Rates

Sand Granules Chemical Rate Chart

Approximate Rate in Lbs/Acre

Meter Setting	30 Inch Rows			36 Inch Rows			38 Inch Rows			Ounces per 1000 Row Ft.		
	miles per hour			miles per hour			miles per hour			miles per hour		
	4	6	8	4	6	8	4	6	8	4	6	8
5	1.7	1.1	0.8	2.0	1.3	1.0	2.1	1.4	1.1	1.53	1.02	0.76
6	2.2	1.4	1.1	2.6	1.7	1.3	2.7	1.8	1.4	1.98	1.32	0.99
7	2.7	1.8	1.3	3.2	2.2	1.6	3.4	2.3	1.7	2.47	1.65	1.23
8	3.3	2.2	1.6	3.9	2.6	2.0	4.1	2.8	2.1	3.00	2.00	1.50
9	3.9	2.6	1.9	4.7	3.1	2.3	4.9	3.3	2.5	3.56	2.38	1.78
10	4.5	3.0	2.3	5.4	3.6	2.7	5.7	3.8	2.9	4.17	2.78	2.08
11	5.2	3.5	2.6	6.3	4.2	3.1	6.6	4.4	3.3	4.82	3.21	2.41
12	6.0	4.0	3.0	7.2	4.8	3.6	7.6	5.1	3.8	5.50	3.67	2.75
13	6.8	4.5	3.4	8.1	5.4	4.1	8.6	5.7	4.3	6.23	4.15	3.12
14	7.6	5.1	3.8	9.1	6.1	4.6	9.6	6.4	4.8	7.00	4.66	3.50
15	8.5	5.7	4.2	10.2	6.8	5.1	10.8	7.2	5.4	7.80	5.20	3.90
16	9.4	6.3	4.7	11.3	7.5	5.7	11.9	7.9	6.0	8.65	5.77	4.32
17	10.4	6.9	5.2	12.5	8.3	6.2	13.1	8.8	6.6	9.53	6.35	4.77
18	11.4	7.6	5.7	13.7	9.1	6.8	14.4	9.6	7.2	10.45	6.97	5.23
19	12.4	8.3	6.2	14.9	9.9	7.5	15.7	10.5	7.9	11.41	7.60	5.70
20	13.5	9.0	6.7	16.2	10.8	8.1	17.1	11.4	8.5	12.39	8.26	6.20
21	14.6	9.7	7.3	17.5	11.7	8.8	18.5	12.3	9.2	13.41	8.94	6.71
22	15.8	10.5	7.9	18.9	12.6	9.5	19.9	13.3	10.0	14.47	9.64	7.23
23	16.9	11.3	8.5	20.3	13.5	10.2	21.4	14.3	10.7	15.55	10.36	7.77
24	18.1	12.1	9.1	21.8	14.5	10.9	23.0	15.3	11.5	16.65	11.10	8.33
25	19.4	12.9	9.7	23.2	15.5	11.6	24.5	16.3	12.3	17.78	11.86	8.89
26	20.6	13.7	10.3	24.7	16.5	12.4	26.1	17.4	13.1	18.94	12.62	9.47
27	21.9	14.6	11.0	26.3	17.5	13.1	27.7	18.5	13.9	20.11	13.41	10.06
28	23.2	15.5	11.6	27.8	18.6	13.9	29.4	19.6	14.7	21.30	14.20	10.65
29	24.5	16.3	12.3	29.4	19.6	14.7	31.0	20.7	15.5	22.51	15.01	11.26
30	25.8	17.2	12.9	31.0	20.7	15.5	32.7	21.8	16.4	23.73	15.82	11.87
31	27.2	18.1	13.6	32.6	21.7	16.3	34.4	22.9	17.2	24.97	16.64	12.48
32	28.5	19.0	14.3	34.2	22.8	17.1	36.1	24.1	18.1	26.21	17.47	13.10
33	29.9	19.9	14.9	35.9	23.9	17.9	37.8	25.2	18.9	27.45	18.30	13.73
34	31.3	20.8	15.6	37.5	25.0	18.8	39.6	26.4	19.8	28.71	19.14	14.35
35	32.6	21.8	16.3	39.2	26.1	19.6	41.3	27.5	20.7	29.96	19.97	14.98
36	34.0	22.7	17.0	40.8	27.2	20.4	43.0	28.7	21.5	31.21	20.81	15.61
37	35.4	23.6	17.7	42.4	28.3	21.2	44.8	29.8	22.4	32.46	21.64	16.23
38	36.7	24.5	18.4	44.0	29.4	22.0	46.5	31.0	23.2	33.71	22.47	16.85
39	38.1	25.4	19.0	45.7	30.4	22.8	48.2	32.1	24.1	34.95	23.30	17.47
40	39.4	26.3	19.7	47.3	31.5	23.6	49.9	33.2	24.9	36.17	24.12	18.09
41	40.7	27.1	20.4	48.9	32.6	24.4	51.6	34.4	25.8	37.39	24.93	18.70
42	42.0	28.0	21.0	50.4	33.6	25.2	53.2	35.5	26.6	38.60	25.73	19.30
43	43.3	28.9	21.7	52.0	34.7	26.0	54.9	36.6	27.4	39.79	26.53	19.90
44	44.6	29.7	22.3	53.5	35.7	26.8	56.5	37.7	28.2	40.97	27.31	20.48
45	45.9	30.6	22.9	55.1	36.7	27.5	58.1	38.7	29.0	42.13	28.08	21.06
46	47.1	31.4	23.6	56.5	37.7	28.3	59.7	39.8	29.8	43.27	28.85	21.63
47	48.3	32.2	24.2	58.0	38.7	29.0	61.2	40.8	30.6	44.39	29.59	22.20
48	49.5	33.0	24.8	59.5	39.6	29.7	62.7	41.8	31.4	45.49	30.33	22.75
49	50.7	33.8	25.4	60.9	40.6	30.4	64.2	42.8	32.1	46.58	31.05	23.29
50	51.9	34.6	25.9	62.3	41.5	31.1	65.7	43.8	32.8	47.64	31.76	23.82
51	53.0	35.3	26.5	63.6	42.4	31.8	67.1	44.7	33.6	48.68	32.45	24.34
52	54.1	36.1	27.1	64.9	43.3	32.5	68.5	45.7	34.3	49.70	33.13	24.85
53	55.2	36.8	27.6	66.2	44.2	33.1	69.9	46.6	34.9	50.70	33.80	25.35
54	56.3	37.5	28.1	67.5	45.0	33.8	71.2	47.5	35.6	51.68	34.45	25.84
55	57.3	38.2	28.7	68.8	45.9	34.4	72.6	48.4	36.3	52.64	35.09	26.32

Sand Granules Chemical Rate Chart (Continued)

