

Operator's Manual

EWNT7 and EWNT10

End Wheel No Till Drill

Model	Serial No.
EWNT7	1523Q - 1630Q
EWNT10	4142U - 4568U

Great Plains

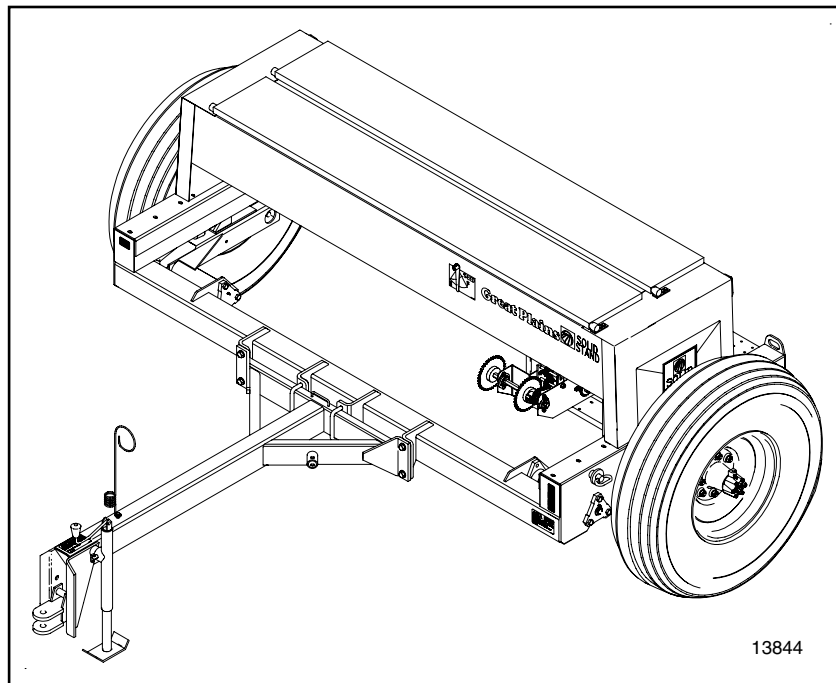
Manufacturing, Inc.

www.greatplainsmfg.com



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.

General Information

Important Notice

Great Plains Manufacturing, Inc. provides this publication "as is" without warranty of any kind, either expressed or implied. While every precaution has been taken in the preparation of this manual, Great Plains Manufacturing, Inc. assumes no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from the use of the information contained herein. Great Plains Manufacturing, Inc. reserves the right to revise and improve its products as it sees fit. This publi-

cation describes the state of this product at the time of its publication, and may not reflect the product in the future.

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
7' & 10' End Wheel No-Till**

Owner's Information

Name: _____

Serial Number _____

Address _____

Model Number _____

City _____ State ____ Zip _____

Date Purchased _____

Phone _____

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, read this manual. Reading these sections not only provides valuable training but

also familiarizes you with helpful information and its location. 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 End Wheel No-Till. Read and follow all instructions and safety precautions carefully.

The parts on your End Wheel No-Till have been specially designed and should only be replaced with genuine Great Plains parts. Therefore, should your End Wheel No-Till 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 front right side of the frame. 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 drill 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 operator's 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 manufacturers. Your End Wheel No-Till has been designed with many built-in safety features. However, no one should operate this product before carefully reading this operator's manual.

General Operation & Repair

1. Never allow the drill 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.
2. Make sure safety rules are understood before operating machinery or tractor.
3. Never permit any persons other than the operator to ride on the tractor.
4. Never permit any persons to ride on or stand near the drill while it is in operation.
5. Regulate your speed to the field conditions, maintaining complete control at all times.
6. After repairing or adjusting, make sure all tools and parts are removed from the implement before attempting to operate it.
7. Do not grease or oil machine while it is in operation.
8. Loose fitting clothing should not be worn as it may catch in moving parts.
9. Never dismount from a moving tractor.
10. Do not leave the tractor or the implement unattended with the engine running.
11. Do not stand between the tractor and the implement during hitching.
12. Detach and store implements in an area where children normally do not play. Stabilize implements by using suitable supports and block wheels.
13. 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. 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!
14. Use a piece of cardboard or wood to detect leaks of hydraulic oil under pressure.
15. 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

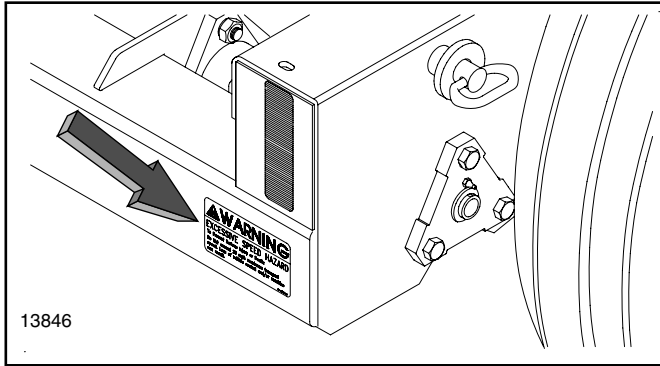
1. Use good judgement when transporting tractor and implements on the highway. Always maintain complete control of the machine.
2. Limit transport speed to 20 mph. Transport only with a farm tractor of sufficient size and horse power. See "Tractor Requirements" Section 2, page 8.
3. Always make sure flashing safety lights, "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.
5. Use warning flags or approved warning lights at night and during other periods of poor visibility. Do your best to prevent highway accidents.

Tire Handling & Repair

1. Tire changing can be dangerous and should be performed 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.

Safety Decals

1. Your End Wheel No-Till comes equipped with all safety decals in place. They were designed to help you safely operate your drill. 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. 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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! WARNING

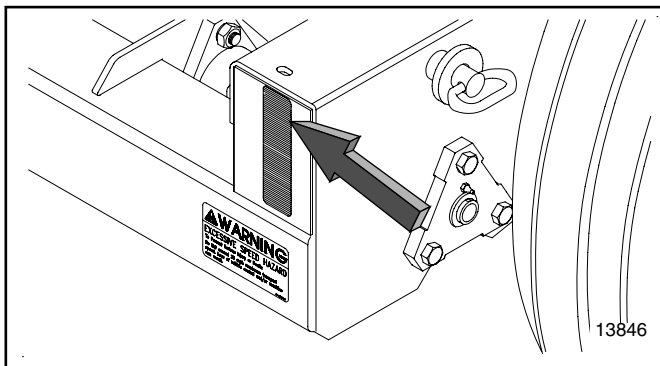
EXCESSIVE SPEED HAZARD

To Prevent Serious Injury or Death:

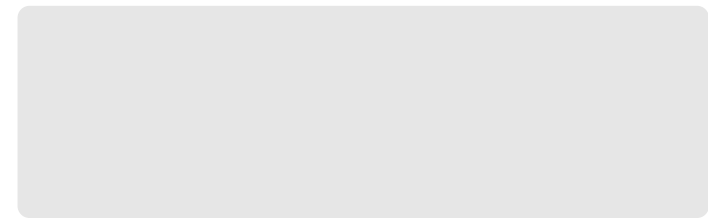
- Do Not exceed 20 mph maximum transport speed. Loss of vehicle control and/or machine can result.

818-188C Rev. C

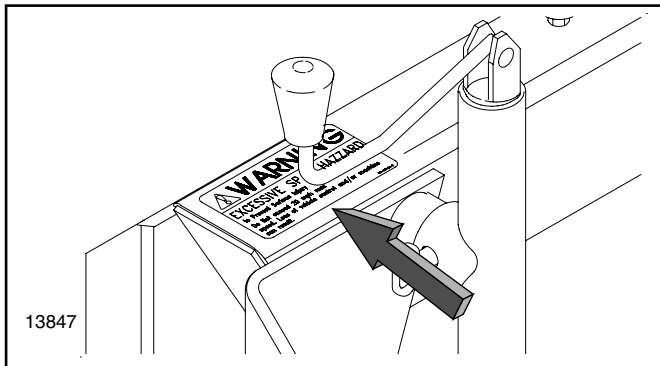
818-188C
Transport Speed Warning



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838-265C
Amber Reflectors



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! WARNING

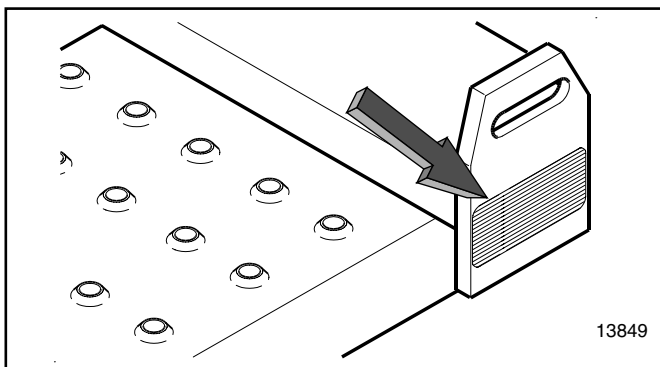
EXCESSIVE SPEED HAZARD

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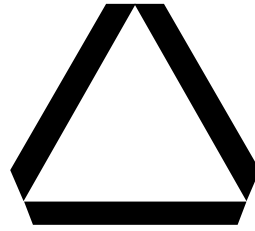
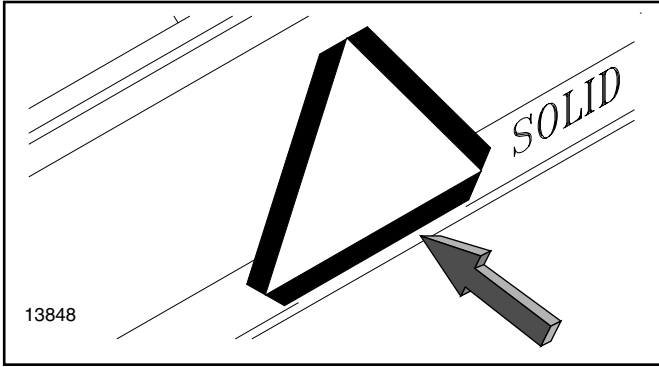
818-188C
Transport Speed Warning



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838-266C
Red Reflector






818-003C
Slow Moving Vehicle Emblem

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					
						
	Class 5.8		Class 8.8		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 diameter 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

Pre-Assembly Checklist

Check

- All major components
- Fasteners that were shipped with the End Wheel No-Till Drill.
NOTE: Some of the hardware from the factory has been installed in the location where it will be used.
- Have a minimum of 2 people at hand while assembling the End Wheel No-Till Drill.
- Have a fork lift or loader along with chains and safety stands ready for the assembly task.
- If you are unsure where a fastener is used, use the parts section of this manual to identify it. Be sure the part gets used in the correct location.

Refer to Figure 2-1:

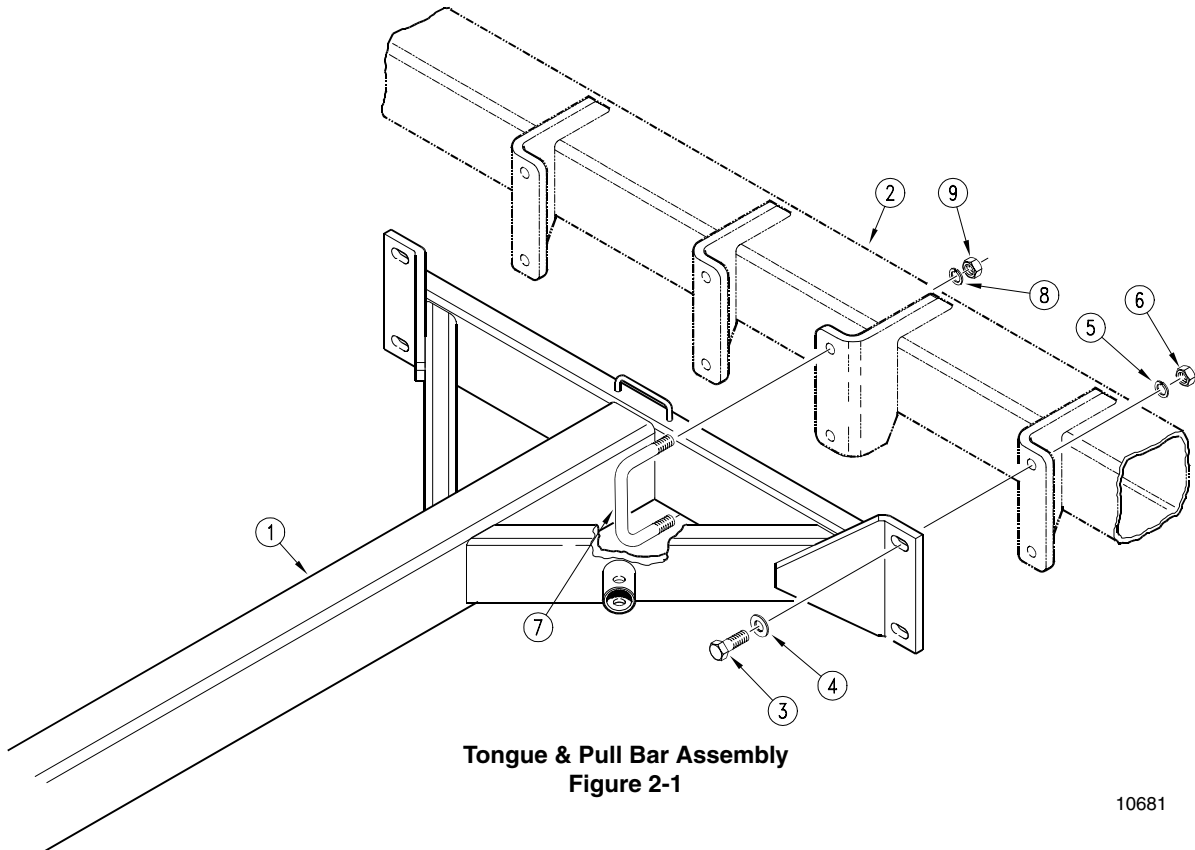
Before starting the drill assembly, be sure that the drill frame is safely supported and the end wheel tires are blocked.

