1560 and 1565 Grain Drills

OPERATOR'S MANUAL
1560 and 1565 Grain Drills

OMN200998 Issue K1 (ENGLISH)

CALIFORNIA
Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

If this product contains a gasoline engine:

⚠ WARNING

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

The State of California requires the above two warnings.

John Deere Des Moines Works

(This manual replaces OMN200998 A1)

North American Edition

LITHO IN U.S.A.

Introduction

Foreword

READ THIS MANUAL carefully to learn how to operate and service your machine correctly. Failure to do so could result in personal injury or equipment damage. This manual and safety signs on your machine may also be available in other languages. (See your John Deere dealer to order.)

THIS MANUAL SHOULD BE CONSIDERED a permanent part of your machine and should remain with the machine when you sell it.

MEASUREMENTS in this manual are given in both metric and customary U.S. unit equivalents. Use only correct replacement parts and fasteners. Metric and inch fasteners may require a specific metric or inch wrench.

RIGHT-HAND AND LEFT-HAND sides are determined by facing in the direction the implement will travel when going forward.

WRITE PRODUCT IDENTIFICATION NUMBERS (P.I.N.) in the Specification section. Accurately record all the numbers to help in tracing the machine should it be stolen. Your dealer also needs these numbers when you order parts. File the identification numbers in a secure place off the machine.

WARRANTY is provided as part of John Deere's support program for customers who operate and maintain their equipment as described in this manual. The warranty is explained on the warranty certificate which you should have received from your dealer

This warranty provides you the assurance that John Deere will back its products where defects appear within the warranty period. In some circumstances, John Deere also provides field improvements, often without charge to the customer, even if the product is out of warranty. Should the equipment be abused, or modified to change its performance beyond the original factory specifications, the warranty will become void and field improvements may be denied. Setting fuel delivery above specifications or otherwise overpowering machines will result in such action.

THE TIRE MANUFACTURER'S warranty applicable to your machine may not apply outside the U.S.

DX,IFC2 –19–17SEP92–1/1

3 m (10 ft) Single Box Drill

N47881 –UN–04NOV97

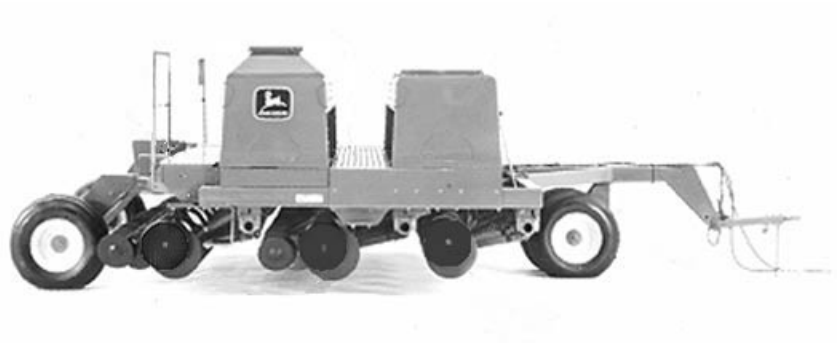
AG,OUO1074,401 –19–22FEB00–1/1

4.6 m (15 ft) Single Box Drill

N47993 –UN–05MAY98

AG,OUO1074,402 –19–22FEB00–1/1

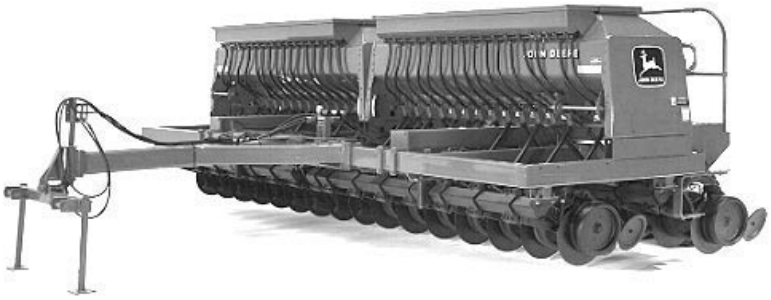
4.6 m (15 ft) 1560 Drill With 1565 Separate Placement Box



N50080A –UN–05FEB99

AG,OUO1074,403 –19–22FEB00–1/1

6.1 m (20 ft) Single Box Drill



N47882 –UN–04NOV97

AG,OUO1074,404 –19–22FEB00–1/1

A Message to Our Customers

We appreciate the confidence placed in us by your purchase of this machine. Before this machine was brought to market, countless hours were spent designing and testing to ensure that its performance would be at the highest level. To achieve maximum performance, it is imperative this machine be operated in accordance with the procedures outlined in this manual.

REFER TO YOUR JOHN DEERE DEALER'S PREDELIVERY INSTRUCTION FOR ATTACHMENT ASSEMBLY INFORMATION.

Information in this manual is divided into sections. These sections are identified at the top of each page. Specific information within each section is organized into modules.

These modules are encased in boxes with principle modules identified with a heading at the top left side of the box. Two-part page numbers identify both the section and page of that section.

By reviewing this manual often, one will quickly learn which section to go to for specific information. For instance, machine adjustments would be found in the Operating the Machine section, lubrication intervals in the Lubrication section, opener maintenance in the Service section, etc. A detailed Table of Contents is found immediately behind this page, and an Index is provided at the back of the manual.

Thanks again for purchasing this machine.

AG,OUO6074,1160 –19–04AUG00–1/1

Look for Supplemental Information

Occasionally new or revised information will become available after manuals are printed. To get this up-to-date information into your hands, publication supplements are prepared and supplied to the field in the machine literature package.

Supplements can be supplied in the following forms and are usually identified with one of these titles:

- Direction(s) Sheet
- Installation Instructions
- Publications Supplement

Before your initial review of the manual, look through the machine literature package to see if any supplemental information has been provided. If supplied, review this information to determine which procedures are impacted or modified by the revised instructions. Pay close attention to “CAUTION” and “IMPORTANT” statements. CAUTION statements address your safety, the safety of others and safe operation of the machine. IMPORTANT statements refer to machine adjustment, servicing and care.

Manuals are revised annually, at which time the supplemental information is incorporated directly into the manual, thereby eliminating the supplement.

HX,1900GI,A1A –19–21SEP98–1/1

Contents

Continued on next page

All information, illustrations and specifications in this manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.

Continued on next page

Safety

Recognize Safety Information

This is a safety-alert symbol. When you see this symbol on your machine or in this manual, be alert to the potential for personal injury.

Follow recommended precautions and safe operating practices.

T81389 –UN–07DEC88

DX,ALERT –19–29SEP98–1/1

Understand Signal Words

A signal word—DANGER, WARNING, or CAUTION—is used with the safety-alert symbol. DANGER identifies the most serious hazards.

DANGER or WARNING safety signs are located near specific hazards. General precautions are listed on CAUTION safety signs. CAUTION also calls attention to safety messages in this manual.

TS187 –19–30SEP88

DX,SIGNAL –19–03MAR93–1/1

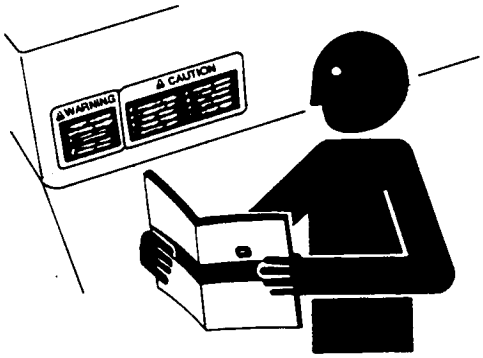
Follow Safety Instructions

Carefully read all safety messages in this manual and on your machine safety signs. Keep safety signs in good condition. Replace missing or damaged safety signs. Be sure new equipment components and repair parts include the current safety signs. Replacement safety signs are available from your John Deere dealer.

Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.

Keep your machine in proper working condition. Unauthorized modifications to the machine may impair the function and/or safety and affect machine life.

If you do not understand any part of this manual and need assistance, contact your John Deere dealer.



TS201 –UN–23AUG88

DX,READ –19–03MAR93–1/1

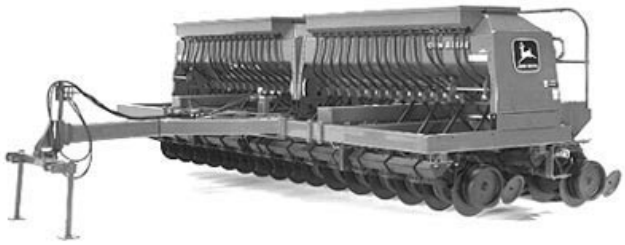
Operate Safely

Operate machine from tractor seat only.

Do not operate close to a ditch or creek.

Slow down when turning or traveling over rough ground.

Shut off tractor and shift to “Park” or set brakes when leaving tractor. Remove key when leaving tractor unattended.



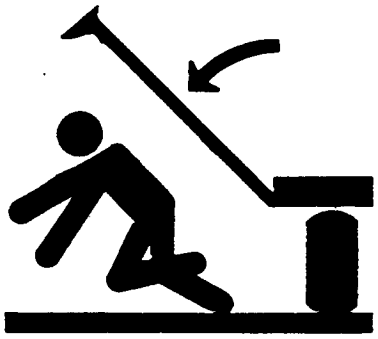
N49714 –UN–24MAR98

AG,OUO1074,408 –19–22FEB00–1/1

Charge Row Marker Hydraulic System

Falling row markers can cause personal injury. Be sure cylinders and attaching hoses are fully charged with oil before operating. Failure to do so will allow markers to fall rapidly.

ALWAYS stay clear of markers when raising or lowering.



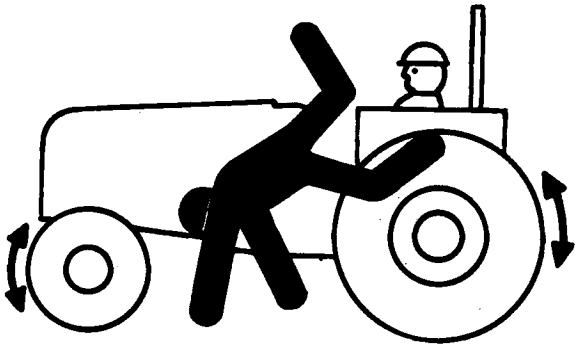
N39213 –UN–22SEP88

AG,OUO1074,409 –19–22FEB00–1/1

Keep Riders Off Machine

Only allow the operator on the machine. Keep riders off.

Riders on machine are subject to injury such as being struck by foreign objects and being thrown off of the machine. Riders also obstruct the operator’s view resulting in the machine being operated in an unsafe manner.



TS290 –UN–23AUG88

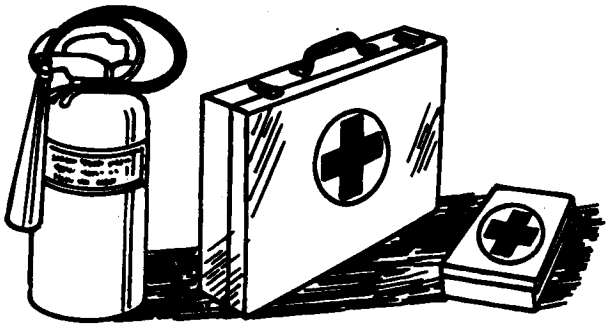
DX,RIDER –19–03MAR93–1/1

Prepare for Emergencies

Be prepared if a fire starts.

Keep a first aid kit and fire extinguisher handy.

Keep emergency numbers for doctors, ambulance service, hospital, and fire department near your telephone.



TS291 –UN–23AUG88

DX,FIRE2 –19–03MAR93–1/1

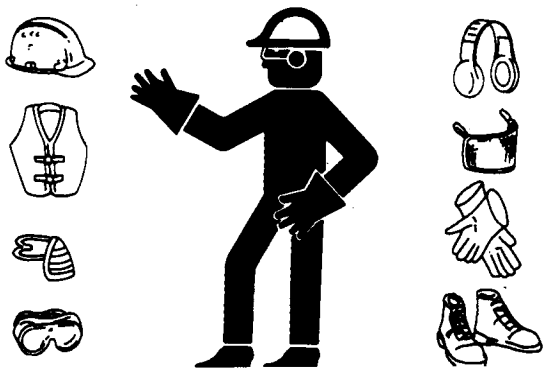
Wear Protective Clothing

Wear close fitting clothing and safety equipment appropriate to the job.

Prolonged exposure to loud noise can cause impairment or loss of hearing.

Wear a suitable hearing protective device such as earmuffs or earplugs to protect against objectionable or uncomfortable loud noises.

Operating equipment safely requires the full attention of the operator. Do not wear radio or music headphones while operating machine.



TS206 –UN–23AUG88

DX,WEAR –19–10SEP90–1/1

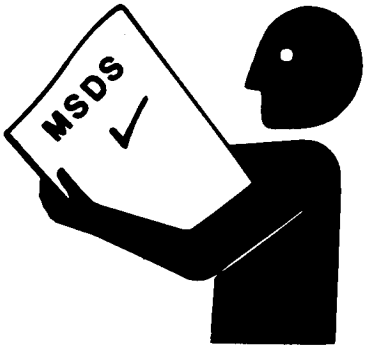
Handle Chemical Products Safely

Direct exposure to hazardous chemicals can cause serious injury. Potentially hazardous chemicals used with John Deere equipment include such items as lubricants, coolants, paints, and adhesives.

A Material Safety Data Sheet (MSDS) provides specific details on chemical products: physical and health hazards, safety procedures, and emergency response techniques.

Check the MSDS before you start any job using a hazardous chemical. That way you will know exactly what the risks are and how to do the job safely. Then follow procedures and recommended equipment.

(See your John Deere dealer for MSDS's on chemical products used with John Deere equipment.)



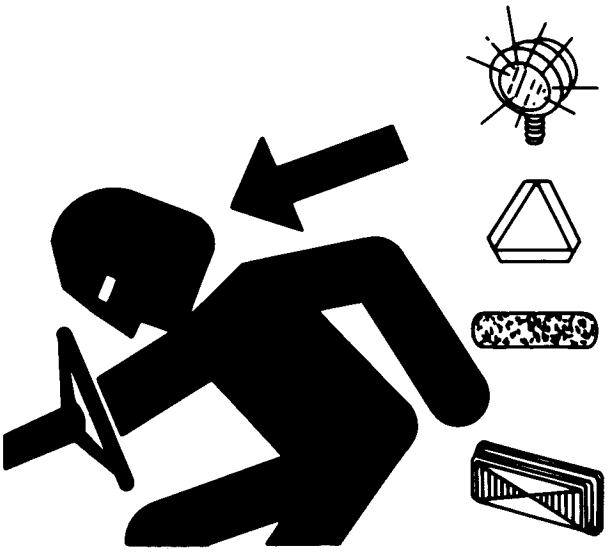
TS1132 –UN–26NOV90

DX,MSDS,NA –19–03MAR93–1/1

Use Safety Lights and Devices

Prevent collisions between other road users, slow moving tractors with attachments or towed equipment, and self-propelled machines on public roads. Frequently check for traffic from the rear, especially in turns, and use turn signal lights.

Use headlights, flashing warning lights, and turn signals day and night. Follow local regulations for equipment lighting and marking. Keep lighting and marking visible, clean, and in good working order. Replace or repair lighting and marking that has been damaged or lost. An implement safety lighting kit is available from your John Deere dealer.



TS951 –UN–12APR90

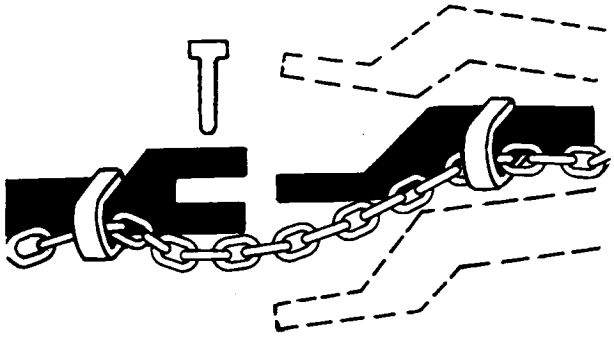
DX,FLASH –19–07JUL99–1/1

Use a Safety Chain

A safety chain will help control drawn equipment should it accidentally separate from the drawbar.

Using the appropriate adapter parts, attach the chain to the tractor drawbar support or other specified anchor location. Provide only enough slack in the chain to permit turning.

See your John Deere dealer for a chain with a strength rating equal to or greater than the gross weight of the towed machine. Do not use safety chain for towing.



TS217 –UN–23AUG88

DX,CHAIN –19–03MAR93–1/1

Transport Safely

Shift tractor into lower gear when transporting down steep slopes or hills.

Make sure warning lights, reflectors and SMV emblem are easily visible from rear.

ALWAYS travel at a reasonable and safe speed. Refer to tractor operator's manual to ensure that machine can be safely transported with your tractor. Do not exceed weight and speed guidelines.

Stop slowly.

Know the transport width for your machine.

Always lock-up opener lift cylinders before transporting drill. Hydraulic failure can allow openers to fall rapidly.

If drill is set up with marker arm attachment, be sure marker arms are raised and locked into position before transporting.

N39084 –UN–30MAR89

OUO6074,0000153 –19–05DEC00–1/1

Observe Maximum Transport Speed

The maximum transport speed for this implement is 32 km/h (20 mph).

Some tractors are capable of operating at speeds that exceed the maximum transport speed of this implement. Regardless of the maximum speed capability of the tractor being used to tow this implement, do not exceed the implement's maximum transport speed.

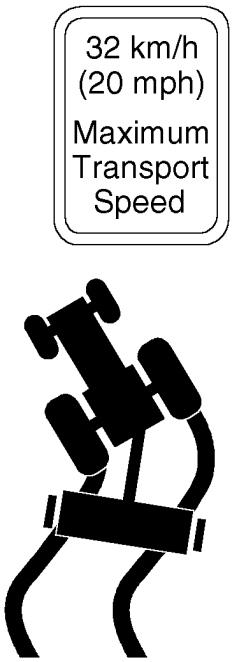
Exceeding the implement's maximum transport speed can result in:

- Loss of control of the tractor/implement combination
- Reduced or no ability to stop during braking
- Implement tire failure
- Damage to the implement structure or its components

Use additional caution and reduce speed when towing under adverse surface conditions, when turning, and when on inclines.

Do not attempt transport if the fully loaded implement weighs more than 1.5 t (3,300 lb) and more than 1.5 times the weight of the tractor.

Never tow this implement with a motor vehicle.



A46805 –19–12JUN01

DX,TOW2 –19–18JUN01–1/1

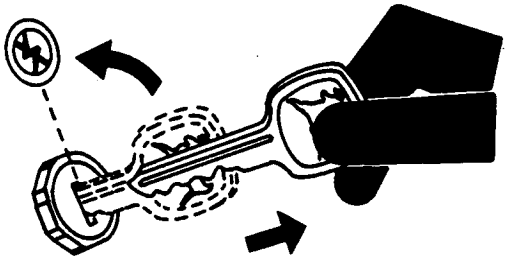
Service Safely

To help prevent personal injury caused by unexpected movement, be sure to service machine on level surface.

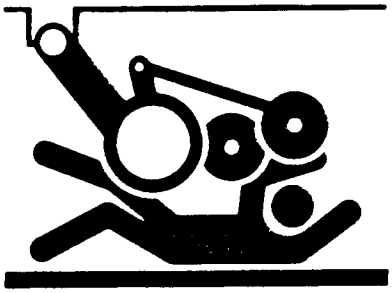
If machine is connected to tractor, engage parking brake and/or place transmission in “Park”, shut off engine and remove key.

If machine is detached from tractor, block wheels and use safety stands to prevent movement.

Lock-up opener lift cylinders before performing any maintenance or adjustments under machine.



TS230 –UN–24MAY89



N39645 –UN–06OCT88

AG,OUO1074,418 –19–22FEB00–1/1

Practice Safe Maintenance

Understand service procedure before doing work. Keep area clean and dry.

Never lubricate, service, or adjust machine while it is moving. Keep hands, feet , and clothing from power-driven parts. Disengage all power and operate controls to relieve pressure. Lower equipment to the ground. Stop the engine. Remove the key. Allow machine to cool.

Securely support any machine elements that must be raised for service work.

Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts. Remove any buildup of grease, oil, or debris.

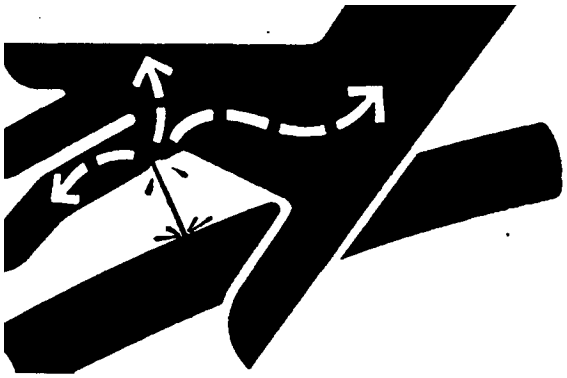
On self-propelled equipment, disconnect battery ground cable (-) before making adjustments on electrical systems or welding on machine.

On towed implements, disconnect wiring harnesses from tractor before servicing electrical system components or welding on machine.

TS218 –UN–23AUG88

DX,SERV –19–17FEB99–1/1

Avoid High-Pressure Fluids



X9811 –UN–23AUG88

Escaping fluid under pressure can penetrate the skin causing serious injury.

Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure.

Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.

If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source. Such information is available from Deere & Company Medical Department in Moline, Illinois, U.S.A.

DX,FLUID –19–03MAR93–1/1

Service Tires Safely

TS952 –UN–12APR90

Explosive separation of a tire and rim parts can cause serious injury or death.

Do not attempt to mount a tire unless you have the proper equipment and experience to perform the job.

Always maintain the correct tire pressure. Do not inflate the tires above the recommended pressure. Never weld or heat a wheel and tire assembly. The heat can cause an increase in air pressure resulting in a tire explosion. Welding can structurally weaken or deform the wheel.

When inflating tires, use a clip-on chuck and extension hose long enough to allow you to stand to one side and NOT in front of or over the tire assembly. Use a safety cage if available.

Check wheels for low pressure, cuts, bubbles, damaged rims or missing lug bolts and nuts.

DX,TIRECP –19–24AUG90–1/1

Handle Pesticides and Fertilizers Carefully

Keep dust away from skin and hair.

Keep containers low when pouring.

Let the wind blow fumes away from you when mixing with seed or when filling tank.

Wear a filtered respirator if you cannot avoid dust.

Wear goggles to protect your eyes.

Wash exposed skin areas frequently—do not leave pesticide on your skin.

Do not smoke while handling pesticides.

Properly dispose of pesticide container, unused pesticide and left-over treated seed and fertilizer.

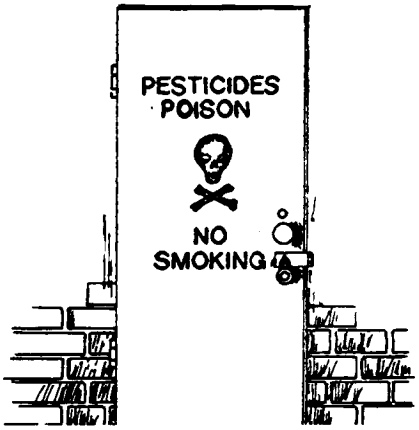
Read and observe manufacturers recommendations.

Store pesticides in a separate, plainly marked LOCKED building.

Store pesticides in original containers with labels intact.

N35988 –UN–04OCT88

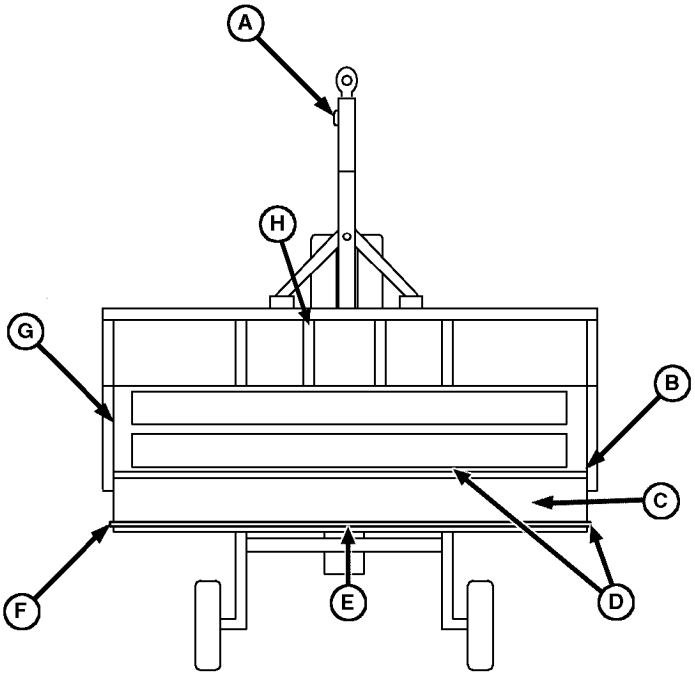
N35989 –UN–04OCT88



N33983 –19–31JAN89

AG,OUO1074,422 –19–22FEB00–1/1

Safety Features—1560 Grain Drill

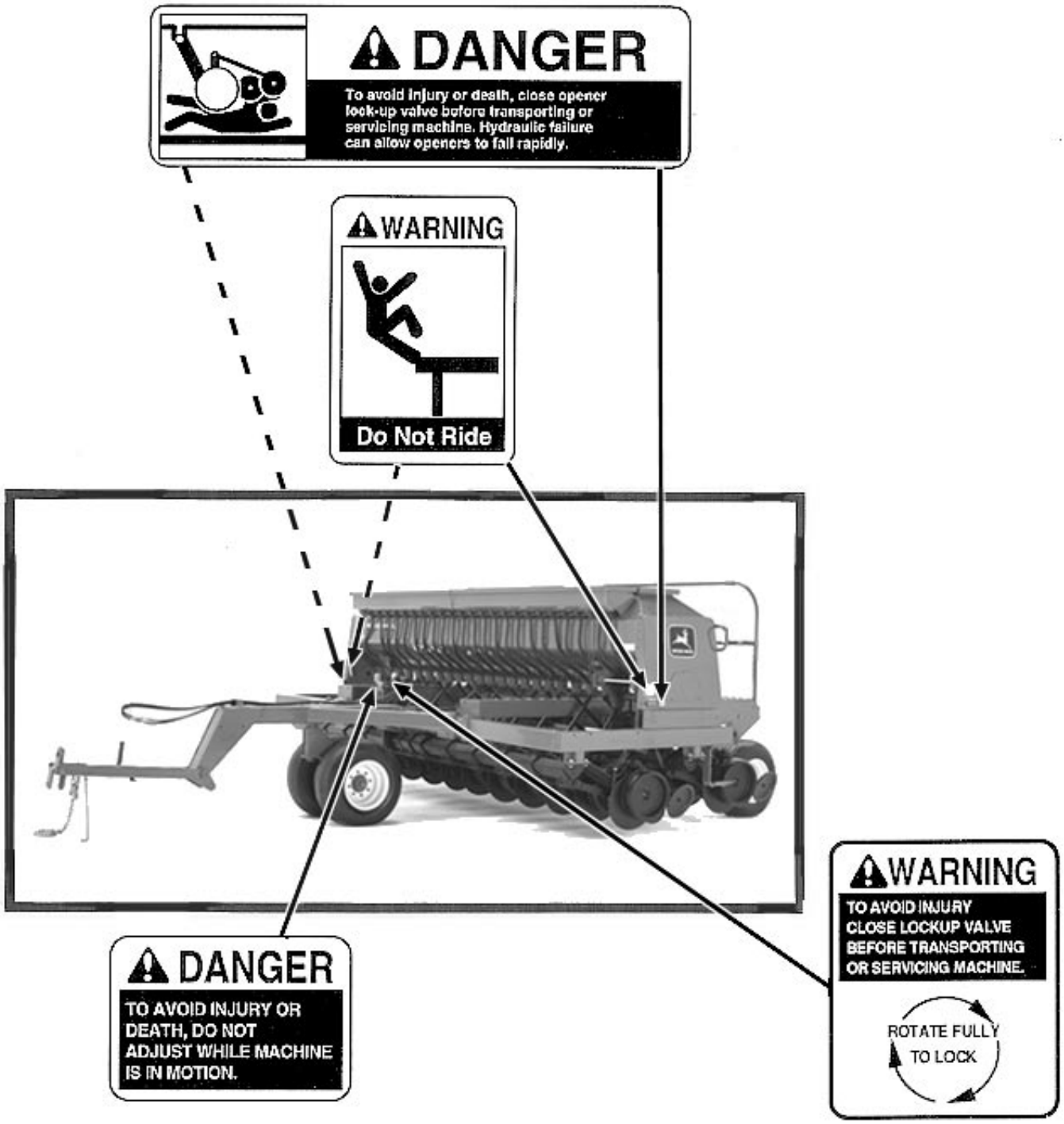


N55644 –UN–07DEC00

A—Safety Chain
B—Handle and Steps
C—Slip Resistant Footboard
D—Warning Lights
E—Slow Moving Vehicle Emblem
F—Handrail
G—Safety Decals
H—Safety Decal

In addition to the safety features shown here, safety messages and instructions in the operator's manual contribute to the safe operation of the 1560 Grain Drill when combined with the care and concern of a capable operator.

OUO6074,0000152 –19–05DEC00–1/1



Safety Decals Shown on 15 Ft Drill

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AG,OUO1074,424 –19–22FEB00–1/2

AG,OUO1074,424 –19–22FEB00–2/2

Marker Arms—If Equipped

Marker Arms are an attachment for 4.57 m (15 ft) and 6.1 m (20 ft) single placement drills.

OUO6074,0000151 –19–05DEC00–1/1

Preparing the Tractor

Use The Tractor Operator's Manual

Always refer to the tractor operator's manual for specific detailed information regarding operation of this equipment.

The following tractor related information uses John Deere tractors to illustrate preparation, attachment and operational procedures needed for the 1560 Grain Drill. Use the tractor operator's manual for detailed information, as procedures will vary by equipment.

TS190 –UN–17JAN89

OUO6074,0000154 –19–05DEC00–1/1

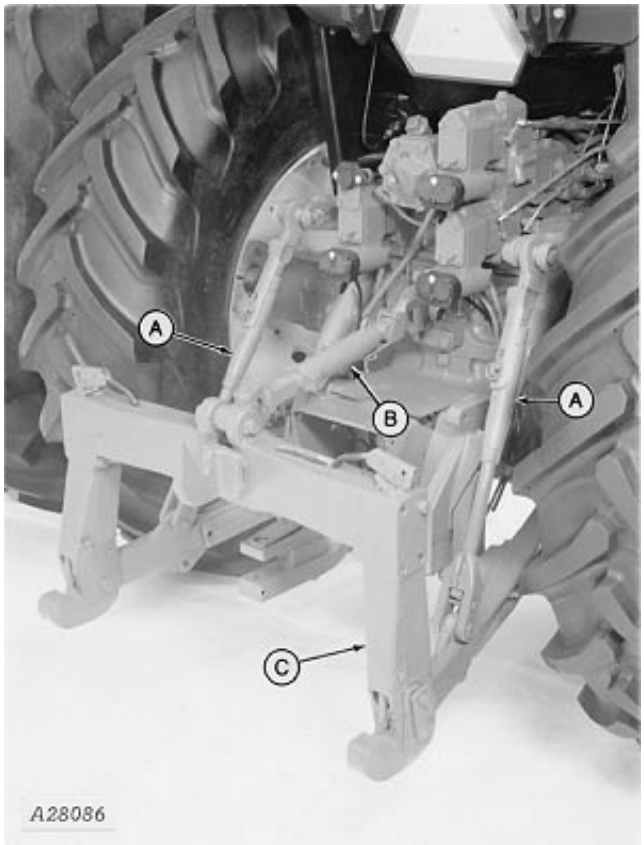
Link Lengths

Set lift links (A) as short as possible to provide maximum transport clearance.

IMPORTANT: For convenience, use a quick-coupler to make attaching and detaching a one-man operation.

Adjust center link (B) until quick-coupler (C) is vertical when in drilling position.

A—Lift Links
B—Center Link
C—Quick-Coupler



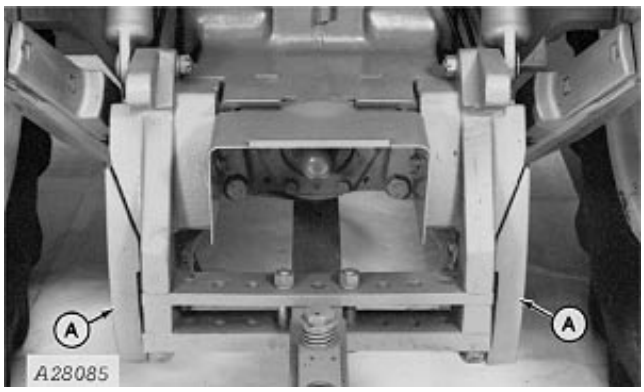
A28086 –UN–13OCT88

AG,OUO1074,428 –19–22FEB00–1/1

Positioning Sway Blocks

Position sway blocks (A) in lower position to limit side-to-side movement.

A—Sway Blocks



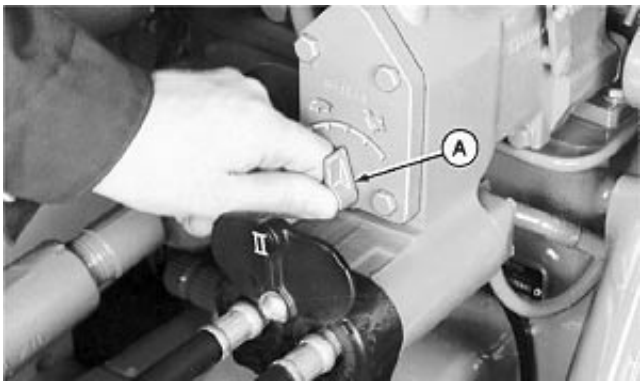
A28085 –UN–13OCT88

OUO6074,0000156 –19–05DEC00–1/1

Adjusting Metering Valves—Tractors With Mechanical SCV (Selective Control Valve)

Turn metering valves (A) to fast position.

A—Metering Valves



RW5885 –UN–07DEC88

With Mechanical SCV Controls

RW21395 –UN–18JUN92

With Mechanical SCV Controls

OUO6074,0000157 –19–05DEC00–1/1

Adjusting Metering Valves—Tractors With Electro/Hydraulic SCV Controls

1. Press SCV I selector button (A) and turn flow control knob (B) to rabbit position.
2. Turn time detent knob (C) until display reads “C” (continuous). The time can be decreased for actual time required to lift and lower opener rockshaft.

A—SCV I Selector Button
B—Flow Control Knob
C—Time Detent Knob

N48104 –UN–01JUN94

Continued on next page

AG,OUO1074,432 –19–22FEB00–1/2

3. If equipped with markers, press SCV II selector button (A) and turn flow control knob (B) to fast/rabbit position.

4. Turn time detent knob (C) until display reads “5” seconds. This can be increased or decreased depending on actual time required to lower and raise markers.

A—SCV II Selector Button
B—Turn Flow Control Knob
C—Time Detent Knob

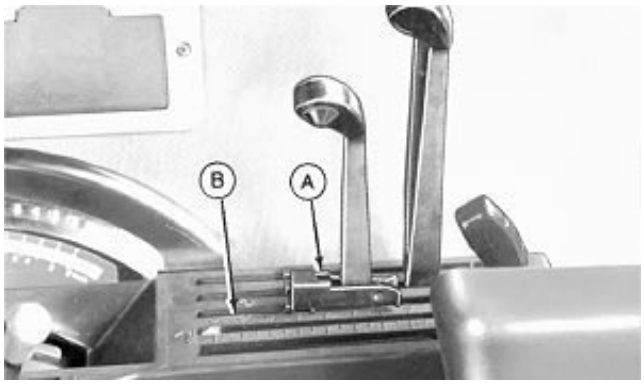
AG,OUO1074,432 –19–22FEB00–2/2

Using Lever Lock Clip (55—60 Series Tractors)

NOTE: The clip keeps lever from returning, maintaining constant oil pressure to down-pressure valve.

Lever lock clip R52667 (A) must be used to hold the opener control lever in the down-pressure position (B). To install lever lock clip, see INSTALLING LEVER LOCK CLIP (55—60 SERIES TRACTORS) in this section.

A—Lock Clip
B—Down-Pressure Position



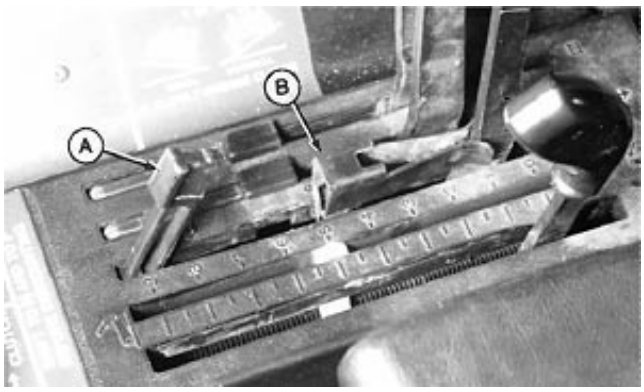
OUO6074,0000158 –19–05DEC00–1/1

Installing Lever Lock Clip (55—60 Series Tractors)

1. Lift float lock-out stop (A).

2. Squeeze sides of lock clip (B) and insert into groove as shown.

A—Float Lock-Out Stop
B—Lock Clip



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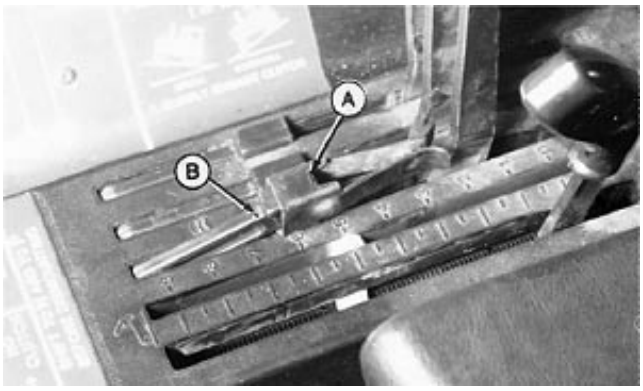
AG,OUO1074,434 –19–22FEB00–1/2

3. Slide lock clip (A) over lock-out stop (B).

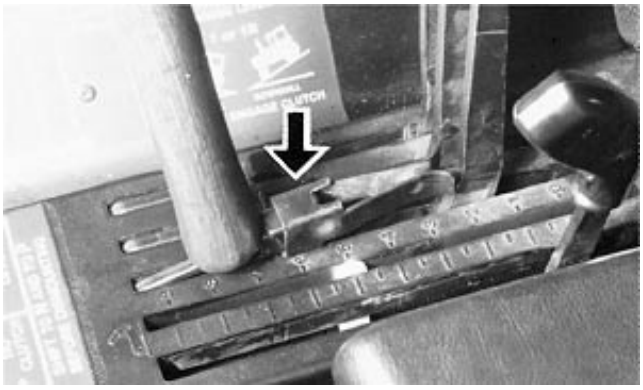
4. Push lock-out stop and lock clip down.

5. Push handle forward to retain clip in proper position.

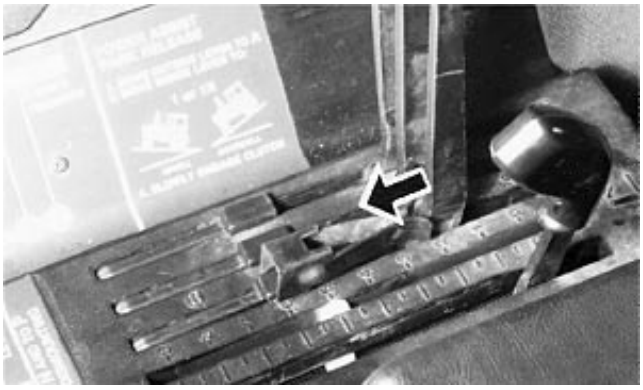
A—Lock Clip
B—Lock-Out Stop



N42122FE –UN–06JAN92



N42122FG –UN–06JAN92



N42122FH –UN–06JAN92

AG,OUO1074,434 –19–22FEB00–2/2

Setting Flow Rate and Detent Time—6000, 6010, 7000 and 7010 Series Tractors

1. Adjust rate of operation by turning metering valve knob (A). Turn knob counterclockwise to increases flow rate and clockwise to decreases flow rate.

NOTE: Drill operations require use of continuous position (D) on SCV I and no detent position (C) on SCV II, if equipped with row markers. Lock position (B) is not used for drill operations.

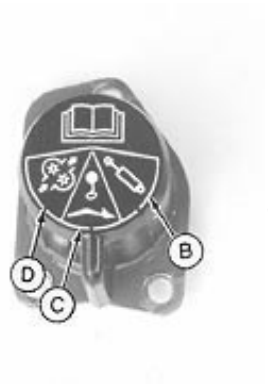
2. Turn SCV I to motor position (D) (continuous detent).

3. If drill has row markers, turn SCV II to no detent position (C).

A—Valve Knob
B—Lock Position
C—No Detent Position
D—Position, (Continuous Detent)

RW21395 –UN–18JUN92

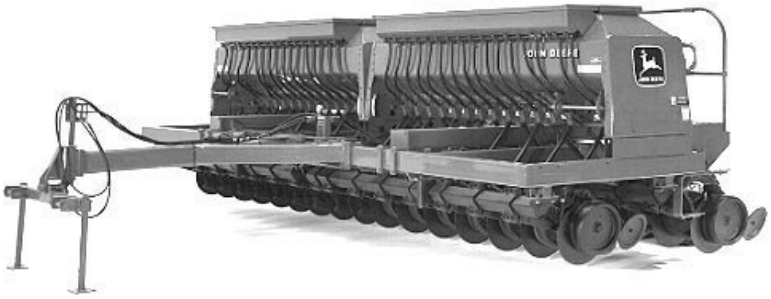
RW21754 –UN–21AUG92



RW21758 –UN–21AUG92

AG,OUO1074,435 –19–22FEB00–1/1

Checking and Lubricating—1560/1565 Grain Drills



N47882 –UN–04NOV97

6.1 m (20 ft) 1560 Drill Shown

1. Check tire pressure and inflate as necessary. See CHECKING TIRE PRESSURE in this section.
2. Perform required lubrication. See Lubrication section.
3. Inspect for loose, damaged or missing parts. Repair or replace parts before entering the field.
4. Make sure hydraulic hoses do not interfere with moving parts. Relocate hoses and retain with tie straps.

AG,OUO1074,438 –19–22FEB00–1/1

Checking Tire Pressure

NOTE: Incorrect air pressure affects seeding rates.

Inflate tires to following air pressures.

Tire Size	Pressure
11L x 15 10 ply	330 kPa (3.31 bar) (48 psi)
11L x 15 12 ply	359 kPa (3.59 bar) (52 psi)
12.5L x 15 12 ply	359 kPa (3.59 bar) (52 psi)
31-13.5 x 15 8 ply	330 kPa (3.31 bar) (48 psi)
5.9 x 15 4 ply	248 kPa (2.48 bar) (36 psi)

N50080J –UN–05FEB99

N49795 –UN–05MAY98

AG,OUO1074,439 –19–22FEB00–1/1

Checking Wheel Bolts and Bearings

Check the tightness of all wheel bolts (A) and wheel bearings during the first week of operation and periodically after that.

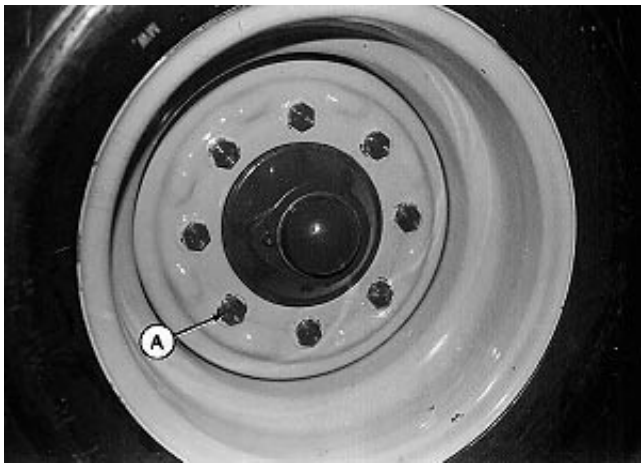
Tighten wheel bolts to specification.

Specification

Wheel Bolts—Torque ..... 155 N•m (115 lb-ft)

To adjust wheel bearing proceed as follows:

1. Remove center hub cap and cotter pin.
2. Raise the wheel and turn it.
3. Tighten the nut until there is a slight drag on the bearings, back off to the first hole, and insert cotter pin.
4. Replace hub cap.



N46699 –UN–24APR95

A—Wheel Bolts

AG,OUO1074,440 –19–22FEB00–1/1

Tightening Hardware

Check the tightness of ALL BOLTS, U-BOLTS and CAP SCREWS after the first 10-15 hours of operation, and again at the end of the first week (50 hours) of operation. Tighten all bolts to the torques specified in the Service section unless otherwise noted.

Check tightness of hardware periodically.