Approximate Rate in Lbs/Acre

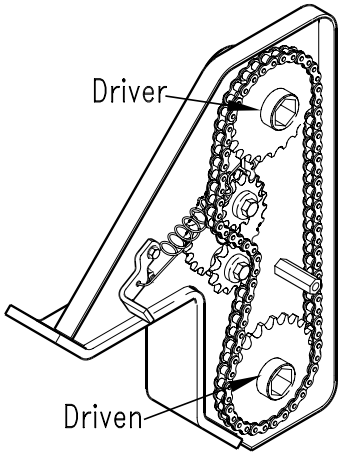
Meter Setting	30 Inch Rows			36 Inch Rows			38 Inch Rows			Ounces per 1000 Row Ft.		
	miles per hour			miles per hour			miles per hour			miles per hour		
	4	6	8	4	6	8	4	6	8	4	6	8
56	58.3	38.9	29.2	70.0	46.7	35.0	73.9	49.2	36.9	53.58	35.72	26.79
57	59.4	39.6	29.7	71.2	47.5	35.6	75.1	50.1	37.6	54.50	36.34	27.25
58	60.3	40.2	30.2	72.4	48.3	36.2	76.4	50.9	38.2	55.42	36.94	27.71
59	61.3	40.9	30.7	73.6	49.1	36.8	77.6	51.8	38.8	56.32	37.54	28.16
60	62.3	41.5	31.1	74.8	49.8	37.4	78.9	52.6	39.4	57.21	38.14	28.60
61	63.3	42.2	31.6	75.9	50.6	38.0	80.1	53.4	40.0	58.09	38.73	29.05
62	64.2	42.8	32.1	77.1	51.4	38.5	81.3	54.2	40.6	58.97	39.31	29.48
63	65.2	43.5	32.6	78.2	52.1	39.1	82.5	55.0	41.3	59.85	39.90	29.92
64	66.1	44.1	33.1	79.4	52.9	39.7	83.7	55.8	41.9	60.73	40.49	30.37
65	67.1	44.7	33.6	80.5	53.7	40.3	85.0	56.6	42.5	61.62	41.08	30.81
67	69.1	46.1	34.5	82.9	55.3	41.5	87.5	58.3	43.7	63.45	42.30	31.73
68	70.1	46.8	35.1	84.2	56.1	42.1	88.8	59.2	44.4	64.40	42.93	32.20
69	71.2	47.5	35.6	85.4	57.0	42.7	90.1	60.1	45.1	65.38	43.58	32.69
70	72.3	48.2	36.2	86.8	57.8	43.4	91.5	61.0	45.8	66.39	44.26	33.20
71	73.5	49.0	36.7	88.1	58.8	44.1	93.0	62.0	46.5	67.45	44.97	33.72
72	74.7	49.8	37.3	89.6	59.7	44.8	94.5	63.0	47.3	68.56	45.71	34.28
73	75.9	50.6	38.0	91.1	60.7	45.6	96.1	64.1	48.1	69.73	46.49	34.86
74	77.3	51.5	38.6	92.7	61.8	46.4	97.8	65.2	48.9	70.96	47.31	35.48
75	78.7	52.5	39.4	94.5	63.0	47.2	99.6	66.4	49.8	72.28	48.19	36.14
76	80.2	53.5	40.1	96.3	64.2	48.1	101.6	67.7	50.8	73.68	49.12	36.84
77	81.9	54.6	40.9	98.2	65.5	49.1	103.6	69.1	51.8	75.18	50.12	37.59
78	83.6	55.7	41.8	100.3	66.9	50.2	105.9	70.6	52.9	76.78	51.19	38.39
79	85.5	57.0	42.7	102.6	68.4	51.3	108.2	72.2	54.1	78.51	52.34	39.25
80	87.5	58.3	43.8	105.0	70.0	52.5	110.8	73.9	55.4	80.36	53.58	40.18
81	89.7	59.8	44.8	107.6	71.8	53.8	113.6	75.7	56.8	82.36	54.91	41.18
82	92.0	61.4	46.0	110.4	73.6	55.2	116.5	77.7	58.3	84.52	56.35	42.26
83	94.6	63.1	47.3	113.5	75.7	56.7	119.7	79.8	59.9	86.85	57.90	43.42
84	97.3	64.9	48.7	116.8	77.8	58.4	123.2	82.1	61.6	89.36	59.57	44.68
85	100.3	66.8	50.1	120.3	80.2	60.2	126.9	84.6	63.5	92.07	61.38	46.03

Liquid Fertilizer Rate Chart

Transmission Combination		Hose Dia. at 5/16	Hose Dia. at 1/2
Driver	Driven	Gallons/Acre	Gallons/Acre
15	44	3.49	8.99
15	41	3.75	9.65
17	44	4.06	10.19
17	41	4.25	10.94
19	44	4.43	11.39
15	32	4.8	12.36
21	41	5.25	13.51
17	32	5.45	14.01
24	41	6.00	15.44
19	32	6.09	15.66
15	24	6.41	16.48
17	24	7.26	18.68
15	21	7.32	18.84
17	23	7.58	19.49
15	19	8.09	20.82
17	21	8.30	21.35
19	23	8.47	21.79
15	17	9.04	23.27
17	19	9.17	23.60
23	24	9.82	25.28
24	23	10.70	27.52
19	17	11.46	29.48
17	15	11.62	29.89
23	19	12.41	31.93
21	17	12.66	32.58
19	15	12.98	33.41
23	17	13.87	35.68
21	15	14.35	36.93
24	17	14.47	37.24
32	21	15.62	40.19
24	15	16.40	42.20
32	19	17.26	44.42
41	24	17.51	45.06
32	17	19.29	49.65
41	21	20.01	51.49
32	15	21.87	56.27
44	19	23.74	61.08
41	17	24.72	63.61
44	17	26.53	68.26
41	15	28.02	72.09
44	15	30.07	77.37

NOTE: The delivery rates are approximate and will vary with changes in temperature and the specific fertilizer being used.

Planting Rates for Finger Pickup Corn Meters



Transmission Sprockets		Planting Rates 30" Row Width	Planting Rates 36" Row Width	Planting Rates 38" Row Width	Planting Rates 40" Row Width		
Drive	Driven	Planting Population/Acre	Planting Population/Acre	Planting Population/Acre	Planting Population/Acre	Recommended Speed Range (mph)	Average Seed Spacing (inches)
17	28	**18156**	**15130**	**14334**	**13617**	4 to 8	11.5
17	27	**18828**	**15690**	**14864**	**14121**	4 to 8	11.1
17	26	**19952**	**16294**	**15436**	**14664**	4 to 8	10.7
19	28	**20292**	**16910**	**16020**	**15219**	4 to 8	10.3
17	25	**20335**	**16945**	**16054**	**15251**	4 to 8	10.3
19	27	**21043**	**17536**	**16613**	**15783**	4 to 8	9.9
17	24	**21182**	**17652**	**16722**	**15886**	4 to 8	9.9
19	26	**21853**	**18211**	**17252**	**16390**	4 to 8	9.6
17	23	**22103**	**18419**	**17450**	**16577**	4 to 8	9.5
19	25	**22727**	**18939**	**17942**	**17045**	4 to 8	9.2
19	24	**23674**	**19728**	**18690**	**17755**	4 to 8	8.8
23	28	**24564**	**20470**	**19392**	**18423**	4 to 8	8.5
19	23	**24703**	**20586**	**19502**	**18527**	4 to 8	8.5
23	27	**25474**	**21228**	**20111**	**19105**	4 to 7.5	8.2
24	28	**25632**	**21360**	**20236**	**19224**	4 to 7.5	8.2
23	26	**26453**	**22044**	**20884**	**19840**	4 to 7.5	7.9
24	27	**26581**	**22151**	**20985**	**19936**	4 to 7.5	7.9
25	28	**26700**	**22250**	**21079**	**20025**	4 to 7.5	7.8
17	19	**26756**	**22297**	**21123**	**20067**	4 to 7.5	7.8
23	25	**27511**	**22926**	**21720**	**20634**	4 to 7	7.6
24	26	**27603**	**23003**	**21792**	**20703**	4 to 7	7.6
25	27	**27689**	**23074**	**21859**	**20766**	4 to 7	7.6
26	28	**27768**	**23140**	**21922**	**20826**	4 to 7	7.5
23	24	**28658**	**23881**	**22625**	**21493**	4 to 7	7.3
24	25	**28708**	**23923**	**22664**	**21531**	4 to 7	7.3