Bolt the outside legs of the tongue weldment (#1) to the drill frame (#2) using 3/4" x 2 1/4" long bolts (#3), 3/4" SAE flat washers (#4), 3/4" lock washers (#5), and 3/4"

hex nuts (#6).

Connect the rear tube of the tongue (#1) to the drill frame (#2) using 3/4" x 6 1/32" x 3 1/4" long u-bolts (#7), 3/4" lock washers (#8), and 3/4" hex nuts (#9).

Tighten all hardware to the torque specification listed in the **"Nut & Bolt Torquing Chart"** on page 6.



Tractor Requirements

To operate your Great Plains End Wheel No-Till Drill in most field conditions, a tractor of adequate size should be used. For 7' drills, a 55 horsepower tractor is required. For 10' drills, a 75 horsepower tractor is required.

7' and 10' drills require one set of remote outlets.

Tractor Drawbar Hook-Up

Refer to Figure 2-2 & Figure 2-3:

The Great Plains No-Till Drill is equipped with either a single strap, Figure 2-2, clevis style hitch, Figure 2-3, or a ball swivel hitch, Figure 2-5. For proper field operation, the tongue of the drill should run level, parallel to the ground in field position.

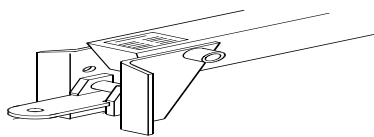


Figure 1

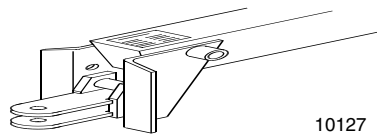


Figure 2

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Single Strap Hitch

Figure 2-2

Clevis Style Hitch

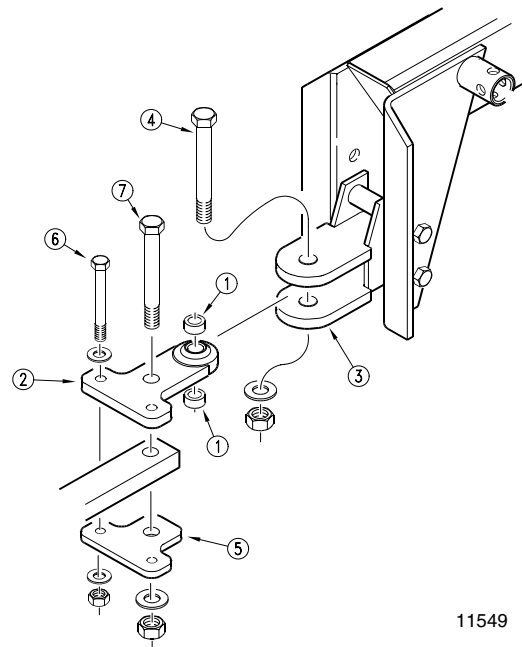
Figure 2-3

Tractor Drawbar Hook-Up For Ball Swivel Hitch

Refer to Figure 2-4:

Place a spacer tube (#9) above and below the ball swivel. Bolt the ball swivel {top hitch weldment} (#1) and spacer tubes (#9) to the drill clevis hitch with a 1" x 5" long bolt (#10), 1" USS flat washer (#11), and 1" nylock nut (#12).

Back the tractor to the drill hitch. Using the screw jack, adjust the drill tongue up or down to center the drawbar below the upper hitch plate (#1). Place hitch weldment (#1) on top of the tractor drawbar, aligning the rear hole in the hitch weldment with the large hole in the drawbar. Place the lower hitch plate (#2) under the drawbar and attach to the hitch weldment (#1) with {2} 5/8" x 4" long bolts (#3), 5/8" flat washers (#4), 5/8" nylock nuts (#5). Bolt the top hitch weldment (#1) through the hole in the drawbar to the lower hitch plate (#2) with a 1" x 5 1/2" long bolt (#6), 1" USS flat washer (#7), and 1" nylock nut (#8).

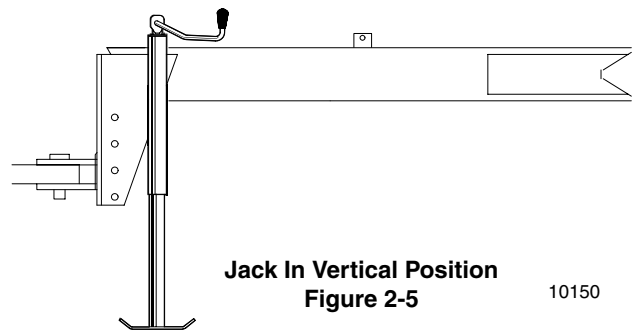


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Ball Swivel Hitch
Figure 2-4

Refer to Figure 2-5:

1. With the drill lowers and in the field position, adjust the tongue jack to level the tongue.



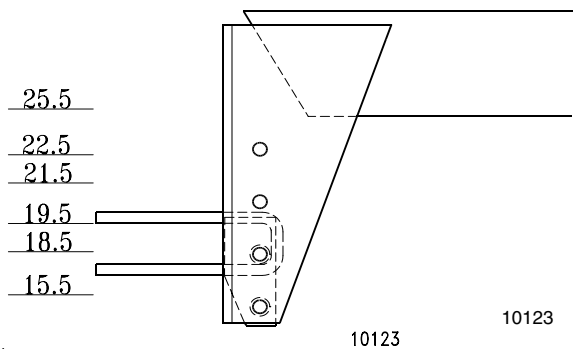
Jack In Vertical Position
Figure 2-5

10150

2. Back the tractor draw bar up to the drill hitch to determine the amount of adjustment required.

Refer to Figure 2-6:

3. The mounting holes in the hitch have been offset so the hitch can be turned over and bolted on in three different hitch positions, giving you six different hitch heights.

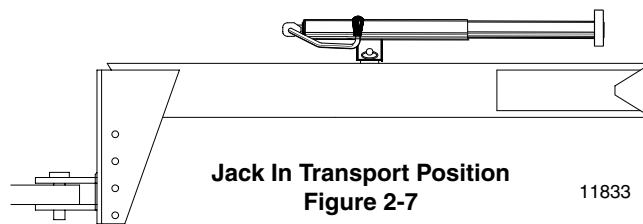


Hitch Height Adjustment
Figure 2-6

4. Connect the hitch to the tractor using a pin of adequate strength (minimum 1" diameter).

Refer to Figure 2-7:

5. Unpin the tongue jack, and pin it on top of the tongue.



Jack In Transport Position
Figure 2-7

NOTE: Make sure the hitch is securely bolted to the drill tongue.

Your drill comes equipped with a hitch safety chain. The safety chain should be securely attached to the drill hitch and the tractor drawbar whenever towing or planting.

Tractor Hydraulic Hook-Up

Route the lift hydraulic hoses along the tongue and through the hose loop on the front of the tongue. Connect the hoses to the tractor remote outlets.



CAUTION!

Escaping fluid under pressure can have sufficient force to penetrate the skin. Check all hydraulic lines and hoses before applying pressure. Fluid escaping from a very small hole can be almost invisible. Use paper or cardboard, not body parts, to check for suspected leaks. If injured, seek medical assistance from a doctor that is familiar with this of injury. Foreign fluids in the tissue must be surgically removed within a few hours or gangrene will result.

Bleeding the Hydraulic Lifting System

The implement lifting system is equipped with rephasing type hydraulic cylinders that require a special procedure for bleeding air from the hydraulic circuits. Read and follow the procedure carefully. The rephasing type cylinders will not function properly with air in the hydraulic circuit. Bleeding the system may have been done during initial set up of the drill.

NOTE: Check the hydraulic fluid in the tractor reservoir and fill to the proper level. Add fluid to the system as needed. A low reservoir level may draw air back into the system, causing jerky or uneven cylinder movements. The drill system capacity is approximately 1 gallon.

1. Jack up and support the front member of the drill at a point close to each end wheel. If the end wheel cylinders have previously been engaged, they may be used to assist in raising the frame.
2. With the frame blocked and supported, unpin the cylinders from the drill frame and turn the cylinders upside down and wire or otherwise safely support the rod end port higher than the base end port.
3. With the tractor engine at an idle speed, hold the remote lever on to put fluid into the lifting circuit. When the cylinders have completely extended, hold the remote lever on for one minute.
4. Retract the cylinders. Extend the cylinders again and hold the remote lever on for one more minute. Repeat this step two more times to completely bleed the system.
5. Repin the cylinders to the drill frame, rod end to the wheel arm. If air is trapped in either cylinder, the affected cylinder will have a spongy, erratic movement and the drill will not raise evenly. Refill the tractor hydraulic fluid reservoir to its proper level.

NOTE: After the drill is raised, a slight settling will occur due to the action of the rephasing cylinders.

IMPORTANT: When using sealant on pipe threads the friction between the threads is reduced; therefore, be certain not to over tighten causing damage to the cylinder port or fitting.

Section 3 Basic Operation

Operating the Lifting Hydraulic System

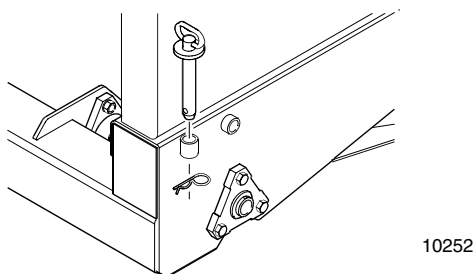
The lift cylinders may after a period of time get out of time or phase. The effects of this can be seen when one side of the drill is running too low or too high because its lift cylinder is either overextended or overretracted compared to the other lift cylinder. To rephase the cylinders, raise the drill completely up and hold the tractor hydraulic lever on for a few seconds to give the cylinders time to rephase. This should be done each time the drill is raised out of the ground. Momentarily reversing the hydraulic lever immediately after rephasing to allow the cylinders to retract about 1/2" will help in maintaining a level drill.

Transporting

Operating Transport Lock

Refer to Figure 3-1:

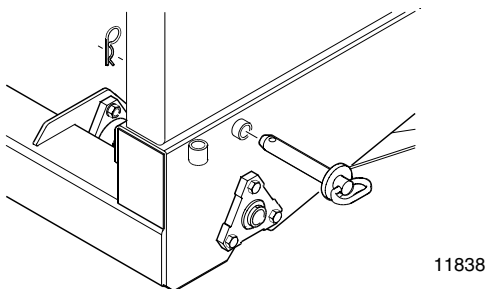
When transporting your drill, you should always lock your drill in the raised position. Fully extend the lift cylinders to raise the drill for transporting. Remove the lock pins from the storage position, Figure 3-1. {One on each side of the drill frame.}



Lock Pin In Field - Storage Position
Figure 3-1

Refer to Figure 3-2:

Place the lock pin through the frame channel as shown in Figure 3-2. Before lowering the drill, you must first extend the lift cylinders completely and move the lock pins to their storage position.



Lock Pin In Transport Position
Figure 3-2

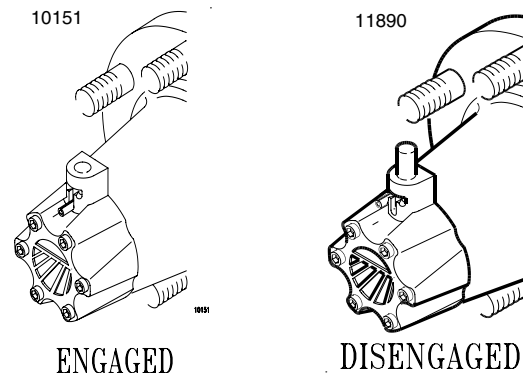
Lock Out Hubs

Before transporting the drill, you should always check the following items:

1. Make sure that drill is securely attached to the draw bar of the tractor and that the hitch safety chain has been securely attached.
2. Check to see that the transport tires have the proper inflation as noted on page 6.