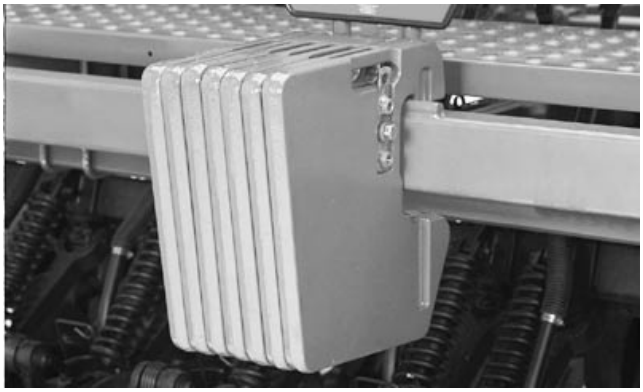
AG,OUO1074,441 –19–22FEB00–1/1

Installing Frame QUIK-TATCH™ Weights

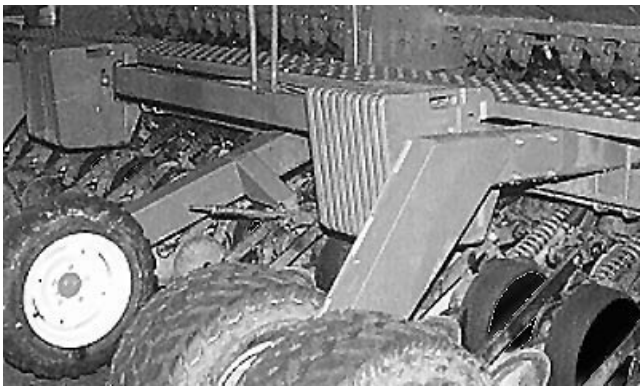
CAUTION: Each QUIK-TATCH™ weight weighs 45.4 kg (100 lb). Use proper lifting equipment to avoid personal injury when installing.

IMPORTANT: Additional weight may be needed when working in hard soil conditions.

Attach QUIK-TATCH™ weights to rear support tube to increase down-pressure. A maximum of 10 weights can be installed at rear of 3 m (10 ft) and 4.6 m (15 ft) machines and 20 weights for 6.1 m (20 ft) machines (10 per side).



4.6 m (15 ft) Drill



6.1 m (20 ft) Drill

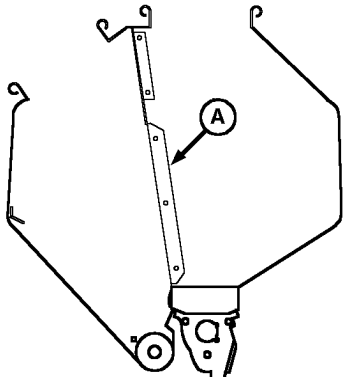
QUIK-TATCH is a trademark of Deere & Company

OUO6074,0000159 –19–05DEC00–1/1

Understanding Combination Grain/Fertilizer Box Configurations

IMPORTANT: To avoid metal corrosion and feed shaft "binding" or "freezing", clean out all fertilizer and/or treated seed in box before switching configuration or storing drill (even overnight). See CLEANING FERTILIZER BOX in Storage section.

Drills are shipped with partition (A) in 60 percent grain/40 percent fertilizer configuration.



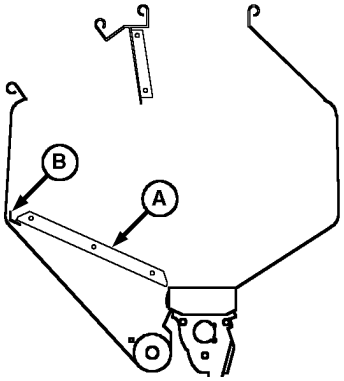
N50149 –UN–30MAR99

A—Partition

AG,OUO1074,444 –19–22FEB00–1/2

Divider panel (A) pivots down to support angle (B) on rear sheet for 100 percent grain configuration.

A—Panel
B—Support Angle



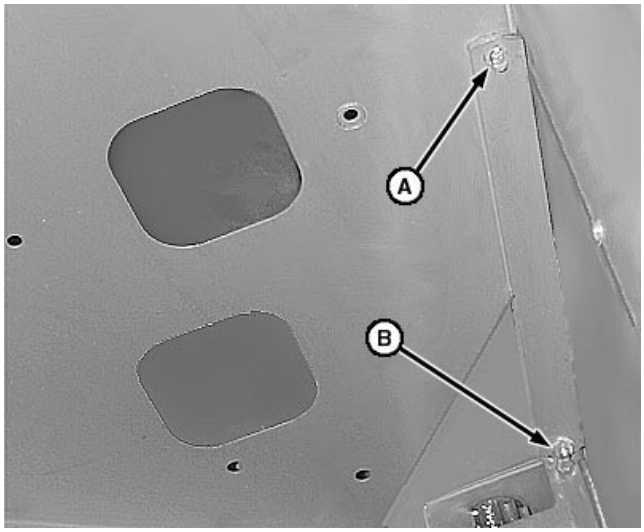
N50150 –UN–30MAR99

AG,OUO1074,444 –19–22FEB00–2/2

Changing Combination Box Partition to Grain Only Position

1. Remove cap screw (A) and nut from connecting strap and bulkhead in front box compartment. Loosen cap screw (B) and nut on bottom of strap. Let strap drop.

A—Cap Screw
B—Cap Screw



N50080S –UN–05FEB99

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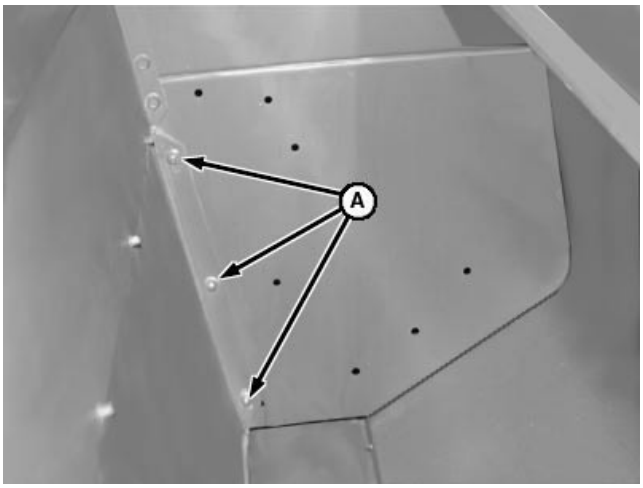
AG,OUO1074,445 –19–22FEB00–1/7

2. Remove cap screws (A) and nuts from center bulkhead and angles.

A—Cap Screws

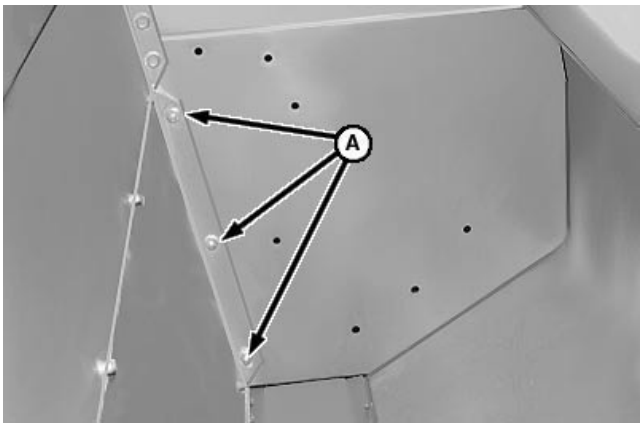


N50080T –UN–05FEB99

AG,OUO1074,445 –19–22FEB00–2/7

3. Remove cap screws (A) from angle and end panel on each end of box.

A—Cap Screws



N50080U –UN–05FEB99

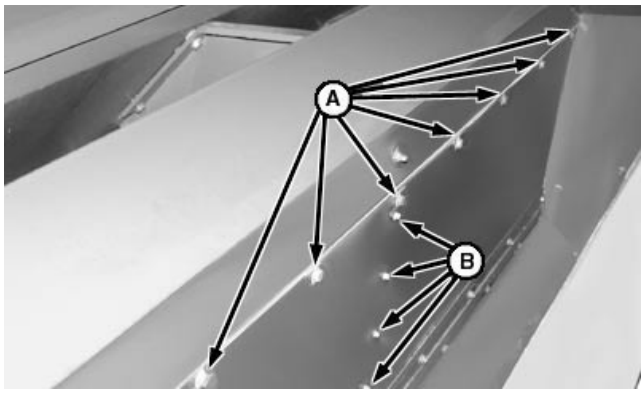
Front Box

Continued on next page

AG,OUO1074,445 –19–22FEB00–3/7

4. Remove cap screws from top deflector panel (A) and divider panel (B).

A—Deflector Panel
B—Divider Panel

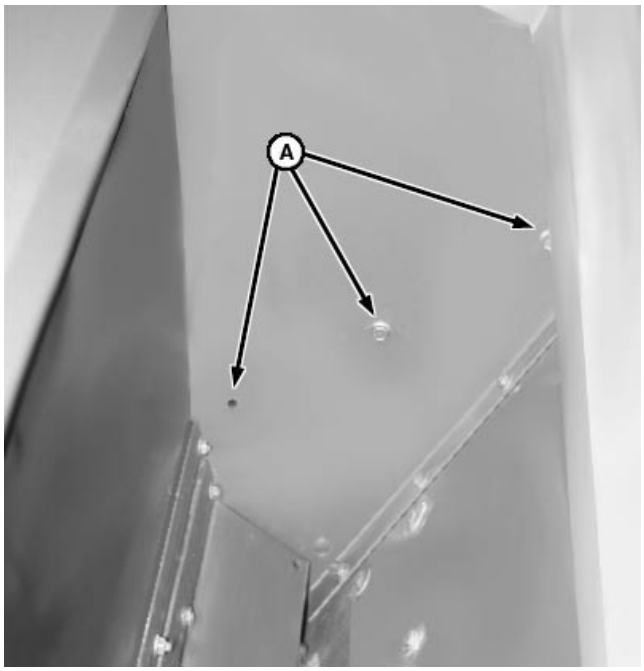


Rear Box

AG,OUO1074,445 –19–22FEB00–4/7

5. Remove three cap screws (A) from each end panel.

A—Cap Screws



Rear Box

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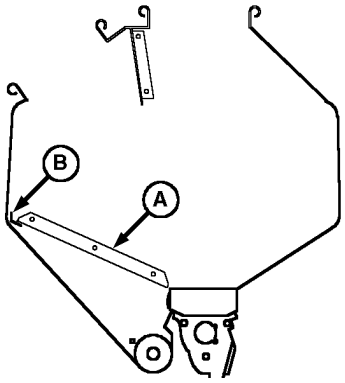
AG,OUO1074,445 –19–22FEB00–5/7

6. Position divider panel (A) to the rear and down until it rests on rear sheet support angle (B).

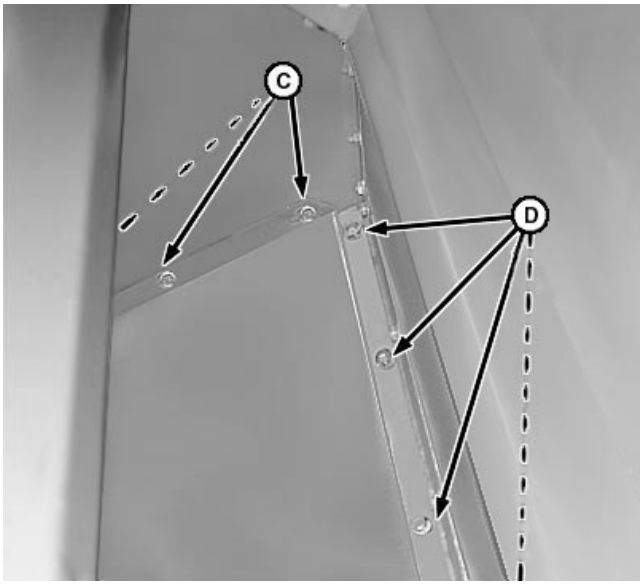
NOTE: Be sure additional three cap screws are installed in each end panel.

7. Install all hardware into end panels, center bulkhead (C) and divider panel (D).

A—Divider Panel
B—Support Angle
C—Center Bulkhead
D—Divider Panel



N50150 –UN–30MAR99



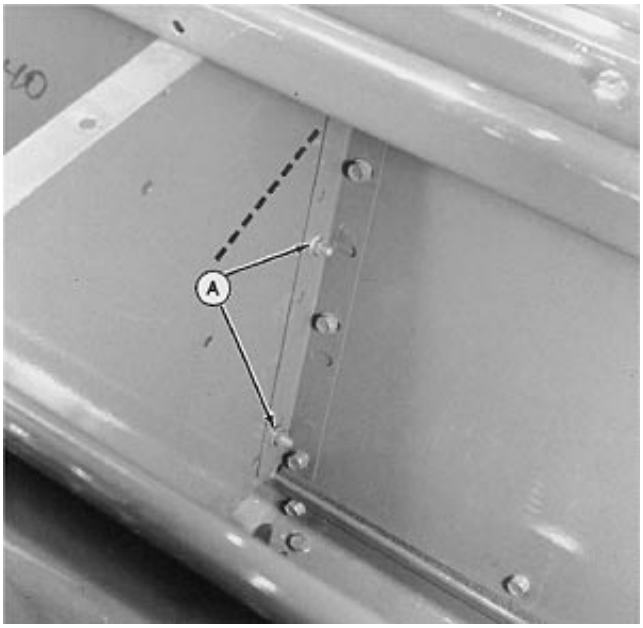
N50080X –UN–05FEB99

AG,OUO1074,445 –19–22FEB00–6/7

8. Raise center brace and attach with existing hardware in hole (A), then tighten cap screw on lower end.

9. Tighten all hardware. Perform steps 1—8 in reverse order to reset partition to 60 percent grain and 40 percent fertilizer position.

A—Hole



N89158O –UN–19SEP89

AG,OUO1074,445 –19–22FEB00–7/7

Setting Feed Cups

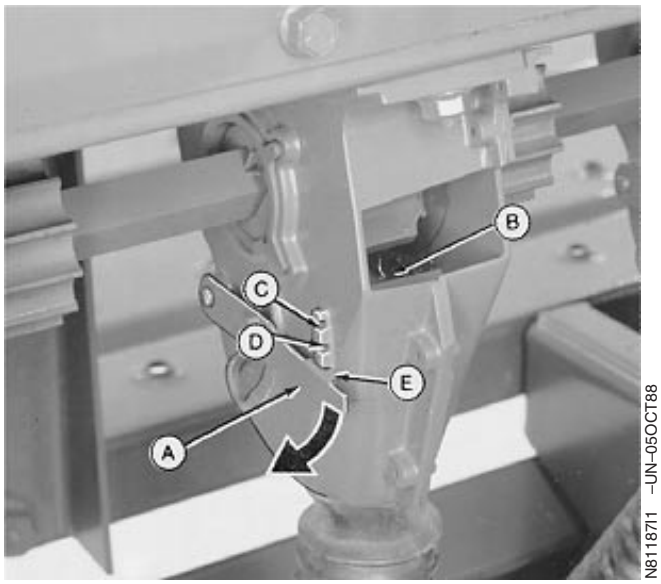
IMPORTANT: Set all feed cups identically to prevent uneven drilling, wrong quantities drilled and/or damage to seed.

Moving latch (A) downward opens feed gate (B) wider to allow for larger seed. Position feed gate latch to match type of seed being used.

Position (C): Wheat, oats, barley, rye, flax, rice and similar seed.

Position (D): Small peas, common beans and small soybeans (above 5500 seeds per kg [2500 seeds per pound]).

Position (E): Large peas, large soybeans (below 5500 seeds per kg [2500 seeds per pound]), kidney beans and lima beans.



A—Latch
B—Feed Gate
C—Position
D—Position
E—Position

OUO6074,000015A –19–05DEC00–1/1

Resetting Feed Cups

Reset cups whenever:

- Cup has been removed from drill.
- Cup has been knocked out of position.
- Quantity of seed sown varies from cup to cup.
- Quantity of seed sown does not agree with chart.

To reset, see RESETTING FEED CUPS in Service section.

AG,OUO1074,447 –19–22FEB00–1/1

Checking Grain Feed Shaft

IMPORTANT: Avoid deterioration of rubber convoluted tubes by preventing contact with petroleum products.

1. Before adding seed, raise openers to disengage clutch.

AG,OUO1074,448 –19–22FEB00–1/2

2. Turn feed shaft (A) in direction feeds normally turn.
3. If shaft turns hard, loosen moving parts with a safe solvent.

A—Feed Shaft

AG,OUO1074,448 –19–22FEB00–2/2

Checking Grass Seed Feed Shaft

IMPORTANT: Avoid deterioration of rubber tubes by preventing contact with petroleum products.

1. Before adding seed, raise openers to disengage clutch.

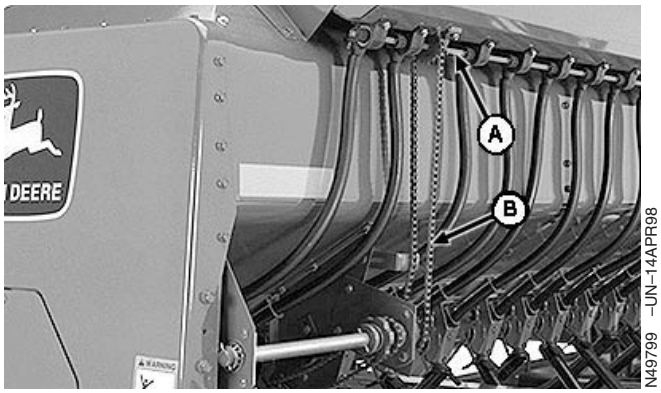
Continued on next page

AG,OUO1074,449 –19–22FEB00–1/2

2. Turn grass seed feed shaft (A) in direction of normal travel.

3. If shaft turns hard, loosen moving parts with a safe solvent. Remove chain (B) as necessary.

A—Feed Shaft
B—Chain



Plain Grain Box Shown

AG,OUO1074,449 –19–22FEB00–2/2

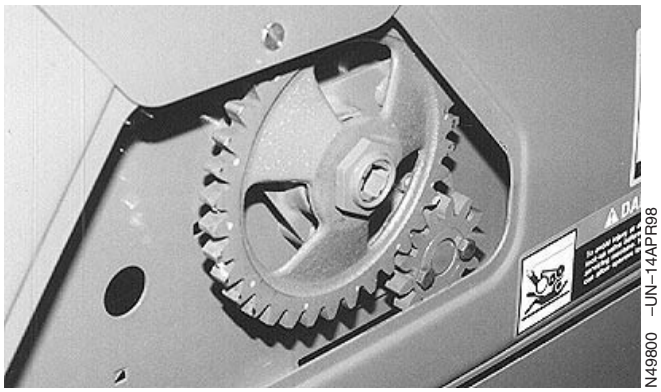
Using Half-Speed Drive Attachment (If Equipped)

IMPORTANT: The 35-tooth gear MUST BE installed on the feed shaft as shown. See ATTACHING HALF-SPEED DRIVE in Attachments section.

IMPORTANT: Doubling the seed index setting does not double the seeding rate.

A 35-tooth gear and 13-tooth gear is available to replace 28 and 20-tooth gears in the end panel. The 35-tooth and 13-tooth gears will produce feed rates one-half the values on the fluted feed charts in this section. Double the desired seeding rate before selecting seed index setting from chart.

Example: To meter 67 kg/ha (60 lb/acre) with the HALF SPEED drive, select (from the chart) the Seed Index Setting for 134 kg (120 lb) 67 kg x 2 = 134 kg (60 lb x 2 = 120 lb).



AG,OUO1074,450 –19–22FEB00–1/1

Understanding Rate Charts

IMPORTANT: Rates shown in charts are only to be used as a guide. See RATE CHECK—METHOD 1 or RATE CHECK—METHOD 2 in this section for accurate rate test.

Rate charts are based on drills with Standard Drive. If using Half-Speed Drive, the drill will sow at one-half the rates shown on charts.

If feed stops are installed, as shown in this section, feed rates in charts should be adjusted proportionally to the number of feeds blocked.

The following factors also affect product delivery as shown in the rate charts:

NOTE: Perform a rate check to ensure that product delivery rate is as expected.

1. Physical Characteristics—Two bags of seed that weigh the same may hold different quantities of seed because of moisture content, residue, unfilled kernels, or simple seed size.

2. Drive Wheel Circumference—Tire size, air pressure, field condition and ground speed all affect seeding rate.

3. Operator Judgement—Land contains more or less area than assumed. Overlapping rows or leaving too wide a space between rows.

4. Acremeter—Worn out counter, chipped teeth, or loose worm gear.

OUO6074,000015B –19–05DEC00–1/1

Rate Chart—19 cm (7.5 in.) Row Spacing — All Drills

	Notches on Seed Index		4		8		12		16		20		24	28	32	36	40	44	48	52	56	60
Seed		**Kilograms Per Hectare for Drills with 19 cm (7.5 in.) Row Spacing**																				
Wheat			20	29	38	47	58	68	80	91	103	115	128	154	180	207	235	263	290	318		
Barley				19	27	34	41	48	57	64	72	80	89	104	121	138	156	174	192	211	230	
Oats or Safflower					21	27	33	38	45	50	56	63	68	82	94	108	120	133	147	161	175	188
Rye				26	34	43	52	61	69	78	87	96	105	124	143	163	182	201	221	241		
Rice-Short Kernel									47	56	65	72	78	90	102	118	135	155	176			
Rice-Long Kernel									41	48	55	61	66	78	90	102	118	133	152			
Peas							63	78	94	110	127	143	160	196	233	271	312	353	397	442	486	
Soybeans or Navy Beans					25	41	55	68	83	98	113	130	147	182	215	252	288	323	358	391	423	452
Buckwheat					27	34	40	48	57	66	74	83	93	112	131	150	173					
Sorghum or Vetch			17	25	34	43	52	61	71	81	92	102	113	137								
Crested Wheat Grass					10	11	15	17	20	22	25	28	30	37								
Alfalfa or Rape		9	16	21	29	36	43	50	58													
Millet		10	17	24	30	38	45	53	62													
Flax or Sudan Grass			13	20	28	35	43	49	56	64	72											

AG,OUO1074,452 –19–22FEB00–1/1

Rate Chart—19 cm (7.5 in.) Row Spacing — All Drills

	Notches on Seed Index		4		8		12		16		20		24	28	32	36	40	44	48	52	56	60
Seed		**Pounds Per Acre for Drills with 19 cm (7.5 in.) Row Spacing**																				
Wheat			18	26	34	42	52	61	71	81	92	103	114	137	161	185	210	235	259	284		
Barley				17	24	30	37	43	51	57	64	71	79	93	108	123	139	155	171	188	205	
Oats or Safflower					19	24	29	34	40	45	50	56	61	73	84	96	107	119	131	144	156	168
Rye				23	30	38	46	54	62	70	78	86	94	111	128	145	162	179	197	215		
Rice-Short Kernel									42	50	58	64	70	80	91	105	120	138	157			
Rice-Long Kernel									37	43	49	54	59	70	80	91	105	119	136			
Peas							56	70	84	98	113	128	143	175	208	242	278	315	354	394	434	
Soybeans or Navy Beans					22	37	49	61	74	87	101	116	131	162	192	225	257	288	319	349	377	403
Buckwheat					24	30	36	43	51	59	66	74	83	100	117	134	154					
Sorghum or Vetch			15	22	30	38	46	54	63	72	82	91	101	122								
Crested Wheat Grass					90	10	13	15	18	20	22	25	27	33								
Alfalfa or Rape		8	14	19	26	32	38	45	52													
Millet		9	15	21	27	34	40	47	55													
Flax or Sudan Grass			12	18	25	31	38	44	50	57	64											

OUO6074,0000172 –19–07DEC00–1/1

Rate Chart—24.5 cm (10 in.) Row Spacing on 4.6 m (15 ft) Drills

	Notches on Seed Index		4		8		12		16		20		24	28	32	36	40	44	48	52	56	60
Seed		**Kilograms Per Hectare for Drills with 25 cm (10 in.) Row Spacing**																				
Wheat			15	21	28	35	43	50	59	67	76	85	92	114	135	155	175	196	218	238		
Barley				15	20	26	31	37	43	48	54	59	65	77	90	103	117	129	142	157	172	
Oats or Safflower					16	22	25	29	34	38	43	47	52	61	70	80	90	100	110	120	130	140
Rye				19	26	33	39	45	52	58	65	72	78	93	108	121	136	150	166	180	196	
Rice-Short Kernel									38	43	48	53	57	67	77	88	101	114	130			
Rice-Long Kernel									31	36	40	48	49	58	67	77	87	101	114			
Peas							47	58	71	83	95	108	120	147	175	204	233	265	297	331	367	
Soybeans or Navy Beans					22	31	41	52	62	73	85	98	110	136	161	188	215	242	268	294	317	340
Buckwheat					20	25	30	36	43	49	56	63	71	85	97	113	130					
Sorghum or Vetch			13	19	25	31	38	45	53	61	68	76	85	102								
Crested Wheat Grass					7	9	11	12	15	17	19	21	24	28								
Alfalfa or Rape		7	11	15	21	27	33	38	44													
Millet		8	12	18	22	28	34	39	46													
Flax or Sudan Grass			10	16	20	26	31	37	43	48	54											

AG,OUO1074,453 –19–22FEB00–1/1

Rate Chart—24.5 cm (10 in.) Row Spacing on 4.6 m (15 ft) Drills

	Notches on Seed Index		4		8		12		16		20		24	28	32	36	40	44	48	52	56	60
Seed		**Pounds Per Acre for Drills with 25 cm (10 in.) Row Spacing**																				
Wheat			13	19	25	31	38	45	53	60	68	76	85	102	120	138	156	175	194	212		
Barley				13	18	23	28	33	38	43	48	53	58	69	80	92	104	115	127	140	153	
Oats or Safflower					14	18	22	26	30	34	38	42	46	54	62	71	80	89	98	107	116	125
Rye				17	23	29	35	40	46	52	58	64	70	83	96	108	121	134	148	161	175	
Rice-Short Kernel									34	38	43	47	51	60	69	79	90	102	116			
Rice-Long Kernel									28	32	36	40	44	52	60	69	79	90	102			
Peas							42	52	63	74	85	96	107	131	156	182	208	236	265	295	327	
Soybeans or Navy Beans					20	28	37	46	55	65	76	87	98	121	144	168	192	216	239	262	283	304
Buckwheat					18	22	27	32	38	44	50	56	63	76	88	101	116					
Sorghum or Vetch			12	17	22	28	34	40	47	54	61	68	76	91								
Crested Wheat Grass					6	8	10	11	13	15	17	19	21	25								
Alfalfa or Rape		6	10	14	19	24	29	34	39													
Millet		7	11	16	20	25	30	35	41													
Flax or Sudan Grass			9	14	18	23	28	33	38	43	48											

OUO6074,0000173 –19–07DEC00–1/1

Rate Chart—19 cm (7.5 in.) Spaced Grass Seed Attachment—All Drills

	Notches on Seed Index	1	2	3	4	6	8	10	12	14	16
Seed		**Kilograms Per Hectare for Drills with 19 cm (7.5 in.) Row Spacing**									
Alfalfa, Red Alsike and Ladino Clovers		2.2	3.9	6.7	9.6	14.6	20.8	25.9	31.5	38.2	45
Serecia and Lespedeza Hulled, Crimson Clover, Birdsfoot Trefoil		1.7	4.5	7.3	10.7	17.4	24.7	32.6	41	50	59.6
Lespedeza Unhulled		0.6	1.1	2.2	3.4	6.2	9	11.8	14.6	18	21.9
Timothy, Red Top, Sand and Love Grass		1.7	3.4	5.6	7.3	11.8	15.7	20.2	25.3	30.9	37.1
Kentucky Blue Grass, Reed Canary Grass		0.6	1.7	2.8	4.5	6.2	8.4	10.6	12.9	16.3	20.2
Millet		1.7	3.9	6.2	9	14.1	20.8	27	34.3	41.6	50
Broom Corn, Hog Millet		1.1	3.4	6.2	9.6	16.9	23.6	33.2	43.3	54.6	65.8
Bermuda, Canary Grass		1.1	2.8	3.9	5.6	8.4	11.2	14.6	18	22.5	27
Sudan Grass				2.8	6.2	11.8	17.4	23.6	32.6	42.2	52.9
Crested Wheat, Orchard Grass					2.2	3.9	6.2	7.9	9	10.7	12.9
Rye Grass, Alta Fescue				0.6	1.7	3.4	5.1	6.7	8.4	10.1	12.3

AG,OUO1074,454 –19–22FEB00–1/1

Rate Chart—19 cm (7.5 in.) Spaced Grass Seed Attachment—All Drills

	Notches on Seed Index	1	2	3	4	6	8	10	12	14	16
Seed		**Pounds Per Acre for Drills with 19 cm (7.5 in.) Row Spacing**									
Alfalfa, Red Alsike and Ladino Clovers		2	3.5	6	8.5	13	18.5	23	28	34	40
Serecia and Lespedeza Hulled, Crimson Clover, Birdsfoot Trefoil		1.5	4	6.5	9.5	15.5	22	29	36.5	44.5	53
Lespedeza Unhulled		0.5	1	2	3	5.5	8	10.5	13	16	19.5
Timothy, Red Top, Sand and Love Grass		1.5	3	5	6.5	10.5	14	18	22.5	27.5	33
Kentucky Blue Grass, Reed Canary Grass		0.5	1.5	2.5	4	5.5	7.5	8.5	11.5	14.5	18
Millet		1.5	3.5	5.5	8	12.5	18.5	24	30.5	37	44.5
Broom Corn, Hog Millet		1	3	5.5	8.5	15	21	29.5	38.5	48.5	58.5
Bermuda, Canary Grass		1	2.5	3.5	5	7.5	10	13	16	20	24
Sudan Grass				2.5	5.5	10.5	15.5	21	29	37.5	47
Crested Wheat, Orchard Grass					2	3.5	5.5	7	8	9.5	11.5
Rye Grass, Alta Fescue				0.5	1.5	3	4.5	6	7.5	9	11

OUO6074,0000171 –19–07DEC00–1/1

Rate Chart—24.5 cm (10 in.) Spaced Grass Seed Attachment 4.6 m (15 ft) Drills

	Notches on Seed Index	1	2	3	4	6	8	10	12	14	16
Seed		**Kilograms Per Hectare for Drills with 25 cm (10 in.) Row Spacing**									
Alfalfa, Red Alsike and Ladino Clovers		1.7	2.8	4.5	7.3	11.2	14.6	19	24	28	34
Serecia and Lespedeza Hulled, Crimson Clover, Birdsfoot Trefoil		1.1	2.8	5.0	7.8	12.3	17.9	25	31	39	47
Lespedeza Unhulled		0.6	1.1	1.7	2.5	4.5	6.7	9	11.2	13.5	15.7
Timothy, Red Top, Sand and Love Grass		1.1	2.2	3.9	5.6	8.4	11.2	14.6	17.9	22.4	27
Kentucky Blue Grass, Reed Canary Grass		0.6	1.1	2.2	3.4	4.5	5.6	7.3	9.5	12.3	15.7
Millet		1.1	2.8	4.5	6.7	11.2	15.7	20.2	26	31	36
Broom Corn, Hog Millet		1.1	2.2	4.5	7.3	12.3	17.9	25	33	40	49
Bermuda, Canary Grass		1.1	1.7	2.8	3.9	5.7	9	12.3	15.7	20.2	25
Sudan Grass				1.7	4.5	8.4	12.3	16.8	25	33	41
Crested Wheat, Orchard Grass					1.7	2.8	4.5	6.2	7.8	10.1	12.3
Rye Grass, Alta Fescue				0.6	1.1	2.2	3.4	4.5	6.2	7.8	10.1

AG,OUO1074,455 –19–22FEB00–1/1

Rate Chart—24.5 cm (10 in.) Spaced Grass Seed Attachment 4.6 m (15 ft) Drills

	Notches on Seed Index	1	2	3	4	6	8	10	12	14	16
Seed		**Pounds Per Acre for Drills with 25 cm (10 in.) Row Spacing**									
Alfalfa, Red Alsike and Ladino Clovers		1.5	2.5	4	6.5	10	13	17	21	25	30
Serecia and Lespedeza Hulled, Crimson Clover, Birdsfoot Trefoil		1	2.5	4.5	7	11	16	22	28	35	42
Lespedeza Unhulled		0.5	1	1.5	2.25	4	6	8	10	12	14
Timothy, Red Top, Sand and Love Grass		1	2	3.5	5	7.5	10	13	16	20	24
Kentucky Blue Grass, Reed Canary Grass		0.5	1	2	3	4	5	6.5	8.5	11	14
Millet		1	2.5	4	6	10	14	18	23	28	32
Broom Corn, Hog Millet		1	2	4	6.5	11	16	22	29	36	44
Bermuda, Canary Grass		1	1.5	2.5	3.5	5.13	8	11	14	18	22
Sudan Grass				1.5	4	7.5	11	15	22	29	37
Crested Wheat, Orchard Grass					1.5	2.5	4	5.5	7	9	11
Rye Grass, Alta Fescue				0.5	1	2	3	4	5.5	7	9

OUO6074,0000174 –19–07DEC00–1/1

Determine Rate Setting—Grains and Grasses

IMPORTANT: Rates shown in charts are only to be used as a guide. See RATE CHECK—METHOD 1 or RATE CHECK—METHOD 2 in this section for accurate rate test.

Rates per acre are determined by adjusting seed shifter lever to proper notch on index.

Rate charts are based on standard densities of materials being used. See Standard Densities chart in this section for a listing.

1. Find actual density of product used. See USING DENSITY METER in this section.

2. Locate standard density on Standard Density Chart and divide by actual density to get the conversion factor.

   FORMULA:

   Standard Density (Rate Chart) ÷ Actual Density (Density Meter) = Conversion Factor

3. Multiply desired metering rate by the conversion factor. Locate that value on rate chart, match it with seed index value and adjust seed shifter to value. See SETTING GRAIN SHIFTER in this section.

EXAMPLE:

- Product: Wheat
- Standard Density: 774 kg/m^3 (48.2 lb/ft^3)
- Actual Density: 721 kg/m^3 (45 lb/ft^3)
- Desired Rate: 83 kg/ha (73 lb/acre)
- Drill: 19 cm (7-1/2 in.) row spacing

1. Find conversion factor:

   774 kg/m^3 (48.2 lb/ft^3) ÷ 721 kg/m^3 (45 lb/ft^3) = 1.07 Conversion Factor

2. Multiply desired rate by conversion factor.

   82 kg/ha x 1.07 = 87.74 kg/ha

   (73 lb/acre x 1.07 = 78.11 lb/acre)

3. Find value, 87.74 kg/ha (78.11 lb/acre) on rate chart and move seed shifter to “18”, which is the closest setting for determined value.

OUO6074,000015C –19–05DEC00–1/1

Standard Densities—Grains and Grasses

Grain	lb/bu	lb/ft³	kg/m³
Wheat, Soybeans, Navy Beans, Peas	60	48.2	774
Rye, Flax	56	45	722
Buckwheat	52	41.6	671
Sorghum	50	40	645
Barley	48	38.6	619
Oats	32	25.7	413
Crested Wheat Grass	21	16.8	271
Grass	**lb/bu**	**lb/ft³**	**kg/m³**
Alfalfa, Red Alsike, Ledino Clovers	60	48.2	774
Broom Corn, Hog Mille, Rye Grass, Alta Fescue	56	45	722
Millet, Bermuda, Canary, Sudan	50	40	645
Timothy, Red Top, Sand, Love	45	36	581
Lespedeza (Unhulled)	25	20	323
Serecia, Lespedeza (Hulled), Crimson Cover, Birdsfoot Trefoil	22	17.6	284
Crested Wheat Grass	21	16.8	271
Kentucky Blue Grass, Reed Canary, Orchard	14	11.2	181

AG,OUO1074,457 –19–22FEB00–1/1

Using Kilograms of Seed Per Hectare Chart

NOTE: If a specific population of seed is desired, use the Kilograms of Seed Per Hectare Chart and Rate Chart to determine the approximate seed shifter setting. Fluted meters are VOLUME meters not population meters. The number of seeds per hectare will vary according to the size of seed.

1. Determine from seed bag how many seeds equal one kilogram. Locate value on left-hand column of chart.

2. Locate under “desired population” the number of seeds desired per hectare in thousands.

3. Where the value in side column and the value in upper column meet is number of kilograms of seed to apply for each hectare.

   EXAMPLE: If there are 4510 seeds per kilogram, and desired population is 469,000 seeds per hectare apply 104 kilograms of seed per hectare.

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OUO6074,0000478 –19–01NOV01–1/3

	DESIRED POPULATION (seeds per hectare in thousands)																
	395	**408**	**420**	**432**	**445**	**457**	**469**	**482**	**494**	**506**	**519**	**531**	**543**	**556**	**568**	**605**	**618**
Seeds Per Kg	**Kilograms Of Seed Per Hectare**																
2640	150	155	159	164	169	173	178	183	187	192	197	201	206	211	215	229	234
2750	144	148	153	157	162	166	171	175	180	184	189	193	197	202	207	220	225
2860	138	143	147	151	156	160	164	169	173	177	181	186	190	194	199	212	216
2970	133	137	141	145	150	154	158	162	166	170	175	179	183	187	191	204	208
3080	128	132	136	140	144	148	152	156	160	164	169	172	176	181	184	196	201
3190	124	128	132	135	139	143	147	151	155	159	163	166	170	174	178	190	194
3300	120	124	127	131	135	138	142	146	150	153	157	161	165	168	172	183	187
3410	116	120	123	127	130	134	138	141	145	148	152	156	159	163	167	177	181
3520	112	116	119	123	126	130	133	137	140	144	147	151	154	158	161	172	176
3630	109	112	116	119	123	126	129	133	136	139	143	146	150	153	156	167	170
3740	106	109	112	116	119	122	125	129	132	135	139	142	145	149	152	162	165
3850	103	106	109	112	116	119	122	125	128	131	135	138	141	144	148	157	161
3960	100	103	106	109	112	115	118	122	125	128	131	134	137	140	143	153	156
4070	97	100	103	106	109	112	115	118	121	124	128	130	133	137	140	149	152
4180	94	98	100	103	106	109	112	115	118	121	124	127	130	133	136	145	148
4290	92	95	98	101	104	107	109	112	115	118	121	124	127	130	132	141	144
4400	90	93	95	98	101	104	107	110	112	115	118	121	123	126	129	138	140
4510	88	90	93	96	99	101	104	107	110	112	115	118	120	123	126	134	137
4620	85	88	91	94	96	99	102	104	107	110	112	115	118	120	123	131	134
4730	84	86	89	91	94	97	99	102	104	107	110	112	115	118	120	128	131
4840	82	84	87	89	92	94	97	100	102	105	107	110	112	115	117	125	128
4950	80	82	85	87	90	92	95	97	100	102	105	107	110	112	115	122	125
5060	78	81	83	85	88	90	93	95	98	100	103	105	107	110	112	120	122
5170	76	79	81	84	86	88	91	93	96	98	100	103	105	108	110	117	120
5280	75	77	80	82	84	87	89	91	94	96	98	101	103	105	108	115	117
5390	73	76	78	80	83	85	87	89	92	94	96	99	101	103	105	112	115
5500	72	74	76	79	81	83	85	88	90	92	94	97	99	101	103	110	112
5610	70	73	75	77	79	81	84	86	88	90	93	95	97	99	101	108	110
5720	69	71	73	76	78	80	82	84	86	88	91	93	95	97	99	106	108
5830	68	70	72	74	76	78	80	83	85	87	89	91	93	95	97	104	106
5940	66	69	71	73	75	77	79	81	83	85	87	89	91	94	96	102	104
6050	65	67	69	71	74	76	78	80	82	84	86	88	90	92	94	100	102
6160	64	66	68	70	72	74	76	78	80	82	84	86	88	90	92	98	100
6270	63	65	67	69	71	73	75	77	79	81	83	85	87	89	91	96	99
6380	62	64	66	68	70	72	74	76	77	79	81	83	85	87	89	95	97
6490	61	63	65	67	69	70	72	74	76	78	80	82	84	86	88	93	95
6600	60	62	64	65	67	69	71	73	75	77	79	80	82	84	86	92	94
6820	58	60	62	63	65	67	69	71	72	74	76	78	80	82	83	89	91

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	DESIRED POPULATION (seeds per hectare in thousands)																
	395	**408**	**420**	**432**	**445**	**457**	**469**	**482**	**494**	**506**	**519**	**531**	**543**	**556**	**568**	**605**	**618**
Seeds Per Kg	**Kilograms Of Seed Per Hectare**																
7040	56	58	60	61	63	65	67	68	70	72	74	75	77	79	81	86	88
7260	54	56	58	60	61	63	65	66	68	70	71	73	75	77	78	83	85
7480	53	55	56	58	59	61	63	64	66	68	69	71	73	74	76	81	83
7700	51	53	55	56	58	59	61	63	64	66	67	69	71	72	74	79	80
7920	50	52	53	55	56	58	59	61	62	64	66	67	69	70	72	76	78
8140	49	50	52	53	55	56	58	59	61	62	64	65	67	68	70	74	76
8360	47	49	50	52	53	55	56	58	59	61	62	64	65	67	68	72	74
8580	46	48	49	50	52	53	55	56	58	59	60	62	63	65	66	71	72
8800	45	46	48	49	51	52	53	55	56	58	59	60	62	63	65	69	70
9020	44	45	47	48	49	51	52	53	55	56	58	59	60	62	63	67	69
9240	43	44	45	47	48	49	51	52	53	55	56	57	59	60	61	65	67
9460	42	43	44	46	47	48	50	51	52	53	55	56	57	59	60	64	65
9680	41	42	43	45	46	47	48	50	51	52	54	55	56	57	59	63	64
9900	40	41	42	44	45	46	47	49	50	51	52	54	55	56	57	61	62
10120	39	40	42	43	44	45	46	48	49	50	51	52	54	55	56	60	61
10340	38	39	41	42	43	44	45	47	48	49	50	51	53	54	55	59	60
10560	37	39	40	41	42	43	44	46	47	48	49	50	51	53	54	57	59

OUO6074,0000478 –19–01NOV01–3/3

Using Pounds of Seed Per Acre Chart

NOTE: If a specific population of seed is desired, use the Pounds of Seed Per Acre Chart and Rate Chart to determine the approximate seed shifter setting. Fluted meters are VOLUME meters not population meters. The number of seeds per acre will vary according to the size of seed.

1. Determine from seed bag how many seeds equal one pound. Locate value on left-hand column of chart.

2. Locate under “desired population” the number of seeds desired per acre in thousands.

3. Where the value in side column and the value in upper column meet is number of pounds of seed to apply for each acre.

   EXAMPLE: If there are 2050 seeds per pound, and desired population is 190,000 seeds per acre apply 93 pounds of seed per acre.