Transmission Sprockets		Planting Rates 30" Row Width	Planting Rates 36" Row Width	Planting Rates 38" Row Width	Planting Rates 40" Row Width		
Drive	Driven	Planting Population/Acre	Planting Population/Acre	Planting Population/Acre	Planting Population/Acre	Recommended Speed Range (mph)	Average Seed Spacing (inches)
25	26	**28754**	**23961**	**22700**	**21565**	4 to 7	7.3
26	27	**28796**	**23997**	**22734**	**21597**	4 to 7	7.3
27	28	**28836**	**24030**	**22765**	**21627**	4 to 7	7.3
23	23	**29904**	**24920**	**23608**	**22428**	4 to 6.5	7.0
28	27	**31011**	**25843**	**24483**	**23258**	4 to 6.5	6.7
27	26	**31054**	**25878**	**24516**	**23290**	4 to 6.5	6.7
25	24	**31150**	**25958**	**24592**	**23362**	4 to 6.5	6.7
24	23	**31204**	**26003**	**24635**	**23403**	4 to 6.5	6.7
28	26	**32204**	**26837**	**25424**	**24153**	3 to 6	6.5
27	25	**32296**	**26913**	**25497**	**24222**	3 to 6	6.5
25	23	**32504**	**27087**	**25661**	**24378**	3 to 6	6.4
19	17	**33422**	**27852**	**26386**	**25066**	3 to 5.5	6.3
28	25	**33492**	**27910**	**26441**	**25119**	3 to 5.5	6.2
27	24	**33642**	**28035**	**26559**	**25231**	3 to 5.5	6.2
26	23	**33804**	**28170**	**26688**	**25353**	3 to 5.5	6.2
28	24	**34888**	**29073**	**27543**	**26166**	3 to 5.5	6.0
27	23	**35104**	**29254**	**27714**	**26328**	3 to 5.5	6.0
23	19	**36199**	**30166**	**28578**	**27149**	3 to 5	5.8
28	23	**36405**	**30337**	**28740**	**27303**	3 to 5	5.7
24	19	**37773**	**31478**	**29821**	**28330**	3 to 5	5.5
25	19	**39347**	**32789**	**31063**	**29510**	3 to 5	5.3
23	17	**40458**	**33715**	**31941**	**30344**	3 to 4.5	5.2
26	19	**40921**	**34101**	**32306**	**30691**	3 to 4.5	5.1
24	17	**42217**	**35181**	**33329**	**31663**	3 to 4.5	5.0
27	19	**42495**	**35412**	**33549**	**31871**	3 to 4.5	4.9
25	17	**43976**	**36647**	**34718**	**32982**	3 to 4.5	4.8
28	19	**44069**	**36724**	**34791**	**33052**	3 to 4.5	4.7
26	17	**45735**	**38113**	**36107**	**34301**	3 to 4.5	4.6
27	17	**47494**	**39578**	**37495**	**35621**	3 to 4.5	4.4
28	17	**49253**	**41044**	**38884**	**36940**	3 to 4.5	4.2

IMPORTANT: See "**Planting Rates**" and "**Checking Planting Population"**, on page 14 for additional information. Always check seed population in the field to ensure planting rates are correct.

Granular Chemical Rate Charts

Dry Insecticide Application Rates
Approximate Pounds/Acre at 5 mph
for Row Spacing

	30"		36"		38"		40"	
Meter Setting	**Clay**	**Sand**	**Clay**	**Sand**	**Clay**	**Sand**	**Clay**	**Sand**
5	---	3.0	---	2.5	---	2.4	---	2.3
6	---	5.0	---	4.2	---	3.9	---	3.8
7	---	5.5	---	4.6	---	4.3	---	4.1
8	---	6.5	---	5.4	---	5.1	---	4.9
9	---	8.0	---	6.7	---	6.3	---	6.0
10	5.1	9.2	4.3	7.7	4.0	7.3	3.8	6.9
11	5.6	10.5	4.7	8.8	4.4	8.3	4.2	7.9
12	6.3	11.5	5.3	9.6	5.0	9.1	4.7	8.6
13	7.1	13.0	5.9	10.8	5.6	10.3	5.3	9.8
14	7.9	14.5	6.6	12.1	6.2	11.4	5.9	10.9
15	8.8	16.0	7.3	13.3	6.9	12.6	6.6	12.0
16	9.9	18.0	8.3	15.0	7.8	14.2	7.4	13.5
17	11.0	20.0	9.2	16.7	8.7	15.8	8.3	15.0
18	11.8	22.5	9.8	18.8	9.3	17.8	8.9	16.9
19	13.5	25.0	11.3	20.8	10.7	19.7	10.1	18.8
20	14.6	26.5	12.2	22.1	11.5	20.9	11.0	19.9
21	16.0	28.5	13.3	23.8	12.6	22.5	12.0	21.4
22	16.9	30.5	14.1	25.4	13.3	24.1	12.7	22.9
23	17.7	33.0	14.8	27.5	14.0	26.1	13.3	24.8
24	19.4	35.5	16.2	29.6	15.3	28.0	14.6	26.6
25	21.5	38.0	17.9	31.7	17.0	30.0	16.1	28.5
26	23.7	---	19.8	---	18.7	---	17.8	---
27	24.8	---	20.7	---	19.6	---	18.6	---
28	26.2	---	21.8	---	20.7	---	19.7	---
29	28.7	---	23.9	---	22.7	---	21.5	---
30	30.5	---	25.4	---	24.1	---	22.9	---

Dry Herbicide Application Rates

Approximate Pounds/Acre at 5 mph
for Row Spacing

	30"	36"	38"	40"
Meter Setting	**Clay Granules**	**Clay Granules**	**Clay Granules**	**Clay Granules**
10	4.8	4.0	3.8	3.6
11	5.4	4.5	4.3	4.1
12	6.0	5.0	4.7	4.5
13	6.7	5.6	5.3	5.0
14	7.5	6.3	5.9	5.6
15	8.5	7.1	6.7	6.4
16	9.3	7.8	7.3	7.0
17	10.2	8.5	8.1	7.7
18	11.0	9.2	8.7	8.3
19	12.0	10.0	9.5	9.0
20	13.0	10.8	10.3	9.8
21	14.0	11.7	11.1	10.5
22	15.0	12.5	11.8	11.3
23	16.2	13.5	12.8	12.2
24	17.5	14.6	13.8	13.1
25	18.7	15.6	14.8	14.0
26	20.0	16.7	15.8	15.0
27	21.5	17.9	17.0	16.1
28	23.3	19.4	18.4	17.5
29	25.0	20.8	19.7	18.8
30	27.5	22.9	21.7	20.6

Section 5 *Troubleshooting*

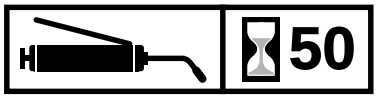
Finger Pickup Corn Meter

Problem	Possible Cause	Solution
One row not planting seed.	Drive clutch release not engaged.	Engaged clutch release mechanism.
	Foreign material in hopper.	Clean hopper and finger carrier mechanism.
	Seed hopper empty.	Fill seed hopper.
	Row unit drive chain off of sprocket or broken.	Repair or replace drive chain.
Drive release does not engage properly.	Drive release shaft isn't aligned properly with meter drive shaft.	Align drive mechanism. See "Meter Drive Adjustment".
Unit is skipping.	Foreign material or obstruction in meter.	Clean out and inspect.
	Finger holder improperly adjusted.	Adjust to proper setting. (22 to 25 inch pounds torque)
	Broken fingers.	Replace fingers and/or springs as required.
	Planting too slowly.	Increase planting speed to within recommended range.
Planting too many doubles.	Planting too fast.	Stay within recommended range.
	Lose finger holder.	Adjust to specifications (22 to 24 inch pounds torque)
	Worn brush in carrier plate.	Inspect and replace if necessary.
Over planting.	Worn carrier plate.	Inspect and replace if necessary.
Under planting.	Belt installed backwards.	Remove and install correctly.
	Weak springs.	Replace.
	Spring not properly installed.	Remove finger holder and correct.
	Seed belt catching or dragging.	Replace belt.
	Brush dislodging seed.	Replace brush.
Irregular or incorrect seed spacing.	Driving too fast.	Check chart for correct speed.
	Wrong tire pressure.	Inflate tires to correct air pressure.
	Drive wheels slipping.	Reduce down pressure on row unit down force springs.
	Wrong sprockets.	Check planting rate charts for correct sprocket combinations.
Seed spacing not as indicated in charts.	Wrong tire pressure.	Inflate tires to correct air pressure.
	Inconsistent seed size.	Do field check and adjust sprockets accordingly.
	Wrong sprockets.	Check chart for correct sprocket combination.
	Charts are approximate.	Slight variations due to wear may produce seed spacing variations.
Scattering of seeds.	Planting too fast.	Reduce planting speed.
	Seed tube improperly installed.	Check seed tube installation.
	Seed tube worn or damaged.	Replace seed tube.
Seed tubes and/or openers plugging.	Allowing planter to roll backward when lowering.	Lower planter only when tractor is moving forward.
Inconsistent seed depth.	Rough seed bed.	Adjust down pressure springs
	Partially plugged seed tube.	Inspect and clean.
	Seed tube improperly installed.	Install properly.