Refer to Figure 3-3:

3. Make sure the drive lockout hub (left side) is disengaged before transporting, see Figure 3-3. This will protect from excessive wear on the gauge wheel drive system.
4. This drill comes equipped with a transport lock pin located on each side of the drill frame. Make sure the pin is in its transport position as shown in Figure 3-2.
5. Comply with all federal, state and local safety laws when traveling on public roads.
6. Remember, the drill is wider than the tractor and extreme care must be taken to allow for safe clearance.



Drive Lock Out Hub
Figure 3-3



WARNING!

This drill should never be pulled faster than 20 miles per hour.

Section 4 Adjustments

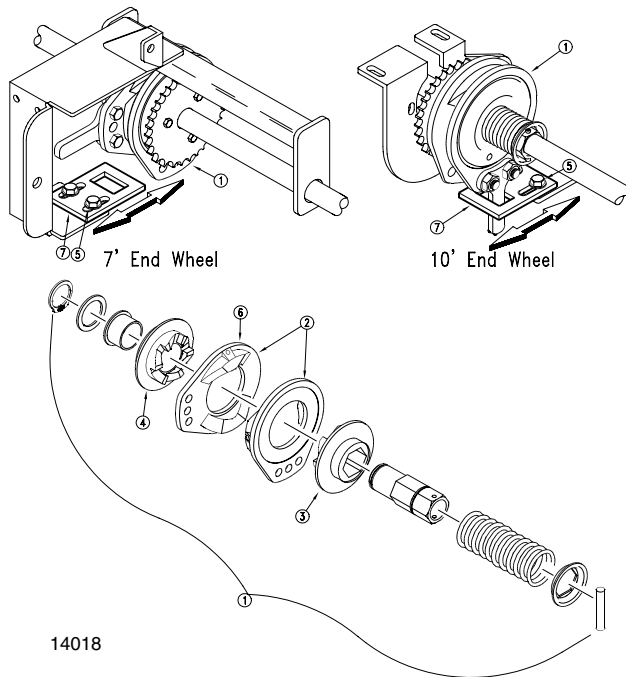
Drive System Clutch

Refer to Figure 4-1:

The main drive clutch (#1) on your drill is a mechanical release - jaw style design which may require some adjustments before using your drill. Raise the drill to the transport position. Check between the two cam plates (#2) which disengage the jaws (#3) & (#4) of the clutch halves. The clutch jaws (#3) & (#4) should be completely separated at this point.

Adjustments can be made to the cam plate (#6) by loosening the bolts, and nuts (#5) in the clutch tab(#7).

Whenever adjusting the clutch, check to be sure the clutch jaws (#3) & (#4) are engaged completely when the drill is lowered to the field position. The clutch jaws (#3) & (#4) should also be completely disengaged when the drill is raised for transport.



Jaw Clutch Adjustment
Figure 4-1

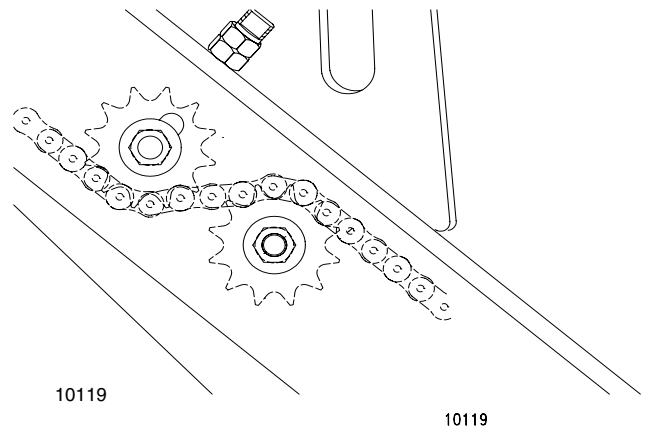
Drive Train Operation

Refer to Figure 4-2:

Your grain drill uses standard no. 40 roller chain through out its drive system. The drive system is simple and designed for low maintenance. All chain idlers should be checked at the beginning of each season to insure that they are adjusted properly.

To do a maintenance inspection, simply check each idler to insure that it is taking up any excess chain slack. On fertilizer and native grass drills the inspection cover for the drive is located on the outside of the left box end panel and this cover must be removed to inspect the fertilizer and native grass drive chain and idler.

In the left wheel arm are two idler sprockets, Figure 4-2, which should be readjusted after the first 100 acres of drill use and then at the beginning of each season. To adjust, move the front idler sprocket, on the top of the chain, down, by loosening the jam nut and screwing the adjustment stud in. Chain idlers should always be kept snug against the slack side of the chain. **Do not** over tighten chains, it will cause excessive wear on idlers and drive components. Retighten the jam nut to maintain the idler position.



Idler Sprocket Adjustments
Figure 4-2

Seeding Rate

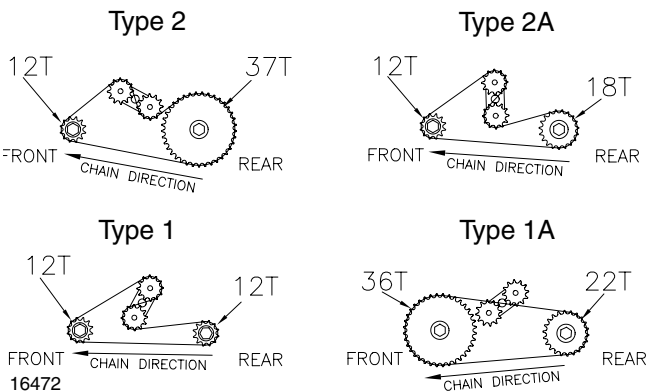
Calibrating the seeding rate requires four steps: arranging the drive sprockets, setting the seed-rate handle, positioning the seed-cup door, and checking the seeding rate.

Refer to the seed-rate charts starting on page 14. These charts list the proper sprocket sizes and seed-rate-handle settings for various seeds and seeding rates.

The seed-rate charts are based on cleaned, untreated seed of average size and test weight. The rates are based on 9.0 x 24 rib implement tires. Many factors will affect seeding rates including foreign material, seed treatment, seed size, field conditions, tire pressure and test weight. Minor adjustments likely will be needed. Set and check the seeding rate using the procedures below, then adjust the rate as necessary.

Change Drive Sprockets

Refer to the seed-rate charts for the correct drive type—1, 1A, 2 or 2A. Figure 4-3 shows the sprocket arrangement for each drive type.



Drive Types
Figure 4-3

Drive-Type Ratios

Type 2 is Slowest

Type 2A is Two Times Faster Than Type 2

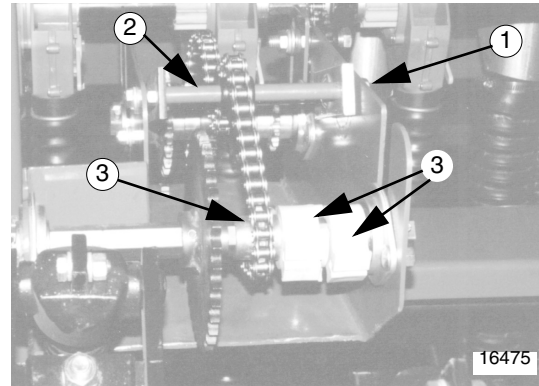
Type 1 is Three Times Faster Than Type 2

Type 1A is Five Times Faster Than Type 2

To change the drive types:

1. Refer to Figure 4-4. Loosen the nut (1) holding the idler arm (2). Turn arm so chain is slack. Remove chain from sprockets.
2. Rearrange sprockets (3) and plastic spacers (4) on the front shaft so the correct front and rear sprockets are aligned according to the drive type.

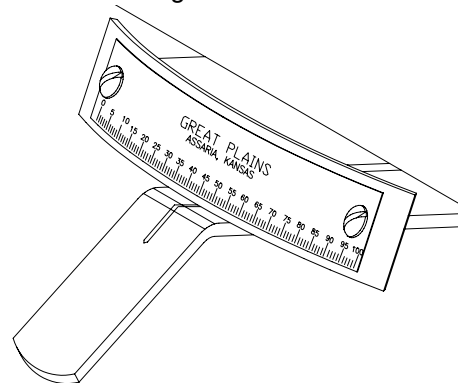
- a. Pull spacers off shaft.
 - b. Slide sprockets as necessary.
 - c. Place plastic dividers back on shaft between sprockets as necessary.
5. Slide idlers on idler arms so they are aligned with correct sprockets. Reinstall chain.
 6. Turn idler arm as indicated by drive type to remove slack from chain. Retighten nut that holds idler arm.



Sprocket Box
Figure 4-4

Set Seed-Rate Handle

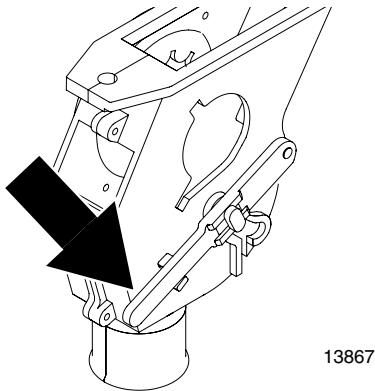
The position the handle (shown in Figure 4-5) to the setting indicated on the chart. To adjust, loosen the wing nut under the handle. Slide handle until the indicator lines up with the correct setting.



Seed-Rate Handle
Figure 4-5

Position Seed-Cup Doors

Refer to Figure 4-6. For wheat and other small seeds, move the seed-cup-door handles to the highest position. For soybeans and other large seeds, lower the handles to the second position. If excessive seed cracking occurs, lower the handles to the third position. Move the handles to the fourth, wide-open position for seed-cup clean out. Make sure all handles are in the same position before drilling.



Seed-Cup-Door Handle
Figure 4-6

Check Seeding Rate

1. Hydraulically lower the drill to planting position to activate clutch.
2. Check that your tires are 9.0 x 24 rib implement and properly inflated. Refer to "**Tire Inflation Chart**," on page 6.
3. Jack the drive (left) end wheel off the ground. Rotate the wheel to see that the drive system is working properly and seed cups are free from foreign material.
4. Record the weight of an empty container large enough to hold the seed metered for one acre.
5. Place several pounds of seed over three seed cups on an outside end of the drill box. Pull the seed tubes off of these three openers.
6. Turn drive end wheel several times to fill seed-cups with seed. Turn wheel until seed falls to the ground from each cup.
7. Place container under the three tubes to gather metered seed.
8. Rotate the drive wheel until one acre has been tallied on the acremeter. This will be 592 rotations on a 7-foot drill or 422 rotations on a 10-foot drill. Check that the three seed cups have plenty of seed coming into them.
9. Weigh the metered seed. Subtract the initial weight of the container. Divide by three. Multiply by the number of openers on your drill to determine total pounds-per-acre seeded. If this figure is different than desired, reset sprockets accordingly.

NOTE: You may want to repeat the calibration procedure if your results vary greatly from the seed-rate chart.

10. When drilling, check the rate by noting acres drilled, amount of seed added to drill and seed level in drill box. If you are seeding more or less than desired, adjust the rate slightly to compensate for field conditions.