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	DESIRED POPULATION (seeds per acre in thousands)																		
	160	**165**	**170**	**175**	**180**	**185**	**190**	**195**	**200**	**205**	**210**	**215**	**220**	**225**	**230**	**235**	**240**	**245**	**250**
SEEDS PER LB	**POUNDS OF SEED PER ACRE**																		
1200	133	138	142	146	150	154	158	163	167	171	175	179	183	188	192	196	200	204	208
1250	128	132	136	140	144	148	152	156	160	164	168	172	176	180	184	188	192	196	200
1300	123	127	131	135	138	142	146	150	154	158	162	165	169	173	177	181	185	188	192
1350	119	122	126	130	133	137	141	144	148	152	156	159	163	167	170	174	178	181	185
1400	114	118	121	125	129	132	136	139	143	146	150	154	157	161	164	168	171	175	179
1450	110	114	117	121	124	128	131	134	138	141	145	148	152	155	159	162	166	169	172
1500	107	110	113	117	120	123	127	130	133	137	140	143	147	150	153	157	160	163	167
1550	103	106	110	113	116	119	123	126	129	132	135	139	142	145	148	152	155	158	161
1600	100	103	106	109	113	116	119	122	125	128	131	134	138	141	144	147	150	153	156
1650	97	100	103	106	109	112	115	118	121	124	127	130	133	136	139	142	145	148	152
1700	94	97	100	103	106	109	112	115	118	121	124	126	129	132	135	138	141	144	147
1750	91	94	97	100	103	106	109	111	114	117	120	123	126	129	131	134	137	140	143
1800	89	92	95	97	100	103	106	108	111	114	117	120	122	125	128	131	133	136	139
1850	86	89	92	95	97	100	103	105	108	111	114	116	120	122	124	127	130	132	135
1900	84	87	89	92	95	97	100	103	105	108	111	113	116	118	121	124	126	129	132
1950	82	85	87	90	92	95	97	100	103	105	108	110	113	115	118	121	123	126	128
2000	80	83	85	88	90	93	95	98	100	103	105	108	110	113	115	118	120	123	125
2050	78	80	83	85	88	90	93	95	98	100	103	105	107	110	112	115	117	120	122
2100	76	79	81	83	86	88	90	93	95	98	100	102	105	104	106	112	114	117	119
2150	74	77	79	81	84	86	89	91	93	95	98	100	102	105	107	109	112	114	116
2200	73	75	77	80	82	84	86	89	91	93	95	98	100	102	105	107	109	112	114
2250	71	73	76	78	80	82	84	87	89	91	93	95	98	100	102	105	107	109	111
2300	70	72	74	76	78	80	83	85	87	89	91	93	96	98	101	102	104	107	109
2350	68	70	72	74	77	79	81	83	85	87	89	91	94	96	98	100	102	104	106
2400	67	69	71	73	75	77	79	81	83	85	88	90	92	94	96	98	100	102	104
2450	65	67	69	71	73	76	78	80	82	84	86	88	90	92	94	96	98	100	102
2500	64	66	68	70	72	71	76	78	80	82	84	86	88	90	92	94	96	98	100
2550	62	65	67	69	71	73	75	76	78	80	82	84	86	88	90	92	94	96	98
2600	62	63	65	67	69	71	73	75	77	79	81	83	85	87	88	90	92	94	96
2650	60	62	64	66	68	70	72	74	75	77	79	81	83	85	87	89	91	92	94
2700	59	61	63	65	67	69	70	72	74	76	78	80	81	83	85	87	89	91	93
2750	58	60	62	64	65	67	69	71	73	75	76	78	80	82	84	85	87	89	91
2800	57	59	61	63	64	66	68	70	71	73	75	77	79	80	82	84	86	88	89
2850	56	58	60	61	63	65	67	68	70	72	74	75	77	79	81	82	84	86	88
2900	55	57	59	60	62	64	66	67	69	71	72	74	76	78	79	81	83	84	86
2950	54	56	58	59	61	63	64	66	68	69	71	73	75	76	78	80	81	83	85
3000	53	55	57	58	60	62	63	65	67	68	70	72	73	75	77	78	80	82	83
3100	52	53	55	56	58	60	61	63	65	66	67	69	71	73	74	76	77	79	80

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	DESIRED POPULATION (seeds per acre in thousands)																		
	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240	245	250
SEEDS PER LB	POUNDS OF SEED PER ACRE																		
3200	50	51	53	55	56	58	59	61	63	64	66	67	69	70	72	73	75	77	78
3300	48	50	52	53	54	56	58	59	62	62	65	65	68	68	71	72	74	75	77
3400	47	49	50	51	52	54	56	57	59	60	62	63	65	66	68	69	71	72	74
3500	46	47	49	50	51	53	54	56	57	59	60	61	63	64	66	67	69	70	71
3600	44	46	47	49	50	51	53	54	56	57	58	60	61	63	64	65	67	68	69
3700	43	45	46	47	49	50	51	53	54	55	57	58	59	61	62	64	65	66	68
3800	42	43	45	46	47	49	50	51	53	54	55	57	58	59	61	62	63	64	66
3900	41	42	44	45	46	47	49	50	51	53	54	55	56	58	59	60	62	63	64
4000	40	41	43	44	45	46	48	49	50	51	53	54	55	56	58	59	60	61	63
4100	39	40	41	43	44	45	46	48	49	50	51	52	54	55	56	57	59	60	61
4200	38	39	40	42	43	44	45	46	48	49	50	51	52	54	55	56	57	58	60
4300	37	38	40	41	42	43	44	45	47	48	49	50	51	52	53	55	56	57	58
4400	36	38	39	40	41	42	43	44	45	47	48	49	50	51	52	53	55	56	57
4500	36	37	38	39	40	41	42	43	44	46	47	48	49	50	51	52	53	54	56
4600	35	36	37	38	39	40	41	42	43	45	46	47	48	49	50	51	52	53	54
4700	34	35	36	37	38	39	40	41	43	44	45	46	47	48	49	50	51	52	53
4800	33	34	35	36	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52

OUO6074,000015D –19–05DEC00–3/3

Using Mixtures—Grains and Grasses

NOTE: If a particular seed is not shown on rate charts in this section, select a seed of comparable weight and size when selecting a shifter setting.

1. Locate shifter settings from proper rate chart which gives desired quantity for EACH kind of seed.

2. Add shifter setting together and set shifter in notch which represents the total of all settings. See SETTING GRAIN SHIFTER or SETTING GRASS SEED SHIFTER in this section.

3. Perform a rate check (see rate checks in this section) and adjust shifter(s) as necessary.

OUO6074,000015E –19–05DEC00–1/1

Setting Manual Grain Shifter

IMPORTANT: Prevent moving parts from seizing. Proper lubrication before and after planting season is essential for smooth and accurate response from rate adjuster. See Lubrication section.

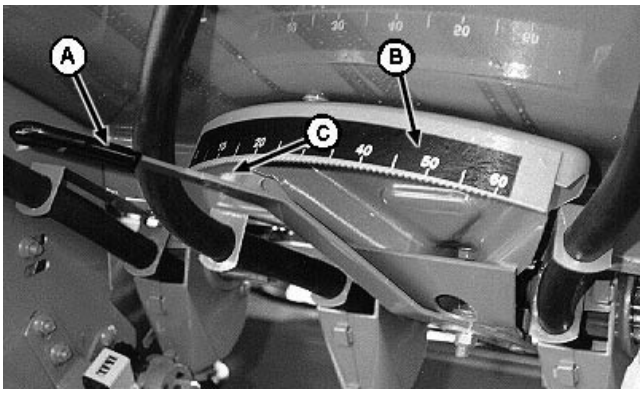
IMPORTANT: The seed rate charts are only approximate kilograms per hectare (pounds per acre). Set the shifter higher or lower after referring to USING DENSITY METER and rate checks in this section.

1. Select desired population and corresponding index number, for the crop being planted, from the rate charts.

   Move shifter lever (A) so indicator lip (C) is five or more notches (if possible) below desired seed index setting (B).

2. Move lever back slowly to one notch above desired setting.

3. Place lever back in desired setting.



A—Shifter Lever
B—Seed Index Setting
C—Indicator Lip

OUO6074,000015F –19–05DEC00–1/1

Setting Electronic Grain Shifter

IMPORTANT: Prevent moving parts from seizing. Proper lubrication before and after planting season is essential for smooth and accurate response from rate adjuster. See Lubrication section.

IMPORTANT: The seed rate charts are only approximate kilograms per hectare (pounds per acre). Set the shifter higher or lower after referring to USING DENSITY METER and rate checks in this section.

1. Select desired population and corresponding index number, for the crop being planted, from the rate charts.

NOTE: Motor (B) MUST be pushed back before turning hand crank (A) manually.

2. Set rate adjuster to corresponding number on rate chart either with electronic hand controller (C) or with hand crank (A).

N54977 –UN–23AUG00

N54978 –UN–23AUG00

A—Crank
B—Motor
C—Controller

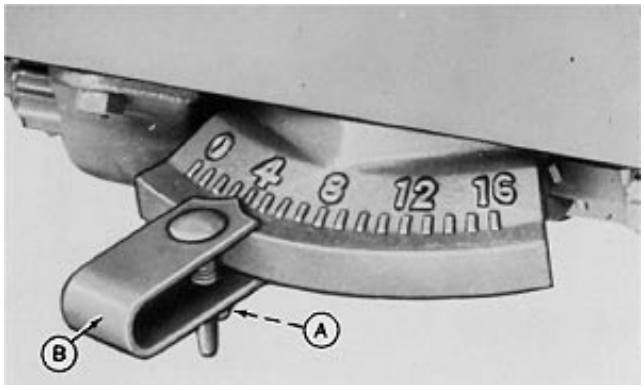
OUO6074,0000479 –19–01NOV01–1/1

Setting Grass Seed Shifter

IMPORTANT: The seed rate charts are only approximate kilograms per hectare (pounds per acre). Set the shifter higher or lower after referring to USING DENSITY METER and rate checks in this section.

NOTE: If box is full and shifter is on zero, turn feed shaft with a wrench while positioning lever.

Loosen wing nut (A) and move shifter lever (B) one notch higher than the desired setting. Position lever into correct setting and tighten wing nut.



N36438 –UN–04OCT88

A—Wing Nut
B—Shifter Lever

OUO6074,0000160 –19–05DEC00–1/1

Fertilizer Rate Charts

CHART FOR DRILLING FERTILIZER IN POUNDS PER ACRE

ROW SPACING	GEAR BOX SETTING - DRIVE- 1																				
	A1	B1	A2	C1	B2	A3	D1	C2	B3	A4	C3*	B5	C4	D3	E2	C5	D4	E3	D5	E4	E5
7.5 in.	18	20	22	23	25	26	28	29	30	31	35	40	41	42	44	47	50	53	56	62	70
10 in.	13	15	17	18	19	20	21	22	23	23	27	30	31	32	33	35	37	40	42	46	53
ROW SPACING	GEAR BOX SETTING - DRIVE-2																				
	A1	B1	A2	C1	B2	A3	D1	C2	B3	A4	C3*	B5	C4	D3	E2	C5	D4	E3	D5	E4	E5
7.5 in.	57	65	71	76	82	86	91	94	98	99	114	130	133	136	142	151	159	170	182	199	227
10 in.	43	49	53	57	51	64	68	71	73	75	85	98	100	102	107	114	119	128	136	149	170

CHART FOR DRILLING FERTILIZER IN KILOGRAMS PER HECTARE

ROW SPACING	GEAR BOX SETTING - DRIVE- 1																				
	A1	B1	A2	C1	B2	A3	D1	C2	B3	A4	C3*	B5	C4	D3	E2	C5	D4	E3	D5	E4	E5
19 cm	20	23	25	26	28	29	32	33	34	35	39	45	46	47	50	53	56	60	63	70	79
25 cm	15	17	19	20	21	23	24	25	26	26	30	34	35	36	37	39	42	45	47	52	60
ROW SPACING	GEAR BOX SETTING - DRIVE- 2																				
	A1	B1	A2	C1	B2	A3	D1	C2	B3	A4	C3*	B5	C4	D3	E2	C5	D4	E3	D5	E4	E5
19 cm	64	73	80	86	92	97	102	106	110	111	128	146	150	153	161	170	179	191	205	224	255
25 cm	48	55	60	64	69	72	77	80	82	84	96	110	113	115	120	128	134	144	153	168	191

N55766 –19–08JAN01

AG,OUO1074,462 –19–22FEB00–1/1

Determining Rate Setting—Fertilizer

IMPORTANT: Rates shown in charts are only to be used as a guide. See RATE CHECK—METHOD 1 or RATE CHECK—METHOD 2 in this section for accurate rate test.

Rates per acre are determined by adjusting speed selector levers on gear case or switching drive sprocket configuration.

NOTE: Nitrogen fertilizers generally weigh less than high potash or phosphorus.

Rate charts are based on fertilizer having a standard density of 1041.2 kg/m^3 (65 lb/ft^3).

1. Find actual density of fertilizer used. See USING DENSITY METER in this section.

2. Locate actual density on Fertilizer Density Chart and find conversion factor.

3. Multiply desired metering rate by the conversion factor. Locate that value on rate chart, match it with seed index value and adjust speed selector levers to value. See FERTILIZER DRIVE SETTINGS in this section.

EXAMPLE:

- Product: Fertilizer
- Desired Rate: 112 kg/ha (100 lb/acre)
- Actual Density: 800.9 kg/m^3 (50 lb/ft^3)
- Drill: 7-1/2 in. row spacing
- Drive: Drive 2

1. Locate conversion factor from Fertilizer Density chart.

   800.9 kg/m^3 (50 lb/ft^3)

2. Multiply desired rate by conversion factor.

   112 kg/ha x 1.30 = 146 kg/ha

   (100 lb/acre x 1.30 = 130 lb/acre)

3. Find value, 146 kg/ha (130 lb/acre) on rate chart and move speed selector levers to position “B5”.

OUO6074,0000161 –19–05DEC00–1/1

Fertilizer Density Chart

Density kg/m³ (lb/ft³)	Conversion Factor
720.81 (45)	1.45
800.9 (50)	1.30
881.0 (55)	1.20
961.1 (60)	1.10
1041.2 (65)	1.00
1121.3 (70)	0.93
1201.4 (75)	0.87
1281.44 (80)	0.81

AG,OUO1074,464 –19–22FEB00–1/1

Setting Fertilizer Feed Shaft Speed

Speed is determined by drive sprocket combinations AND the gear case. There are two different speeds available with the sprockets and 21 speeds per drive for each row spacing available with the gear case.

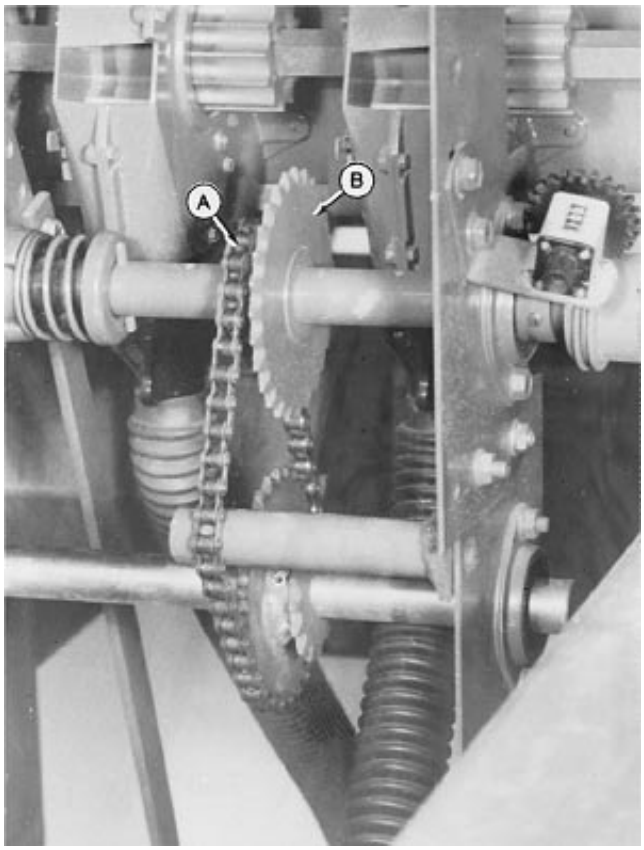
Continued on next page

AG,OUO1074,465 –19–22FEB00–1/2

SLOW-SPEED (Drive 1 on fertilizer rate charts) and FAST-SPEED (Drive 2 on fertilizer rate charts) are determined by 15 and 27-tooth sprocket assemblies. Drive 1 uses the small-top (A) and large-bottom sprockets; Drive 2 uses the large-top (B) and small-bottom sprockets.

Use the SLOW-SPEED drive whenever possible for maximum efficiency and to minimize wear. Use the FAST-SPEED drive for drilling larger quantities.

A—Small-Top Sprocket
B—Large-Top Sprocket



AG,OUO1074,465 –19–22FEB00–2/2

Fertilizer Drive Settings

IMPORTANT: To attain proper fertilizer drive speeds, set speed selectors (A) so desired digits are just outside the gear case and NOT the rubber seal. Line up mark with edge of cover.

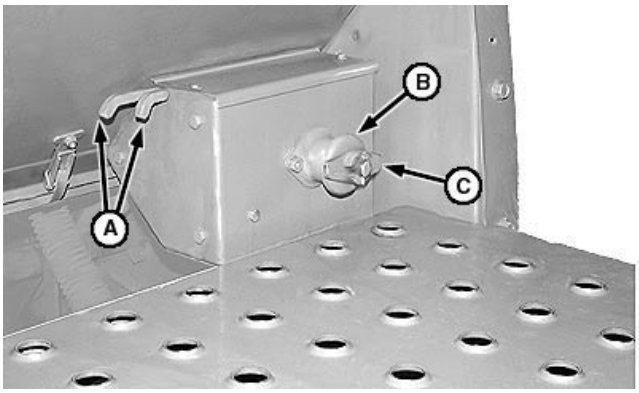
NOTE: If unsure of setting, remove cover to check gear position.

If equipped with 1565 Separate Placement Box, set both transmissions to desired settings.

NOTE: Disengage gears when not distributing fertilizer.

A graduated increase in speed (from slow to fast) is made with the gear case speed selector (A). Turn lock (C) vertical, then pull out knob (B) to disengage gears. Move speed selectors to the “Gear Box Setting” as shown on the Fertilizer Rate Charts in this section for your desired kilograms per hectare (pounds per acre).

Push knob in and turn lock horizontal to engage gears.



1560 Shown, 1565 Similar

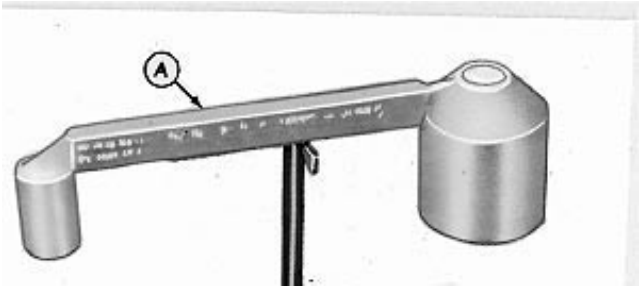
A—Speed Selector
B—Knob
C—Lock

AG,OUO1074,466 –19–22FEB00–1/1

Using Density Meter

NOTE: Density meter (A) is available from your dealer to determine density of seeds and fertilizers.

Fill meter’s bucket with product, tap lightly, level material with top of bucket, balance on knife edge and take reading.



A—Density Meter

AG,OUO1074,467 –19–22FEB00–1/1

Performing Accurate Rate Checks

It is important to conduct accurate rate checks as the following variables affect seed and fertilizer rates. See RATE CHECK—METHOD 1 or RATE CHECK—METHOD 2 in this section for accurate ways of checking seed or fertilizer rates.

1. Quality of Seeds—Two bags of seed that weigh the same may have different quantities of seed because of moisture content, density, residue, unfilled kernels, or simple seed size.

2. Type of Fertilizer—Nitrogen fertilizers generally weigh less than high potash or phosphorus fertilizers.

3. Tires—Size, type, and air pressure affect seeding rates. Use recommended tire size and proper air pressure listed in the Preparing the Machine section.

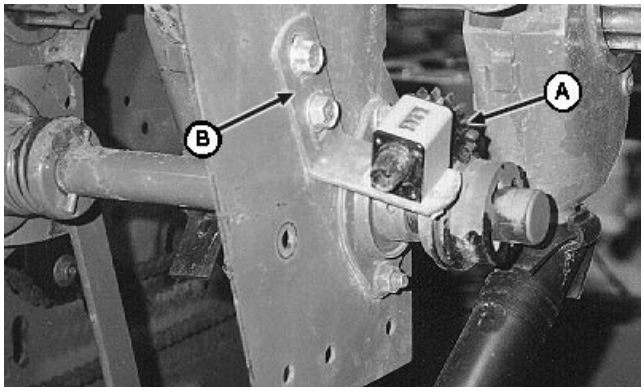
4. Operator Judgement—Land contains more or less area than assumed. Overlapping rows or leaving too wide a space between rows. Turning at row ends without lifting furrow openers.

AG,OUO1074,468 –19–22FEB00–1/2

NOTE: Gear teeth (A) should mesh with drive worm gear, but not "bottom out" on drive worm. Bracket (B) can be adjusted to provide proper gear mesh.

5. Acremeter—Worn out counter or chipped teeth. Worm gear loose on shaft. If acremeter accuracy is suspect, refer to CHECKING ACREMETER ACCURACY in Service section.

A—Gear Teeth
B—Bracket



N49804 –UN–15APR98

AG,OUO1074,468 –19–22FEB00–2/2

Rate Check—Method 1

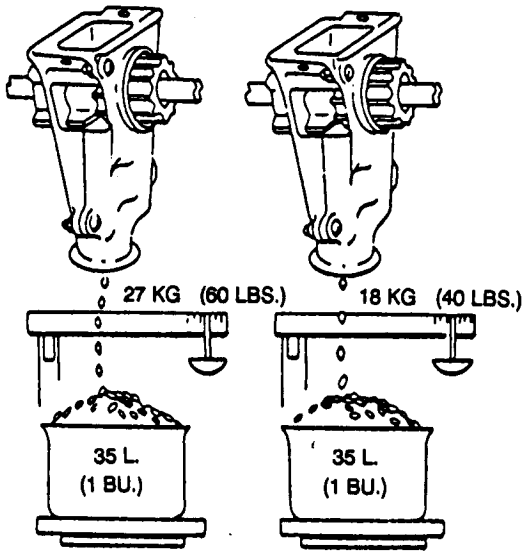
1. Make all adjustments as shown on rate chart for seed or fertilizer to be checked.
2. Fill box level-full in field, then pull drill a short distance to settle seed or fertilizer. Refill box exactly level-full.
3. Mark drive wheel and drill specified number of wheel revolutions (see chart below) to obtain one hectare (acre).
4. Carefully weigh seed or fertilizer required to refill box level-full.
5. Compare weight of seed or fertilizer required to fill box with predetermined rate.
6. Adjust seed shifter index setting (or fertilizer gear case) to compensate for any variation between weight desired and amount actually drilled. Adjust feed rates accordingly.

3.1 m (10 ft) Drill		
Drive Tire Size	**Revolutions/Hectare**	**Revolutions/Acre**
11L x 15	1344	544
31-13.5 x 15	1344	544
4.6 m (15 ft) Drill		
Drive Tire Size	**Revolutions/Hectare**	**Revolutions/Acre**
11L x 15	897	363
12.5L x 15	848	343
31-13.5 x 15	897	363
6.1 m (20 ft) Drill		
Drive Tire Size	**Revolutions/Hectare**	**Revolutions/Acre**
5.90-15	751	304

AG,OUO1074,469 –19–22FEB00–1/1

Rate Check—Method 2

1. Put seed or fertilizer in box and a container under each feed.
2. Set seed shifter index or fertilizer gear case setting for desired quantity per hectare (acre) as shown on rate chart or calculated with density meter.
3. Mark drive wheel and drill specified number of wheel revolutions (see chart below) to obtain one hectare (acre).
4. Carefully weigh seed or fertilizer in all containers and compare weight shown on rate charts.
5. Adjust seed shifter index setting or fertilizer gear case to compensate for any variation. Adjust feed rates accordingly. Repeat test until desired quantity is obtained.



N42085L –19–05OCT90

NOTE: Feed cups meter VOLUME, not weight.

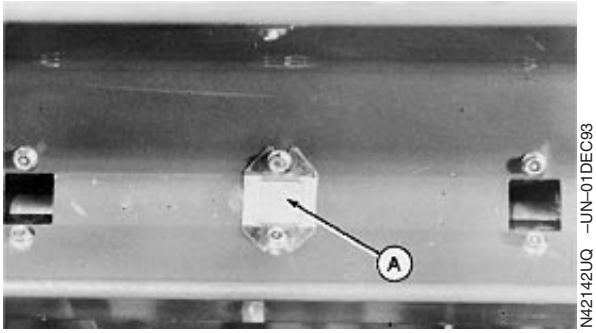
3.1 m (10 ft) Drill		
Drive Tire Size	**Revolutions/Hectare**	**Revolutions/Acre**
11L x 15	1344	544
31-13.5 x 15	1344	544
4.6 m (15 ft) Drill		
Drive Tire Size	**Revolutions/Hectare**	**Revolutions/Acre**
11L x 15	897	363
12.5L x 15	848	343
31-13.5 x 15	897	363
6.1 m (20 ft) Drill		
Drive Tire Size	**Revolutions/Hectare**	**Revolutions/Acre**
5.90-15	751	304

OUO6074,0000162 –19–05DEC00–1/1

Grass Seed Feed Stop

Cover feeds not being used with feed stop (A).

A—Feed Stop



N42142UQ –UN–01DEC93

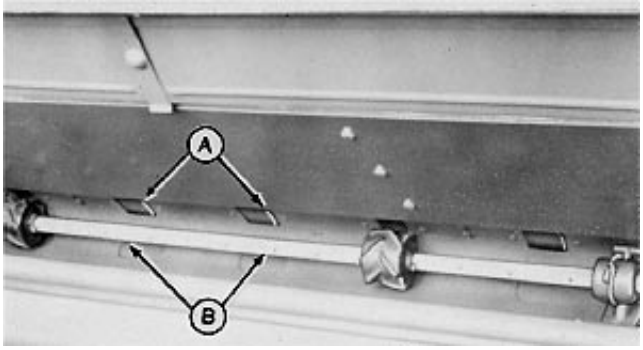
AG,OUO1074,471 –19–22FEB00–1/1

Fertilizer Feed Stop

IMPORTANT: Be sure feed wheels are correctly assembled on feed shaft. (See INSTALLING FEED WHEELS in Service section.)

Remove feed wheels (B) to install feed stops (A).

A—Feed Stops
B—Feed Wheels



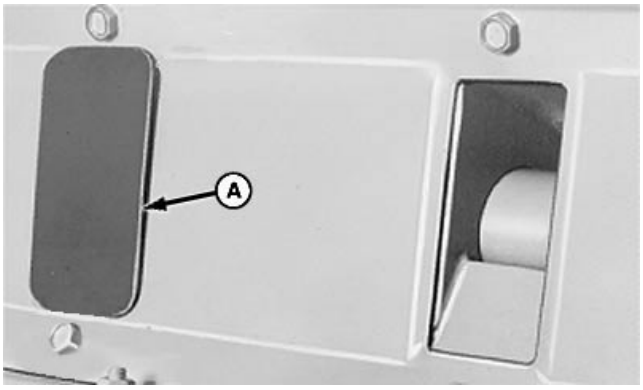
N31445 –UN–05OCT88

AG,OUO1074,472 –19–22FEB00–1/1

Grain Feed Stop—Fluted-Feeds

Postition feed stop (A) in place with tabs under floor of box with feed stop flat against floor.

A—Feed Stop



N58047 –UN–06AUG01

AG,OUO1074,473 –19–22FEB00–1/1

Opener Components and Adjustments

Opener adjustments are necessary to match desired seed placement with soil/field conditions. Proper adjustment of all items is essential to achieve desired seed placement.

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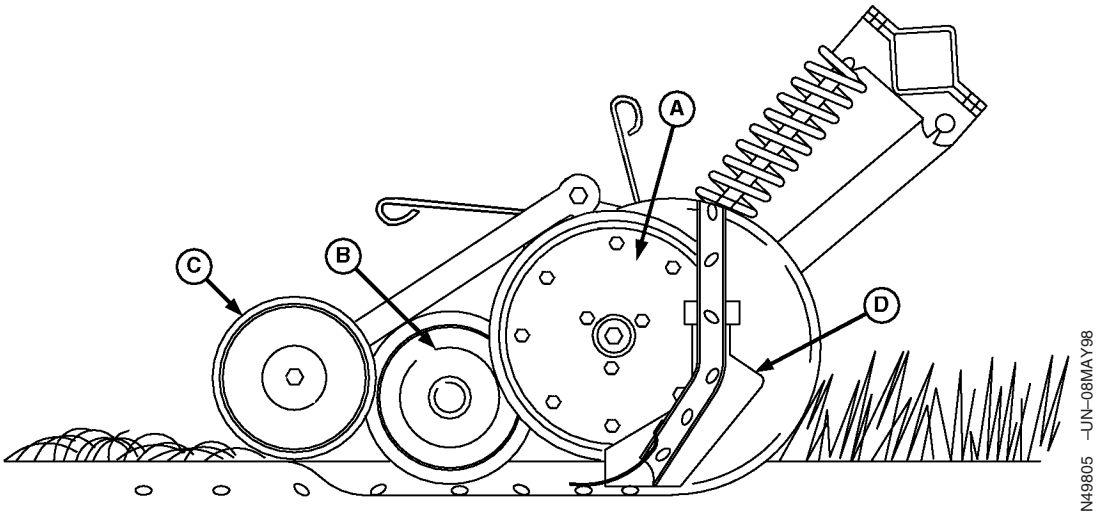
OUO6074,0000163 –19–05DEC00–1/2



A—Gauge Wheels **B—Press Wheels** **C—Closing Wheels** **D—Seed Boots**

Gauge Wheels (A)—Firms furrow wall and controls furrow (seed) depth between shallow 12.5 mm (0.5 in.) and deep 89 mm (3.5 in.) seeding, using one-of-thirteen depth gauge settings. Gauge wheel also acts as a scraper to reduce dirt build-up on disk openers.

Press Wheels, 1560 Only (B)—Pushes seed into the bottom of the furrow to promote germination, using one-of-three down force settings.

Closing Wheels, 1560 Only (C)—Places soil over the seed, using one-of-four down force settings.

Refer to detailed adjustment procedures for further information.

In addition to wheel adjustments, the following items can be repositioned to improve opener performance.

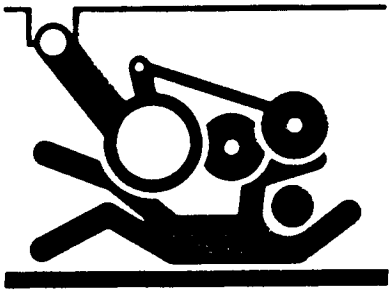
Closing Wheels—Can be positioned to run to the side of the furrow, depending on soil conditions.

Seed Boots (D)—Can be positioned up-or-down to suit machine, field and seeding conditions.

Refer to positioning procedures for further information.

OUO6074,0000163 –19–05DEC00–2/2

Lock-Up Rockshafts and Openers

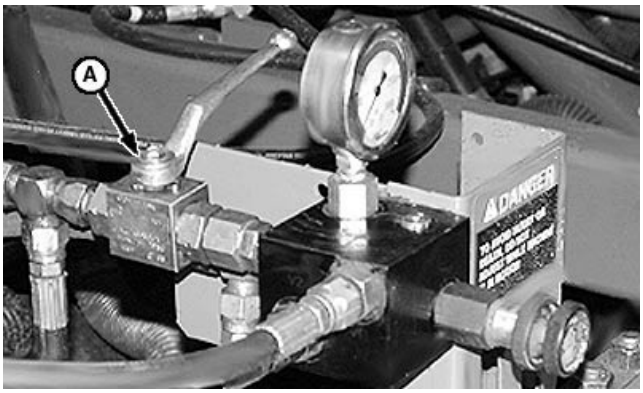


N39645 –UN–06OCT88

CAUTION: Hydraulic failure can allow openers to fall rapidly, causing injury or death. To avoid hazard, always lock openers in raised position before adjusting, lubricating or servicing machine.

Fully retract rockshaft/opener cylinders and close lock-up valve (A).

A—Lock-Up Valve



N50080M –UN–05FEB99

AG,OUO1074,475 –19–22FEB00–1/1

Adjusting Gauge Wheel and Seeding Depth

Raising gauge wheel lowers seed depth for deeper planting; lowering gauge wheel raises seed depth for shallow planting.

Continued on next page

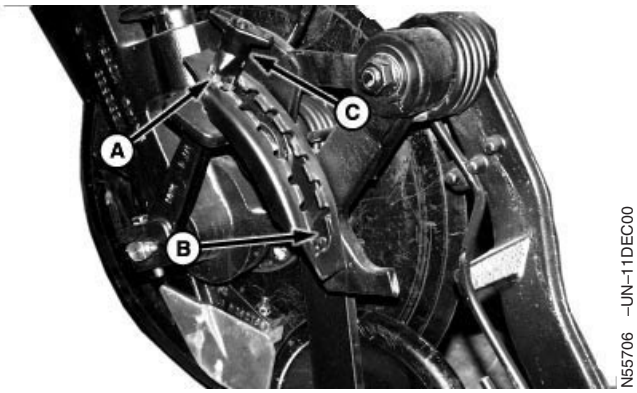
OUO6074,0000164 –19–05DEC00–1/2

NOTE: Heavy field residue or worn disk openers may require use of a deeper setting to achieve desired seed placement.

Seed depth adjustment range is approximately 13 mm to 90 mm (0.5 in. to 3.5 in.) from deep (A) to shallow (B) settings. Generally, the second slot from the bottom end of adjustment range (25 mm [1 in.] seed depth) is used as a starting point. Each adjustment slot changes seed depth in 6.35 mm (0.25 in.) increments.

To Adjust:

Pull handle (C) up, turn 45 degrees and position in desired slot.



A—Deep
B—Shallow
C—Handle

OUO6074,0000164 –19–05DEC00–2/2

Adjusting Press and Closing Wheel Down Force—1560 Only

PRESS WHEEL

Press wheel (A) down force is adjustable by placing spring (B) using one-of-three settings (C, D, and E) based on soil conditions and seed depth. Maintain uniform down force on all press wheels for best seed-to-soil contact, which promotes germination and optimum emergence.

MAXIMUM DOWN FORCE (C) is used for deep seeding depth.

MEDIUM DOWN FORCE (D) is used for moderate seeding depth.

MINIMUM DOWN FORCE (E) is used for shallow seeding depth or to reduce mud build-up from wheels when operating in wet conditions.

CLOSING WHEEL

When properly adjusted, closing wheel (F) crumbles the furrow wall to bury seed in loose soil, without compacting the seed zone. Use no more down force than required to close the furrow. Slow or erratic emergence can result if furrow is not closed or heavy closing wheel down force causes seed zone compaction.

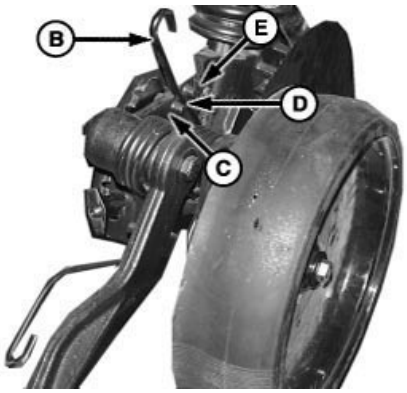
Place closing wheel adjustment spring (G) in one-of-four setting positions (H, I, J, K), which best suits the soil type, and closes furrow without compacting soil.

HEAVIEST FORCE (H)—Heaviest soil conditions.

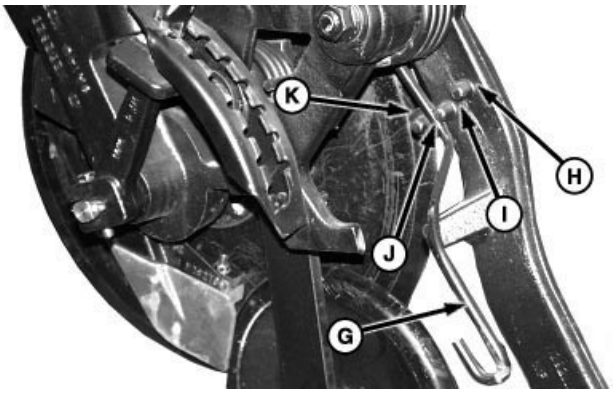
HEAVY DOWN FORCE (I)—Heavy wet soil.

MEDIUM DOWN FORCE (J)—Most common soil types.

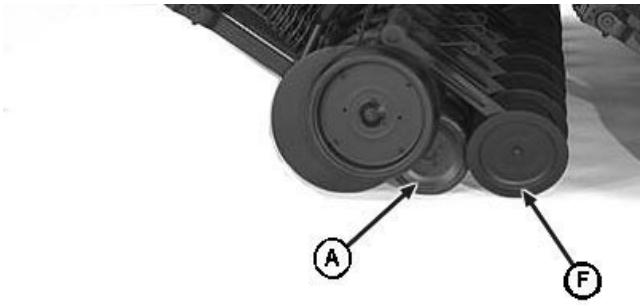
LIGHT DOWN FORCE (K)—Light, loose or sandy soil.



N55710 –UN–11DEC00



N55708 –UN–11DEC00



N49813 –UN–16APR98

1560 Only

A—Press Wheel
B—Adjustment Spring
C—Press Wheel—Maximum Down Force
D—Press Wheel—Medium Down Force
E—Press Wheel—Minimum Down Force
F—Closing Wheel
G—Adjustment Spring
H—Heaviest Down Force
I—Heavy Down Force
J—Medium Down Force
K—Light Down Force

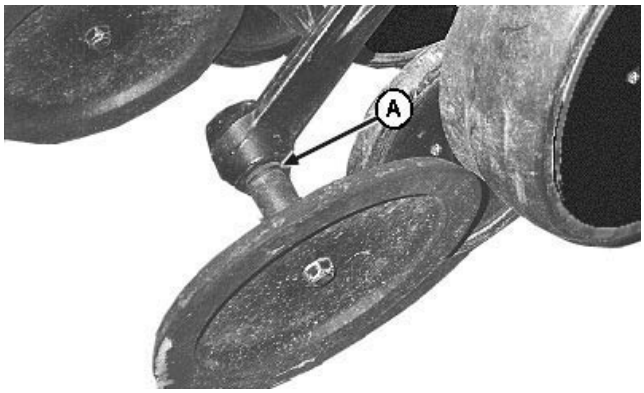
AG,OUO1074,477 –19–22FEB00–1/1

Positioning Closing Wheels—1560 Only

Flat washers (A) are used to laterally position closing wheels to the side of furrow, depending on soil conditions.

For heavier soils, position closing wheel farther to the outside of the furrow.

A—Flat Washers



AG,OUO1074,478 –19–22FEB00–1/1

Positioning Seed Boots

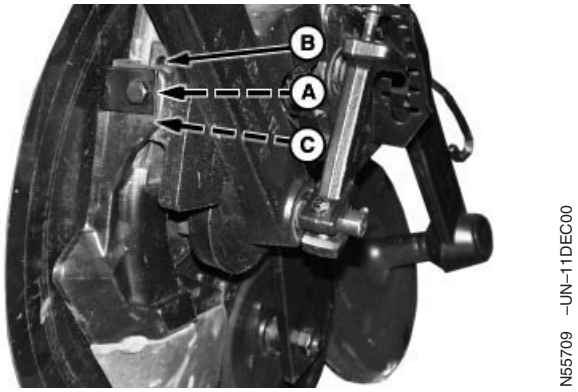
Seed Boots are attached at center hole (A) (as shown) for most planting conditions.

Boot can be attached at top hole (B) to:

- Compensate for disk opener wear.
- Minimize boot wear when deep seeding.

Boot can be attached to bottom hole (C) when:

- Shallow seeding at 25 mm (1 in.) or less.
- Planting in heavy-residue conditions.
- Worn boot is used with new condition disk opener.
- Higher speed planting causes inconsistent seed depth.



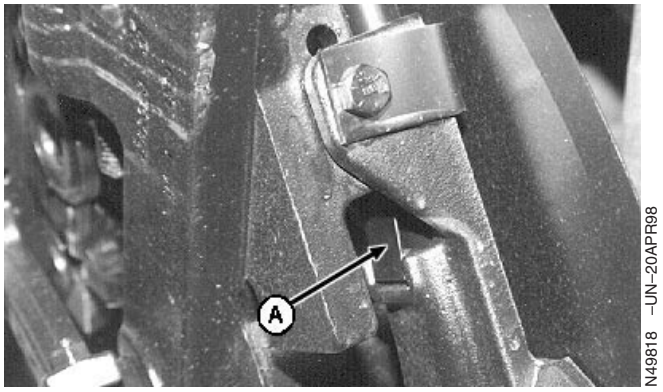
A—Center Hole
B—Top Hole
C—Bottom Hole

OUO6074,0000165 –19–05DEC00–1/2

After repositioning boots, make sure leaf spring (A) is locked into position below boot attaching cap screw and above boot stop.

Leaf spring keeps seed boot against inside of disk opener for accurate seed placement.

A—Leaf Spring



Leaf Spring Location

OUO6074,0000165 –19–05DEC00–2/2

Checking Opener Adjustments

After making any adjustments to opener components, a short test planting is recommended to ensure that changes have the desired effect.

IMPORTANT: Using a combination of adjustments, opener components work together to open the furrow, place the seed and close the furrow. Adjusting one of these actions can affect the other two, so additional adjustments may be needed to achieve desired seed placement.

Check seed placement periodically and whenever planting conditions change. Depending on soil/field conditions, revise adjustment settings as needed to achieve proper seed placement.

AG,OUO1074,480 –19–22FEB00–1/1

Attaching and Detaching

Use The Tractor Operator's Manual

Always refer to the tractor operator's manual for specific detailed information regarding operation of this equipment.

The following tractor related information uses John Deere tractors to illustrate preparation, attachment and operational procedures needed for the 1560 Grain Drill. Use the tractor operator's manual for detailed information, as procedures will vary by equipment.

TS190 –UN–17JAN89

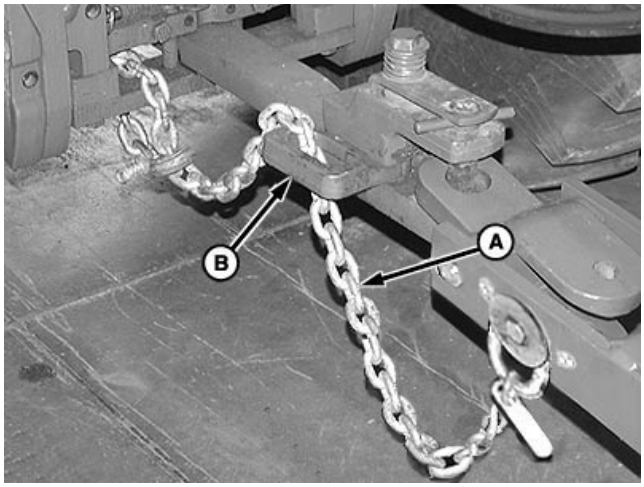
OUO6074,0000166 –19–05DEC00–1/1

Attaching Drawn Drills

Use of a safety chain (A) is recommended to secure the hitch to tractor. All tractors must be equipped with an intermediate chain support (B) ahead of the hitch pin. If tractor is not so equipped, see your John Deere dealer.

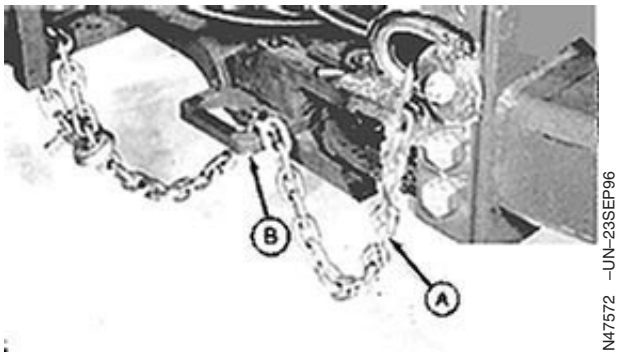
Attach drill to tractor with pin and route safety chain (A) through intermediate safety chain support (B).

A—Safety Chain
B—Safety Chain Support



N52738 –UN–14MAR00

Caster Wheel Hitch



N47572 –UN–23SEP96

Simple Hitch

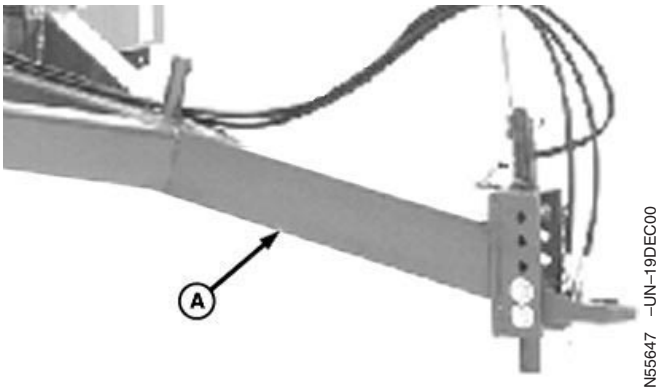
Continued on next page

AG,OUO1074,482 –19–22FEB00–1/6

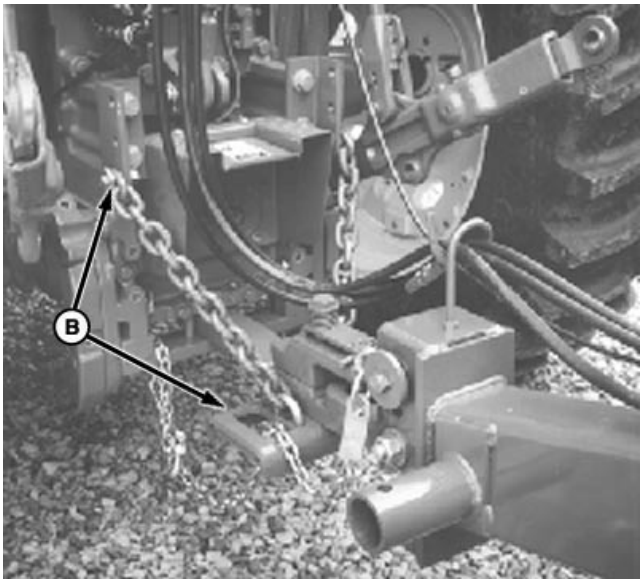
NOTE: Drawbar support is only required with regular hitches.

Regular hitches (A) on 3 m (10 ft) drills attached to tractors with less than 112 kW (150 hp) or all 4.57 m (15 ft) drills require a drawbar support (B) installed on tractor. See your John Deere dealer.

