

**2720 Disk Ripper
(North American Edition)
(S.N. 780101-)**



JOHN DEERE

OPERATOR'S MANUAL

2720 Disk Ripper

OMKK60501 ISSUE B9 (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.

Additional Proposition 65 Warnings can be found in this manual.

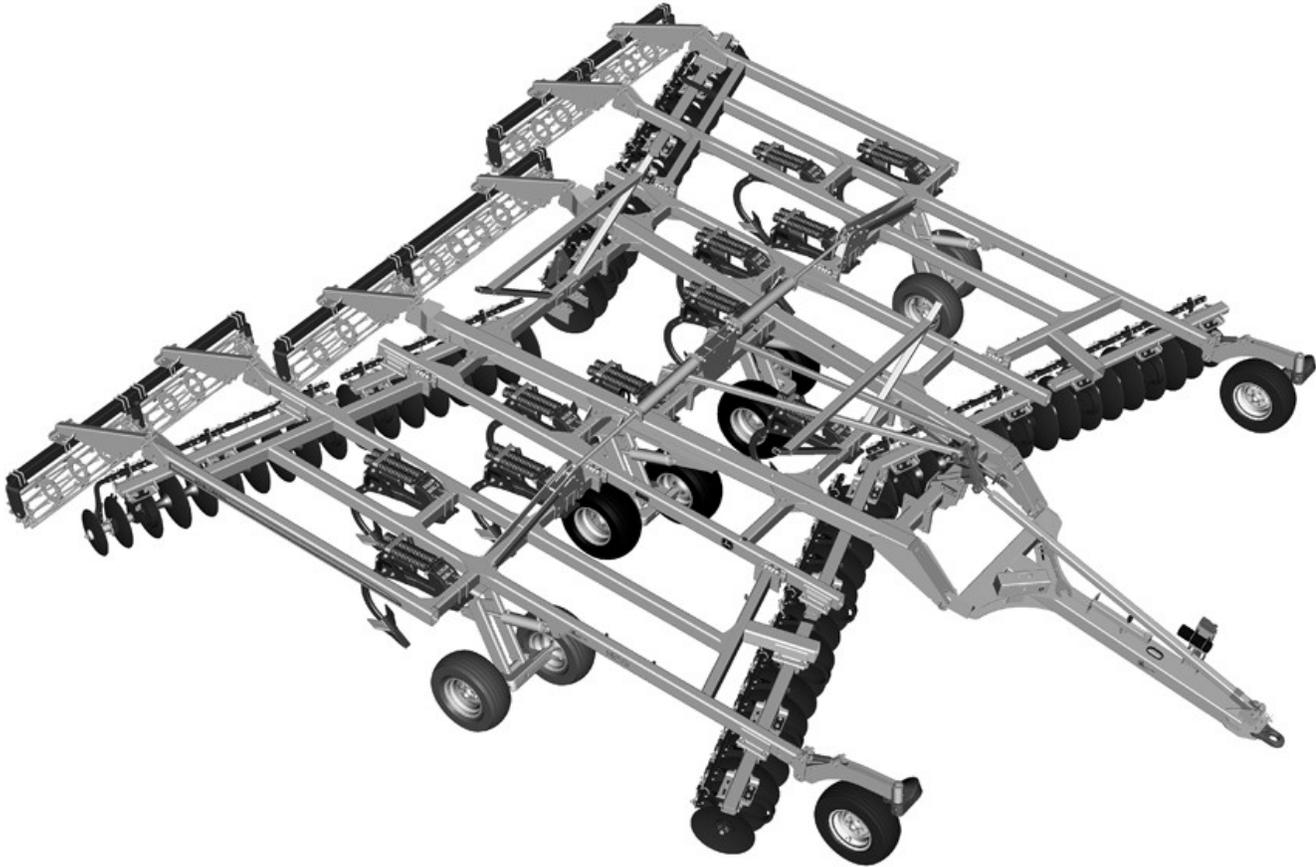
John Deere Des Moines Works

North American Edition
PRINTED IN U.S.A.



Introduction

Foreword



2720 Disk Ripper

N96923—UN—21FEB12

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.

BEFORE DELIVERING THIS MACHINE, your dealer performed a predelivery inspection.

THIS DISK RIPPER IS DESIGNED SOLELY for use in customary agricultural or similar operations for the purpose of tilling ground soil for seed bed preparation and residue incorporation ("INTENDED USE"). Use in any other way is considered as contrary to the intended use. The manufacturer accepts no liability for damage or injury resulting from this misuse, and these risks must be borne solely by the user. Compliance with and strict adherence to the conditions of operation, service and repair as specified by the manufacturer also constitute essential elements for the intended use.

THIS DISK RIPPER SHOULD BE OPERATED, serviced and repaired only by persons familiar with all its particular characteristics and acquainted with the relevant safety rules (accident prevention). The accident prevention regulations, all other generally recognized regulations on safety and occupational medicine and the road traffic regulations must be observed at all times. Any arbitrary modifications carried out on this DISK RIPPER will relieve the manufacturer of all liability for any resulting damage or injury.

WARRANTY is provided as part of John Deere's support

program for customers who operate and maintain their equipment as described in this manual. Warranty is explained on warranty certificate which you should have received from your dealer.

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

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

If you are not the original owner of this machine, it is in your interest to contact your local John Deere dealer to inform them of this unit's serial number. This will help John Deere notify you of any issues or product improvements.

Contents

	Page		Page
Safety		Preparing Tractor	
Recognize Safety Information	05-1	Use Tractor Operator's Manual	20-1
Understand Signal Words	05-1	Determine Tractor Requirements	20-1
Follow Safety Instructions	05-1	Drawbar Requirements	20-1
Spanish Safety Signs and Operator's Manual	05-1	Secure Three-Point Hitch	20-1
Prepare for Emergencies	05-2	Power Take-Off	20-1
Wear Protective Clothing	05-2	Position Drawbar	20-2
Protect Against Noise	05-2	Prepare Hydraulic System—John Deere R/ RT Series Tractors	20-2
Practice Safe Maintenance	05-2	Use a Safety Chain	20-3
Handle Electronic Components and Brackets Safely	05-3		
Park Machine Safely	05-3	Preparing Machine	
Support Raised Equipment	05-3	Drawbar Requirements	25-1
Remove Paint Before Welding or Heating	05-4	Check and Lubricate Machine	25-1
Avoid Heating Near Pressurized Fluid Lines	05-4	Preparing Machine Checklist	25-1
Avoid High-Pressure Fluids	05-4	Before Entering Field Guidelines	25-2
Inspect Lift Circuit Hoses	05-5	Field Operating Guidelines	25-3
Store Attachments Safely	05-5	Check Tire Pressure—All Tillage Machines	25-4
Service Tires Safely	05-5	Check Wheel Hardware—All Tillage Machines	25-4
Decommissioning — Proper Recycling and Disposal of Fluids and Components	05-6	Tighten Hardware	25-5
Handle Chemical Products Safely	05-6	Adjust Front-to-Rear Leveling	25-5
Operate Safely	05-6	Adjusting Rear Folding Gang Alignment—7- Standard (If Equipped)	25-6
Avoid Power Lines	05-7	Level Wings—7-Standard Folding Machines	25-7
Non-Permissible Use	05-7	Level Wings—9 and 11-Standard Machines	25-8
Use Safety Lights and Devices	05-7	Adjust Scrapers	25-8
Keep Riders Off Machine	05-8	Toolbox	25-9
Observe Maximum Transport Speed	05-8		
Use a Signal Person	05-8	Attaching and Detaching	
Use a Safety Chain	05-9	Use Your Tractor and Tillage Equipment Operator's Manuals	30-1
Tow Loads Safely	05-9	Before Attaching Machine to Tractor	30-1
Avoid Overhead Power Lines	05-9	Attach Machine to Tractor	30-1
Prepare for Transport	05-9	Make Proper Hose Connections	30-2
Transport Safely	05-10	Attach Electrical Connectors	30-3
Transport Implement Train	05-10	Attach Safety Chain to Tractor	30-3
Transport Lockup Valve	05-11	Using Warning Lights and SMV Emblem	30-4
Do Not Fold Wings Until Machine Is Fully Raised	05-11	Engaging Hydraulic Cylinder Transport Lockup Valve	30-5
Park Safely	05-11	Positioning Jack for Transport	30-5
		Checking Rear Gang Fold Operation—7- Standard (If Equipped)	30-6
Safety Signs		Checking Wing Fold Operation—7, 9, and 11- Standard	30-6
Replace Safety Signs	10-1	Checking Depth Control Operation	30-7
Hitch	10-1	Detaching from Tractor	30-7
Main Frame	10-2		
Wings—7, 9, and 11-Standard Machines	10-3	Transporting	
Wing-Fold	10-4	Use Safety Lights and Devices	35-1
Multiple Location Decals	10-5	Observe Maximum Transport Speed	35-1
		Use a Safety Chain	35-2
Safety Features			
Safety Features—Machines With SAE Connector	15-1		

Continued on next page

Original Instructions. 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.

COPYRIGHT © 2019
DEERE & COMPANY
Moline, Illinois
All rights reserved.
Previous Editions
Copyright © 2018

	Page		Page
Attach Safety Chain to Tractor	35-2	Lubrication Intervals	50-2
Tow Loads Safely	35-2	Lubricate Turnbuckle	50-2
Avoid Overhead Power Lines	35-3	Lubricate Cushion-Trip Standards	50-3
Prepare for Transport	35-3	Lubricate Wheel Bearings	50-3
Transport Lockup Valve	35-3	Lubricate Stabilizer Wheels—9 and 11- Standard Machines	50-3
Position Drawbar	35-4		
Positioning Jack for Transport	35-4	Troubleshooting	
Transport with Rolling Baskets	35-4	Troubleshooting	55-1
		Preparing Machine Checklist	55-1
Operating Machine		Troubleshooting Charts	55-2
General Guidelines for Use	40-1	Disk Blade and/or Disk Component Failure	55-4
Before Entering Field Guidelines	40-1		
Field Operating Guidelines	40-1	Service	
Tighten Hardware	40-2	Practice Safe Maintenance	60-1
Use Operator's Manual Holder	40-3	Use Safe Service Procedures	60-1
Operating Speed	40-3	Work in Clean Area	60-1
Standards	40-3	Service Machines Safely	60-2
Adjust Cushion-Trip Standard	40-3	Support Machine Properly	60-2
Adjust Front-to-Rear Leveling	40-3	Avoid High-Pressure Fluids	60-2
Adjust Rear Gangs—5-Standard	40-4	Replace Hydraulic Hoses	60-2
Adjust Rear Gangs—7-Standard Rigid and Narrow Transport	40-5	Tighten Hardware	60-3
Adjust Rear Gangs—7-Standard Folding	40-6	Sharpen Sweeps and Disks	60-3
Adjust Rear Gangs—9-Standard	40-7	Metric Bolt and Screw Torque Values	60-3
Adjust Rear Gangs—11-Standard	40-8	Unified Inch Bolt and Screw Torque Values	60-4
Proper Overlap	40-9	Face Seal Fittings Assembly and Installation —All Pressure Applications	60-5
Adjust Single Point Depth Control	40-9	Metric Face Seal and O-Ring Stud End Fitting Torque Chart—Standard Pressures	60-6
Prepare to Operate in Field	40-11	SAE Face Seal and O-Ring Stud End Fitting Torque Chart—Standard Pressures	60-7
Level Wings—7-Standard Folding Machines	40-12	Service Tires Safely	60-8
Rephase Wing Depth Cylinders—9 and 11- Standard	40-12	Check Tire Pressure—All Tillage Machines	60-8
Level Wings—9 and 11-Standard Machines	40-13	Discard Tires Properly	60-8
Adjust Wing Stabilizer Wheels—9 and 11- Standard	40-13	Check Wheel Bolts and Bearings	60-9
Understand Active Hydraulic Rolling Basket Down-Pressure System	40-14	Repair Tire	60-10
Adjust Rolling Basket Down-Pressure— Tractors with Electro/Hydraulic Closed Center Systems	40-14	Wheel Arm Bearing Inspection	60-11
Adjust Rolling Basket Down-Pressure— Tractors with Open Center Hydraulic Systems	40-15	Wheel Arm Bearing Replacement	60-11
Symptoms of Soil Compaction	40-16	Replace Wing Module Bearings	60-14
Detect Compaction with John Deere Soil Probe	40-16	Discard Waste Oil Properly	60-14
Soil Compaction Questions and Answers	40-16	Prevent Hydraulic System Contamination	60-14
		Checking Depth Control Cylinders for Internal Leakage—5 and 7-Standard	60-15
Attachments		Checking Depth Control Cylinders for Internal Leakage—9 and 11-Standard	60-15
Adjustment Wrench	45-1	Analyzing Test Results—For Depth Control Internal Leakage Check	60-16
Install Shank Wear Shin	45-1	Remove Hydraulic Cylinders	60-17
Install Finishing Blade	45-1	Bleed Hydraulic Cylinders	60-17
Install Finishing Blade Scraper	45-1	Cleanliness	60-17
Install Knock Out Scraper	45-3	Replace Ripper Point	60-18
Install C-Spring Knock Out Scraper	45-4	Attach Cast LaserRip Ripper Points	60-18
Install Convex Scraper	45-4	Replace Shank Wear Shin (If Equipped)	60-20
		Replace Shank—Cushion-Trip Standard	60-20
Lubrication and Maintenance		Tighten Cushion-Trip Standard U-Bolts	60-21
Use Safe Service Procedures	50-1	Tighten Wheel Arm Module Hardware	60-22
Prevent Hydraulic System Contamination	50-1	Replace Scrapers	60-22
Multipurpose Extreme Pressure (EP) Grease	50-1	Adjust Convex Scraper—Optional	60-23
Alternative and Synthetic Lubricants	50-2	Service Gangs	60-23
Lubricant Storage	50-2	Gang Component Diagram	60-24
Perform Seasonal Lubrication	50-2	Assemble Gang Bolt Tensioner	60-25
Lubrication Symbols	50-2	Disassemble Gangs	60-26
		Assemble Gangs	60-28
		5-Standard—Right-Hand Disk Gangs Illustrated	60-31

Page

7-Standard Rigid and Narrow Transport—
Right-Hand Disk Gangs Illustrated 60-32

7-Standard Folding—Right-Hand Disk Gangs
Illustrated 60-33

9-Standard—Right-Hand Disk Gangs
Illustrated 60-34

11-Standard—Right-Hand Disk Gangs
Illustrated 60-35

Attach Gang to C-Spring Standards 60-36

Scraper Tube Position 60-36

Tighten Scraper Tube U-Bolt Nuts 60-37

Tighten C-Springs Standards 60-37

Identify Disk Blades Eligible for Warranty 60-37

Identify Disk Blades Not Eligible for Warranty 60-38

Storage

Removing Machine from Storage 65-1

Placing Machine In Storage 65-1

Specifications

Tractor Power Recommendations 70-1

Downward Force on Tractor Drawbar 70-1

Hitch Specifications 70-1

Machine Specifications—5 and 7-Standard 70-2

Machine Specifications—9 and 11-Standard 70-3

Hydraulic Requirements 70-5

Record Product Identification Number (P.I.N.) 70-5

Keep Proof of Ownership 70-5

Keep Machines Secure 70-6

Interpreting the Serial Number of Your
Machine - 17-Digit PIN 70-6

Year of Production Table (Digit 5) 70-6

Safety

Recognize Safety Information



T81389—UN—28JUN13

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.

DX,ALERT-19-29SEP98

Understand Signal Words



▲ WARNING

▲ CAUTION

TS187—19—30SEP88

DANGER; The signal word DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING; The signal word WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION; The signal word CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury. CAUTION may also be used to alert against unsafe practices associated with events which could lead to personal injury.

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.

DX,SIGNAL-19-05OCT16

Follow Safety Instructions



TS201—UN—15APR13

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.

There can be additional safety information contained on parts and components sourced from suppliers that is not reproduced in this operator's manual.

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.

DX,READ-19-16JUN09

Spanish Safety Signs and Operator's Manual

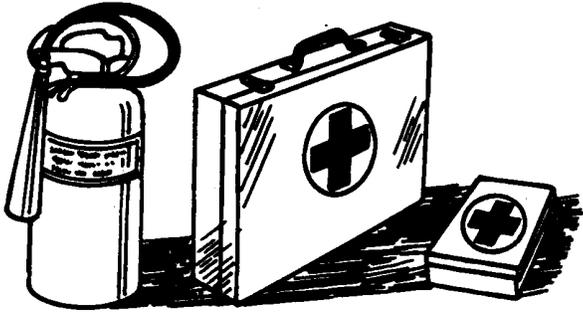


TS201—UN—15APR13

Spanish versions of the operator's manual and safety signs are available for this machine through authorized John Deere dealers. See your John Deere dealer.

OUO6075.0000145-19-22MAY08

Prepare for Emergencies



TS291—UN—15APR13

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.

DX,FIRE2-19-03MAR93

Protect Against Noise



TS207—UN—23AUG88

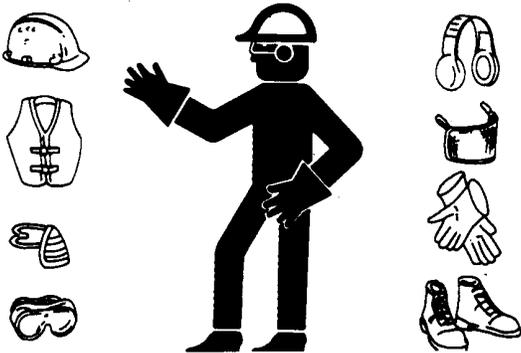
There are many variables that affect the sound level range, including machine configuration, condition and maintenance level of the machine, ground surface, operating environmental, duty cycles, ambient noise, and attachments.

Exposure to loud noise can cause impairment or loss of hearing.

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

DX,NOISE-19-03OCT17

Wear Protective Clothing



TS206—UN—15APR13

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

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

DX,WEAR2-19-03MAR93

Practice Safe Maintenance



TS218—UN—23AUG88

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 away 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.

Falling while cleaning or working at height can cause serious injury. Use a ladder or platform to easily reach each location. Use sturdy and secure footholds and handholds.

DX,SERV-19-28FEB17

Handle Electronic Components and Brackets Safely



TS249—UN—23AUG88

Falling while installing or removing electronic components mounted on equipment can cause serious injury. Use a ladder or platform to easily reach each mounting location. Use sturdy and secure footholds and handholds. Do not install or remove components in wet or icy conditions.

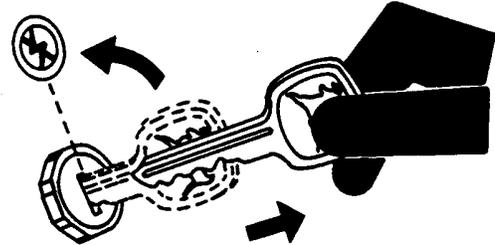
If installing or servicing a RTK base station on a tower or other tall structure, use a certified climber.

If installing or servicing a global positioning receiver mast used on an implement, use proper lifting techniques and wear proper protective equipment. The mast is heavy and can be awkward to handle. Two

people are required when mounting locations are not accessible from the ground or from a service platform.

DX,WW,RECEIVER-19-24AUG10

Park Machine Safely



TS230—UN—24MAY89

Before working on the machine:

- Lower all equipment to the ground.
- Stop the engine and remove the key.
- Disconnect the battery ground strap.
- Hang a "DO NOT OPERATE" tag in operator station.

DX,PARK-19-04JUN90

Support Raised Equipment



N39087—UN—30MAR89

Always use a safety support when working on, under, or around machine. Transport/Service locks can be used for this purpose.

Shut off tractor engine and remove key when working on machine.

If air has been allowed to enter hydraulic hoses or cylinders, bleed hydraulic system before use. If there is a failure in the hydraulic system, unsupported raised equipment could suddenly lower, causing serious personal injury or death.

If support is not available, lower wings and frame,

relieve hydraulic pressure and disconnect hoses from tractor.

NX,1200C,A4-19-22FEB05

Remove Paint Before Welding or Heating



TS220—UN—15APR13

Avoid potentially toxic fumes and dust.

Hazardous fumes can be generated when paint is heated by welding, soldering, or using a torch.

Remove paint before heating:

- Remove paint a minimum of 100 mm (4 in.) from area to be affected by heating. If paint cannot be removed, wear an approved respirator before heating or welding.
- If you sand or grind paint, avoid breathing the dust. Wear an approved respirator.
- If you use solvent or paint stripper, remove stripper with soap and water before welding. Remove solvent or paint stripper containers and other flammable material from area. Allow fumes to disperse at least 15 minutes before welding or heating.

Do not use a chlorinated solvent in areas where welding will take place.

Do all work in an area that is well ventilated to carry toxic fumes and dust away.

Dispose of paint and solvent properly.

DX,PAINT-19-24JUL02

Avoid Heating Near Pressurized Fluid Lines

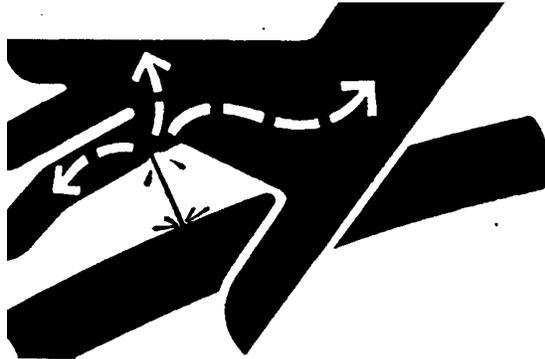


TS953—UN—15MAY90

Flammable spray can be generated by heating near pressurized fluid lines, resulting in severe burns to yourself and bystanders. Do not heat by welding, soldering, or using a torch near pressurized fluid lines or other flammable materials. Pressurized lines can accidentally burst when heat goes beyond the immediate flame area.

DX,TORCH-19-10DEC04

Avoid High-Pressure Fluids



X9811—UN—23AUG88

Inspect hydraulic hoses periodically – at least once per year – for leakage, kinking, cuts, cracks, abrasion, blisters, corrosion, exposed wire braid or any other signs of wear or damage.

Replace worn or damaged hose assemblies immediately with John Deere approved replacement parts.

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.

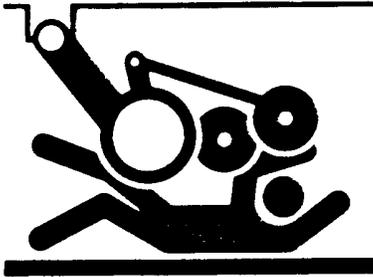
Search for leaks with a piece of cardboard. Protect hands and body from high-pressure fluids.

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 in English from Deere & Company Medical Department in Moline, Illinois, U.S.A., by calling 1-800-822-8262 or +1 309-748-5636.

DX,FLUID-19-12OCT11

Inspect Lift Circuit Hoses



N39645—UN—06OCT88

Avoid serious injury or death while working under a raised implement.

Hydraulic hoses between the lift cylinders and hydraulic lockup valves should be inspected frequently for leakage, kinking, cuts, cracks, abrasion, blisters, corrosion, exposed wire braid, or any other signs of wear or damage. Worn or damaged hose assemblies can fail during use and should be replaced immediately. See your John Deere dealer or qualified service provider for replacement hoses.

OOU6061,00022AE-19-28JAN16

Store Attachments Safely



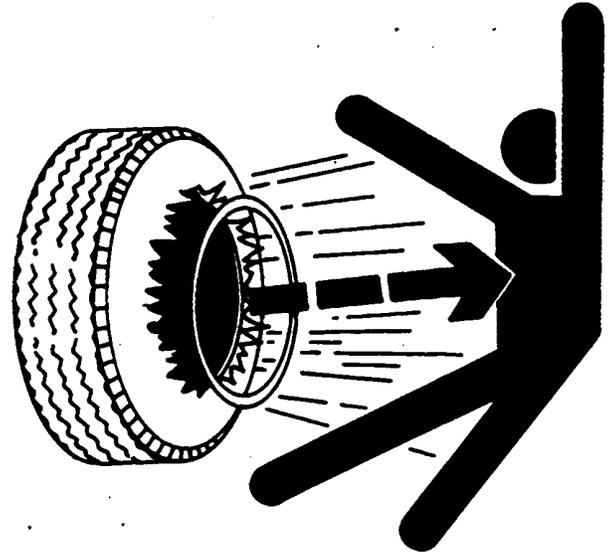
TS219—UN—23AUG88

Stored attachments such as dual wheels, cage wheels, and loaders can fall and cause serious injury or death.

Securely store attachments and implements to prevent falling. Keep playing children and bystanders away from storage area.

DX,STORE-19-03MAR93

Service Tires Safely



TS211—UN—15APR13

CAUTION: 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.

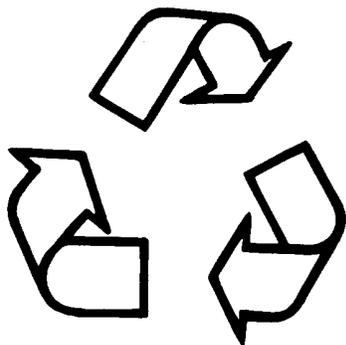
Never weld or heat a wheel and tire assembly. The heat can cause an increase in air pressure resulting in a tire explosion. Welding can structurally weaken or deform the wheel.

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,RIM1-19-27OCT08

Decommissioning — Proper Recycling and Disposal of Fluids and Components



TS1133—UN—15APR13

Safety and environmental stewardship measures must be taken into account when decommissioning a machine and/or component. These measures include the following:

- Use appropriate tools and personal protective equipment such as clothing, gloves, face shields or glasses, during the removal or handling of objects and materials.
- Follow instructions for specialized components.
- Release stored energy by lowering suspended machine elements, relaxing springs, disconnecting the battery or other electrical power, and releasing pressure in hydraulic components, accumulators, and other similar systems.
- Minimize exposure to components which may have residue from agricultural chemicals, such as fertilizers and pesticides. Handle and dispose of these components appropriately.
- Carefully drain engines, fuel tanks, radiators, hydraulic cylinders, reservoirs, and lines before recycling components. Use leak-proof containers when draining fluids. Do not use food or beverage containers.
- Do not pour waste fluids onto the ground, down a drain, or into any water source.
- Observe all national, state, and local laws, regulations, or ordinances governing the handling or disposal of waste fluids (example: oil, fuel, coolant, brake fluid); filters; batteries; and, other substances or parts. Burning of flammable fluids or components in other than specially designed incinerators may be prohibited by law and could result in exposure to harmful fumes or ashes.
- Service and dispose of air conditioning systems appropriately. Government regulations may require a certified service center to recover and recycle air conditioning refrigerants which could damage the atmosphere if allowed to escape.
- Evaluate recycling options for tires, metal, plastic, glass, rubber, and electronic components which may be recyclable, in part or completely.
- Contact your local environmental or recycling center,

or your John Deere dealer for information on the proper way to recycle or dispose of waste.

DX, DRAIN-19-01JUN15

Handle Chemical Products Safely



TS1132—UN—15APR13

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.)

DX, MSDS, NA-19-03MAR93

Operate Safely



N39547—UN—06OCT88

Before operating, make sure that air has been bled from the wing-fold hydraulic system.

Be sure that area around machine is clear before raising or lowering machine frame or wings.

Do not operate with wings folded.

Do not operate close to the edge of a ditch, creek, gully, or steep embankment.

Avoid holes, ditches, and obstructions, which can cause tractor, machine, or towed equipment to roll over, especially on hillsides.

Avoid sharp turns on hillsides.

Slow down when turning or traveling over rough ground, and when turning on inclines.

Always shut tractor off and shift to PARK or set brakes when leaving tractor. Remove key when leaving tractor unattended.

Always have tractor stopped on level ground when raising or lowering wings.

Operate machine from tractor seat only.

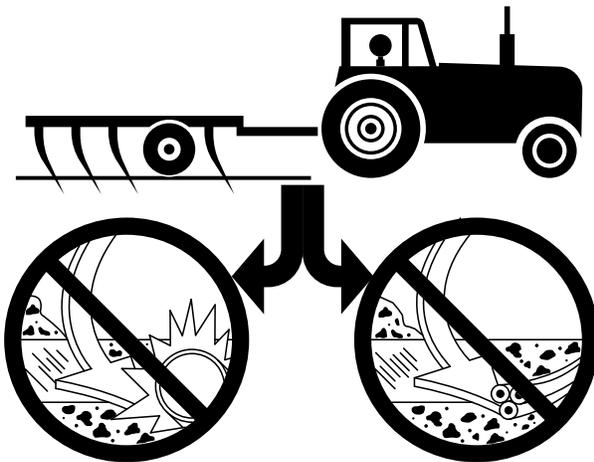
If chemicals are used, follow manufacturer's recommendations for handling and storage.

Tow machine behind a properly equipped tractor only.

KB78086,00002A1-19-29NOV16

Avoid Power Lines

CAUTION: Ripping through gas, electric, or water lines can cause serious injury or death to you or others. Always contact local utility companies to mark off gas, electric and water lines prior to ripping field.



N87388—UN—11JAN10

Locate Pipes And Cables Before Ripping

Contact your local utility companies to determine location of gas, electric, or water lines.

NX_OM51005,APL-19-11JAN10

Non-Permissible Use

CAUTION: Working on an uncleaned and non-maintained machine poses unnecessary danger and is therefore forbidden.

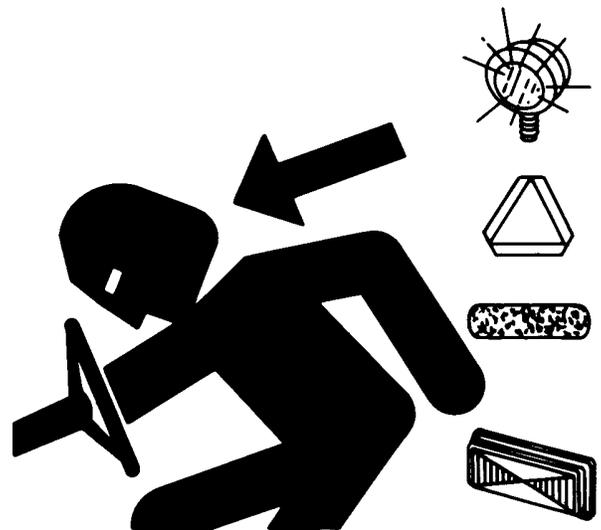
Pay attention to the following applications for which the machine is not suitable:

Machine usage in non-customary tillable agricultural fields, such as forests, dirt, gravel, or other roads.

Machine usage to move large rocks from fields.

OOU06061,0002D8A-19-11JUL18

Use Safety Lights and Devices



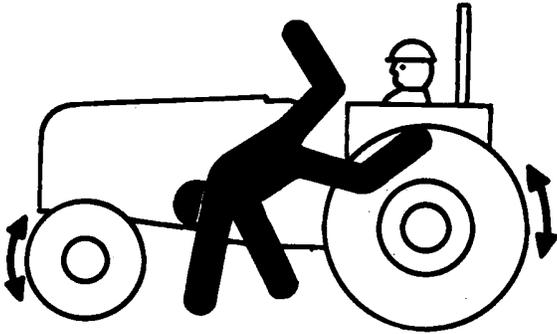
TS951—UN—12APR90

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.

DX_FLASH-19-07JUL99

Keep Riders Off Machine



TS290—UN—23AUG88

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.

DX,RIDER-19-03MAR93

- 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

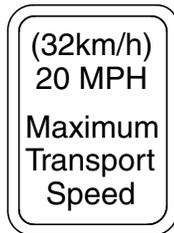
Use additional caution and reduce speed when towing under adverse surface conditions, when turning, and when on inclines.

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. Tow only with a properly ballasted tractor.

DX,TOW2-19-11APR07

Observe Maximum Transport Speed



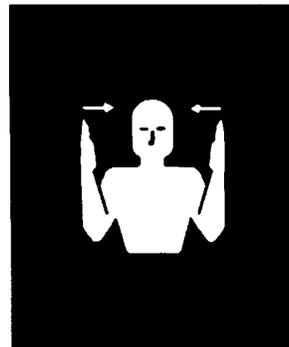
A46805—19—16JUL10

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:

Use a Signal Person



N43984—UN—11DEC91

Use a signal person to direct movement of the tractor/implement combination whenever the tractor operator's view is obstructed.

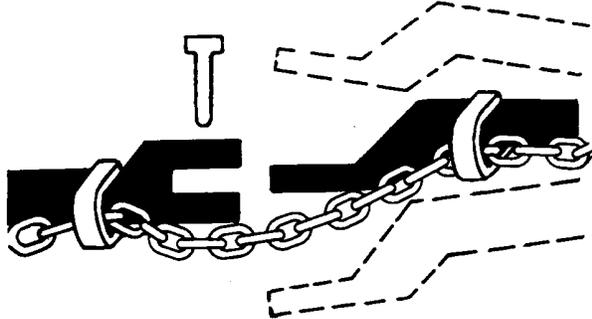
Designate one individual as the signal person. Always have signal person stand in clear view. Be sure that signal person stays a safe distance away from the machine when it is moving.

Before starting the tractor, discuss hand signals and what each signal means to avoid misunderstandings and confusion, which could result in a serious injury or fatal accident for someone.

Keep all bystanders away whenever the machine is moved.

OOU06061,000217D-19-14FEB19

Use a Safety Chain



TS217—UN—23AUG88

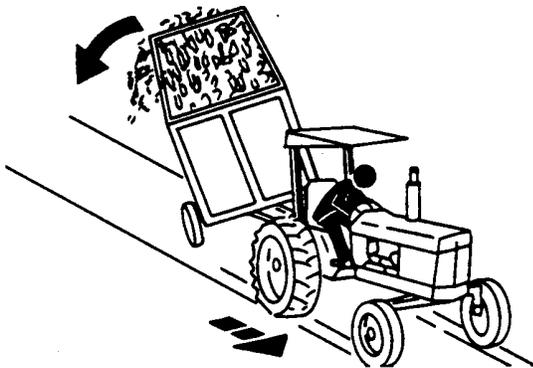
A safety chain will help control drawn equipment should it accidentally separate from the drawbar.

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.

DX,CHAIN-19-03MAR93

Tow Loads Safely



TS216—UN—23AUG88

Stopping distance increases with speed and weight of towed loads, and on slopes. Towed loads with or without brakes that are too heavy for the tractor or are towed too fast can cause loss of control. Consider the total weight of the equipment and its load.

Observe these recommended maximum road speeds, or local speed limits which may be lower:

- If towed equipment does not have brakes, do not travel more than 32 km/h (20 mph) and do not tow loads more than 1.5 times the tractor weight.
- If towed equipment has brakes, do not travel more than 40 km/h (25 mph) and do not tow loads more than 4.5 times the tractor weight.

Ensure the load does not exceed the recommended

weight ratio. Add ballast to recommended maximum for tractor, lighten the load, or get a heavier towing unit. The tractor must be heavy and powerful enough with adequate braking power for the towed load. Use additional caution when towing loads under adverse surface conditions, when turning, and on inclines.

DX,TOW-19-02OCT95

Avoid Overhead Power Lines



N39394—UN—06OCT88

CAUTION: Keep away from overhead power lines. Serious injury or death can result. Proceed cautiously under overhead power lines and around utility poles. Know the transport height of your machine. Electrocutation can occur without direct contact with overhead electrical lines.

OUC06061,0002CFA-19-15JUL10

Prepare for Transport

CAUTION: Avoid serious injury or death to you or others. Never tow machine behind a truck or other motor vehicle. This machine is designed only to be towed with a properly sized and ballasted tractor.

- Use a tractor large enough to maintain control. Properly ballast tractor for towing your machine. Refer to tractor Operator's Manual and this manual to ensure that machine can be safely transported with your tractor.
- Be aware of height and width restrictions to avoid collision with overpasses or other road users.
- Always fold wings fully. If wing fold cylinders are removed, chain wings together to prevent accidental lowering.
- Fully raise frame, close hydraulic lockup valve (if equipped) and install transport/service locks before transporting.
- Latch the tractor brakes together.

- Attach proper size safety chain for load being towed. Refer to Use A Safety Chain (in this section).

IMPORTANT: Do not transport on a roadway unless machine is equipped with proper functioning lights and reflective marking/emblems. Ensure that the lights and reflective marking/emblems are clean and visible. Contact your John Deere dealer for lights and lighting harnesses.

- Always follow local and national regulations for equipment size, lighting and marking before driving on public roadways. You are responsible for understanding and complying with all requirements regarding roadway transport. Refer to Use Safety Lights And Devices (in this section).

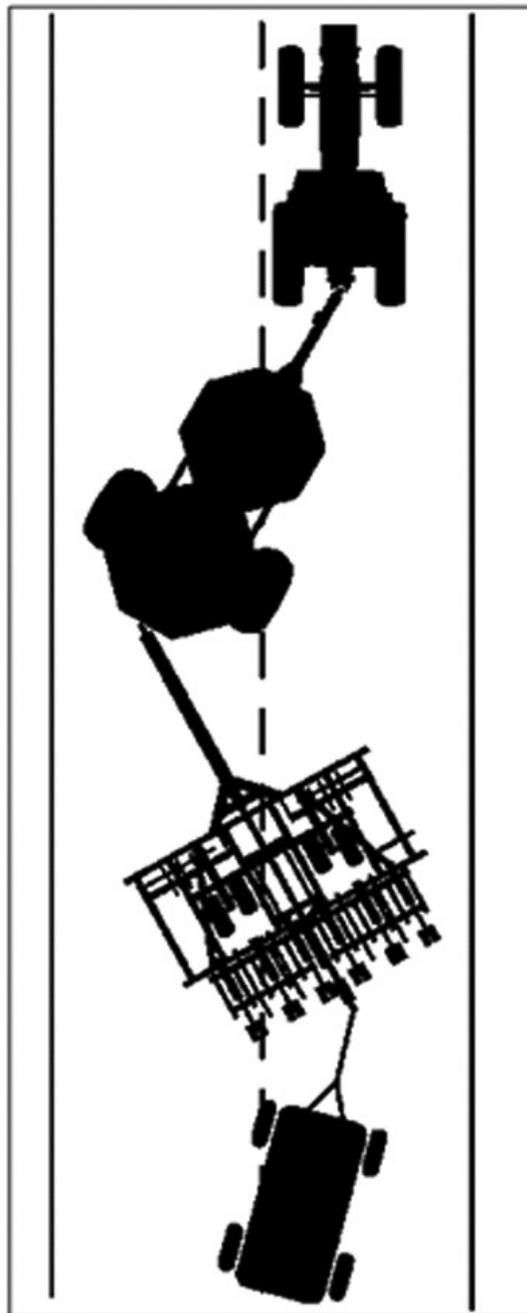
KB78086,0000F01-19-07FEB17

IMPORTANT: When transporting machine on a roadway, always use appropriate lights and devices for an adequate warning to operators of other vehicles.