Section 4 Adjustments

Seed Rate Charts

HARD RED WINTER WHEAT		SEED RATE INDICATOR SETTING NUMBER																			
DRIVE TYPE 1	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Pounds Per Acre																				
7"	0	11	19	27	35	44	52	62	71	81	91	101	110	122	133	145	153	161	166	174	180
7 1/2"	0	10	17	24	32	40	48	56	65	74	83	92	100	112	121	132	140	147	152	159	164
8"	0	9	16	23	30	39	46	54	62	70	79	88	96	100	112	121	132	140	145	152	156
10"	0	7	13	19	24	31	36	43	49	56	63	70	77	85	92	101	106	112	116	121	125

*Based On 60#/Bushel

HARD RED WINTER WHEAT		SEED RATE INDICATOR SETTING NUMBER																			
DRIVE TYPE 2A	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Pounds Per Acre																				
7"	0	7	13	18	23	30	35	41	47	54	61	67	73	81	88	97	102	107	111	116	120
7 1/2"	0	6	11	16	21	27	32	38	43	49	55	61	67	74	81	88	93	98	101	106	109
8"	0	6	10	15	20	26	30	36	41	47	53	58	64	71	77	84	89	93	96	101	104
10"	0	5	9	12	16	21	24	29	33	37	42	47	51	57	62	67	71	75	77	81	83

*Based On 60#/Bushel

RICE SHORT GRAIN		SEED RATE INDICATOR SETTING NUMBER																			
DRIVE TYPE 1	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Pounds Per Acre																				
7"	0	2	9	15	21	28	35	41	47	54	61	67	76	81	86	92	98	105	107	107	109
7 1/2"	0	2	8	14	19	26	32	38	45	51	57	64	71	76	82	86	93	98	101	101	103
8"	0	2	7	13	18	25	30	35	42	47	54	59	66	71	75	81	87	92	95	95	96
10"	0	1	6	11	15	20	25	29	34	38	43	47	53	57	61	66	70	74	76	76	77

RICE SHORT GRAIN		SEED RATE INDICATOR SETTING NUMBER																			
DRIVE TYPE 1A	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Pounds Per Acre																				
7"	0	5	15	28	40	50	66	79	93	107	123	136	157	169	180	194	210	223	228	231	232
7 1/2"	0	4	15	26	37	47	63	75	87	101	116	127	148	159	170	182	197	210	214	217	218
8"	0	4	14	25	35	45	58	70	82	95	108	119	139	149	159	171	186	197	201	204	205
10"	0	3	11	20	28	35	47	56	66	76	86	96	111	120	127	137	148	157	161	163	164

RICE LONG GRAIN		SEED RATE INDICATOR SETTING NUMBER																			
DRIVE TYPE 1	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Pounds Per Acre																				
7"	0	1	6	13	19	27	34	39	46	52	58	64	69	74	78	83	89	95	95	96	97
7 1/2"	0	1	5	12	17	25	31	36	44	49	55	60	65	70	74	78	84	89	89	90	92
8"	0	1	5	11	16	24	29	35	41	46	51	56	61	66	69	73	78	84	84	85	86
10"	0	0	4	9	14	19	24	27	33	37	41	46	49	53	56	58	63	67	67	68	69

RICE LONG GRAIN		SEED RATE INDICATOR SETTING NUMBER																			
DRIVE TYPE 1A	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Pounds Per Acre																				
7"	0	2	9	22	36	50	63	78	90	100	116	131	143	152	165	175	187	202	207	210	211
7 1/2"	0	2	8	21	34	46	59	74	85	94	110	123	135	143	156	165	176	190	196	197	198
8"	0	2	8	19	32	44	56	69	80	88	103	116	126	134	146	154	165	178	183	186	187
10"	0	1	6	15	25	35	45	56	64	71	83	93	101	107	116	124	132	143	147	148	149

BARLEY		SEED RATE INDICATOR SETTING NUMBER																			
DRIVE TYPE 1	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Pounds Per Acre																				
7"	0	0	8	13	19	25	30	36	42	48	53	59	65	71	76	82	87	93	98	104	109
7 1/2"	0	0	7	13	18	23	29	34	39	45	50	55	60	66	71	76	82	87	93	98	102
8"	0	0	7	12	17	22	27	28	37	42	47	52	57	62	67	72	77	82	87	93	97
10"	0	0	6	9	13	18	22	25	29	34	38	41	45	50	54	57	61	65	70	74	78

OATS		SEED RATE INDICATOR SETTING NUMBER																			
DRIVE TYPE 1	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Pounds Per Acre																				
7"	0	4	8	13	18	24	30	35	42	48	54	60	67	72	79	86	91	97	101	106	110
7 1/2"	0	3	7	12	16	22	27	32	38	44	49	55	61	66	72	78	83	88	93	97	100
8"	0	3	7	11	15	21	26	30	36	42	47	53	58	63	69	75	79	84	88	92	96
10"	0	3	6	9	13	17	21	24	29	34	37	42	47	50	55	60	63	67	71	74	76

*Based On 39#/Bushel

Section 4 Adjustments

RYE		SEED RATE INDICATOR SETTING NUMBER																				
DRIVE TYPE 2		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing		Pounds Per Acre																				
7"		0	0	3	6	9	12	15	17	22	23	25	29	32	35	37	41	45	48	49	52	53
7 1/2"		0	0	3	5	8	11	14	16	21	22	24	28	30	33	35	38	42	46	46	49	49
8"		0	0	3	5	8	10	13	15	19	20	23	26	29	31	33	36	39	43	44	46	47
10"		0	0	2	4	6	8	10	14	16	17	19	21	23	25	27	29	32	34	35	37	38

MILLET		SEED RATE INDICATOR SETTING NUMBER																				
DRIVE TYPE 2		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing		Pounds Per Acre																				
7"		0	1	4	6	9	12	14	16	19	22	25	28	32	35	39	42	46	51	53	53	54
7 1/2"		0	1	3	5	8	11	13	15	17	21	24	27	31	33	36	40	44	47	49	50	51
8"		0	1	3	5	8	10	12	14	16	19	22	25	28	30	34	38	41	45	46	47	48
10"		0	0	2	4	6	8	9	11	13	15	18	21	23	25	27	29	33	36	37	38	39

BUCKWHEAT		SEED RATE INDICATOR SETTING NUMBER																				
DRIVE TYPE 1		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing		Pounds Per Acre																				
7"		0	4	10	18	25	32	40	48	52	63	73	82	86	96	104	117	128	142	151	152	155
7 1/2"		0	3	9	17	23	30	37	46	49	60	68	77	81	90	98	111	121	134	142	146	146
8"		0	3	9	16	21	28	35	43	46	57	63	73	76	85	92	104	113	126	133	134	137
10"		0	3	7	12	18	23	28	34	37	46	52	58	61	68	74	83	91	100	106	107	109

FLAX OR SUDAN		SEED RATE INDICATOR SETTING NUMBER																				
DRIVE TYPE 2		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing		Pounds Per Acre																				
7"		0	1	4	6	8	12	15	17	21	24	27	31	33	36	38	42	47	50	53	56	57
7 1/2"		0	1	3	5	7	11	14	16	20	22	25	29	31	34	36	40	44	47	50	52	54
8"		0	1	3	5	7	10	13	15	19	21	24	27	29	32	34	37	41	44	47	49	51
10"		0	0	3	4	6	8	10	12	15	17	19	22	23	25	27	30	33	36	38	39	41

SUNFLOWERS		SEED RATE INDICATOR SETTING NUMBER																				
DRIVE TYPE 2		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing		Pounds Per Acre																				
7"		0	0	0	3	6	9	12	15	17	20	25	29	32	35	37	41	44	46	49	52	55
7 1/2"		0	0	0	3	6	8	11	14	16	19	23	27	30	33	35	38	41	44	46	49	52
8"		0	0	0	3	5	8	10	13	15	18	22	25	28	31	34	35	38	41	44	46	49
10"		0	0	0	2	4	6	8	10	12	15	17	21	23	25	26	29	31	33	35	37	39

SOYBEANS		SEED RATE INDICATOR SETTING NUMBER																				
DRIVE TYPE 1		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing		Pounds Per Acre																				
7"		0	0	8	21	34	46	59	70	82	95	107	118	132	144	154	166	174	184	195	201	207
7 1/2"		0	0	7	20	31	42	54	64	75	87	98	108	120	131	141	152	159	168	178	184	189
8"		0	0	7	19	29	40	51	61	71	83	93	103	114	125	134	145	152	160	169	175	180
10"		0	0	6	15	23	32	41	49	57	66	75	82	91	100	107	116	121	128	135	140	144

*Based On 59.1#/Bushel

SOYBEANS		SEED RATE INDICATOR SETTING NUMBER																				
DRIVE TYPE 2		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing		Pounds Per Acre																				
7"		0	0	2	7	11	15	19	23	27	31	35	38	43	47	50	54	57	60	63	65	67
7 1/2"		0	0	2	6	10	13	17	21	24	28	32	35	39	42	46	49	52	54	58	60	61
8"		0	0	2	6	9	13	17	20	23	27	30	33	37	40	43	47	49	52	55	57	58
10"		0	0	2	5	8	10	13	16	18	21	24	27	30	32	35	37	39	41	44	45	47

*Based On 59.1#/Bushel

SOYBEANS		SEED RATE INDICATOR SETTING NUMBER																				
DRIVE TYPE 2A		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing		Pounds Per Acre																				
7"		0	0	5	14	22	30	39	49	55	64	72	79	88	96	103	111	116	123	130	134	138
7 1/2"		0	0	5	13	20	28	36	42	50	58	65	72	80	87	94	101	106	112	118	123	126
8"		0	0	4	12	19	26	34	40	47	55	62	68	76	83	89	96	101	107	113	117	120
10"		0	0	4	10	16	21	27	32	38	44	50	55	61	67	70	77	81	85	910	93	96

*Based On 59.1#/Bushel Setting the feed cup adjustment lever between 50 & 80 allows for optimum seeding of soybeans.

Section 4 Adjustments

PEAS		SEED RATE INDICATOR SETTING NUMBER																			
DRIVE TYPE 1	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Pounds Per Acre																				
7"	0	0	6	20	24	41	52	67	81	96	110	126	140	153	168	183	194	208	209	210	211
7 1/2"	0	0	5	19	22	38	50	63	76	91	103	118	131	144	158	172	182	196	196	197	198
8"	0	0	5	18	21	36	46	59	72	84	97	111	123	135	148	161	171	183	184	184	186
10'	0	0	4	13	17	29	37	47	57	68	78	89	99	108	119	129	137	147	148	149	150

PINTO BEANS		SEED RATE INDICATOR SETTING NUMBER																			
DRIVE TYPE 2	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Pounds Per Acre																				
7"	0	0	0	0	2	3	6	11	16	22	27	34	38	41	46	52	61	62	64	65	67
7 1/2"	0	0	0	0	1	2	5	10	15	21	26	31	36	39	43	49	57	59	60	61	63
8"	0	0	0	0	1	2	5	9	14	19	25	30	34	36	41	46	53	55	56	57	59
10"	0	0	0	0	0	2	4	8	13	18	20	24	27	29	33	37	43	44	45	46	48

RAPE		SEED RATE INDICATOR SETTING NUMBER																			
DRIVE TYPE 2	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Pounds Per Acre																				
7"	0	3	5	7	10	12	14	16	18	21	24	27	30	33	36	39	43	46	49	50	50
7 1/2"	0	3	4	7	9	11	12	14	17	19	22	25	27	30	33	36	39	42	44	46	46
8"	0	3	4	6	8	10	12	14	16	18	21	23	26	29	31	34	37	40	42	42	43
10"	0	2	3	5	7	8	9	11	13	15	17	19	21	23	25	27	30	32	34	34	34

*Based On 49#/Bushel

ALFALFA		SEED RATE INDICATOR SETTING NUMBER																			
DRIVE TYPE 2	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Pounds Per Acre																				
7"	0	4	5	8	10	14	16	19	22	25	28	30	33	35	37	40	42	44	47	49	50
7 1/2"	0	3	5	7	10	12	15	17	20	22	25	28	30	32	34	37	38	40	43	44	46
8"	0	3	5	7	9	12	14	17	19	21	24	26	29	30	33	35	37	39	41	42	44
10"	0	2	4	5	7	9	11	13	15	17	19	21	23	24	26	28	29	31	33	34	35

*Based On 60.7#/Bushel

MILO		SEED RATE INDICATOR SETTING NUMBER																			
DRIVE TYPE 2	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Pounds Per Acre																				
7"	0	2	4	7	10	13	17	19	23	26	29	32	35	39	42	46	50	54	57	57	57
7 1/2"	0	2	4	6	9	12	15	18	21	24	26	29	32	35	38	42	46	49	52	52	52
8"	0	2	3	6	9	12	14	17	20	22	25	28	31	34	37	40	44	47	49	50	50
10"	0	2	3	5	7	9	11	14	16	18	20	22	24	27	29	32	35	37	39	40	40

*Based On 62.4#/Bushel

WHEAT GRASS		SEED RATE INDICATOR SETTING NUMBER																			
DRIVE TYPE 2	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Pounds Per Acre																				
7"	0	0	0	1	2	3	3	4	4	5	6	6	7	8	8	8	8	9	9	10	10
7 1/2"	0	0	0	0	2	3	3	4	4	5	5	6	6	7	7	7	8	8	8	9	10
8"	0	0	0	0	2	2	3	3	4	5	5	6	6	7	7	7	7	7	8	8	9
10"	0	0	0	0	2	2	2	3	3	4	4	4	5	5	5	5	6	6	7	8	8

KENTUCKY BLUE GRASS		SEED RATE INDICATOR SETTING NUMBER																			
DRIVE TYPE 1	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Pounds Per Acre																				
7"	0	3	7	11	14	18	21	25	29	32	36	39	42	45	48	52	54	57	60	63	65
7 1/2"	0	3	7	10	13	17	20	24	27	30	34	36	40	42	45	48	51	54	57	59	61
8"	0	3	6	9	12	15	18	22	25	28	31	34	37	39	42	45	47	50	53	55	57
10"	0	2	5	7	10	12	14	17	20	22	25	26	29	31	33	36	37	39	41	43	45