A—Regular Hitch
B—Drawbar Support



Regular Hitch

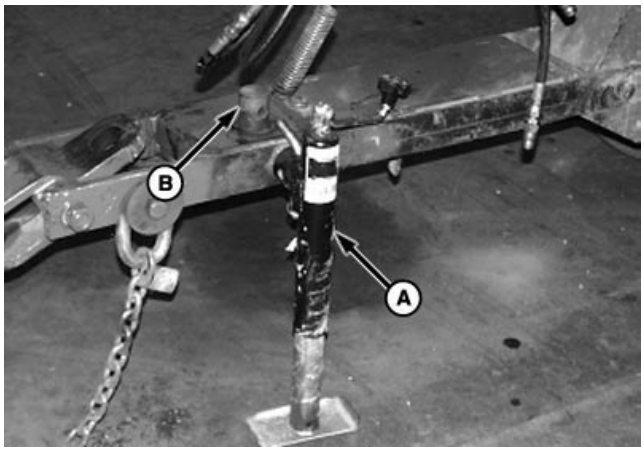


Continued on next page AG,OUO1074,482 –19–22FEB00–2/6

Moving Storage Stand to Transport Position

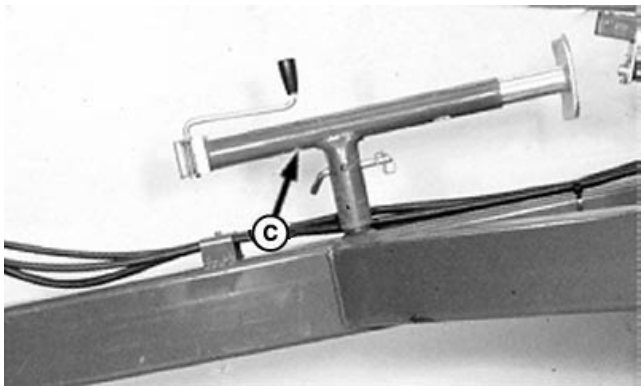
Once drill is attached to tractor, move storage stand (A) to transport position (B) on caster wheel hitch. On simple hitch relocate jackstand (C) as shown.

A—Stand
B—Transport Position
C—Jackstand



N52739 –UN–03APR00

Caster Wheel Hitch



N52740 –UN–14MAR00

Simple Hitch

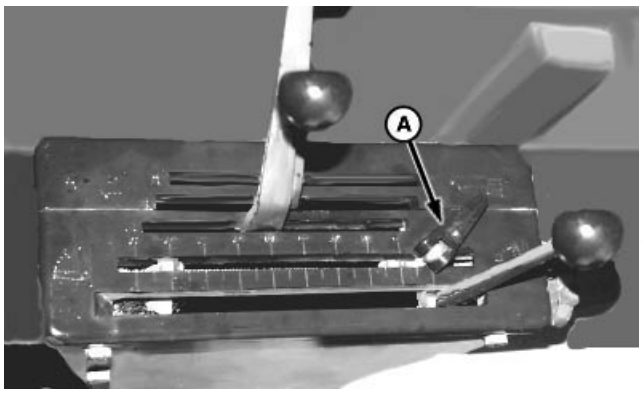
AG,OUO1074,482 –19–22FEB00–3/6

Rockshaft Operating Lever Height Stop (30—60 Series Tractors)

IMPORTANT: If the tractor rockshaft is accidentally lowered with a quick-coupler hitch on the tractor, damage can occur to the machine hitch when turning the tractor.

To prevent accidental lowering of rockshaft while operating the machine, place rockshaft control lever in raised position and engage lever stop (A).

A—Lever Stop



A46928 –UN–21NOV00

Continued on next page

AG,OUO1074,482 –19–22FEB00–4/6

Rockshaft Operating Lever Height Stop—7000 Series Tractors

IMPORTANT: If tractor rockshaft is accidentally lowered with a quick-coupler hitch on tractor, damage can occur to machine hitch when turning tractor.

To prevent accidentally lowering rockshaft while operating machine, set rockshaft control lever in transport lock position (A).

RW21858 –UN–21AUG92

A—Transport Lock Position

AG,OUO1074,482 –19–22FEB00–5/6

Rockshaft Operating Lever Height Stop—8000 Series Tractors

IMPORTANT: If tractor rockshaft is accidentally lowered with a quick-coupler hitch on tractor, damage can occur to machine hitch when turning tractor.

To prevent accidentally lowering the rockshaft while operating the machine, set the rockshaft control lever (A) in transport lock position.

A41056 –UN–01APR97

A—Control Lever

AG,OUO1074,482 –19–22FEB00–6/6

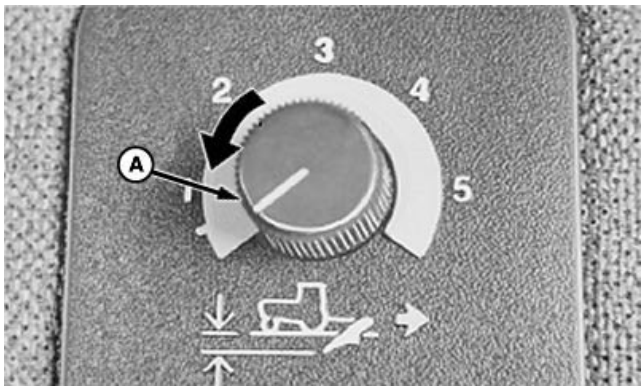
Attaching Two-Point Hitch to Tractor With Quick-Coupler

IMPORTANT: Set tractor rockshaft load/depth control (A) in "position" setting. If tractor rockshaft control is set to load sensing, the drill tongue will raise and lower with an increase or decrease of drill draft load. This will result in uneven seed depth as drill is operated across the field.

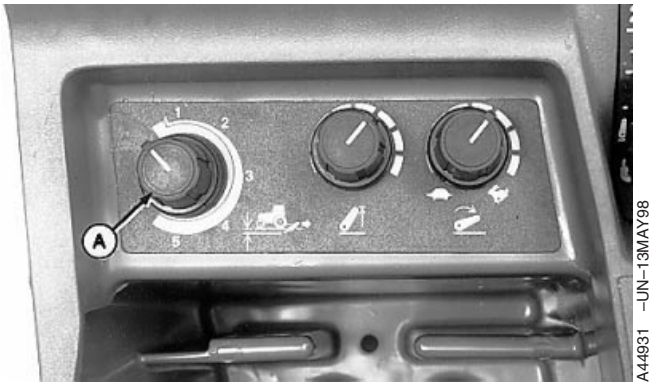
NOTE: Refer to the tractor operator's manual for specific tractor adjustments.

Set the rockshaft hitch/load depth control (A) for "POSITION SENSING" to prevent unexpected hitch movement.

A—Load/Depth Control



55—60 Series

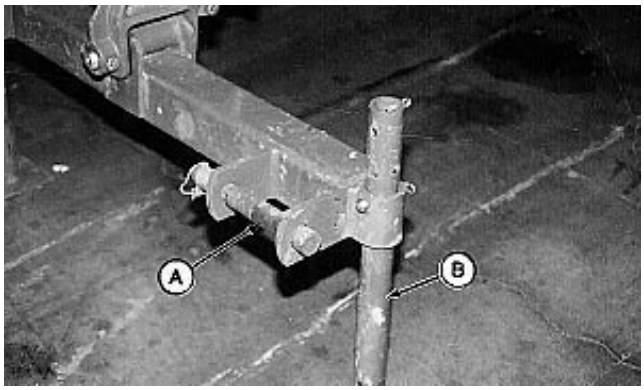


8000 Series

AG,OUO1074,483 –19–22FEB00–1/2

NOTE: Before attaching machine to tractor, be sure hitch pins and spacers are completely assembled to match the hitch configuration of your tractor.

1. Lower coupler to allow jaws to pass under machine hitch pins (A).
2. Back tractor into position. Raise couplers to firmly seat coupler jaws.
3. Lock latch levers on tractor. The spring loaded latches in the lower coupler jaws must be extended above hitch pins.
4. Raise parking stands (B) and pin in transport position.



A—Hitch Pins
B—Parking Stands

AG,OUO1074,483 –19–22FEB00–2/2

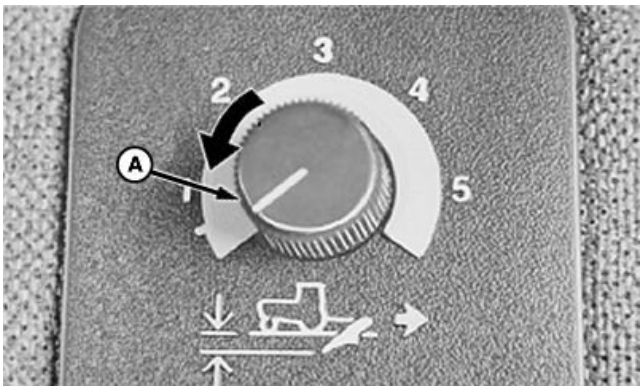
Attaching Two-Point Hitch to Tractor Without Quick-Coupler

IMPORTANT: Set tractor rockshaft load/depth control (A) in "position" setting. If tractor rockshaft control is set to load sensing, the drill tongue will raise and lower with an increase or decrease of drill draft load. This will result in uneven seed depth as drill is operated across the field.

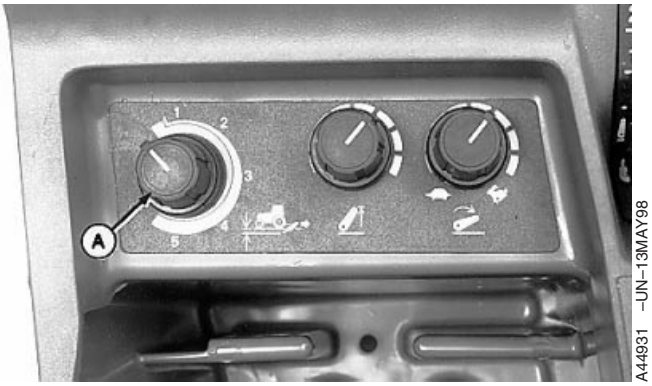
NOTE: Refer to the tractor operator's manual for specific tractor adjustments.

Set the rockshaft hitch/load depth control (A) for "POSITION SENSING" to prevent unexpected hitch movement.

A—Load/Depth Control



55—60 Series

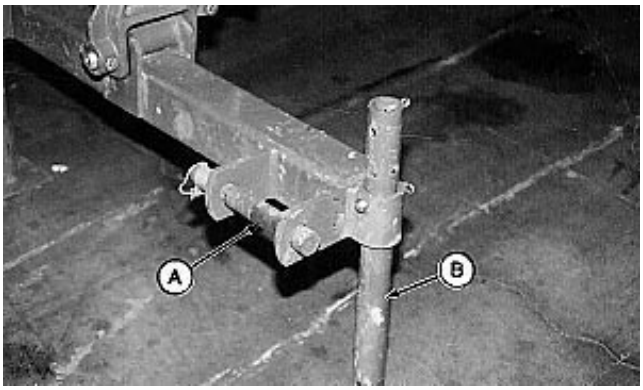


8000 Series

AG,OUO1074,484 –19–22FEB00–1/2

NOTE: Before attaching machine to tractor, be sure hitch pins and spacers are completely assembled to match the hitch configuration of your tractor.

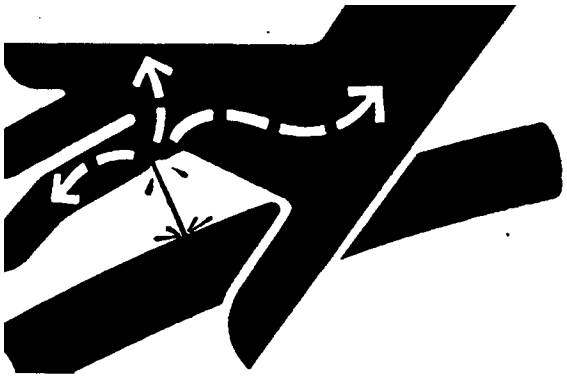
1. Back tractor and align draft links with hitch pins (A).
2. Stop engine and set brakes.
3. Extend draft links and adjust length of lift links to allow installation of hitch pins.
4. Install pins through draft links and retain with quick-lock pins.
5. Raise parking stands (B) and pin in transport position.



A—Hitch Pins
B—Parking Stands

AG,OUO1074,484 –19–22FEB00–2/2

Attaching Hydraulic Hoses



X9811 –UN–23AUG88

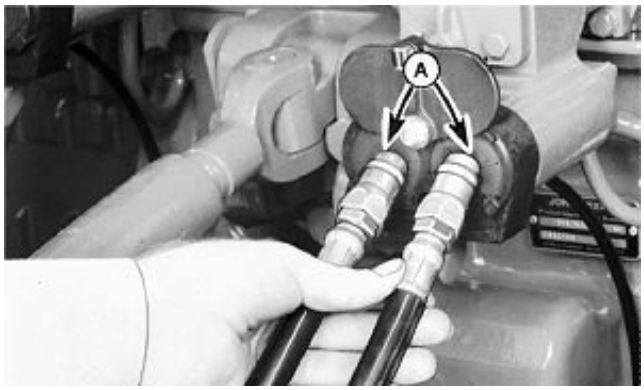
CAUTION: Escaping fluid under pressure can penetrate the skin, causing serious injury to you or others. Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure. Search for leaks with a piece of cardboard. Protect hand and body from high pressure fluids.

If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result.

CAUTION: Hydraulic hoses can fail due to physical damage, kinks, age and exposure. Check hoses regularly and replace as necessary.

1. Connect down-pressure hoses to SCV I (A).
2. Connect marker hoses, if equipped, to SCV II.

A—SCV I

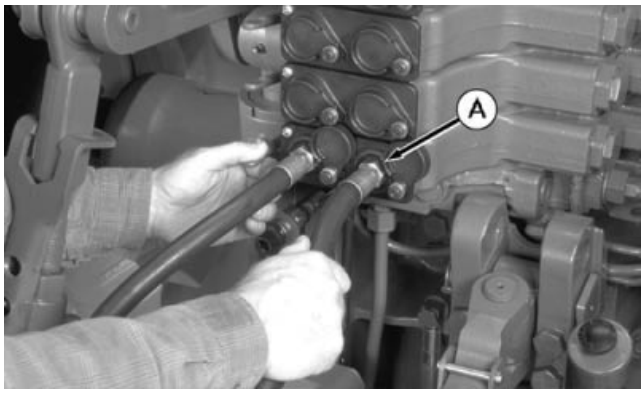


RW5887 –UN–07DEC88

With Mechanical SCV Controls

RW21240 –UN–18JUN92

With Mechanical SCV Controls



RW55304 –UN–28JUN94

With Electro/Hyd. SCV Controls

OUO6074,0000167 –19–05DEC00–1/1

Attaching Warning Light Plug

Attach warning light plug to seven-terminal electrical outlet.

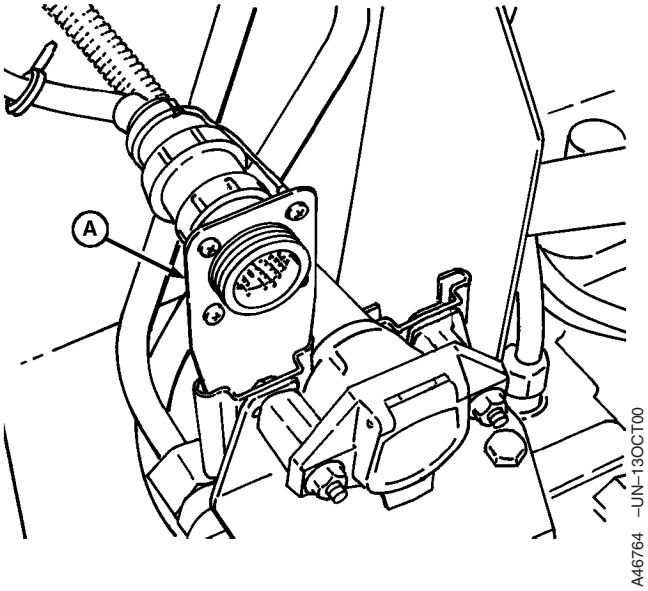
Seven-Terminal Electrical Outlet

AG,OUO1074,487 –19–22FEB00–1/1

COMPUTER TRAK® 150 and 250 Monitor Hook-Up

Connect machine monitor harness to connector (A).

A—Monitor Connector



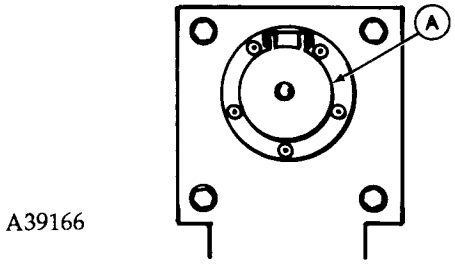
COMPUTER TRAK is a trademark of Deere & Company

OUO6074,000016F –19–06DEC00–1/1

SEEDSTAR® Monitor Hook-up

Connect machine monitor harness to connector (A).

A—Connector



A39166 –UN–28FEB96

SEEDSTAR is a trademark of Deere & Company

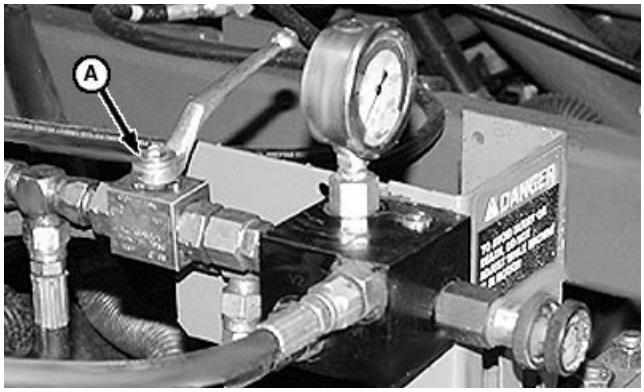
OUO6074,0000170 –19–06DEC00–1/1

Opening and Closing Opener Lock-Up Valve

After making hydraulic hose connections to tractor, open lock-up valve (A) and check rockshaft control operation.

Before transporting, raise openers fully using rockshaft cylinders and close lock-up valve.

A—Lock-Up Valve



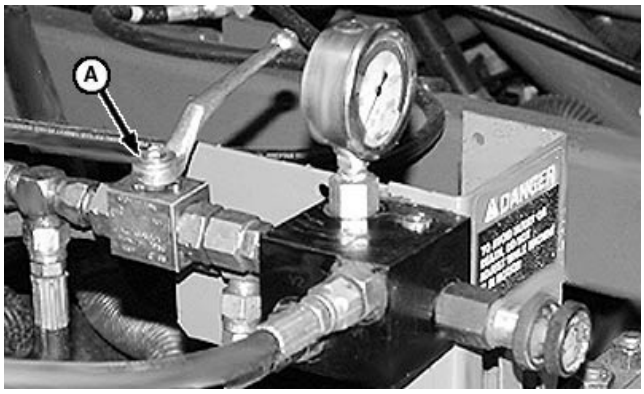
N50080M –UN–05FEB99

AG,OUO1074,488 –19–22FEB00–1/1

Checking Rockshaft/Opener Control Operation

1. Open lock-up valve (A).

A—Lock-Up Valve



N50080M –UN–05FEB99

Continued on next page

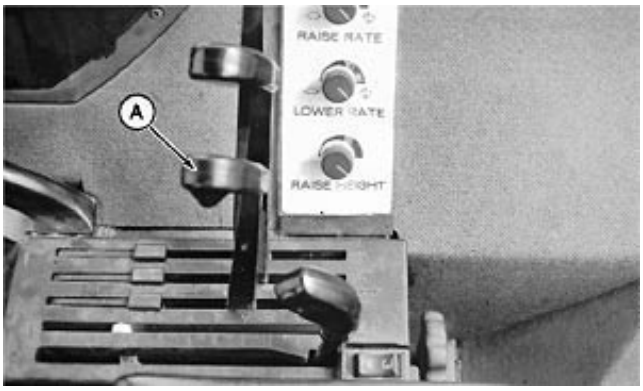
AG,OUO1074,489 –19–22FEB00–1/2

2. Place tractor transmission in “park” and/or set brakes; then start engine and pull back on SCV I control lever (A) until rockshaft cylinders are fully retracted.

3. Move SCV I control lever back and forth several times while observing the operation of the openers. The openers should raise when the lever is pulled back, and lower when the lever is pushed forward. If action is reversed, reverse hose connections in SCV I hydraulic coupler.

4. After attaching and cycling cylinders, check tractor hydraulic oil reservoir. Add oil if necessary.

A—SCV I Control Lever

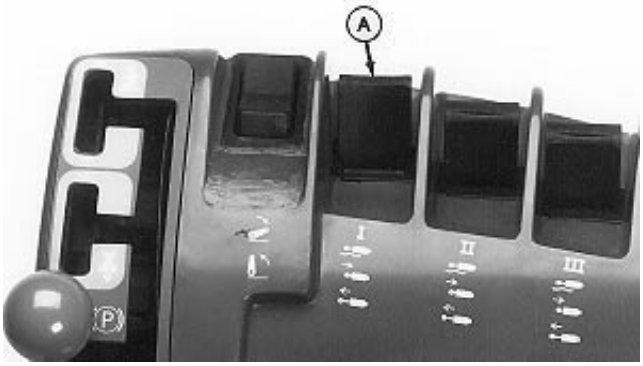


N45491 –UN–23SEP93

With Mechanical SCV Controls

RW21854 –UN–21AUG92

With Mechanical SCV Controls

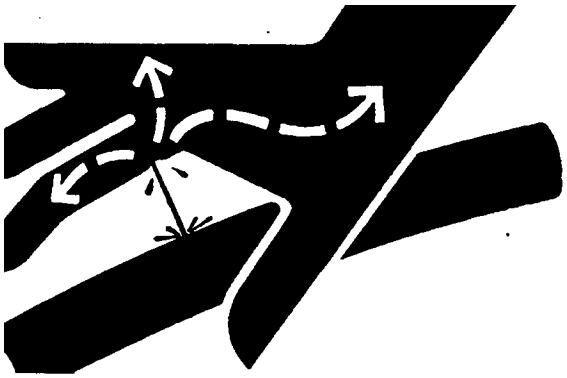


N48107 –UN–01JUN94

With Electro/Hyd. SCV Controls

AG,OUO1074,489 –19–22FEB00–2/2

Detaching Drill from Tractor



X9811 –UN–23AUG88

CAUTION: Serious personal injury can result if you attempt to disconnect hydraulic hoses under pressure.

Tractors with Mechanical SCV Controls: Shut off tractor engine and work levers back and forth before disconnecting hoses to prevent a sudden accident that could cause severe injury to yourself.

Tractors with Electro/Hydraulic SCV Controls: Place SCV controls in “float” position before disconnecting hoses to prevent a sudden accident that could cause severe injury to yourself.

1. Lower openers to ground.
2. Tractors with Mechanical SCV Controls: Shut off tractor engine and work levers back and forth.

   Tractors with Electro/Hydraulic SCV Controls: Place SCV controls in “float” position before disconnecting hoses.

Continued on next page

AG,OUO1074,490 –19–22FEB00–1/3

3. Disconnect hydraulic hoses (A) from tractor.

4. Lower storage stand(s) or jack to ground.

5. Detach warning light plug from tractor.

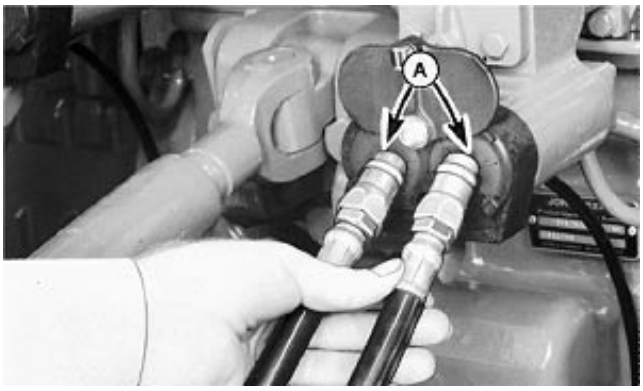
CAUTION: To help prevent personal injury caused by unexpected movement of machine:

- **Park machine on level surface.**
- **Block drill tires.**
- **Be sure no upward force exists at hitch connection before removing hitch pin.**

6. Caster and Simple Hitch: Remove hitch pin and safety chain to separate tractor from drill.

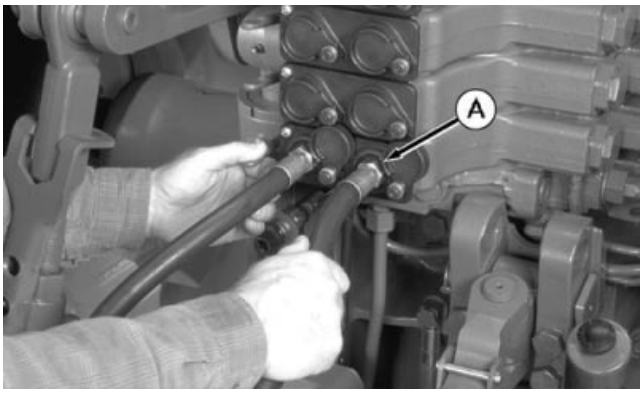
   Two-Point Hitch: Lower parking stands to ground and detach drill from tractor.

A—Hydraulic Hoses



With Mechanical SCV Controls

With Mechanical SCV Controls

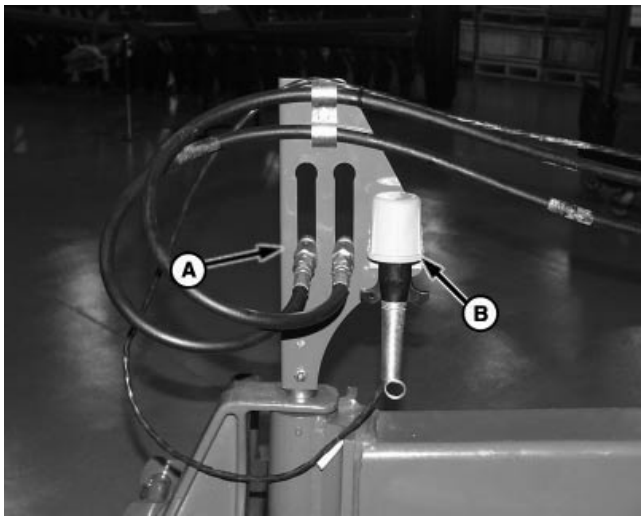


With Electro/Hyd. SCV Controls

Continued on next page AG,OUO1074,490 –19–22FEB00–2/3

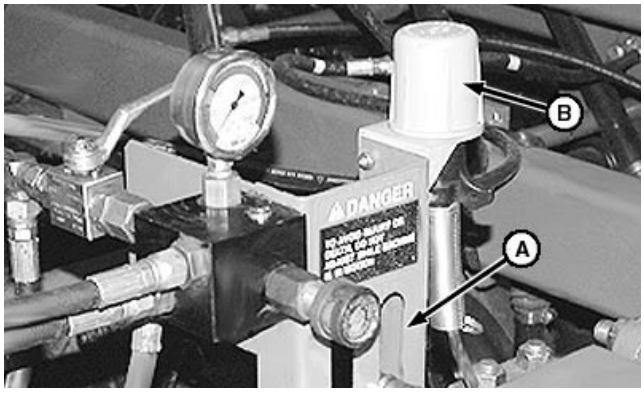
7. Store hydraulic hoses in bracket (A) and warning light plug in receptacle (B).

A—Bracket
B—Receptacle



N52698 –UN–11MAR00

Two-Point Hitch



N50080N –UN–05FEB99

Caster and Simple Hitch

AG,OUO1074,490 –19–22FEB00–3/3

Transporting

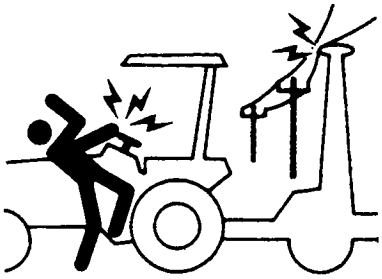
Transporting the Machine

CAUTION: Travel at a reasonable and safe speed. Do not exceed weight and speed guidelines shown in Tow Loads Safely found in the Safety section. Reduce speed considerably when traveling over rough ground.

Reduce speed when turning. Do not uncouple tractor brake pedals and apply the tractor brakes individually in an attempt to make a shorter turn.

Serious injury or death can result from contact with electric lines. Use care when moving or operating this machine near electrical lines to avoid contact. Know the transport height of your machine.

N39084 –UN–30MAR89



N39394 –UN–06OCT88

AG,OUO1074,498 –19–22FEB00–1/1

Keep Riders Off Machine

CAUTION: Keep riders off. Riders are subject to injury such as being struck by foreign objects and being thrown off the machine. Riders also obstruct the operator's view resulting in the machine being operated in an unsafe manner.

N43834 –UN–20SEP91

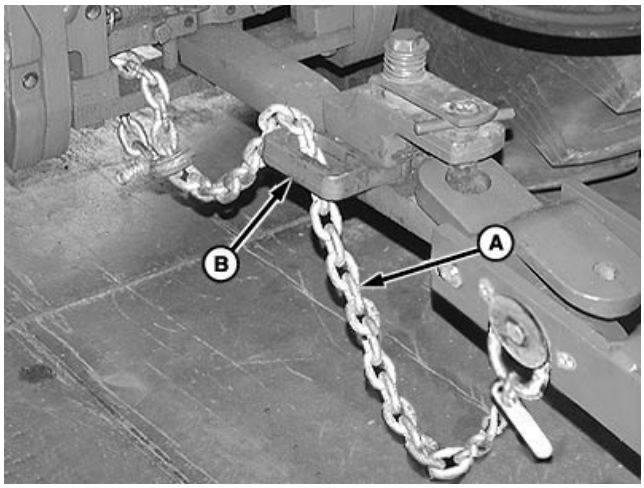
AG,OUO1074,499 –19–22FEB00–1/1

Attach Safety Chains—Drawn Drills

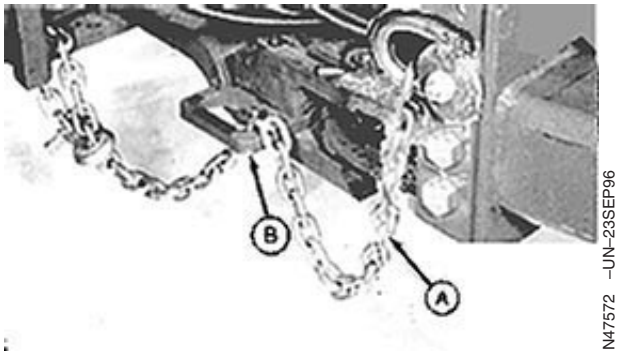
CAUTION: Safety chains will help control drawn equipment should it accidentally separate from the drawbar while transporting. A runaway machine could cause severe injury or death to someone. Using appropriate adapter parts, attach chain to the tractor drawbar support. Provide only enough slack in the chain to permit turning. See your John Deere dealer for a chain with a strength rating equal to or greater than the gross weight of the towed machine.

Be sure safety chain (A) is attached to hitch and tractor and passes through intermediate safety chain support (B) as shown.

A—Safety Chain
B—Chain Support



Caster Hitch



Simple Hitch

AG,OUO1074,491 –19–22FEB00–1/1

Using Warning Lights, SMV and Reflectors

CAUTION: When transporting the machine on a road or highway, at night or during the day, use accessory lights and devices for adequate warning to operators of other vehicles. Check local governmental regulations. Various safety devices are available from your John Deere dealer. Keep safety items in good condition. Replace missing or damaged items.

1. Check that warning lights are clean and in proper working condition. Clean or replace as necessary.

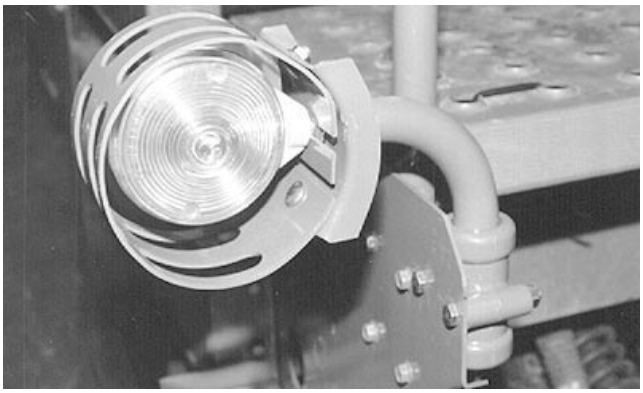
Continued on next page

AG,OUO1074,492 –19–22FEB00–1/4

A lighting enhancement module (A) has been incorporated into the lighting circuit. This module causes red tail lights to function as turn signals. During normal transport, both amber warning lights will flash in unison at high intensity and both red lamps will illuminate at low intensity.

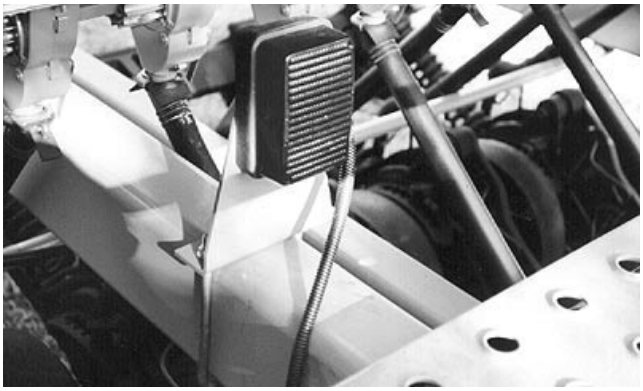
When a turn is signaled, the red tail lamp in direction of turn will flash at high intensity and in unison with the amber lamp in direction of turn. The opposite side amber and red lamps will illuminate steady at high intensity.

A—Lighting Enhancement Module



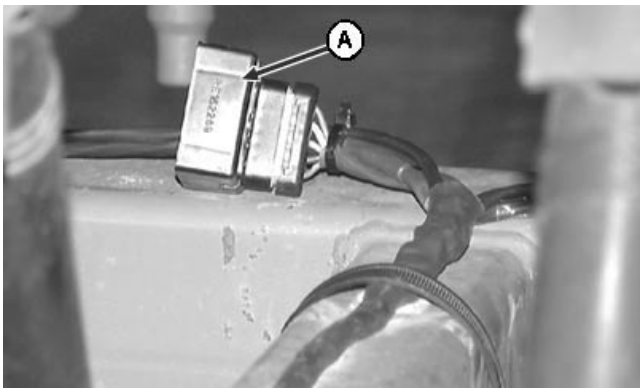
N49819 –UN–20APR98

Amber Light



N49831 –UN–20APR98

Red Light



N49857 –UN–05MAY98

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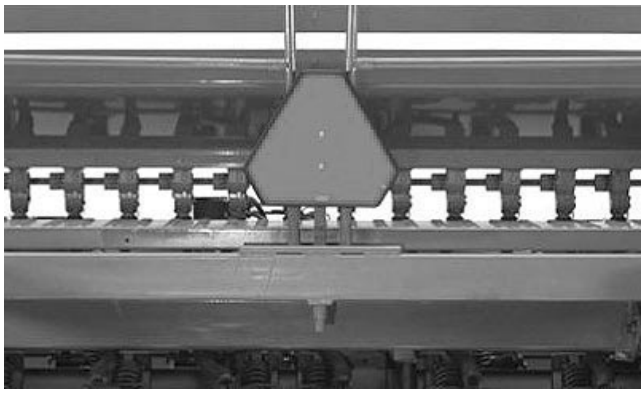
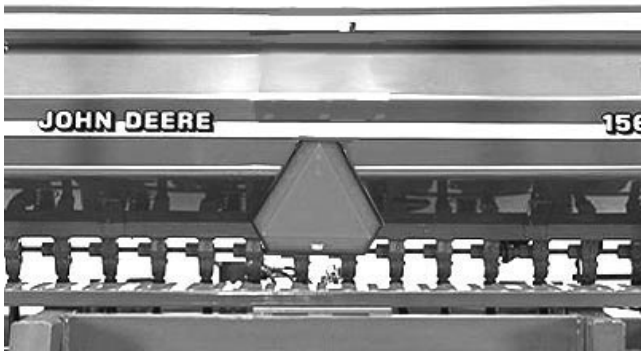
AG,OUO1074,492 –19–22FEB00–2/4

2. Make sure SMV emblem is in place and clean.



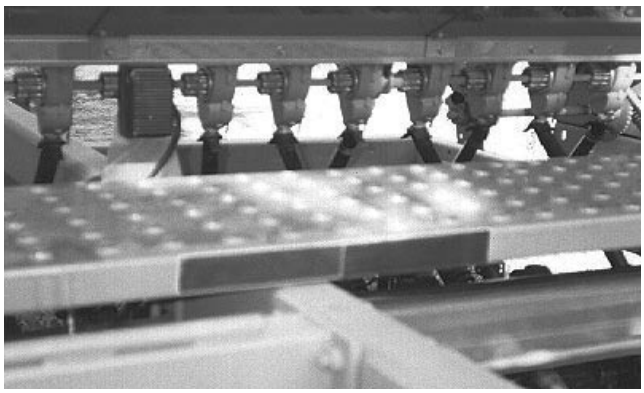
15 Ft and 20 Ft Drills



10 Ft Drill

AG,OUO1074,492 –19–22FEB00–3/4

3. Make sure reflectors are in place and clean.

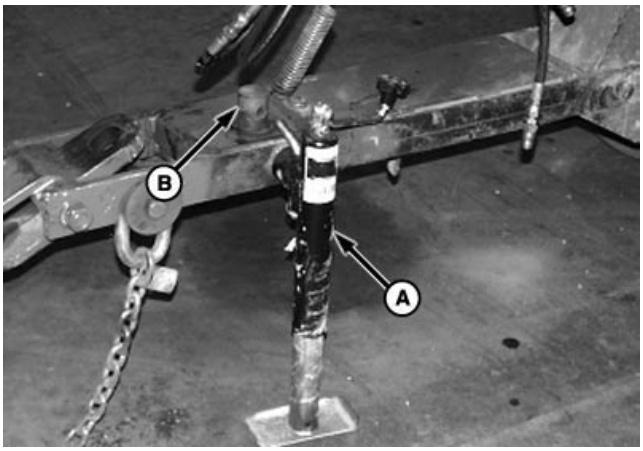


AG,OUO1074,492 –19–22FEB00–4/4

Moving Storage Stand to Transport Position

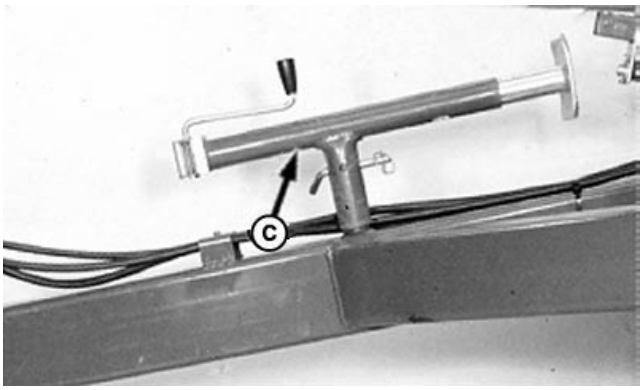
Once drill is attached to tractor, move storage stand (A) to transport position (B) on caster wheel hitch. On simple hitch, relocate jackstand (C) as shown. On two-point hitch, raise stand (D) to transport position.

A—Stand
B—Transport Position
C—Jackstand
D—Stand



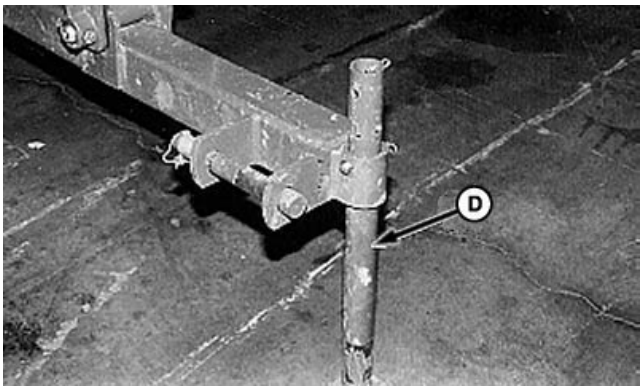
N52739 –UN–03APR00

Caster Wheel Hitch



N52740 –UN–14MAR00

Simple Hitch



N52745 –UN–14MAR00

Two-Point Hitch

AG,OUO1074,493 –19–22FEB00–1/1

Locking Up Openers

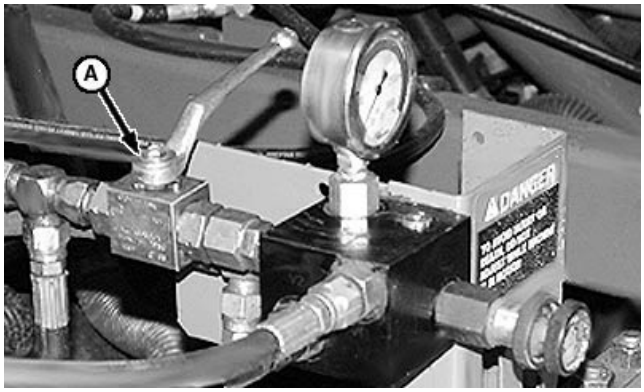
IMPORTANT: Transport grain drill with depth control cylinders fully retracted and lock-up valve closed.

1. Completely raise openers.

AG,OUO1074,494 –19–22FEB00–1/2

2. Rotate transport lock-up valve handle (A) fully clockwise to lock-up openers.

A—Lock-Up Valve Handle



N50080M –UN–05FEB99

AG,OUO1074,494 –19–22FEB00–2/2

Locking Up Markers

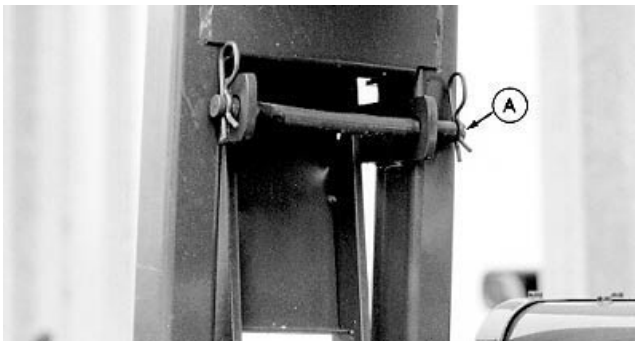
1. Raise markers to upright position.

Continued on next page

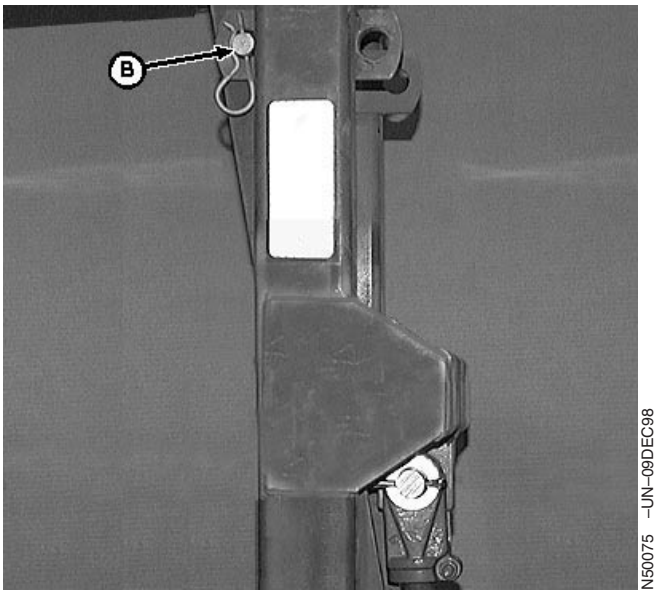
AG,OUO1074,495 –19–22FEB00–1/2

2. Remove transport pin from storage position (A). Install in lock position (B).

A—Storage Position
B—Lock Position



Storage Position



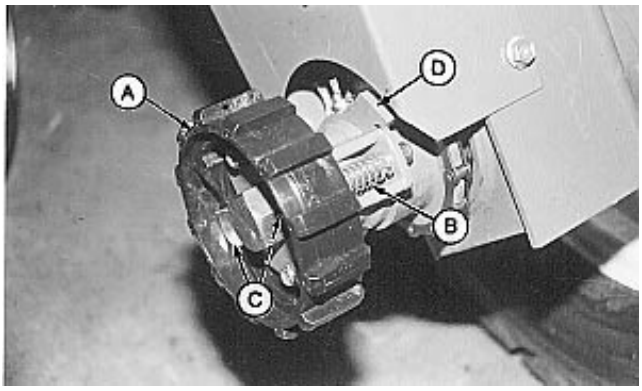
Lock Position

AG,OUO1074,495 –19–22FEB00–2/2

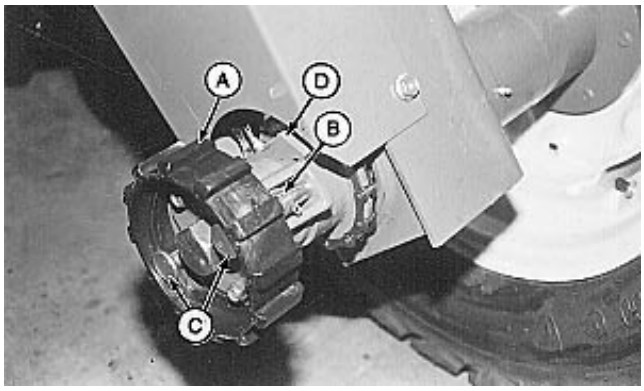
Disengage Drive—3 m (10 ft) and 4.6 m (15 ft)

Before transporting drill, be sure drive is disengaged. To move from engaged to disengaged position, turn outside cam (A) until springs (B) are compressed and pins (C) slide toward outside edge of cam. Drive is disengaged when pins move outward so inner ends no longer make contact with sprocket “ears” (D).