Section 6 *Lubrication*

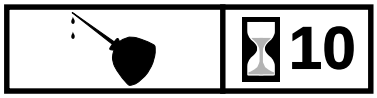
With proper lubrication and care of your planter you will reduce costly repairs and extend the life of the planter. Conditions in certain areas may require special lubricants. Contact your Great Plains Dealer if you have any questions.

Lubrication Symbols

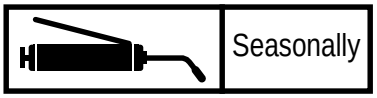


Lubrication is required every 50 hours of operation.

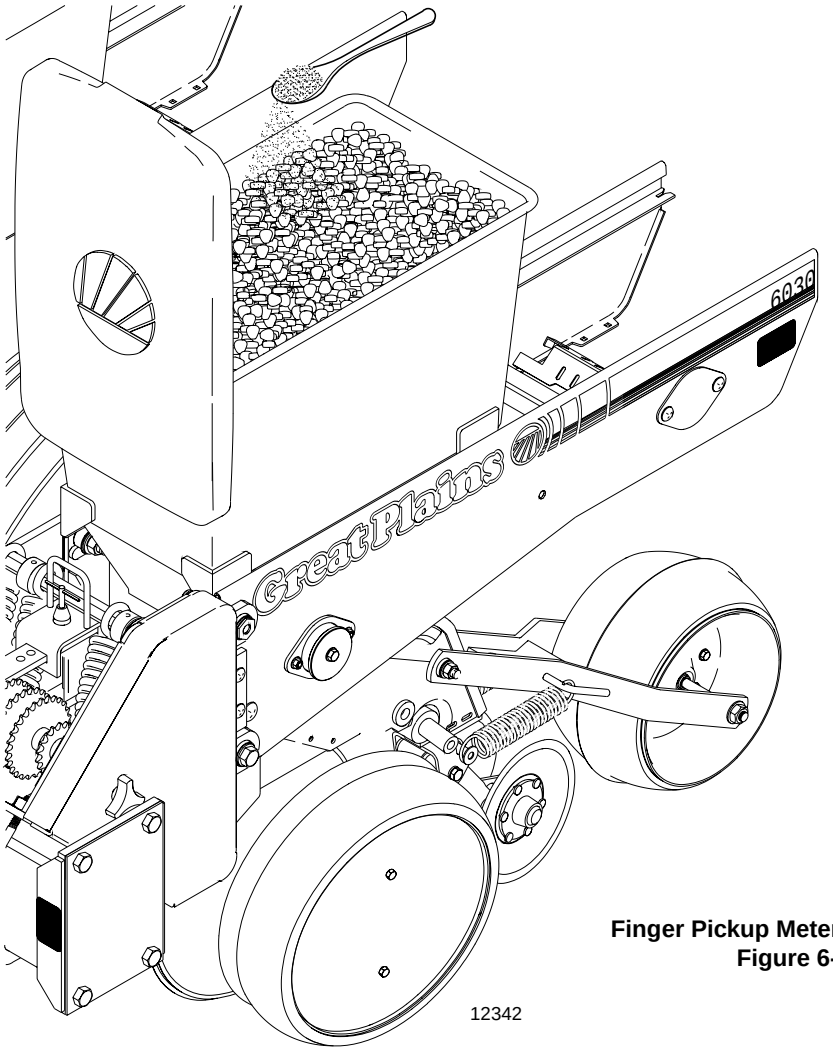
Use a multipurpose spray lube. Use as required. Do not over lubricate.



Lubrication is required every 10 hours of operation.



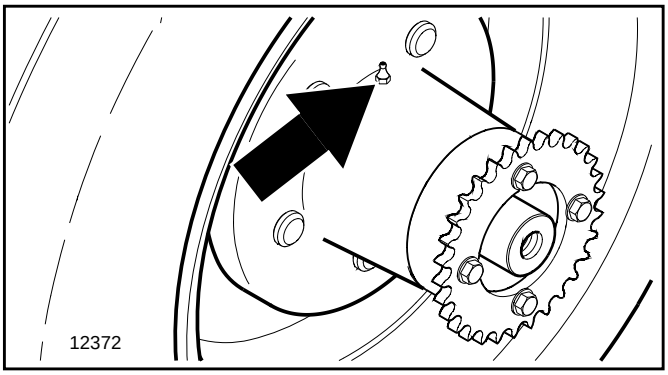
Lubrication is required.

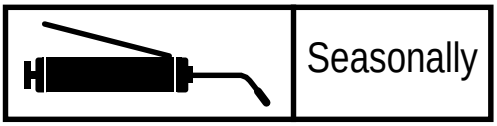


Finger Pickup Meter Lubrication
Figure 6-1

Finger Pickup Meter

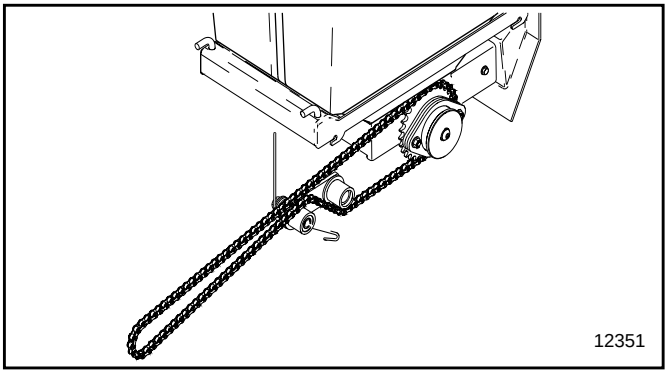
To prolong the life the finger pickup meter and increase the planting accuracy, add a teaspoon of graphite to the seeds every time you fill the hopper. Sprinkle the graphite on top of the seeds and it will filter down to lubricate the finger pickup meter, see Figure 6-1.

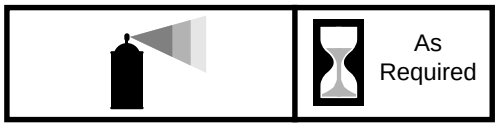




Wheel Bearings

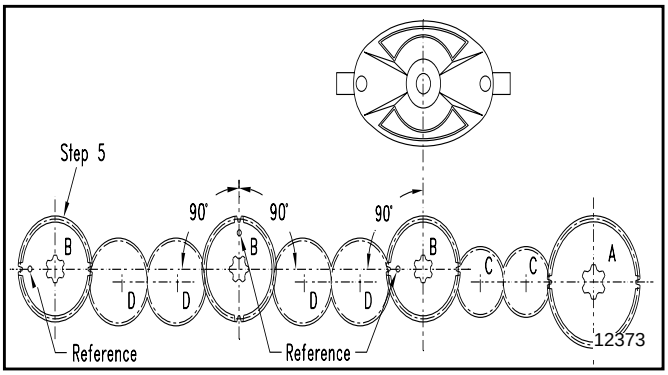
Pump grease into the hub until grease comes out around the seals. Lift the wheel off the ground. Move the tire in and out to check for end play. Check for roughness in the bearing by rotating the wheel. If the bearings are rough they should be inspected and replaced if necessary.

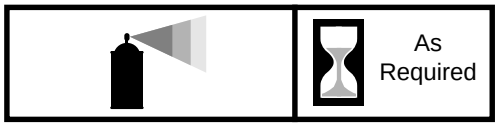




Seed and Chemical Meter Chains

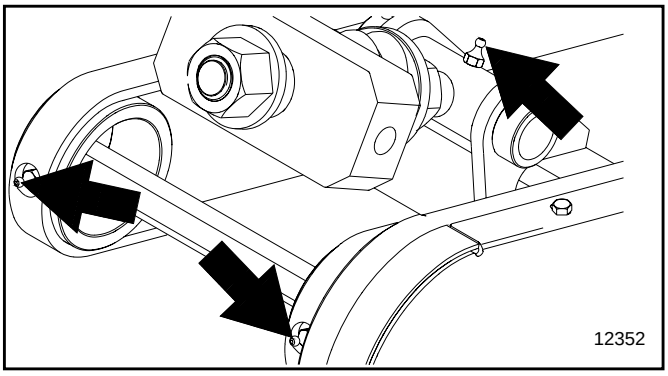
Lubricate all chains at intervals to maintain freedom at every chain link joint. Use a multipurpose spray lubricant on chains, because it penetrates into the rollers on the chain. Spray chains if planter is going to be idle to prevent the chains from rusting and becoming stiff. Stiff chains will cause metering inaccuracies.