KENTUCKY BLUE GRASS		SEED RATE INDICATOR SETTING NUMBER																			
DRIVE TYPE 1A	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Pounds Per Acre																				
7"	0	5	11	17	22	27	33	39	45	49	56	60	65	70	75	80	84	89	93	97	102
7 1/2"	0	5	10	16	20	26	31	37	42	46	52	56	61	65	70	75	79	83	87	91	95
8"	0	5	10	15	19	24	29	34	39	43	49	52	57	61	65	70	74	78	82	85	89
10"	0	4	8	11	15	19	23	27	31	34	38	41	45	48	51	55	58	61	64	67	70

Section 4 Adjustments

ORCHARD GRASS		SEED RATE INDICATOR SETTING NUMBER																			
DRIVE TYPE 2A	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Pounds Per Acre																				
7"	.3	.8	2.1	3.3	4.4	5.6	6.9	8.0	9.2	10.3	11.6	12.8	13.9	15.1	16.4	17.5	18.7	19.8	21.1	22.3	23.4
7 1/2"	.3	.8	2.0	3.1	4.1	5.2	6.4	7.5	8.6	9.7	10.9	12.0	13.0	14.1	15.3	16.4	17.5	18.6	19.8	20.9	21.9
8"	.3	.7	1.9	2.9	3.9	4.9	6.0	7.0	8.0	9.0	10.2	11.2	12.2	13.2	14.3	15.3	16.3	17.3	18.5	19.5	20.5
10"	.2	.6	1.5	2.2	3.0	3.8	4.7	5.5	6.3	7.1	8.0	8.8	9.6	10.3	11.2	12.0	12.8	13.6	14.5	15.3	16.1

ORCHARD GRASS		SEED RATE INDICATOR SETTING NUMBER																			
DRIVE TYPE 2	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Pounds Per Acre																				
7"	.2	.4	1.0	1.6	2.1	2.7	3.3	3.9	4.5	5.0	5.7	6.2	6.8	7.3	8.0	8.5	9.1	9.6	10.3	10.8	11.4
7 1/2"	.1	.4	1.0	1.5	2.0	2.5	3.1	3.7	4.2	4.7	5.3	5.8	6.3	6.9	7.5	8.0	8.5	9.0	9.6	10.1	10.7
8"	.1	.3	.9	1.4	1.9	2.4	2.9	3.4	3.9	4.4	4.9	5.4	5.9	6.4	7.0	7.5	7.9	8.4	9.0	9.5	10.0
10"	.1	.3	.7	1.1	1.5	1.9	2.3	2.7	3.1	3.4	3.9	4.3	4.7	5.0	5.5	5.9	6.2	6.6	7.1	7.4	7.8

ORCHARD GRASS		SEED RATE INDICATOR SETTING NUMBER																			
DRIVE TYPE 1A	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Pounds Per Acre																				
7"	.8	2.0	5.2	8.0	10.8	13.6	16.8	19.6	22.4	25.2	28.4	31.2	34.0	36.8	40.0	42.8	45.6	48.4	51.6	54.4	57.2
7 1/2"	.8	1.9	4.9	7.5	10.1	12.8	15.8	18.4	21.0	23.6	26.6	29.3	31.9	34.5	37.5	40.1	42.8	45.4	48.4	51.0	53.6
8"	.7	1.8	4.6	7.0	9.5	11.9	14.7	17.2	19.6	22.1	24.9	27.3	29.8	32.2	35.0	37.5	39.9	42.4	45.2	47.6	50.1
10"	.6	1.4	3.6	5.5	7.4	9.4	11.6	13.5	15.4	17.3	19.5	21.5	23.4	25.3	27.5	29.4	31.4	33.3	35.5	37.4	39.3

ORCHARD GRASS		SEED RATE INDICATOR SETTING NUMBER																			
DRIVE TYPE 1	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Pounds Per Acre																				
7"	.5	1.2	3.2	4.9	6.6	8.3	10.3	12.0	13.7	15.5	17.4	19.1	20.9	22.6	24.5	26.3	28.0	29.7	31.7	33.4	35.1
7 1/2"	.5	1.2	3.0	4.6	6.2	7.8	9.7	11.3	12.9	14.5	16.3	17.9	19.6	21.2	23.0	24.6	26.2	27.8	29.7	31.3	32.9
8"	.4	1.1	2.8	4.3	5.8	7.3	9.0	10.5	12.0	13.5	15.2	16.8	18.3	19.8	21.5	23.0	24.5	26.0	27.7	29.2	30.7
10"	.3	.8	2.2	3.4	4.6	5.7	7.1	8.3	9.4	10.6	12.0	13.2	14.3	15.5	16.9	18.1	19.2	20.4	21.8	22.9	24.1

BURMUDA GRASS		SEED RATE INDICATOR SETTING NUMBER																			
DRIVE TYPE 1	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Pounds Per Acre																				
7"	0	8	14	22	28	34	40	47	53	59	65	71	77	83	89	96	102	108	114	120	126
7 1/2"	0	8	13	21	26	32	38	44	49	55	61	67	72	78	84	90	95	101	107	113	118
8"	0	7	12	19	25	30	35	41	46	51	57	62	68	73	78	84	89	94	100	105	111
10"	0	6	10	15	19	24	28	32	36	40	45	49	53	57	61	66	70	74	78	83	87

BURMUDA GRASS		SEED RATE INDICATOR SETTING NUMBER																			
DRIVE TYPE 1A	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Pounds Per Acre																				
7"	0	14	23	36	46	56	66	76	86	96	106	116	126	136	146	156	166	176	186	196	206
7 1/2"	0	13	21	34	43	52	62	71	81	91	99	109	118	127	137	146	156	165	174	184	193
8"	0	12	20	31	40	49	57	67	75	84	92	102	110	119	127	137	145	154	162	172	180
10"	0	9	15	25	32	38	45	52	59	66	73	80	87	93	100	107	114	121	128	135	142

BURMUDA GRASS		SEED RATE INDICATOR SETTING NUMBER																			
DRIVE TYPE 2	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Pounds Per Acre																				
7"	0	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	41
7 1/2"	0	3	4	7	9	10	12	14	16	18	20	22	24	25	27	29	31	33	35	37	38
8"	0	2	4	6	8	10	11	13	15	17	18	20	22	24	25	27	29	31	32	34	36
10"	0	2	3	5	6	8	9	10	12	13	15	16	17	19	20	21	23	24	25	27	28

BURMUDA GRASS		SEED RATE INDICATOR SETTING NUMBER																			
DRIVE TYPE 2A	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Pounds Per Acre																				
7"	0	6	9	15	19	23	27	31	35	39	43	47	52	56	60	64	68	72	76	80	84
7 1/2"	0	5	9	14	18	21	25	29	33	37	41	45	48	52	56	60	64	67	71	75	79
8"	0	5	8	13	16	20	24	27	31	34	38	42	45	49	52	56	59	53	66	70	74
10"	0	4	6	10	13	16	19	21	24	27	30	33	35	38	41	44	47	49	52	55	58

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PERENNIAL RYE GRASS		SEED RATE INDICATOR SETTING NUMBER																			
DRIVE TYPE 1	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Pounds Per Acre																				
7"	0	5	11	16	22	27	33	38	44	49	55	60	66	71	77	83	88	94	99	105	110
7 1/2"	0	5	10	15	20	26	31	36	41	46	51	57	62	67	72	77	82	88	93	98	103
8"	0	4	9	14	19	24	29	33	38	43	48	43	48	62	67	72	77	82	87	91	96
10"	0	3	7	11	15	19	22	26	30	34	38	42	45	49	53	57	60	64	68	72	76

PERENNIAL RYE GRASS		SEED RATE INDICATOR SETTING NUMBER																			
DRIVE TYPE 1A	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Pounds Per Acre																				
7"	0	8	17	25	34	43	51	60	69	77	86	95	104	112	121	130	138	147	156	164	173
7 1/2"	0	7	16	24	32	40	48	56	64	72	81	89	97	105	113	121	129	138	146	154	162
8"	0	7	15	22	30	37	45	52	60	67	75	83	91	98	106	113	121	128	136	143	151
10"	0	5	12	17	23	29	35	41	47	53	59	65	71	77	83	89	95	104	107	113	119

K-31 FESCUE		SEED RATE INDICATOR SETTING NUMBER																			
DRIVE TYPE 1	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Pounds Per Acre																				
7"	0	0	3	6	10	14	17	21	23	28	30	34	38	41	44	48	51	54	55	56	57
7 1/2"	0	0	2	6	10	13	16	19	22	26	28	32	36	38	41	45	48	51	51	53	53
8"	0	0	2	5	9	12	15	18	20	24	27	30	33	36	39	42	45	47	48	49	50
10"	0	0	2	4	7	10	12	14	16	19	21	23	26	28	30	33	35	37	38	39	39

K-31 FESCUE		SEED RATE INDICATOR SETTING NUMBER																			
DRIVE TYPE 1A	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Pounds Per Acre																				
7"	0	0	4	10	16	22	27	32	36	43	47	52	59	63	68	74	79	83	85	87	87
7 1/2"	0	0	4	9	15	21	25	30	34	40	44	49	55	59	64	69	74	78	79	81	82
8"	0	0	3	8	14	19	24	28	31	38	41	46	51	55	60	64	69	73	74	76	77
10"	0	0	3	7	11	15	19	22	25	30	32	36	40	43	47	51	54	57	58	60	60

Fertilizer Drive

The fertilizer feed rate is directly related to your ground speed so there are no chains or sprockets to adjust in order to change your rate. The rate is controlled by the fertilizer outlet opening size which is controlled by the adjustment knob on the back of the fertilizer tray. For fertilizer rates, refer to the chart below.

Fertilizer Rate

Great Plains End Wheel No-Till Fertilizer Drills have a partition, Figure 4-7, dividing the seed and fertilizer compartments. In the partitions are removable panels to allow the drill to be used with all seed, Figure 4-7.

If fertilizer is not being used with grain, remove chain from fertilizer drive sprocket to eliminate unnecessary wear on the fertilizer drive system.

If total box capacity is desired for grain, remove seed/fertilizer partitions and set fertilizer rate adjustment lever at

"0" setting so as not to allow any seed to escape through the fertilizer outlets.

The application rate of dry granular fertilizer is affected by many factors: Fertilizer type and density, relative humidity, and the moisture content of the material itself.

Due to these variables, the chart below should be used only to closely approximate the amount of fertilizer being applied.

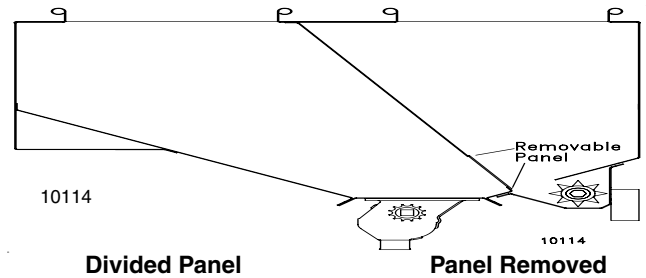


Figure 4-7

7' & 10' Fertilizer Application Chart

Row Spacing	INDICATOR SETTING NUMBER																		
	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
7"	0	11	21	40	57	75	93	111	128	144	163	181	196	217	232	245	252	258	260
7 1/2"	0	10	19	37	51	69	85	100	116	131	148	164	178	198	211	223	230	234	236
8"	0	10	19	37	51	69	85	100	116	131	148	164	178	198	211	223	230	234	236
10"	0	8	16	29	41	55	68	80	93	105	119	132	143	158	169	178	184	187	189

The preceding chart has been computed using fertilizer that has a density of 65 pounds/cubic foot. If you are applying fertilizer that has a density other than this, use the following table:

Density	45	50	55	60	65	70	75	80
Conversion Factor	1.45	1.30	1.20	1.10	1.00	0.93	0.87	0.81

EXAMPLE: You are using fertilizer with a 75 pound/cubic foot density and you desire a rate of 100 pounds per acre. Multiply 100 x 0.87 = 87 pounds. Therefore, use the setting closest to 87 pounds.

Native Grass Drive

Native grass metering is directly related to the revolutions of the clutch shaft per acre. The different sprocket combinations are required to give a broad range of planting rates. The sprocket changes are made at the left end of the drill, inside the double wall end panel. For native grass seeding rates and sprocket combinations, refer to page 21.

Native Grass Rate

Great Plains End Wheel No-Till Native Grass Drill has a partition dividing the seed and native grass compartments. Capacity of the seed box is 1.3 bushels per foot, and the capacity of the native grass box is 1.2 bushels per foot.

If the native grass is not being used, remove the chain from the native grass drive sprocket to eliminate wear on the native grass drive system.