- Refer to Use Safety Lights And Devices in this section.

OJ06061,0002CFC-19-26NOV18

Transport Implement Train



N88961—UN—16JUL10

Transport Safely



N88962—UN—21JUL10

IMPORTANT: Transport the machine at a reasonable and safe speed which permits adequate control of steering and stopping. Reduce speed considerably when traveling over rough ground. Be certain everyone is clear of machine.

- Refer to Observe Maximum Transport Speed in this section.
- Do not exceed weight and speed guidelines.
- Towed loads can swerve, upset, or cause loss of control. Refer to Tow Loads Safely in this section.
- Shift tractor into a lower gear when transporting down steep slopes or hills, never coast. Stop slowly.
- Wide turns may be required with the machine in tow. Use caution in traffic and in congested areas.
- To improve stability when traveling through the field, wings should be unfolded from transport position as soon as possible after leaving the roadway.

CAUTION: Never transport more than two implements in train on a roadway. Towing implements of incompatible weight, size, and hitching combination can cause swerving or roll over resulting in serious injury or death to you or others.

- Use a tractor large enough to maintain control. Properly ballast tractor for towing implement train. Refer to tractor Operator's Manual and this manual to ensure that implement train can be safely transported with your tractor.
- Do not exceed weight limit for each of the safety chains in the train.
- Local and national regulations restrict the number of implements in a train. Never exceed more than two implements in a train. You are responsible for understanding and complying with all requirements regarding roadway transport.

OOU6061,0002CFD-19-14FEB19

Do Not Fold Wings Until Machine Is Fully Raised

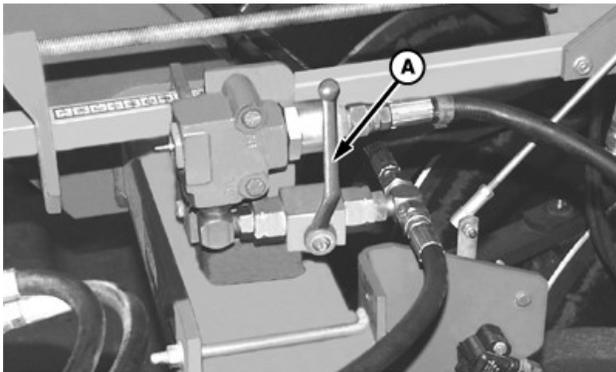


N39547—UN—06OCT88

Do not fold wings until machine is fully raised. Failure to do so, can cause machine to drop unexpectedly, causing severe injury or death to you or others.

OOU6061,0002611-19-11NOV16

Transport Lockup Valve



N61821—UN—25FEB03

Transport Lockup Valve Closed Position

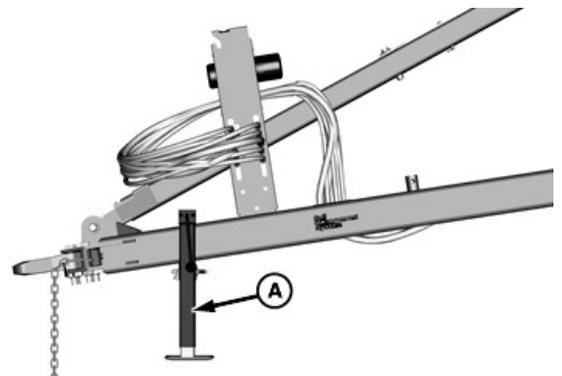
A—Handle

CAUTION: Failure to fully close transport lockup valve can cause an unexpected lowering of machine which can cause serious injury or death to you or others.

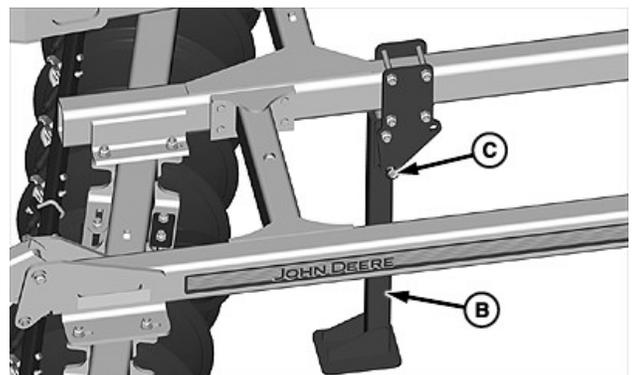
For transport, raise machine and **CLOSE** transport lockup valve by turning handle (A) so it is **NOT IN-LINE** with valve as shown.

OOU6061,0002D03-19-16JUL10

Park Safely



N125481—UN—23SEP16



N96953—UN—23APR12

A—Jack
B—Rear Parking Stand
C—Pin

1. Park machine on a level surface, install transport cylinder locks, and chock implement wheels.
2. Retain jack (A) with pin.
3. Machines With Rear Parking Stands: Lower parking

stand (B) and retain using pin (C). Repeat for the other side.

OUO6061,0002CEE-19-07FEB17

Safety Signs

Replace Safety Signs



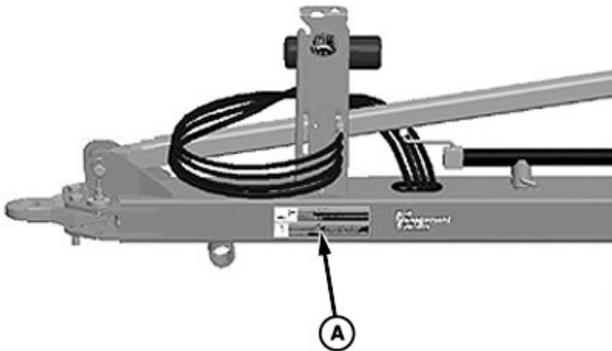
TS201—UN—15APR13

Replace missing or damaged safety signs. Use this operator's manual for correct safety sign placement.

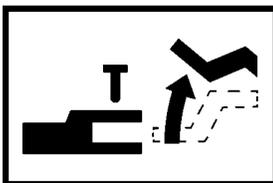
There can be additional safety information contained on parts and components sourced from suppliers that is not reproduced in this operator's manual.

DX,SIGNS-19-18AUG09

Hitch

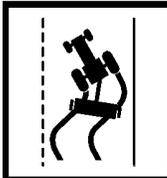


N88537—UN—15JUN10



⚠ WARNING

Tongue can whip upwards when unhitching, if implement is equipped with a rear attachment.
To avoid bodily injury, lower the machine or the rear parking stand to ground before removing hitch pin.



⚠ WARNING

Do not exceed this implement's maximum transport speed of 32 km/h (20 mph). Exceeding this speed may result in loss of control during transport or braking and serious injury or death.

Transport only with a properly ballasted tractor and a properly attached safety tow chain. Do not transport with a motor vehicle. Reduce speed and use additional caution when on inclines, towing under adverse surface conditions, and turning.

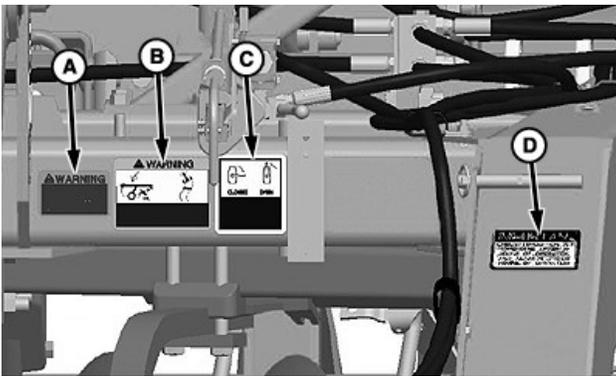
N238742

N70842—19—19AUG05

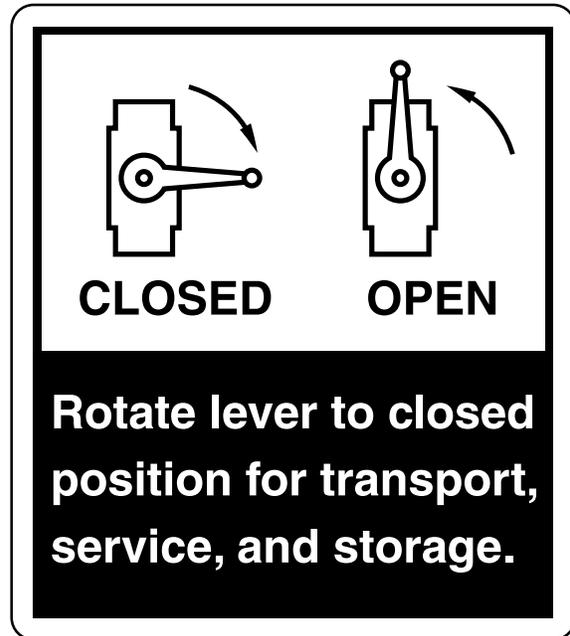
A

OOU6061,0002BDA-19-15JUN10

Main Frame



N87590—UN—24FEB12



N80012—19—16JUN10

C



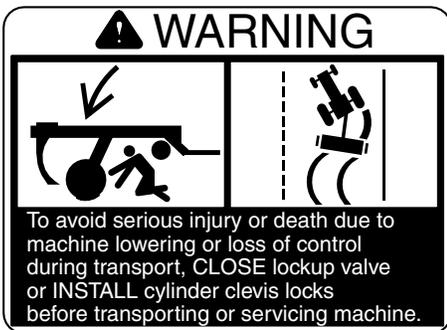
N78030—19—26SEP07

A



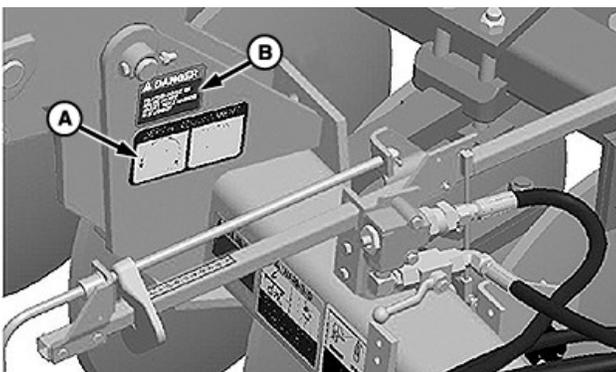
SSN237983—19—03JUN10

D



N80686—19—15MAY08

B

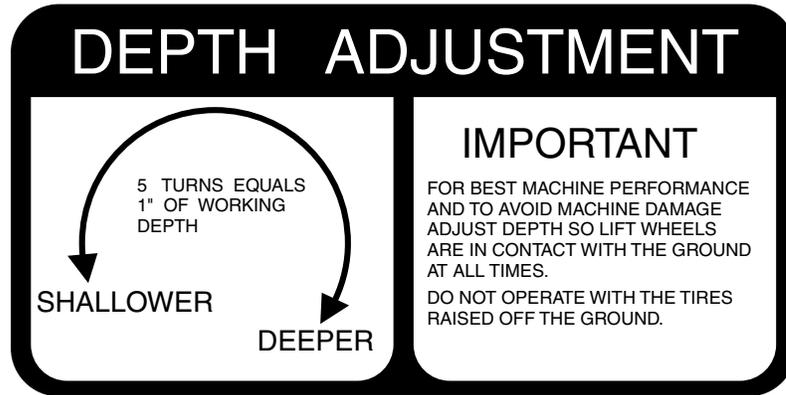


N87591—UN—09FEB10



N80809—19—16MAY08

B



A

SSN263120—19—17JUL12

OOU6061,0002BDB-19-17JUL12

Wings—7, 9, and 11-Standard Machines



N87592—UN—25JAN10



A

N69309—19—18SEP06

KB78086,000111F-19-30JAN17

Wing-Fold



N75435—UN—16MAR07



N75290—19—16MAR07

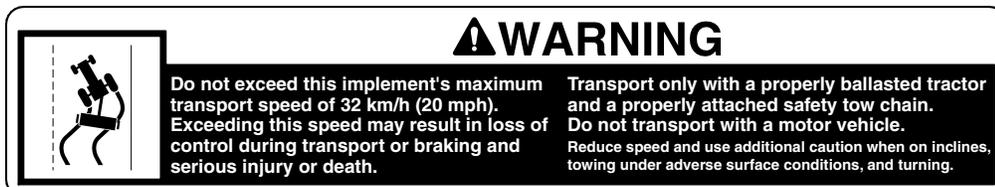
A

OOU6061.000266C-19-08.JAN09

Multiple Location Decals



SSN232771—19—24MAR05



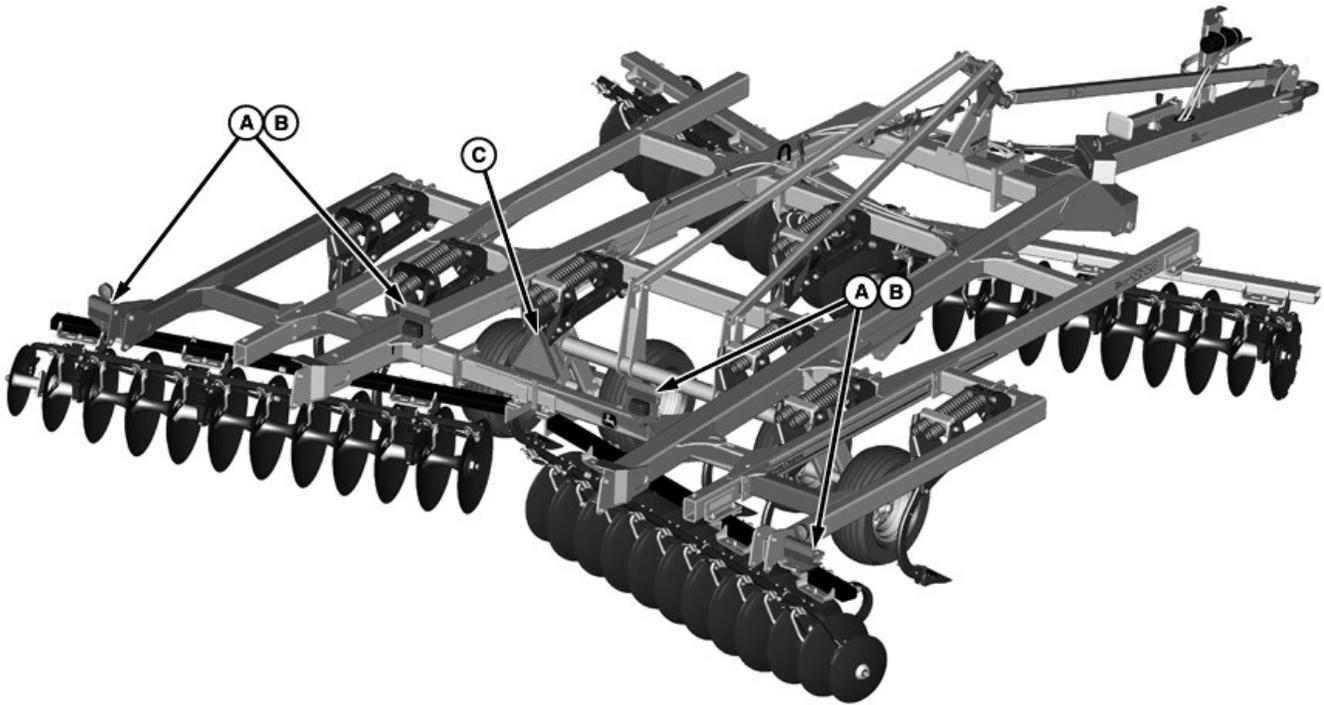
N70278—19—20DEC05



N88741—19—29JUL10
OUO6061,0002BDD-19-15MAR12

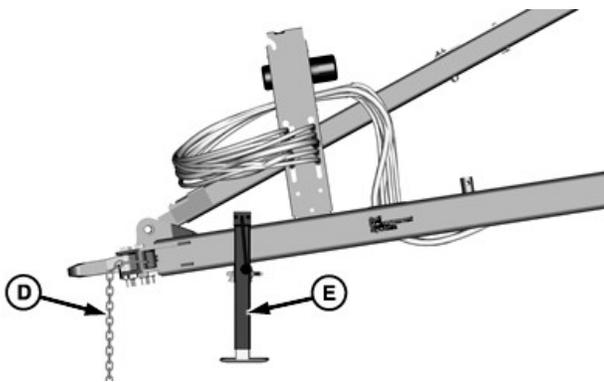
Safety Features

Safety Features—Machines With SAE Connector

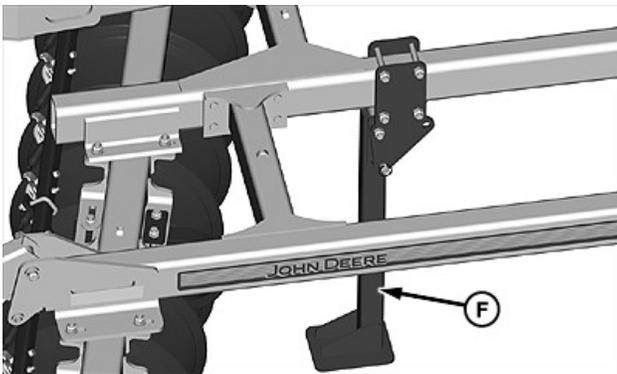


N96924—UN—21FEB12

- A—Warning Lights
- B—Reflectors
- C—SMV Sign
- D—Safety Chain
- E—Hitch Jack
- F—Rear Parking Stand



N99510—UN—08AUG12



N98250—UN—30APR12

In addition to safety features shown here, other components, systems, safety signs on machine, safety messages and instructions in the Operator's manual contribute to the safe operation of this machine when

combined with the care and concern of a capable operator.

The construction of this implement may not meet all local or national requirements for transport on a public

roadway. In regions or countries that have national certification requirements for roadway transport it may be impossible for this implement to be approved for such roadway transport. The customer is responsible for understanding and complying with all local, regional, and national requirements regarding roadway transport.

A—Warning Lights keep machine in plain view during transport.

B—Reflectors offer added protection when transporting in low light and inclement conditions.

C—SMV Sign alerts oncoming traffic of your presence on roads and highways.

D—Safety Chain will help control drawn machine if it accidentally separates from drawbar.

E—Hitch Jack supports drawn machine during maintenance and when not in use.

F—Rear Parking Stand supports machines with rear attachments during maintenance and when not in use.

KB78086,0000BE1-19-17MAR14

Preparing Tractor

Use Tractor Operator's Manual



TS190—UN—17JAN89

Always refer to tractor Operator's Manual for specific, detailed information regarding operation of equipment.

The following tractor-related information uses John Deere tractors to illustrate preparation, attachment, and operational procedures needed for this machine. Use the tractor Operator's Manual for detailed information as procedures vary by equipment.

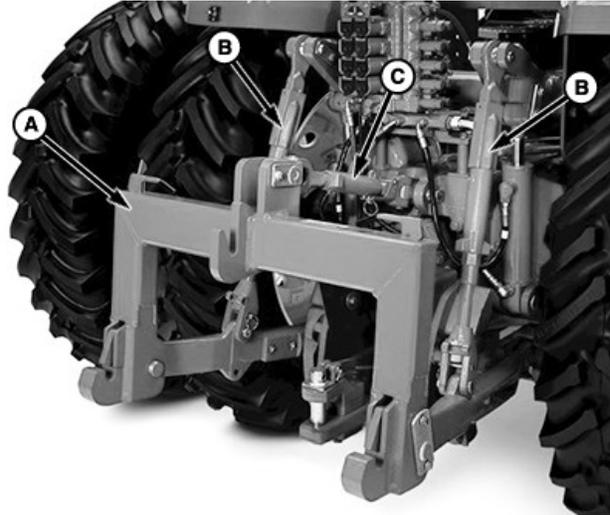
OOU6050,00004EA-19-14FEB19

Drawbar Requirements

See Drawbar Requirements in Preparing Machine section.

KB78086,00003A5-19-30NOV18

Secure Three-Point Hitch



N118846—UN—09JUL15

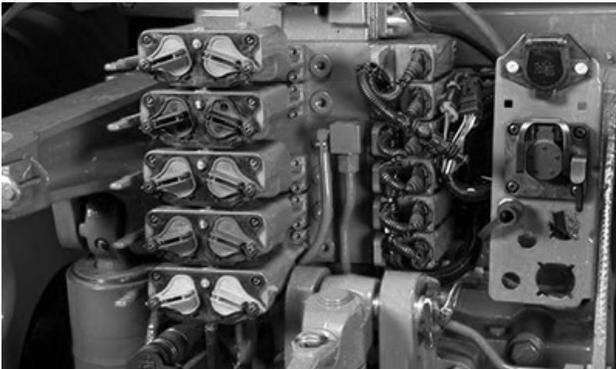
- A—Quick Coupler
- B—Lift Link (2 used)
- C—Center Link

If equipped with a quick coupler (A), raise the 3-point hitch fully.

If not equipped with quick coupler, secure lift links (B) and center link (C) so they do not swing into tractor tires or hoses.

KB78086,0000F37-19-29NOV16

Determine Tractor Requirements



N118845—UN—08JUL15

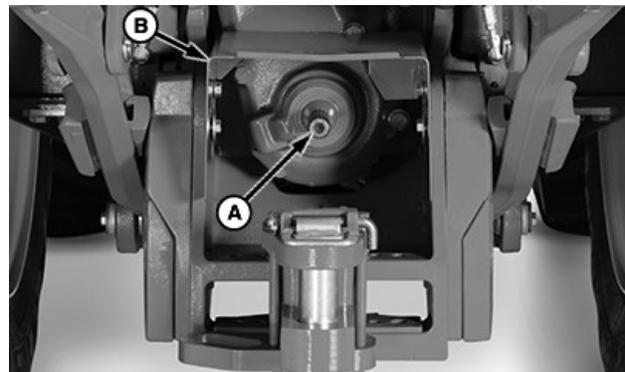
John Deere R/RT Series Tractor

For optimum performance, John Deere 8R/RT or 9R/RT Series Tractor, with GreenStar Ready option, are recommended. Other tractors with same or similar horsepower to those recommended can also be used. See Tractor PTO Power Requirements in Specifications section.

Install adapters if the tractor does not have ISO hydraulic couplers. See your John Deere dealer or qualified service provider.

KB78086,0000F35-19-19SEP16

Power Take-Off



N118844—UN—08JUL15

- A—Driveline Guard
- B—Master Shield

CAUTION: To prevent entanglement in driveline that can cause severe injury or death, ensure the tractor master shield (B) and driveline guard (A) are in position at all times.

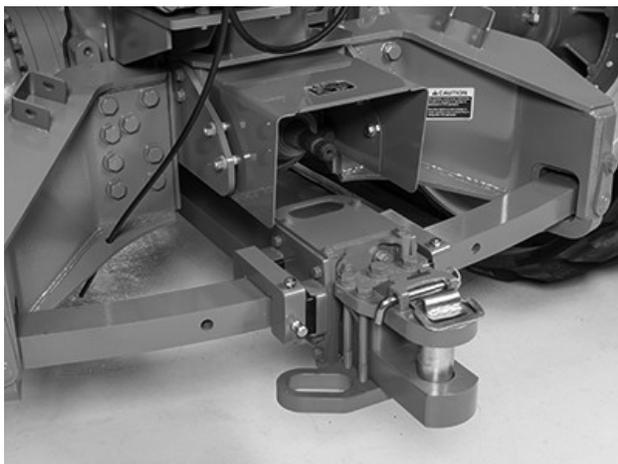
KB78086,0000F36-19-17AUG16

Position Drawbar



N118863—UN—05AUG15

Standard Drawbar in Transport Position



N118864—UN—05AUG15

Wide-Swing Drawbar in Transport Position

CAUTION: Avoid personal injury or death to you or others due to lost machine steering control. Always pin the drawbar in the center position for all tractors when transporting machine.

IMPORTANT: Pin the drawbar in the centered position for transport. Hitch damage can occur in field if drawbar is pinned solid.

1. Two-Wheel Drive Tractors: Place drawbar in fixed, centered, and down position.
2. Four-Wheel Drive and Tracked Tractors: Place drawbar in fixed, center position for transport. Leave

one hole clearance on each side of drawbar for field operation only.

3. Wide-Swing Drawbar: Place drawbar in fixed, center position for transport. Place the stop blocks on storage brackets for field operation.

KB78086,0000F56-19-14FEB19

Prepare Hydraulic System—John Deere R/RT Series Tractors



N118847—UN—09JUL15

- A—SCV I Flow Rate Adjustment
- B—SCV I Time Adjustment
- C—SCV II Flow Rate Adjustment
- D—SCV II Time Adjustment
- E—SCV III Flow Rate Adjustment
- F—SCV III Time Adjustment
- G—SCV IV Flow Rate Adjustment
- H—SCV IV Time Adjustment

1. Check hydraulic oil level. Fill if necessary.
2. **SCV II**—Adjust flow rate (C) to 10 (wing/gang fold control—if equipped).

NOTE: If time adjustment does not allow wings or gang to completely fold or unfold, time adjustment can be set to continuous. If set to continuous, tractor hydraulic pump will continue to operate after wing-fold cylinders have stopped moving. This is normal and not harmful. However, shutting off pump by moving SCV lever to any position after lever has returned to NEUTRAL is recommended.

3. Set time adjustment (D) to 19 seconds.

CAUTION: DO NOT operate SCV I in CONTINUOUS. Operating SCV I in CONTINUOUS can cause machine to unfold unexpectedly during transport causing serious injury or death to you or others.

4. **SCV I**—Adjust flow rate (A) to 10 (depth control).
5. Set time adjustment (B) to 5 seconds. Time can be

Preparing Tractor

increased or decreased depending on actual time required to lift and lower machine.

6. **SCV III**—Adjust flow rate to (E) 2 (rolling basket down-pressure—if equipped).

7. Set time adjustment (F) to "C" for continuous flow.

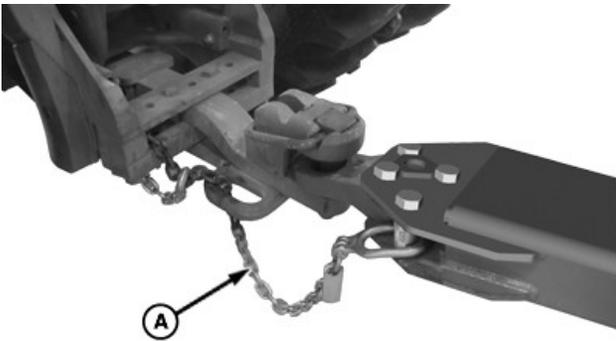
8. **SCV IV**—Adjust flow rate (G) and time adjustment (H) as necessary.

Machine Settings For R/RT Series Tractors			
SCV	Function	Flow	Detent Time
I	Depth Control	10	5 s
II	Wing/Gang Fold Control	10 ^a	19 s ^a
III	Rolling Basket Down-Pressure	2 ^a	Continuous ^a
IV	-	-	-

^aIf equipped.

KB78086,0001123-19-02MAY17

Use a Safety Chain



N97885—UN—28AUG12

A—Safety Chain

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

KB78086,00000AC-19-04SEP12

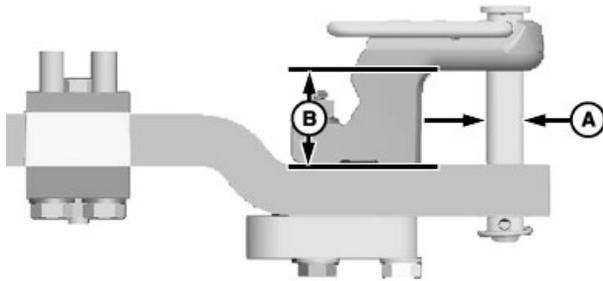
Preparing Machine

Drawbar Requirements

IMPORTANT: Drawbars must be compatible with hitch links or damage to machine and/or tractor can occur. Refer to tractor Operator's Manual for specific drawbar requirements.

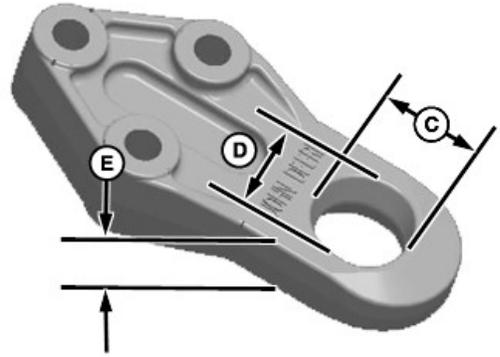
For ordering hitch links and pins, see your John Deere dealer or qualified service provider.

Do not exceed static vertical load capacity of tractor drawbar. See Specifications section for vertical load and see tractor operator's manual for drawbar limits and heavy-duty supports.



Drawbar

N77117—UN—26JUL07



Hitch Link

N77116—UN—26JUL07

- A—Hitch Pin Diameter
- B—Drawbar Opening Height
- C—Slot Length
- D—Slot Width
- E—Link Thickness

Hitch Category	Tractor Drawbar		Hitch Link		
	Hitch Pin Diameter (A)	Drawbar Opening Height (B)	Slot Length (C)	Slot Width (D) (min.)	Link Thickness (E)
3	38 mm (1.5 in)	70—90 mm (2.75—3.54 in)	41—66 mm (1.61—2.60 in)	41 mm (1.61 in)	48 mm (1.89 in)
4	50 mm (1.97 in)	90 mm (3.54 in)	55—70 mm (2.17—2.75 in)	55 mm (2.17 in)	50 mm (1.97 in)
5	70 mm (2.75 in)	100 mm (3.94 in)	73—85 mm (2.87—3.35 in)	73 mm (2.87 in)	60 mm (2.36 in)

NOTE: Category 4 hitch link can be used on Category 3 drawbar with 90 mm (3.54 in) drawbar opening height.

OOU6061.00027DF-19-11JUL18

Check and Lubricate Machine

- Inflate tires to specifications. (See Check Tire Pressure in the Service section.)
- Perform the required lubrication. (See Lubrication And Maintenance section.)
- Inspect for loose, missing, or damaged parts. Repair if necessary.
- Perform all steps in Preparing Machine Checklist.

KB78086.0001124-19-07FEB17

Preparing Machine Checklist

Perform the following checks to ensure proper initial machine operation:

IMPORTANT: Verify tightness of ALL BOLTS, U-BOLTS, and CAP SCREWS after first 10 hours of operation and again at end of the first week (50 hours) of operation or damage to machine can occur.

Tighten all bolts to torques specified in Service section unless otherwise noted.

Always check tightness of hardware periodically to maintain good machine operation.

- Verify that drawbar is compatible with hitch. (See Drawbar Requirements.)
- Verify that standards are straight (not cocked left or right).

3. Perform initial fore/aft leveling.

Verify that frame is level when attached to tractor (adjust turnbuckle to level the machine if necessary).

NOTE: Side-to-side main frame level is nonadjustable.

4. Check side-to-side leveling:

- a. Cycle lift cylinders three times holding lever back 5 seconds each time machine is in raised position.
- b. Lower machine until points are approximately 25 mm (1 in) off ground.
- c. Check wheel modules from the bottom edge of the frame to axle spindle. Both measurements are to be within 7 mm (1/4 in).
- d. If main frame is not level, see your John Deere dealer.

5. On 7-Standard machines with folding gangs, ensure that rear folding gangs are straight with the main frame gangs by looking down gang tubes. Adjust if necessary.

6. On 7, 9, and 11-Standard folding machines, ensure that wing frames are level to the main frame by standing behind machine and survey across gang tubes for levelness.

7. Verify that hitch-to-main frame spacer washers are in place with no gaps.

8. Tighten all hardware after initial set-up.

Tighten rockshaft to specification.

Specification

Rockshaft Bearing Hardware—Torque.	407 N·m (300 lb·ft)
---	------------------------

Tighten 1 in wheel module pivot bolts to specification.

Specification

Wing Wheel Module Pivot Bolts—Torque.	678 N·m (500 lb·ft)
--	------------------------

Tighten all gang attaching hardware (cap screws head down) to specification.

Specification

Gang Attaching Hardware—Torque.	407 N·m (300 lb·ft)
--	------------------------

Tighten wheel bolts to specification.

Specification

Wheel Bolts—Torque.	176 N·m (130 lb·ft)
-----------------------------	------------------------

9. In Field: Check that the previous steps have been done.
10. See the Troubleshooting section of this manual to correct problems.

KB78086,0001125-19-08FEB17

Before Entering Field Guidelines

Perform following procedures on a hard, flat, level surface—preferably a concrete slab—before entering field.

1. Inflate tires to specifications. (See Check Tire Pressure in Service section.)
2. Check turnbuckle position.
3. Fully charge hydraulic system.
 - Raise machine to transport position and hold SCV lever back for five seconds at top of cylinder stroke.
 - Repeat this three times.
 - This rephases depth control hydraulic system.

IMPORTANT: Verify drawbar and hitch requirements or damage to machine and/or tractor can occur. (See Drawbar Requirements in Preparing Tractor Section.)

4. Position tractor drawbar.
 - For four-wheel drive tractors and tracked tractors, leave one hole clearance on each side of drawbar for FIELD OPERATION ONLY.
 - Two-wheel drive tractors are to be pinned tightly in center position at all times.

NOTE: Machines equipped with harrows are rear-heavy and pitch to the rear when raised. Fore/aft leveling is designed to achieve level soil profile during operation, not to have a level machine during transport.

5. Level machine front-to-rear with tractor.
 - Raise machine to transport position.
 - Adjust hitch turnbuckle until main frame is level front-to-rear when viewed from side.
6. Check that main frame is level side-to-side.
 - Measure distance between left-hand and right-hand axle spindle tubes and frame.
 - The distance between each axle spindle tube and main frame should be equal within 7 mm (0.25 in).
7. Verify hydraulic pressure for rolling baskets (if equipped) is not set excessively high.

- Start with 1378—2068 kPa (13.8—20.7 bar) (200—300 psi) down pressure on the rear baskets, then increase the pressure setting if necessary.
8. Extend 7-Standard folding gang until aligned with the main gang.
 - Stand outside of the rear gang.
 - Adjust the stop bolt until the folding gang tube is aligned with the main gang tube.
 9. Level 7-Standard folding machine wing frames to the main frame.
 - Stand behind machine.
 - Add or remove shims on each wing until gang tubes are level side-to-side across width of machine.
 10. Level 9 and 11-Standard wing frames to the main frame.
 - Stand behind machine.
 - Adjust eyebolt on each wing depth control cylinder until gang tubes are level side-to-side across width of machine.
 11. Check wing stabilizer wheels on 9 and 11-Standard machines are level and adjust if necessary.

KB78086,0001135-19-31JAN17

Field Operating Guidelines

1. Verify that proper tractor is being used for optimal machine performance and to prevent tractor damage. (See Understanding Active Hydraulic Rolling Basket Down-Pressure System in Operating Machine section.)
2. Inflate tires to specifications. (See Check Tire Pressure in Service section.)
3. Operate with a proper overlap.
 - Ridging and unworked ground can result if proper overlap is not maintained on the comeback pass.

NOTE: Operating speed directly affects soil profile.

4. Proper operating speed is between 6.4—9.7 km/h (4—6 mph).
 - Operating too fast for soil conditions can result in the outer edge ridges. Install finishing blades to rear gangs to reduce or eliminate this condition. If finishing blades do not eliminate outer edge ridges, reduce speed or raise machine slightly.
 - Operating too slowly for soil conditions can result in residue streaks on outer edges. Increase operating speed if this symptom is observed. If deep ripping is not required, set ripper shanks to shallow position to allow for increased speed.

NOTE: Suggested depth of rippers is 25—50 mm (1—2 in) below the compaction layer. Use the soil probe to determine depth of the compaction layer. See Detecting Compaction With John Deere Soil Probe in this section.

5. Operate at proper depth.
 - Use Single Point Depth Control to set operating depth.
 - Wheels must support machine for level tillage results. Pulling the wheels completely off the ground does not help achieve maximum depth and causes unlevel tillage results.
 - Do not run disk deeper than 203 mm (8 in) from original surface.
 - Under certain soil conditions, maximum ripping depth of 406 mm (16 in) cannot be achieved.
6. Operate machine at proper operating speed, then stop.
 - Observe soil profile behind the machine.
 - Adjust machine using turnbuckle to achieve desired soil profile.
 - Certain conditions can require machine to be tipped slightly rearward for best performance.
 - Certain conditions can require disk gang shims for optimum machine performance. See Troubleshooting section.

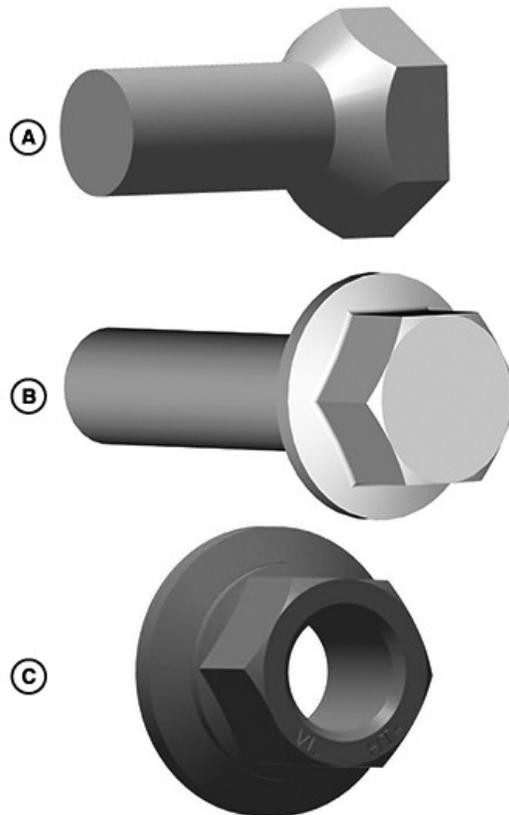
IMPORTANT: Set wing fold circuit to float for field operation to prevent cylinder damage.