A—Cam
B—Springs
C—Pins
D—Sprocket “ears”



Drive Engaged



Drive Disengaged

AG,OUO1074,496 –19–22FEB00–1/1

Disengage Drive—6.1 m (20 ft)

Drive wheel (A) is attached to rockshaft. When openers are raised, drive wheel is raised off ground and disengaged.

A—Drive Wheel

AG,OUO1074,497 –19–22FEB00–1/1

Operating the Machine

Keep Riders Off Machine

CAUTION: Keep riders off. Riders are subject to injury such as being struck by foreign objects and being thrown off the machine. Riders also obstruct the operator's view resulting in the machine being operated in an unsafe manner.

N43834 –UN–20SEP91

AG,OUO1074,500 –19–22FEB00–1/1

Follow Safe Operating Procedures

CAUTION: To help prevent severe injury or death to you or someone else:

Keep all persons away from machine when raising and lowering markers.

Follow all recommended operating procedures:

Operate drill from the tractor seat only.

Do not operate close to a ditch or creek.

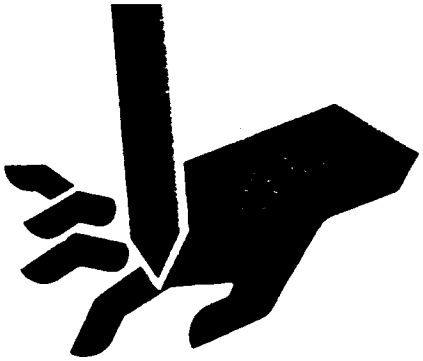
Slow down when turning or traveling over rough ground.

Shut off tractor and shift to "Park" or set brakes when leaving tractor. Remove key when leaving tractor unattended.

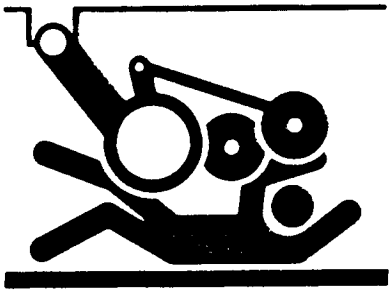
Keep hands away from opener disks during opener adjustment.

Lock up opener lift cylinders before performing any maintenance or adjustments under machine.

N39213 –UN–22SEP88



N39627 –UN–22SEP88



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AG,OUO1074,501 –19–22FEB00–1/1

Use The Tractor Operator's Manual

Always refer to the tractor operator's manual for specific detailed information regarding operation of this equipment.

Following tractor related information uses John Deere tractors to illustrate preparation, attachment and operational procedures needed for the 1560 Grain Drill. Use the tractor operator's manual for detailed information, as procedures will vary by equipment.

TS190 –UN–17JAN89

OUO6074,0000168 –19–05DEC00–1/1

Guidelines for Use

CAUTION: Handle and apply fertilizers and chemically treated seeds according to manufacturer's recommendations to keep from being severely injured.

IMPORTANT: To avoid metal corrosion and feed shaft binding or "freezing", clean out all treated seed in box before storing drill (even over night).

1. Use recommended size tractor (see Specifications section).
2. Operate at a ground speed of 6 km/h to 10 km/h (4 mph to 6 mph).
3. Raise openers out of ground before backing up or making sharp turns in field.
4. Start moving forward before lowering openers.
5. Adjust openers individually to equalize seeding depth.
6. Turn feed shaft BY HAND before adding seed if drill has been standing for a long period of time. If treated seed is used, turn shaft whenever drill has been standing for an hour or longer.
7. Check tire pressure before seeding.
8. Check seed rates.
9. Perform necessary adjustments to achieve proper seed placement. See Preparing The Machine section.

OUO6074,0000169 –19–05DEC00–1/1

Leveling Drill—Simple Hitch

Level operation requires that the simple hitch link be positioned flat and level to the tractor drawbar.

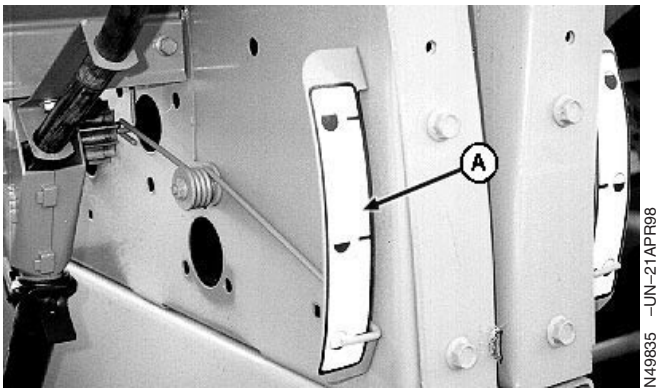
A variety of hitch link positions are available. Hitch position holes are in increments of 57 mm (2.25 in.). If repositioning the hitch link to a different set of holes raises or lowers the front of the frame too far beyond level, hitch link can be turned over and returned to its original set of holes for a half-adjustment. Due to its offset shape, turning the link over changes hitch height by 28.5 mm (1.125 in.).

AG,OUO1074,442 –19–22FEB00–1/1

Checking Product Level

Use gauge (A) to determine how much product is in box.

A—Gauge



20 Ft 1560 Shown

AG,OUO1074,504 –19–22FEB00–1/1

Understanding Active Hydraulic Opener Down-Pressure System

NOTE: Active hydraulic down-pressure system requires tractor be equipped with closed center or pressure/flow compensated hydraulics.

If tractor has open-center hydraulics, see your John Deere dealer for installation of an Open-Center Hydraulic Kit with Change Valve.

When adjusting active hydraulic down-pressure, it is important to keep the following in mind:

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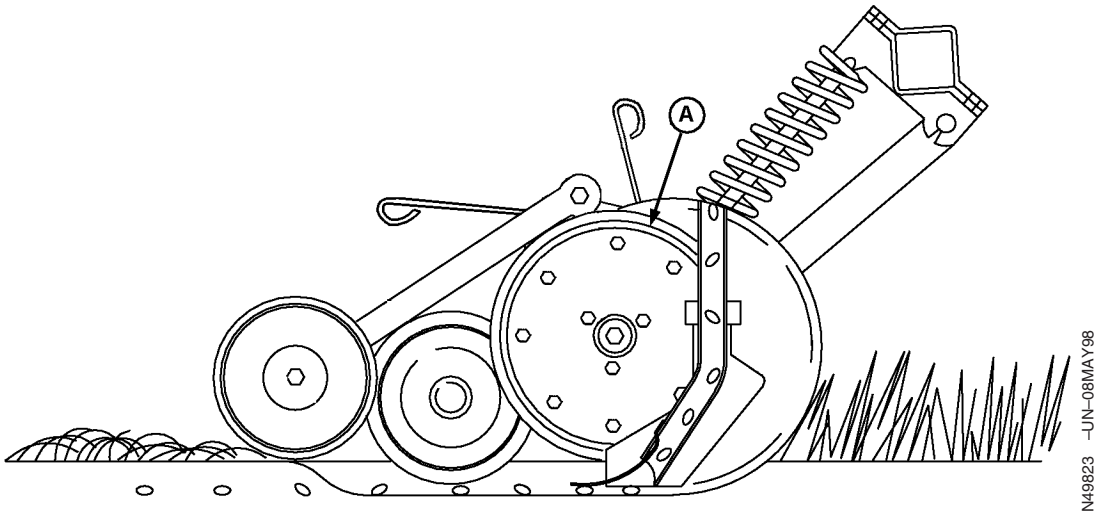
OUO6074,000016A –19–05DEC00–1/3



1560 Shown, 1565 Similar

A—Gauge Wheels

Active hydraulic system keeps the opener gauge wheels in contact with the soil surface to follow ground contours over uneven terrain. Mechanical setting at the gauge wheels (A) determines seed depth, not hydraulic pressure.

The amount of down-pressure needed to keep gauge wheels in contact with surface depends upon soil hardness, moisture and residue cover.

Too little down-pressure causes insufficient spring compression and inconsistent opener penetration resulting in uneven seed depth.

Do not use more down-pressure than necessary for openers to penetrate soil and to maintain firm contact between gauge wheels and surface.

Too much or too little down-pressure will effectively change opener arm operating angle, causing front (leading) or rear (trailing) of gauge wheel to contact surface, resulting in inaccurate and/or uneven seed placement.

Rear (transport) wheels lifting off the ground is an indication of excessive down-pressure and/or insufficient ballast.

Continued on next page OUO6074,000016A –19–05DEC00–2/3

IMPORTANT: Too much down-pressure can lift the rear of the drill, resulting in uneven opener penetration and variations in seeding depth. Never use so much down-pressure that the rear transport wheels lift off seed bed as this causes over-rotation of the openers (beyond normal operating angle) which changes the relationship of disk openers, seed boots and gauge wheels to the ground which adversely affects seed placement.

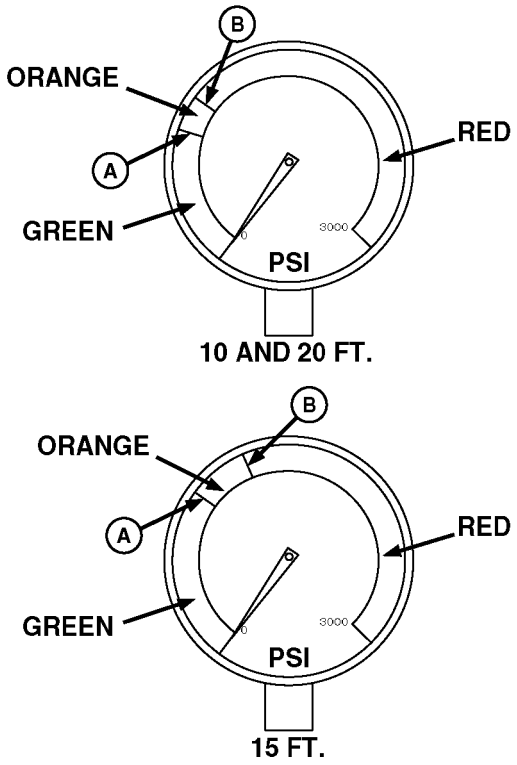
In addition, excessive down-pressure increases wear on components.

Use only as much down-pressure as necessary to achieve consistent operating depth.

GREEN ZONE pressures are normally used when drilling in conventionally tilled fields with loosened soil. In some clean-till conditions, it may be necessary to operate with 0 psi showing on gauge to prevent openers from bulldozing. Do not operate a non-ballasted drill above the high limit of the green zone (A).

ORANGE ZONE pressures between (A) and (B) are used in min-till to no-till fields when additional ballast is needed to keep gauge wheels in contact with the surface. Operating a non-ballasted drill in this pressure range may result in inaccurate seed placement.

RED ZONE pressures, above high limit of orange zone (B), are not used. As the seed box empties there is not enough weight available, even if cast ballast has been added.



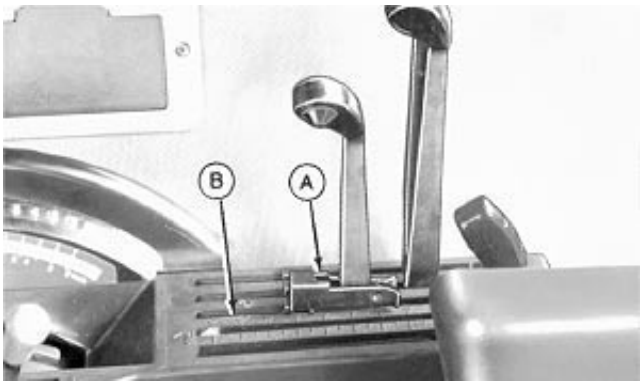
A—Green Zone
B—Orange Zone

OUO6074,000016A –19–05DEC00–3/3

Locking SCV Lever for Active Down-Pressure Operation

NOTE: Clip keeps lever from returning to neutral to provide constant oil pressure to the down-pressure valve, as required, to maintain your chosen pressure setting.

55—60 Series Tractors: Lever lock clip (A) must be used to hold opener control lever in the down-pressure position (B). (To install lever lock clip see INSTALLING LEVER LOCK in Preparing The Tractor section.)



A—Lever Lock Clip
B—Down-Pressure Position

OUO6074,000016B –19–05DEC00–1/3

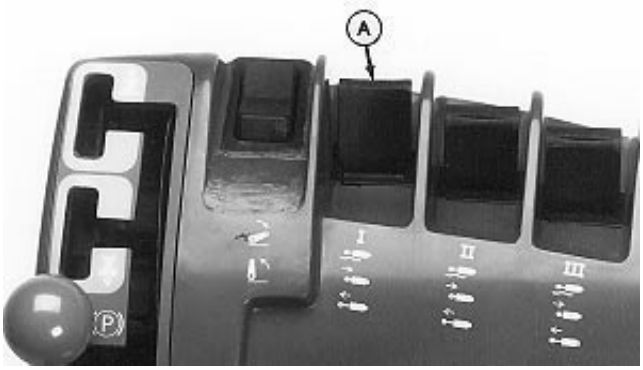
6000, 6010, 7000 and 7010 Series Tractors: Rotate valve detent selector (A) to continuous detent to lock lever in forward position. Adjust flow rate valve (B) to rabbit position.

A—Detent Selector
B—Flow Rate Valve

OUO6074,000016B –19–05DEC00–2/3

Electro/Hydraulic SCV Controlled Tractors: Push SCV I control (A) forward until detent click is heard. With SCV I time knob set to “continuous”, constant oil pressure will go to the down-pressure valve, as required, to maintain the chosen pressure setting.

A—SCV I



OUO6074,000016B –19–05DEC00–3/3

Adjusting Opener Down-Pressure—Tractors with Electro/Hydraulic Closed Center Systems

IMPORTANT: Adjust opener down-pressure, as required, to keep gauge wheels in firm contact with soil, but DO NOT use more down-pressure than necessary or damage to machine could result.

NOTE: Active hydraulic system requires a tractor with closed-center or pressure/flow compensated hydraulics.

1. Refer to UNDERSTANDING ACTIVE HYDRAULIC OPENER DOWN-PRESSURE SYSTEM and determine initial pressure setting.

Continued on next page

AG,OUO1074,507 –19–22FEB00–1/2

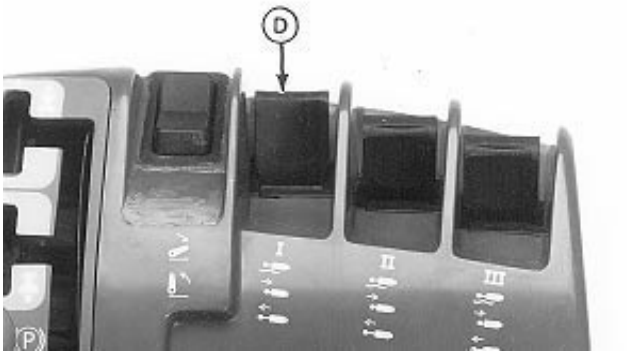
2. Push lever (D) forward until the detent click is felt. Time detent must be set to “continuous”.

3. While watching pressure gauge (B), adjust down-pressure to desired setting by rotating knob (A). Once set, lock knob in position with wheel (C). If gauge needle does not move, see Troubleshooting section in this manual.

4. Make a trial pass in the field.

5. If opener penetration is not satisfactory, adjust hydraulic pressure for more down-force. If gauge wheel contact is adequate but depth of penetration is not, see OPENER COMPONENTS AND ADJUSTMENTS and ADJUSTING GAUGE WHEEL AND SEEDING DEPTH in Preparing The Machine section.

A—Knob
B—Pressure Gauge
C—Wheel
D—Lever



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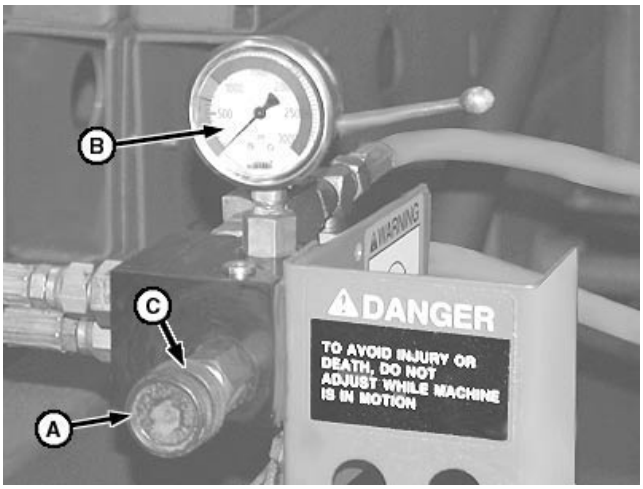

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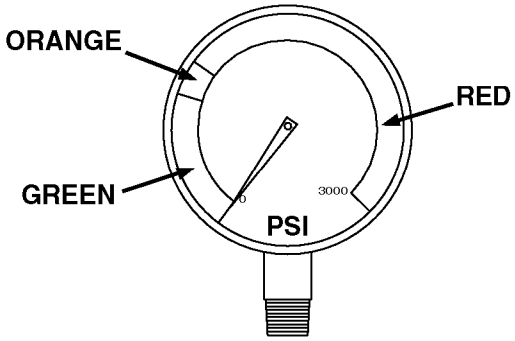


A37910 –19–06SEP95

AG,OUO1074,507 –19–22FEB00–2/2

Adjusting Opener Down-Pressure—Tractors with Mechanical SCV Controlled Closed Center Systems

IMPORTANT: Adjust opener down-pressure, as required, to keep gauge wheels in firm contact with soil, but DO NOT use more down-pressure than necessary or damage to machine could result.

NOTE: Active hydraulic system requires a tractor with closed-center or pressure/flow compensated hydraulics.

1. Refer to UNDERSTANDING ACTIVE HYDRAULIC OPENER DOWN-PRESSURE SYSTEM and determine initial pressure setting.

2. Lower openers by pushing FORWARD on tractor control lever. Lever must be LOCKED in forward position to provide constant pressure/flow to rockshaft cylinders.

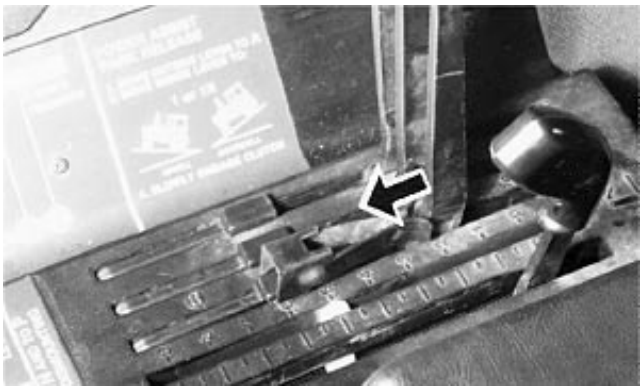
Continued on next page AG,OUO1074,508 –19–22FEB00–1/2

3. While watching pressure gauge (B), adjust down-pressure to desired setting by rotating knob (A). Once set, lock knob in position with wheel (C). If gauge needle does not move, see Troubleshooting section in this manual.

4. Make a trial pass in the field.

5. If opener penetration is not satisfactory, adjust hydraulic pressure for more down-force. If gauge wheel contact is adequate but depth of penetration is not, see OPENER COMPONENTS AND ADJUSTMENTS and ADJUSTING GAUGE WHEEL AND SEEDING DEPTH in Preparing The Machine section.

A—Knob
B—Pressure Gauge
C—Wheel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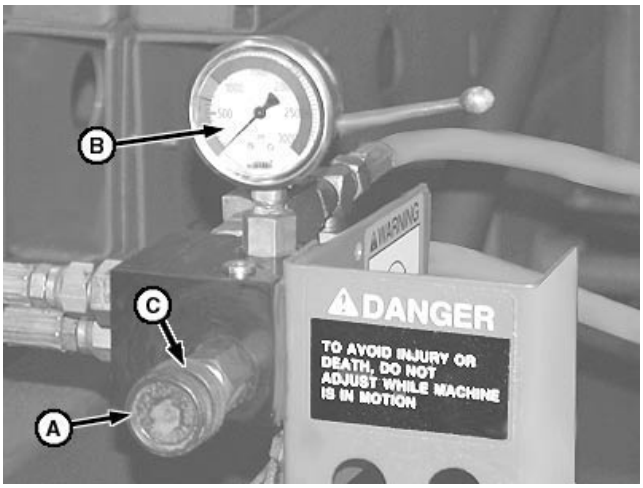

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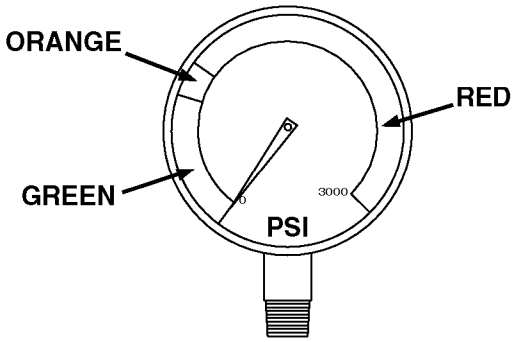

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AG,OUO1074,508 –19–22FEB00–2/2

Adjusting Opener Down-Pressure—Tractors With Open Center Hydraulic Systems

IMPORTANT: Drill MUST BE equipped with Open Center Hydraulic Kit with Change Valve if used with a tractor with an open-center hydraulic system. See your John Deere dealer for installation.

1. Refer to UNDERSTANDING ACTIVE HYDRAULIC OPENER DOWN-PRESSURE SYSTEM and determine initial pressure setting.

2. Place tractor transmission in “park” and keep engine running.

3. Lower openers by holding the SCV lever forward for a few seconds, then release. This pressurizes the opener down-pressure system.

Continued on next page

AG,OUO1074,509 –19–22FEB00–1/2

NOTE: Gauge needle will not move when knob is turned.

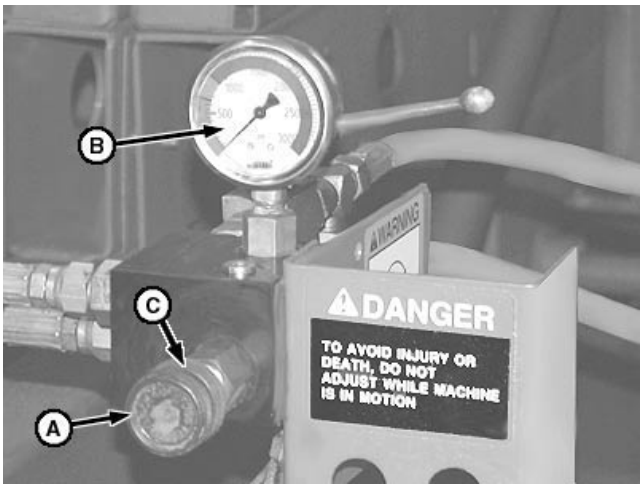
4. Rotate knob (A) to adjust down-pressure. To decrease down-pressure, turn knob counterclockwise; to increase down-pressure, turn knob clockwise. One full turn equals approximately 1724 kPa (17 bar) (250 psi). Once set, lock knob in position with wheel (C).

5. Recharge the down-pressure system by raising and lowering the openers, holding the SCV lever forward for a few seconds to pressurize the cylinders.

6. Recheck pressure gauge (B) after cycling control lever. Gauge needle should be at desired setting. If gauge needle has not moved, see OPENER DOWN-PRESSURE SYSTEM (TRACTOR WITH OPEN CENTER HYDRAULICS) in the Troubleshooting section.

7. Make a trial pass in the field.

8. If opener penetration is not satisfactory, adjust hydraulic pressure for more down-force. If gauge wheel contact is adequate but depth of penetration is not, see OPENER COMPONENTS AND ADJUSTMENTS and ADJUSTING GAUGE WHEEL AND SEEDING DEPTH in Preparing The Machine section.



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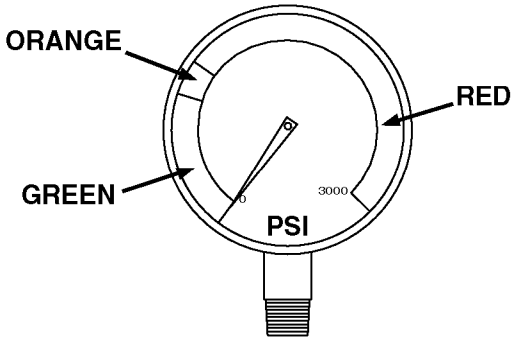


A37910 –19–06SEP95

A—Knob
B—Pressure Gauge
C—Wheel

AG,OUO1074,509 –19–22FEB00–2/2

Preparing to Operate Drill in Field

1. Make sure tractor and drill are properly prepared. See Preparing The Tractor and Preparing The Machine sections. Check that proper connections have been made. See Attaching And Detaching section. Engage drive wheel disconnect on 3 m (10 ft) and 4.6 m (15 ft) machines. See ENGAGE DRIVE WHEEL DISCONNECT in this section.

2. Place tractor transmission in “Park” and/or set brakes and start engine.

Continued on next page

AG,OUO1074,510 –19–22FEB00–1/2

3. While moving forward, lower openers into the ground by pushing SCV I (A) forward into detent lock.

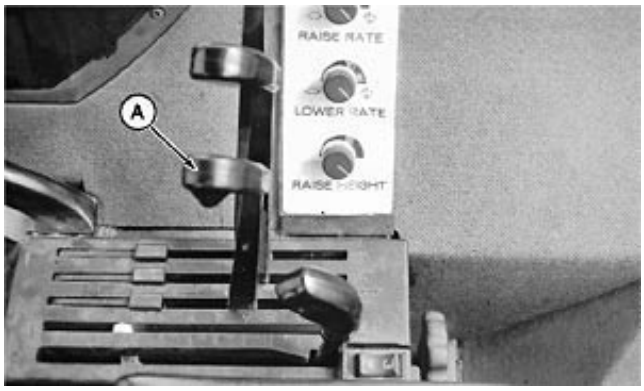
4. Operate machine normally over a test distance.

5. Stop machine and check seed placement.

   If seed placement is not as desired, make opener adjustments and/or reset active hydraulic down-pressure.

   If seed placement is as desired, return to tractor seat and continue with normal operations.

A—SCV I

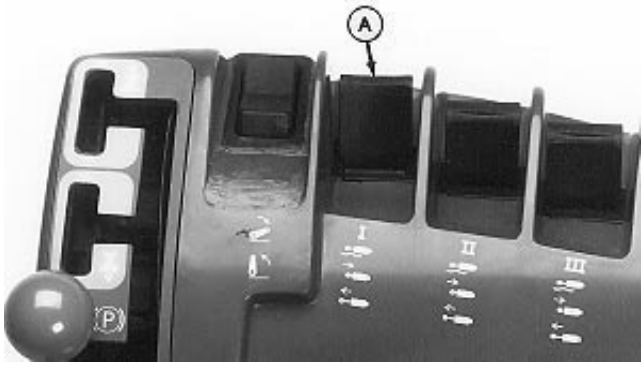


N45491 –UN–23SEP93

With Mechanical SCV Controls

RW21854 –UN–21AUG92

With Mechanical SCV Controls



N48107 –UN–01JUN94

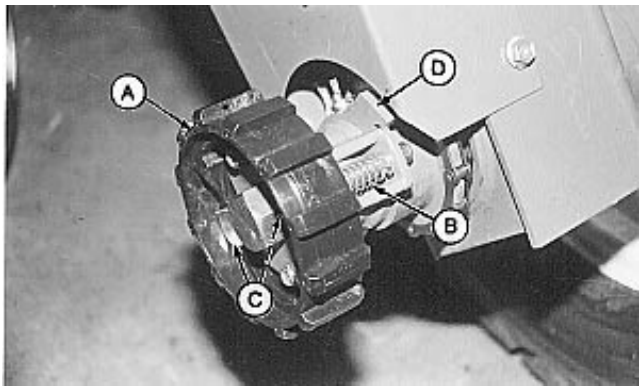
With Electro/Hyd. SCV Controls

AG,OUO1074,510 –19–22FEB00–2/2

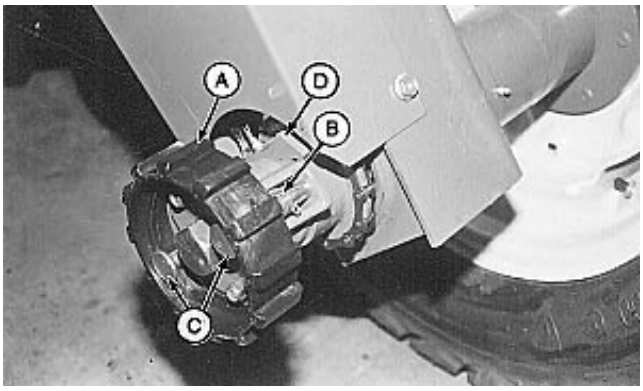
Engaging Drive—3 m (10 ft) and 4.6 m (15 ft)

Before operating 3 m (10 ft) and 4.6 m (15 ft) drills, be sure drive wheel is engaged. To move from disengaged to engaged position, turn outside cam (A) until springs (B) are released and pins (C) slide toward inside of cam. Drive system is engaged when inner ends of pins make contact with sprocket “ears” (D).

A—Cam
B—Springs
C—Pins
D—Sprocket “ears”



Drive Engaged



Drive Disengaged

AG,OUO1074,511 –19–22FEB00–1/1

Engaging Drive—6.1 m (20 ft)

Drive wheel (A) is attached to rockshaft. When openers are lowered, drive wheel is lowered to ground and engaged.

A—Drive Wheel

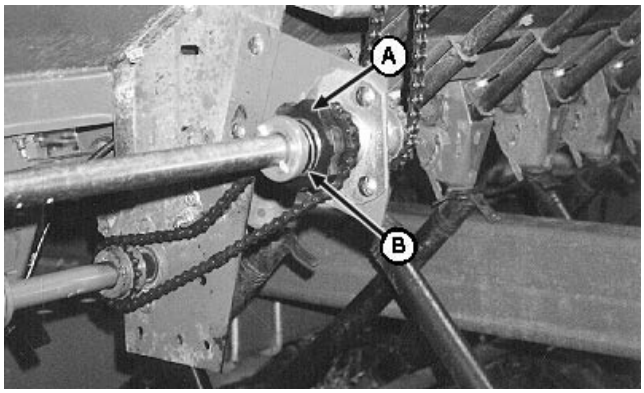
AG,OUO1074,512 –19–22FEB00–1/1

Engage/Disengage Grass Seed Drive

To engage grass seed drive, turn disconnect coupling (A) so spring (B) slides coupling slot over roll pin.

To disengage grass seed drive, pull disconnect coupling (A) to outside, turn so slot is out of alignment with roll pin and allow coupling to rest against roll pin.

A—Coupling
B—Spring



N49834 –UN–21APR98

AG,OUO1074,513 –19–22FEB00–1/1

Operating in Wet Conditions

When operating in wet conditions, a solid “ribbon” of soil can cover the furrow, creating a seed tunnel which causes slow and/or erratic emergence.

AG,OUO1074,514 –19–22FEB00–1/1

Operating Row Markers (If Equipped)

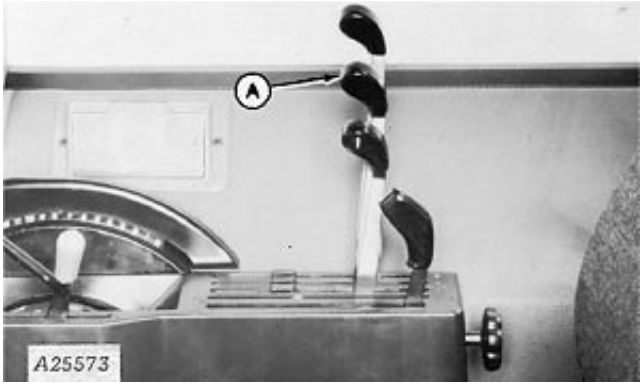
1. ONE ROW MARKER: Move SCV II tractor control lever (A) forward to lower row marker.

NOTE: Alternating valve shifts to lower opposite side marker, after extending one marker to full down position.

TWO ROW MARKERS: Move SCV II tractor control lever (A) forward to lower one row marker. Briefly move lever rearward to shift alternating valve (B) and then forward to lower opposite side marker.

2. Pull and hold lever rearward to raise row marker(s).

A—SCV Control Lever II
B—Alternating Valve

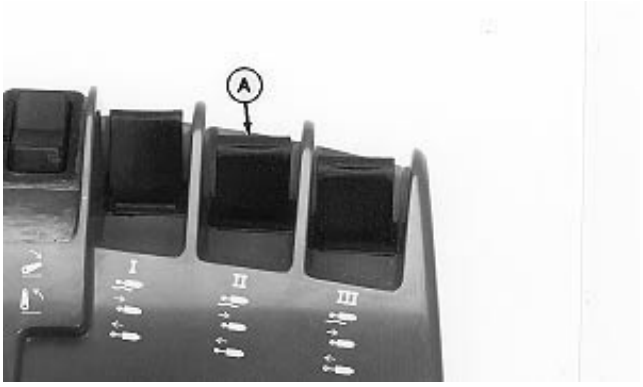


A25573 –UN–13OCT88

With Mechanical SCV Controls

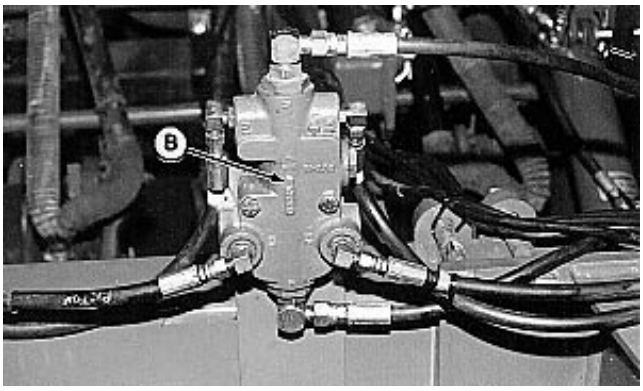
RW21854 –UN–21AUG92

With Mechanical SCV Controls



N48108 –UN–04NOV97

With Electro/Hyd. SCV Controls



N46983 –UN–24JUL95

Alternating Valve

AG,OUO1074,515 –19–22FEB00–1/1

Setting Marker Arm Length—4.6 m (15 ft) and 6.1 m (20 ft) Drills

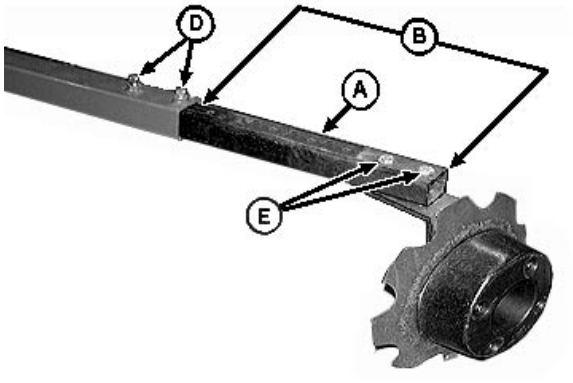
NOTE: If marker arms will not stay in adjusted position, drill set screw "dimples" in solid inner tube so marker arm stays at adjusted length when screws are tightened.

1. Loosen jam nuts and set screws (D). Set telescoping arms (A) with disk opener towards ground so approximately 482 mm (19 in.) (B) of arm is exposed.

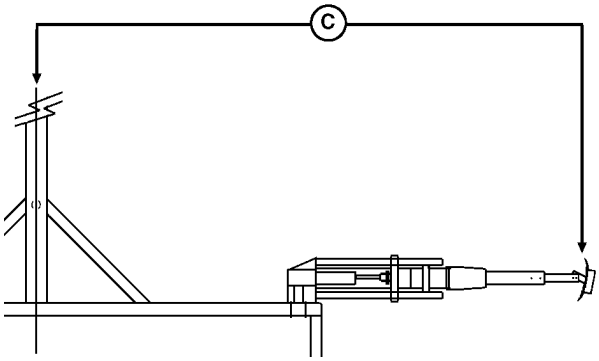
2. Adjust arm length so dimension (C) from centerline of machine to edge of marker disk is equal to the width of the machine: 4.6 m (15 ft) drill 4572 mm (180 in.) or 6 m (20 ft) drill 6096 mm (240 in.). Tighten set screws (D).

3. Loosen cap screws (E) and turn disk opener assemblies so disk angles to rear. Tighten cap screws.

A—Telescoping Arms
B—Dimension, 482 mm (19 in.)
C—Dimension Equal To Width Of Machine
D—Set Screws
E—Cap Screws



N50074 –UN–08DEC98

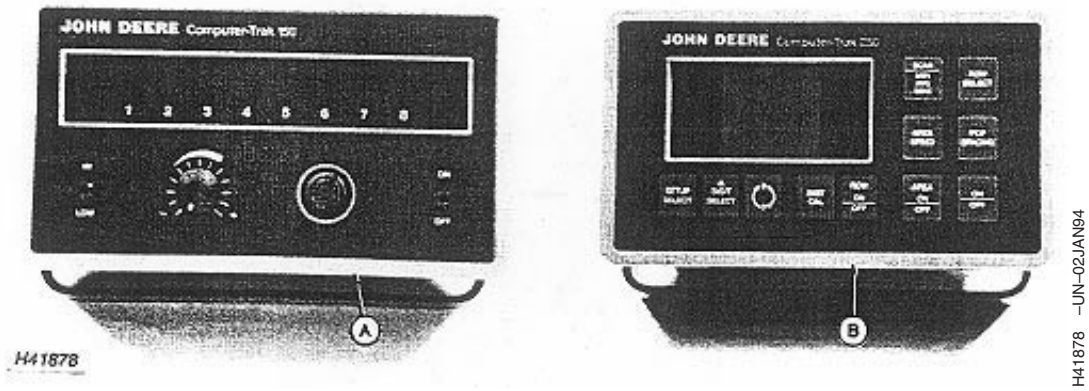


N49812A –UN–08DEC98

4.6 m (15 ft) Machine Shown

AG,OUO1074,516 –19–22FEB00–1/1

Operating Seed Monitor



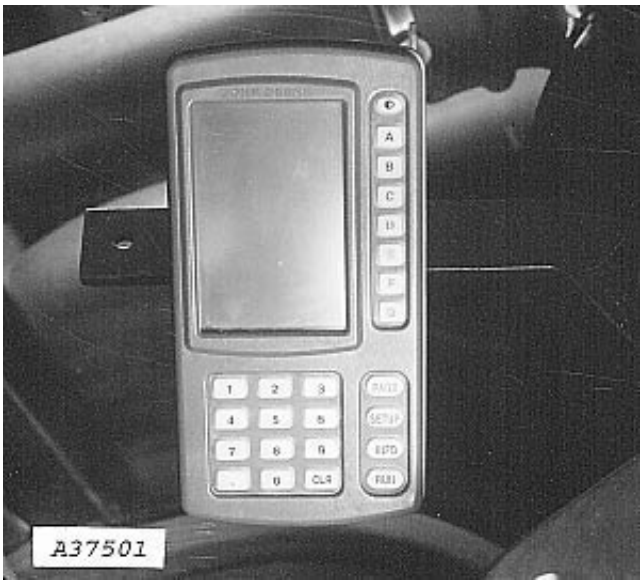
A—Model 150 **B—Model 250**

If machine is equipped with either Model 150 (A) or 250 (B), see COMPUTER TRAK® 150 Monitor and 250 Monitor Operator's Manual for operating instructions.

COMPUTER TRAK is a trademark of Deere & Company.

AG,OUO1074,518 –19–22FEB00–1/2

If machine is equipped with SEEDSTAR®, see the SEEDSTAR Monitor Operator's Manual for operating instructions.

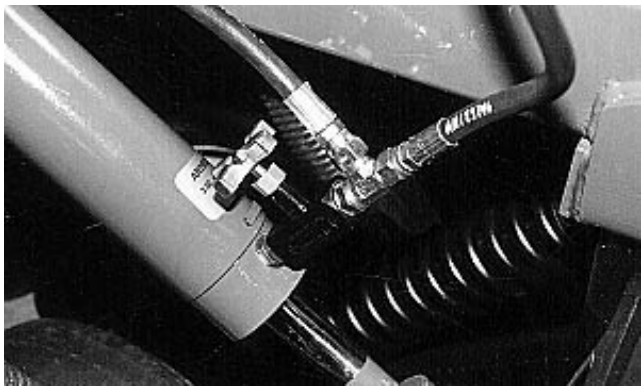


SEEDSTAR is a trademark of Deere & Company

AG,OUO1074,518 –19–22FEB00–2/2

Front Rank Lock-Up Valve

Front rank lock-up valve is available for all machines.



AG,OUO1074,519 –19–22FEB00–1/1

Half-Speed Drive

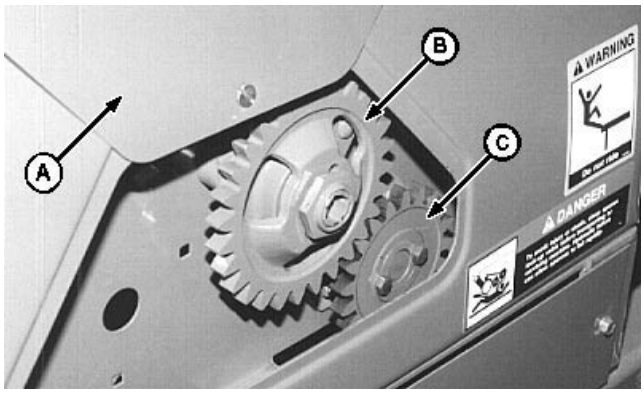
Half-speed drive system is available for all sizes of machines. See ATTACH HALF-SPEED DRIVE in this section for installation procedure.

AG,OUO1074,520 –19–22FEB00–1/1

Attach Half-Speed Drive

1. Open side panel cover (A).
2. Remove 28-tooth gear (B) and 20-tooth gear (C). Retain gear mounting hardware.

A—Cover
B—Gear, 28-Tooth
C—Gear, 20-Tooth



Continued on next page

AG,OUO1074,521 –19–22FEB00–1/2

3. Install 13-tooth gear (A) using previously removed cap screws (B).

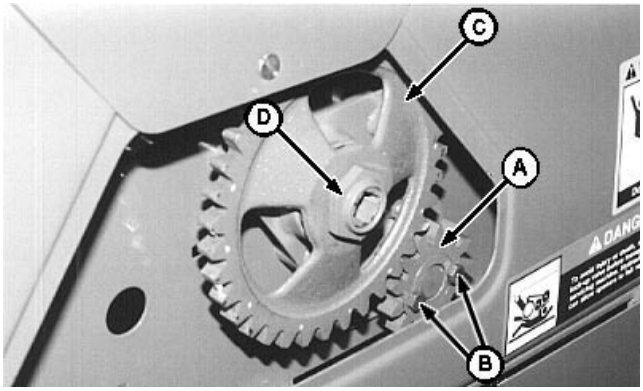
4. Install 35-tooth gear (C) with previously removed nut (D). Tighten nut to specification and close box cover.

Specification

Nut—Torque ..... 135 N•m (100 lb-ft)

5. 6.1 m (20 ft) Drills Only: Repeat procedure on opposite side box.

6. Apply half-speed drive label(s) to inside of lid(s) next to seeding chart.



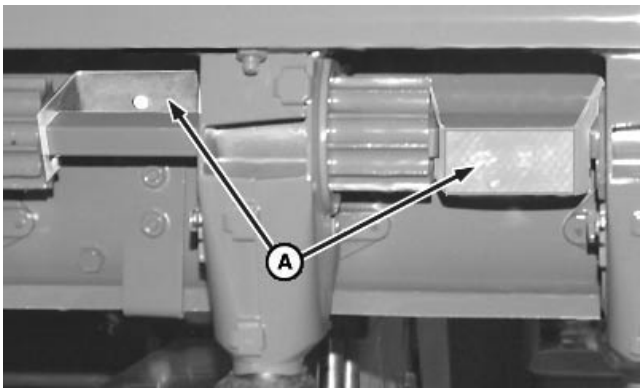
A—Gear, 13-Tooth
B—Cap Screws
C—Gear, 35-Tooth
D—Nut

AG,OUO1074,521 –19–22FEB00–2/2

Drill-Shaft Turn Indicator

The drill-shaft turn indicator (A) can be installed to help confirm the rotation of the drill-shaft. See your John Deere dealer to order.

A—Indicator



OUO6074,000016C –19–06DEC00–1/1

Lubricating and Maintaining Machine Safely

CAUTION: To help prevent personal injury caused by unexpected movement, be sure to service machine on a level surface. If machine is connected to tractor, engage parking brake and/or place transmission in "Park", shut off engine and remove key. If machine is detached from tractor, block wheels and use safety stands to prevent movement.

AG,OUO1074,522 –19–22FEB00–1/1

Grease

Use grease based on NLGI consistency numbers and the expected air temperature range during the service interval.