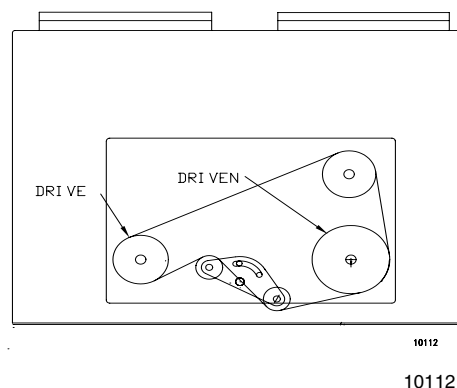
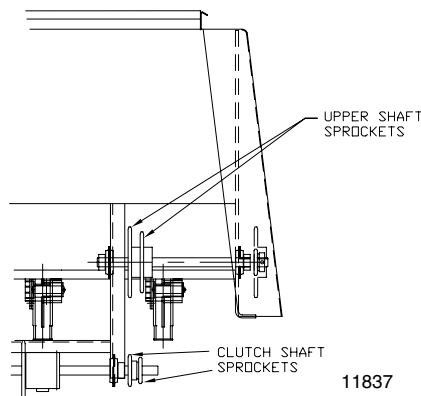
Native Grass Seeding Adjustments

NOTE: Seeding rates vary greatly with variations in types of seeds being drilled. The seed rate chart on the following page is based on a seed mix of 5.7# of pure live seed per 11.1# of bulk. The pure live seed mix was Big Blue-1.5#, Little Blue-.8#, Side Oats Grama-.6#, Western Wheat Grass-1#, Switch Grass-.3#, and Indian Grass-1.5#. Factors which affect seeding rates are: weight of seed, size of seed, relative humidity and moisture content of the seed itself, ratio of inert material to seed, different proportions of seed types affecting density, and tire configuration, pressure and slippage. **We recommend that you test and adjust your drill using the procedures listed below to help insure an accurate seeding rate.**

1. Rotate the drive wheel to see that the feed cups and drive are working properly and are free from foreign matter

Refer to Figure 4-8:

2. To adjust your seeding rate, first find the row spacing and the desired pounds/acre on the native grass seed rate chart {see "Seeding Chart"}. Determine which sprocket combination is required for the clutch shaft sprocket and the upper shaft sprocket. This sprocket combination is designated by the drive types A, B, D, and D. From the chart, choose the driver and driven sprocket combination that will deliver the desired native grass seed rate. In order to change sprockets on the native grass unit, loosen the idler arm and remove the chain, remove the lynch pins on the driver and driven sprockets and rearrange the sprockets accordingly.
3. The pounds-per-acre in the seed chart is based on drills having 9.00 x 24 drill rib tires.
4. After setting up your sprocket arrangement, complete the following procedure to calibrate the drill for your specific seed type.
 - a. Fill three or more compartments at least one-half full of seed at the outboard end of the drill.
 - b. Pull the seed tubes off the openers under the compartments.
 - c. Lower the drill hydraulically to planting position in order to activate the clutch.
 - d. Raise the drive (left) end tire off the ground using jack.
 - e. Place a container under the seed tubes to gather the seed as it is metered
 - f. Rotate the tire until one acre has been tallied on the acremeter. This will be approximately 422 rotations on a 10' End Wheel No-Till Drill; and 592 rotations on a 7' End Wheel No-Till Drill. Be sure to check that the feeder cups have plenty of seed coming into them.
 - g. Weigh the seed which has been metered. Divide by the number of cups that were metered. This will give you the ounces/pounds metered by each feed cup. Multiply by the number of openers on your drill to arrive at the total



Sprocket Arrangement Diagram
Figure 4-8

Section 4 Adjustments

pounds-per-acre your drill would meter at that setting. If this figure is different than desired, change your sprocket arrangement accordingly.

- You may want to repeat the calibration procedure if the results of your calibration vary greatly from what is listed on the seed rate chart.

ing acres drilled, amount of seed added to drill, and level of seed in drill box. If you suspect that you are drilling more or less than desired, and you have accurately calibrated the drill to your seed, you may need to adjust the seeding rate slightly to compensate for your field conditions.

IMPORTANT: Tire size and field conditions will also affect seeding rates. Be certain that your drill rib tires are 9.00 x 24 and that they have the proper inflation. When drilling, check the amount of seed you are using by not-

NOTE: Pounds per acre listed below are total pounds of bulk seed {live and inert material}.

Native Grass Seed Rate Charts & Sprocket Selections

7' END WHEEL NO-TILL DRILL

Row Spacing	Clutch Shaft Spkt.	Upper Shaft Spkt.	Drive Type	Driver	Driven	Driver	Driven	Driver	Driven	Driver	Driven	Driver	Driven	Driver	Driven	Driver	Driven	Driver	Driven	Driver	Driven	Driver	Driven							
				15	35	15	30	19	35	19	30	24	35	15	19	30	35	19	19	35	30	19	15	35	24	30	19	35	19	30
Pounds Per Acre																														
10"	12	35	A	2.4	2.8	3.1	3.6	3.9	4.4	4.8	5.6	6.6	7.1	8.2	8.9	10.4	11.2	13.1												
	12	30	B	2.8	3.3	3.6	4.2	4.5	5.2	5.6	6.6	7.7	8.3	9.6	10.4	12.1	13.1	15.3												
	15	35	C	3.0	3.5	3.8	4.5	4.8	5.6	6.0	7.0	8.2	8.9	10.3	11.1	13.0	14.1	16.4												
	15	30	D	3.5	4.1	4.5	5.2	5.6	6.5	7.0	8.2	9.6	10.4	12.0	13.0	15.1	16.4	19.1												
8"	12	35	A	3.1	3.6	3.9	4.5	4.9	5.7	6.1	7.2	8.4	9.1	10.4	11.3	13.2	14.3	16.7												
	12	30	B	3.6	4.2	4.5	5.3	5.7	6.6	7.2	8.4	9.7	10.6	12.2	13.2	15.4	16.7	19.5												
	15	35	C	3.8	4.5	4.9	5.7	6.1	7.1	7.7	8.9	10.4	11.3	13.0	14.1	16.5	17.2	20.4												
	15	30	D	4.5	5.2	5.7	6.6	7.2	8.2	8.9	10.4	12.2	13.2	15.2	16.5	19.2	20.9	-----												
7 1/2"	12	35	A	3.5	4.1	4.4	5.2	5.6	6.5	7.0	8.2	9.5	10.4	11.9	12.9	15.1	16.4	19.1												
	12	30	B	4.1	4.8	5.2	6.0	6.5	7.5	8.2	9.5	11.1	12.1	13.9	15.1	17.6	19.1	22.3												
	15	35	C	4.4	5.1	5.5	6.5	7.0	8.1	8.8	10.2	11.9	13.0	14.9	16.4	20.5	23.8	-----												
	15	30	D	5.1	6.0	6.5	7.6	8.2	9.4	10.2	11.9	13.9	15.1	17.4	18.8	22.0	-----	-----												

10' END WHEEL NO-TILL DRILL

Row Spacing	Clutch Shaft Spkt.	Upper Shaft Spkt.	Drive Type	Driver	Driven	Driver	Driven	Driver	Driven	Driver	Driven	Driver	Driven	Driver	Driven	Driver	Driven	Driver	Driven	Driver	Driven	Driver	Driven							
				15	35	15	30	19	35	19	30	24	35	15	19	30	35	19	19	35	30	19	15	35	24	30	19	35	19	30
Pounds Per Acre																														
10"	12	35	A	2.4	2.8	3.1	3.6	3.9	4.4	4.8	5.6	6.6	7.1	8.2	8.9	10.4	11.2	13.1												
	12	30	B	2.8	3.3	3.6	4.2	4.5	5.2	5.6	6.6	7.7	8.3	9.6	10.4	12.1	13.1	15.3												
	15	35	C	3.0	3.5	3.8	4.5	4.8	5.6	6.0	7.0	8.2	8.9	10.3	11.1	13.0	14.1	16.4												
	15	30	D	3.5	4.1	4.5	5.2	5.6	6.5	7.0	8.2	9.6	10.4	12.0	13.0	15.1	16.4	19.1												
8"	12	35	A	3.1	3.6	3.9	4.5	4.9	5.7	6.1	7.2	8.4	9.1	10.4	11.3	13.2	14.3	16.7												
	12	30	B	3.6	4.2	4.5	5.3	5.7	6.6	7.2	8.4	9.7	10.6	12.2	13.2	15.4	16.7	19.5												
	15	35	C	3.8	4.5	4.9	5.7	6.1	7.1	7.7	8.9	10.4	11.3	13.0	14.1	16.5	17.2	20.4												
	15	30	D	4.5	5.2	5.7	6.6	7.2	8.2	8.9	10.4	12.2	13.2	15.2	16.5	19.2	20.9	-----												
7 1/2"	12	35	A	3.3	3.8	4.2	4.9	5.3	6.1	6.6	7.7	8.9	9.7	11.2	12.1	14.1	15.3	17.9												
	12	30	B	3.8	4.5	4.9	5.7	6.1	7.1	7.7	8.9	10.4	11.3	13.1	14.1	16.5	17.9	20.9												
	15	35	C	4.1	4.8	5.2	6.1	6.6	7.6	8.2	9.6	11.2	12.1	14.0	15.1	17.7	19.2	22.4												
	15	30	D	4.5	5.6	6.1	7.1	7.7	8.8	9.6	11.2	13.0	14.2	16.3	17.7	20.6	-----	-----												
7"	12	35	A	3.5	4.1	4.4	5.2	5.6	6.5	7.0	8.2	9.5	10.4	11.9	12.9	15.1	16.4	19.1												
	12	30	B	4.1	4.8	5.2	6.0	6.5	7.5	8.2	9.5	11.1	12.1	13.9	15.1	17.6	19.1	22.3												
	15	35	C	4.4	5.1	5.5	6.5	7.0	8.1	8.8	10.2	11.9	13.0	14.9	16.4	20.5	23.8	-----												
	15	30	D	5.1	6.0	6.5	7.6	8.2	9.4	10.2	11.9	13.9	15.1	17.4	18.8	22.0	-----	-----												

Planting Depth Adjustments

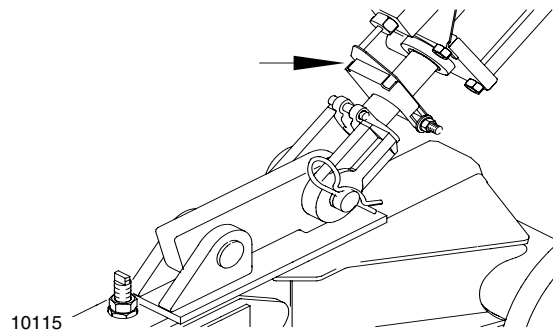
A no-till coulters is mounted independently and directly ahead of each opener on the drill. Each coulters cuts through heavy trash and/or cuts a groove in the firm soil often encountered in no-till seeding conditions. The coulters are mounted directly to the drill box frame. Consequently, the cutting depth of all coulters on the drill change as the drill is raised and lowered. The cutting depth of the coulters is controlled by an adjustable hydraulic depth stop on the master cylinder. Refer to "**Hydraulic Depth Control**" for information on how to make this depth adjustment.) Those coulters which run directly in drill and tractor tire tracks may be individually lowered if desired. See "**Individual Coulters Adjustment**".

Coulters Hydraulic Depth Control

Refer to Figure 4-9:

The master lift cylinder on your drill is equipped with a hydraulic depth control stop, Figure 4-9. This allows for a variable adjustment from zero to maximum stroke which controls the depth of your coulters. In order to adjust the stroke of the cylinder, retract the cylinder until the coulters are penetrating at the desired depth required. Next, loosen the bolt on the depth control actuator plate and slide it up the cylinder until it stops against the

plunger of the control valve on the head of the cylinder. You will now need to extend your cylinder slightly and move the depth control actuator plate up to compensate for the control valve plunger length.



10115
Master Cylinder With Depth Control Stop
Figure 4-9

Down Pressure Requirements

If more weight is required for your soil conditions, it should be added to the weight bracket of the drill (optional equipment). Be sure the weights are equal at each end. Refer to chart below for additional weights.