7. Level 7, 9, and 11-Standard wing frames to main frame at proper operating speed.
 - Have someone observe machine from rear under power.
 - Adjust each wing until gang tubes are level side-to-side across width of machine.
 - Certain conditions can require wings to be tipped slightly up for best performance.
 - All wheel modules should carry equal weight. Stabilizer wheel “fluttering” may be noticed if wing wheels are not carrying equal weight. Make small 6.4 mm (1/4 in) adjustments as needed.
8. Set rear gang angle for specific conditions.
 - 16° position: Heavy soils and higher residue levels.
 - 14° position: Lighter soils and lower residue levels.
9. Check scraper blade position.
 - Lock scrapers away from the blades slightly to prevent excessive scraper wear.
 - C-spring knock out scrapers and straight knock out scrapers should only be mounted as needed

where C-springs or spools are experiencing excessive plugging. If the machine is not experiencing plugging, knock out scrapers are not needed.

KB78086.0001282-19-20FEB18

Check Wheel Hardware—All Tillage Machines



N133465—UN—05DEC17
Wheel Hardware Types

Check Tire Pressure—All Tillage Machines

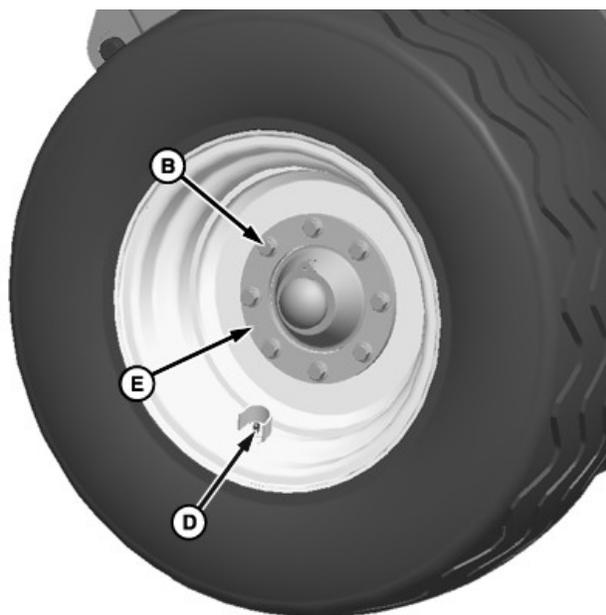
Tire Size	Load/Speed Index	Pressure		
		kPa	bar	psi
6.7R15	6 ply	303	3.0	44
20.5x8.00-10	E	310	3.1	45
20.5x8.00-10	4 ply	621	6.2	90
9.5L-14 SL	6 ply	221	2.2	32
5.90-15 SL	4 ply	248	2.5	36
7.60-15 SL	8 ply	359	3.6	52
9.5L-15D FI	D	414	4.1	60
11L-15D FI	D	414	4.1	60
11L-15F FI	F	621	6.2	90
12.5L-15D FI	D	414	4.1	60
12.5L-15F FI	F	621	6.2	90
340/65R18 (Michelin)	149A8 (153A6)	496	5.0	72
340/65R18 (Goodyear)	148A8/B	538	5.4	78
445/50R22.5	167A8/B	827	8.3	120
380/55R16.5	150A8/B	503	5.0	73
440/55R18	159A8/B	503	5.0	73
VF285/70R19.5	150D	517	5.2	75
IF320/70R15	144D	483	4.8	70
IF280/70R15	134D	441	4.4	64
380/90R46 (Singles)	156	338	3.4	49
380/90R46	177D	517	5.2	75
380/90R46 (Duals)	149	241	2.4	35
380/90R54 (Singles)		400	4.0	58
380/90R54 (Duals)		241	2.4	35
IF380/105R50	165A8/B	483	4.8	70

CAUTION: Tire failure due to overloading can cause loss of vehicle control during transport resulting in serious injury or death to you or others. Prevent tire failure by using only tires specified for your machine and inflating them to correct pressures.

IMPORTANT: Chart shown for tire pressure reference only. Ensure machine performance by using only tires specified for your machine and inflating them to correct pressures.

For the even working depth of attachments in the ground, tires must be inflated to specification. A low tire causes deeper penetration on one side than the other. Deeper penetration on one side can cause the machine to side draft. Inflate all tires to correct pressures.

KB78086.0000FB7-19-15FEB19



N121314—UN—24MAR16
Wheel Component Diagram

- A—Tapered Seat Wheel Bolt
- B—Flanged Wheel Bolt
- C—Wheel Nut with Washer
- D—Valve Stem
- E—Spacer Ring

Check tightness of all wheel hardware (A, B, or C) during the first week of operation and periodically thereafter.

Verify that wheel valve stems (D) are oriented correctly. For 15 in wheels using an 8-bolt pattern, valve stems must be oriented **TOWARD** wheel arm. For all others, valve stems must be oriented **AWAY** from the wheel arm.

Verify that hardware is installed as it was removed, including spacer rings (E) where applicable.

Tighten all wheel hardware to specification.

Machine Specific	Hardware Type	Hardware Size	Torque Specification
No	A	9/16 in	176 N·m (130 lb·ft)
No	B	9/16 x 1.5 in	176 N·m (130 lb·ft)
No	B	9/16 x 2.0 in	271 N·m (200 lb·ft)
No	B	M16	352 N·m (260 lb·ft)
Yes ^a	C	3/4 in	359 N·m (265 lb·ft)
No	C	3/4 in	569 N·m (420 lb·ft)
No	C	M20	678 N·m (500 lb·ft)
Yes ^b	C	M22	644 N·m (475 lb·ft)

^a2510L Machines

^b2510H Machines With Dry Nutrient Attachment

KB78086,0001221-19-15FEB19

Tighten Hardware

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

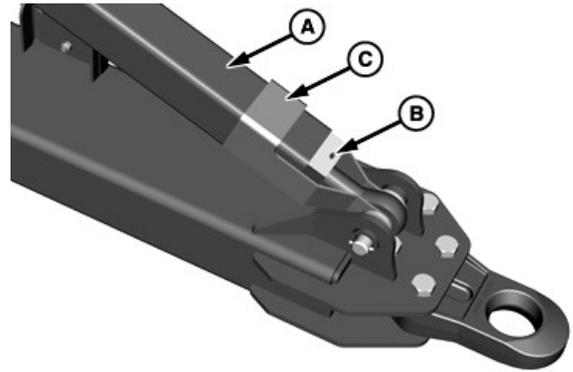
Check tightness of hardware periodically.

KB78086,0000321-19-14JUN18

Adjust Front-to-Rear Leveling

NOTE: Machine can need adjusting when moving from field to field, when using a tractor with a different drawbar height or when gauged depth setting is changed.

For best performance, frame should be level or tipped slightly rearward.



N99531—UN—15AUG12

A—Turnbuckle
B—Grease Fitting
C—Retainer

1. If rear gangs are leaving a valley in center, lengthen turnbuckle (A) to raise front gangs and lower rear gangs.

If rear gangs are leaving a center ridge, shorten turnbuckle to lower front gangs and raise rear gangs.

2. Lift turnbuckle retainer (C).

3. Use adjustment wrench (stored above left-hand hitch mounting in main frame tube) to adjust turnbuckle.

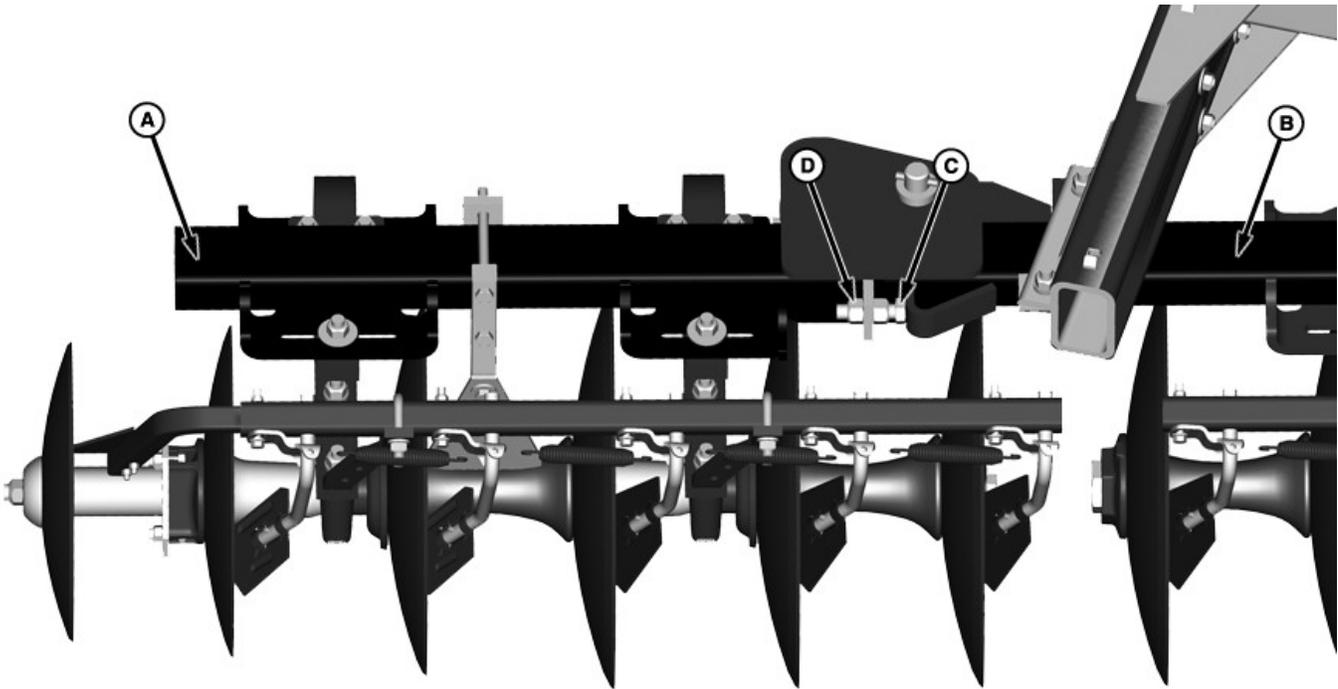
4. Make sure grease fitting (B) is either up or down, not to side when adjustment is finished.

IMPORTANT: Failure to point grease fitting (B) up or down before engaging turnbuckle retainer (C) can damage fitting.

5. Lower turnbuckle retainer.

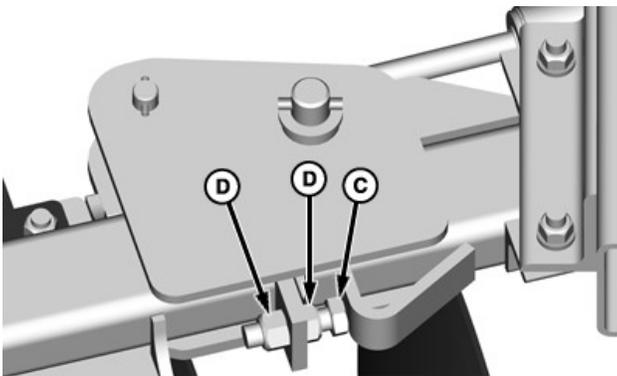
AG,OUO6018,457-19-07FEB17

Adjusting Rear Folding Gang Alignment—7-Standard (If Equipped)



Folding Rear Gang—Left Side Shown

N96930—UN—05APR13



Rear Gang Alignment

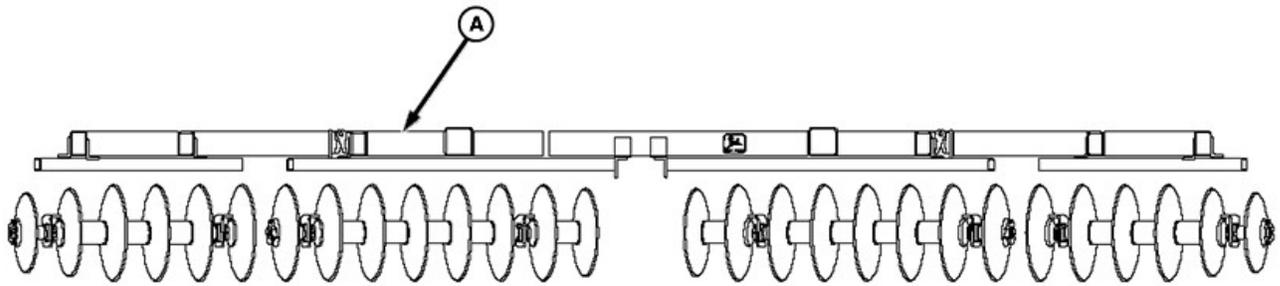
N95415—UN—05APR13

A—Gang Fold Tubes
B—Main Frame Gang Tubes
C—Stop Bolt
D—Lock Nut (2 used)

1. On a level surface, raise machine to transport position and hold multi-function lever rearward for 5 seconds to synchronize cylinders.
2. Stand to side of gang and sight down gang tube. Adjust gang fold tube (A) until aligned with main frame gang tube (B).
3. To adjust rear gang alignment, loosen lock nuts (D) and turn stop bolt (C). Tighten lock nuts.
4. Repeat process on other side.

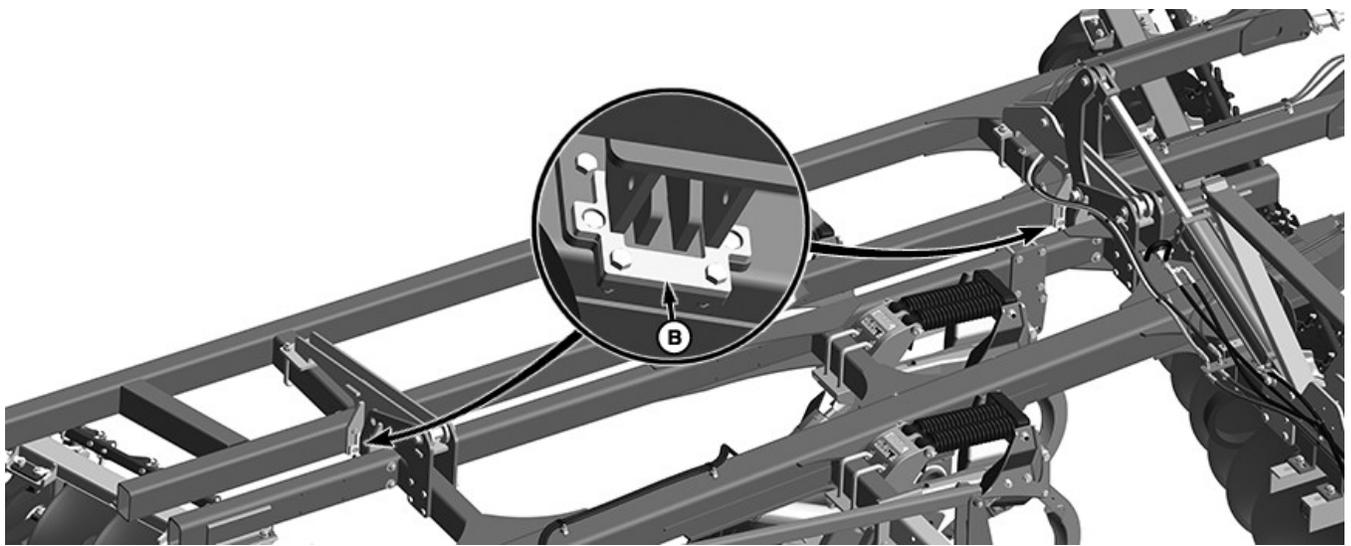
AG,OUO6018,427-19-01MAR12

Level Wings—7-Standard Folding Machines



Rear View

N128397—UN—08FEB17



Right-Hand Side View

N128396—UN—03FEB17

A—Gang Tubes

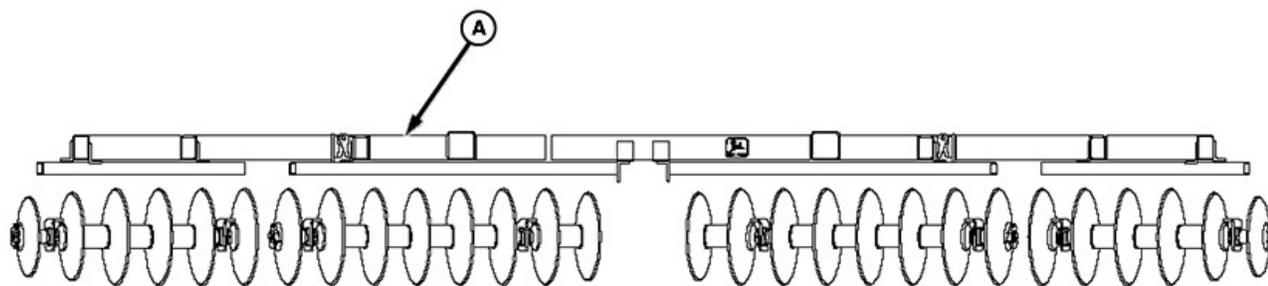
1. Stand behind machine. Verify that gang tubes (A) are level side-to-side across the width of the machine.
2. To adjust wing frames, add or remove shims (B) until desired level is achieved.

B—Shim

3. Repeat procedure for the opposite side.

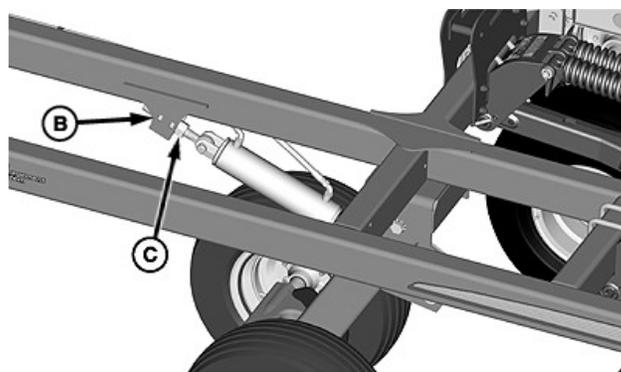
KB78086.0001120-19-08FEB17

Level Wings—9 and 11-Standard Machines



Rear View

N128397—UN—08FEB17



N96929—UN—29FEB12

A—Gang Tubes
B—Lock Nut
C—Nut

1. Stand behind machine. Adjust eyebolt on each wing frame depth control cylinder until gang tubes (A) are level side-to-side across width of machine.

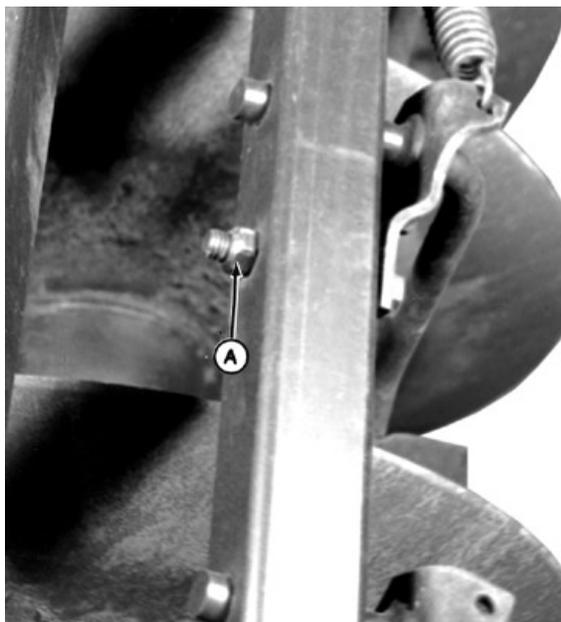
NOTE: One full turn of nut (C) adjusts wheel height by 8 mm (0.315 in).

An adjustment wrench is provided for this adjustment. It is located near the front of the machine.

2. To adjust wing frame, loosen lock nut (B) on eyebolt and turn nut (C). Tighten lock nut.
3. Repeat procedure for the opposite side.

AG.OUO6018,427-19-08FEB17

Adjust Scrapers



A—Lock Nuts

N42181WN—UN—17DEC97

⚠ CAUTION: Self-adjusting scrapers are sharp and spring loaded and can cause injury to you or others. Wear protective gloves to help prevent injury from cutting edges of blades or scrapers.

Machines are shipped with scrapers set in self-adjusting position to perform break-in. Set to rigid operation after first 10-20 hours of machine operation if desired.

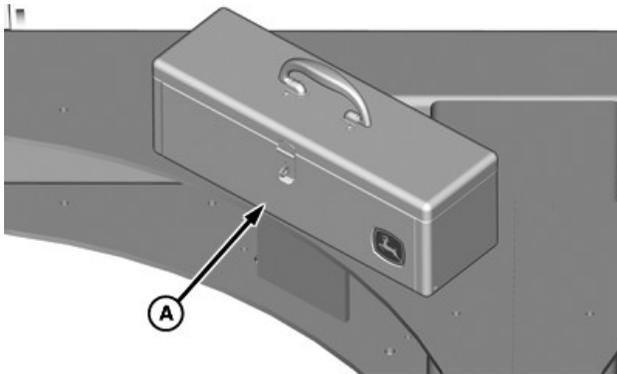
RIGID OPERATION: Hold scraper in fixed position by tightening attaching cap screws (A) and lock nuts.

SELF-ADJUSTING OPERATION: For scraper “break-in”, positioning scraper for self-adjusting operation allows it to form to shape of blades during first 10—20 hours of machine operation. Perform “break-in” under DRY conditions. Reset scrapers to rigid position to prevent excessive wear of scraper blades after “break-in” period.

If self-adjusting scrapers are desired, loosen lock nut (A) several turns to allow spring tension to hold scraper against blade in sticky soil conditions.

NX,M63715,,J-19-28MAR17

Toolbox



N95425—UN—19OCT18

A—Toolbox

Verify that all tools are in toolbox (A) and locked before entering the field.

KB78086,0000BDA-19-07MAR12

Attaching and Detaching

Use Your Tractor and Tillage Equipment Operator's Manuals

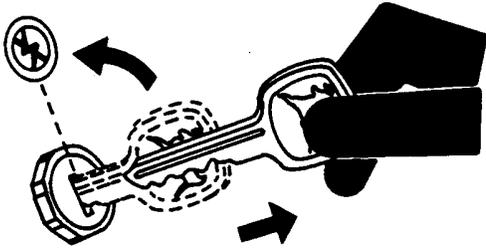


TS190—UN—17JAN89

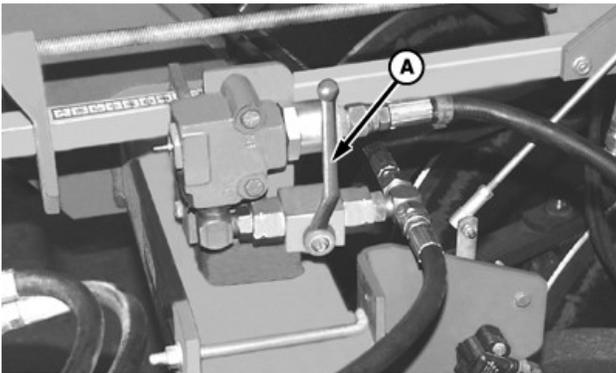
(Always see **your** tractor and tillage equipment Operator's Manual for specific, detailed information regarding equipment operation. Operation and adjustment procedures vary by equipment.)

AG,OUO6043,236-19-11JUL18

Before Attaching Machine to Tractor



TS230—UN—24MAY89



N61821—UN—25FEB03

Lockup Valve In CLOSED Position

A—Transport Lockup Valve

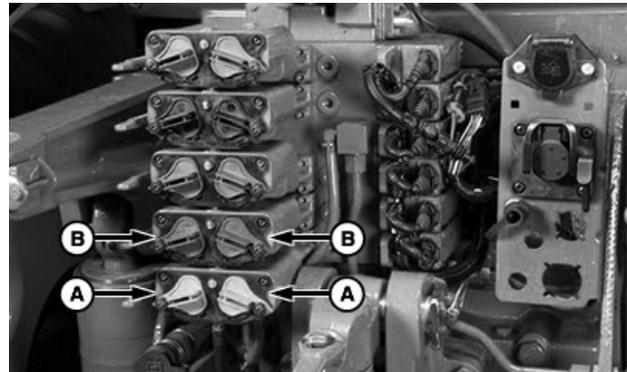
CAUTION: Serious injury or death to you or others can occur caused by unexpected movement of machine. Engage park brake, place transmission in **PARK**, shut off engine and remove key before working around hitch.

Machine must be attached directly to tractor drawbar and not any intermediate towed vehicle. Loss of control could result causing serious injury or death to you or others.

CLOSE transport lockup valve (A) by turning handle clockwise 90° so it is **NOT IN LINE** with the valve as shown.

KB78086,0001126-19-31JAN17

Attach Machine to Tractor



N118848—UN—09JUL15

John Deere R/RT Series Tractors

A—SCV I Coupler (2 used)
B—SCV II Coupler (2 used)

1. Position tractor and attach hitch link to drawbar. Verify that hitch pin is retained with spring strap or hex nut.
2. Turn tractor engine OFF.

IMPORTANT: Verify that depth control hoses are connected correctly. If hose connections are reversed, machine will not respond to electronic controls (if equipped).

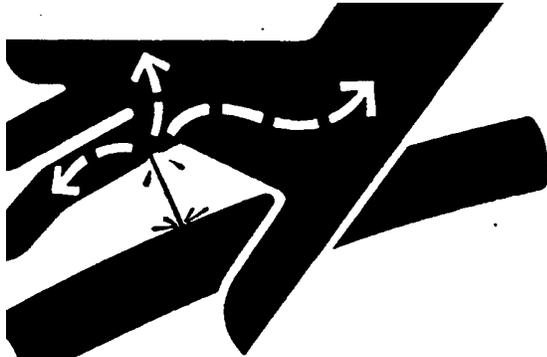
3. Push depth control hoses into SCV I couplers (A). Pressure extension hose attaches to left-hand coupler.
4. Push wing/gang fold hoses into SCV II couplers (B). Pressure hose attaches to left-hand coupler.
5. See Make Proper Hose Connections in this section for other SCV couplers.

IMPORTANT: Failure to bleed air from the depth control system can result in malfunction.

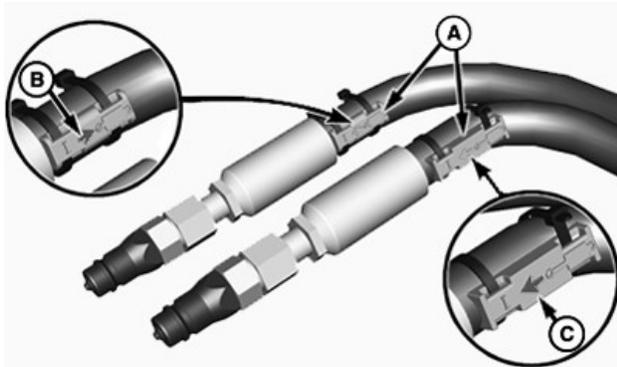
6. Bleed trapped air from the hydraulic system. (See Service section.)

KB78086.0001128-19-31JAN17

Make Proper Hose Connections



X9811—UN—23AUG88



N100832—UN—15MAR13

A—SCV Marker
B—Pressure Arrow
C—Return Arrow

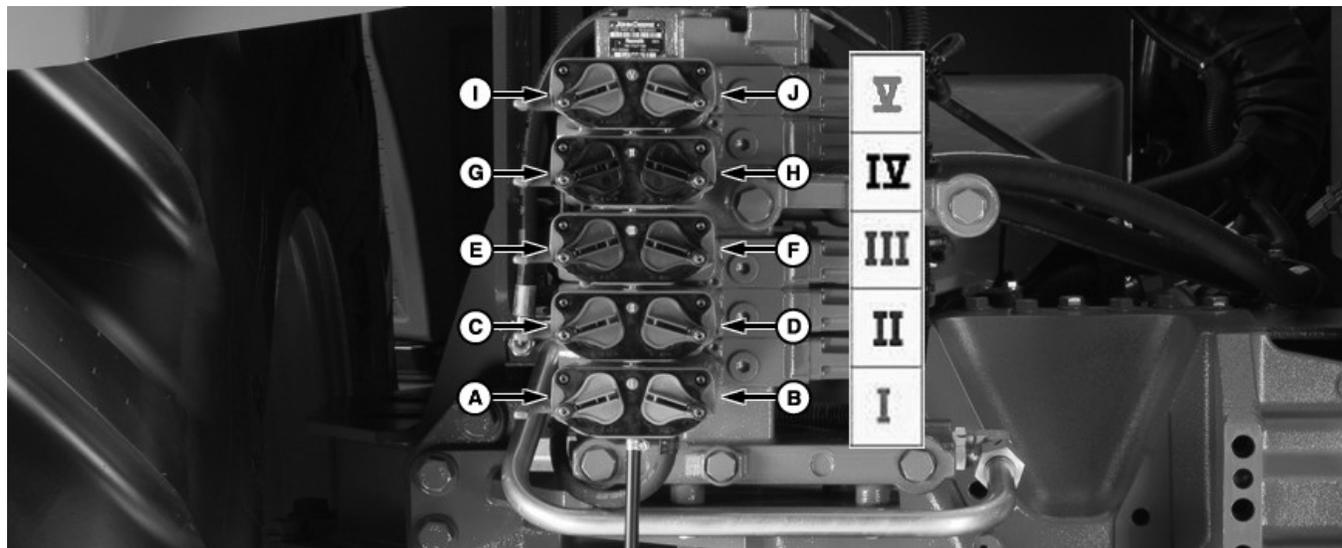
CAUTION: Avoid hazards due to escaping fluid under pressure. See Avoid High-Pressure Fluids in this manual.

Hydraulic hoses can fail due to physical damage, kinks, age, and exposure. Check hoses regularly. Replace damaged hoses.

IMPORTANT: All hydraulic couplers must be clear of debris, dust, and sand. Use protective caps on fluid openings until ready to make connection. Foreign material can damage hydraulic system.

Depth control hydraulic hoses are marked with GREEN markers. Refer to the specific color marker (A) for correct SCV coupler.

Identify correct color marker using either pressure (B) or return (C) arrows and attach to correct SCV outlet. (See SCV Identification chart.)



N100833—UN—05JUL18

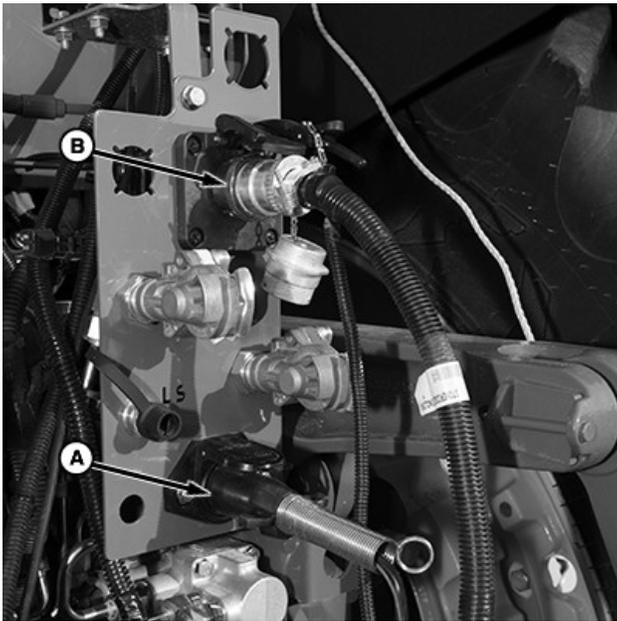
SCV Identification

Legend	Marker	Type	Color	SCV Usage	SCV Flow Required L/min (gal/min)	SCV Time Setting
A	I	Pressure	Green	Depth Pressure	114 (30)	5 s
B	I	Return	Green	Depth Return		
C	II	Pressure	Blue	Wing/Gang Fold Pressure ^a	114 (30) ^a	19 s ^a
D	II	Return	Blue	Wing/Gang Fold Return ^a		
E	III	Pressure	Brown	Rolling Basket Down Pressure ^a	8 (2) ^a	Continuous ^a
F	III	Return	Brown	Rolling Basket Down Pressure Return ^a		
G	IV	Pressure	Black	-	-	-
H	IV	Return	Black	-	-	-
I	V	Pressure	Purple	-	-	-
J	V	Return	Purple	-	-	-

^aIf equipped.

KB78086,0001127-19-08FEB17

Attach Electrical Connectors



N118862—UN—04AUG15

John Deere R/RT Series Tractors

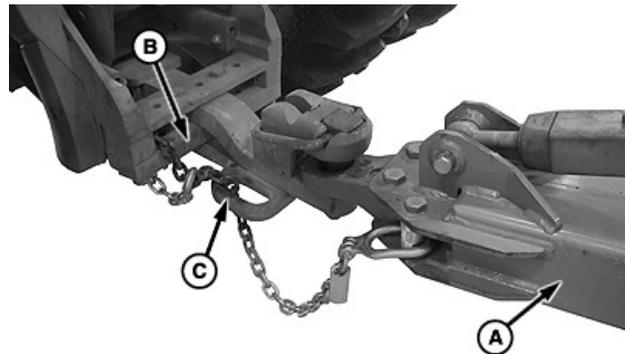
- A—Warning Light Connector
- B—TruSet Depth Control Connector

NOTE: Field installation of the 7-terminal auxiliary plug is required if towing tractor is not equipped with an electrical outlet.

1. Attach warning light connector (A) to tractor.
2. Attach TruSet depth control connector (B) to tractor (if equipped).

KB78086,0000F4F-19-18FEB19

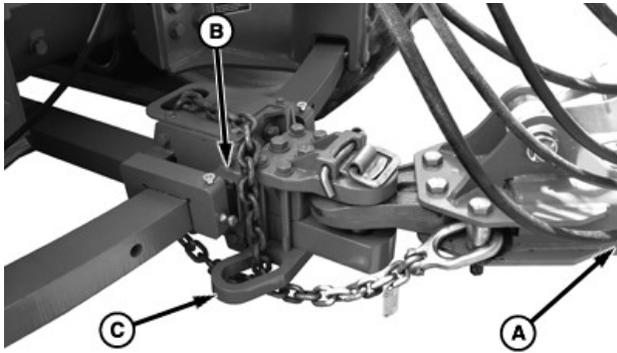
Attach Safety Chain to Tractor



N99534—UN—17AUG12

Standard Drawbar

CAUTION: When transporting machine on a road or highway at night or during the day, use lights and devices for an adequate warning to operators of other vehicles. 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. Lights and devices are available from your John Deere dealer.



N113088—UN—19MAY14

Wide-Swing Drawbar

- A—Drawn Equipment
- B—Drawbar
- C—Intermediate Support

CAUTION: A safety chain helps control drawn equipment (A) should it accidentally separate from drawbar (B) while transporting. A runaway machine can cause serious injury or death to you or others. Using appropriate adapter parts, attach chain to tractor drawbar support. Provide only enough slack in the chain to permit turning. See your John Deere dealer or qualified service provider for a chain with a strength rating equal to or greater than gross weight of the towed machine.

DO NOT attach chain to intermediate support (C). Chain **MUST** only loop through intermediate support.

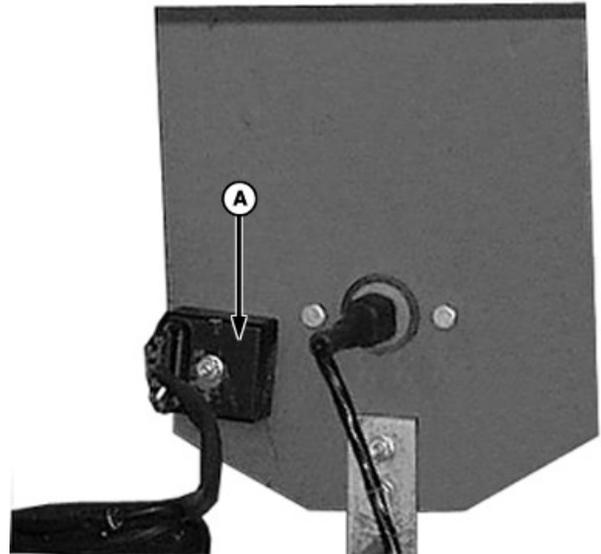
Before operating implement, verify that all electrical harnesses, hydraulic hoses, and safety chain are routed properly to avoid damage.

When storing machine, keep safety chain up off ground and hook to machine support assembly on hitch.

Always replace a safety chain if one or more links or end fittings are broken, stretched or otherwise damaged.

OUO6061,0002857-19-28JAN16

Using Warning Lights and SMV Emblem



N55332—UN—16OCT00

A—Lighting Enhancement Module

CAUTION: When transporting machine on a road or highway at night or during day, use accessory lights and devices for adequate warning to operators of other vehicles. 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. Lights and devices are available from your John Deere dealer.

Amber warning lights should be installed at widest points of machine. Red tail lights should be located at rear of combined machines.

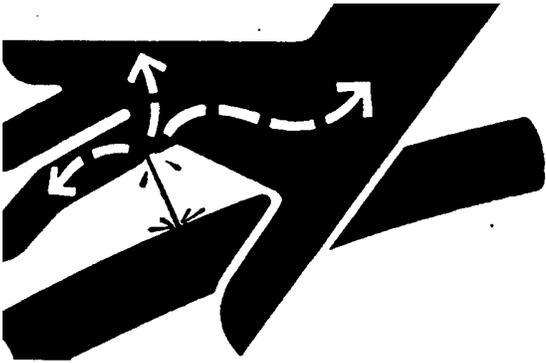
For maximum machine visibility, be sure amber warning lights and red tail lights, reflectors and SMV emblem are clean.

NOTE: Lighting enhancement module is attached to inside front wing-fold plate on left-hand side.

A lighting enhancement module (A) has been incorporated in this machine's lighting circuit. This module causes red tail lights to function as turn signals. During normal operation, both amber warning lights flash in unison at high intensity, and both red tail lights illuminate steady at low intensity. When a turn is signaled, red tail light in direction of turn flashes at high intensity and in unison with amber warning light. Opposite side amber and red lights illuminate steady at high intensity.