The following greases are preferred:

- John Deere SD POLYUREA GREASE

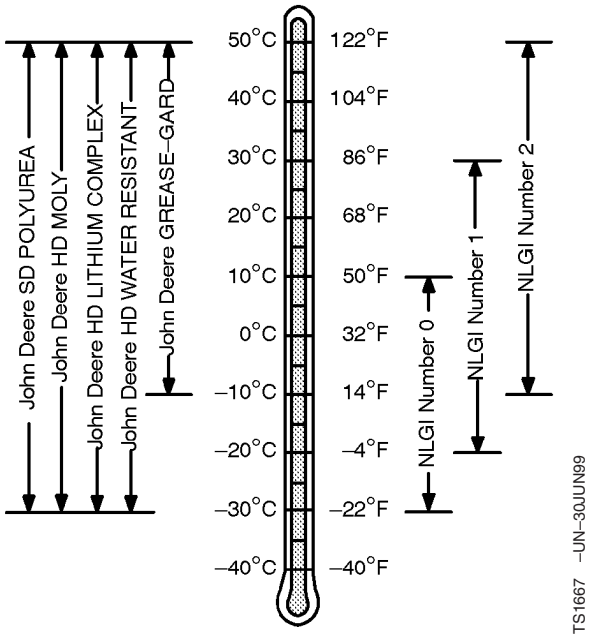
The following greases are also recommended:

- John Deere HD MOLY GREASE
- John Deere HD LITHIUM COMPLEX GREASE
- John Deere HD WATER RESISTANT GREASE
- John Deere GREASE-GARD

Other greases may be used if they meet the following:

- NLGI Performance Classification GC-LB

IMPORTANT: Some types of grease thickener are not compatible with others. Consult your grease supplier before mixing different types of grease.



DX,GREA1 –19–24JAN00–1/1

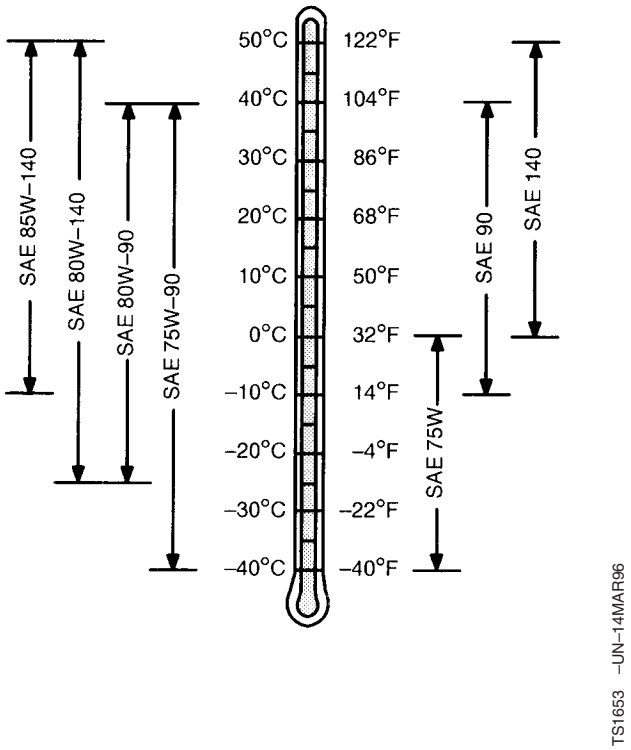
Gear Oil

Use oil viscosity based on the expected air temperature range during the period between oil changes.

The following oils are preferred:

- John Deere GL-5 GEAR LUBRICANT
- John Deere EXTREME-GARD™

Other oils may be used if they meet API Service Classification GL-5.



EXTREME-GARD is a trademark of Deere & Company.

DX,GEOIL –19–07JUL99–1/1

Alternative and Synthetic Lubricants

Conditions in certain geographical areas may require lubricant recommendations different from those printed in this manual.

Some John Deere brand coolants and lubricants may not be available in your location.

Consult your John Deere dealer to obtain information and recommendations.

Synthetic lubricants may be used if they meet the performance requirements as shown in this manual.

The temperature limits and service intervals shown in this manual apply to both conventional and synthetic oils.

Re-refined base stock products may be used if the finished lubricant meets the performance requirements.

DX,ALTER –19–15JUN00–1/1

Lubricant Storage

Your equipment can operate at top efficiency only when clean lubricants are used.

Use clean containers to handle all lubricants.

Whenever possible, store lubricants and containers in an area protected from dust, moisture, and other contamination. Store containers on their side to avoid water and dirt accumulation.

Make certain that all containers are properly marked to identify their contents.

Properly dispose of all old containers and any residual lubricant they may contain.

DX,LUBST –19–18MAR96–1/1

Beginning and End of Season

Perform each lubrication and service illustrated in this section.

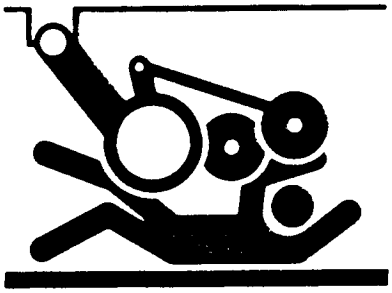
AG,OUO1074,527 –19–22FEB00–1/1

Lubrication Symbol

Lubricate with grease at hourly interval indicated on symbol.

AG,OUO1074,528 –19–22FEB00–1/1

Lock-Up Rockshafts and Openers

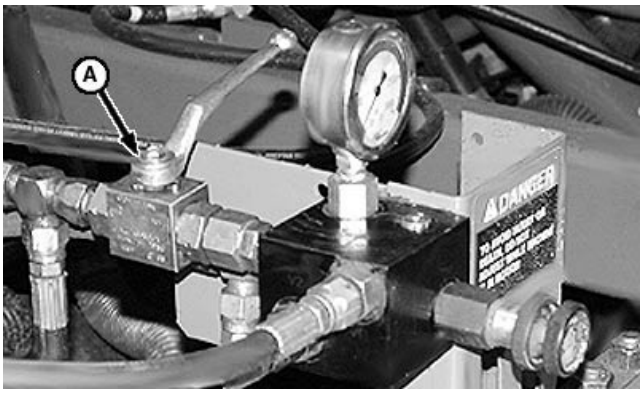


N39645 –UN–06OCT88

CAUTION: Hydraulic failure can allow openers to fall rapidly, causing injury or death. To avoid hazard, always lock openers in raised position before adjusting, lubricating or servicing machine.

Fully retract rockshaft/opener cylinders and close lock-up valve (A).

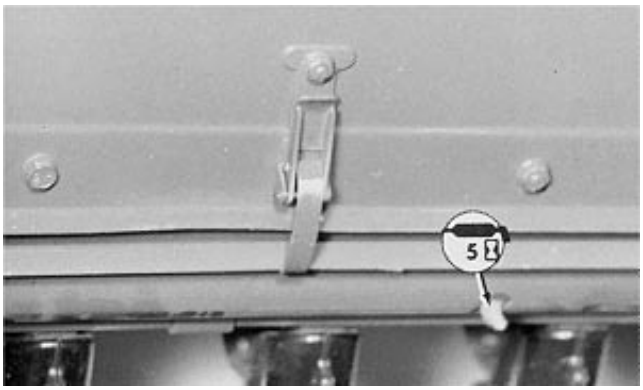
A—Lock-Up Valve



N50080M –UN–05FEB99

AG,OUO1074,529 –19–22FEB00–1/1

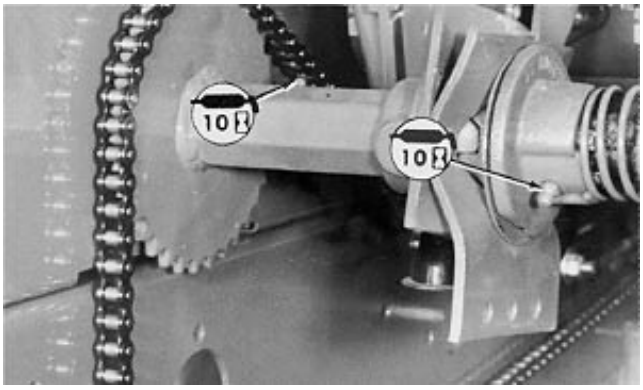
Lubricate Fertilizer Feed Shaft Bearings



N88126M1 –UN–06OCT88

AG,OUO1074,530 –19–22FEB00–1/1

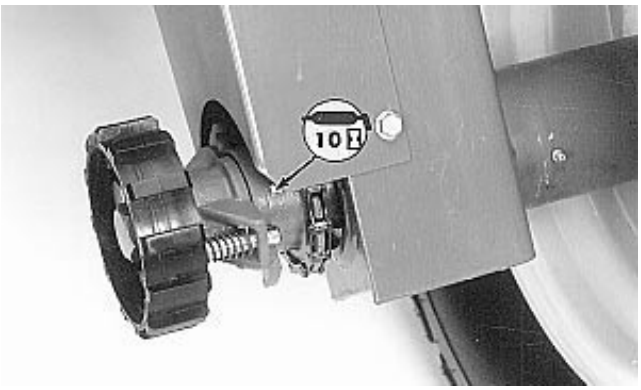
Lubricate Drive Clutch



N88126J3 –UN–06OCT88

AG,OUO1074,531 –19–22FEB00–1/1

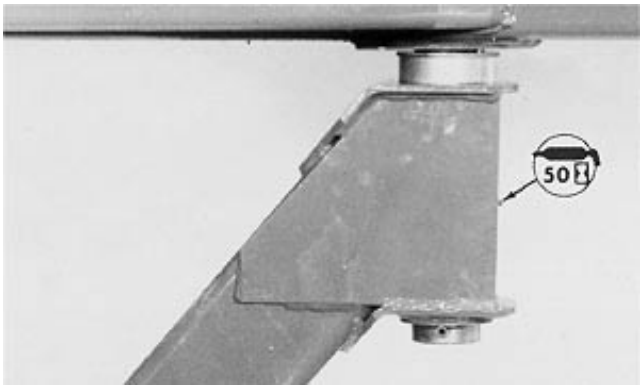
Lubricate Drive Wheel Disconnect



N47129 –UN–25SEP95

AG,OUO1074,532 –19–22FEB00–1/1

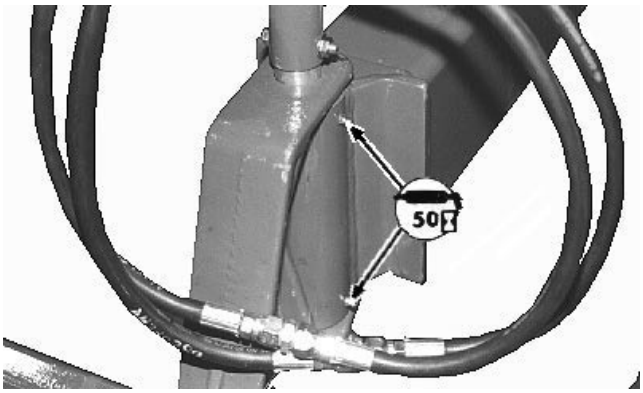
Lubricate Caster Wheel Pivot



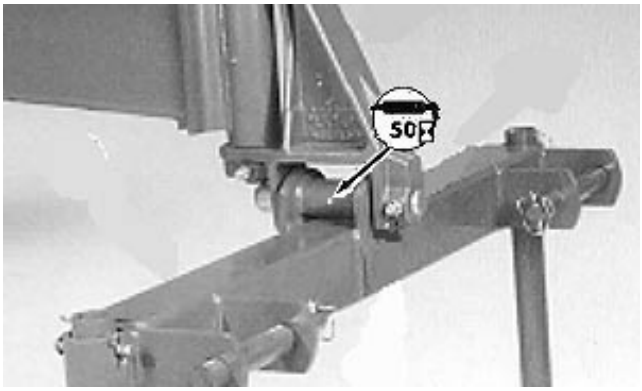
N88200C2 –UN–27SEP88

AG,OUO1074,533 –19–22FEB00–1/1

Lubricate Two-Point Hitch



N47574 –UN–20SEP96



N47573 –UN–24SEP96

AG,OUO1074,534 –19–22FEB00–1/1

Lubricate Grass Seed Drive Shaft (If Equipped)

Lubricate on each end of machine.

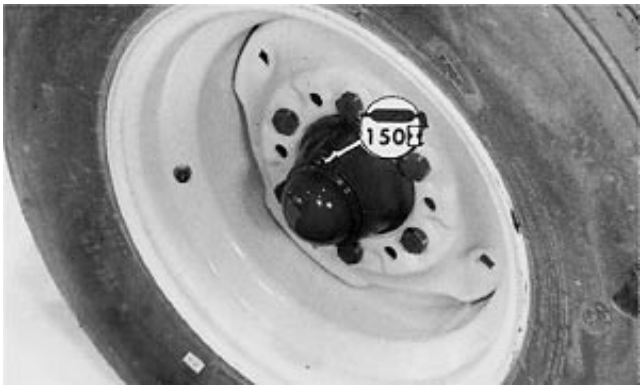
N42142VF –UN–10DEC93

AG,OUO1074,535 –19–22FEB00–1/1

Lubricate Wheel Bearings

After the first 50 hours, remove hub caps and lubricate until grease flows through bearing. Replace hub cap and continue to lubricate until grease flows through seal on inside of hub.

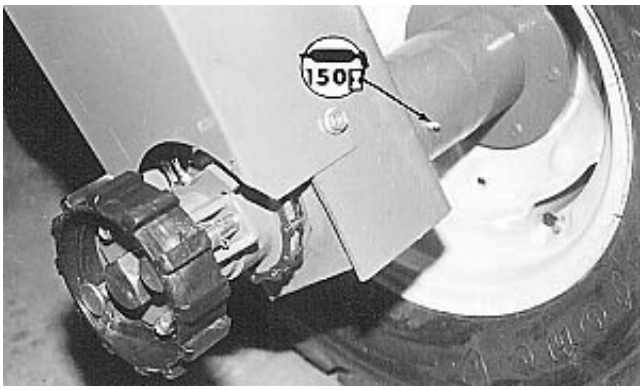
Every 150 hours thereafter, lubricate until grease flows through seal on inside of hub.



N88126C1 –UN–06OCT88

AG,OUO1074,536 –19–22FEB00–1/1

Lubricate Drive Wheel Hub



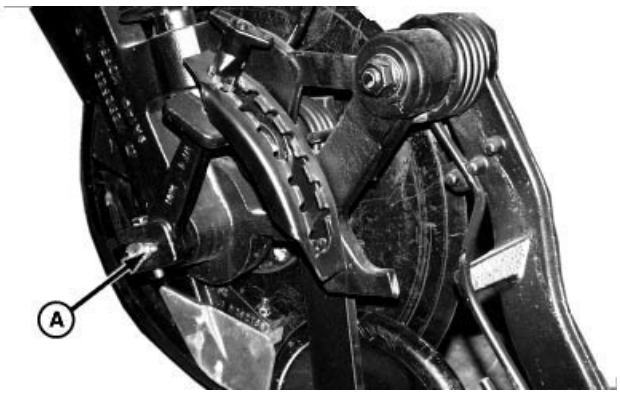
N47018 –UN–07AUG95

AG,OUO1074,537 –19–22FEB00–1/1

Lubricate Opener Depth Gauge Arm

At the end of each season or once a year, apply ten pumps of grease to each opener depth gauge arm lubrication point (A). Cycle depth gauge arm fully each direction.

A—Lubrication Point



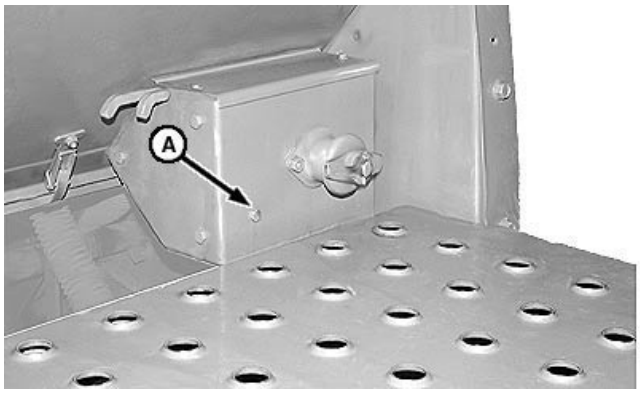
N55702 –UN–11DEC00

OUO6074,0000176 –19–11DEC00–1/1

Checking Fertilizer Gear Case Oil Annually

Remove gear case level screw (A) annually to check oil level. If no oil runs out, add oil through the hole or by removing the top cover. Change oil only if dirty by removing pipe plug in bottom of gear case.

A—Gear Case Level Screw



N50080P –UN–05FEB99

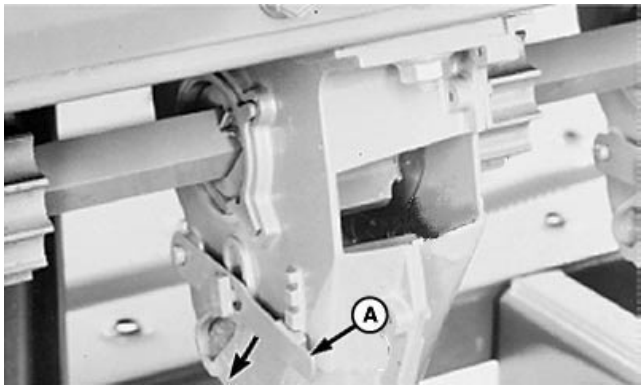
AG,OUO1074,538 –19–22FEB00–1/1

Meter Components

IMPORTANT: Clean and lubricate all meter components at end of planting season.

1. Move latch (A) on each feed cup downward off retaining teeth to open feed gate and empty feed cup.

A—Latch

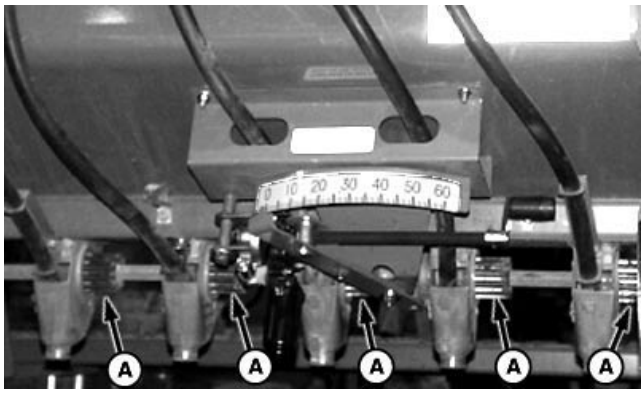


N55096 –UN–11SEP00

OUO6074,000047A –19–02NOV01–1/3

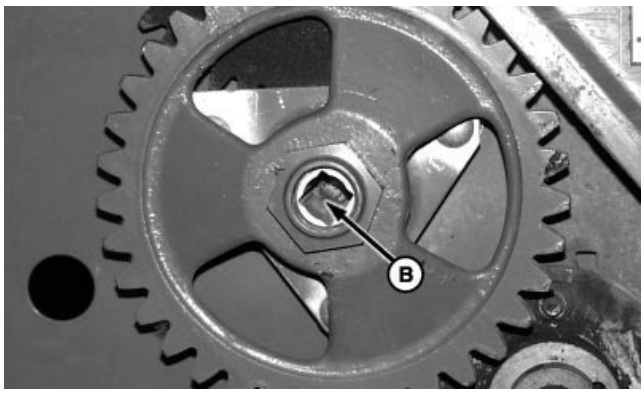
2. Clean and lubricate all fluted meter rolls (A) with light spray lubricant. Lubricate meter shaft (B) where it passes through hole in drive gear, located behind end panel access door, with light spray lubricant.

A—Meter Rolls
B—Shaft



N54980 –UN–08SEP00

Electronic Rate Adjuster Shown



N55065 –UN–08SEP00

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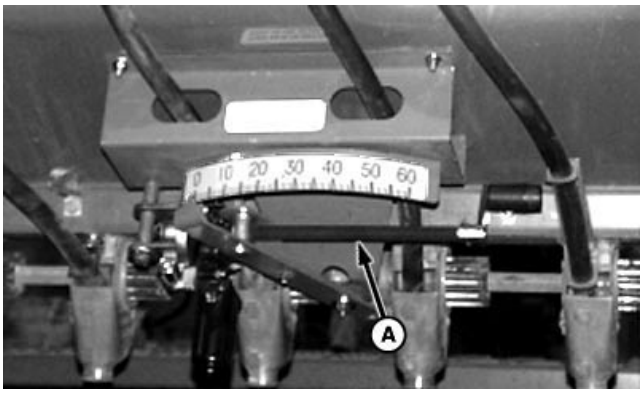
OUO6074,000047A –19–02NOV01–2/3

3. If equipped, lightly lubricate threaded shaft (A) on electronic rate adjuster.

4. Cycle rate adjuster full range to distribute lubricant.

A—Shaft



N55064 –UN–07SEP00

OUO6074,000047A –19–02NOV01–3/3

Openers

Symptom	Problem	Solution
Grain Tubes and Furrow Openers Clogging.	Using high residue seed or lumpy fertilizer.	Use clean seed and dry, free-flowing fertilizer.
	Stopping drill in field and letting drill roll backward, filling the bottom of boot with dirt.	Raise furrow openers before stopping drill. Do not permit drill to roll backward if it is necessary to stop without raising furrow openers.
	Seed left in openers. Seeds will swell over time.	Lower openers to clean out seed before parking overnight.
Mud Builds Up on Press Wheels and Wheels Stop Turning.	Field too wet.	Allow field to dry.
Poor Opener Penetration.	Hard ground conditions.	Add QUIK-TATCH™ Weights. See INSTALLING FRAME QUIK-TATCH™ WEIGHTS in Preparing The Machine section.
		Increase down-pressure.
	Excessive down-pressure.	Decrease down-pressure if left-hand rear wheel is lifting off ground during operation.
	Residue laying in bunches.	Spread residue evenly across field.
	Excessive residue.	Adjust gauge wheel for deeper operation and/or increase down-pressure. (May need to add QUIK-TATCH™ weights.)
	Dull disk openers.	Sharpen or replace disks.
	Disk opener worn too small.	Replace disks.
Furrow Not Closing.	Closing wheel not adjusted properly.	Adjust closing wheel laterally. See POSITIONING CLOSING WHEELS—1560 ONLY in Preparing The Machine section.
	Field is wet.	Allow field to dry.

QUIK-TATCH is a trademark of Deere & Company

Continued on next page

AG,OUO1074,539 –19–22FEB00–1/3

Symptom	Problem	Solution
Furrows Covered with Solid Ribbon of Soil.	Field is wet.	Allow field to dry. A solid ribbon of soil (instead of loose soil) over the seed will cause erratic or poor emergence.
Poor Seed Placement When Drilling Soybeans After 30 In. Corn While Following Old Corn Rows.	Opener gauge wheels ride directly on the row (over the corn butts) causing opener to bounce.	Use alternate opener pattern. See USING ALTERNATE OPENER PATTERN in the Service section.
Residue Blowing After Drilling.	Opener gauge wheels ride directly on the row, causing cutting and loosening of the residue.	Use alternate opener pattern.
Furrow Covered Too Deep With Loose Soil.	Rear openers throwing loose soil.	Decrease opener down-pressure. See ADJUSTING OPENER DOWN-PRESSURE in Operating The Machine section. Operate slower. Raise boot on front rank.
Residue Buildup In Front of Openers.	Residue wedged between seed boot and disk opener.	Move boot to top hole. See POSITIONING SEED BOOTS in Preparing The Machine section. Decrease opener down-pressure. See ADJUSTING OPENER DOWN-PRESSURE in Operating The Machine section.

Continued on next page

AG,OUO1074,539 –19–22FEB00–2/3

Symptom	Problem	Solution
Uneven Seed Depth.	Residue laying in bunches.	Spread residue evenly across field. (Gauge wheel gauges from top of residue encountered.)
	Inadequate down-pressure.	Increase down-pressure to keep gauge wheel in contact with the ground and/or installQUIK-TATCH™ weights.
	Excessive down-pressure.	Decrease down-pressure if left hand rear wheel is lifting off ground during operation, or installQUIK-TATCH™ weights.
	Seed boots worn.	Install seed boot in lower mounting hole for additional life, or replace seed boot.

QUIK-TATCH is a trademark of Deere & Company

AG,OUO1074,539 –19–22FEB00–3/3

Delivery System

Symptom	Problem	Solution
Bunching and Skipping.	Stopping drill in field.	Stop at row ends.
	Convoluted seed hoses sag when drilling at shallow depths.	Slide convoluted hose lower on steel seed tube to tighten hose.
Varying Quantities Drilled by Individual Feeds.	Seed bridging in box due to unclean seed, inoculation, treatment or dampness.	Use agitators (available from your John Deere dealer).
	Feed gates not all set the same.	Adjust gates. See SETTING FEED CUPS in Preparing The Machine section.
	Feed cup out of adjustment with fluted feed roll.	Adjust feed. See RESETTING FEED CUPS in Service section.
Sensor reading low.	Sensor eye dirty.	Remove seed tube and clean sensor eye with bottle brush or cloth.
	Feed cup not calibrated.	Calibrate feed cup. See RESET FLUTED-FEED CUPS.
Sensor reading high.	Feed cup not calibrated.	Calibrate feed cup. See RESET FLUTED-FEED CUPS
Rate adjuster ratcheting instead of moving index pointer when activated by hand held controller.	Meter shaft and/or meters dirty, rusty or corroded.	Lightly spray metallic meter shaft components, including hole in drive gear behind end panel of grain box, then manually crank index pointer full range of motion (see Lubrication section).

Continued on next page

AG,OUO1074,540 –19–22FEB00–1/3

Symptom	Problem	Solution
Rate adjuster not moving when activated by hand held controller.	Faulty fuse.	Replace fuse.
	Harness damaged.	Repair or replace harness.
	Harness connection loose.	Fasten all connections tightly.
	Meter shaft and/or meters dirty, rusty or corroded.	Lightly spray metallic meter shaft components, including hole in drive gear behind end panel of grain box, then manually crank index pointer full range of motion (see Lubrication section).
Seeds Cracking.	Improper feed gate latch position.	Adjust feed cups properly. See SETTING FEED CUPS in Preparing The Machine section.
Quantities Drilled Not Agreeing With Seed Chart.	Feed gates improperly adjusted.	Adjust feed cup gates. See SETTING FEED CUPS in Preparing The Machine section.
	Heavier or lighter than average seed weight or varied seed size.	See PERFORMING ACCURATE RATE CHECKS, USING DENSITY METER, and/or RATE CHARTS in Preparing The Machine section.
	Feed cups not properly adjusted.	See SETTING FEED CUPS in Preparing The Machine section.
	Improper shift lever setting.	Correct setting. See SETTING GRAIN SHIFTER in Preparing The Machine section.

Continued on next page

AG,OUO1074,540 –19–22FEB00–2/3

Symptom	Problem	Solution
Quantities Drilled Not Agreeing With Fertilizer Chart.	Using wrong fertilizer drive.	Check drive for proper gear and sprocket assembly. Be sure of gear case setting. See SETTING FERTILIZER FEED SHAFT SPEED in Preparing The Machine section.
	Quantity drilled has not been checked.	See PERFORMING ACCURATE RATE CHECKS in Preparing The Machine section.
	Fertilizer density other than 1041 kg/m^3 (65 lb per cu. ft).	Set fertilizer rate for correct density. See USING DENSITY METER and FERTILIZER RATE CHARTS in Preparing The Machine section.
	Feed wheel installed incorrectly.	Install correctly. See REPLACING FERTILIZER FEED WHEELS in Service section.
Flow of Fertilizer Stops.	Broken shear pin.	Install new shear pin.
Fertilizer Spills Out of Feeds.	Baffles installed incorrectly.	Install baffles correctly. See CLEANING FERTILIZER BOX in the Storage section.
Acremeter Tallying Incorrectly.	Double tracking, or leaving too wide a space between rows on each trip across field.	Drive carefully; leave same space between seeded strip as the furrow opener spacing on the drill.
	Plot of land contains more or less land than assumed.	Measure land.

AG,OUO1074,540 –19–22FEB00–3/3

Opener Down-Pressure System

Symptom	Problem	Solution
Pressure Gauge Near Zero When Openers Are Lowered and SCV Lever Is Held Forward For a Few Seconds.	Hose routing between pressure control valve and opener cylinders incorrect.	Route hoses per Hydraulic Diagram—Opener Cylinders. See DOWN-PRESSURE HOSE ROUTING in Service section.
Pressure Gauge Shows Pressure As Openers Are Raised.	Hose routing between pressure control valve and opener cylinders incorrect.	Route hoses per Hydraulic Diagram—Opener Cylinders. See DOWN-PRESSURE HOSE ROUTING in Service section.
Openers Rise When SCV is Held Forward and Lower When SCV is Held Rearward.	Hydraulic hoses are connected to tractor incorrectly.	Interchange hoses in SCV coupler.
Pressure Gauge Shows Zero When Openers Are Down.	Valve in float or neutral position.	Install R52667 SCV clip in proper position on 55-60 Series Tractors to hold SCV lever forward, valve open. Rotate valve detent selector to continuous detent to lock lever in forward position on 6000, 6000 Ten, 7000 and 7000 Ten Series Tractors. Push SCV control forward until detent click is heard. Set time detent to “continuous” on Electro/Hydraulic SCV Controlled Tractors.
Openers Do Not “Float” Over Undulating Ground.	SCV lever not in forward position.	Install R52667 SCV clip in proper position on 55-60 Series Tractors. Rotate valve detent selector to continuous detent to lock lever in forward position on 6000, 6000 Ten, 7000 and 7000 Ten Series Tractors. Push SCV control forward until detent click is heard. Set time detent to “continuous” on Electro/Hydraulic SCV Controlled Tractors.

Continued on next page

AG,OUO1074,541 –19–22FEB00–1/2

Symptom	Problem	Solution
No Reading on Gauge.	Using open center tractor.	Install Open Center Hydraulic Kit with Change Valve from your John Deere dealer.
Openers Drift Down After Being Raised.	There may be contamination in the V1 ball check assembly or the piston seal in the hydraulic cylinder may be leaking.	Close transport valve and disconnect hydraulic hoses to the tractor SCV. If openers still continue to drop, see your John Deere dealer.

AG,OUO1074,541 –19–22FEB00–2/2

Opener Down-Pressure System—Tractor With Open-Center Hydraulics

Symptom	Problem	Solution
Down-Pressure Does Not Function.	Lock-up valve closed.	Open lock-up valve.
Pressure Gauge Shows Zero When Openers Are Down.	SCV lever in float position.	Put SCV lever in neutral position.
	SCV lever not held forward long enough to charge down-pressure system.	When lowering openers, hold SCV lever forward long enough for down-pressure system to reach pre-set pressure as shown on pressure gauge.
Openers Do Not Maintain Proper Ground Contact.	SCV lever not held forward long enough to charge down-pressure system.	When lowering openers, hold SCV lever forward long enough for down-pressure system to reach pre-set pressure as shown on pressure gauge.
	Slow internal hydraulic leakage. (Normal with all hydraulic systems.)	Hold SCV lever forward long enough for down-pressure system to reach pre-set pressure as shown on pressure gauge.
	More hydraulic pressure required.	Increase pre-set hydraulic pressure.
Pre-set Pressure Does Not Lower When Turning Valve Knob Counterclockwise.	Open center attachment traps oil in system until openers are raised.	Raise and lower openers to reset to lower pressure.
	Pressure valve sticks.	Disassemble valve and clean.
Pre-set Pressure Does Not Rise When Turning Valve Knob Clockwise.	No pressure to adjusting valve.	Hold SCV #1 in forward position for a few seconds.
	Hose couplers not connected properly to tractor.	Ensure that hose couplers are connected to proper SCV and locked.
Openers Drift Down After Being Raised.	There may be contamination in the V1 ball check assembly or the piston seal in the hydraulic cylinder may be leaking.	Close transport valve and disconnect hydraulic hoses to the tractor SCV. If openers still continue to drop, see your John Deere dealer.

AG,OUO1074,542 –19–22FEB00–1/1

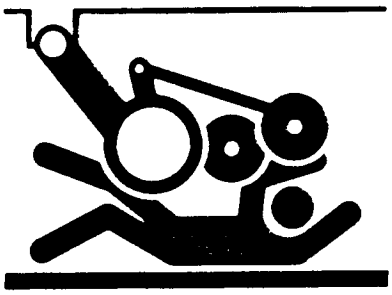
Using Safe Service Procedures

CAUTION: To help prevent serious injury or death to you or others caused by unexpected movement, be sure to service machine on a level surface. If machine is connected to tractor, engage parking brake and/or place transmission in "PARK", shut off engine and remove key. If machine is detached from tractor, block wheels and use safety stands to prevent movement.

AG,OUO1074,543 –19–22FEB00–1/1

Lock-Up Rockshafts and Openers

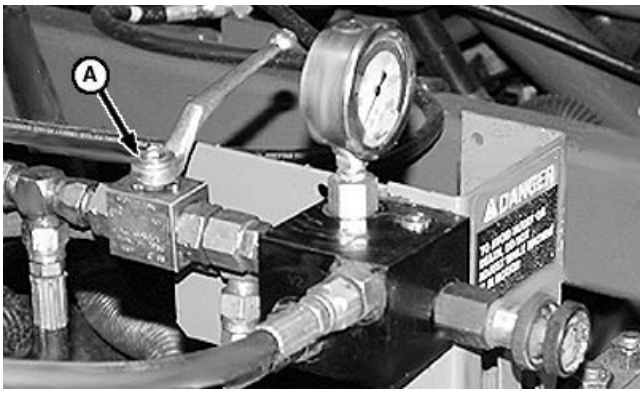
CAUTION: Hydraulic failure can allow openers to fall rapidly, causing injury or death. To avoid hazard, always lock openers in raised position before adjusting, lubricating or servicing machine.



N39645 –UN–06OCT88

Fully retract rockshaft/opener cylinders and close lock-up valve (A).

A—Lock-Up Valve



N50080M –UN–05FEB99

AG,OUO1074,544 –19–22FEB00–1/1

Replacing Ground Engaging Tools

CAUTION: Prevent injury or death. Always support the frame with jack stands or completely lower the openers and close lock-up valve before working around or under the machine or it may fall on you.

N39087 –UN–30MAR89

AG,OUO1074,545 –19–22FEB00–1/1

Keep Service Area Clean

CAUTION: To help prevent personal injury, keep the service area clean and dry. Wet or oily floors are slippery. Wet spots can be dangerous when working with electrical equipment.

Be sure all electrical outlets and tools are properly grounded.

Use adequate light for the job at hand.

Never lubricate or service machine while it is moving. Keep hands, feet and clothing from power-driven parts. Disengage all power and operate controls to relieve pressure.

Securely support any machine elements that must be raised for service work.

TS218 –UN–23AUG88

Understand service procedure before doing work.

Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts. Remove any buildup of grease, oil or debris.

Disconnect battery ground cable (-) before making adjustments on electrical systems or welding on machine.

AG,OUO1074,546 –19–22FEB00–1/1

Service Tires Safely

Explosive separation of a tire and rim parts can cause serious injury or death.

Do not attempt to mount a tire unless you have the proper equipment and experience to perform the job.

Always maintain the correct tire pressure. Do not inflate the tires above the recommended pressure. Never weld or heat a wheel and tire assembly. The heat can cause an increase in air pressure resulting in a tire explosion. Welding can structurally weaken or deform the wheel.

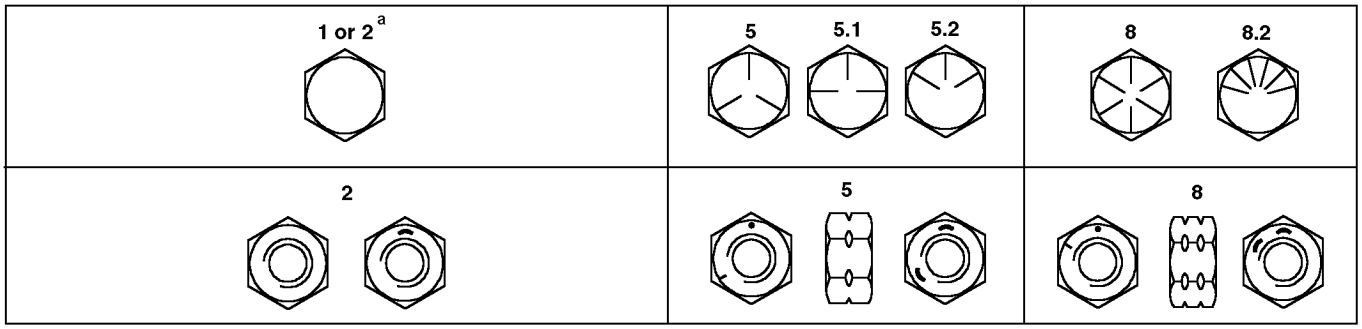
When inflating tires, use a clip-on chuck and extension hose long enough to allow you to stand to one side and NOT in front of or over the tire assembly. Use a safety cage if available.

Check wheels for low pressure, cuts, bubbles, damaged rims or missing lug bolts and nuts.

TS952 –UN–12APR90

DX,TIRECP –19–24AUG90–1/1

Unified Inch Bolt and Cap Screw Torque Values



TORQ1A –UN–27SEP99

Top, SAE Grade and Head Markings; Bottom, SAE Grade and Nut Markings

	Grade 1 (No Mark)		Grade 2[a] (No Mark)		Grade 5, 5.1 or 5.2		Grade 8 or 8.2	
Size	**Lubricated[b] N•m(lb-ft)**	**Dry[c] N•m(lb-ft)**	**Lubricated[b] N•m(lb-ft)**	**Dry[c] N•m(lb-ft)**	**Lubricated[b] N•m(lb-ft)**	**Dry[c] N•m(lb-ft)**	**Lubricated[b] N•m(lb-ft)**	**Dry[c] N•m(lb-ft)**
1/4	3.8 (2.8)	4.7 (3.5)	6 (4.4)	7.5 (5.5)	9.5 (7)	12 (9)	13.5 (10)	17 (12.5)
5/16	7.7 (5.7)	9.8 (7.2)	12 (9)	15.5 (11.5)	19.5 (14.5)	25 (18.5)	28 (20.5)	35 (26)
3/8	13.5 (10)	17.5 (13)	22 (16)	27.5 (20)	35 (26)	44 (32.5)	49 (36)	63 (46)
7/16	22 (16)	28 (20.5)	35 (26)	44 (32.5)	56 (41)	70 (52)	80 (59)	100 (74)
1/2	34 (25)	42 (31)	53 (39)	67 (49)	85 (63)	110 (80)	120 (88)	155 (115)
9/16	48 (35.5)	60 (45)	76 (56)	95 (70)	125 (92)	155 (115)	175 (130)	220 (165)
5/8	67 (49)	85 (63)	105 (77)	135 (100)	170 (125)	215 (160)	240 (175)	305 (225)
3/4	120 (88)	150 (110)	190 (140)	240 (175)	300 (220)	380 (280)	425 (315)	540 (400)
7/8	190 (140)	240 (175)	190 (140)	240 (175)	490 (360)	615 (455)	690 (510)	870 (640)
1	285 (210)	360 (265)	285 (210)	360 (265)	730 (540)	920 (680)	1030 (760)	1300 (960)
1-1/8	400 (300)	510 (375)	400 (300)	510 (375)	910 (670)	1150 (850)	1450 (1075)	1850 (1350)
1-1/4	570 (420)	725 (535)	570 (420)	725 (535)	1280 (945)	1630 (1200)	2050 (1500)	2600 (1920)
1-3/8	750 (550)	950 (700)	750 (550)	950 (700)	1700 (1250)	2140 (1580)	2700 (2000)	3400 (2500)
1-1/2	990 (730)	1250 (930)	990 (730)	1250 (930)	2250 (1650)	2850 (2100)	3600 (2650)	4550 (3350)

[a] Grade 2 applies for hex cap screws (not hex bolts) up to 6 in. (152 mm) long. Grade 1 applies for hex cap screws over 6 in. (152 mm) long, and for all other types of bolts and screws of any length.

[b] "Lubricated" means coated with a lubricant such as engine oil, or fasteners with phosphate and oil coatings.

[c] "Dry" means plain or zinc plated without any lubrication.

DO NOT use these values if a different torque value or tightening procedure is given for a specific application. Torque values listed are for general use only. Check tightness of fasteners periodically.

Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical grade.

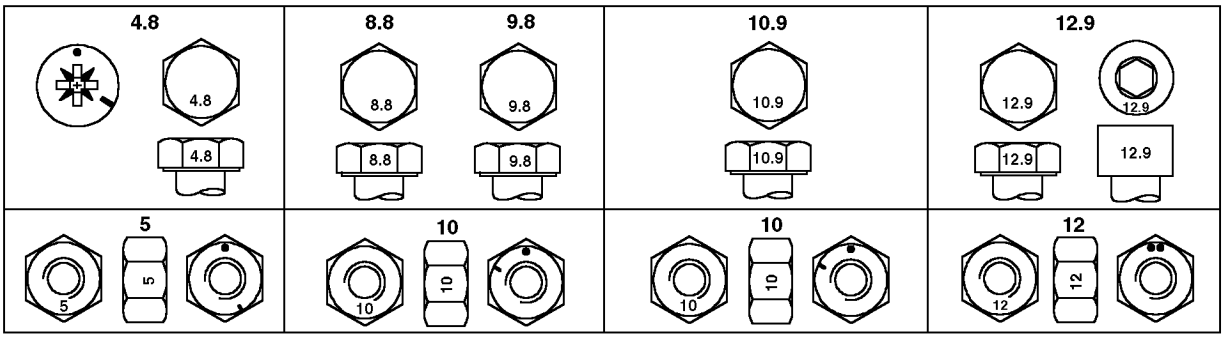
Fasteners should be replaced with the same or higher grade. If higher grade fasteners are used, these should only be tightened to the strength of the original.

Make sure fastener threads are clean and that you properly start thread engagement. This will prevent them from failing when tightening.

Tighten plastic insert or crimped steel-type lock nuts to approximately 50 percent of the dry torque shown in the chart, applied to the nut, not to the bolt head. Tighten toothed or serrated-type lock nuts to the full torque value.

DX,TORQ1 –19–01OCT99–1/1

Metric Bolt and Cap Screw Torque Values



TORQ2 –UN–07SEP99

Top, Property Class and Head Markings; Bottom, Property Class and Nut Markings

	Class 4.8		Class 8.8 or 9.8		Class 10.9		Class 12.9	
Size	**Lubricated[a] N•m(lb-ft)**	**Dry[b] N•m(lb-ft)**	**Lubricated[a] N•m(lb-ft)**	**Dry[b] N•m(lb-ft)**	**Lubricated[a] N•m(lb-ft)**	**Dry[b] N•m(lb-ft)**	**Lubricated[a] N•m(lb-ft)**	**Dry[b] N•m(lb-ft)**
M6	4.7 (3.5)	6 (4.4)	9 (6.6)	11.5 (8.5)	13 (9.5)	16.5 (12.2)	15.5 (11.5)	19.5 (14.5)
M8	11.5 (8.5)	14.5 (10.7)	22 (16)	28 (20.5)	32 (23.5)	40 (29.5)	37 (27.5)	47 (35)
M10	23 (17)	29 (21)	43 (32)	55 (40)	63 (46)	80 (59)	75 (55)	95 (70)
M12	40 (29.5)	50 (37)	75 (55)	95 (70)	110 (80)	140 (105)	130 (95)	165 (120)
M14	63 (46)	80 (59)	120 (88)	150 (110)	175 (130)	220 (165)	205 (150)	260 (190)
M16	100 (74)	125 (92)	190 (140)	240 (175)	275 (200)	350 (255)	320 (235)	400 (300)
M18	135 (100)	170 (125)	265 (195)	330 (245)	375 (275)	475 (350)	440 (325)	560 (410)
M20	190 (140)	245 (180)	375 (275)	475 (350)	530 (390)	675 (500)	625 (460)	790 (580)
M22	265 (195)	330 (245)	510 (375)	650 (480)	725 (535)	920 (680)	850 (625)	1080 (800)
M24	330 (245)	425 (315)	650 (480)	820 (600)	920 (680)	1150 (850)	1080 (800)	1350 (1000)
M27	490 (360)	625 (460)	950 (700)	1200 (885)	1350 (1000)	1700 (1250)	1580 (1160)	2000 (1475)
M30	660 (490)	850 (625)	1290 (950)	1630 (1200)	1850 (1350)	2300 (1700)	2140 (1580)	2700 (2000)
M33	900 (665)	1150 (850)	1750 (1300)	2200 (1625)	2500 (1850)	3150 (2325)	2900 (2150)	3700 (2730)
M36	1150 (850)	1450 (1075)	2250 (1650)	2850 (2100)	3200 (2350)	4050 (3000)	3750 (2770)	4750 (3500)

[a] *"Lubricated" means coated with a lubricant such as engine oil, or fasteners with phosphate and oil coatings.*

[b] *"Dry" means plain or zinc plated without any lubrication.*

DO NOT use these values if a different torque value or tightening procedure is given for a specific application. Torque values listed are for general use only. Check tightness of fasteners periodically.

Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical property class.

Fasteners should be replaced with the same or higher property class. If higher property class fasteners are used, these should only be tightened to the strength of the original.

Make sure fastener threads are clean and that you properly start thread engagement. This will prevent them from failing when tightening.