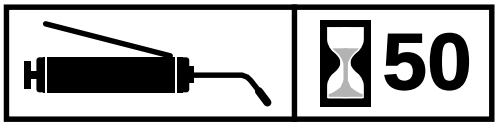




Gauge Wheel Chains

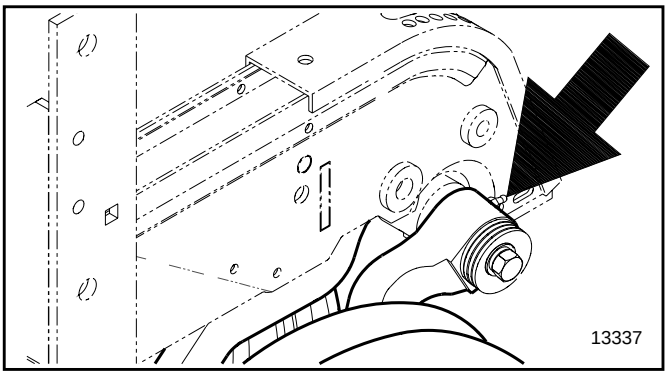
Lubricate all chains at intervals to maintain freedom at every chain link joint. Use a multipurpose spray lubricant on chains, because it penetrates into the rollers on the chain. Spray chains if planter is going to be idle to prevent the chains from rusting and becoming stiff. Stiff chains will cause metering inaccuracies.

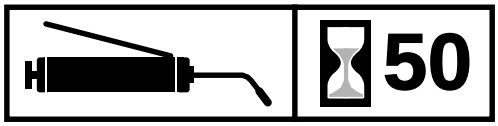




Gauge Wheel Module

Lubricate gauge wheel module links every 50 hours.





Gauge Wheel Side Arm

3 to 4 pumps of grease into the zerk with universal all-purpose grease every 50 hours.

Section 7 *Maintenance*

Proper maintenance can prevent unnecessary down time and prolong the life of your planter.

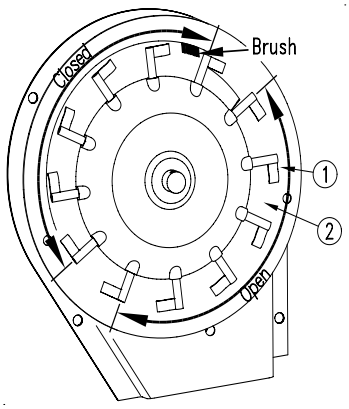
Fasteners

When working on the planter torque all bolts, screws, and nuts to the correct values listed in the Torque Values Chart in **"Section 9 Specifications"** on page 28. Check latches and other fasteners on the planter to prevent failures in the field.

Finger Pickup Meter

Inspect and repair the finger pickup meter by removing the 2 bolts holding the meter to the hopper. Remove the 3 bolts on the meter baffle to gain access to the finger mechanism.

Rotate the meter input shaft by hand to check the fingers. The fingers should be against the carrier plate in the area shown closed and raised in the area shown open in Figure 7-1.



Finger Raised/Location of Brush
Figure 7-1

Inspect the brush for wear and replace every 100 acres of row operation, see Figure 7-1 for location.

Chaf and debris can build-up in the meter preventing proper functioning of the fingers.

To clean the corn meter:

1. Remove the cotter pin, lock nut, and adjusting nut from the shaft.
2. Lift the finger assembly off the shaft and clean.
3. Replace worn fingers and springs by lifting the finger out of the slot. Average life expectancy of these parts should be 250-300 acres of row operation. When fingers are replaced, the open end of the spring loop should be toward the inside of the finger housing.
4. Inspect the indentations in the carrier plate for wear. Replace the carrier plate when wear to the plate becomes excessive or the seeding accuracy will be affected.
5. Reassemble the meter in reverse order. Be sure the fingers are installed correctly so the finger housing is flush with the carrier plate. If the finger housing is not flush with the carrier plate, make sure that the projection on the cam is in the notch on the bearing housing. The meter will not function properly if the projection is not in the notch.
6. With the finger assembly against the plate, tighten the adjusting nut until it is slightly snug. Then turn an additional 1/3 turn. Turn the meter by hand making certain that the meter is not over tightened. Proper meter resistance would be 22-25 in/lbs of torque applied at the meter input shaft.
7. Install the cage nut and the cotter pin.
8. Install the baffle and attach the meter to the hopper.

Note: Check tightness of the adjusting nut on the meter after the first day and periodically thereafter.

Check the belt on the meter periodically.

Use these steps:

1. Remove the 4 bolts located on the belt housing and the bolt holding the belt roller.
2. Inspect or replace the seed belt.

3. Reassemble in the reverse order.

Spreader and Scraper

The spreader and scraper between the disks will periodically need replacing. These components scrape dirt off the disks and protect the seed tube.

To inspect or replace the spreader or scraper do as follows:

1. Remove the side gauge wheel and the arm from the row unit.
2. Remove the disk blade. Be careful, disks wear very sharp!
3. Remove both of the 1/4" bolts holding the scraper and spreader.
4. If the sides of the seed tube are worn, replace the scraper and spreader.
5. Install the scraper and spreader with 1/4" bolts. Torque the bolts to the correct values as listed in the Torque Values Chart in **"Section 9 Specifications"** on page 28.
6. Install the disk and torque the bolt to the correct value as listed in Torque Values Chart in **"Section 9 Specifications"** on page 28.
7. Install the gauge wheel according to directions under the Gauge Wheels heading on page 29, below.

Disk

As the disks on the row unit wear, removal of shims may be required to maintain contact point. To remove disk do as follows:

CAUTION!

Disk blades wear very sharp. Handle with care.

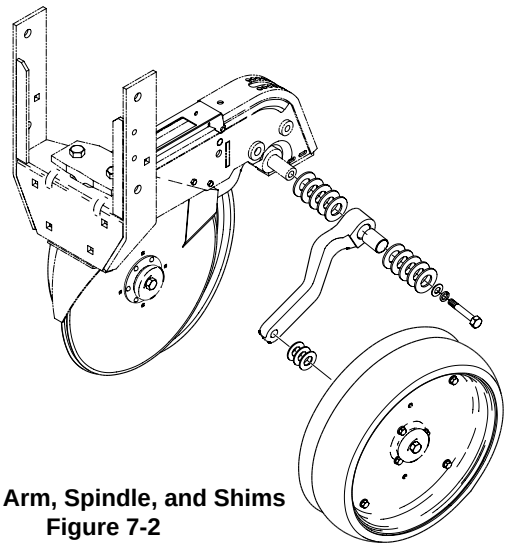
1. Remove side gauge wheels and arm from the row unit.
2. Remove 3/4" bolts retaining the disks.
3. Measure disk diameter, if disk measures 14 1/2" or less replace disk.
4. If contact is to be increase, move shims from behind disk to outside disks. This will increase the contact between the disks.
5. Install disks and tighten 3/4" bolts to torque values in Specification Section.
6. Install gauge wheels and arms according to directions in this section.

Gauge Wheels

Periodically check gauge tires to be sure there is contact or a 1/16" gap between the tires and disks.

For installation or adjustments proceed as follows:

1. Remove the 1/2" bolt holding arm on to the shank.
2. If the tire needs to be closer to the disk, move an appropriate amount of shims from the inside of the arm to the outside, see Figure 7-2. Each shim is .050 thick.