KB78086,0000B92-19-22FEB12

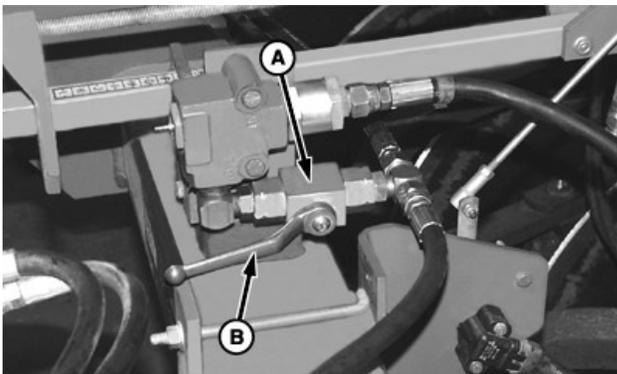
Engaging Hydraulic Cylinder Transport Lockup Valve



X9811—UN—23AUG88



N39547—UN—06OCT88



N61822—UN—25FEB03

Transport Lockup Valve In OPEN Position

A—Transport Lockup Valve
B—Handle

CAUTION: Avoid hazards due to escaping fluid under pressure. See Avoid High-Pressure Fluids in this manual.

Failure to close transport lockup valve could cause machine to unfold unexpectedly during transport causing serious injury or death to you or others.

IMPORTANT: Rotate lever to closed position for transport, service, and storage.

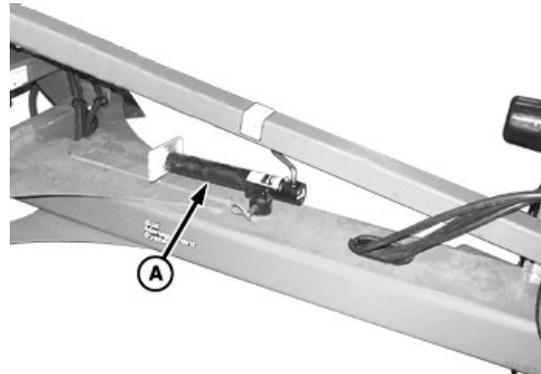
Close transport lockup valve (A) during transport by

turning handle (B) fully clockwise 90° until it stops (straight up).

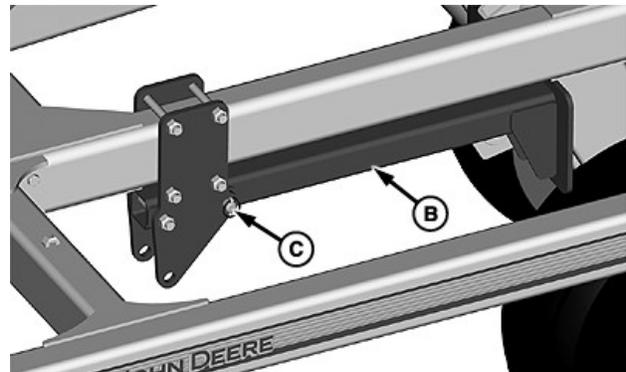
Open transport lockup valve for field operation by turning handle counterclockwise 90° and inline with valve body.

AG,OUO6018,420-19-07FEB17

Positioning Jack for Transport



N72983—UN—20JUN06



N96952—UN—23APR12

A—Jack
B—Parking Stand
C—Pin

1. After hitching machine to tractor, place jack (A) on the storage post and retain with pin.
2. Machines With Rear Parking Stands: Raise parking stand (B) and retain using pin (C). Repeat for the other side.

OUO6061,00024B2-19-07FEB17

Checking Rear Gang Fold Operation—7-Standard (If Equipped)



N96936—UN—05MAR12

John Deere R/RT Series Tractors

A—SCV II Lever

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

Verify that air has been properly bled from the rear gang-fold hydraulic system.

Keep all persons away from machine when extending and retracting rear gangs.

Always locate machine on level ground when extending and retracting rear gangs.

Never extend or retract rear gangs when moving.

1. Place tractor transmission in PARK and/or set brakes, then start engine and pull back on SCV II lever (A) to retract rear gang-fold cylinders.
2. Move SCV II lever back and forth several times while observing operation of machine. Rear gangs retract when the lever is pulled back and extend when the lever is pushed forward. If action is reversed, reverse hose connections in SCV II hydraulic coupler.
If rear gang does not operate smoothly, air could be trapped in cylinders or hoses. See Installing And Bleeding Rear Gang Fold Cylinders in Service section. If after bleeding, machine still does not operate properly, see your John Deere dealer.
3. After attaching and cycling cylinders, check tractor hydraulic oil reservoir. Add oil if necessary.

KB78086.0001129-19-07FEB17

Checking Wing Fold Operation—7, 9, and 11-Standard



N39547—UN—06OCT88



N96936—UN—05MAR12

John Deere R/RT Series Tractors

A—SCV II Lever

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

Verify that air has been properly bled from the wing-fold hydraulic system.

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

Always locate machine on level ground when raising and lowering wings.

Never raise or lower wings when moving.

Serious injury or death to you or others can result from contact with electric lines. Use care when raising wings near electric lines to avoid contact.

1. Place tractor transmission in PARK and/or set brakes, then start engine and pull back on SCV II lever (A) to retract wing fold cylinders.
2. Move SCV II lever back and forth several times while observing operation of machine. Wings 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 II hydraulic coupler.

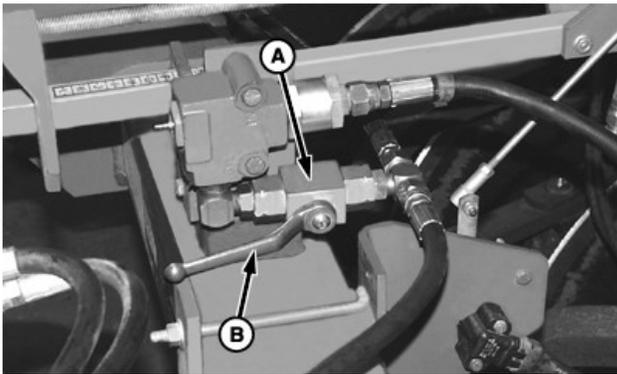
If wing fold does not operate smoothly, air could be trapped in cylinders or hoses. See Bleeding Hydraulic Cylinders in Service section. If after bleeding, machine still does not operate properly, see your John Deere dealer.

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

KB78086,0001121-19-07FEB17

Checking Depth Control Operation

CAUTION: To prevent injury or death to you or others, verify that everyone is clear of machine when raising or lowering machine, while checking depth control operation.



N61822—UN—25FEB03

Transport Lock-Up Valve In OPEN Position



N96938—UN—05MAR12

John Deere R/RT Series Tractors

- A—Valve
- B—Transport Lockup Valve Handle
- C—SCV I Lever

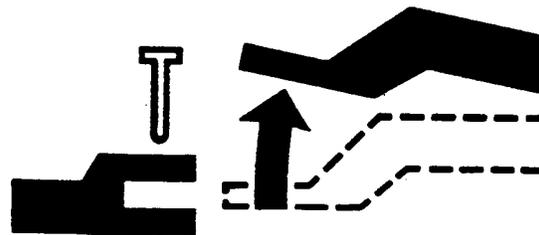
1. Check hydraulic system.
2. Turn transport lockup valve handle (B)

counterclockwise until it is in-line with valve (A) to open lock-up.

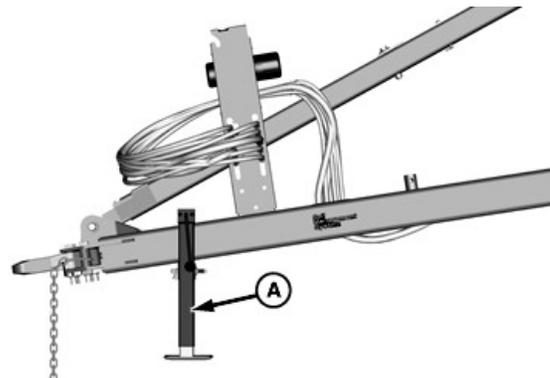
3. Place tractor transmission in PARK and set brakes, then start engine and pull back on SCV I lever (C) until depth control cylinders are fully extended.
4. Move SCV I lever back and forth several times while observing operation of machine. Machine should raise when lever is pulled back, and lower when lever is pushed forward. If action is reversed, reverse hose connections in SCV I coupler.
5. After attaching and cycling cylinders, check tractor hydraulic oil reservoir. Add oil if necessary.

KB78086,0001280-19-20FEB18

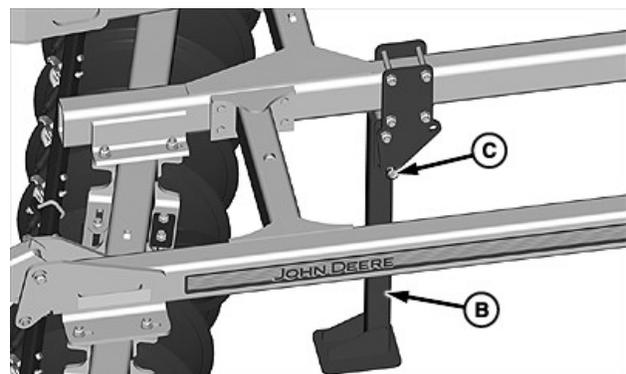
Detaching from Tractor



N39502—UN—06OCT88



N125481—UN—23SEP16



A—Jack

N96953—UN—23APR12

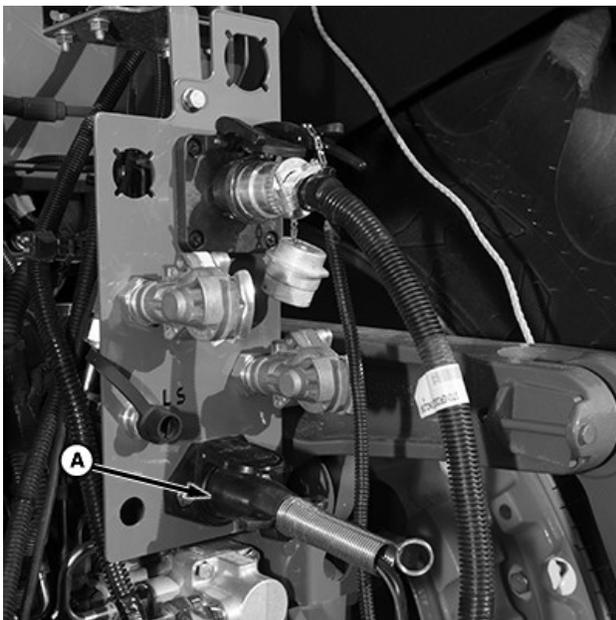
B—Parking Stand
C—Pin

CAUTION: Tongue can whip upward when unhitching. To avoid bodily injury, lower machine or rear parking stands to ground before removing hitch pin.

Before unhitching machine from tractor, block wheels or lower machine to ground to prevent accidental movement that can injure you or others.

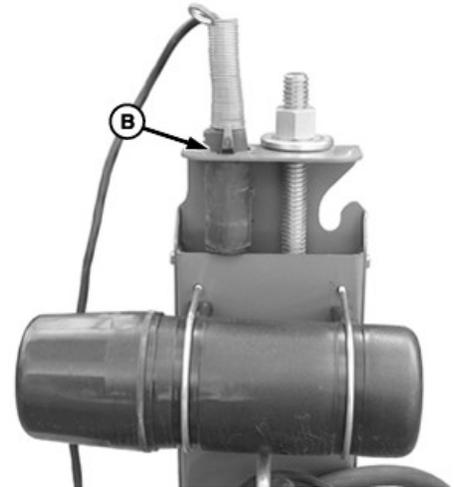
IMPORTANT: Thermal expansion of hydraulic oil can cause wings to accidentally unfold causing damage to nearby equipment or buildings. Relieve hydraulic pressure in fold cylinders before unhitching or parking tractor by moving hydraulic lever to FLOAT position with tractor engine running.

1. Machines With Rear Parking Stands: Lower parking stand (B) and retain using pin (C). Repeat for the other side.
2. Lower machine and wings completely to ground with tractor multi-function lever before unhitching from tractor, or if machine is to be unhitched in raised position, be sure transport lock-up is installed or hydraulic cylinder transport lockup valve has been closed and machine is on a firm and level surface.
3. When detaching a machine not equipped with a harrow attachment, remove jack quick-lock pin and L-pin. Rotate jack (A) to vertical position with handle up. Reinstall L-pin and quick-lock pin.
4. Remove weight from drawbar by turning handle and remove hitch pin.



N118843—UN—08JUL15

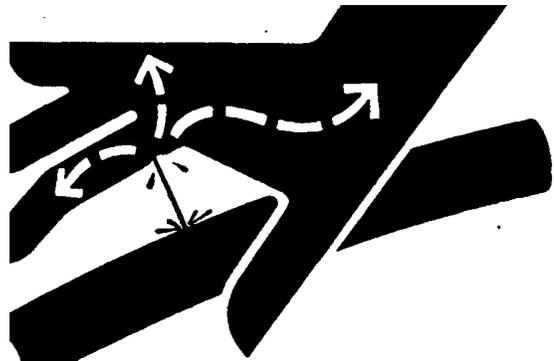
John Deere R/RT Series Tractors



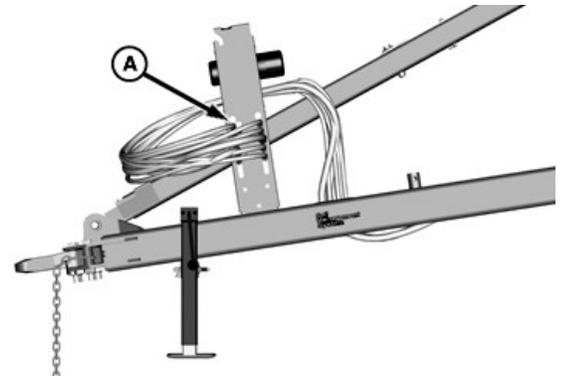
N73873—UN—26SEP06

A—Light Plug
B—Receptacle

5. Disconnect warning light plug (A) from tractor and place in the storage receptacle (B).



X9811—UN—23AUG88



N125482—UN—23SEP16

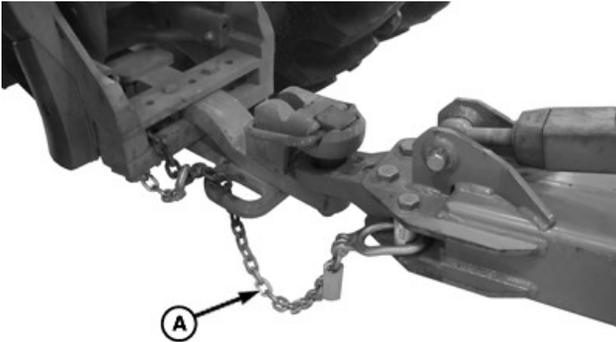
A—Slots

CAUTION: Avoid hazards due to escaping fluid under pressure. See Avoid High-Pressure Fluids in this manual.

When wings are in raised position, stay out of area in case wing falls. Falling wings can cause serious injury or death to you or others. Wings could unfold if machine is stored in a hot environment, allowing oil to expand.

Keep people away from machine when placing tractor multi-function lever in FLOAT position because unexpected movement of machine could injure someone.

6. Relieve pressure in all circuits by placing tractor multi-function levers in FLOAT position with engine running.
7. Disconnect hydraulic hoses from tractor and place in slots (A) in the hose holder as shown.
8. Install dust covers over hose ends and cover tractor outlets.
9. Disconnect TruSet wiring harness (if equipped).



N97886—UN—28AUG12

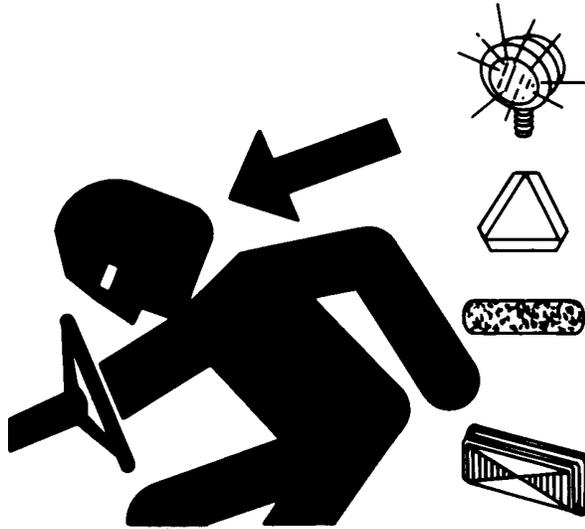
A—Safety Chain

10. Remove safety chain (A) from tractor.

KB78086,000112B-19-06MAR18

Transporting

Use Safety Lights and Devices



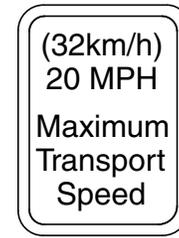
TS951—UN—12APR90

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.

DX,FLASH-19-07JUL99

Observe Maximum Transport Speed



A46805—19—16JUL10

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

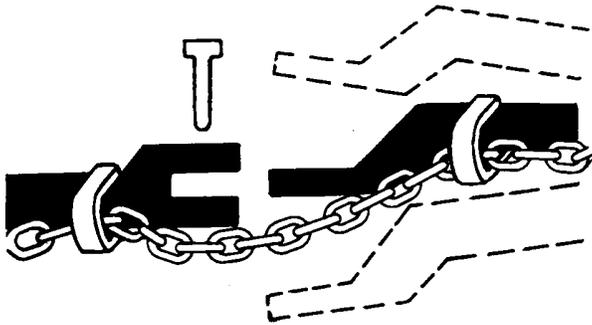
Use additional caution and reduce speed when towing under adverse surface conditions, when turning, and when on inclines.

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. Tow only with a properly ballasted tractor.

DX,TOW2-19-11APR07

Use a Safety Chain



TS217—UN—23AUG88

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.

DX,CHAIN-19-03MAR93

- A—Drawn Equipment
- B—Drawbar
- C—Intermediate Support

CAUTION: A safety chain helps control drawn equipment (A) should it accidentally separate from drawbar (B) while transporting. A runaway machine can cause serious injury or death to you or others. Using appropriate adapter parts, attach chain to tractor drawbar support. Provide only enough slack in the chain to permit turning. See your John Deere dealer or qualified service provider for a chain with a strength rating equal to or greater than gross weight of the towed machine.

DO NOT attach chain to intermediate support (C). Chain **MUST** only loop through intermediate support.

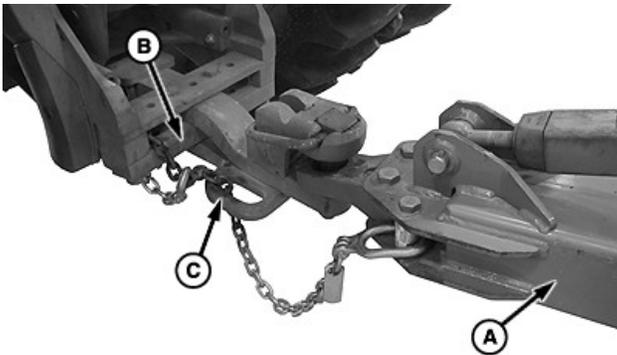
Before operating implement, verify that all electrical harnesses, hydraulic hoses, and safety chain are routed properly to avoid damage.

When storing machine, keep safety chain up off ground and hook to machine support assembly on hitch.

Always replace a safety chain if one or more links or end fittings are broken, stretched or otherwise damaged.

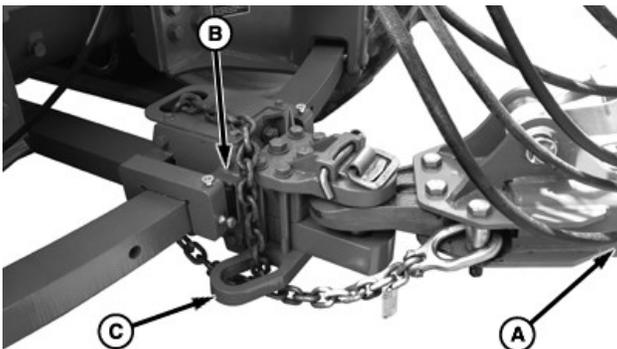
OUC6061,0002857-19-28JAN16

Attach Safety Chain to Tractor



N99534—UN—17AUG12

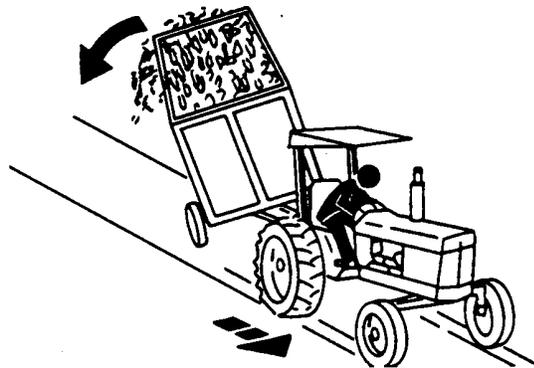
Standard Drawbar



N113088—UN—19MAY14

Wide-Swing Drawbar

Tow Loads Safely



TS216—UN—23AUG88

Stopping distance increases with speed and weight of towed loads, and on slopes. Towed loads with or without brakes that are too heavy for the tractor or are towed too fast can cause loss of control. Consider the total weight of the equipment and its load.

Observe these recommended maximum road speeds, or local speed limits which may be lower:

- If towed equipment does not have brakes, do not travel more than 32 km/h (20 mph) and do not tow loads more than 1.5 times the tractor weight.

- If towed equipment has brakes, do not travel more than 40 km/h (25 mph) and do not tow loads more than 4.5 times the tractor weight.

Ensure the load does not exceed the recommended weight ratio. Add ballast to recommended maximum for tractor, lighten the load, or get a heavier towing unit. The tractor must be heavy and powerful enough with adequate braking power for the towed load. Use additional caution when towing loads under adverse surface conditions, when turning, and on inclines.

DX,TOW-19-02OCT95

Avoid Overhead Power Lines



N39394—UN—06OCT88

CAUTION: Keep away from overhead power lines. Serious injury or death can result. Proceed cautiously under overhead power lines and around utility poles. Know the transport height of your machine. Electrocution can occur without direct contact with overhead electrical lines.

OOU06061,0002CFA-19-15JUL10

Prepare for Transport

CAUTION: Avoid serious injury or death to you or others. Never tow machine behind a truck or other motor vehicle. This machine is designed only to be towed with a properly sized and ballasted tractor.

- Use a tractor large enough to maintain control. Properly ballast tractor for towing your machine. Refer to tractor Operator's Manual and this manual to ensure that machine can be safely transported with your tractor.
- Be aware of height and width restrictions to avoid collision with overpasses or other road users.
- Always fold wings fully. If wing fold cylinders

are removed, chain wings together to prevent accidental lowering.

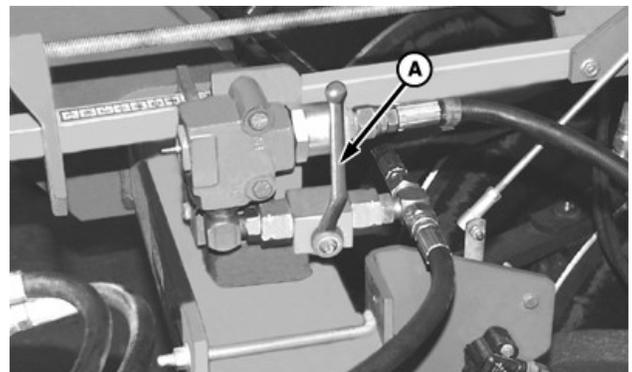
- Fully raise frame, close hydraulic lockup valve (if equipped) and install transport/service locks before transporting.
- Latch the tractor brakes together.
- Attach proper size safety chain for load being towed. Refer to Use A Safety Chain (in this section).

IMPORTANT: Do not transport on a roadway unless machine is equipped with proper functioning lights and reflective marking/emblems. Ensure that the lights and reflective marking/emblems are clean and visible. Contact your John Deere dealer for lights and lighting harnesses.

- Always follow local and national regulations for equipment size, lighting and marking before driving on public roadways. You are responsible for understanding and complying with all requirements regarding roadway transport. Refer to Use Safety Lights And Devices (in this section).

KB78086,0000F01-19-07FEB17

Transport Lockup Valve



N61821—UN—25FEB03

Transport Lockup Valve Closed Position

A—Handle

CAUTION: Failure to fully close transport lockup valve can cause an unexpected lowering of machine which can cause serious injury or death to you or others.

For transport, raise machine and **CLOSE** transport lockup valve by turning handle (A) so it is **NOT IN-LINE** with valve as shown.

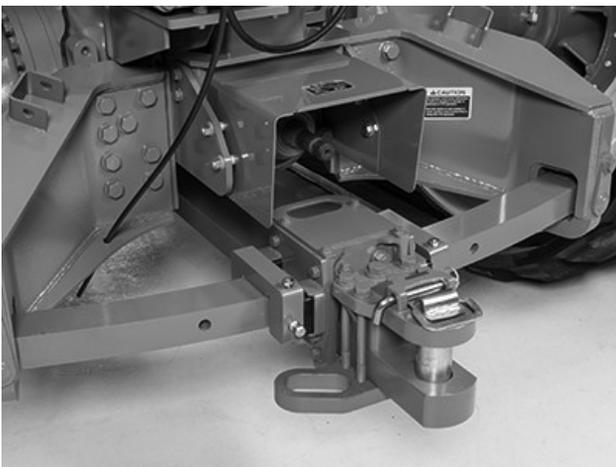
OOU06061,0002D03-19-16JUL10

Position Drawbar



N118863—UN—05AUG15

Standard Drawbar in Transport Position



N118864—UN—05AUG15

Wide-Swing Drawbar in Transport Position

CAUTION: Avoid personal injury or death to you or others due to lost machine steering control. Always pin the drawbar in the center position for all tractors when transporting machine.

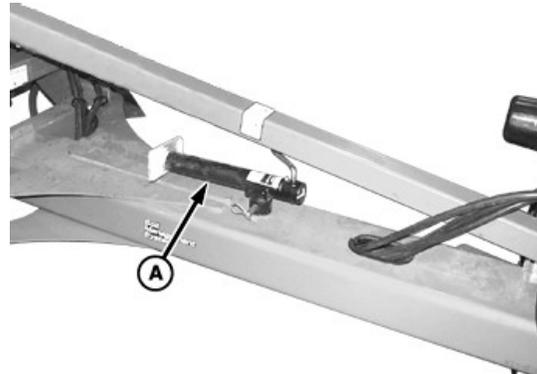
IMPORTANT: Pin the drawbar in the centered position for transport. Hitch damage can occur in field if drawbar is pinned solid.

1. Two-Wheel Drive Tractors: Place drawbar in fixed, centered, and down position.
2. Four-Wheel Drive and Tracked Tractors: Place drawbar in fixed, center position for transport. Leave one hole clearance on each side of drawbar for field operation only.
3. Wide-Swing Drawbar: Place drawbar in fixed, center

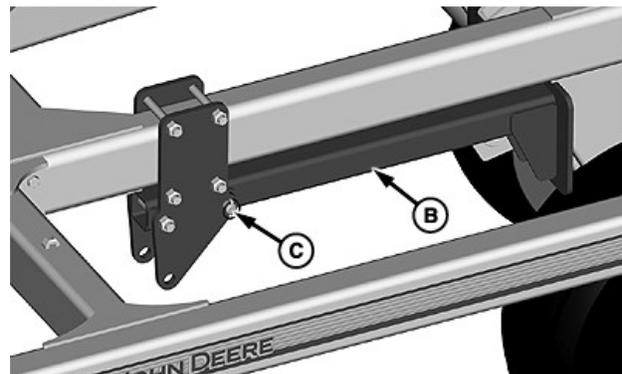
position for transport. Place the stop blocks on storage brackets for field operation.

KB78086,0000F56-19-14FEB19

Positioning Jack for Transport



N72983—UN—20JUN06



N96952—UN—23APR12

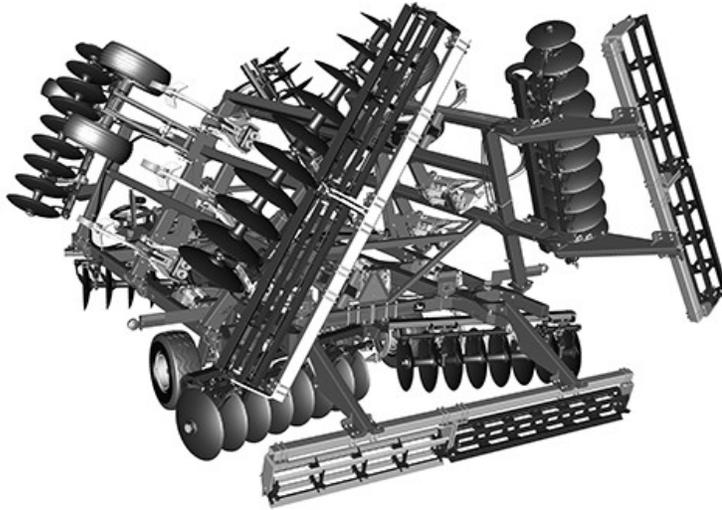
A—Jack
B—Parking Stand
C—Pin

1. After hitching machine to tractor, place jack (A) on the storage post and retain with pin.
2. Machines With Rear Parking Stands: Raise parking stand (B) and retain using pin (C). Repeat for the other side.

OUC06061,00024B2-19-07FEB17

Transport with Rolling Baskets

CAUTION: Machines with rolling baskets have negative downward force on drawbar. To avoid bodily injury, lower machine or rear parking stands to ground before removing hitch pin.



N98418—UN—16JUL12

Maximum Static Vertical Force Implement Places On Tractor Drawbar		
Machine	Rolling Basket Option	Downward Force
5-Standard	With Rolling Baskets	-91 kg (-200 lb)
7-Standard	With Rolling Baskets	-363 kg (-800 lb)
9-Standard	With Rolling Baskets	-499 kg (-1 100 lb)
11-Standard	With Rolling Baskets	-635 kg (-1 400 lb)
All Machines	Without Rolling Baskets	227 kg (500 lb)

**IMPORTANT: When transporting, rolling baskets
MUST BE LOWERED or damage to machine can
occur.**

MD25381,0000103-19-23JUL12

Operating Machine

General Guidelines for Use

1. Use recommended size tractor. See Tractor Horsepower Recommendations in Specifications section.
2. Make sure that the quick coupler is raised so that the hitch is not damaged when turning.
3. Raise machine out of ground before making turns. Avoid making sharp turns that can cause tractor tires to contact the implement.
4. Be sure that machine is level front-to-rear and side to side.
5. Be sure that tractor and machine have been properly prepared. See Preparing Tractor and Preparing Machine sections.
6. Open transport lockup valve when in field in order to lower machine into ground.
7. Check tire pressure and grease machine regularly. See Service and Lubrication sections.
8. Machine can need adjusting when moving from field to field, when using a tractor with a different drawbar height, or when gauged depth setting is changed.

KB78086,0001134-19-31JAN17

Before Entering Field Guidelines

Perform following procedures on a hard, flat, level surface—preferably a concrete slab—before entering field.

1. Inflate tires to specifications. (See Check Tire Pressure in Service section.)
2. Check turnbuckle position.
3. Fully charge hydraulic system.
 - Raise machine to transport position and hold SCV lever back for five seconds at top of cylinder stroke.
 - Repeat this three times.
 - This rephases depth control hydraulic system.

IMPORTANT: Verify drawbar and hitch requirements or damage to machine and/or tractor can occur. (See Drawbar Requirements in Preparing Tractor Section.)

4. Position tractor drawbar.
 - For four-wheel drive tractors and tracked tractors, leave one hole clearance on each side of drawbar for FIELD OPERATION ONLY.
 - Two-wheel drive tractors are to be pinned tightly in center position at all times.

NOTE: Machines equipped with harrows are rear-heavy and pitch to the rear when raised. Fore/aft leveling is designed to achieve level soil profile during operation, not to have a level machine during transport.

5. Level machine front-to-rear with tractor.
 - Raise machine to transport position.
 - Adjust hitch turnbuckle until main frame is level front-to-rear when viewed from side.
6. Check that main frame is level side-to-side.
 - Measure distance between left-hand and right-hand axle spindle tubes and frame.
 - The distance between each axle spindle tube and main frame should be equal within 7 mm (0.25 in).
7. Verify hydraulic pressure for rolling baskets (if equipped) is not set excessively high.
 - Start with 1378—2068 kPa (13.8—20.7 bar) (200—300 psi) down pressure on the rear baskets, then increase the pressure setting if necessary.
8. Extend 7-Standard folding gang until aligned with the main gang.
 - Stand outside of the rear gang.
 - Adjust the stop bolt until the folding gang tube is aligned with the main gang tube.
9. Level 7-Standard folding machine wing frames to the main frame.
 - Stand behind machine.
 - Add or remove shims on each wing until gang tubes are level side-to-side across width of machine.
10. Level 9 and 11-Standard wing frames to the main frame.
 - Stand behind machine.
 - Adjust eyebolt on each wing depth control cylinder until gang tubes are level side-to-side across width of machine.
11. Check wing stabilizer wheels on 9 and 11-Standard machines are level and adjust if necessary.

KB78086,0001135-19-31JAN17

Field Operating Guidelines

1. Verify that proper tractor is being used for optimal machine performance and to prevent tractor damage. (See Understanding Active Hydraulic Rolling Basket Down-Pressure System in Operating Machine section.)

2. Inflate tires to specifications. (See Check Tire Pressure in Service section.)
3. Operate with a proper overlap.
 - Ridging and unworked ground can result if proper overlap is not maintained on the comeback pass.

NOTE: Operating speed directly affects soil profile.

4. Proper operating speed is between 6.4—9.7 km/h (4—6 mph).
 - Operating too fast for soil conditions can result in the outer edge ridges. Install finishing blades to rear gangs to reduce or eliminate this condition. If finishing blades do not eliminate outer edge ridges, reduce speed or raise machine slightly.
 - Operating too slowly for soil conditions can result residue streaks on outer edges. Increase operating speed if this symptom is observed. If deep ripping is not required, set ripper shanks to shallow position to allow for increased speed.

NOTE: Suggested depth of rippers is 25—50 mm (1—2 in) below the compaction layer. Use the soil probe to determine depth of the compaction layer. See Detecting Compaction With John Deere Soil Probe in this section.

5. Operate at proper depth.
 - Use Single Point Depth Control to set operating depth.
 - Wheels must support machine for level tillage results. Pulling the wheels completely off the ground does not help achieve maximum depth and causes unlevel tillage results.
 - Do not run disk deeper than 203 mm (8 in) from original surface.
 - Under certain soil conditions, maximum ripping depth of 406 mm (16 in) cannot be achieved.
6. Operate machine at proper operating speed, then stop.
 - Observe soil profile behind the machine.
 - Adjust machine using turnbuckle to achieve desired soil profile.
 - Certain conditions can require machine to be tipped slightly rearward for best performance.
 - Certain conditions can require disk gang shims for optimum machine performance. See Troubleshooting section.

IMPORTANT: Set wing fold circuit to float for field operation to prevent cylinder damage.

7. Level 7, 9, and 11-Standard wing frames to main frame at proper operating speed.

- Have someone observe machine from rear under power.
 - Adjust each wing until gang tubes are level side-to-side across width of machine.
 - Certain conditions can require wings to be tipped slightly up for best performance.
 - All wheel modules should carry equal weight. Stabilizer wheel “fluttering” may be noticed if wing wheels are not carrying equal weight. Make small 6.4 mm (1/4 in) adjustments as needed.
8. Set rear gang angle for specific conditions.
 - 16° position: Heavy soils and higher residue levels.
 - 14° position: Lighter soils and lower residue levels.

9. Check scraper blade position.
 - Lock scrapers away from the blades slightly to prevent excessive scraper wear.
 - C-spring knock out scrapers and straight knock out scrapers should only be mounted as needed where C-springs or spools are experiencing excessive plugging. If the machine is not experiencing plugging, knock out scrapers are not needed.

KB78086,0001282-19-20FEB18

Tighten Hardware

IMPORTANT: Verify tightness of ALL BOLTS, U-BOLTS, and CAP SCREWS after first 10 hours of operation and again at end of first week (50 hours) of operation or damage to machine can occur.

Tighten all bolts to torques specified in this section unless otherwise noted.

Always check tightness of hardware periodically to maintain good machine operation.

Tighten all hardware after initial set-up.

Tighten rockshaft to specification.

Specification

Rockshaft Bearing Hardware—Torque.	407 N·m (300 lb·ft)
--	------------------------

Tighten 1 in wheel module bolts to specification.

Specification

Wing Wheel Module Bolts—Torque.	678 N·m (500 lb·ft)
---	------------------------

Tighten all gang attaching hardware (cap screws head down) to specification.

Specification

Gang Attaching Hardware—Torque. 407 N·m (300 lb·ft)

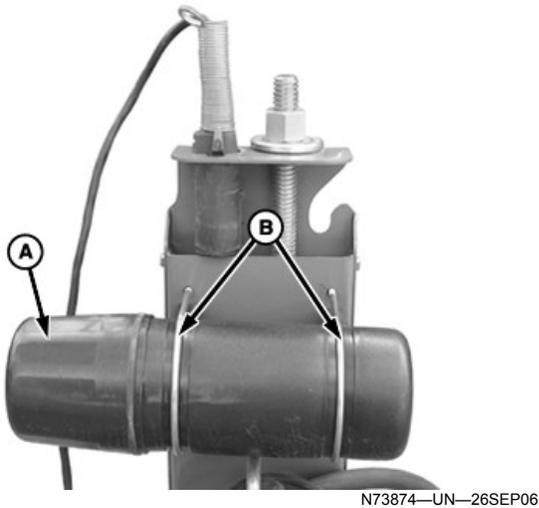
Tighten wheel bolts to specification.

Specification

Wheel Bolts—Torque. 176 N·m (130 lb·ft)

OOU06061,000216E-19-07FEB17

Use Operator's Manual Holder



A—Holder
B—U-Bolts

An operator's manual holder (A) is provided for storage next to electrical plug storage receptacle on hitch. Verify U-bolts (B) are tight before machine use.