Tighten plastic insert or crimped steel-type lock nuts to approximately 50 percent of the dry torque shown in the chart, applied to the nut, not to the bolt head. Tighten toothed or serrated-type lock nuts to the full torque value.

DX,TORQ2 –19–01OCT99–1/1

Checking Wheel Bolts and Bearings

Check the tightness of all wheel bolts (A) and wheel bearings during the first week of operation and periodically after that.

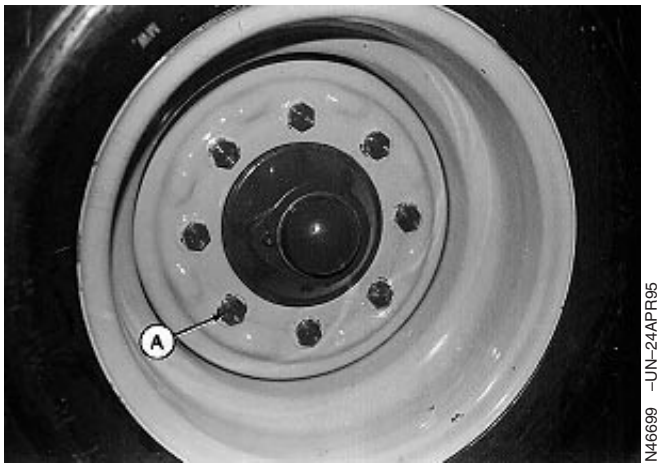
Tighten wheel bolts to specification.

Specification

Wheel Bolts—Torque ..... 155 N•m (115 lb-ft)

To adjust wheel bearing proceed as follows:

1. Remove center hub cap and cotter pin.
2. Raise the wheel and turn it.
3. Tighten the nut until there is a slight drag on the bearings, back off to the first hole, and insert cotter pin.
4. Replace hub cap.



A—Wheel Bolts

AG,OUO1074,550 –19–22FEB00–1/1

Checking Tire Pressure

Check and inflate tires to correct pressure.

Tire Size	Pressure
11L x 15 10 ply	330 kPa (3.31 bar) (48 psi)
11L x 15 12 ply	359 kPa (3.59 bar) (52 psi)
12.5L x 15 12 ply	359 kPa (3.59 bar) (52 psi)
31-13.5 x 15 8 ply	330 kPa (3.31 bar) (48 psi)
5.9 x 15 4 ply	248 kPa (2.48 bar) (36 psi)

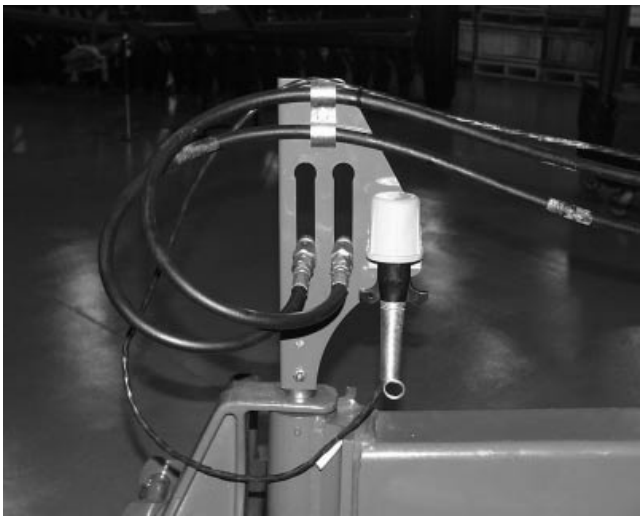
AG,OUO1074,551 –19–22FEB00–1/1

Prevent Hydraulic System Contamination

IMPORTANT: Cleanliness is very important when working on the hydraulic system. Prevent contamination by assembling the cylinders, hoses, couplers, and valves in a clean area of the shop.

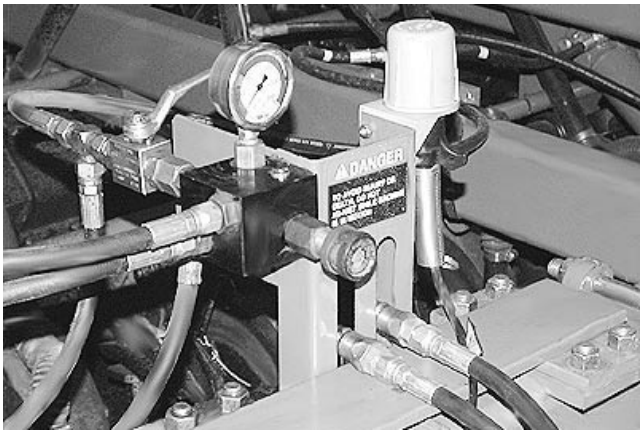
Leave protective caps on the fluid openings until ready to make the connection. When charging the system, use a tractor or other source that contains clean oil, free of abrasive materials. Keep couplers clean. Abrasive particles, like sand or metal fragments, can damage seals, barrels and pistons, causing internal leakage.

NOTE: In order to help keep couplers clean, always place in storage position as shown when not attached to tractor.



N52700 –UN–11MAR00

Two-Point Hitch Storage Position

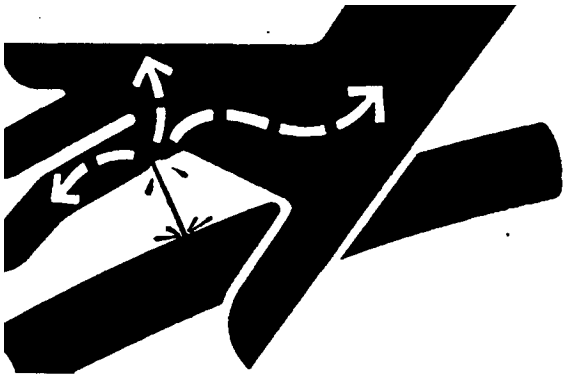


N50080Q –UN–05FEB99

Caster and Simple Hitch Storage Position

AG,OUO1074,552 –19–22FEB00–1/1

Removing Hydraulic Cylinders



X9811 –UN–23AUG88

CAUTION: Escaping fluid under pressure can penetrate the skin causing serious injury. Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure. Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.

If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result.

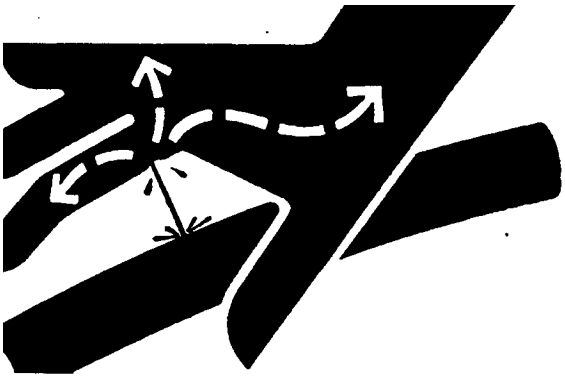
1. Fully lower rockshaft and/or markers.
2. Shut off tractor engine and move hydraulic levers back and forth to relieve pressure.
3. Disconnect hoses at tractor and from cylinder ports. Cover tractor outlets, cylinder ports and hose ends.

CAUTION: If row marker cylinders must be removed with markers in folded position, be sure to lock-up markers to prevent accidental falling on you or others. Before reinstalling, cylinder must be fully charged with oil. See INSTALLING AND BLEEDING HYDRAULIC CYLINDERS in this section.

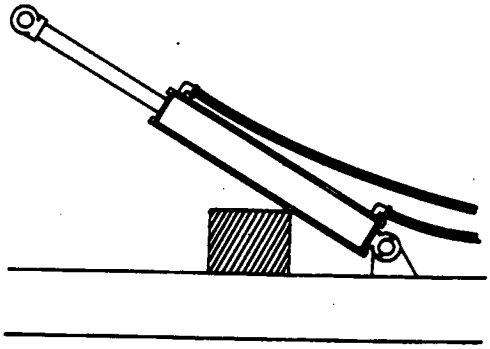
4. Unpin cylinder(s). Check, and repair, if necessary. See your John Deere dealer.

AG,OUO1074,553 –19–22FEB00–1/1

Installing and Bleeding Hydraulic Cylinders



X9811 –UN–23AUG88



N37063 –UN–06OCT88

CAUTION: Escaping fluid under pressure can penetrate the skin causing serious injury. Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure. Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.

If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result.

1. Attach cylinder base end(s) to linkage, but leave rod end(s) detached.
2. Attach all hoses in the hydraulic circuit.
3. Support cylinder(s) on wooden blocks, so rod(s) can extend and retract without interference.

CAUTION: If cylinders are not bled as described above, markers and or rockshaft could drop unexpectedly, causing injury or death to you or others.

4. Connect hoses to tractor. Fully extend and retract all cylinders at least two times, maintaining hydraulic pressure at full extension for at least 30 seconds. Then extend cylinders one more time, maintaining pressure at full extension for one minute. This allows all air to escape from cylinders.

CAUTION: To avoid injury or death, stand clear of machine when hydraulic cylinders are being extended or retracted. Mechanical or hydraulic failure can allow openers or markers to fall rapidly and injure or kill you or others.

5. Attach rod end(s) of cylinder(s) to machine.

AG,OUO1074,554 –19–22FEB00–1/1

Resetting Fluted Feed Cups

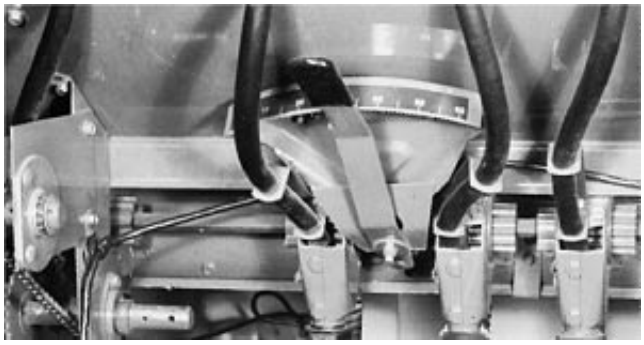
Reset cups whenever:

- Cup has been removed from drill.
- Cup has been knocked out of position.
- Quantity of seed sown varies from cup to cup.
- Quantity of seed sown does not agree with chart.

Reset as follows:

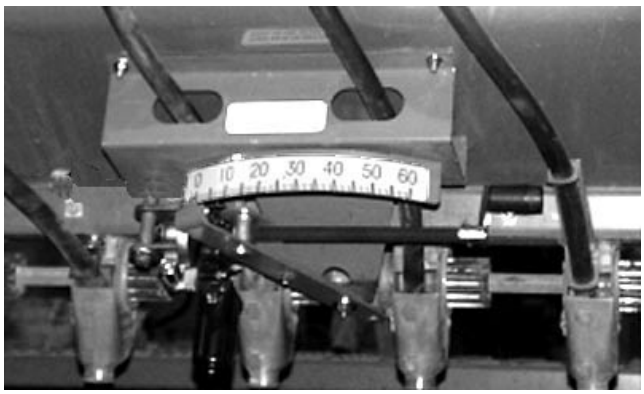
AG,OUO1074,555 –19–22FEB00–1/3

1. Set feed shifter to “0” notch. Adjust shifter lever as far left as possible and return it to “0” notch to equalize spring pressure.



N42142TX –UN–01DEC93

Manual Shifter



N58864 –UN–05NOV01

Electronic Shifter

Continued on next page

AG,OUO1074,555 –19–22FEB00–2/3

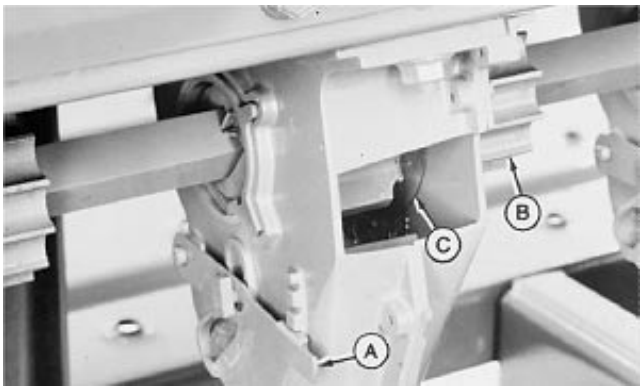
2. Move latch (A) downward off its retaining teeth.

3. Start at master feed cup (first feed cup on each side of shifter lever) and loosen cap screws holding feed cup to box bottom.

4. Move feed cup until end of feed roll (B) is flush with inside surface of seed retainer ring (C) on lower radius of seed reservoir. Reset all feed cups in same manner, beginning with master feeds and working in both directions. Tighten cap screws on each feed cup as soon as resetting is complete.

5. Recheck adjustment by moving feed shaft shifter through full index setting range; then move lever past notch “0” and return to “0”. Recheck to make sure all feed rolls are flush at lower radius to feed cup.

6. Close seed gates to desired setting, making sure all gates are in identical position.



A—Latch
B—Feed Roll
C—Seed Retainer Ring

AG,OUO1074,555 –19–22FEB00–3/3

Replacing Fertilizer Feed Wheels

1. Remove feed shaft from drill.

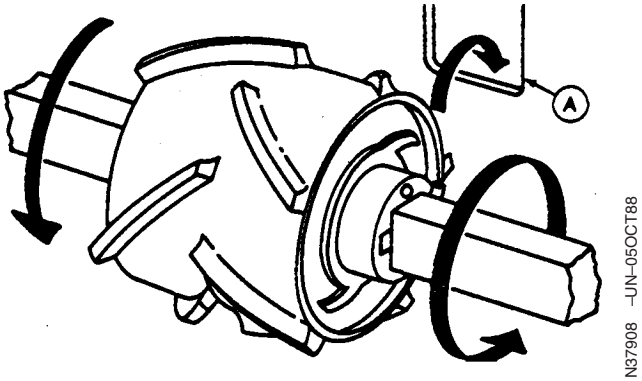
2. Slide wheel off shaft.

3. Install new feed wheel.

AG,OUO1074,556 –19–22FEB00–1/2

4. Align wheels with discharge hole (A) and install shaft.

A—Discharge Hole



AG,OUO1074,556 –19–22FEB00–2/2

Replacing Marker Breakaway Bolt

IMPORTANT: Shear bolt MUST go through the plate (D) on marker arm. This plate is on the forward side of the right-hand marker arm and on the rearward side of the left-hand marker arm.

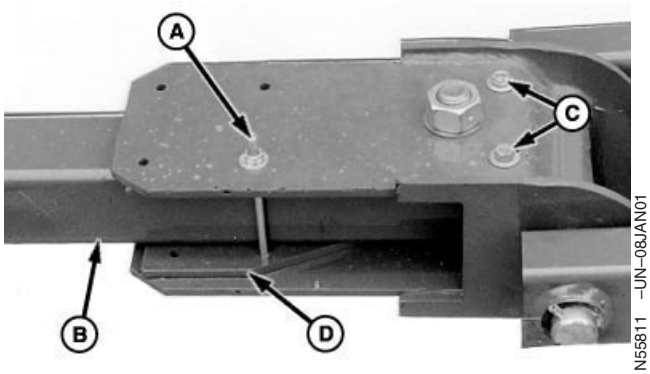
The marker breakaway bolt (A) provides breakaway protection when the marker hits an obstacle.

To replace the breakaway bolt, proceed as follows:

Return marker arm (B) to operating position and insert 5/16 in. x 5-1/4 in. grade 5 shear bolt (A) through marker mounting plates and marker arm plate; then secure in place with washers and nut. Tighten to specification.

Specification	
Shear Bolt—Torque	34 N•m (25 lb-ft)

Extra shear bolts (C) are stored on arm assembly.



A—Bolt
B—Marker Arm
C—Extra Shear Bolts
D—Plate

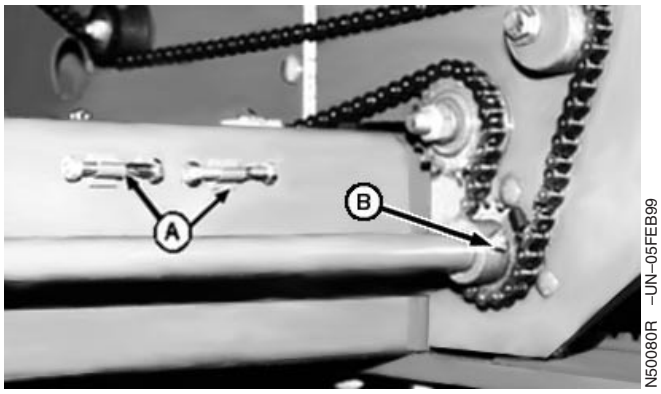
OUO6074,000016D –19–06DEC00–1/1

Replacing Drive System Shear Bolt

IMPORTANT: Do not use any other hardware to replace factory specified shear bolt (19H1947) or transmission could be damaged. See your John Deere dealer for correct repair parts.

Replace drive shear bolt (B) with #8 machine screw. Spare shear bolts and lock nuts are provided with the machine and are stored in clamps (A) above the shaft.

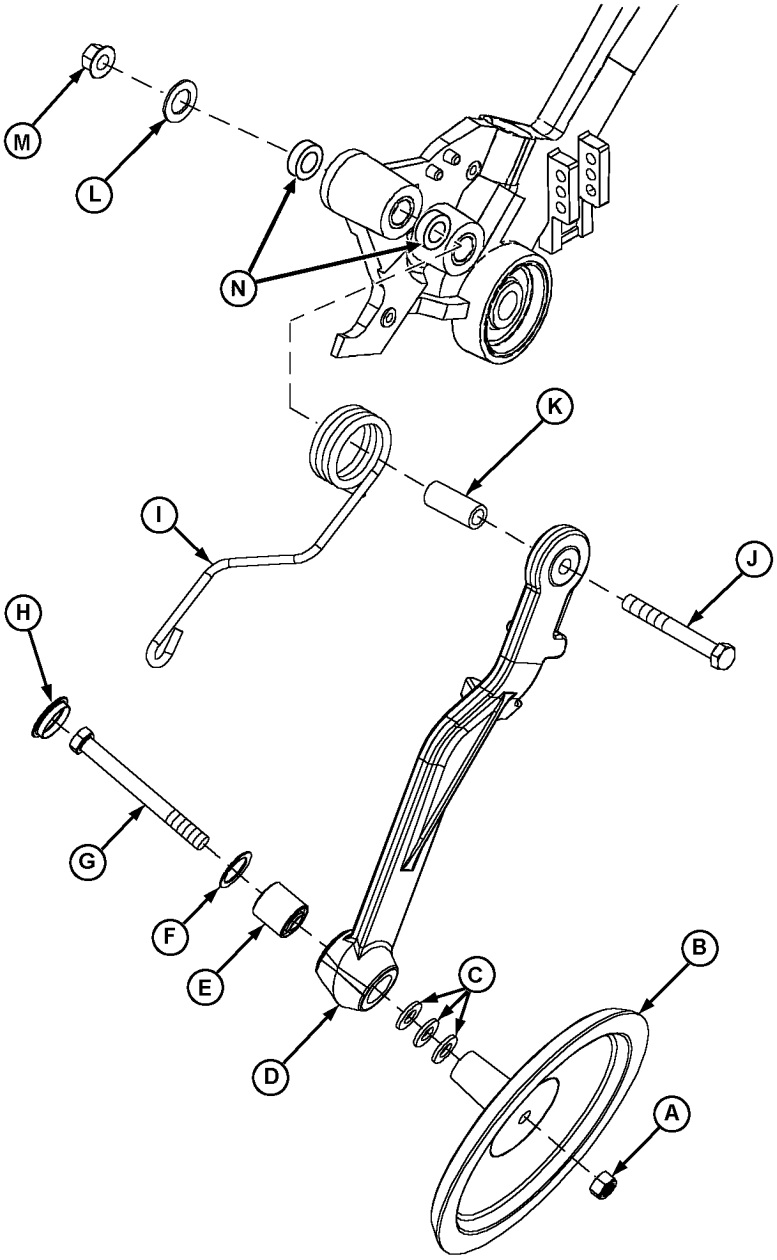
Shear bolt is used to protect drive transmission from damage when overloaded. To prevent shearing bolt, avoid transmission overload.



A—Clamps
B—Shear Bolt

AG,OUO1074,557 –19–22FEB00–1/1

Repairing Closing Wheel Assembly—1560 Only



A—Nut
B—Wheel
C—Shim Washers
D—Arm
E—Ball Bearing
F—Snap Ring
G—Cap Screw, 5/8 x 6-1/4 in.
H—Bearing Cap
I—Shim Washers
J—Cap Screw, 5/8 x 5-1/4
K—Bushing
L—Washer
M—Lock Nut
N—Bushings

NOTE: Follow steps 1—7 for closing wheel repair.

NOTE: Clean dirt from parts prior to removal.

1. Remove bearing cap (H), lock nut (A) and snap ring (F) to remove wheel assembly and bearing (E) from arm (D).

Continued on next page

AG,OUO1074,558 –19–22FEB00–1/2

NOTE: Shim washers (C) are used for lateral repositioning of closing wheel.

See POSITIONING CLOSING WHEEL in Preparing The Machine section for further information.

2. Remove bearing (E) from arm.
3. Inspect all parts for wear or damage and replace as necessary.
4. Press new bearing into arm bore.
5. Install wheel and shim washers (as required) to cap screw and retain with lock nut.
6. Install bearing cap.

NOTE: Follow steps 8—11 for arm bushing replacement.

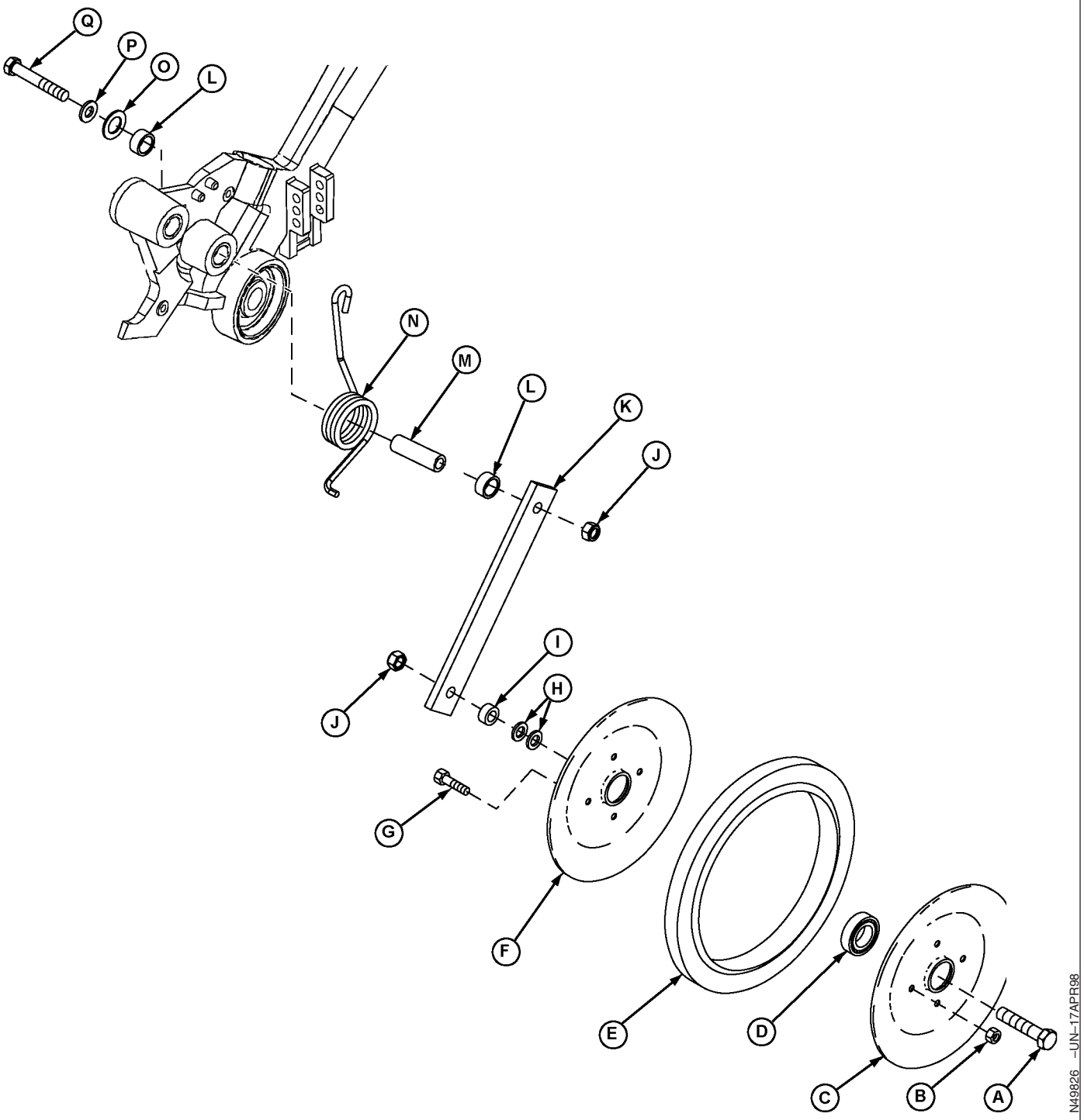
7. Remove cap screw (J), lock nut (M) and arm parts.
8. Remove bushings (K and N) from bore.
9. Press new bushings into bore, flush to 0.76 mm (0.03 in.) below outside surface.
10. Install previously removed arm and attaching parts. Tighten hardware to specification.

Specification

Hardware—Torque ..... 200 N•m (150 lb-ft)

AG,OUO1074,558 –19–22FEB00–2/2

Repairing Press Wheel Assembly—1560 Only



A—5/8 x 2-3/4 in. Cap Screw
B—Lock Nut
C—Wheel Half
D—Bearing
E—Tire
F—Wheel Half
G—M6 x 12 Cap Screw
H—Washers
I—Spacer
J—Lock Nut
K—Arm
L—Bushing
M—Bushing
N—Spring
O—Washer
P—Washer
Q—5/8 x 3-3/4 in. Cap Screw

Continued on next page

AG,OUO1074,559 –19–22FEB00–1/2

NOTE: Follow steps 1—6 for press wheel repair.

NOTE: Clean dirt from parts prior to removal.

1. Remove cap screw (A) to remove wheel assembly from arm.
2. Remove cap screws (G) and lock nuts (B) to disassemble wheel.
3. Inspect parts for wear or damage and replace as necessary.
4. Install bearing (D) and assemble wheel parts with cap screws (G) and lock nuts.
5. Attach wheel to arm using spacer (I), washer (H) and previously removed hardware. Tighten hardware to specification, and install cap.

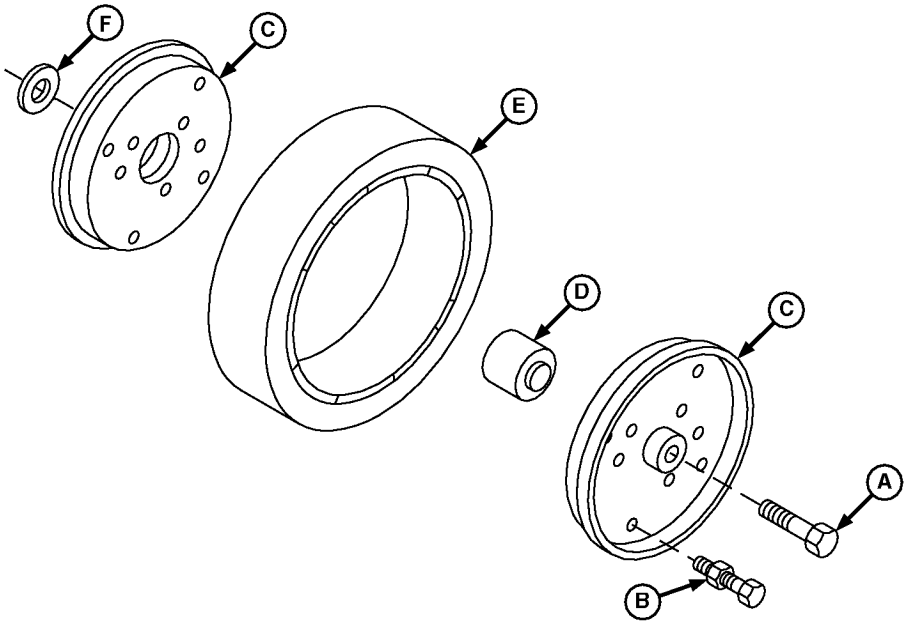
Specification	
Hardware—Torque	110 N•m (80 lb-ft)

NOTE: Follow steps 7—10 for arm bushing replacement.

6. Remove cap screw (Q) and arm parts.
7. Remove bushings (L and M).
8. Press new bushings into bore, flush to 0.76 mm (0.03 in.) below outside surface.
9. Install previously removed arm and attaching parts.

AG,OUO1074,559 –19–22FEB00–2/2

Repairing Steel Gauge Wheel Assembly



N49843 –UN–23APR98

A—Cap Screw, 5/8 x 3 In.
B—Cap Screw, 5/16 x 5/8 In. and Lock Nuts
C—Wheel Half
D—Bearing
E—Rubber Tire
F—Shim Washers (As Required)

NOTE: Clean dirt from parts prior to removal.

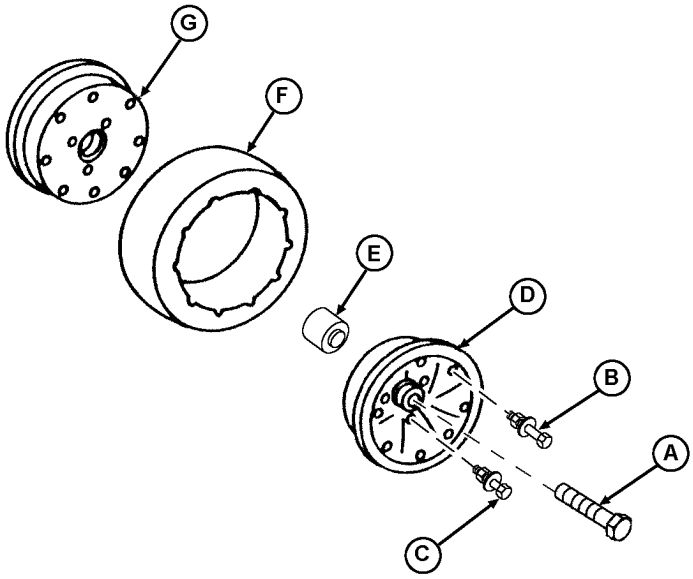
1. Remove center cap screw (A) and wheel assembly from arm.
2. Remove hardware (B) to disassemble wheel.
3. Inspect parts for wear or damage and replace as necessary.
4. Assemble bearing (D) wheel parts with seven 5/16 x 5/8 in. cap screws and lock nuts. Tighten four outer cap screws first; then three inner cap screws.
5. Attach wheel to arm with shim washers (F) and 5/8 x 3 in. cap screw. Tighten cap screw to specification.

Specification

Cap Screw—Torque ..... 231 N•m (170 lb-ft)

AG,OUO1074,560 –19–22FEB00–1/1

Repairing Smooth-Sided Gauge Wheel Assembly



N49836 –UN–21APR98

A—Cap Screw, 5/8 x 3 In.
B—Cap Screw, 5/16 x 1 In. Washer and Lock Nut
C—Cap Screw, 5/16 x 1-3/4 In. Washer and Lock Nut
D—Outer Wheel
E—Bearing
F—Tire
G—Inner Wheel

NOTE: Clean dirt from parts prior to removal.

1. Remove center cap screw (A) and wheel assembly.
2. Remove hardware (B and C) to disassemble wheel.
3. Inspect parts for wear or damage and replace as necessary.
4. Assemble bearing (E) and wheel parts with previously removed hardware.
5. Attach wheel to arm using previously removed hardware.

AG,OUO1074,561 –19–22FEB00–1/1

Checking Gauge Wheel Clearance—All Gauge Wheels

NOTE: Clearance must be checked at seed boot outlet.

Measure clearance between gauge wheel (B) and disk opener (A).

NOTE: A correct clearance is 1.0 mm to 5.6 mm (0.04 in. to 0.22 in.). A clearance of 3.2 mm (0.125 in.) is recommended.

Add or remove shim washers at wheel mounting, as necessary, to obtain specified clearance.

Specification

Gauge Wheel to Disk Opener—
Clearance ..... 3.2 mm (0.125 in.)

A—Disk Opener
B—Gauge Wheel

AG,OUO6074,562 –19–22FEB00–1/1

Replacing Disk Openers and Bearings

Disk Openers

CAUTION: Disks are sharp. Use caution and wear protective clothing to avoid cutting hands.

METHOD ONE:

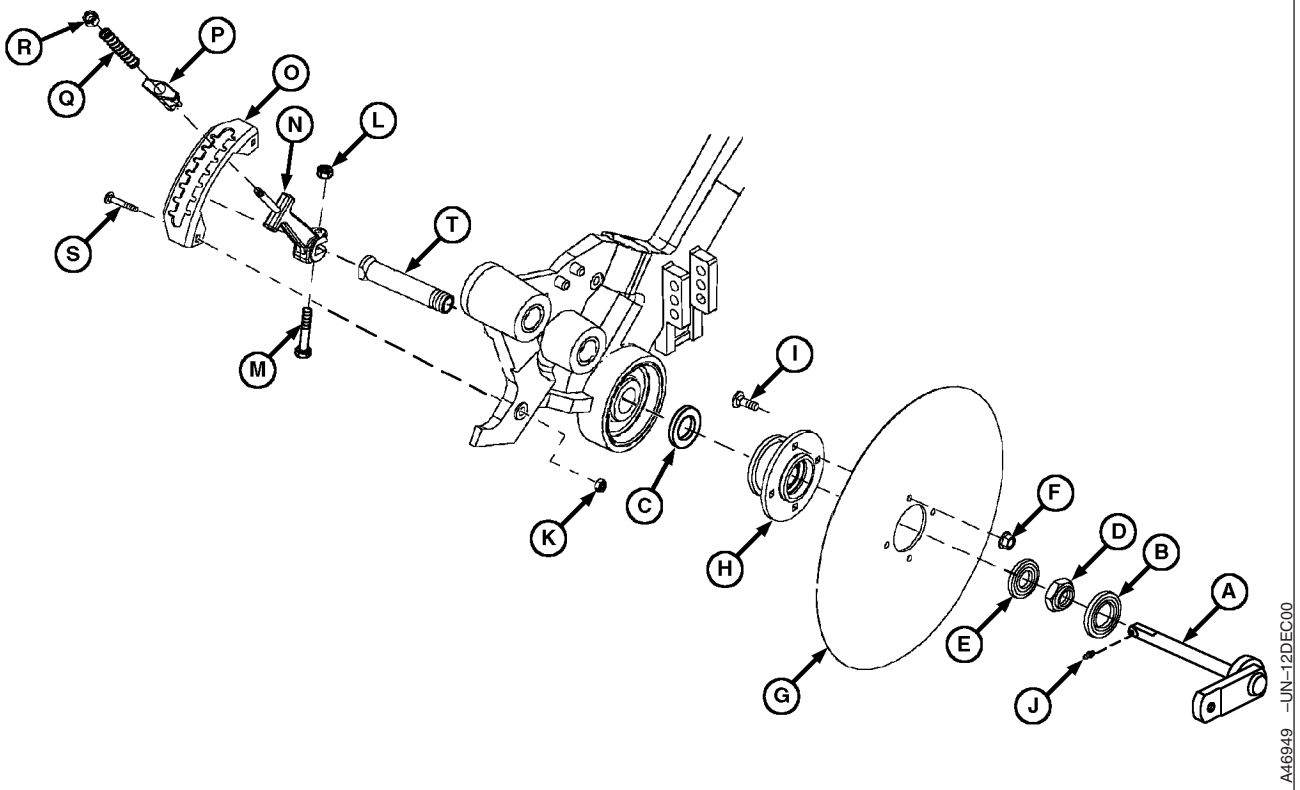
NOTE: Diameter of a new disk opener (G) is 457 mm (18 in.) Replace disk openers when diameter is less than 406 mm (16 in.) or if uneven seeding depth occurs.

NOTE: Clean dirt from parts prior to removal.

1. Remove gauge wheel (not shown) from arm. See REPAIRING STEEL GAUGE WHEEL ASSEMBLY or REPAIRING SMOOTH-SIDED GAUGE WHEEL ASSEMBLY in this section for information.

Continued on next page

AG,OUO1074,563 –19–22FEB00–1/3



A—Depth Adjustment Arm	**F—Lock Nut**	**K—Lock Nut**	**P—Handle**
B—Triple Lip Seal	**G—Disk Opener**	**L—Lock Nut**	**Q—Compression Spring**
C—Inner Spacer	**H—Hub Assembly**	**M—Cap Screw**	**R—Lock Nut**
D—Nut	**I—Bolt**	**N—Depth Gauge Handle Arm**	**S—Cap Screw**
E—Seal Assembly	**J—Grease Fitting**	**O—Cover**	**T—Spindle**

2. Place handle (P) in lowest possible slot.

3. Remove lock nuts (F).

CAUTION: Disks are sharp. Use caution and wear protective clothing to avoid cutting hands.

4. Remove disk opener (G) by maneuvering around depth adjustment arm (A).

5. Install new disk with beveled side towards hub.

IMPORTANT: Tire damage can occur if disk opener and gauge wheel are not correctly spaced.

6. Install previously removed parts. See CHECKING GAUGE WHEEL CLEARANCE—ALL GAUGE WHEELS in this section when installing gauge wheel.

METHOD TWO:

NOTE: Clean dirt from parts prior to removal.

1. Remove gauge wheel (not shown) from arm. See REPAIRING STEEL GAUGE WHEEL ASSEMBLY or REPAIRING SMOOTH-SIDED GAUGE WHEEL ASSEMBLY in this section for information.

2. Remove grease fitting (J).

IMPORTANT: Avoid damaging triple lip seal (B). Remove arm (A) carefully.

3. Remove cap screw (M) and depth gauge handle arm (N); then remove depth adjustment arm (A).

Continued on next page

CAUTION: Disks are sharp. Use caution and wear protective clothing to avoid cutting hands.

IMPORTANT: Do not damage triple lip seal (B) on nut. Use care when removing and installing disk opener.

4. Remove lock nuts (F) and disk opener (G).

5. Install new disk opener with beveled side towards hub.

IMPORTANT: Avoid damaging triple lip seal (B). Install arm (A) carefully.

6. Grease triple lip seal (B) and install arm (A).

IMPORTANT: Tire damage can occur if disk opener and gauge wheel are not correctly spaced.

7. Install previously removed parts. See CHECKING GAUGE WHEEL CLEARANCE—ALL GAUGE WHEELS in this section when installing gauge wheel.

Bearings

Bearing replacement requires a special tool and procedure. See your John Deere dealer.

AG,OUO1074,563 –19–22FEB00–3/3

Inspecting Boots and Disk Openers

Poor opener penetration may be a result of worn disk openers. Uneven seed depth may be a result of worn boots.

Continued on next page

AG,OUO1074,564 –19–22FEB00–1/2

Lower seed boot measures 80 mm (3.15 in.) (A) from top to bottom. Measure lower boot and replace if worn 12.7 mm (0.5 in.) (B) or more, and height is 67 mm (2.64 in.) or less.

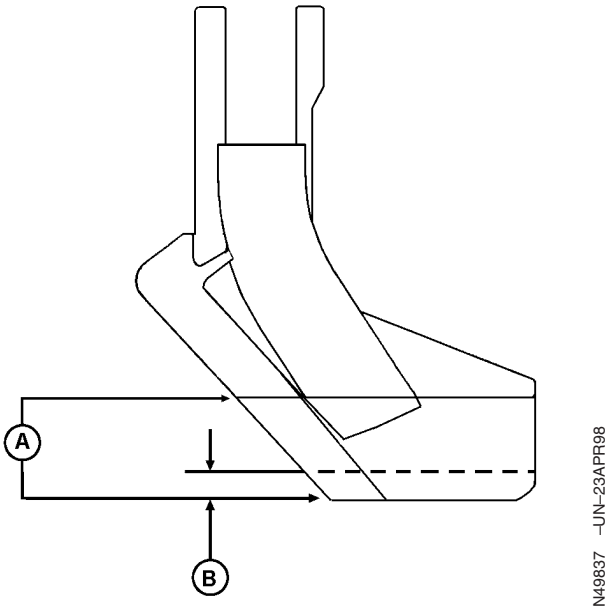
Repositioning seed boot may extend service life. Refer to POSITIONING SEED BOOTS in Preparing The Machine section.

Diameter of new disk opener is 457 mm (18 in.). Replace disk opener when uneven seeding depth due to poor penetration occurs or if disk opener diameter is less than specification .

Specification

Disk Opener—Diameter	406 mm (16 in.)

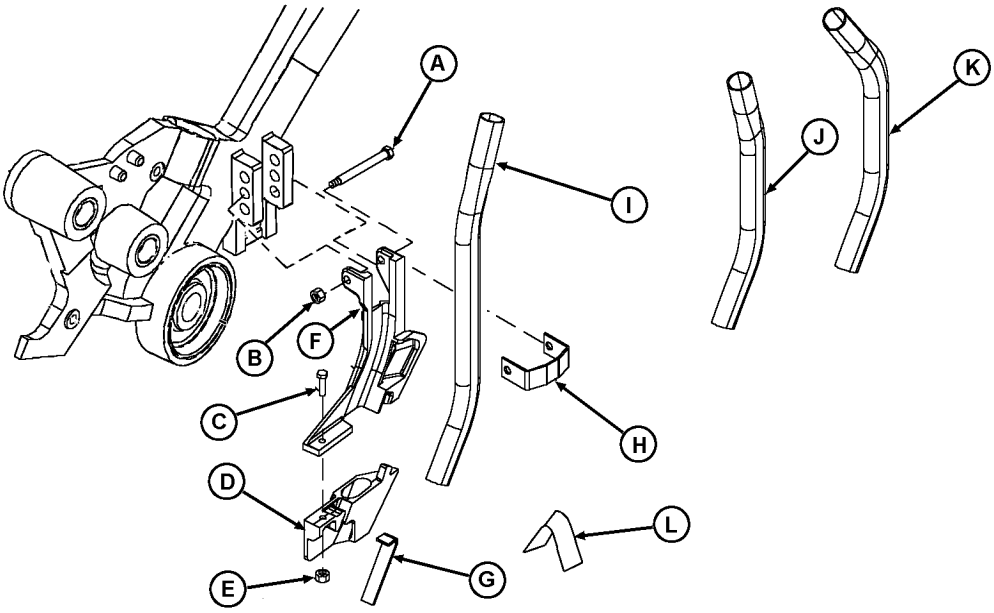
See REPLACING DISK OPENERS AND BEARINGS in this section for disk replacement.



A—Dimension, 80 mm (3.15 in.)
B—Dimension, 12.7 mm (0.5 in.)

AG,OUO1074,564 –19–22FEB00–2/2

Replacing Seed Deflectors and Boots



A—Cap Screw, 7/16 x 4-1/4 In.
B—Lock Nut
C—7.9 x 31.75 mm Cap Screw
D—Lower Seed Boot
E—Lock Nut
F—Upper Seed Boot
G—Seed Deflector
H—Strap
I—Seed Tube
J—Seed Tube
K—Seed Tube
L—Leaf Spring

NOTE: Clean dirt from parts prior to removal.

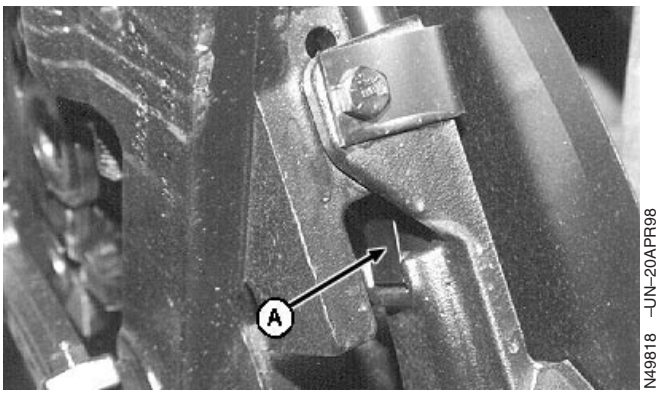
1. Remove leaf spring (L) to release seed boot from operating position against disk opener.
2. Remove cap screw (C), lock nut (E) and lower boot half (D) to replace seed deflector (G).
3. Remove cap screw (A), lock nut (B) and strap (H) to remove boot assembly and seed tube (I,J, or K).
4. Attach seed boot using one-of-three mounting positions. See POSITIONING SEED BOOTS in Preparing The Machine section for further information.
5. Install new parts using previously removed hardware.

AG,OUO1074,565 –19–22FEB00–1/2

IMPORTANT: Leaf spring keeps seed boot against inside of disk opener for accurate seed placement.