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Gauge Arm, Spindle, and Shims
Figure 7-2

3. Install the arm and the shims onto the spindle. Tighten 1/2" bolt to the correct torque value as listed in the Torque Values Chart in **"Section 9 Specifications"** on page 28.
4. Check clearance or contact of the tire and disk. The gauge wheel should fall freely when lifted. Repeat steps 1 through 4 if necessary.

Outside Scrapers

The row units are equipped with outside disk scrapers to remove dirt from the disks.

Periodically check the scrapers as follows:

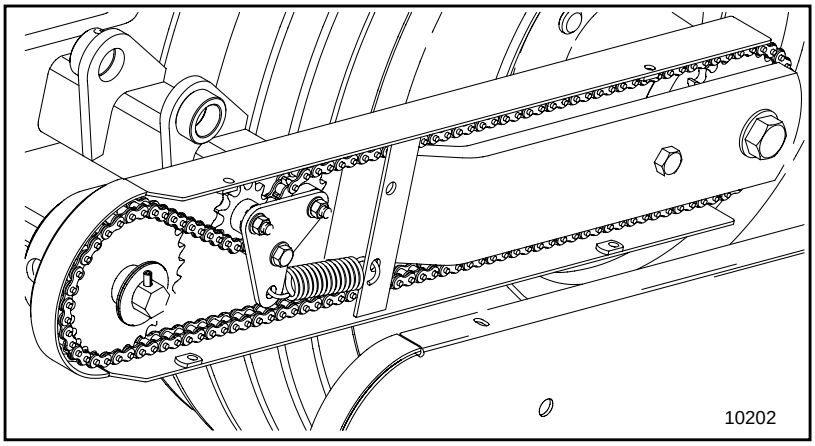
1. Remove the gauge tires to inspect the scrapers.
2. Make sure the scrapers are contacting the disk with some pressure.
3. If scrapers are not contacting the disks properly, bend and twist the scrapers as required to establish contact. If the scraper is worn too much, replace it by removing the two 1/4" bolts. Bolt the new scraper in place and torque the bolts to correct values as listed in the Torque Values Chart in **"Section 9 Specifications"** on page 28.

Shear Pins

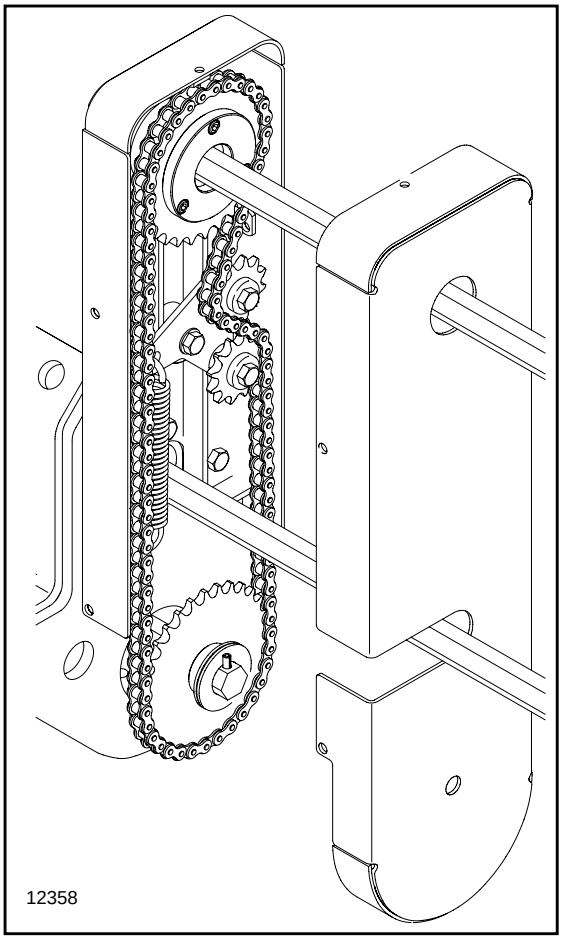
The planter drive line and row units are protected by shear pins on transmission upper and lower shafts. Check and replace bent or broken pins as required.

Chain Tension

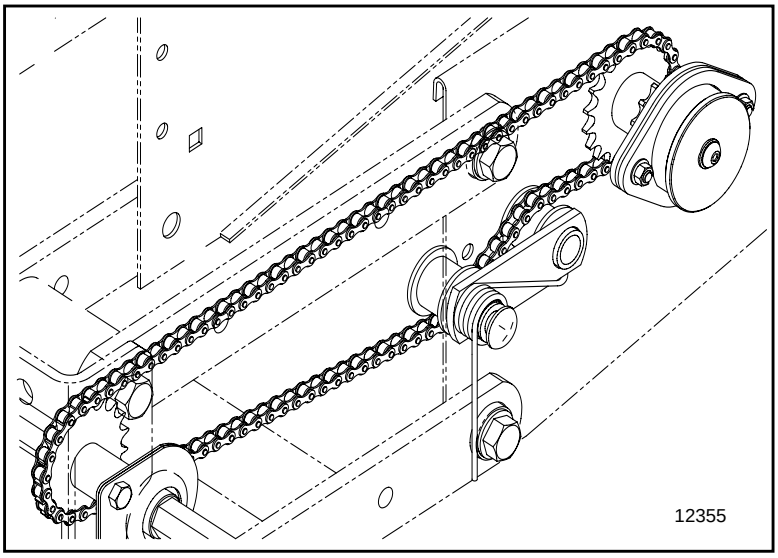
The planter is equipped with spring loaded idlers to maintain tension in the chains. As the chains wear and stretch, the link(s) may be removed to provide proper chain length and tension. Check and replace broken springs and bushings on idlers. For the correct operation of the planter check all chain routings. Refer to page 30 for the chain routing diagrams.



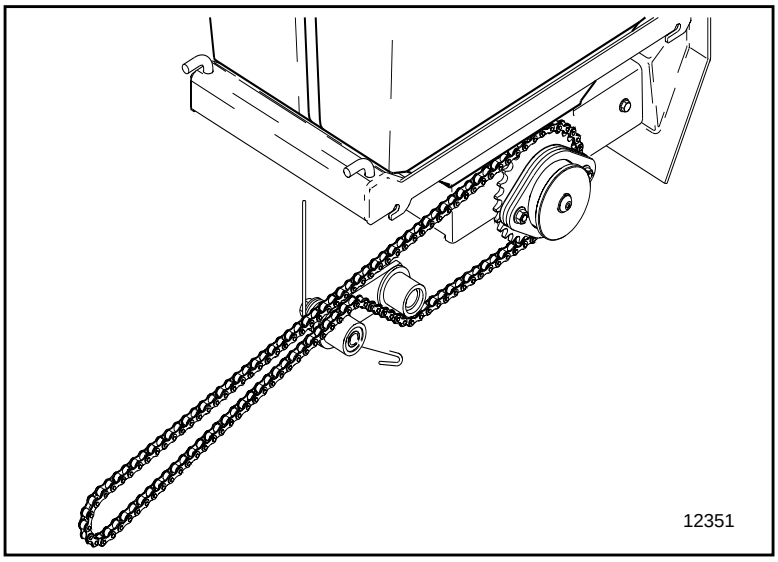
Drive Gauge Wheel Chain Routing



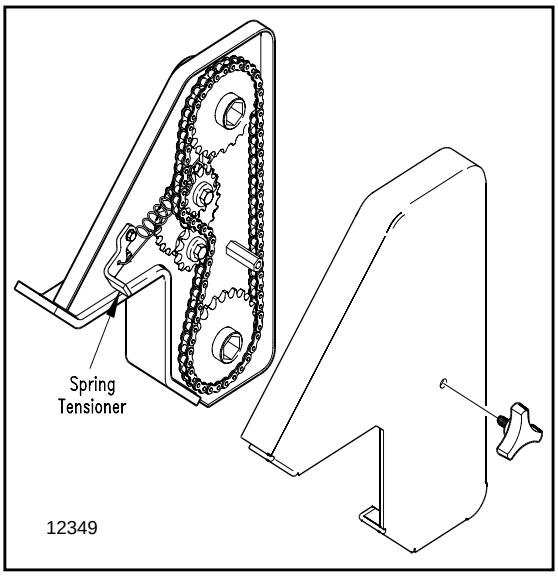
Counter Shaft Support Chain Routing



Meter Drive Chain Routing



Granular Chemical Drive Chain Routing



Transmission Chain Routing

Maintenance & Lubrication Record

Item to be Serviced	When to Perform	Reference	Date

Section 8 *Storage*

To extend the life of your planter follow the recommendations for removing the planter from storage and storing the planter during the off season.