AG,OOU06028,4063-19-12DEC11

Operating Speed

IMPORTANT: Operating above or below speeds listed can adversely affect machine performance.

Operate machine between 6.4—9.7 km/h (4—6 mph). Reduce speed in rocky conditions.

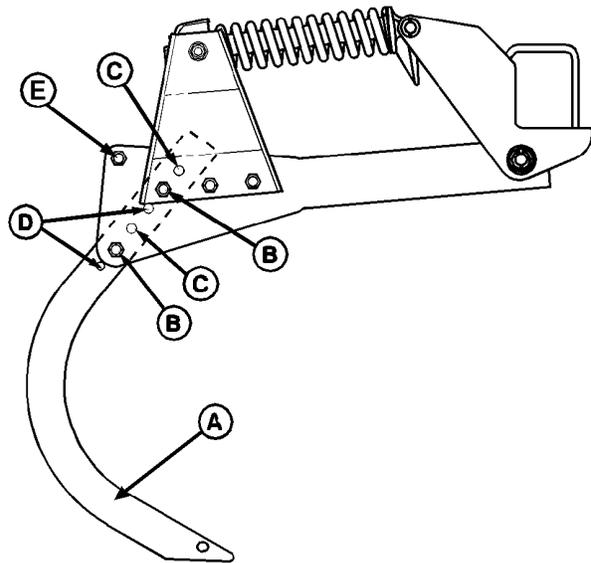
AG,OOU06018,532-19-13MAR12

Standards

Cushion-trip standards with shear bolt are designed for all conditions except those with ledge rock, lava rock flows, and with rocks larger than 305 mm (12 in) diameter.

KB78086,0000AF1-19-01MAR12

Adjust Cushion-Trip Standard



A—Shank
B—Center Position
C—Lower Position (Point Will Run Deeper)
D—Upper Position (Point Will Run Shallower)
E—Cap Screw

N50738—UN—25JUN99

1. Loosen cap screw (E). Remove cap screws from current mounting position (B, C, or D).
2. Adjust shank (A) to desired position and replace cap screws. Tighten top nut to specification.

Specification

Top Nut—Torque. 305 N·m (225 lb·ft)

Tighten bottom nut to specification.

Specification

Bottom Nut—Torque. 217 N·m (160 lb·ft)

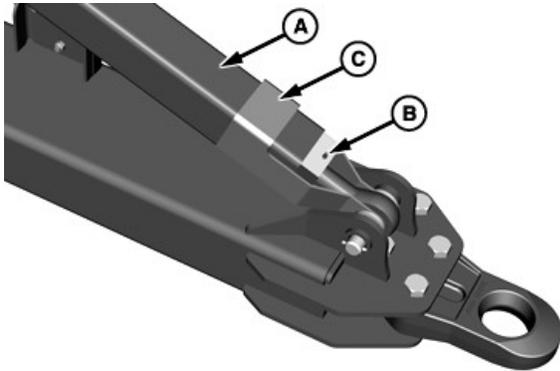
3. Snug cap screw (E).

AG,OOU06018,533-19-28NOV11

Adjust Front-to-Rear Leveling

NOTE: Machine can need adjusting when moving from field to field, when using a tractor with a different drawbar height or when gauged depth setting is changed.

For best performance, frame should be level or tipped slightly rearward.



N99531—UN—15AUG12

A—Turnbuckle
B—Grease Fitting
C—Retainer

1. If rear gangs are leaving a valley in center, lengthen turnbuckle (A) to raise front gangs and lower rear gangs.

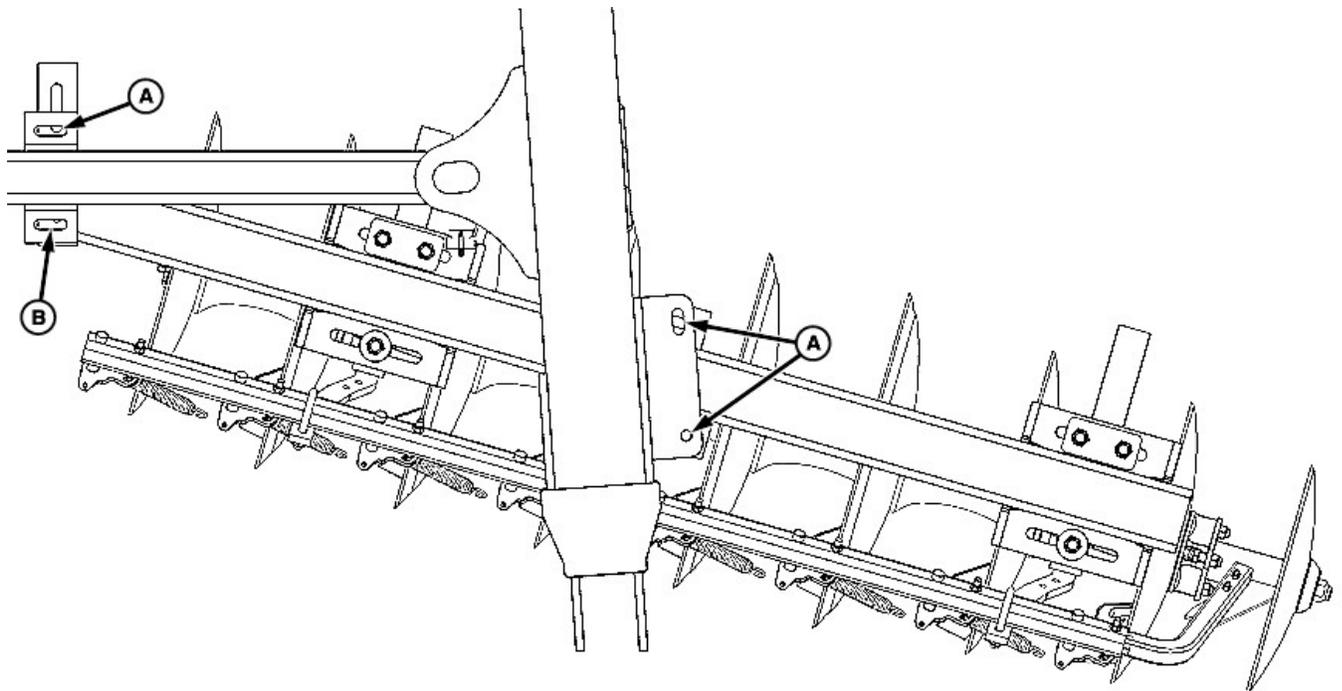
- If rear gangs are leaving a center ridge, shorten turnbuckle to lower front gangs and raise rear gangs.
2. Lift turnbuckle retainer (C).
 3. Use adjustment wrench (stored above left-hand hitch mounting in main frame tube) to adjust turnbuckle.
 4. Make sure grease fitting (B) is either up or down, not to side when adjustment is finished.

IMPORTANT: Failure to point grease fitting (B) up or down before engaging turnbuckle retainer (C) can damage fitting.

5. Lower turnbuckle retainer.

AG.OUO6018,457-19-07FEB17

Adjust Rear Gangs—5-Standard



5-Standard

N97182—UN—09MAR12

A—Cap Screw (3 used)

NOTE: Rear gangs can be set at two positions: 14° and 16°. Machine is initially set at 16°.

1. To adjust rear gang to 14°, remove cap screw (B).
2. Loosen cap screws (A).
3. Move the outer end of the gang forward.

B—Cap Screw

4. Install previously removed cap screw.
5. Tighten cap screws to specification.

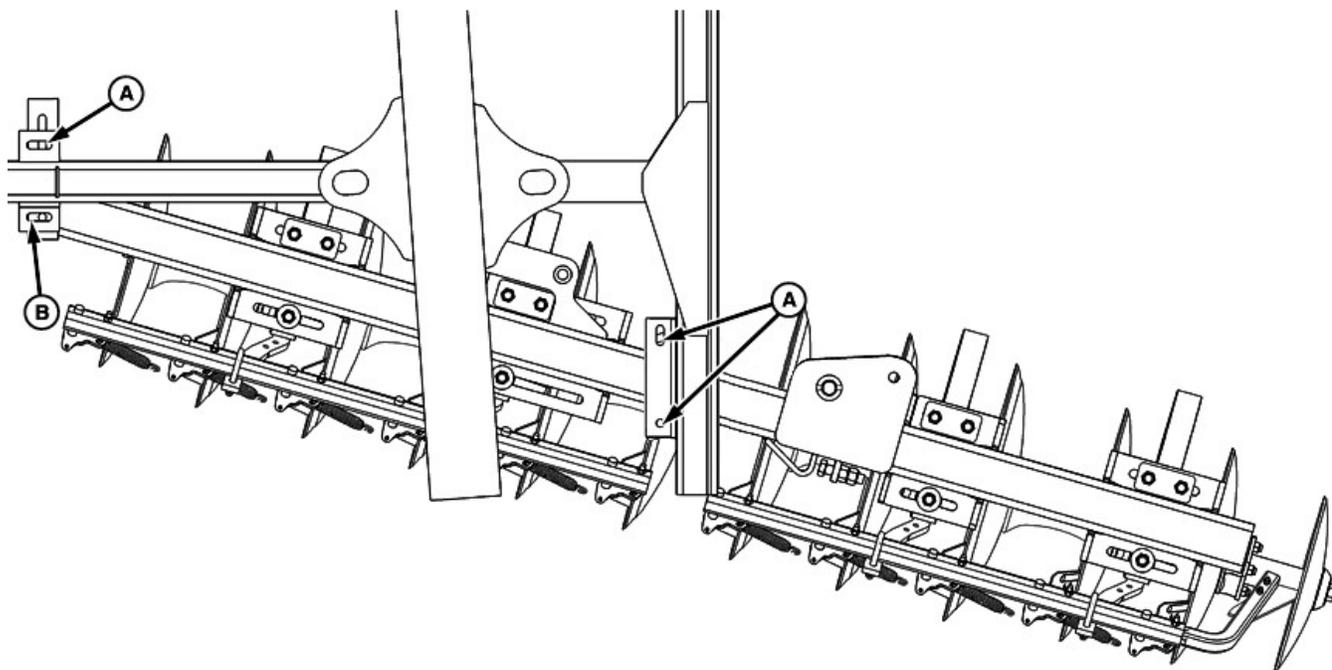
Specification

Cap Screws—Torque 407 N·m
(300 lb·ft)

6. Repeat steps for the opposite side.

OUO6050,00000A7-19-07FEB17

Adjust Rear Gangs—7-Standard Rigid and Narrow Transport



N97184—UN—31JAN17

7-Standard Narrow Transport Shown—7-Standard Rigid Similar

A—Cap Screw (3 used)

NOTE: Rear gangs can be set at two positions: 14° and 16°. Machine is initially set at 16°.

1. To adjust rear gang to 14°, remove cap screw (B).
2. Loosen cap screws (A).
3. Move the outer end of the gang forward.
4. Install previously removed cap screw.

B—Cap Screw

5. Tighten cap screws to specification.

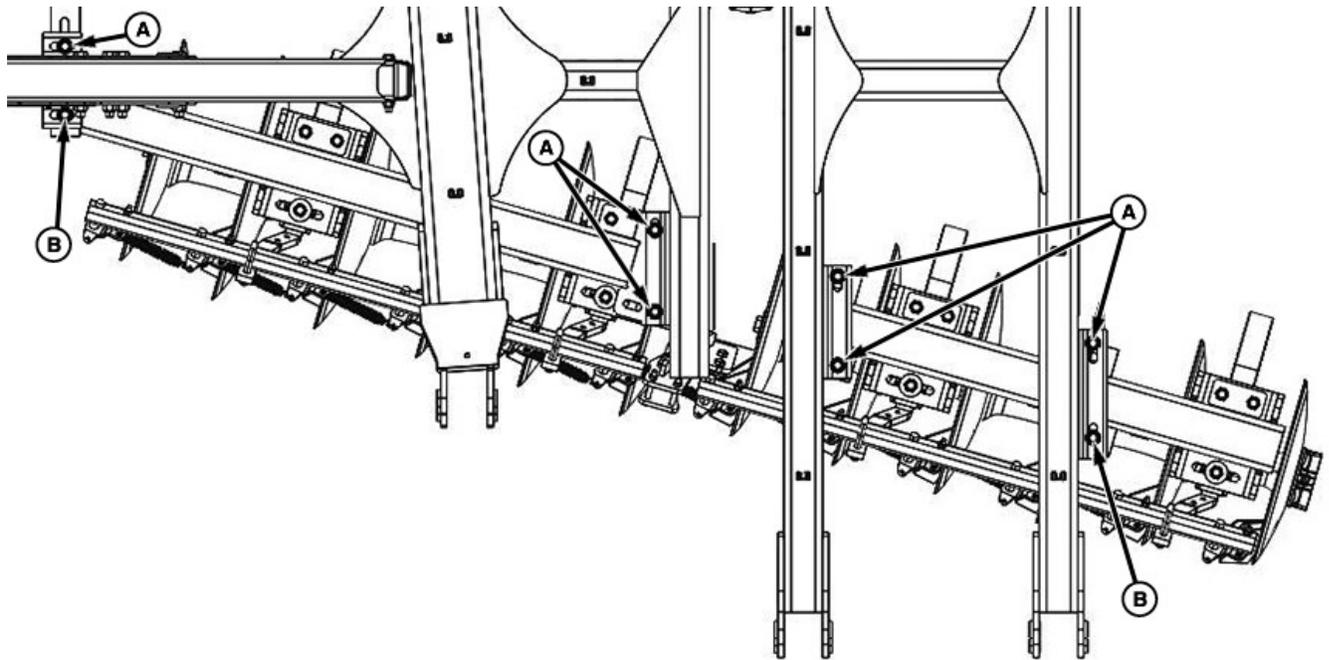
Specification

Cap Screws—Torque. 407 N·m
(300 lb·ft)

6. Repeat steps for the opposite side.

OUO6050,00000A8-19-07FEB17

Adjust Rear Gangs—7-Standard Folding



7-Standard Folding

N128395—UN—02FEB17

A—Cap Screw (6 used)

B—Cap Screw (2 used)

NOTE: Rear gangs can be set at two positions: 14° and 16°. Machine is initially set at 16°.

5. Tighten cap screws to specification.

Specification

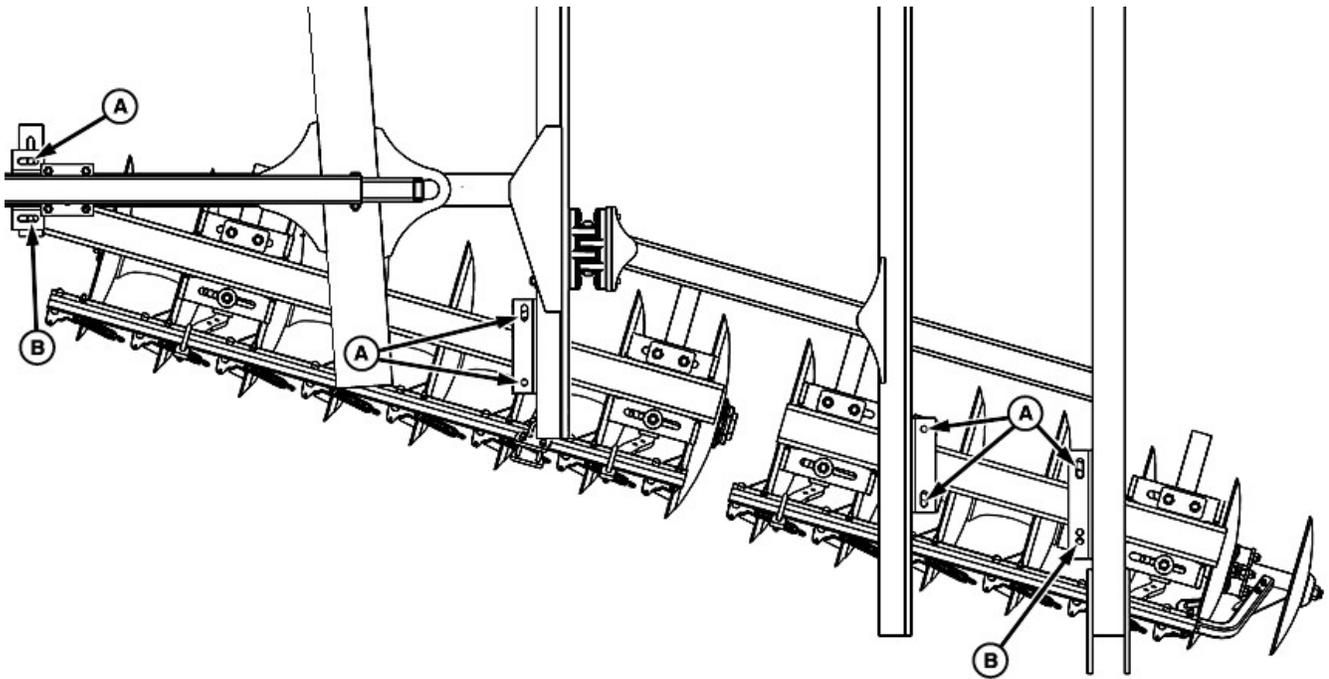
Cap Screws—Torque. 407 N·m
(300 lb·ft)

1. To adjust rear gang to 14°, remove cap screw (B).
2. Loosen cap screws (A).
3. Move the outer end of the gang forward.
4. Install previously removed cap screw.

6. Repeat steps for the opposite side.

KB78086,000112D-19-07FEB17

Adjust Rear Gangs—9-Standard



9-Standard

N97185—UN—31JAN17

A—Cap Screw (6 used)

B—Cap Screw (2 used)

NOTE: Rear gangs can be set at two positions: 14° and 16°. Machine is initially set at 16°.

5. Tighten cap screws to specification.

Specification

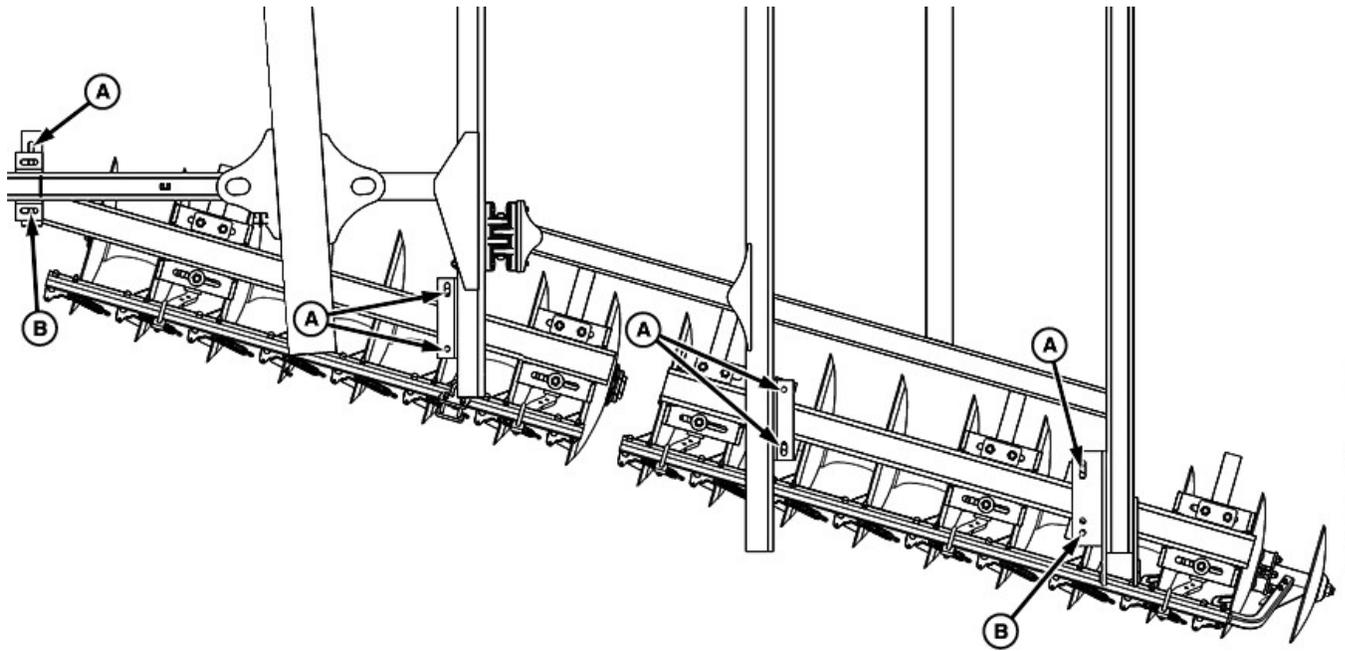
Cap Screws—Torque. 407 N·m
(300 lb·ft)

1. To adjust rear gang to 14°, remove cap screw (B).
2. Loosen cap screws (A).
3. Move the outer end of the gang forward.
4. Install previously removed cap screw.

6. Repeat steps for the opposite side.

AG.OU06018,458-19-07FEB17

Adjust Rear Gangs—11-Standard



11-Standard

N97186—UN—31JAN17

A—Cap Screw (6 used)

NOTE: Rear gangs can be set at two positions: 14° and 16°. Machine is initially set at 16°.

1. To adjust rear gang to 14°, remove cap screw (B).
2. Loosen cap screws (A).
3. Move the outer end of the gang forward.
4. Install previously removed cap screw.

B—Cap Screw (2 used)

5. Tighten cap screws to specification.

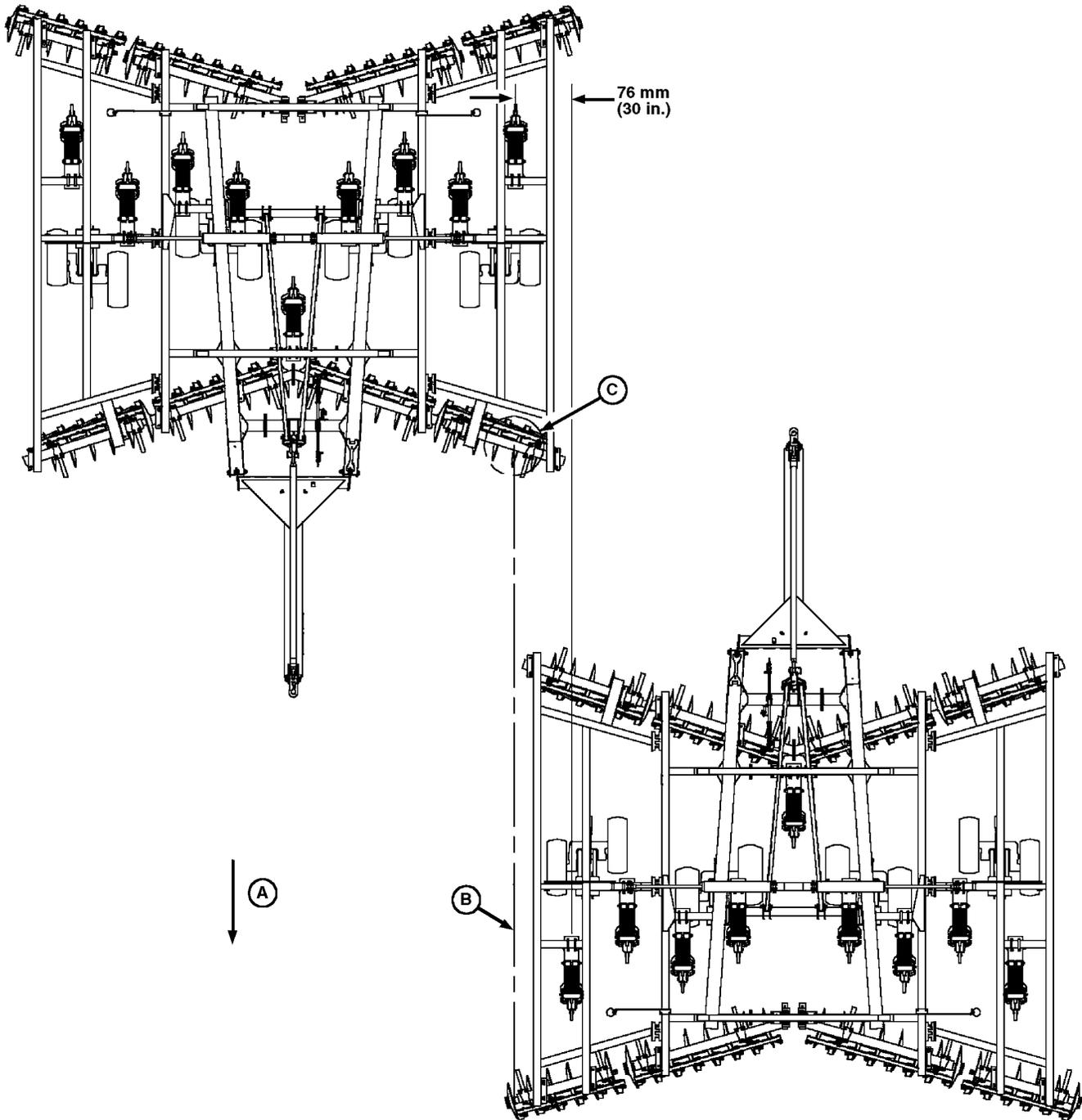
Specification

Cap Screws—Torque..... 407 N·m
(300 lb·ft)

6. Repeat steps for the opposite side.

KB78086.0000B51-19-07FEB17

Proper Overlap



A—Return Pass
B—Mark Left by Furrow Filler

NOTE: Ridging and unworked ground can result if proper overlap is not maintained on return pass. Proper overlap shown applies to all machine sizes.

C—Run Second Blade in Furrow Filler Mark

Adjust Single Point Depth Control

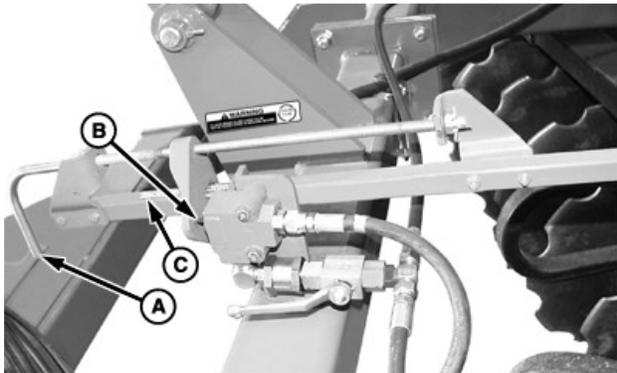
IMPORTANT: Verify that tractor flow control is in rabbit position.

Single point depth control is a convenient method to control working depth and eliminates crawling over or

N50511—UN—15JUL99

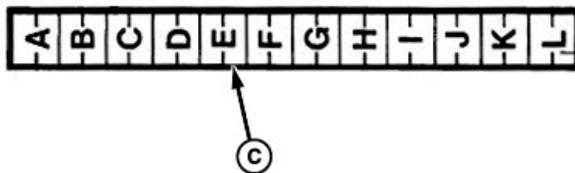
AG.OUO6018,460-19-30JUN11

under frame to make adjustments. Use following procedure when making initial depth control adjustment.

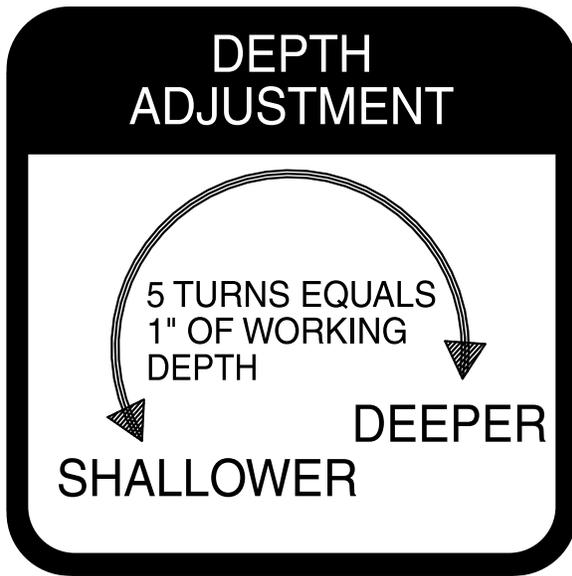


N61824—UN—25FEB03

Single Point Depth Control



N96395—UN—16FEB12



N69713—19—20DEC05

D

- A—Crank
- B—Plunger
- C—Decal
- D—Five Crank Turns Equals 25 mm (1 in)

1. Rotate crank (A) clockwise to move depth stop to maximum depth setting.

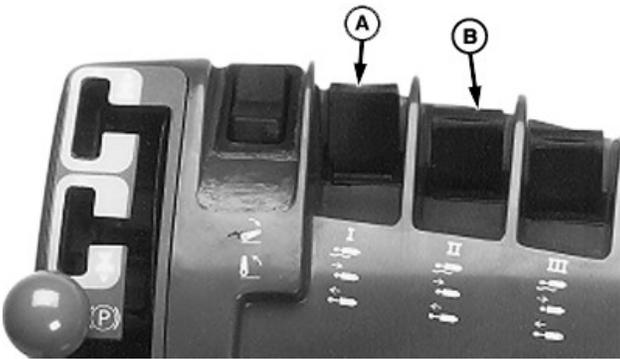
NOTE: For consistent single point performance, always move tractor multi-function lever rapidly from neutral to lower position.

2. Operate machine using SCV I switch to obtain desired depth.

NOTE: Five turns of crank equal approximately 25 mm (1 in) (D) of work depth. Moving depth stop towards crank handle increases machine working depth.

3. Stop tractor. Rotate crank counterclockwise to move depth stop against plunger (B) on control valve.
4. Use decal (C) as a guide when adjusting single point depth control. On decal, A is shallowest and L is deepest.
5. When lowering machine, tractor SCV I switch returns to neutral at depth established.

Prepare to Operate in Field



N52524—UN—01MAR00

John Deere 8000/9000 Series Tractors



N58100—UN—17SEP01

John Deere 8020/9020 Series Tractors



N96939—UN—05MAR12

John Deere R/RT Series Tractors

A—SCV I Lever
B—SCV II Lever

CAUTION: Failure to close the hydraulic cylinder lock-up valve could cause machine to unfold unexpectedly during transport causing serious injury or death to you or others.

1. Verify that tractor and machine are properly prepared. (See Preparing Tractor and Preparing Machine sections.) Attach machine to tractor following procedures in Attaching and Detaching section.
2. Open transport lockup valve. Follow safety procedures in Attaching and Detaching section.
3. Place tractor transmission in PARK, set brakes, and start engine.

CAUTION: Wings are heavy and can fall causing serious injury or death to you or others. Stay clear of machine when folding or unfolding wings. Never raise or lower wings when moving.

IMPORTANT: Machine must be fully raised before folding or unfolding.

9 and 11-Standard Machines: Set wing fold circuit to float for field operation to prevent cylinder damage.

4. Use SCV II lever (B) to unfold wings on 9 and 11-Standard machines, or gangs on 7-Standard machines, if equipped.
5. 7, 9, and 11-Standard Folding Machines: Set wing fold circuit to float for field operation.
6. 7-Standard Machines: Set gang fold circuit in NEUTRAL for field operation, if equipped with folding gangs.
7. Use SCV I lever (A) to raise and lower machine until desired depth is achieved.
8. Leave SCV I lever in NEUTRAL for field operation.
9. Operate machine over a test distance.
10. Stop machine and check depth of points. Repeat steps 5—7 until desired depth is achieved.

NOTE: Suggested depth of rippers is 25—50 mm (1—2 in) below the compaction layer. Use the soil probe to determine depth of the compaction layer. (See Detect Compaction with John Deere Soil Probe in this section.)

11. When desired depth is measured at points, set depth control so it returns machine to this depth. Note position on the single point decal for this depth.

With the Single Point Depth Control: Place transmission in PARK, set brakes, and turn off tractor. Set single point depth control using the handle at the front of the machine. (See Adjust Single Point Depth Control in this section.)

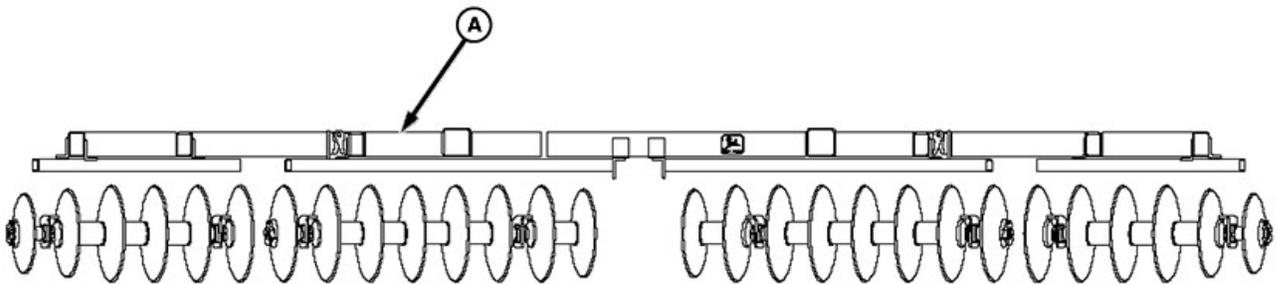
12. Operating machine at normal speed, raise and lower machine to confirm depth setting.

With Single Point: Pull SCV I lever rearward to raise machine and then push forward to lower the machine and confirm depth setting.

Use SCV I switch to raise and lower machine with single point depth control.

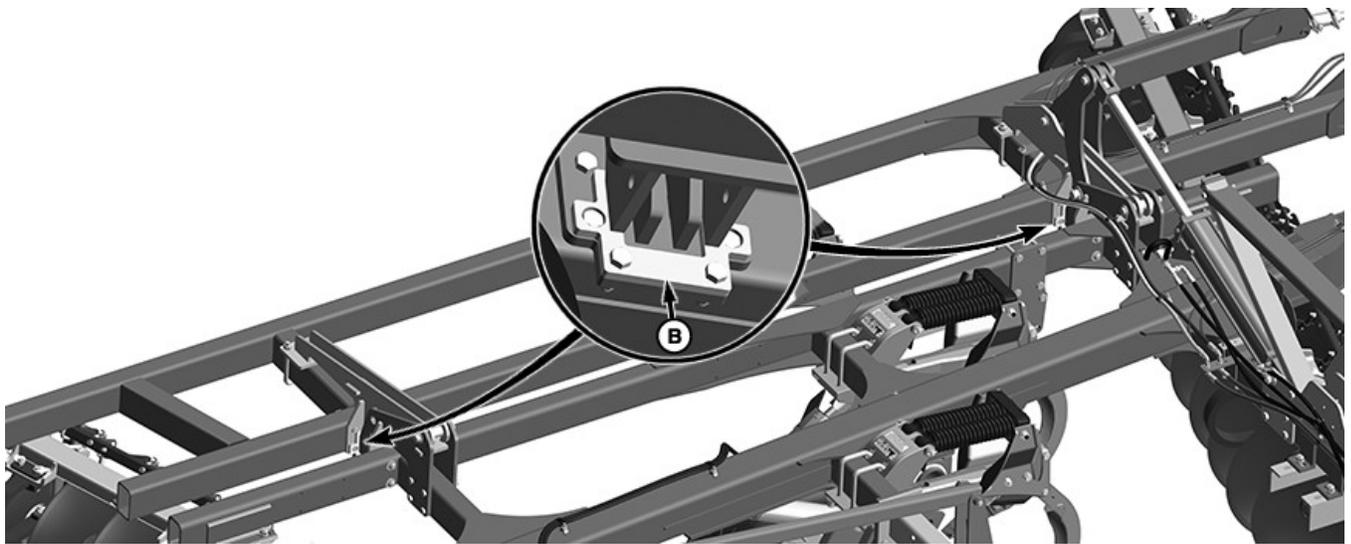
KB78086,0001283-19-20FEB18

Level Wings—7-Standard Folding Machines



Rear View

N128397—UN—08FEB17



Right-Hand Side View

N128396—UN—03FEB17

A—Gang Tubes

1. Stand behind machine. Verify that gang tubes (A) are level side-to-side across the width of the machine.
2. To adjust wing frames, add or remove shims (B) until desired level is achieved.
3. Repeat procedure for the opposite side.

KB78086,0001120-19-08FEB17

B—Shim

Rephase Wing Depth Cylinders—9 and 11-Standard

This machine uses rephasing type depth cylinders. Because of this rephasing design, some limited settling from fully extended position is normal.

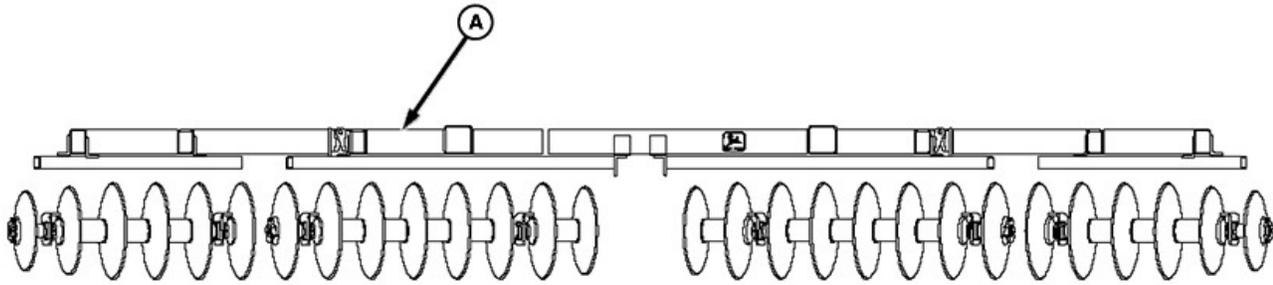
When machine is raised and cylinders are completely extended, hydraulic oil bypasses piston seals.

Holding multi-function lever rearward for a few seconds after machine is fully raised allows bypassed oil to fully

extend all four cylinders and synchronizes them. Be sure to do this frequently while turning at end of field.