7' Drill

Row Spacing	Drill Weight	Empty Drill Only	Drill With *Weight Bracket	Great Plains Weight Bracket & Weight Required	
				200#	600#
Pounds Per Coulters					
7"	3800#	345#	375#	393#	421#
7 1/2" & 8"	3650#	365#	398#	418#	N/A
10"	3350#	418#	N/A	N/A	N/A

10' Drill

Row Spacing	Drill Weight	Empty Drill Only	Drill With *Weight Bracket	Great Plains Weight Bracket & Weight Required				
				200#	600#	1000#	1200#	1400#
Pounds Per Coulters								
7"	4500#	281#	302#	314#	340#	365#	377#	390#
7 1/2"	4350#	290#	312#	326#	352#	379#	392#	N/A
8"	4200#	300#	324#	338#	367#	395#	N/A	N/A
10"	3750#	340#	371#	390#	N/A	N/A	N/A	N/A

*7' Weight Bracket Part No. 150-010A

**10' Weight Bracket Part No. 150-011A

Individual Opener & Coulters

When coulters and openers follow in tractor tire tracks and individual coulters do not give satisfactory depth, the coulters mounting bars can be lowered up to 1 1/2" by loosening the mounting clamps and adjusting the coulters and opener to the desired setting. Lowering openers and coulters will not aid in penetrating hard soil. This is achieved by adding weight to the drill. Refer to "Coulters Down Pressure Requirements". To retighten the clamps, snug the hex head mounting bolts until the u-bolts are tight on each side of the spring bar. Tighten nuts on u-bolts and then tighten hex head mounting bolts.

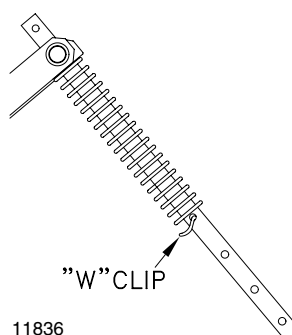
NOTE: Transport clearance at these coulters will be reduced in transport.

Disk Opener Spring Pressure Setting

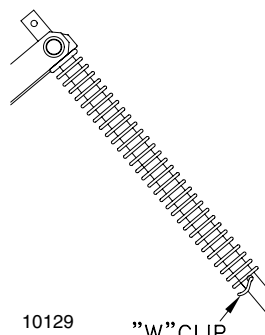
Refer to Figure 4-10 & Figure 4-11:

Each opener spring can be individually adjusted for down pressure. This is useful when penetrating hard soil and for seeding in tractor tire tracks.

To adjust the pressure, remove the "W" clip at the bottom of the spring and place it in a higher hole in the spring rod for more pressure, Figure 4-10, or in a lower hole for less pressure, Figure 4-11.



11836
Maximum Pressure
Figure 4-10



10129
Minimum Pressure
Figure 4-11

The coulters spring length is preset at the factory to 10", which gives the coulters an initial operating force of 400 pounds. This setting is adequate for many difficult no-till planting conditions. For lighter no-till conditions where rocks or other obstructions are a problem, it may be de-

sirable to reduce the initial coulters preload to give the coulters better impact protection. Refer to the following chart for adjusting the initial coulters force setting.

Spring Length	Initial Vertical Coulters Force
10 1/2"	175 lbs.
10 1/4"	300 lbs.
10"	400 lbs.
9 3/4"	525 lbs.

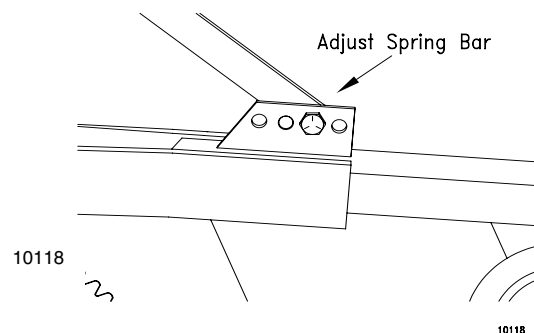
NOTE: Any attempt to reset the coulters spring length shorter than 9 3/4" may contribute to premature failure of parts and warranty shall be voided.

Individual Opener Height

Refer to Figure 4-12:

The opener depth may be adjusted at each opener. Openers running in the tractor tire tracks, for example, may require depth or down pressure adjustments.

The opener depth adjustment is made where the spring bar connects to the top of the disk opener arm, Figure 4-12. Connect the spring bar in a higher hole for deeper opener location, or in a lower hole for a more shallow opener location.



10118
Spring Bar Adjustment
Figure 4-12

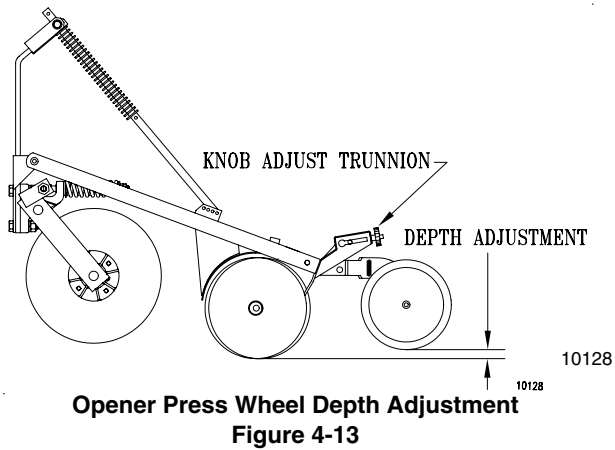
NOTE: Transport clearance at the openers will be reduced.

Opener Press Wheel Depth

Refer to Figure 4-13:

The depth of each opener can be adjusted by the position of the press wheel, Figure 4-13. After setting the coulters to the desired depth by using the depth control on the end wheel cylinder, see page 22, you can now adjust your press wheels up or down to achieve the correct seeding depth.

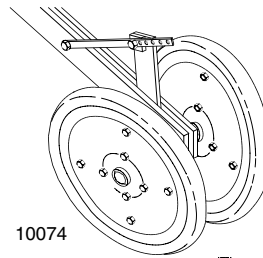
With the drill level and lowered to planting position, adjust the knob and adjustment trunnion located above each press wheel. This will vary the height of the press wheel which automatically changes the seeding depth of the opener. Simply rotate the knob until the seeding depth is correct.



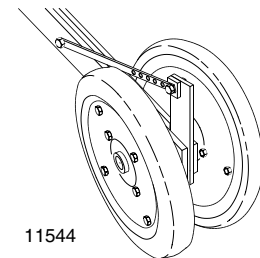
Press Wheel Angle (2 x 13 Double "V" Press Wheels Only)

Refer to Figure 4-14 & Figure 4-15:

The camber angle of the 2" x 13" double "V" press wheels may be adjusted by removing the angle bar adjustment pin and moving the angle bar. Moving the angle bar forward will cause the press wheels to pull more soil over the seed, Figure 4-14. Moving the angle bar back will cause the press wheel to pull less soil over the seed, Figure 4-15



Forward Position
Figure 4-14



Rear Position
Figure 4-15

Section 5 Field Operations

Drill Preparations

1. Be certain that your rib implement tires are 9.00 x 24 and that they have the proper inflation as listed on page 6.
2. Load seed box with seed. You should use cleaned seed to get the best results. You should always have the drill hitched securely to a tractor and lowered before loading.
3. This drill can be transported with a full box of grain. 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.**
4. Your drill comes equipped with an acremeter and it should be mounted on the right end of the jackshaft. It will accumulate the total acres drilled with the drill. In order to find out the acres covered, write down the beginning reading and subtract it from the ending reading for the total acres planted.
5. Make sure that the feed cup door adjustment handle on each cup is set the same across the drill.
6. If you notice excessive cracking on large grain seeds, adjust all feed cup door handles to a wider setting. Refer to "**Position Seed-Cup Doors**" on page 12.
7. **Never** back up with openers in ground. If you do, check all openers to be sure none are clogged.
8. This drill is not designed to be turned sharply in the field. **Always** lift the drill out of the ground when turning at ends of field rows and other short-radius turns.
9. **Never** allow anyone to ride on the drill.
10. Maximum seeding speed should vary according to soil conditions.
11. Make sure the drive lockout hub (left end wheel) is engaged, see Figure 3-3 on page 10, to allow the gauge wheel drive to work.



CAUTION!

Escaping fluid under pressure can have sufficient force to penetrate the skin. Check all hydraulic lines and hoses before applying pressure. Fluid escaping from a very small hole can be almost invisible. Use paper or cardboard, not body parts, to check for suspected leaks. If injured, seek medical assistance from a doctor that is familiar with this type of injury. Foreign fluids in the tissue must be surgically removed within a few hours or gangrene will result.

Operating Checklist

Check	Reference
<input type="checkbox"/> "Safety Rules" in this Manual	"Section 1 Safety Rules" on page 3
<input type="checkbox"/> "Hook-Up" & "Operating" instructions in this Manual	"Section 2 Assembly Instructions & Set-Up" on page 6
<input type="checkbox"/> "Field Operations" in this Manual	"Section 5 Field Operations" on page 25
<input type="checkbox"/> Tire pressure	"Tire Inflation Chart" on page 6
<input type="checkbox"/> Feeder Cups for foreign matter	
<input type="checkbox"/> Engage drive hub (left end wheel)	"Drive Lock Out Hub" on page 10
<input type="checkbox"/> Rotate drive (left) wheel to make sure the drive system operates smoothly.	"Drive Train Operation" on page 11
<input type="checkbox"/> Set sprockets to drive type desired.	"Change Drive Sprockets" on page 12
<input type="checkbox"/> Set seed rate.	See "Seeding Rate" on page 12.
<input type="checkbox"/> Fertilizer agitator for foreign matter	
<input type="checkbox"/> Set fertilizer rate	See "Fertilizer Rate" on page 19.
<input type="checkbox"/> Disconnect fertilizer drive chain when fertilizer is not used.	
<input type="checkbox"/> Adjustment of disk opener scrapers for ease in rotation.	See "Disk Opener Spring Pressure Setting" on page 23.
<input type="checkbox"/> Lubricate the drill as needed.	See "Lubrication" on page 26.
<input type="checkbox"/> Seed & fertilizer tubes	
<input type="checkbox"/> Drill; initially and periodically for loose bolts, pins, and chains.	

Section 6 Maintenance & Lubrication

Maintenance

Proper servicing and adjustment is the key to the long life of any farm implement. With careful and systematic inspection, you can avoid costly maintenance, time and repair.

1. After using your drill for several hours, check all bolts to be sure they are tight.
2. Adjust idlers to remove excess slack from chains. Clean and use chain lube on all roller chains as needed.
3. Feed cup drive sprocket should be oiled in its square bore. Move feed cup adjustment lever away from the sprocket as far as possible in order to get the oil back into the square.
4. Always maintain the proper air pressure in the rib implement tires.
5. Disk scrapers should be kept properly adjusted.
6. Replace any worn, damaged or illegible safety decals by obtaining new decals from your Great Plains Dealer.

Fertilizer Unit

It is recommended that the fertilizer unit be thoroughly cleaned every two or three days during operating season and before putting the drill in storage for an extended period of time.

NOTE: Fertilizer build up on the rotor will affect the fertilizer application rate. Drop fertilizer tray doors by releasing latches on back of tray. Using a high-pressure water system, thoroughly clean the fertilizer tray, gate openings, and rotor. Rotate end sprocket to ensure cleaning the entire fertilizer metering star at each drop location.

Storage

1. Clean the drill as necessary. Be sure that the seed boxes are completely cleaned before storing.
2. Lubricate and adjust all roller chains.
3. Lubricate all pivots as indicated in the following Illustrations.

4. Feed cup drive sprocket hub should be oiled in its square bore. Squirt oil on to the square feed cup shaft and move feed cup adjustment lever back and forth in order to get the oil back into the square. This is most important before putting the drill in storage.
5. Store the drill inside if possible for longer drill life.
6. When in storage, lower the drill with openers on a board or hard surface. Apply a light coat of oil to exposed cylinder rods.

Lubrication

Lubrication Symbols



Lubrication is required every 50 hours of operation.



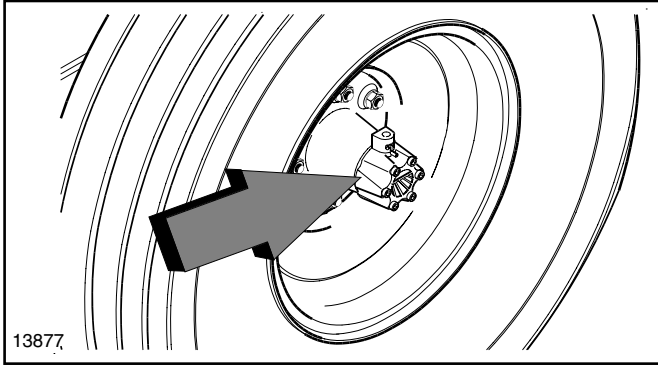
Lubrication is required every 10 hours of operation.