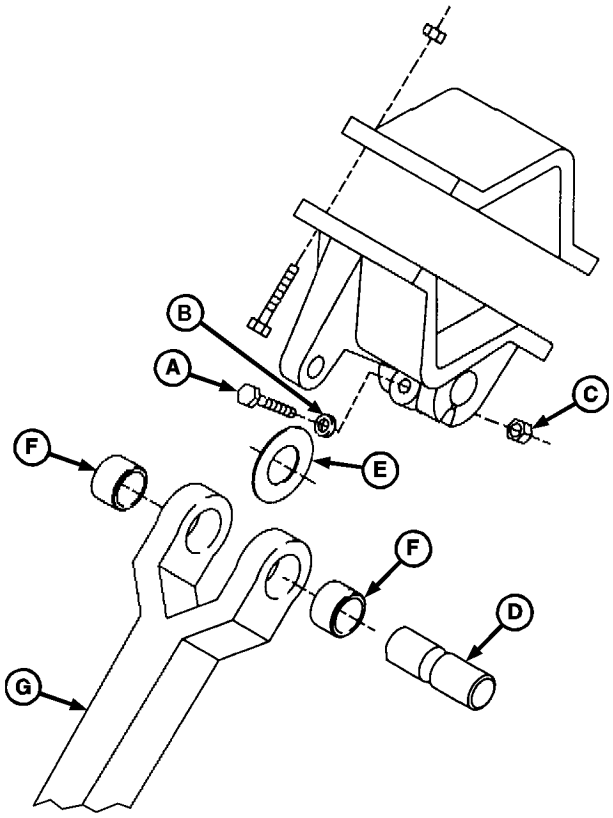
6. Install leaf spring (A) from the bottom, making sure spring is locked into position below boot attaching cap screw and above boot stop.

A—Leaf Spring



AG,OUO1074,565 –19–22FEB00–2/2

Replacing Opener Arm Pivot Bushings



N49844 –UN–23APR98

A—Cap Screw, 5/8 x 3 In. (Grade 8)
B—Washer
C—Lock Nut
D—Pivot Pin
E—Thrust Washer
F—Arm Pivot Bushings
G—Opener Arm

NOTE: Clean dirt from parts prior to removal.

1. Remove hardware and pivot pin (D) from arm. Retain thrust washer (E).

2. Drive old bushings from arm.

IMPORTANT: Be careful not to damage outer edges of new bushings when installing.

3. Press new bushings into arm bores, flush to 0.76 mm (0.03 in.) below outside surface.

IMPORTANT: Thrust washer must be installed between arm and anchor castings, on same side of arm as disk.

4. Position thrust washer on disk side of arm (between arm and anchor) and attach arm with pivot pin. Be careful not to damage bushings when installing pin.

5. Install pin retaining hardware and tighten to specification.

Specification

Pin Retaining Hardware—
Torque..... 163 N•m (120 lb-ft)

AG,OUO1074,566 –19–22FEB00–1/1

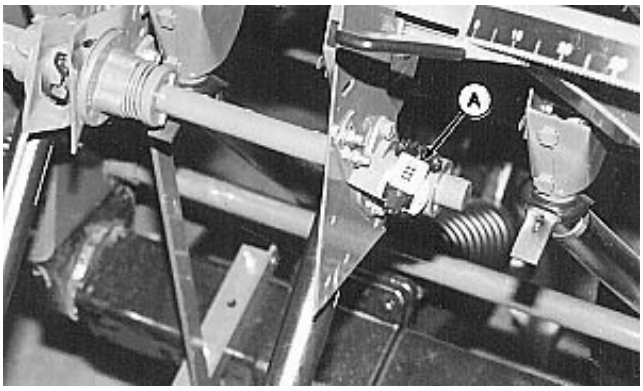
Checking Acremeter Accuracy

Acremeter reading (A) is an approximate measurement and may be affected by a worn out counter, chipped gear teeth, or a loose worm gear. To test accuracy of the acremeter, perform the following procedure.

1. Divide 43,560 by width of drill to find a calibration distance equal to one acre.
2. Operate machine over calibration distance (one acre).
3. Disengage clutch and review acremeter reading to ensure one acre has actually been covered.

EXAMPLE: 20 ft drill

1. 43,560 ÷ 20 ft = 2178 ft
2. Operate drill for 2178 ft
3. Check acremeter reading. Acremeter reading should increase by “1” acre.



A—Acremeter Reading

AG,OUO1074,567 –19–22FEB00–1/1

Using Alternate Opener Pattern

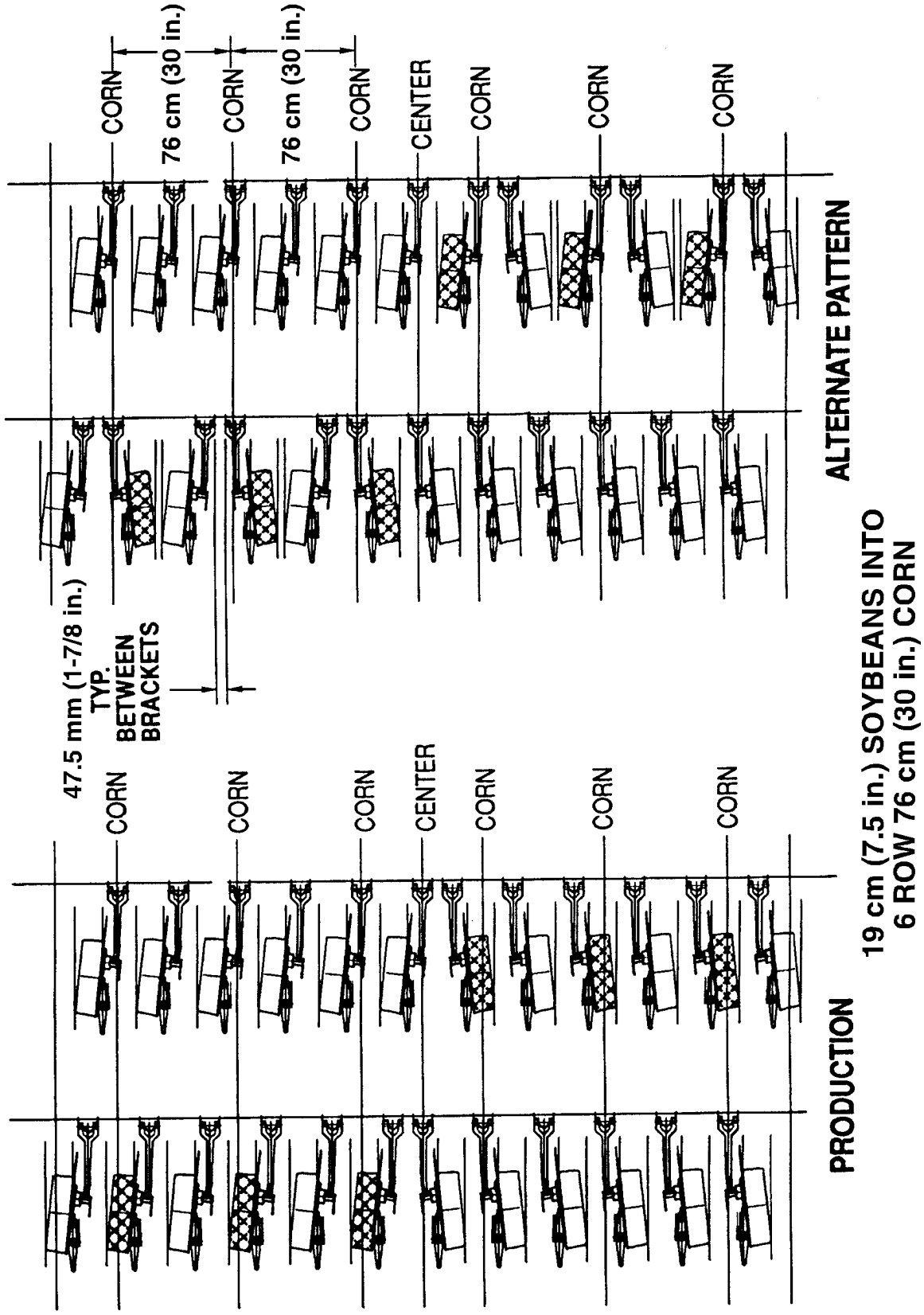
NOTE: Kit #AN281162 is required to change to an alternate opener pattern and can be purchased from your John Deere Dealer.

When experiencing poor seed placement in rows where gauge wheels ride on existing 76.2 cm (30 in.) rows, an alternate opener pattern may be used for 4.6 m (15 ft) and 6.1 m (20 ft) drills set for 19 cm (7.5 in.) row spacing.

To prevent gauge wheels from riding on existing 76.2 cm 30 in. rows, remove highlighted openers shown on Production side of illustrations. Once highlighted openers have been removed, place openers from rear rank on front rank and openers from front rank on rear rank as shown on Alternate Pattern side of illustrations. Leave 47.5 mm (1-7/8 in.) between opener brackets on rockshafts.

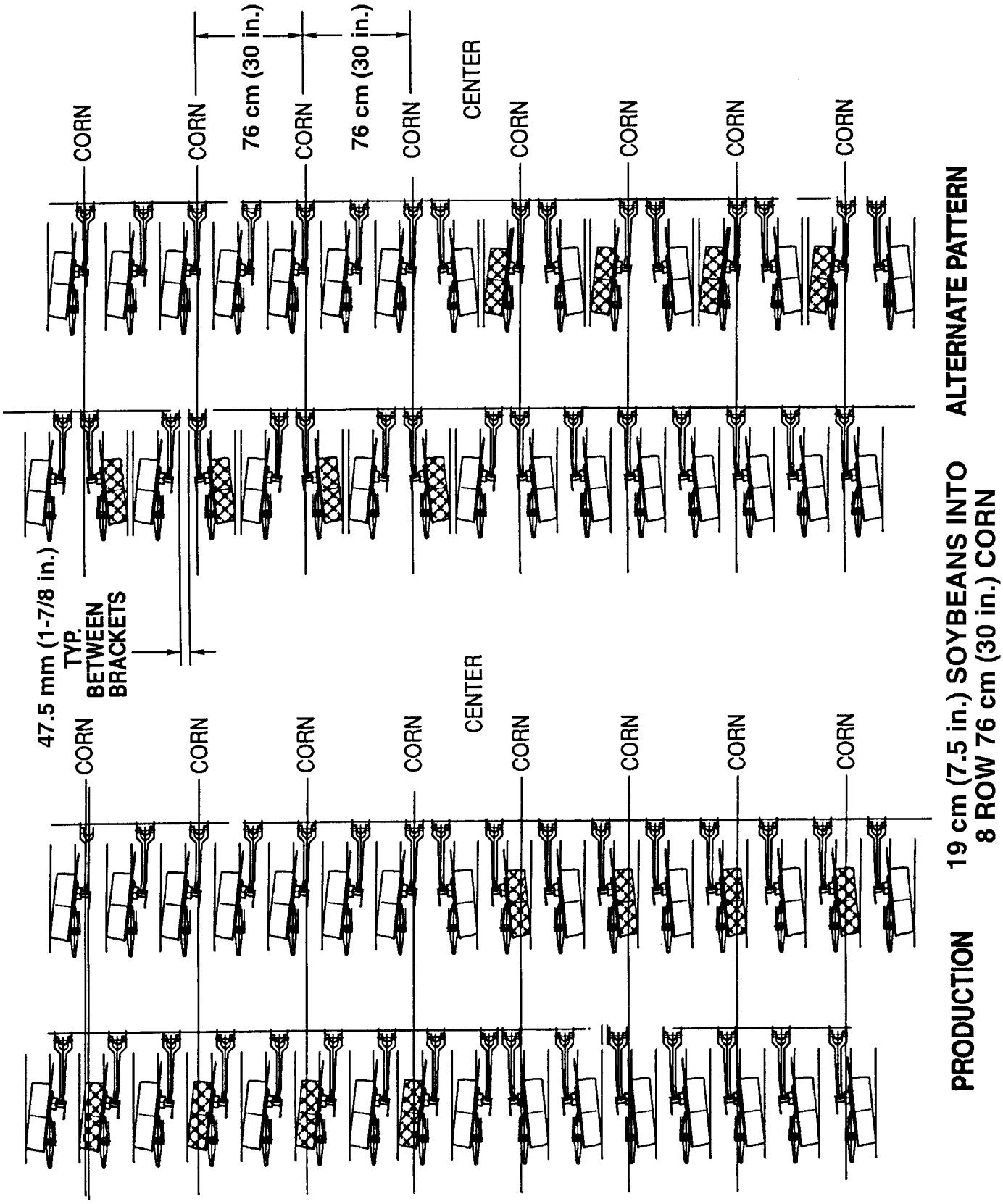
AG,OUO1074,568 –19–22FEB00–1/1

Alternate Opener Diagram—4.6 m (15 ft)



AG,OUO1074,569 –19–22FEB00–1/1

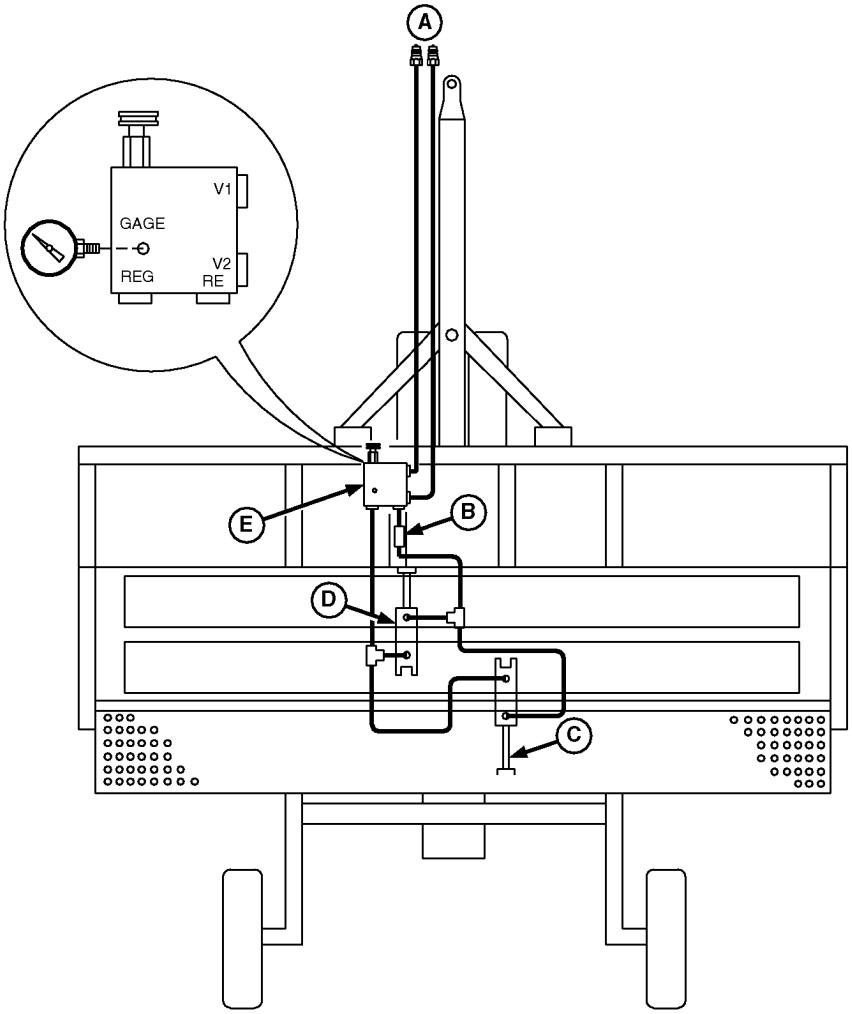
Alternate Opener Diagram—6.1 m (20 ft)



N55782 –19–08JAN01

AG,OUO1074,570 –19–22FEB00–1/1

Down-Pressure Hose Routing



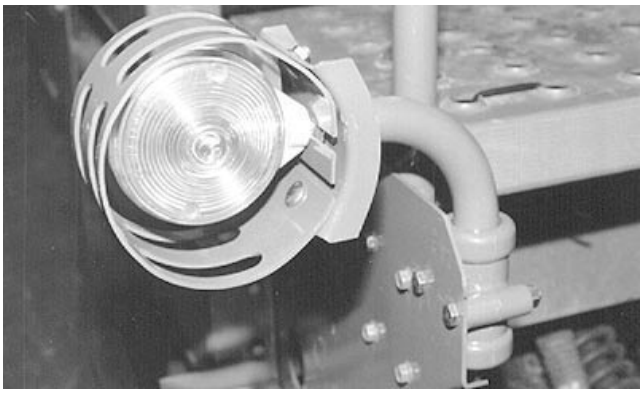
N47228 –UN–23JAN96

A—To Tractor SCV
B—Hydraulic Lock-Up Valve
C—Rear Rank Opener Down-Pressure Cylinder
D—Front Rank Opener Down-Pressure Cylinder
E—Active Down-Pressure Control Valve

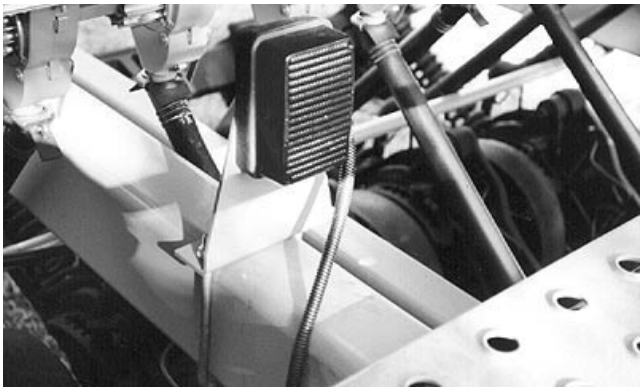
OUO6074,000017A –19–08JAN01–1/1

Replacing Warning Light Bulbs

Remove lens to replace warning light bulb. See your John Deere dealer for replacement bulbs.



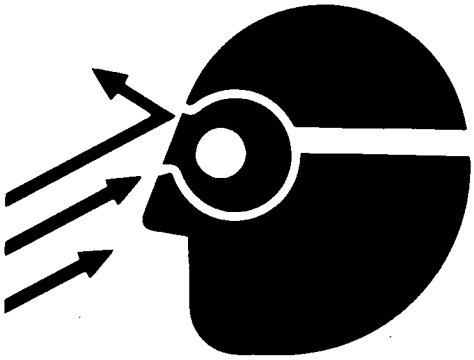
Amber Light



Red Light

AG,OUO1074,571 –19–22FEB00–1/1

Preparing for Storage



TS266 –UN–23AUG88

CAUTION: Reduce compressed air to less than 210 kPa (2 bar) (30 psi) when using for cleaning purposes. Clear area of bystanders, guard against flying debris, and wear personal protection equipment, including eye protection.

IMPORTANT: Compressed air (dry) cleaning method is recommended to prevent gum-like deposits (left by water wash) from forming on seed box components and/or blocking product passages.

1. Empty drill box(es) and clean caked deposits from box(es). See CLEANING GRAIN BOX and CLEANING FERTILIZER BOX in this section.

   COMPRESSED AIR (DRY) CLEANING:

   CAUTION: Do not allow residue from box(es) washing to contaminate well or ground water.

   IMPORTANT: If compressed air is not available for cleaning, water wash method may be used provided seed boxes are thoroughly dried after cleaning. Drying takes time since moisture trapped in bearing areas is slow to drain or evaporate.

   Thoroughly clean inside of box(es) using compressed air. A good dry cleaning is preferable to poor washing and drying.

   WATER WASH (WET) CLEANING:

   Wash machine thoroughly, inside and out. Wipe surfaces and components dry.

Continued on next page

AG,OUO1074,572 –19–22FEB00–1/2

CAUTION: Be careful when using diesel fuel so that it does not ignite. Use only in well ventilated areas away from any sparks and flames to prevent being seriously injured or killed by fire.

2. Remove chain from drive system. Clean chain with diesel fuel, coat with oil and hang in a dry place.
3. Paint all bare metal and rust spots.
4. Replace any missing or damaged parts including hoses, hardware and decals. Tighten all hardware.
5. Apply grease to exposed area of hydraulic cylinder rods.
6. Place hose ends and warning light plug in storage positions on hitch.
7. Lubricate entire machine.

AG,OUO1074,572 –19–22FEB00–2/2

Removing from Storage

1. Check tire inflation. See Service section.
2. Clean the machine thoroughly.
3. Make sure seed tubes and openers are free of obstruction.
4. Perform required lubrication. See Lubrication And Maintenance section.
5. Check all hardware and torque as needed.
6. Review operator's manual, giving special attention to safety precautions.

AG,OUO1074,573 –19–22FEB00–1/1

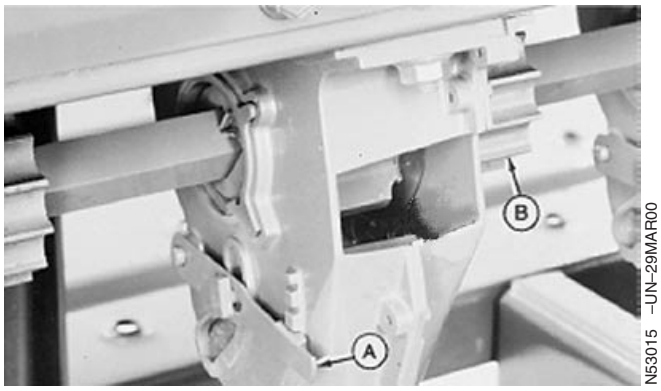
Cleaning Grain Box

1. Move latch (A) downward off retaining teeth to open feed gate (B).

2. Empty product from box and thoroughly clean inside of box. See PREPARING FOR STORAGE in this section.

CAUTION: Be careful when using diesel fuel (or other petroleum product) so it does not ignite. Use only in well ventilated areas away from any sparks and flames to prevent being seriously injured or killed by fire.

3. Lightly coat inside of box with diesel fuel (or other petroleum product).



A—Latch
B—Feed Gate

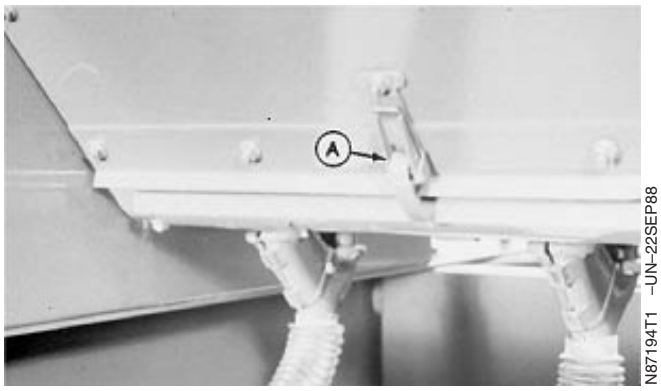
AG,OUO1074,574 –19–22FEB00–1/1

Cleaning Fertilizer Box

IMPORTANT: To avoid metal corrosion and feed shaft binding or "freezing", clean out all fertilizer in box before storing drill (even overnight).

1. Release all spring clips (A) to drop bottom covers.

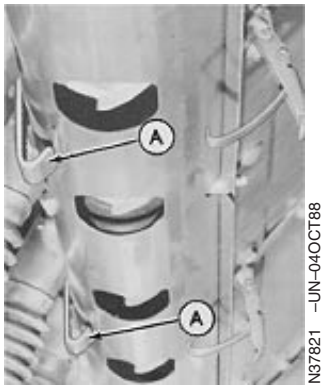
A—Spring Clips



AG,OUO1074,575 –19–22FEB00–1/4

2. Remove covers as necessary by rotating them off hangers (A).

A—Hangers



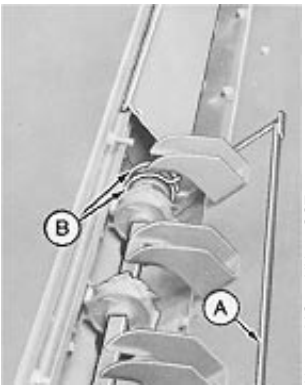
Continued on next page

AG,OUO1074,575 –19–22FEB00–2/4

3. Remove baffle hold-down knobs. Tip left-hand baffle (A) to rear and lift out. Tip and lift out right-hand baffle.

4. Remove bearing clamps (B) and bearing caps and lift feed shaft out of box.

A—Baffle
B—Bearing Clamps



AG,OUO1074,575 –19–22FEB00–3/4

IMPORTANT: To avoid deterioration, do not allow diesel fuel (or any other petroleum product) to come in contact with rubber tubes.

5. Clean remaining fertilizer through clean-out holes (A) in bottom of box. If drill is to be stored for longer than 24 hours, coat metal parts and inside of box with diesel fuel or other light petroleum product.

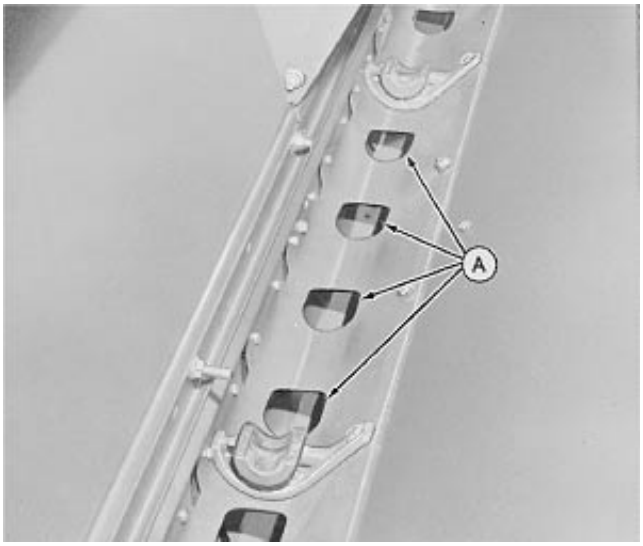
NOTE: When installing baffles, right-hand baffle should be installed first.

Install baffles over feed wheels so outer ends of the baffles are flush with the end panels of fertilizer box.

6. Install feed shafts, clamps and baffles. The baffle “ears” locate the feed wheels, and if bent may cause erratic delivery of product.

IMPORTANT: The outer end of either bottom cover MUST NOT contact the end panel hardware of the box or leakage will result.

7. Replace bottom covers.



A—Holes

AG,OUO1074,575 –19–22FEB00–4/4

Using Machine Covers

Vinyl covers are available for all 1560 Grain Drill boxes without grass seed attachment. See your John Deere dealer for information.

AG,OUO1074,576 –19–22FEB00–1/1

Specifications

1560 Tractor Recommendations

Model	Minimum Horsepower kW (hp) At PTO
3.1 m (10 ft) with 19 cm (7.5 in.) spacing	63 kW (85 hp)
4.6 m (15 ft) with 19 cm (7.5 in.) spacing	75 kW (100 hp)
4.6 m (15 ft) with 25 cm (10 in.) spacing	69 kW (93 hp)
6.1 m (20 ft) with 19 cm (7.5 in.) spacing	104 kW (140 hp)

AG,OUO1074,577 –19–22FEB00–1/1

4.6 m (15 ft) 1560 With 1565 Separate Placement Box Tractor Recommendations

Model	Minimum Horsepower kW (hp) At PTO
4.6 m (15 ft) with 19 cm (7.5 in.) spacing	116 kW (155 hp)

AG,OUO1074,578 –19–22FEB00–1/1

1560 Drill Transport Weights

CAUTION: The drill is heavy. Chart shows weights for one drill. Use adequate towing vehicle to avoid injury. A runaway machine can cause injury or death to you or others.

Machine Size m (ft)	Maximum Machine Weight Empty kg (lb)	Maximum Machine Weight Full kg (lb)	Maximum Simple Hitch Tongue Weight kg (lb)
Combination Box			
3.1 (10)	3130 (6900)	4082 (9000)	1497 (3300)
4.6 (15)[a]	4581 (10,100)	5942 (13,100)	2087 (4600)
6.1 (20)[b]	6682 (14,730)	8936 (19,860)	2903 (6400)
[a]If 4.6 m (15 ft) drills are equipped with row markers, add 259 kg (570 lb).			
[b]If 6.1 m (20 ft) drills are equipped with row markers, add 259 kg (570 lb).			

AG,OUO1074,579 –19–22FEB00–1/1

4.6 m (15 ft) 1560 Drill With 1565 Separate Placement Box Transport Weights

Machine Size m (ft)	Maximum Machine Weight Empty kg (lb)	Maximum Machine Weight Full kg (lb)	Maximum Simple Hitch Tongue Weight kg (lb)
4.6 (15)	6123 (13,500)	9072 (20,000)	Not applicable

AG,OUO1074,580 –19–22FEB00–1/1

Machine Dimensions

Model		3.1 m (10 ft)	4.6 m (15 ft)	6.1 m (20 ft)
Overall Length Single Placement Caster Wheels	m	6.4	6.4	6.4
	ft	21	21	21
Overall Length With Two-Point Hitch	m	5.38	5.38	5.38
	ft	17.7	17.7	17.7
Overall Height	mm	2085	2085	2085
	in.	82	82	82
Overall Height With Marker Arm Length Set for Machine	mm	n/a[a]	2502	2502
	in.		98.5	98.5
Overall Width	m	3.2	4.7	6.4
	ft	10.5	15.5	20.6
Overall Transport Width (With Marker Arm Attachment)	m	3.2	4.7	6.4
	ft	10.5	15.5	20.6
Overall Field Width (With Marker Arm Length Set For Machine)	m	n/a[a]	9.1	12.2
	ft		30	40
Under Frame Clearance Vertical	cm	60	60	60
	in.	24	24	24
[a](n/a = not available for this size)				

AG,OUO1074,581 –19–22FEB00–1/1

1560 With 1565 Separate Placement Box Machine Dimensions

Model	3.1 m (10 ft)	4.6 m (15 ft)	6.1 m (20 ft)
Overall Length Separate Placement	n/a[a]	7.3 m	n/a[a]
		23.8 ft	
[a](n/a = not available for this size)			

AG,OUO1074,582 –19–22FEB00–1/1

Opener Specifications

Disk Blade Size/Angle	
New	457 mm (18 in.) at 7 degrees
Replace at	406 mm (16 in.) Dia.
Gauge Wheels	114 mm (4.5 in.) x 406 mm (16 in.) Rubber
Seed Depth Adjustment Range	13 mm (0.5 in.) to 89 mm (3.5 in.) with 6 mm (1/4 in.) increments
Press Wheels	25 mm (1 in.) x 254 mm (10 in.) Rubber
Down-Force Adjustment Range	2.3 kg (5 lb) to 20.4 kg (45 lb)
Closing Wheels	25 mm (1 in.) x 305 mm (12 in.) Cast
Down-Force Adjustment Range	11.8 kg (26 lb) to 19.5 kg (43 lb)
Openers Per Machine	
3.1 m (10 ft)	16 at 19 cm (7.5 in.)/25 cm (10 in.) n/a[a]
4.6 m (15 ft)	24 at 19 cm (7.5 in.)/18 at 25 cm (10 in.)
6.2 m (20 ft)	32 at 19 cm (7.5 in.)/25 cm (10 in.) n/a[a]
Down-Force Per Opener	73 kg to 204 kg (160 lb to 450 lb)
[a](n/a = not available for this size.)	

AG,OUO1074,583 –19–22FEB00–1/1

1560 Machine Capacities

Configuration	Plain Grain 100 Percent Grain	Combination Box 60 Percent Grain 40 Percent Fertilizer
Grain Box	404.7 L/m	250.9 L/m
	3.5 bu/ft	2.17 bu/ft
Fertilizer Box	0 kg/m	197.4 kg/m
	0 lb/ft	132.8 lb/ft

		Plain Grain Box	**Combination Box**
Total Box 3 m (10 ft)	liter	1233.4L	1318.0L
	bu	35 bu	37.4 bu
Total Box 4.6 m (15 ft)	liter	1850.1L	2026.3L
	bu	52.5 bu	57.5 bu
Total Box 6.1 m (20 ft)	liter	2466.8L	2636.0L
	bu	70 bu	74.8 bu

		3 m (10 ft) Drill	**4.6 m (15 ft) Drill**	**6.1 m (20 ft) Drill**
Grass seed Box with Plain Grain Box	liter	105.7L	169.1L	211.4L
	bu	3.0 bu	4.8 bu	6.0 bu
Grass Seed Box with Combination Box	liter	52.9L	84.6L	105.7L
	bu	1.5 bu	2.4 bu	3.0 bu

Seed weight is measured at 770 kg/m^3 (60 lb/bu).

Fertilizer weight is measured at 80 lb/bu^3 or 1041 kg/m^3 (65 lb/ft^3).

AG,OUO1074,584 –19–22FEB00–1/1

1560 With 1565 Separate Placement Box Machine Capacities

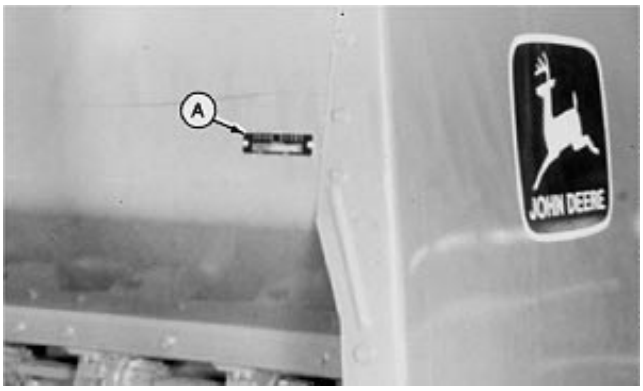
Separate Fertilizer Box Capacity: 108.4 kg/m (239 lb/ft) or total box capacity of 1550 kg (3417 lb)

AG,OUO1074,585 –19–22FEB00–1/1

Serial Number

Record serial number (A), located on left end of each grain box.

A—Serial Number



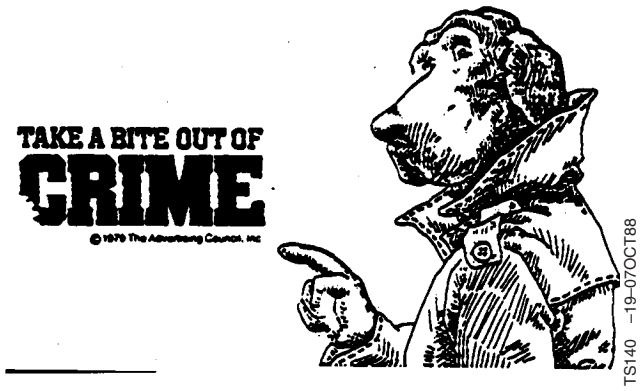
N87266B2 –UN–06OCT88

AG,OUO1074,586 –19–22FEB00–1/1

Crime Prevention Tips

Help Prevent Crime

You can help take a bite out of crime by properly documenting ownership and discouraging theft.



TS140 –19–07OCT88

DX,CRPRV,A –19–03MAR93–1/1

Record Ag Identification Numbers

1. Mark your machines with your own unique numbering system.

2. Record the Product Identification Number (PIN) of the unit and also individual component identification numbers for engines, axles, pumps, etc. Include the PIN numbers on all documentation, such as insurance, financial, and warranty papers.

TS161 –UN–23MAR89

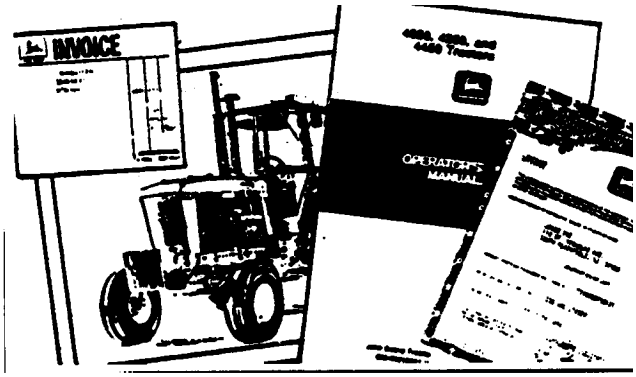
DX,CRPRV,B –19–03MAR93–1/1

Keep Proof of Ownership

1. Take color photographs from several angles of each machine.

2. Maintain an up-to-date inventory of all your machines.

3. Keep your documented identification numbers, color photographs, and inventory in a safe, secure location.



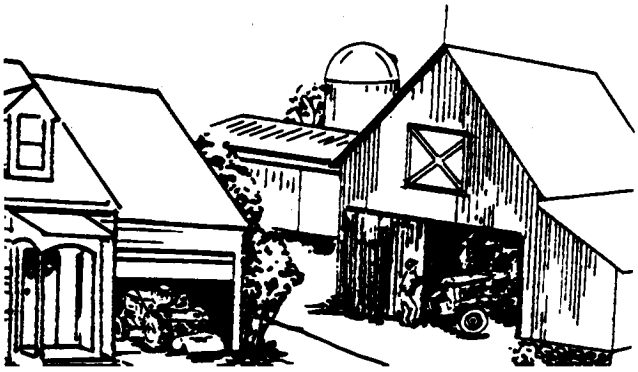
TS142 –UN–23MAR89

DX,CRPRV,C –19–03MAR93–1/1

Park Indoors Out of Sight

Make machines hard to move:

- Park large equipment in front of exits.
- Lower equipment to the ground. Remove key.
- Remove battery when unit is in storage.
- Lock cab doors, windows, and vandal-proof devices.
- Set wheels in widest position making loading more difficult. Lock building.



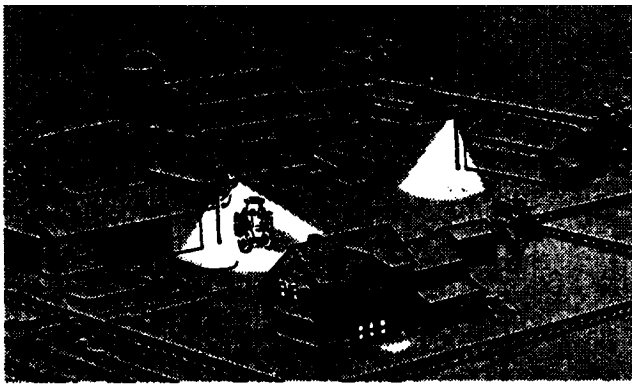
TS143 –UN–23AUG88

DX,CRPRV,D –19–03MAR93–1/1

When Parking Outdoors

Make machines hard to move:

- Park in a well-lighted, fenced area.
- Lower all equipment to the ground.
- Remove ignition key. Remove battery when unit is in storage.
- Lock cab doors, windows, and vandal-proof devices.
- Set wheels in widest position making loading more difficult.



TS155 –UN–23AUG88

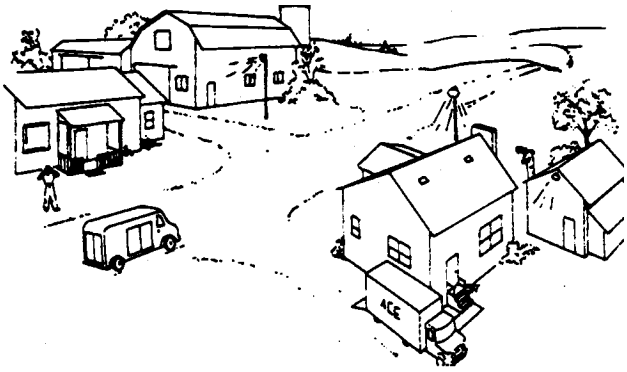
DX,CRPRV,E –19–03MAR93–1/1

Reduce Vandalism

1. Install vandal-proof devices.

2. Participate in a neighborhood watch program. Take written notes of suspicious vehicles or persons and report your findings to law enforcement agency.

3. Regularly verify that identification plates have not been removed. If they have, notify law enforcement agency. Order duplicate plates from your dealer.



TS145 –UN–23AUG88

DX,CRPRV,F –19–03MAR93–1/1

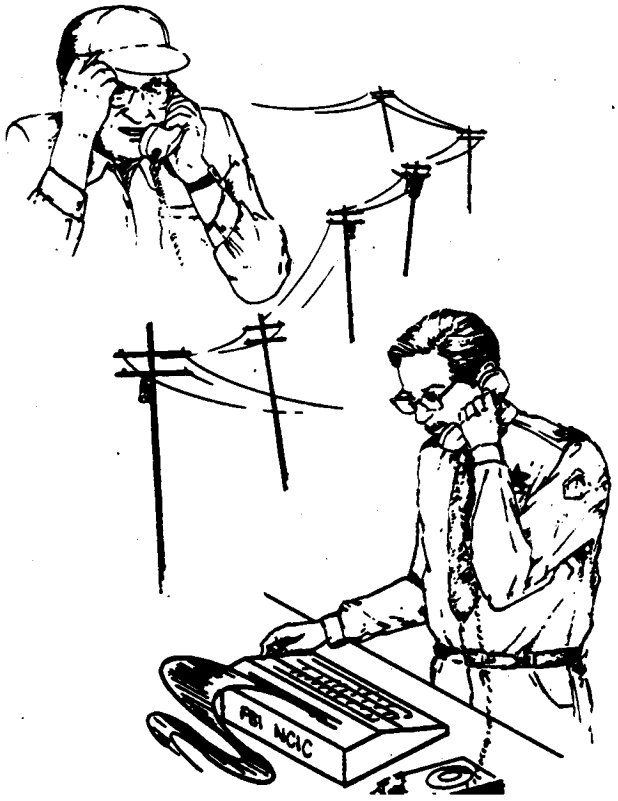
Report Thefts Immediately

1. Immediately notify your local law enforcement agency and insurance agent.

2. Provide a complete description of the machine, all of the documented identification numbers and color photographs.

3. Request verification of the identification numbers after they have been entered with any regional or national crime information center. Double check the numbers to be sure they are correct.

4. Notify your John Deere dealer of the theft and request that its loss be posted with full description and identification numbers.



TS146 –UN–09JAN89

DX,CRPRV,G –19–03MAR93–1/1

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John Deere Service Literature Available

Technical Information

Technical information is available from John Deere. Some of this information is available in electronic as well as printed form. Order from your John Deere dealer or call **1-800-522-7448**. Please have available the model number, serial number, and name of the product.

Available information includes:

- PARTS CATALOGS list service parts available for your machine with exploded view illustrations to help you identify the correct parts. It is also useful in assembling and disassembling.
- OPERATOR'S MANUALS providing safety, operating, maintenance, and service information. These manuals and safety signs on your machine may also be available in other languages.
- OPERATOR'S VIDEO TAPES showing highlights of safety, operating, maintenance, and service information. These tapes may be available in multiple languages and formats.
- TECHNICAL MANUALS outlining service information for your machine. Included are specifications, illustrated assembly and disassembly procedures, hydraulic oil flow diagrams, and wiring diagrams. Some products have separate manuals for repair and diagnostic information. Some components, such as engines, are available in separate component technical manuals
- FUNDAMENTAL MANUALS detailing basic information regardless of manufacturer:
  - Agricultural Primer series covers technology in farming and ranching, featuring subjects like computers, the Internet, and precision farming.
  - Farm Business Management series examines "real-world" problems and offers practical solutions in the areas of marketing, financing, equipment selection, and compliance.
  - Fundamentals of Services manuals show you how to repair and maintain off-road equipment.
  - Fundamentals of Machine Operation manuals explain machine capacities and adjustments, how to improve machine performance, and how to eliminate unnecessary field operations.

TS189 –UN–17JAN89

TS191 –UN–02DEC88

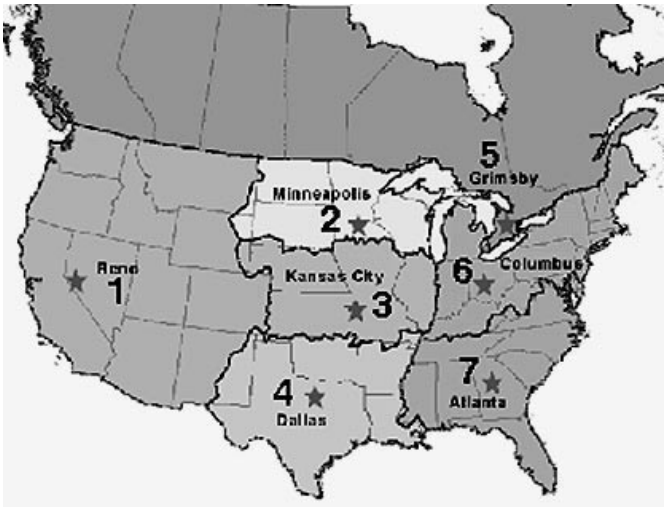
TS224 –UN–17JAN89

TS1663 –UN–10OCT97

DX,SERVLIT –19–11NOV97–1/1

John Deere Service Keeps You On The Job

John Deere Is At Your Service When You Need It



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2001 Deere Drive
Conyers, GA 30013-1598
Phone: 770-922-7040
Fax: 770-388-2103

CUSTOMER SATISFACTION is important to John Deere.
Our dealers strive to provide you with prompt, efficient parts and service:
–Maintenance and service parts to support your equipment.
–Trained service technicians and the necessary diagnostic and repair tools to service your equipment.

CUSTOMER SATISFACTION PROBLEM RESOLUTION PROCESS

Your John Deere dealer is dedicated to supporting your equipment and resolving any problem you may experience.

1. When contacting your dealer, be prepared with the following information:
–Machine model and product identification number
–Date of purchase
–Nature of problem

2. Discuss problem with dealer service manager.

3. If unable to resolve, explain problem to dealership manager and request assistance.

4. If you have a persistent problem your dealership is unable to resolve, ask your dealer to contact John Deere for assistance.

5. If a problem is not resolved to your satisfaction, contact the appropriate John Deere sales location for your area shown in map and ask to speak with customer service.

DX,IBC,2 –19–07JUL99–1/1