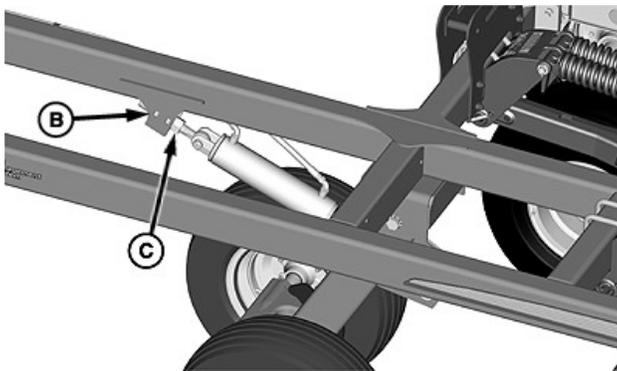
AG,OUO6018,426-19-07FEB17

Level Wings—9 and 11-Standard Machines



Rear View

N128397—UN—08FEB17



N96929—UN—29FEB12

A—Gang Tubes
B—Lock Nut
C—Nut

1. Stand behind machine. Adjust eyebolt on each wing frame depth control cylinder until gang tubes (A) are level side-to-side across width of machine.

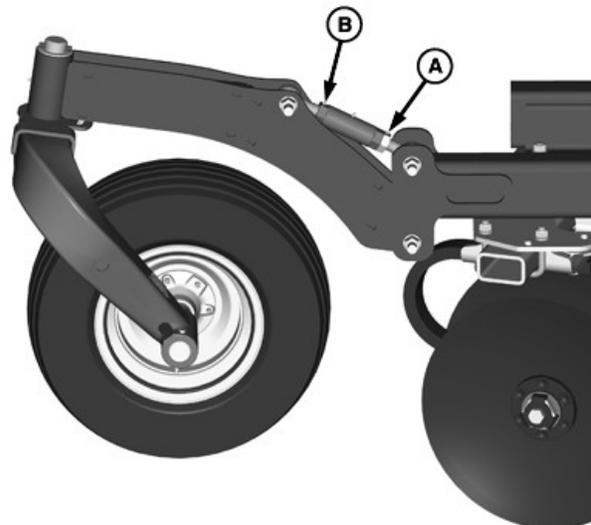
NOTE: One full turn of nut (C) adjusts wheel height by 8 mm (0.315 in).

An adjustment wrench is provided for this adjustment. It is located near the front of the machine.

2. To adjust wing frame, loosen lock nut (B) on eyebolt and turn nut (C). Tighten lock nut.
3. Repeat procedure for the opposite side.

AG,OUO6018,427-19-08FEB17

Adjust Wing Stabilizer Wheels—9 and 11-Standard



N95411—UN—02NOV11

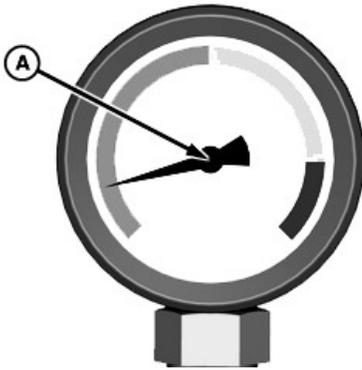
A—Lock Nut
B—Turnbuckle

NOTE: To correct front wing disk gang diving, first adjust wing frames level with the main frame at proper operating speed. (See Operating Machine section.)

1. Adjust stabilizer wheels to top setting by loosening lock nut (A) and adjusting turnbuckle (B).
2. Find desired working disk gang depth and set depth control.
3. Readjust stabilizer wheels so that they rest on the ground and tighten lock nuts.

KB78086,0000B54-19-20OCT17

Understand Active Hydraulic Rolling Basket Down-Pressure System



N94202—UN—26AUG11

A—Gauge Needle

CAUTION: Never adjust rolling basket down-pressure while machine is in motion or serious injury or death can occur. Always lower machine and stop tractor before adjusting.

IMPORTANT: Active hydraulic rolling basket down-pressure systems are designed to be operated with closed-center tractor hydraulic systems. (Tractors with load sensing or pressure on-demand hydraulics are classified as closed-center systems).

Fixed hydraulic rolling basket down-pressure can be achieved if tractor is equipped with open-center hydraulics system, by operating SCV in NEUTRAL and manually recharging system when rolling baskets do not operate properly due to hard ground or hitting an obstruction.

Attempting to operate with active hydraulic rolling basket down-pressure and an open center hydraulic system could result in permanent tractor pump damage. See your John Deere dealer for more information.

The rolling baskets can be operated in the disengaged (raised) position or engaged (lowered) position. Operating down-pressure is set by adjusting the inside hydraulic valve on the front of the machine and uses continuous hydraulic pressure. In most conditions, operating in float or with minimal pressure is necessary to achieve proper field finish. In hard soil and dry residue, more pressure may be necessary to size clods; in soft or moist soil, less pressure may be necessary to size clods.

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

- Ideal initial pressure setting is with the gauge needle (A) in eight o'clock position or in float.
- An active hydraulic system allows rolling baskets to raise up when they strike an object in order to prevent damage to the machine.
- The amount of down-pressure necessary to keep proper rolling basket operation depends upon soil hardness, moisture, and residue cover.
- Too much down-pressure can result in machine nose-diving causing ridges on the outer edges.

Do not use more down-pressure than necessary to achieve proper field finish.

KB78086,0000B8C-19-07FEB17

Adjust Rolling Basket Down-Pressure—Tractors with Electro/Hydraulic Closed Center Systems



N75921—UN—07MAY07

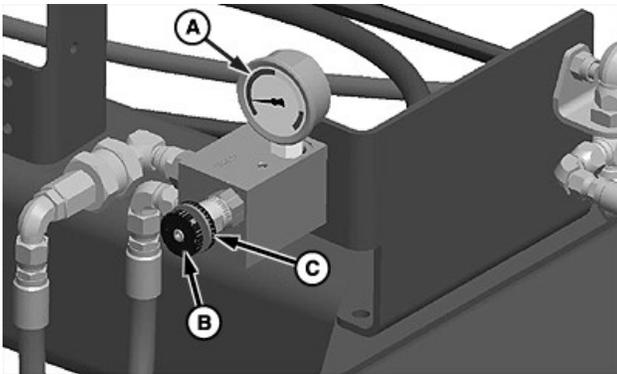
A—SCV III lever

IMPORTANT: Active hydraulic rolling basket down-pressure systems are designed to be operated with closed-center tractor hydraulic systems. (Tractors with load sensing or pressure on-demand hydraulics are classified as closed-center systems).

Attempting to operate with active hydraulic rolling basket down-pressure and open center hydraulic system could result in permanent tractor pump damage. See your John Deere dealer for more information.

Adjust rolling basket down-pressure, as required, to keep rolling baskets in firm contact with soil, but DO NOT use more down-pressure than necessary or excessive wear and damage to machine could result.

1. (See Understand Active Hydraulic Rolling Basket Down-Pressure System in this section to determine initial pressure setting.)
2. Push SCV III lever (A) forward until detent click is felt. Time detent must be set to "continuous".



N96926—UN—23FEB12

A—Pressure Gauge
B—Knob
C—Collar

3. While watching pressure gauge (A), adjust down-pressure to desired setting by rotating knob (B). Once set, lock knob in position with collar (C).
4. Make a trial pass in field.
5. If rolling basket operation is not satisfactory, adjust hydraulic pressure as needed for more downforce.

KB78086,0000B8E-19-24OCT17

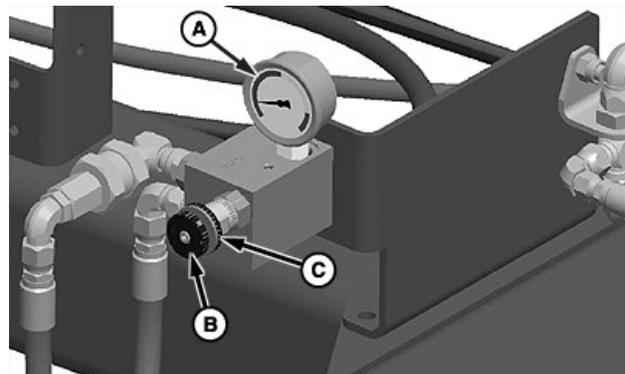
Adjust Rolling Basket Down-Pressure— Tractors with Open Center Hydraulic Systems

IMPORTANT: Fixed hydraulic rolling basket down-pressure can be achieved if tractor is equipped with open-center hydraulic system, by operating SCV in NEUTRAL and manually recharging system when rolling baskets do not operate properly due to hard ground or hitting an obstruction.

Attempting to operate with active hydraulic rolling basket down-pressure and open-center hydraulic system could result in permanent tractor pump damage. See your John Deere dealer for more information.

1. (See Understand Active Hydraulic Rolling Basket Down-Pressure System in this section to determine initial pressure setting.)
2. Place tractor transmission in PARK and keep engine running.
3. Lower rolling baskets by holding SCV lever forward for a few seconds and release to pressurize rolling basket down-pressure system.

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



N96926—UN—23FEB12

A—Pressure Gauge
B—Knob
C—Collar

4. Rotate knob (B) to adjust down-pressure. To decrease down-pressure, turn knob counterclockwise; to increase down pressure, turn knob clockwise. Once set, lock knob in position with collar (C).
5. Recharge down-pressure system by raising and lowering rolling baskets, holding SCV lever forward for a few seconds to pressurize cylinders.
6. Recheck pressure gauge (A) after cycling multi-function lever. Gauge needle should be at desired setting.
7. Make a trial pass in field.
8. If rolling basket operation is not satisfactory, adjust hydraulic pressure as necessary.

KB78086,0000B90-19-07FEB17

Symptoms of Soil Compaction

Research has consistently agreed that varying levels of compaction can reduce yields by up to 60 percent. Extreme cases may be easiest to find, however it is 10-20% consistent yield loss that may go undetected and continually hinder profits. It is our intent to provide you with tools necessary to locate and eliminate these compaction layers. A properly set tillage tool performing at correct depth can reduce yield loss due to compaction and decrease fuel consumption.

Effects of compaction are often unnoticeable in field, but a closer look can reveal problems. Signs of compaction can include:

- Visible wheel-traffic patterns in a growing crop.
- Malformed plant roots. Roots encountering a compacted zone can be enlarged and stubby, twisted, or thin and flattened. Also, shallow root systems growing horizontally rather than vertically indicate a compacted soil.
- Standing water or excessive water erosion. Standing water could be result of a compacted layer restricting water infiltration. Poor infiltration due to compaction can also cause increased runoff and erosion.
- Stunted plant growth. Stunted or nutrient-stressed plants could be suffering from compaction. If compaction is limiting root growth, plant water and nutrient uptake can be severely affected. This often shows up as discolored leaves and premature drought stress.

The direct causes can include wheel traffic (combines, tractors, grain carts), grazing and working in fields that are too wet. Eighty percent of soil compaction from wheel traffic occurs on first pass of a tire. Most trips across field are unavoidable, however, maintaining consistent traffic lanes and unloading crops at the field edge helps.

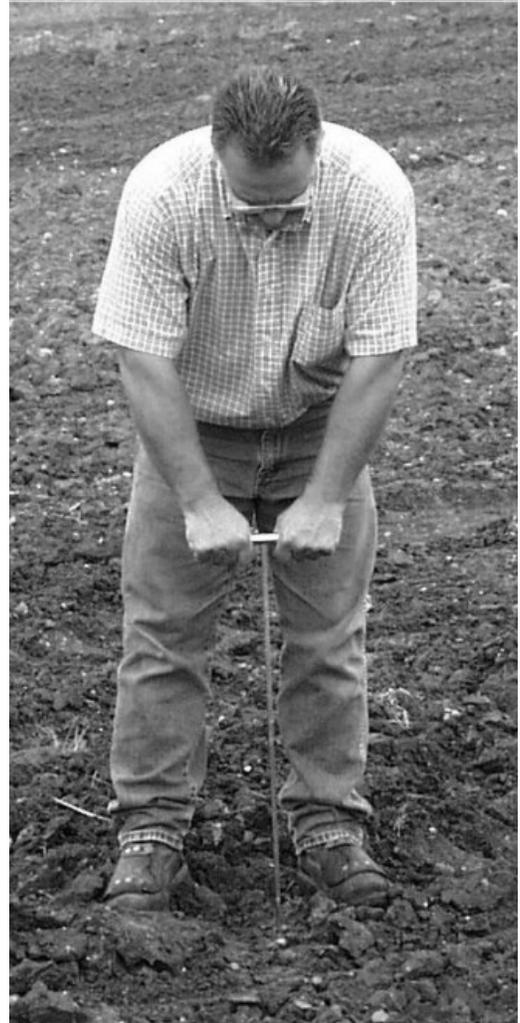
OUO6061.0000012-19-05SEP13

Detect Compaction with John Deere Soil Probe

*NOTE: Compaction subsoil layers can be located between 152—203 mm (6—8 in) below surface and can continue to a depth of 305—356 mm (12—14 in). It is critical that your tillage tool be set to approximately **25 mm (1 in) below this level**. This layer impedes water infiltration and evaporation, restricts root growth and ultimately causes yield loss.*

Dry soils are not always compacted. Adequate moisture needs to be present to allow probe to penetrate soil layers.

Soil penetrometers are another useful tool to help diagnose compaction layers. It is worth noting that this gauge is used to evaluate soil strength. There is no specific numerical soil strength value that identifies compaction as root and yield limiting.



N54964—UN—31AUG00

1. Press probe into ground slowly with consistent down-pressure.
2. Note depth at which it takes added force to penetrate (typically top of compacted layer).
3. Continue to force probe through this layer and note depth where less force is needed (typically bottom edge).
4. Continue in different areas of field to diagnose compacted areas.
5. Set rippers **25 mm (1 in) below** bottom edge of layer.

OUO6061.0000013-19-29APR16

Soil Compaction Questions and Answers

1. Does freezing and thawing alleviate compaction?

Depending on area of country, freezing and thawing cycles have often been given unmerited credit for relieving compaction. Repeated cycles of freezing and thawing can be effective in eliminating surface compaction found in top 102 mm (4 in) of soil. The freezing and thawing cycle works as water in soil profile freezes and expands. Consequently, deeper subsoil compaction rarely sees this temperature variation.

2. When does compaction cause most potential for yield loss?

Soil compaction itself may not be as noticeable in years where rainfall is timely and in manageable amounts. Since compaction impedes the way moisture and roots move through soil, most of damage is during times of drought OR heavy rains. When roots cannot pass through horizontal compaction layers - they are trapped in top inches of soil. In times of drought, subsoil moisture moves slowly upward through compacted area toward roots. In times of heavy rains, water percolates slowly through compacted area causing a backlog (ponding). This backlog causes biological activity and root growth to slow and stop.

3. Are there other ways to help identify soil compaction?

If compaction is severe enough to limit yield and root growth, it is best identified through digging a trench or pit. By inspecting the environment that roots have to manage, one is better apt to identify problems. The plant roots are the ultimate predictor of environmental concerns and ultimately yield.

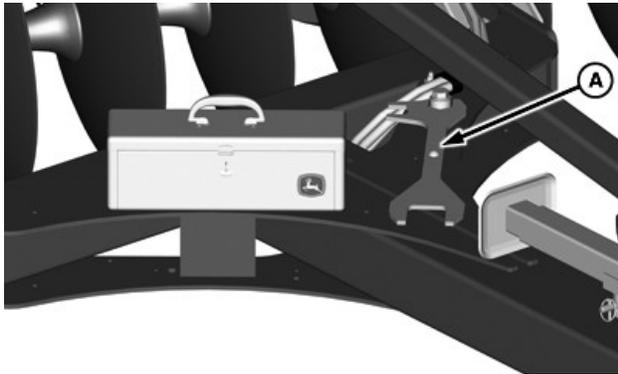
4. How does a grower know when it is too wet to work the field?

Soil is most easily compacted at or near its field capacity. There is not a defined test that tells you when it is the right time. Many agronomists suggest that you dig to the depth of the desired tillage pass and take a sample in one hand. Pinch the sample between first finger and thumb. If soil ribbons out of your palm, it is too wet to work. However, if soil crumbles, it is safe to work field to that depth.

OUO6061.0000014-19-29APR16

Attachments

Adjustment Wrench



N95426—UN—07NOV11

A—Wrench

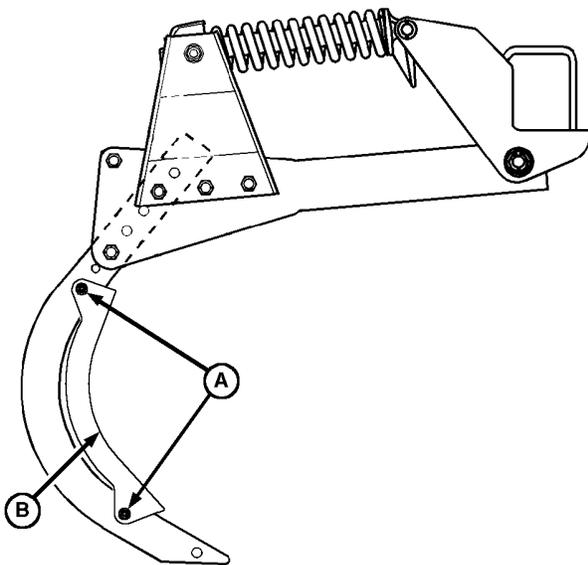
IMPORTANT: To prevent losing wrench during machine operation, ensure that wrench is pinned to hitch.

Adjustment wrench (A) is on hitch.

KB78086,0000AED-19-07NOV11

Install Shank Wear Shin

NOTE: Cushion-trip standard shown.



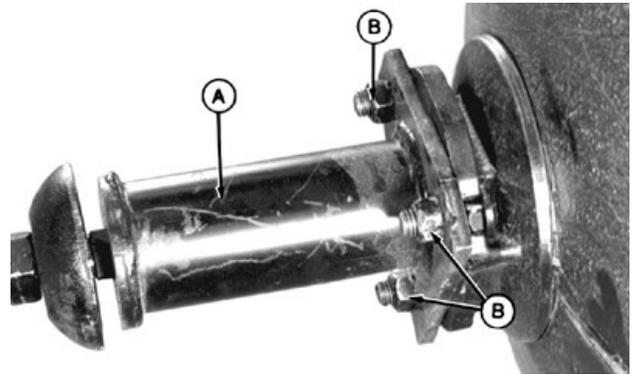
N56076—UN—19FEB01

A—Spring Pin, 3/8 x 2-1/4 in (2 used)
B—Wear Shin

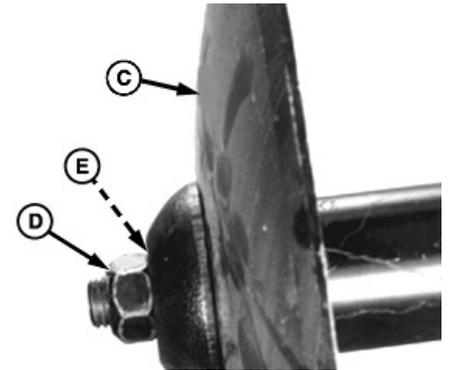
1. Position wear shin (B) with the part number on bottom next to ripper point.
2. Install shin with spring pins (A).

KB78086,0000B58-19-12SEP16

Install Finishing Blade



N42181HK—UN—05AUG97



N92739—UN—21JUL11

A—Finishing Blade Spool
B—Cap Screw, M16 x 45 (3 used)
C—Blade
D—Lock Nut
E—Washer

1. Attach finishing blade spool (A) using M16 x 45 cap screws (B) and lock nuts.

NOTE: Blades are solid and come in 406 mm (16 in) or 457 mm (18 in) sizes.

2. Attach blade (C) to spool using lock nut (D) and washer (E).

KB78086,0000B5E-19-11NOV14

Install Finishing Blade Scraper

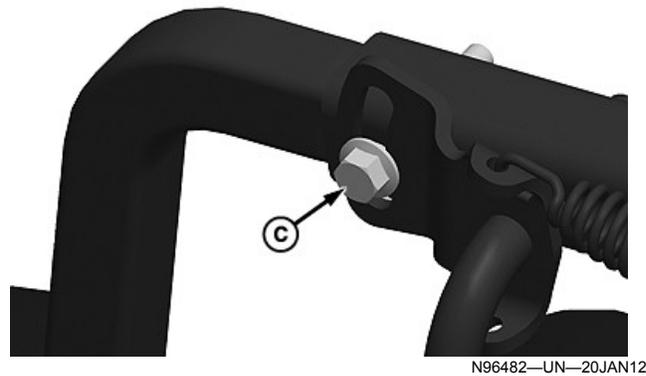
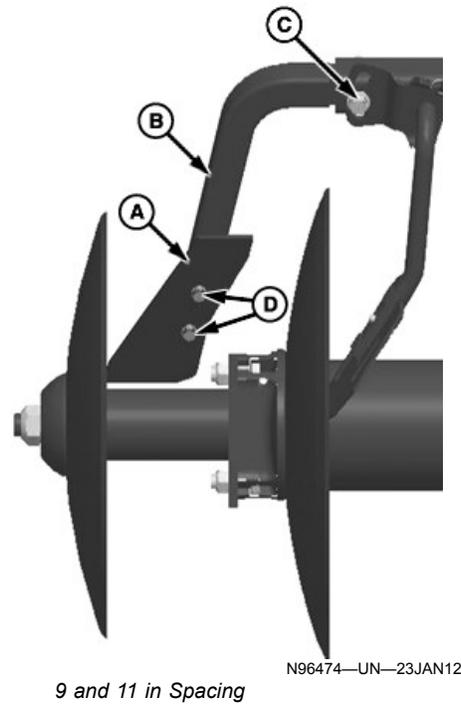
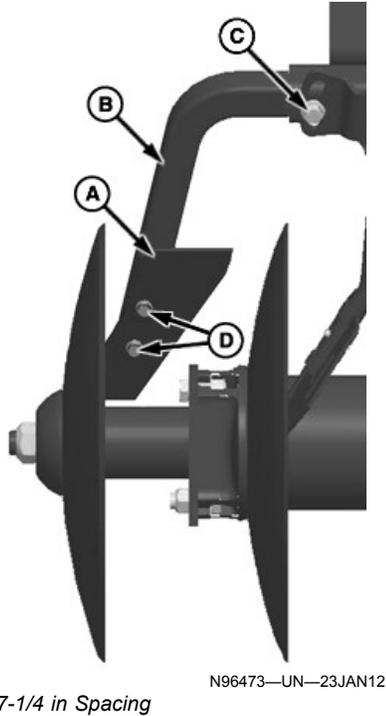


N96481—UN—20JAN12

A—Cap Screw, 1/2 x 3-1/2 in

1. Remove cap screw (A), washer, and lock nut from last scraper gang. Retain washer and lock nut.

IMPORTANT: Depending on row spacing, finishing blade (A) requires specific orientation. Incorrect blade orientation can damage blade.

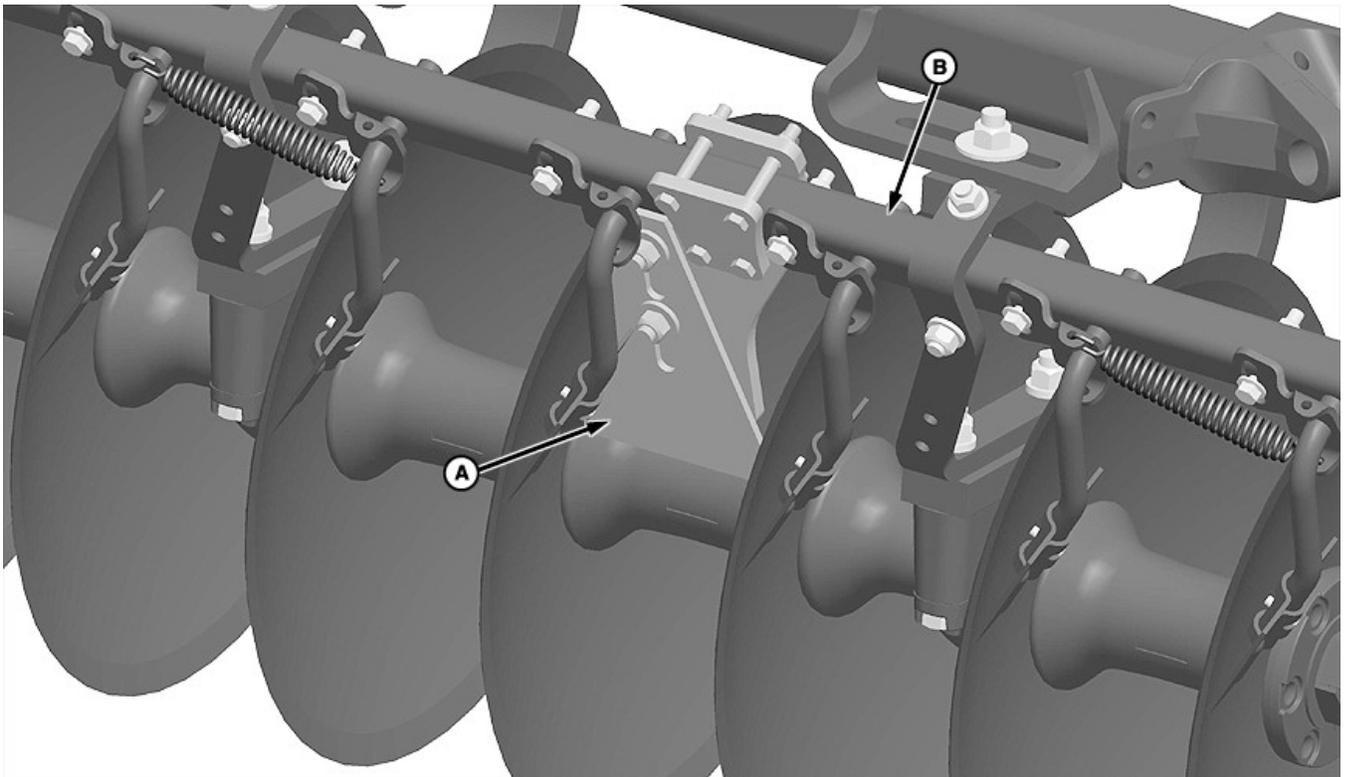


- A—Finishing Blade Scraper
- B—Finishing Blade Arm
- C—Cap Screw, 1/2 x 3-1/2 in
- D—Cap Screw, M8 x 70 (2 used)

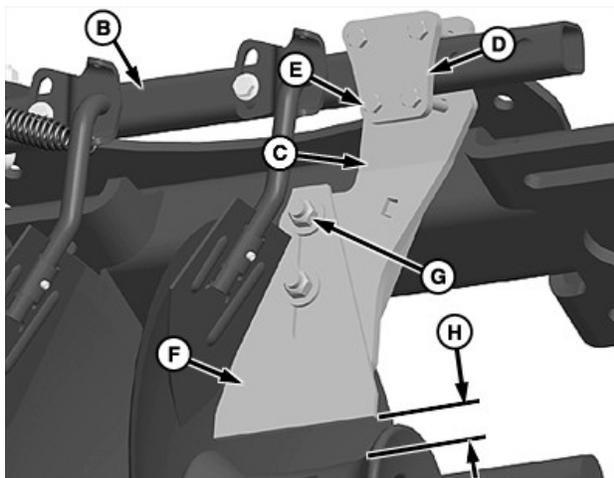
2. Install finishing blade arm (B) into scraper tube using 1/2 x 3-1/2 in cap screw (C) and retained hardware.
3. Attach finishing scraper (A) to arm using M8 x 70 cap screws (D) and lock nuts.

KB78086.0000AFC-19-19FEB15

Install Knock Out Scraper



N93655—UN—26JUL11



N95544—UN—18NOV11

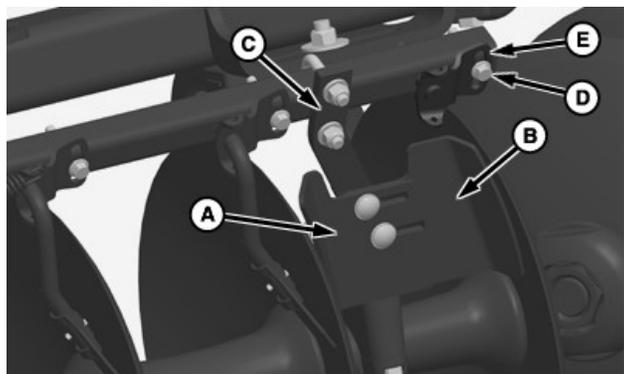
- A—Knock Out Scraper
- B—Scraper Gang Tube
- C—Arm
- D—Plate
- E—Cap Screw, M16 x 100 and Lock Nut (4 used)
- F—Blade
- G—Cap Screw, M16 x 45, 16.7 x 39.7 x 4.5 mm Washer and Lock Nut (2 used)
- H—Dimension 19 mm (0.75 in)

Knock out scraper (A) attaches to scraper gang tube (B) and is used to prevent soil buildup.

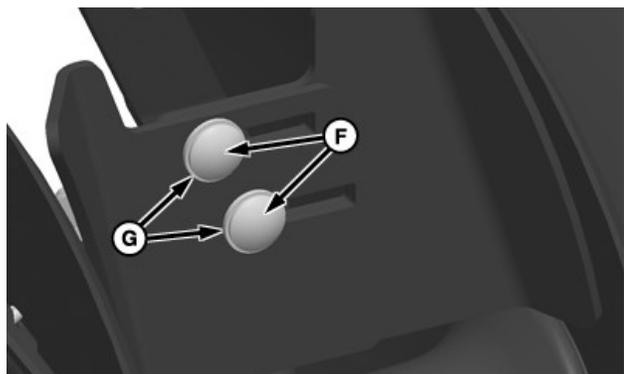
1. Attach arm (C) to scraper gang tube using plate (D), M16 x 100 cap screws (E) and lock nuts.
2. Attach blade (F) to arm using M16 x 45 cap screws, 16.7 x 39.7 x 4.5 mm washers and lock nuts (G).
3. Adjust blade 19 mm (0.75 in) (H) from spool.

KB78086.0000AFE-19-22SEP16

Install C-Spring Knock Out Scraper



N110099—UN—12FEB14



N110100—UN—12FEB14

- A—Knock Out Scraper Blade
- B—Knock Out Scraper Blade
- C—Scraper Gang Tube Bracket
- D—Cap Screw M12 x 80
- E—Scraper Bracket
- F—Carriage Bolt, M12 x 50
(2 used)
- G—Washer, 21 x 34 x 3 mm
(2 used)

Knock out scraper blades (A) and (B) attach to scraper gang tube bracket (C) and are used to prevent soil buildup. Depending on soil conditions, one or both blades can be used.

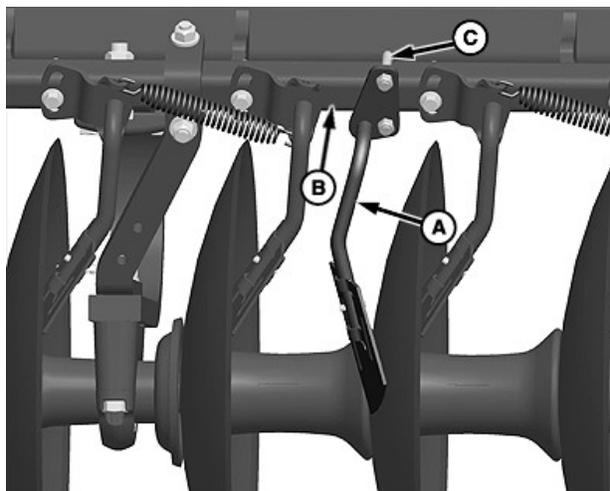
1. Remove M12 x 80 cap screw (D) and lock nut. Retain hardware. Remove and discard scraper arm. Install scraper bracket (E)
2. Attach knock out scraper blades to scraper gang tube bracket using M12 x 50 carriage bolts (F), 21 x 34 x 3 mm washers (G), and lock nuts.

IMPORTANT: Verify knock out scrapers do not touch disk blades to prevent damage.

3. Adjust knock out scraper no closer than 3.18 mm (0.125 in). Verify gangs rotate freely.

KB78086,0000B0C-19-22SEP16

Install Convex Scraper



N93682—UN—12AUG11

- A—Scraper
- B—Scraper Tube
- C—U-Bolt, M12

NOTE: Convex scrapers are not used at standard locations.

Attach scraper (A) to scraper tube (B) using M12 U-bolt and lock nuts (C). Maintain 3 mm (1/8 in) gap between scraper and blade.

KB78086,0000AFD-19-12FEB14

Lubrication and Maintenance

Use Safe Service Procedures

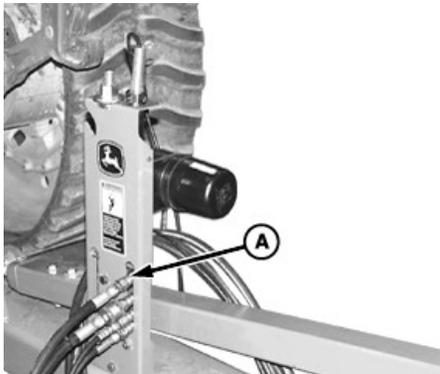


N40000—UN—28SEP88

CAUTION: To help prevent personal injury or death caused by unexpected movement, be sure to service machine on a level surface. If machine is connected to tractor, engage park brake and 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.

KB78086,000058F-19-21SEP16

Prevent Hydraulic System Contamination



A—Storage Position

N74087—UN—09NOV06

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

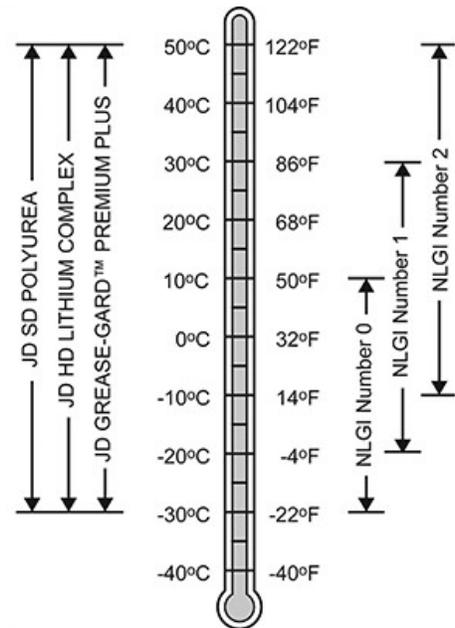
Leave protective caps on fluid openings until ready to make connection. When charging system, use a tractor or other source that contains clean oil, free of abrasive materials. Keep couplers clean. Abrasive particles, like sand or metal fragments, can damage seals, barrels, and pistons, causing internal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

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

OUO6061,00024B3-19-09NOV06

Multipurpose Extreme Pressure (EP) Grease

IMPORTANT: For automated lubrication systems different ambient air temperatures need to be considered.



RG30199—UN—08MAR18

Greases for Air Temperature Ranges

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

John Deere SD Polyurea Grease is preferred.

The following greases are also recommended:

- John Deere HD Lithium Complex Grease
- John Deere Grease-Gard™ Premium Plus

Other greases may be used if they meet the following:

- NLGI Performance Classification GC-LB
- ISO-L-X-BDHB 2 or DIN KP 2 N-10 Lithium Complex, Non-Synthetic Base Oil (100 to 220 mm²/s @ 40°C)

Grease-Gard is a trademark of Deere & Company

IMPORTANT: Some types of thickeners, base oils, and additives used in greases are not compatible with others. Mixing greases should be avoided. Consult your grease supplier before mixing different types of grease.

DX,GREA1-19-13JAN18

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 John Deere branded fluids or fluids that have been tested and/or approved for use in John Deere equipment.

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

DX,ALTER-19-13JAN18

Lubricant Storage

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

Use clean containers to handle all lubricants.

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-19-11APR11

Perform Seasonal Lubrication

Perform each lubrication and service illustrated in this section at beginning and end of season.

NXN,635,N2-19-28FEB03

Lubrication Symbols



Lubricate with grease at hourly interval indicated on symbol.



Pack wheel bearings with axle bearing grease at hourly interval indicated on symbol.



Lubricate with SAE 10W oil at hourly interval indicated on symbol.

NX,635,N1-19-29MAY91

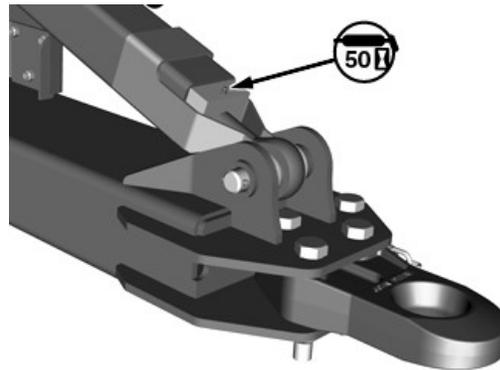
Lubrication Intervals

Every 50 Hours

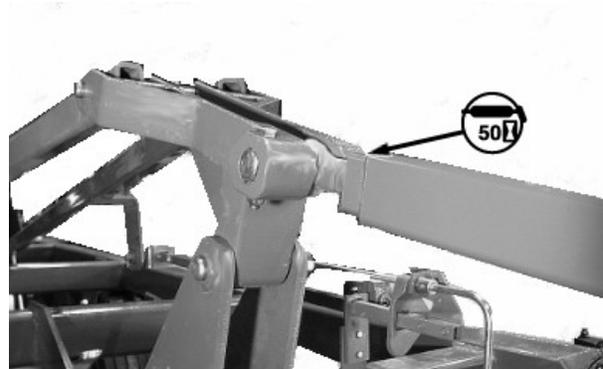
- Turnbuckle
- Cushion-Trip Standards
- Wheel Bearings
- Stabilizer Wheels—9 and 11-Standard Machines

KB78086,0000BDF-19-20MAR12

Lubricate Turnbuckle



N98987—UN—03AUG12



N51958—UN—07JAN00

Lubricate turnbuckle every 50 hours.

AG,OUO6018,536-19-28AUG12

Lubricate Cushion-Trip Standards



N42168AP—UN—29FEB96

A—Front Pivot

Lubricate front pivot (A) of each standard every 8 hours in rocky conditions or every 50 hours in all other soil conditions.