Beginning of the Season

Inspect the hoppers for debris and clean if necessary to prevent damage to the meters.

Clean dirt and grease from the chains and moving parts. This will prevent the abrasive action of dirt from causing excessive wear to chains and other parts. Lubricate the planter according to the directions in "**Section 6 Lubrication"** on page 26.

Check all bolts and replace worn parts on the planter to prevent failure in the field. Make adjustments to the planter for the field conditions to be encountered.

Ending of the Season

When planting is complete clean the seed and chemical hoppers. Remove all dirt, debris, chemicals, and fertilizer from the planter that may hold moisture and cause corrosion.

Use spray paint to cover scratches, chips, and worn areas on the planter to protect the metal.

Lubricate the planter as outlined in "**Section 6 Lubrication"** on page 28. Pay careful attention to the lubrication of the chains to help prevent rusting.

Inspect the planter for worn or damaged parts. Make repairs and service during the off season to reduce down time in the field.

Place the 1 X 12 closing wheel handle in the middle slot to relieve the tension on the closing wheels. Move opener adjustment bar on heavy and medium down pressure spring packages to hole A.

Remove the finger pickup meters from the hoppers. Disassemble the meters and inspect them for wear. Make any repairs required at this time. Blow excessive debris from the meter. Wash the meters with mild soap and water. Dry the meters and spray a light coat of rust inhibitor on the meters. Reassemble and store in a dry place.

Store the planter in a clean, dry place with all tires out of the sun. A sheltering structure is best for overall protection, but a high quality tarp would suffice.

Section 9 *Specifications*

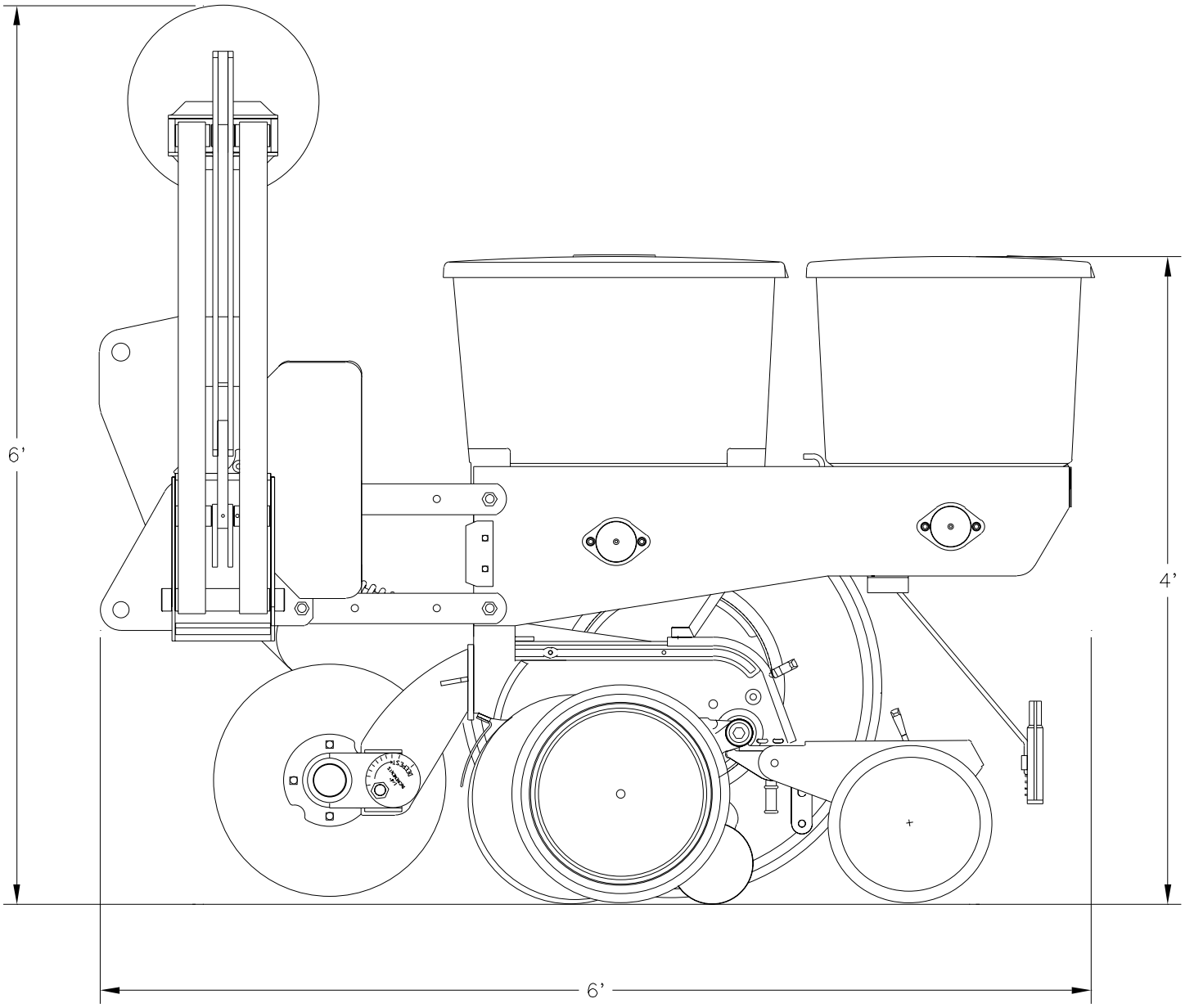
8 - Row 40" - 38" - 36"	With Markers & No Options	Without Markers & No Options
Frame	7" sq. 5/16" Wall	7" sq. 5/16" Wall
9.5L X 15 Drive Gauge Wheels	2	2
Planter Width	27'	26’
Planter Height	6'	5’
Planter Length	6'	6’
Shipping Weight (empty)	4510 lbs.	4226 lbs. (approx.)

10 - Row 30"	With Markers & No Options	Without Markers & No Options
Frame	7" sq. 5/16" Wall	7" sq. 5/16" Wall
9.5L X 15 Drive Gauge Wheels	2	2
Planter Width	27'	26’
Planter Height	6'	5’
Planter Length	6'	6’
Shipping Weight (empty)	5000 lbs.	4721 lbs. (approx.)

Row Unit Equipment

Standard
2 bu. Seed Hopper (Standard with corn Meter)
Double disk staggered Openers
4" x 16" Gauge tires
Light Down Pressure Springs

Optional
80 lbs. Insecticide/Herbicide Hopper with 7" & 14" Diffusers
1 x 12 Double “V” Press Wheels
Closing Disc’s with 6 1/2" x 12" Press Wheel
Medium & Heavy Down Pressure Springs
Seed Lok
Dual Gauge Wheels
Dual Chemical Placement



Specification Diagram
Figure 9-1

Section 2 *Assembly Instructions & Set-Up*

Torque Values Chart for Common Bolt Sizes

Bolt Size (Inches)	Bolt Head Identification: Grade 2		Grade 5		Grade 8	
in-tpi[1]	N · m[2]	ft-lb[3]	N · m	ft-lb	N · m	ft-lb
1/4" - 20	7.4	5.6	11	8	16	12
1/4" - 28	8.5	6	13	10	18	14
5/16 - 18	15	11	24	17	33	25
5/16" - 24	17	13	26	19	37	27
3/8" - 16	27	20	42	31	59	44
3/8" - 24	31	22	47	35	67	49
7/16" - 14	43	32	67	49	95	70
7/16" - 20	49	36	75	55	105	78
1/2" - 13	66	49	105	76	145	105
1/2" - 20	75	55	115	85	165	120
9/16" - 12	95	70	150	110	210	155
9/16" - 18	105	79	165	120	235	170
5/8" - 11	130	97	205	150	285	210
5/8" - 18	150	110	230	170	325	240
3/4" - 10	235	170	360	265	510	375
3/4" - 16	260	190	405	295	570	420
7/8" - 9	225	165	585	430	820	605
7/8" - 14	250	185	640	475	905	670
1" - 8	340	250	875	645	1230	910
1" - 12	370	275	955	705	1350	995
1-1/8" - 7	480	355	1080	795	1750	1290
1 1/8" - 12	540	395	1210	890	1960	1440
1 1/4" - 7	680	500	1520	1120	2460	1820
1 1/4" - 12	750	555	1680	1240	2730	2010
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