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



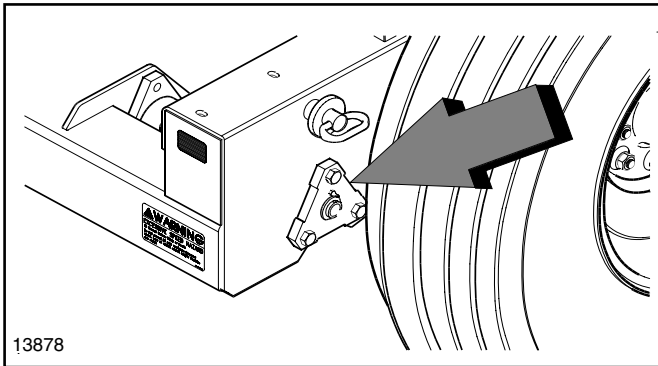
Lubrication is required ____.





	Seasonally
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End Wheel Hub Bearings

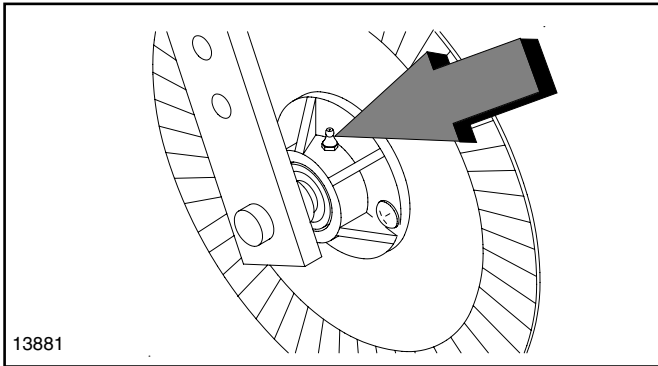
Type of Lubrication: Multipurpose Grease




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Wheel Arm Pivot Castings

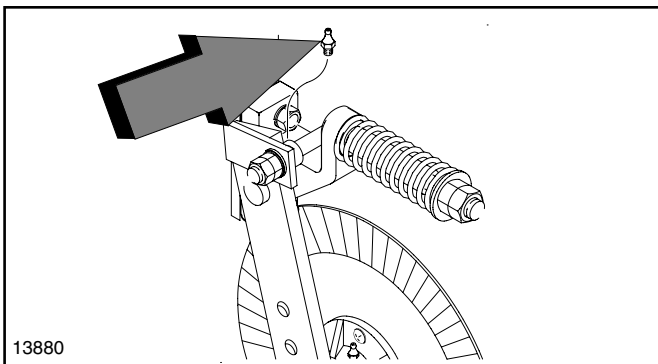
Type of Lubrication: Multipurpose Grease





	Seasonally
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Coulter Hub Bearings

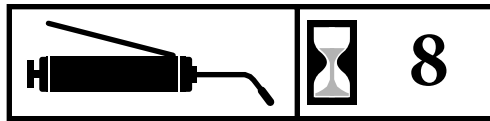
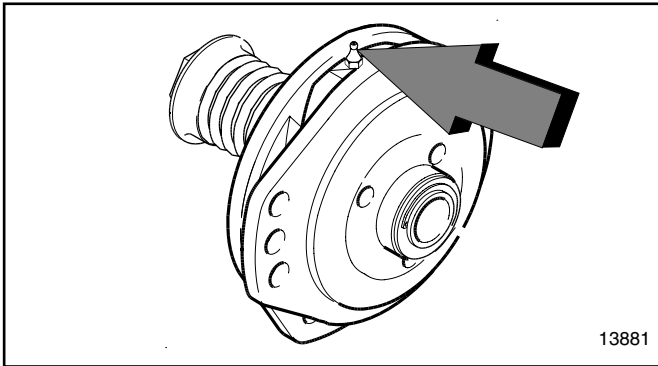
Type of Lubrication: Multipurpose Grease



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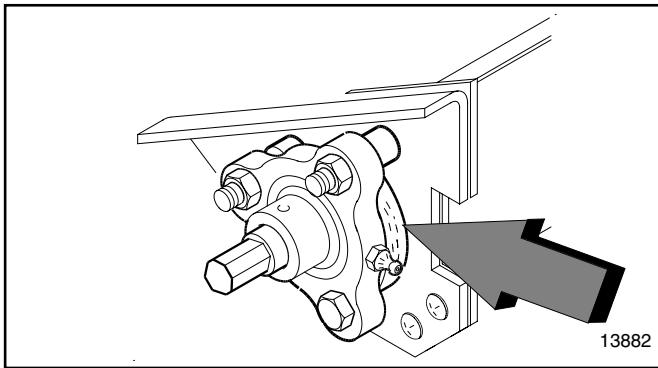
Coulter Arm Pivot

Type of Lubrication: Multipurpose Grease



Clutch Cam

Type of Lubrication: Multipurpose Grease



Fertilizer Felt Seal

Type of Lubrication: Multipurpose Grease

Section 7 Troubleshooting

Problem	Solution
Uneven seed spacing or uneven stand	Check for plugging in feed cup.
	Check to see if seed tubes are plugged.
	Reduce ground speed.
	Check opener disks to see they turn freely.
	Use faster drive type speed and close feed cup flutes to a more narrow position.
	Spring pressure on openers could be improperly adjusted causing opener to not penetrate low spots.
Opener disks not turning freely	Check for trash or mud build-up on Seed-Lok Wheel.
	Check for trash or mud build-up on disk scraper. Readjust scraper.
	Check to see if scraper is adjusted too tight and is restricting disk movement.
	Check disk bearings.
	Check opener frame for possible damage.
	If opener disks turn freely by hand but not in field, lessen down pressure on disk opener.
Actual seeding rate is different than desired	Check press wheel adjustment for seeding depth.
	Check tire pressure. Proper inflation is listed in the "Tire Inflation Chart", Section 2, page 6.
	Check gauge wheel size. Proper size is 9.00L x 24".
	Seed treatment will affect seeding rate if the chemicals build up in seed cup. Unless cleaned regularly, this build-up can cause breakage of the feed shaft.
	Check drill box setting.
Excessive seed cracking	See Operator's Manual for instructions on calculating seed rate.
	Use slower drive type and open flutes in feed cup to a wider position. Position feed cup handles to a lower notch.
Acrometer doesn't measure accurately	Check tire pressure. Proper inflation is listed in the "Tire Inflation Chart". Section 2, page 6.
	Check gauge wheel tire size. Proper size is 9.00L x 24".
	Check planting operation for excessive overlap or gaps between passes.
	Loose soil conditions and slippage will cause variations in acres registered.
	To check accuracy of acrometer, see Section 4, page 12 in "Seed Rate Adjustments".
	Check to be sure your acrometer is for your width of drill.
Uneven seeding depth	See section on depth adjustments.
Press Wheel not compacting the soil as desired	Reset press wheel depth, see seeding and press wheel adjustments sections.
	2" x 13" Double "V" press wheel angles may need to be adjusted.
	Down pressure on disk openers is not enough.

Section 7 Troubleshooting

Problem	Solution
Grain box not emptying evenly	Certain models do not have the same number of seed cups between each divider of bulkhead. The section with the larger number of cups will empty sooner.
Press wheel or openers plugging	Drilling in damp or wet conditions may increase this problem.
	Reduce down pressure on openers.
	Do not back up drill in the field, or stop and allow drill to roll backwards with openers in the ground.
	If using double "V" press wheels, adjust angle bar.
	Check Seed-Lok Wheel.
Raising and lowering drill is rough or uneven	Lubricate wheel arm pivot casting.
	Check hydraulic fittings or leaks.
	Rephasing cylinders not properly bled. Refer to "Bleeding the Hydraulic Lifting System" on page 9. When raising the drill at the end of the field, the lifting cylinders should be fully extended to insure that they are always rephased. If drill is only raised enough to lift openers out of ground, lift cylinders may eventually get out of sequence and cause uneven seeding depth.
Feed cup sprockets locked up or twisted feed drive shaft	Check for foreign matter lodged in one or more feeder cup sprockets.
	Liquid insecticide from seed has dried within the feed cups. Remove the build up by disassembling each feed cup and scrape the foreign substance from the turning surfaces. NOTE: Liquid insecticide should be applied with caution and care should be taken to clean the feed system after drilling treated seeds.
Coulters not going deep enough	Check weight chart on page 22 and add additional weight.
	Lower coulters spring bars on tool bar. {Only in tire tracks.}
	Check cylinder depth stop, refer to page 22.
Coulters and drill going to deep	Check weight chart on page 22 and remove weight if necessary.
	Set press wheels to a shallower depth.
	Check cylinder depth stop, refer to page 22.
Hoses plugging in no-till conditions	Drill at a slight angle to the rows.

Section 8 Specifications & Warranty

	7' End Wheel No-Till	10' End Wheel No-Till
Transport Width	9' 8"	12' 6"
Tire Size:	9.00 x 24	9.00 x 24
Box Capacity:	17.1 Bushels	23.75 Bushels
Fertilizer Attachment Capacity:	553 Pounds	741 Pounds
Seed Capacity of Fertilizer/Native Grass Box:	12.7 Bushels	17 Bushels

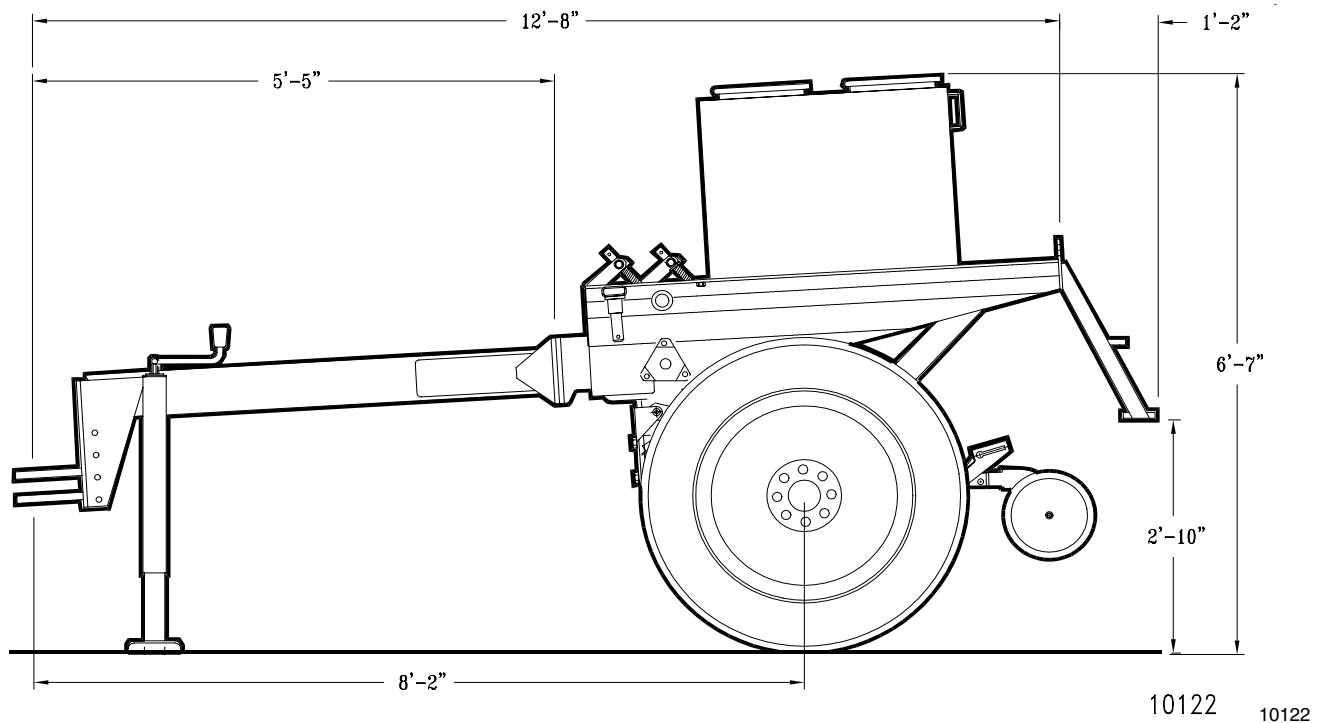
7' End Wheel No-Till		
Drill Row Spacing	No. Of Openers	Drill Weight
7"	11	*3800
7 1/2" & 8"	10	*3650#
10"	8	*3350#

10' End Wheel No-Till		
Drill Row Spacing	No. Of Openers	Drill Weight
7"	16	*4500#
7 1/2"	15	*4350#
8"	14	*4200#
10"	11	*3750#

NOTE: All tires are warranted by the original manufacturer of the tire. Tire warranty information can be found in the brochures included with your Operator's and Parts Manuals or online at the manufacturer's websites. For service assistance or information, contact your nearest Authorized Farm Tire Retailer.

Manufacturer	Website
Titan	www.titan-intl.com
Goodyear	www.goodyearag.com
Firestone	www.firestoneag.com

*Approximate weights for machines equipped with double disk openers, 2" x 13" single press wheels, step and hydraulic cylinders.



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 be 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 hereby 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.