NXL,OM444,N1A2-19-01MAR96

Lubricate Stabilizer Wheels—9 and 11-Standard Machines

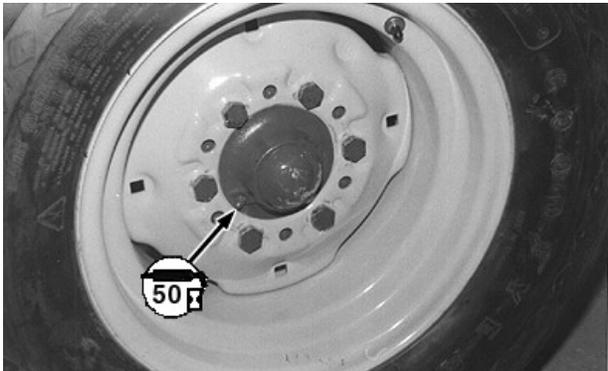


N95412—UN—02NOV11

Lubricate stabilizer wheels every 50 hours.

KB78086,0000B52-19-08NOV11

Lubricate Wheel Bearings



N50098—UN—08FEB99

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

Every 50 hours thereafter, lubricate until grease flows through the seal on inside of hub.

OJ06050,00004B6-19-08SEP03

Troubleshooting

Troubleshooting

Before turning to Troubleshooting Charts in this section,

check following Initial Settings. They could correct your problem.

Check	Initial Setting
OPERATING SPEED	Between 6.4—9.7 km/h (4—6 mph). Reduce speed for rocky conditions.
TRACTOR DRAWBAR	Offset down and not extended. Pinned in centered position. (Exception—on articulating or tracked tractors when working, pin leaving one hole each side.)
ALL ITEMS SHOWN ON PREPARING MACHINE CHECKLIST	

AG,OUO6018,461-19-01MAR12

Preparing Machine Checklist

Perform the following checks to ensure proper initial machine operation:

IMPORTANT: Verify tightness of ALL BOLTS, U-BOLTS, and CAP SCREWS after first 10 hours of operation and again at end of the first week (50 hours) of operation or damage to machine can occur.

Tighten all bolts to torques specified in Service section unless otherwise noted.

Always check tightness of hardware periodically to maintain good machine operation.

1. Verify that drawbar is compatible with hitch. (See Drawbar Requirements.)
2. Verify that standards are straight (not cocked left or right).
3. Perform initial fore/aft leveling.
Verify that frame is level when attached to tractor (adjust turnbuckle to level the machine if necessary).

NOTE: Side-to-side main frame level is nonadjustable.

4. Check side-to-side leveling:
 - a. Cycle lift cylinders three times holding lever back 5 seconds each time machine is in raised position.
 - b. Lower machine until points are approximately 25 mm (1 in) off ground.
 - c. Check wheel modules from the bottom edge of the frame to axle spindle. Both measurements are to be within 7 mm (1/4 in).
 - d. If main frame is not level, see your John Deere dealer.
5. On 7-Standard machines with folding gangs, ensure that rear folding gangs are straight with the main

frame gangs by looking down gang tubes. Adjust if necessary.

6. On 7, 9, and 11-Standard folding machines, ensure that wing frames are level to the main frame by standing behind machine and survey across gang tubes for levelness.
7. Verify that hitch-to-main frame spacer washers are in place with no gaps.
8. Tighten all hardware after initial set-up.
Tighten rockshaft to specification.

Specification

Rockshaft Bearing
Hardware—Torque. 407 N·m
(300 lb·ft)

Tighten 1 in wheel module pivot bolts to specification.

Specification

Wing Wheel Module Pivot
Bolts—Torque. 678 N·m
(500 lb·ft)

Tighten all gang attaching hardware (cap screws head down) to specification.

Specification

Gang Attaching
Hardware—Torque. 407 N·m
(300 lb·ft)

Tighten wheel bolts to specification.

Specification

Wheel Bolts—Torque. 176 N·m
(130 lb·ft)

9. In Field: Check that the previous steps have been done.
10. See the Troubleshooting section of this manual to correct problems.

KB78086,0001125-19-08FEB17

Troubleshooting Charts



A19400

A19400—UN—25AUG89

Illustration A—Ridging on Outside



A19401

A19401—UN—25AUG89

Illustration B—Ridging in Center

Symptom	Problem	Solution
Excessive slop in machine drawbar, hitch link or pin.	Hitch link or pin is not compatible with drawbar.	Order correct sized hitch link. (See your John Deere dealer.)
Heavy implement through rough terrain, strains drawbar.	Implement may be exceeding drawbar maximum static vertical load.	Use heavy-duty drawbar support kit when maximum static vertical load is exceeded. Refer to tractor Operator's Manual for specific drawbar requirements and load limits. If limit is exceeded see your John Deere dealer.
Machine does not penetrate.	Tools Worn.	Check disk blades for sharpness. Check for worn out points on standards.
Nose diving.	Front of machine too low.	Level machine front-to-rear. Set tractor drawbar with offset up.
Front wing disk gangs dive.	Wings are not level.	Adjust wing frames level with main frame at proper operating speed. Add longer shims 3 x 298 mm (1/8 x 11-3/4 in) to inner front wing gang connection. (Shims are available from your John Deere dealer.) Install optional wing stabilizer wheels.
Machine runs deeper on one side when operating in field.	Twisted rockshaft	Replace rockshaft. See John Deere dealer.
Ridging on outside.(See Illustration A.)	Front of machine too low.	Level machine front-to-rear.

Symptom	Problem	Solution
		<p>Lengthen turnbuckle to tip machine slightly rearward.</p> <p>Relevel wing frames to main frame.</p> <p>Tractor drawbar too low. Should be 406—508 mm (16—20 in) from ground to top of drawbar. Relevel machine if drawbar is raised.</p> <p>Add longer shims 3 x 298 mm (1/8 x 11-3/4 in) to outermost rear disk gang connection. (Shims are available from your John Deere dealer.)</p> <p>Install optional wing stabilizer wheels.</p>
	Operating outside optimum parameters.	<p>Reduce speed of operation.</p> <p>Maintain proper overlap.</p> <p>Set rear gangs at maximum angle (16°).</p>
Machine does not raise or lower.	Hydraulic flow obstructed.	<p>Open hydraulic cylinder transport lockup valve.</p> <p>Check hydraulic hookup to tractor.</p>
Ridging in center.(See Illustration B.)	Front of machine too high.	<p>Level machine front-to-rear.</p> <p>Tractor drawbar too high. Should be 406—508 mm (16—20 in) from ground to top of drawbar. Relevel machine if drawbar is lowered.</p>
	Operating outside optimum parameters.	<p>Reduce speed of operation to 6.4—9.7 km/h (4—6 mph).</p> <p>Set rear gangs to minimum angle (14°).</p> <p>Maintain proper overlap.</p>
Dog tracking (machine running crooked).	Machine off-center.	<p>Check leveling side-to-side.</p> <p>Check center standard position.</p> <p>Check standards for symmetry.</p>

Symptom	Problem	Solution
Single point depth stop is inconsistent or malfunctions.	Single point depth stop tube and/or bracket not assembled correctly.	Repair as needed.
	Valve leaks.	Repair as needed.
	Excessive tractor return pressure.	Adjust as necessary.
Scraper blades wear rapidly.	Scrapers set in self-adjusting position.	Set scrapers in rigid position for dry or highly abrasive soils.
Wing gangs do not penetrate.	Machine not level.	Check leveling side-to-side and relevel front-to-rear.
		Lower front of machine by shortening hitch turnbuckle.
		Add longer shims 3 x 298 mm (1/8 x 11-3/4 in) to outer front wing gang connection. (Shims are available from your John Deere dealer.) If equipped with wing stabilizer wheel, raise by one setting.
Wings do not fold/unfold.	Hydraulic flow obstructed.	Move SCV lever or switch back and forth.
		Check hydraulic hookup to tractor.
Folding rear gangs (7-Standard) push soil and/or stop turning.	Machine not level.	Relevel machine front-to-rear. Lengthen turnbuckle to tip machine slightly rearward.
	Operating outside optimum parameters.	Shallow up machine to 152 mm (6 in) disking depth.
		Add shorter shims 3 x 260 mm (1/8 x 10-1/4 in) to innermost rear disk gang connection. (Shims are available from your John Deere dealer.)

OUO6061.0002800-19-07FEB17

Disk Blade and/or Disk Component Failure

IMPORTANT: Running machine with wheels up causes machine to bob fore/aft with all stress loads going to gang components instead of wheel modules. This causes disk, spool, gang bolt, and gang tube and hardware failures. Level and operate machine correctly or damage to components can occur. Refer to procedure to correct problem.

1. Level machine on flat concrete surface. See Preparing Machine.

2. Raise machine and rephase cylinders a few times then lower halfway down.
3. Level rear gang tubes all the way across machine so they are parallel with concrete. Be sure that main frame is also level side-to-side within 7 mm (1/4 in). If main frame is not level, see your John Deere dealer.
4. Move machine to field with wheels firmly on soil. Set depth control at that point.
5. Run machine and verify that soil flow is flowing evenly off blades. Relevel wings side-to-side as required.
6. Turn leveling crank so it starts to leave a center ridge,

then back it off. Machine is now set to do its best job of leveling.

KB78086,0000BDE-19-16JUL12

Service

Practice Safe Maintenance



TS218—UN—23AUG88

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 away 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.

Falling while cleaning or working at height can cause serious injury. Use a ladder or platform to easily reach each location. Use sturdy and secure footholds and handholds.

DX,SERV-19-28FEB17

Use Safe Service Procedures

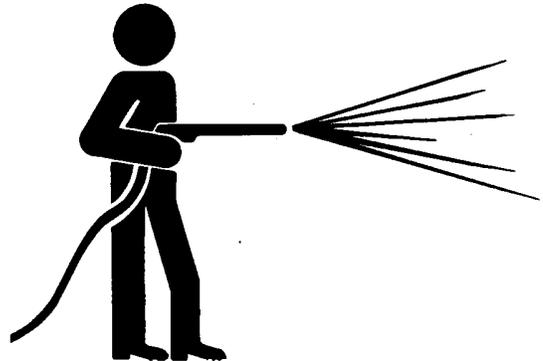


N40000—UN—28SEP88

⚠ CAUTION: To help prevent personal injury or death caused by unexpected movement, be sure to service machine on a level surface. If machine is connected to tractor, engage park brake and 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.

KB78086,000058F-19-21SEP16

Work in Clean Area



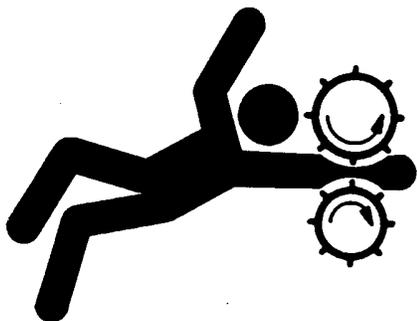
T6642EJ—UN—18OCT88

Before starting a job:

- Clean work area and machine.
- Make sure you have all necessary tools to do your job.
- Have the right parts on hand.
- Read all instructions thoroughly; do not attempt shortcuts.

DX,CLEAN-19-04JUN90

Service Machines Safely



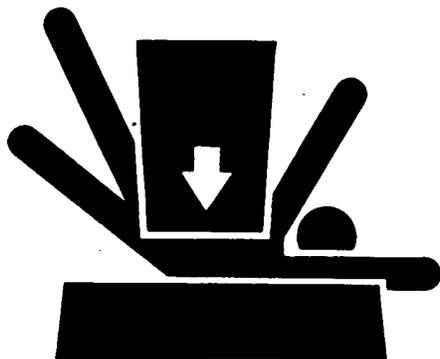
TS228—UN—23AUG88

Tie long hair behind your head. Do not wear a necktie, scarf, loose clothing, or necklace when you work near machine tools or moving parts. If these items were to get caught, severe injury could result.

Remove rings and other jewelry to prevent electrical shorts and entanglement in moving parts.

DX,LOOSE-19-04JUN90

Support Machine Properly



TS229—UN—23AUG88

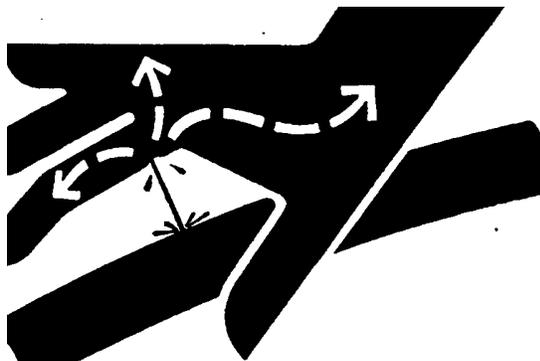
Always lower the attachment or implement to the ground before you work on the machine. If the work requires that the machine or attachment be lifted, provide secure support for them. If left in a raised position, hydraulically supported devices can settle or leak down.

Do not support the machine on cinder blocks, hollow tiles, or props that may crumble under continuous load. Do not work under a machine that is supported solely by a jack. Follow recommended procedures in this manual.

When implements or attachments are used with a machine, always follow safety precautions listed in the implement or attachment operator's manual.

DX,LOWER-19-24FEB00

Avoid High-Pressure Fluids



X9811—UN—23AUG88

Inspect hydraulic hoses periodically – at least once per year – for leakage, kinking, cuts, cracks, abrasion, blisters, corrosion, exposed wire braid or any other signs of wear or damage.

Replace worn or damaged hose assemblies immediately with John Deere approved replacement parts.

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 in English from Deere & Company Medical Department in Moline, Illinois, U.S.A., by calling 1-800-822-8262 or +1 309-748-5636.

DX,FLUID-19-12OCT11

Replace Hydraulic Hoses

⚠ CAUTION: Avoid hazards due to escaping fluid under pressure. See Avoid High-Pressure Fluids in the Safety section.

Inspect hydraulic hoses between the lift cylinders and hydraulic lockup valve frequently for leakage, kinking, cuts, cracks, abrasion, blisters, corrosion, exposed wire braid, or any other signs of wear or damage. Replace worn or damaged hose assemblies immediately. See your John Deere Dealer or qualified service provider for replacement hoses.

⚠ CAUTION: If incorrectly rated hose is used, machine damage, injury, or death could occur.

If hoses are to be fabricated, ensure that hoses are

rated at no less than 82 737 kPa (827 bar) (12 000 psi) burst pressure according to SAE standard J517, 100R17 hose specification.

Incorrect hose length or routing can increase chance of hose wear or damage. Use old hose as a guide for length and hose routing.

Incorrect fittings can damage mating parts or cause leaks. Make sure to use steel fittings approved for use with the hose manufacturer. Use correct size and thread type as replaced hose.

OJ06061,0002D8B-19-05DEC16

Tighten Hardware

IMPORTANT: Verify tightness of ALL BOLTS, U-BOLTS, and CAP SCREWS after first 10 hours of operation and again at end of first week (50 hours) of operation or damage to machine can occur.

Tighten all bolts to torques specified in this section unless otherwise noted.

Always check tightness of hardware periodically to maintain good machine operation.

Tighten all hardware after initial set-up.

Tighten rockshaft to specification.

Specification

Rockshaft Bearing Hardware—Torque. 407 N·m (300 lb·ft)

Tighten 1 in wheel module bolts to specification.

Specification

Wing Wheel Module Bolts—Torque. 678 N·m (500 lb·ft)

Tighten all gang attaching hardware (cap screws head down) to specification.

Specification

Gang Attaching Hardware—Torque. 407 N·m (300 lb·ft)

Tighten wheel bolts to specification.

Specification

Wheel Bolts—Torque. 176 N·m (130 lb·ft)

OJ06061,000216E-19-07FEB17

Sharpen Sweeps and Disks



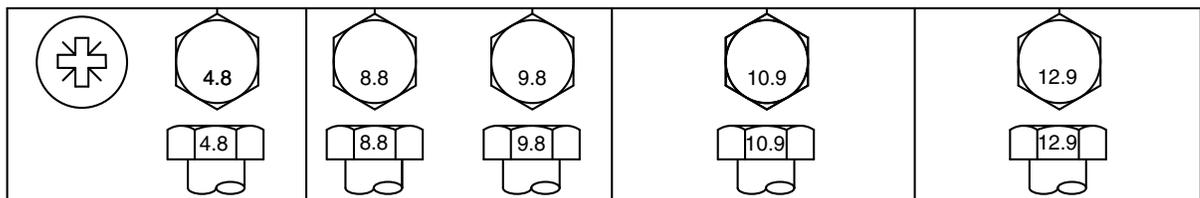
N39627—UN—22SEP88

CAUTION: Disks and sweeps are sharp and can cause serious injury to you or others. To avoid being cut, wear gloves when handling disks and sweeps.

Sharpen dull tools for better penetration. Replace if necessary.

AG.OJ01011,2727-19-15SEP16

Metric Bolt and Screw Torque Values



TS1742—UN—31MAY18

Bolt or Screw Size	Class 4.8		Class 8.8 or 9.8				Class 10.9				Class 12.9					
	Hex Head ^a		Flange Head ^b		Hex Head ^a		Flange Head ^b		Hex Head ^a		Flange Head ^b		Hex Head ^a		Flange Head ^b	
	N·m	lb·in	N·m	lb·in												
M6	3.6	31.9	3.9	34.5	6.7	59.3	7.3	64.6	9.8	86.7	10.8	95.6	11.5	102	12.6	112
									N·m	lb·ft	N·m	lb·ft	N·m	lb·ft	N·m	lb·ft

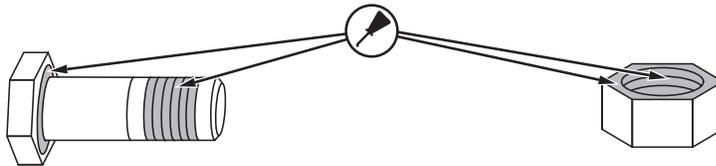
Service

Bolt or Screw Size	Class 4.8				Class 8.8 or 9.8				Class 10.9				Class 12.9			
	Hex Head ^a		Flange Head ^b		Hex Head ^a		Flange Head ^b		Hex Head ^a		Flange Head ^b		Hex Head ^a		Flange Head ^b	
M8	8.6	76.1	9.4	83.2	16.2	143	17.6	156	23.8	17.6	25.9	19.1	27.8	20.5	30.3	22.3
			N·m	lb·ft	N·m	lb·ft	N·m	lb·ft								
M10	16.9	150	18.4	13.6	31.9	23.5	34.7	25.6	46.8	34.5	51	37.6	55	40.6	60	44.3
	N·m	lb·ft														
M12	—	—	—	—	55	40.6	61	45	81	59.7	89	65.6	95	70.1	105	77.4
M14	—	—	—	—	87	64.2	96	70.8	128	94.4	141	104	150	111	165	122
M16	—	—	—	—	135	99.6	149	110	198	146	219	162	232	171	257	190
M18	—	—	—	—	193	142	214	158	275	203	304	224	322	245	356	263
M20	—	—	—	—	272	201	301	222	387	285	428	316	453	334	501	370
M22	—	—	—	—	365	263	405	299	520	384	576	425	608	448	674	497
M24	—	—	—	—	468	345	518	382	666	491	738	544	780	575	864	637
M27	—	—	—	—	683	504	758	559	973	718	1080	797	1139	840	1263	932
M30	—	—	—	—	932	687	1029	759	1327	979	1466	1081	1553	1145	1715	1265
M33	—	—	—	—	1258	928	1398	1031	1788	1319	1986	1465	2092	1543	2324	1714
M36	—	—	—	—	1617	1193	1789	1319	2303	1699	2548	1879	2695	1988	2982	2199

The nominal torque values listed are for general use only with the assumed wrenching accuracy of 20%, such as a manual torque wrench. DO NOT use these values if a different torque value or tightening procedure is given for a specific application. For lock nuts, for stainless steel fasteners, or for nuts on U-bolts, see the tightening instructions for the specific application.

Replace fasteners with the same or higher property class. If higher property class fasteners are used, tighten these to the strength of the original.

- Make sure that fastener threads are clean.
- Apply a thin coat of Hy-Gard™ or equivalent oil under the head and on the threads of the fastener, as shown in the following image.
- Be conservative with the amount of oil to reduce the potential for hydraulic lockup in blind holes due to excessive oil.
- Properly start thread engagement.



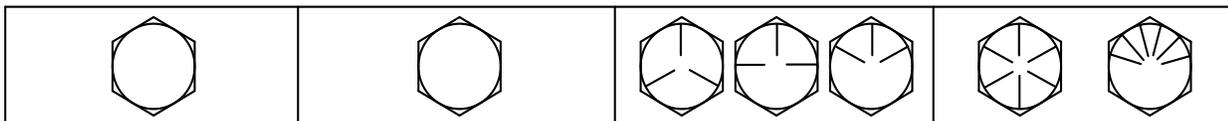
TS1741—UN—22MAY18

^aHex head column values are valid for ISO 4014 and ISO 4017 hex head, ISO 4162 hex socket head, and ISO 4032 hex nuts.

^bHex flange column values are valid for ASME B18.2.3.9M, ISO 4161, or EN 1665 hex flange products.

DX,TORQ2-19-30MAY18

Unified Inch Bolt and Screw Torque Values



TS1671—UN—01MAY03

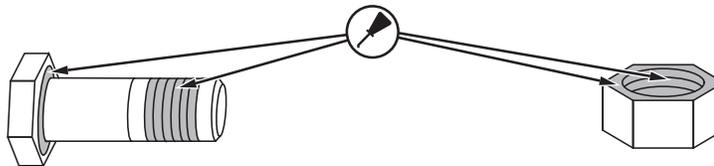
Bolt or Screw Size	SAE Grade 1 ^a				SAE Grade 2 ^b				SAE Grade 5, 5.1 or 5.2				SAE Grade 8 or 8.2			
	Hex Head ^c		Flange Head ^d		Hex Head ^c		Flange Head ^d		Hex Head ^c		Flange Head ^d		Hex Head ^c		Flange Head ^d	
	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in
1/4	3.1	27.3	3.2	28.4	5.1	45.5	5.3	47.3	7.9	70.2	8.3	73.1	11.2	99.2	11.6	103
													N·m	lb·ft	N·m	lb·ft
5/16	6.1	54.1	6.5	57.7	10.2	90.2	10.9	96.2	15.7	139	16.8	149	22.2	16.4	23.7	17.5
									N·m	lb·ft	N·m	lb·ft				

Bolt or Screw Size	SAE Grade 1 ^a				SAE Grade 2 ^b				SAE Grade 5, 5.1 or 5.2				SAE Grade 8 or 8.2			
	Hex Head ^c		Flange Head ^d		Hex Head ^c		Flange Head ^d		Hex Head ^c		Flange Head ^d		Hex Head ^c		Flange Head ^d	
3/8	10.5	93.6	11.5	102	17.6	156	19.2	170	27.3	20.1	29.7	21.9	38.5	28.4	41.9	30.9
					N·m	lb·ft	N·m	lb·ft								
7/16	16.7	148	18.4	163	27.8	20.5	30.6	22.6	43	31.7	47.3	34.9	60.6	44.7	66.8	49.3
	N·m	lb·ft	N·m	lb·ft												
1/2	25.9	19.1	28.2	20.8	43.1	31.8	47	34.7	66.6	49.1	72.8	53.7	94	69.3	103	75.8
9/16	36.7	27.1	40.5	29.9	61.1	45.1	67.5	49.8	94.6	69.8	104	77	134	98.5	148	109
5/8	51	37.6	55.9	41.2	85	62.7	93.1	68.7	131	96.9	144	106	186	137	203	150
3/4	89.5	66	98	72.3	149	110	164	121	230	170	252	186	325	240	357	263
7/8	144	106	157	116	144	106	157	116	370	273	405	299	522	385	572	422
1	216	159	236	174	216	159	236	174	556	410	609	449	785	579	860	634
1-1/8	305	225	335	247	305	225	335	247	685	505	751	554	1110	819	1218	898
1-1/4	427	315	469	346	427	315	469	346	957	706	1051	775	1552	1145	1703	1256
1-3/8	564	416	618	456	564	416	618	456	1264	932	1386	1022	2050	1512	2248	1658
1-1/2	743	548	815	601	743	548	815	601	1665	1228	1826	1347	2699	1991	2962	2185

The nominal torque values listed are for general use only with the assumed wrenching accuracy of 20%, such as a manual torque wrench. DO NOT use these values if a different torque value or tightening procedure is given for a specific application. For lock nuts, for stainless steel fasteners, or for nuts on U-bolts, see the tightening instructions for the specific application.

Replace fasteners with the same or higher property class. If higher property class fasteners are used, tighten these to the strength of the original.

- Make sure that fastener threads are clean.
- Apply a thin coat of Hy-Gard™ or equivalent oil under the head and on the threads of the fastener, as shown in the following image.
- Be conservative with the amount of oil to reduce the potential for hydraulic lockup in blind holes due to excessive oil.
- Properly start thread engagement.



TS1741—UN—22MAY18

^aGrade 1 applies for hex cap screws over 6 in (152 mm) long, and for all other types of bolts and screws of any length.

^bGrade 2 applies for hex cap screws (not hex bolts) up to 6 in (152 mm) long.

^cHex head column values are valid for ISO 4014 and ISO 4017 hex head, ISO 4162 hex socket head, and ISO 4032 hex nuts.

^dHex flange column values are valid for ASME B18.2.3.9M, ISO 4161, or EN 1665 hex flange products.

Face Seal Fittings Assembly and Installation—All Pressure Applications

Face Seal O-Ring to Stud End Installation

1. Inspect the fitting surfaces. They must be free of dirt and/or defects.
2. Inspect the O-ring. It must be free of damage and/or defects.
3. Lubricate O-rings and install into groove using petroleum jelly to hold in place.
4. Push O-ring into groove with petroleum jelly so O-ring is not displaced during assembly.
5. Index angle fittings and tighten by hand pressing joint together to insure O-ring remains in place.

6. Tighten fitting or nut to torque value shown on the chart per dash size stamped on the fitting. DO NOT allow hoses to twist when tightening fittings.

Face Seal Adjustable Stud End O-Ring Installation

1. Back off lock nut (jam nut) and washer to full exposed turned down section of the fitting.
2. Install a thimble over the fitting threads to protect the O-ring from nicks.
3. Slide the O-ring over the thimble into the turned down section of the fitting.
4. Remove thimble.

Face Seal Straight Stud End O-Ring Installation

1. Install a thimble over the fitting threads to protect the O-ring from nicks.
2. Slide the O-ring over the thimble into the turned down section of the fitting.
3. Remove thimble.

Fitting Installation

1. Install fitting by hand until snug.
2. Position adjustable fittings by unscrewing the fitting no more than one turn.

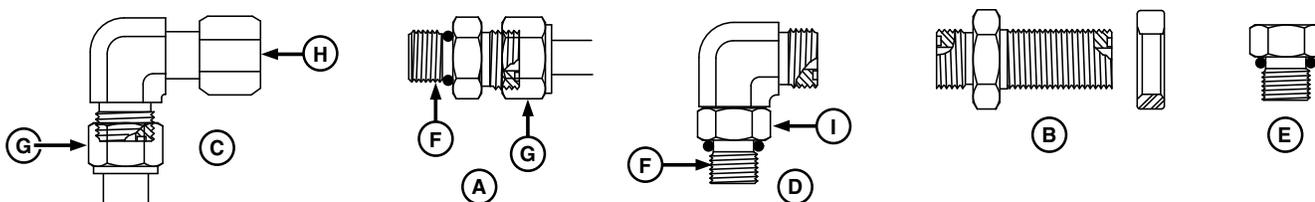
3. Apply assembly torque per table.

Assembly Torque

1. Use one wrench to hold the connector body and one wrench to tighten nut.
2. For a hydraulic hose, it may be necessary to use three wrenches to prevent twist; one on the connector body, one on the nut, and one on the body of the hose fitting.

RW67285,00013B5-19-16OCT02

Metric Face Seal and O-Ring Stud End Fitting Torque Chart—Standard Pressures



N79757—UN—13FEB08

- A—Stud Straight and Tube Nut
- B—Bulkhead Union and Bulkhead Lock Nut
- C—90° Swivel Elbow and Tube Nut
- D—90° Adjustable Stud Elbow
- E—Port Plug

- F—Stud End
- G—Tube Nut
- H—Swivel Nut
- I—Lock Nut

Metric Face Seal and O-ring Stud End Fitting Torque Chart—Standard Pressure-Below 27.6 MPA (4000 psi)																	
Nominal Tube OD Hose ID				O-ring Face Seal/ Tube Swivel Nut				Bulkhead Jam Nut Torque ^a			O-ring Straight, Adjustable, and External Port Plug Stud Ends ^a						
Metric Tube OD	Inch Tube OD			Thread Size	Swivel Nut Hex Size	Tube Nut Swivel Nut Torque		Jam Nut Hex Size	Jam Nut Torque		Thread Size	Straight Hex Size ^b	Adj Lock Nut Hex Size	Steel or Gray Iron Torque		Aluminum or Brass Torque ^c	
	mm	Dash Size	in			mm	in		mm	N·m				lb·ft	mm	N·m	lb·ft
4	-2	0.125	3.18	—	—	—	—	—	—	—	M8 X 1	12	12	8	6	5	4
5	-3	0.188	4.76	—	—	—	—	—	—	—	M10 X 1	14	14	15	11	10	7
6	-4	0.250	6.35	9/16-18	17	16	12	22	32	24	M12 X 1.5	17	17	25	18	17	12
8	-5	0.312	7.92	—	—	—	—	—	—	—	M14 X 1.5	19	19	40	30	27	20
10	-6	0.375	9.53	11/16-16	22	24	18	27	42	31	M16 X 1.5	22	22	45	33	30	22
12	-8	0.500	12.70	13/16-16	24	50	37	30	93	69	M18 X 1.5	24	24	50	37	33	25
16	-10	0.625	15.88	1-14	30	69	51	36	118	87	M22 X 1.5	27	27	69	51	46	34
20	-12	0.750	19.05	1-3/16-12	36	102	75	41	175	129	M27 X 2	32	32	100	74	67	49
22	-14	0.875	22.23	1-3/16-12	36	102	75	41	175	129	M30 X 2	36	36	130	96	87	64
25	-16	1.000	25.40	1-7/16-12	41	142	105	46	247	182	M33 X 2	41	41	160	118	107	79
28	—	—	—	—	—	—	—	—	—	—	M38 x 2	46	46	176	130	117	87
32	-20	1.250	31.75	1-11/16-12	50	190	140	50	328	242	M42 X 2	50	50	210	155	140	103
38	-24	1.500	38.10	2-12	60	217	160	60	374	276	M48 X 2	55	55	260	192	173	128
50	-32	2.000	50.80	—	—	—	—	—	—	—	M60 X 2	65	65	315	232	210	155

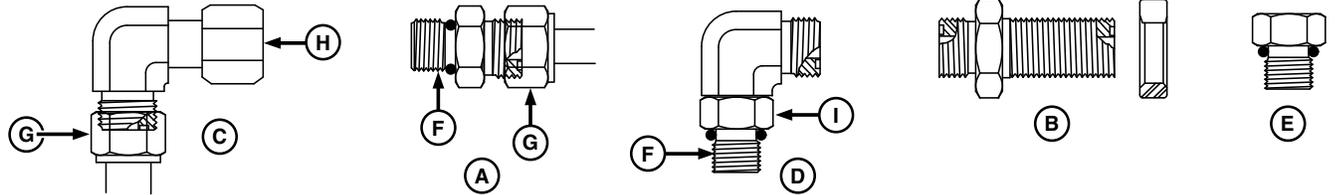
^aTolerance is +15%, minus 20% of mean tightening torque unless otherwise specified.

^bThe straight hex wrench sizes listed apply to connectors only and may not be the same as the corresponding plug of the same thread size.

^cThese torques were established using steel plated connectors in aluminum and brass.

KB78086,0000EB7-19-19NOV15

SAE Face Seal and O-Ring Stud End Fitting Torque Chart—Standard Pressures



N79757—UN—13FEB08

A—Stud Straight and Tube Nut
 B—Bulkhead Union and Bulkhead Lock Nut
 C—90° Swivel Elbow and Tube Nut
 D—90° Adjustable Stud Elbow
 E—Port Plug

F—Stud End
 G—Tube Nut
 H—Swivel Nut
 I—Lock Nut

SAE Face Seal and O-ring Stud End Fitting Torque Chart—Standard Pressure—Below 27.6 MPA (4000 psi)																	
Nominal Tube OD Hose ID				O-ring Face Seal/ Tube Swivel Nut				Bulkhead Jam Nut Torque ^a			O-ring Straight, Adjustable, and External Port Plug Stud Ends ^a						
Metric Tube OD	Inch Tube OD			Thread Size	Swivel Nut Hex Size	Tube Nut Swivel Nut Torque		Jam Nut Hex Size	Jam Nut Torque		Thread Size	Straight Hex Size ^b	Adj Lock Nut Hex Size	Steel or Gray Iron Torque		Aluminum or Brass Torque ^c	
	mm	Das- h Size	in			mm	in		N·m	lb-ft				in	N·m	lb-ft	in
5	-3	0.188	4.78	—	—	—	—	—	—	—	3/8-24	5/8	9/16	12	9	8	6
6	-4	0.250	6.35	9/16-18	11/16	16	12	13/16	32	24	7/16-20	5/8	5/8	16	12	11	8
8	-5	0.312	7.92	—	—	—	—	—	—	—	1/2-20	3/4	11/16	24	18	16	12
10	-6	0.375	9.53	11/16-16	13/16	24	18	1	42	31	9/16-18	3/4	3/4	37	27	25	18
12	-8	0.500	12.70	13/16-16	15/16	50	37	1-1/8	93	69	3/4-16	7/8	15/16	50	37	33	25
16	-10	0.625	15.88	1-14	1-1/8	69	51	1-5/16	118	87	7/8-14	1-1/16	1-1/16	69	51	46	34
20	-12	0.750	19.05	1-3/16-12	1-3/8	102	75	1-1/2	175	129	1-1/16-12	1-1/4	1-3/8	102	75	68	50
22	-14	0.875	22.23	1-3/16-12	—	102	75	—	175	129	1-3/16-12	1-3/8	1-1/2	122	90	81	60
25	-16	1.000	25.40	1-7/16-12	1-5/8	142	105	1-3/4	247	182	1-5/16-12	1-1/2	1-5/8	142	105	95	70
32	-20	1.25	31.75	1-11/16-12	1-7/8	190	140	2	328	242	1-5/8-12	1-3/4	1-7/8	190	140	127	93
38	-24	1.50	38.10	2-12	2-1/4	217	160	2-3/8	374	276	1-7/8-12	2-1/8	2-1/8	217	160	145	107
50.8	-32	2.000	50.80	—	—	—	—	—	—	—	2-1/2-12	2-3/4	2-3/4	311	229	207	153

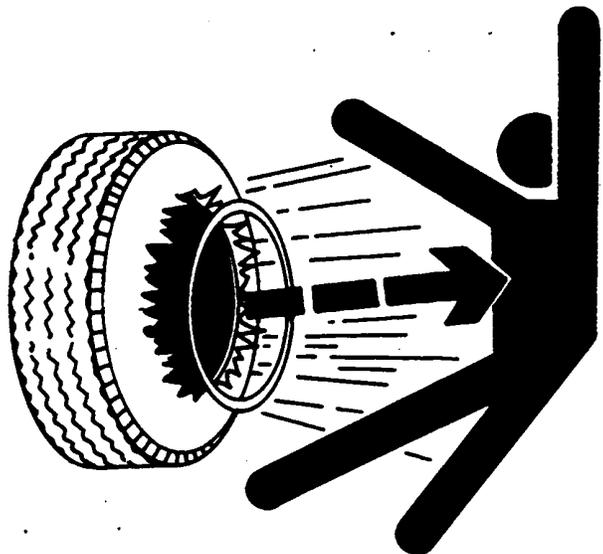
^aTolerance is +15%, minus 20% of mean tightening torque unless otherwise specified.

^bThe straight hex wrench sizes listed apply to connectors only and may not be the same as the corresponding plug of the same thread size.

^cThese torques were established using steel plated connectors in aluminum and brass.

KB78086.0000EB8-19-19NOV15

Service Tires Safely



TS211—UN—15APR13

⚠ CAUTION: 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,RIM1-19-27OCT08

Check Tire Pressure—All Tillage Machines

Tire Size	Load/Speed Index	Pressure		
		kPa	bar	psi
6.7R15	6 ply	303	3.0	44
20.5x8.00-10	E	310	3.1	45
20.5x8.00-10	4 ply	621	6.2	90
9.5L-14 SL	6 ply	221	2.2	32
5.90-15 SL	4 ply	248	2.5	36
7.60-15 SL	8 ply	359	3.6	52
9.5L-15D FI	D	414	4.1	60
11L-15D FI	D	414	4.1	60
11L-15F FI	F	621	6.2	90
12.5L-15D FI	D	414	4.1	60
12.5L-15F FI	F	621	6.2	90
340/65R18 (Michelin)	149A8 (153A6)	496	5.0	72
340/65R18 (Goodyear)	148A8/B	538	5.4	78
445/50R22.5	167A8/B	827	8.3	120
380/55R16.5	150A8/B	503	5.0	73
440/55R18	159A8/B	503	5.0	73
VF285/70R19.5	150D	517	5.2	75
IF320/70R15	144D	483	4.8	70
IF280/70R15	134D	441	4.4	64
380/90R46 (Singles)	156	338	3.4	49
380/90R46	177D	517	5.2	75
380/90R46 (Duals)	149	241	2.4	35
380/90R54 (Singles)		400	4.0	58
380/90R54 (Duals)		241	2.4	35
IF380/105R50	165A8/B	483	4.8	70

⚠ CAUTION: Tire failure due to overloading can cause loss of vehicle control during transport resulting in serious injury or death to you or others. Prevent tire failure by using only tires specified for your machine and inflating them to correct pressures.

IMPORTANT: Chart shown for tire pressure reference only. Ensure machine performance by using only tires specified for your machine and inflating them to correct pressures.

For the even working depth of attachments in the ground, tires must be inflated to specification. A low tire causes deeper penetration on one side than the other. Deeper penetration on one side can cause the machine to side draft. Inflate all tires to correct pressures.

KB78086,0000FB7-19-15FEB19

Discard Tires Properly

It is illegal to burn discarded tires. Tires cannot be used to start piles of trees and buildings on fire. Tires cannot be used to fill ravines, washes, streams, and so on.

Discarded tires can be disposed of in a permitted landfill.

These tires must first be processed (shredded or quartered) before being taken to a landfill. Call your landfill for requirements.