Bolt Size (Metric)	Bolt Head Identification: 5.8 Class 5.8		8.8 Class 8.8		10.9 Class 10.9	
mm x pitch[4]	N · m	ft-lb	N · m	ft-lb	N · m	ft-lb
M 5 X 0.8	4	3	6	5	9	7
M 6 X 1	7	5	11	8	15	11
M 8 X 1.25	17	12	26	19	36	27
M 8 X 1	18	13	28	21	39	29
M10 X 1.5	33	24	52	39	72	53
M10 X 0.75	39	29	61	45	85	62
M12 X 1.75	58	42	91	67	125	93
M12 X 1.5	60	44	95	70	130	97
M12 X 1	90	66	105	77	145	105
M14 X 2	92	68	145	105	200	150
M14 X 1.5	99	73	155	115	215	160
M16 X 2	145	105	225	165	315	230
M16 X 1.5	155	115	240	180	335	245
M18 X 2.5	195	145	310	230	405	300
M18 X 1.5	220	165	350	260	485	355
M20 X 2.5	280	205	440	325	610	450
M20 X 1.5	310	230	650	480	900	665
M24 X 3	480	355	760	560	1050	780
M24 X 2	525	390	830	610	1150	845
M30 X 3.5	960	705	1510	1120	2100	1550
M30 X 2	1060	785	1680	1240	2320	1710
M36 X 3.5	1730	1270	2650	1950	3660	2700
M36 X 2	1880	1380	2960	2190	4100	3220

[1] in-tpi = nominal thread dia .in inches-threads per inch

[2] N· m = newton-meters

[3] ft-lb= foot pounds

[4] mm x pitch = nominal thread dia. in millimeters x thread pitch

Tire Inflation Chart

Tire Size	Inflation PSI
7.50 x 20" 4-Ply Drill Rib	28
9.0 x 22.5 10-Ply Highway Service 70	70
9.0 x 24" 8-Ply Rib Implement	40
9.5L x 15" 6-Ply Rib Implement	32
9.5L x 15" 8-Ply Rib Implement	44
9.5L x 15" 12-Ply Rib Implement	60

Tire Size	Inflation PSI
11L x 15" 6-Ply Rib Implement	28
11L x 15" 12-Ply Rib Implement	52
12.5L x 15" 8-Ply Rib Implement	36
12.5L x 15" 10-Ply Rib Implement	44
16.5L x 16.1" 10-Ply Rib Implement	36
41 x 15" x 18 - 22-Ply Rib Implement	44

Metric Conversion Chart

Multiply	By		To Get
inches *in.*	x **2.54**	=	**centimeters** *cm*
inches *in.*	x **25.4**	=	**millimeters** *mm*
feet *ft.*	x **30.48**	=	**centimeters** *cm*
miles per hour *mph*	x **1.609**	=	**kilometers per hour** *kmph*
pounds *lbs.*	x **0.453**	=	**kilograms** *kg*
bushels *bu.*	x **35.238**	=	**liters** *l*
gallons *gal*	x **3.785**	=	**liters** *l*
pounds per square inch *psi*	x **6.894**	=	**kilopascals** *kPa* **(100 kPa = 1 bar)**
inch pounds *in. lbs.*	x **0.113**	=	**Newtons-meters** *N.m*
foot pounds *ft. lbs.*	x **1.356**	=	**Newtons-meters** *N.m*
centimeters *cm*	x **394**	=	**inches** *in.*
millimeters *mm*	x **0394**	=	**inches** *in.*
centimeters *cm*	x **0328**	=	**feet** *ft.*
hectares *ha*	x **2.469**	=	**acres**
kilometers per hour *kmph*	x **0.621**	=	**miles per hour** *mph*
kilograms *kg*	x **2.208**	=	**pounds** *lbs.*
liters *l*	x **0.028**	=	**bushels** *bu.*
liters *l*	x **0.264**	=	**gallons** *gal.*
kilopascals *kPa* **(100 kPa = 1 bar)**	x **0.145**	=	**pounds per square inch** *psi*
Newtons-meters *N.m*	x **8.85**	=	**inch pounds** *in lb.*
Newtons-meters *N.m*	x **0.738**	=	**foot pounds** *ft lb*

Section 10 *Attachments & Options*

Coulter Option

204-337A . . . . . 5/8" Wavy Coulter

204-338A . . . . . 3/4" Wavy Coulter

Spring Package Option

204-331K . . . . . Light Duty Springs

204-332K . . . . . Medium Duty Springs

204-333K . . . . . Heavy Duty Springs

Seed Lok Option

404-021K . . . . . Seed Lok

1 x 12 Closing Wheel Option

405-001A . . . . . 1 x 12 Closing Wheel

6.5 x 12 Press Wheel Option

405-002A . . . . . 6.5 x 12 Press Wheel
. . . . . w/Closing Disk

Insecticide Option

403-017A . . . . . 1 x 12 Insecticide in Furrow

403-018A . . . . . 6.5 x 12 Insecticide in Furrow

403-019A . . . . . 1 x 12 Insecticide 7" Diffuser

Insecticide & Herbicide Option

403-020A . . . . . Insecticide Furrow & Herbicide 7" 1 x 12

403-021A . . . . . Insecticide Furrow & Herbicide 7"
. . . . . 6.5 x 12

403-022A . . . . . Insecticide Furrow & Herbicide
. . . . . 14" 1 x 12

403-023A . . . . . Insecticide Furrow & Herbicide
. . . . . 14" 6.5 x 12

403-024A . . . . . Insecticide 7" & Herbicide 7" 1 x 12

403-025A. . . . . Insecticide 7" & Herbicide 14" 1 x 12

403-038A . . . . . Dual Chemical 7" 1 x 12

403-039A . . . . . Dual Chemical Furrow 1 x 12

403-040A . . . . . Dual Chemical Furrow 1 x 12

Wheel Cover Option

404-025A . . . . . 16" Wheel Cover

Row Dual Gauge Wheels

404-031A . . . . . Row Unit Dual Gauge Wheels

Marker Attachment

113-510A . . . . . 8-Row 38", 40"/10-Row 30" Planter
. . . . . Flat Fold Marker

113-511A . . . . . 8-Row 36" Planter Flat Fold Marker

Section 11 *Warranty*

Warranty

Great Plains Manufacturing, Incorporated warrants to the original purchaser that this seeding equipment will be free from defects in material and workmanship for a period of one year from the date of original purchase when used as intended and under normal service and conditions for personal use; 90 days for commercial or rental purposes. This Warranty is limited to the replacement of any defective part by Great Plains Manufacturing, Incorporated and the installation by the dealer of any such replacement part. Great Plains reserves the right to inspect any equipment or part which are claimed to have been defective in material or workmanship.

This Warranty does not apply to any part or product which in Great Plains' judgement 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. This Warranty shall not apply if the product is towed at a speed in excess of 20 miles per hour.

Claims under this Warranty must be made to the dealer which originally sold the product and all warranty adjustments must by made through such dealer. Great Plains 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 Great Plains liable for damages of any kind, direct, consequential, or contingent, to property. Furthermore, Great Plains shall not be liable for damages resulting from any cause beyond its reasonable control. This Warranty does not extend to loss of crops, losses caused by harvest delays or 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 herby disclaimed and excluded from this sale.

This Warranty is not valid unless registered with Great Plains Manufacturing, Incorporated within 10 days from the date of original purchase.

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