Discarded tires also can be recycled if a recycling plant is nearby.

Tires can sometimes be used for stream bank stabilization—contact DNR or your local natural resources agency for guidance.

NXN,9960,N31A-19-25JAN08

Check Wheel Bolts and Bearings

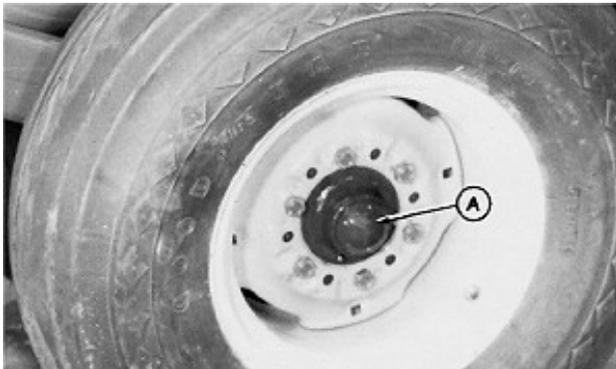
Check tightness of all wheel bolts and wheel pivot bearings during first week of operation, and periodically thereafter.

Tighten wheel bolts to specification.

Specification

Wheel Bolts—Torque. 176 N·m
(130 lb·ft)

Repack wheel bearings once a year with wheel bearing grease. Replace grease seals if necessary.



N88153B2—UN—06OCT88

A—Hub Cap

To adjust wheel bearing, remove center hub cap (A) and cotter pin. Raise wheel and turn it. Tighten nut until there is a slight drag on bearings and insert cotter pin in nearest hole. Replace hub cap.

AG,OUO6018,539-19-19MAR12

Repair Tire



N40000—UN—28SEP88



N39087—UN—30MAR89



N74834—UN—12FEB07

Tire Close to Frame

A—Wood Block
B—Walking Beam
C—Frame

CAUTION: To help prevent personal injury or death caused by unexpected movement, be sure to service machine on a level surface. If machine is connected to tractor, engage park brake and place transmission in "PARK", shut off engine and remove key.

NOTE: If tire to be repaired is close to frame (C), machine must first be put on stands.

1. Start tractor.
2. Adjust depth control to the maximum depth setting.
3. Use tractor hydraulics to lower machine to ground.
4. Loosen wheel bolts on the tire to be removed.

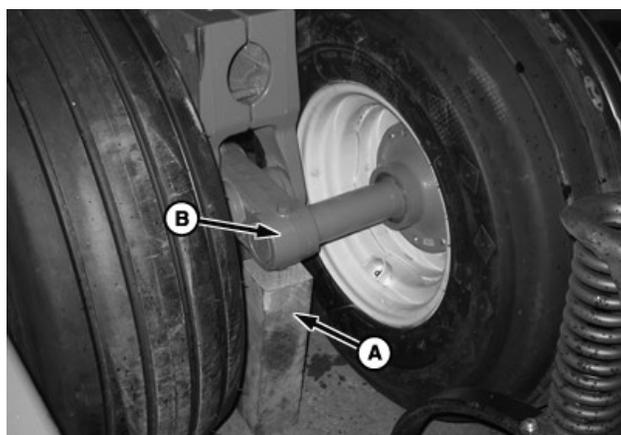
CAUTION: Wheel modules are heavy, awkward and can swing up or down and can cause serious injury to you or others. Always stay away from the possible swing and pinch point areas while repairing tire.

Always be aware of area while working under machine. Wear close fitting clothing and safety equipment appropriate to the job.

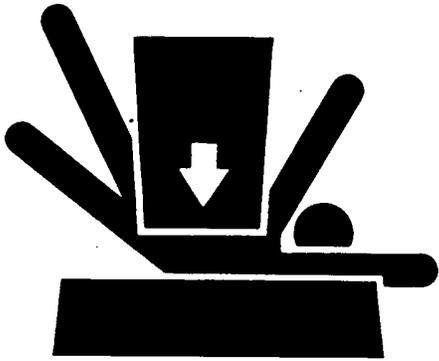
5. Raise wheels all the way up.

NOTE: Wood block must be long enough to allow ground clearance to mount new tire.

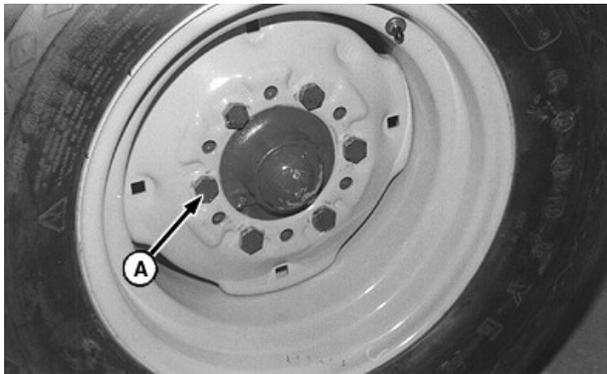
6. Use wood block (A) or other suitable block under walking beam (B) where tire is changed.



N74833—UN—06FEB07



TS229—UN—23AUG88



N50101—UN—08FEB99

A—Wheel Bolts

CAUTION: Trying to adjust block while floating wheels to ground can cause serious injury to you or others. Always keep people clear of machine when lowering wheels.

7. Use tractor hydraulics to float wheels down so walking beam sits on a wood block.
8. Remove and repair tire.
9. Install wheels using existing wheel bolts (A), hand tighten bolts.
10. Inflate tires to correct specification.
11. Use tractor hydraulics and raise tires all the way up and remove block.
12. Lower wheels to ground.
13. Tighten wheel bolts to specification.

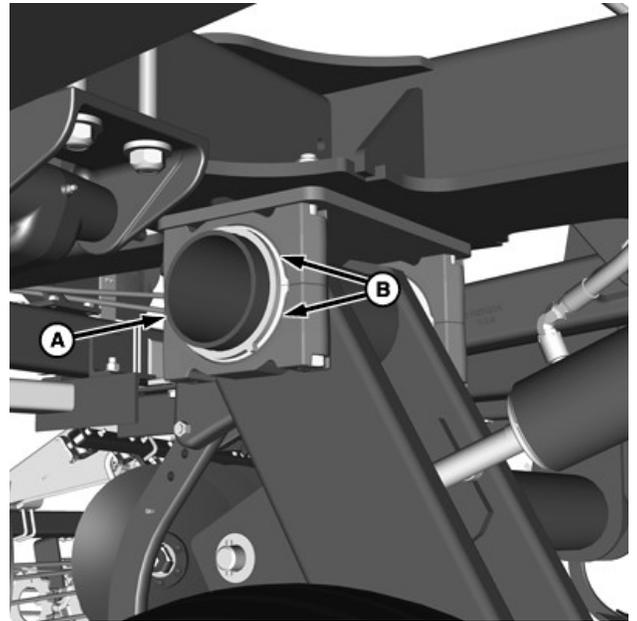
Specification

Wheel Bolt—Torque. 176 N·m
(130 lb·ft)

OUC6061,000260F-19-20OCT17

Wheel Arm Bearing Inspection

IMPORTANT: Replace bearings worn more than 4.8 mm (3/16 in) or after 500 hours.



N96943—UN—08MAR12

Wheel Arm Bearing

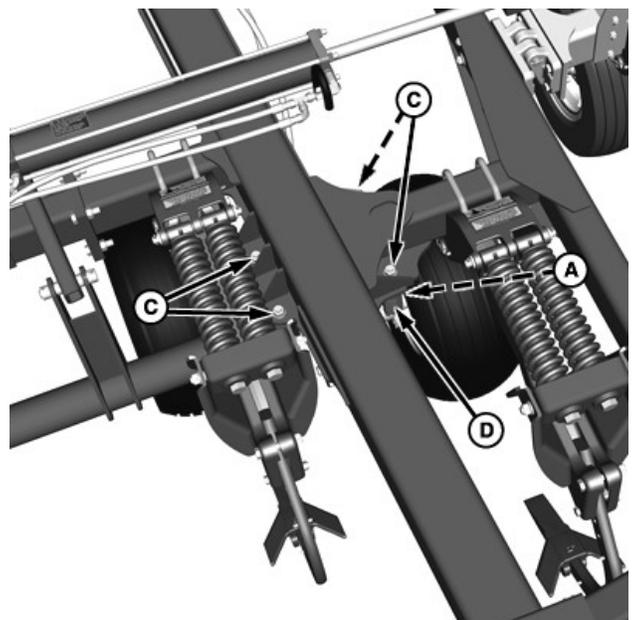
- A—Rockshaft
- B—Bearing Insert

To inspect wheel arm bearings, do following:

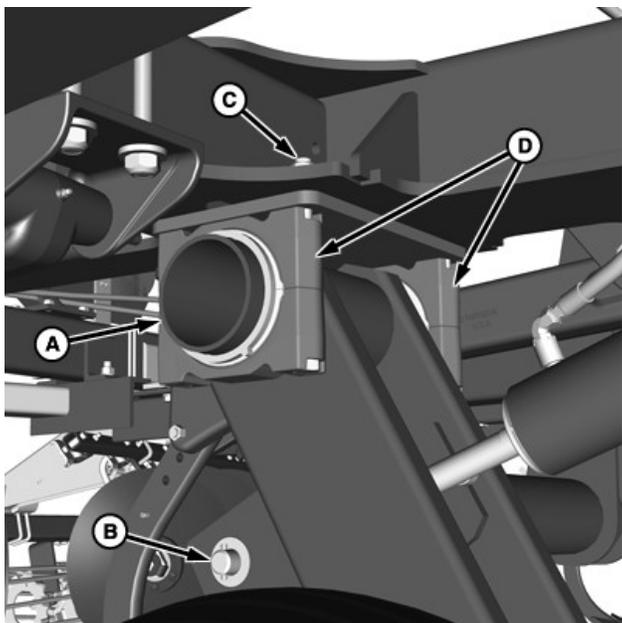
1. Measure gap between rockshaft (A) and bearing inserts (B).
2. If the gap is greater than 4.8 mm (3/16 in), replace bearing inserts or after 500 hours. (See Wheel Arm Bearing Replacement in this section.)

KB78086,0000BDB-19-07FEB17

Wheel Arm Bearing Replacement



N96941—UN—08MAR12

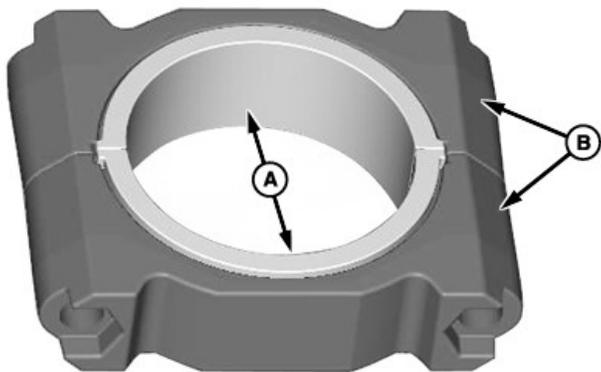


A—Rockshaft
B—Cylinder Pin
C—Rockshaft Hardware
D—Bearing Casting and Inserts

CAUTION: Wheel module assemblies weigh approximately 460 kg (1014 lb), are awkward to handle, and can cause serious injury to you or others if not properly attached to machine. Use suitable lifting device and proper chains when installing.

To replace maintenance free bearings, do following:

1. Support rockshaft (A) and remove cylinder pin (B). Retain hardware.
2. Remove rockshaft hardware (C) and lower rockshaft. Remove bearing castings and bearing inserts (D). Retain hardware. Discard bearing inserts.



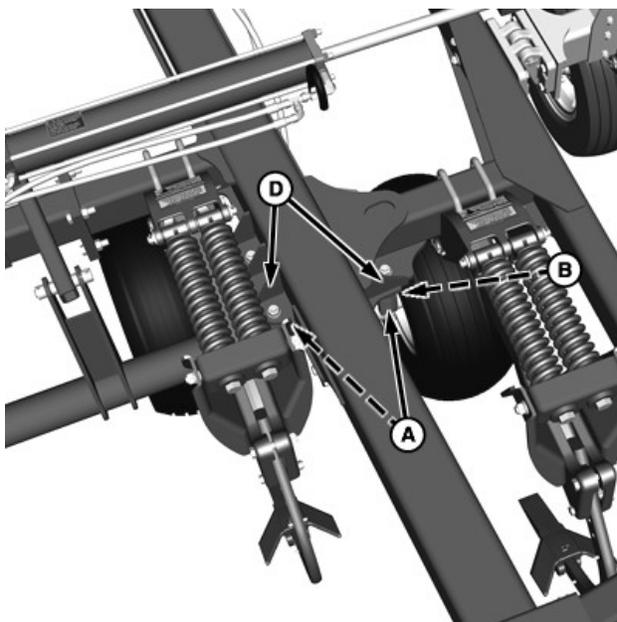
A—Bearing Insert
B—Casting

N71955—UN—04APR06

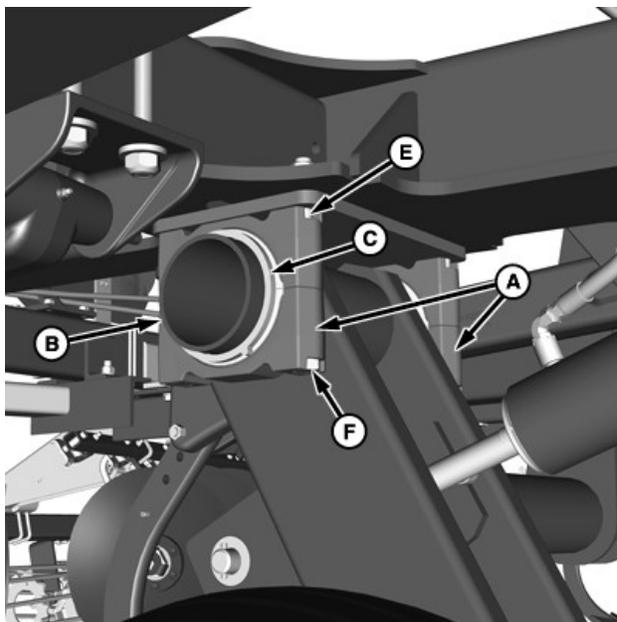
3. Replace bearing inserts (A) into casting (B).

CAUTION: Wheel module assemblies weigh approximately 460 kg (1014 lb), are awkward to handle, and can cause serious injury to you or others if not properly attached to machine. Use suitable lifting device and proper chains when installing.

IMPORTANT: Attach all wheel assemblies on wings towards machine outside. All bearing assemblies are attached towards machine outside against stops (C).



N96944—UN—08MAR12



A—Bearing Assembly
B—Wing Wheel Assembly Tube
C—Stop

N96945—UN—08MAR12

- D—Brackets
- E—Cap Screw (4 used)
- F—Cap Screw Head Set In Casting

4. Preassemble bearing assemblies (A) with an assistant around wheel assembly tube (B) between stops (C) and below brackets (D) as shown in graphic, using M20 x 240 Grade 8.8 cap screws (E) with heads (F) set in casting, M22 x 37 x 3 washers and lock nuts. Verify that cap screw heads are set in casting.
5. Tighten all lock nuts to specification.

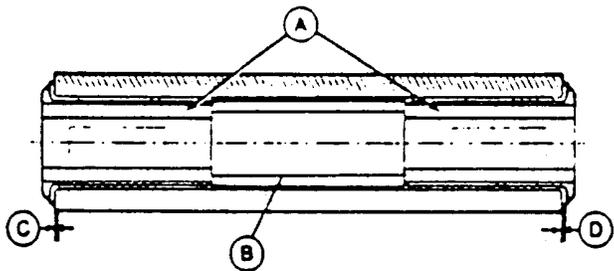
Specification

Rockshaft Bearing Lock
Nuts—Torque. 407 N·m
(300 lb·ft)

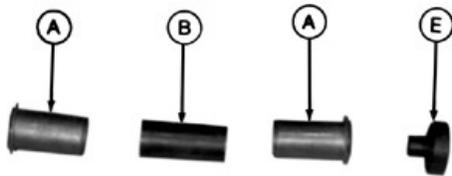
6. Reattach cylinder rod using existing hardware.

KB78086,0000BDC-19-07FEB17

Replace Wing Module Bearings



N42181XJ—UN—17DEC97



N42181WY—UN—17DEC97

- A—Bearings
- B—Spacer Bushing
- C—Dimension
- D—Dimension
- E—Driver, No. JDG943

To replace maintenance free bearings:

1. Use a drift against the inside edge of bearing (A) and press out one bearing.
2. Press out spacer bushing (B) and other bearing.
3. Before assembly, coat bore ID at both ends with light film of lubricant.
4. With spacer bushing (B) installed first, press bearings (A) from each end until the flanges bottom out on bushing.

NOTE: Tool must press both inner and outer surface of bearings at same time. Use driver No. JDG943 (E).

5. Dimension of (C) plus (D) should equal plus or minus 1.5 mm (0.06 in).

IMPORTANT: Failure to tighten lock nut to 488 N·m (360 lb-ft) WILL result in wheel arm pivot bearing failure.

Specification

Lock Nut—Torque. 678 N·m
(500 lb-ft)

OUO6061,00024B6-19-20OCT17

Discard Waste Oil Properly

It is illegal to dispose of waste oil at a sanitary landfill unless it is for temporary storage or collection for recycling.

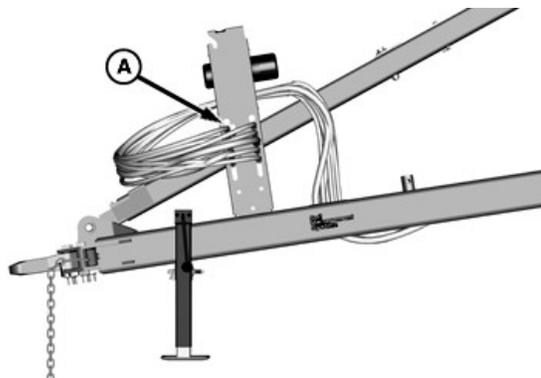
Farm generated waste oil can be used for road oiling, dust suppression, and weed control. Some counties may require permits or notices to apply road oil.

Waste oil taken to waste oil collector must be in a closed, unbreakable, preferably reusable container of 19 L (5 gal) or less. Contaminated oil cannot be taken to a waste oil collection site.

Oil dealers are to post signs noting location of waste oil collection sites. If there is no site in your county, nearest collection site is to be posted.

NX,9960,N32-19-20FEB14

Prevent Hydraulic System Contamination



A—Storage Position

N125482—UN—23SEP16

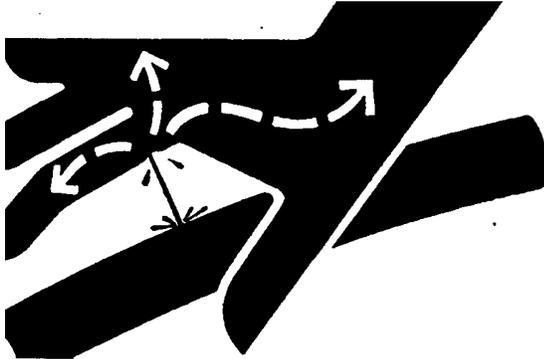
IMPORTANT: Cleanliness is important when working on hydraulic system. Prevent contamination by assembling cylinders, hoses, couplers, and valves in a clean area of shop.

Leave protective caps on fluid openings until ready to make connection. When charging 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.

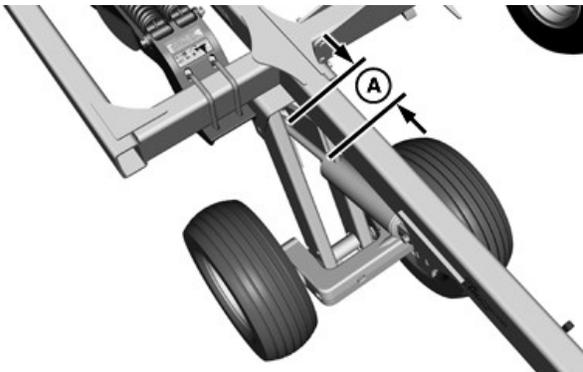
NOTE: In order to help keep couplers clean, always place in storage position (A) when not attached to tractor.

NXN,T9005AE-19-23SEP16

Checking Depth Control Cylinders for Internal Leakage—5 and 7-Standard



X9811—UN—23AUG88



N96947—UN—19MAR12

A—Dimension

CAUTION: Avoid hazards due to escaping fluid under pressure. See Avoid High-Pressure Fluids in the Safety section.

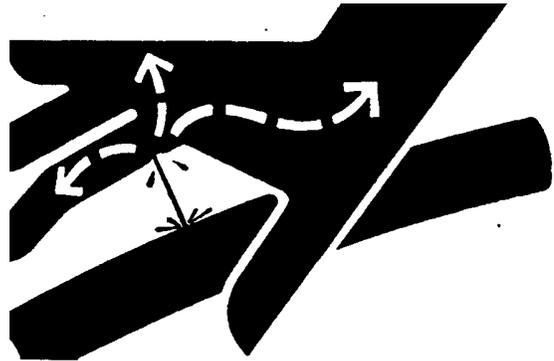
1. Check all hoses, hydraulic fittings, and cylinder rod seals for external leaks. Repair all external leaks before continuing procedure.
2. Move actuator arm on single point depth control back so that the single point depth control valve is not activated during this procedure.
3. Rephase the hydraulic system by fully extending all depth control cylinders and holding the SCV lever for 5 seconds.
4. Lower machine to approximately 102 mm (4 in) above ground.
5. Stop tractor. Pull depth control hoses out of tractor breakaway couplers.
6. If hose ends continue to leak, see your John Deere

dealer. If hose ends do not leak, measure and record exposed length at cylinder rod (A).

7. Let machine stand for 1 hour.
8. Remeasure and record rod length as in step 6.
9. If hose ends do not leak and cylinder has retracted 6 mm (0.25 in) or more, see your John Deere dealer for repair.

KB78086,000112E-19-31JAN17

Checking Depth Control Cylinders for Internal Leakage—9 and 11-Standard



X9811—UN—23AUG88

CAUTION: Avoid hazards due to escaping fluid under pressure. See Avoid High-Pressure Fluids in the Safety section.

1. With wings unfolded, check all hoses, hydraulic fittings, and cylinder rod seals for external leaks. Repair all external leaks before continuing procedure.
2. Move actuator arm on single point depth control back so that the single point depth control valve is not activated during this procedure.
3. Cycle machine up and down three times.
4. Rephase the hydraulic system by fully extending all depth control cylinders and holding the SCV lever for 5 seconds.
5. Lower machine to approximately 101 mm (4 in) above ground.
6. Shut off tractor engine.
7. Locate and disconnect pressure line from SCV. This line goes to the single point valve and to base end of the main frame cylinders. Leave return line (wing frame to tractor) as is.
8. Return to the tractor cab. Lift the SCV lever stop in the tractor console and push the SCV lever fully forward to FLOAT position.
9. Measure and record length of all depth control cylinder rods.

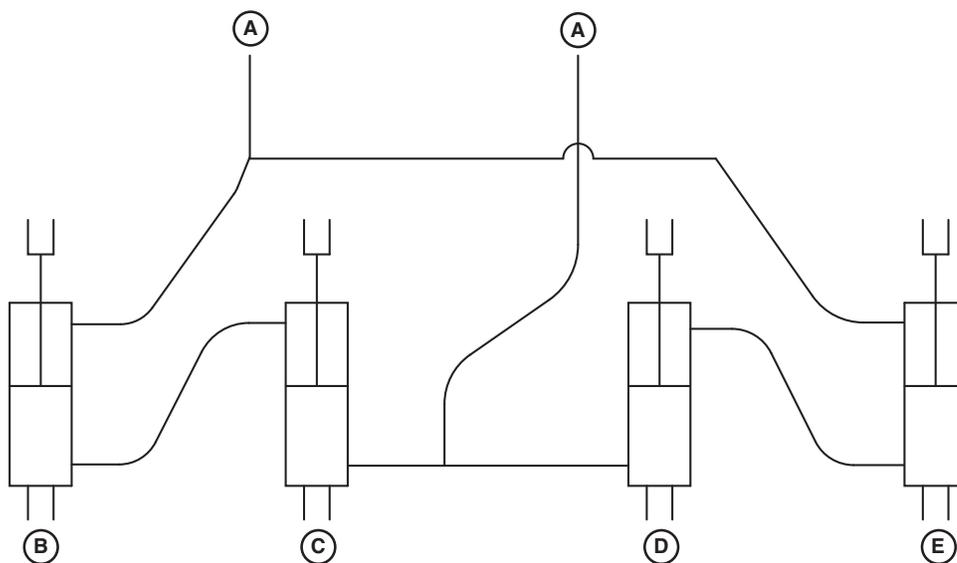
10. Let machine stand for 1 hour. After 1 hour, measure and record rod length for each cylinder as done in step 8. Note if cylinders extended or retracted.

11. If any of depth control cylinders have extended or retracted more than 7 mm (1/4 in), match your

results in table in order to locate leaking cylinders. (See Analyzing Test Results—For Depth Control Internal Leakage Check.)

KB78086,000112F-19-31JAN17

Analyzing Test Results—For Depth Control Internal Leakage Check



N59186—UN—18JAN02

A—To Tractor
 B—#1 Left Wing Cylinder
 C—#2 Left Main Frame Cylinder

D—#3 Right Main Frame Cylinder
 E—#4 Right Wing Cylinder

#1 Left Wing Cylinder	#2 Left Main Frame Cylinder	#3 Right Main Frame Cylinder	#4 Ring Wing Cylinder	Repair Leaking Cylinder
R	NC	NC	NC	#1 L.H. Wing
NC	NC	NC	R	#4 R.H. Wing
NC/E	R	R	R	#2 L.H.M.F.
R	R	R	NC/E	#3 R.H. M. F.
NC/E	R	R	NC/E	#2 and #3 M.F.

In some cases, after repairing main frame cylinders, a wing-frame cylinder leak may be discovered.

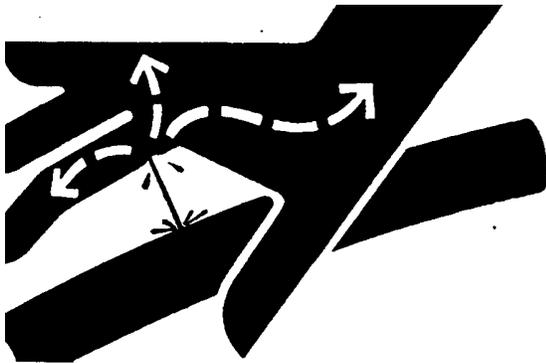
AG.OUO1011,2745-19-24FEB03

Key for Test Results Table

- R = Retracts more than 10 mm (3/8 in)
- E = Extends more than 10 mm (3/8 in)
- NC = No Change or less than 10 mm (3/8 in)
- NC/E = No Change or Extends

NOTE: When a main frame cylinder is leaking, wing-frame on same side will extend in most cases.

Remove Hydraulic Cylinders



X9811—UN—23AUG88



N39547—UN—06OCT88

CAUTION: Serious personal injury can result by attempting to disconnect hydraulic hoses under pressure.

John Deere 8000/9000 Series Tractors: Place No. 1 SCV control in FLOAT position before disconnecting hoses to prevent a sudden accident that could cause severe injury to yourself.

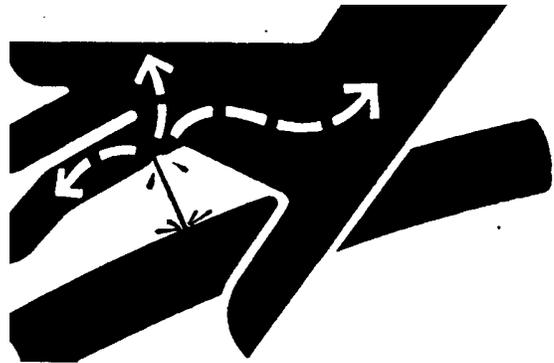
Do not remove or repair wing fold cylinders or hoses with wings in folded position. Air entering the fold cylinder hydraulic circuit can allow wings to fall rapidly when unfolded.

To avoid injury or death to you or others, stand clear of machine when wings are being folded or unfolded. Mechanical or hydraulic failure can allow wings to fall rapidly.

1. Unfold wings (if applicable) and fully lower machine.
2. Relieve pressure before disconnecting hydraulic lines.
3. Disconnect hoses at tractor and from cylinder ports. Cover tractor outlets, cylinder ports, and hose ends.
4. Unpin cylinders. Check and repair as necessary. See your John Deere dealer.
5. Install cylinders, and follow instructions for bleeding cylinders in Bleed Hydraulic Cylinders in this section.

KB78086,0001130-19-20OCT17

Bleed Hydraulic Cylinders



X9811—UN—23AUG88



N39547—UN—06OCT88

CAUTION: Avoid hazards due to escaping fluid under pressure. See Avoid High-Pressure Fluids in the Safety section.

If an accident occurs, see a doctor immediately. Any fluid injected into skin must be surgically removed within a few hours or gangrene can result. Doctors unfamiliar with this type of injury can call Deere & Company Medical Department in Moline, Illinois, or other knowledgeable medical source.

To avoid injury or death to you or others, stand clear of machine when wings are being bled. Mechanical or hydraulic failure can allow wings to fall rapidly.

Be certain cylinder and attaching hoses are fully charged with oil before bleeding system. Failure to do so allows wings to fall rapidly when attempting to lower from folded position.

Extend and retract hydraulic cylinders several times, pausing at full extension for five seconds to remove all trapped air.

KB78086,0001131-19-31JAN17

Cleanliness

When disconnecting hydraulic system for service, protect hose ends, tubing, and components from

contamination with clean, lint-free towels or clean plastic bags.

Before installing cylinders, flush inside of cylinders with clean diesel fuel or petroleum solvent for ten seconds minimum. Do not use water, water soluble cleaners, or compressed air.

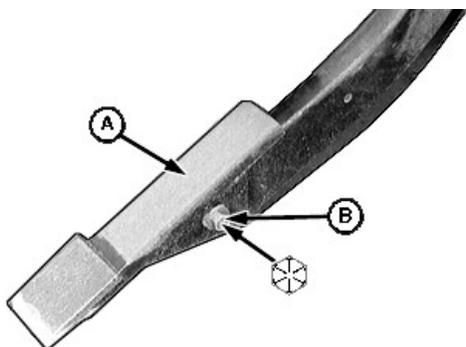
JF28271,000014E-19-14NOV05

Verify taper (C) when installed faces ground.

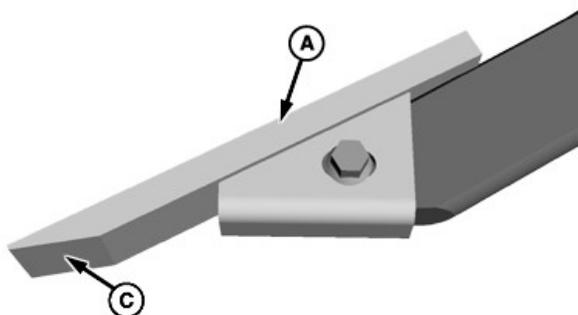
Pull off the old point and slide the new point onto the standard with the taper (C) facing the ground. Attach the point using an SAE Grade 8 flanged cap screw and flanged lock nut.

KB78086,0001132-19-31JAN17

Replace Ripper Point



N500721—UN—07JAN00



N77845—UN—18SEP07

Taper Must Face Ground

- A—Slip-On Point
- B—1/2 x 2-1/2 in SAE Grade 8 Flanged Cap Screw and Flanged Lock Nut (Welded Points) or 1/2 x 3-1/4 in SAE Grade 8 Flanged Cap Screw (Cast LaserRip™ Points)
- C—Taper Faces Ground

CAUTION: Worn point edges can be sharp enough to cut, causing serious injury to yourself or others. Wear protective gloves while handling sharp-edged points.

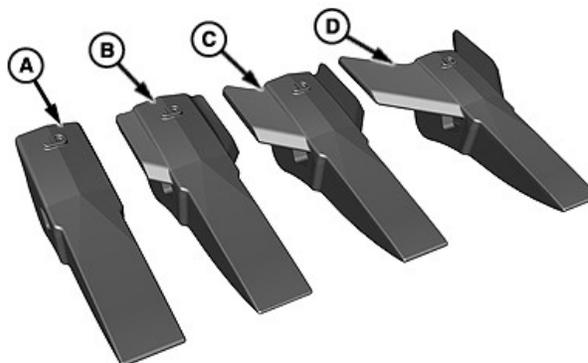
Replaceable ripper point (A) allows you to exchange a worn or damaged standard point with a new one.

To replace the point, remove flange lock nut and flange cap screw (B).

IMPORTANT: Prevent cap screw breakage by not over-tightening lock nut.

LaserRip is a trademark of Deere & Company

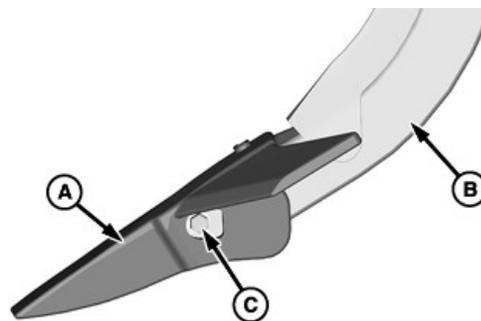
Attach Cast LaserRip Ripper Points



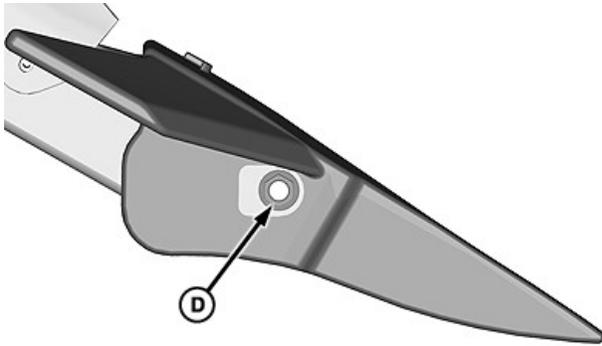
N96490—UN—25JAN12

- A—Cast Point, 58 mm (2-3/4 in)
- B—Cast LaserRip™ Point, 127 mm (5 in)
- C—Cast LaserRip™ Point, 178 mm (7 in)
- D—Cast LaserRip™ Point, 254 mm (10 in)

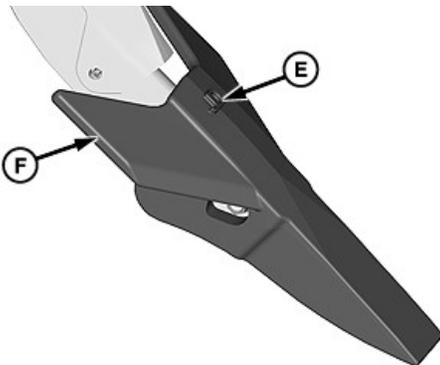
NOTE: Flange cap screw and flange lock nut retain to STANDARD ONLY. Flange cap screw head and flange lock nut insure ripper point retention on standard.



N96487—UN—25JAN12



N96488—UN—25JAN12



N96489—UN—25JAN12

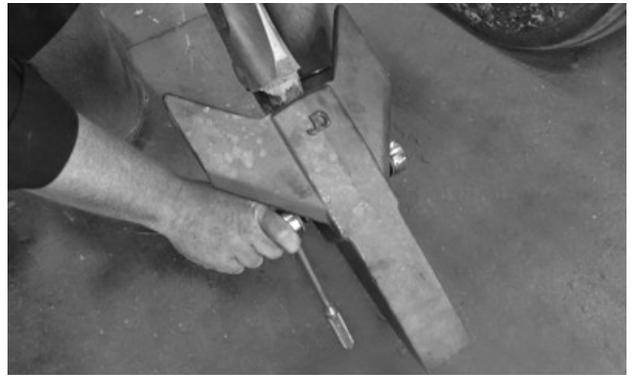
- A—LaserRip™ Ripper Point
- B—Standard
- C—Flange Head Cap Screw
- D—Flange Lock Nut
- E—John Deere Trademark—JD
- F—Wing Taper Points Straight

1. Install LaserRip™ ripper point (A) to standard (B) using flange head cap screw (C) and flange lock nut (D). Verify John Deere trademark JD is centered and at ripper point top when installed. Wing tapers (F) MUST point straight.



N89622—UN—26OCT10

Air Gun With 3/4 in Sockets



N89623—UN—26OCT10

Two 3/8 in Drive Ratchets



N89624—UN—26OCT10

3/8 in Drive Ratchet And Breaker Bar



N89625—UN—26OCT10

3/8 in Drive Ratchet or Breaker Bar And Needle Nose Locking Pliers

IMPORTANT: To ensure proper installation, use one of these combinations of special tools to install 10 in LaserRip™ points.

2. Tighten flange lock nut to specification.

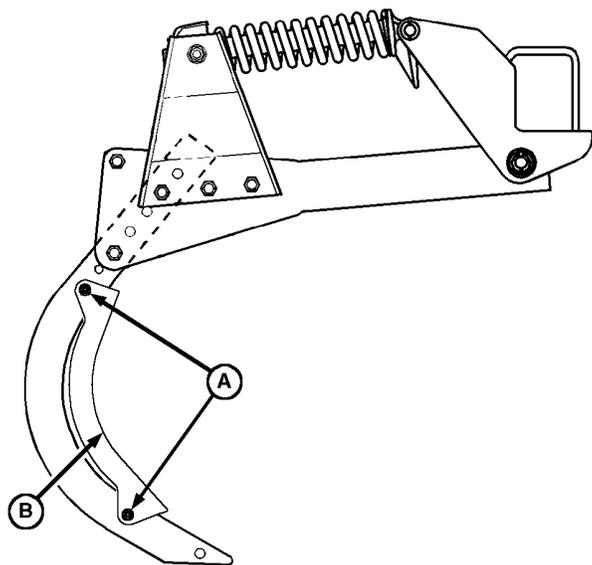
Specification

Flange Lock Nut—Torque. 101 N·m
(75 lb·ft)

Replace Shank Wear Shin (If Equipped)

NOTE: Wear shins are available to prevent wear on the front surface of shank.

1. Close transport lockup valve (A).



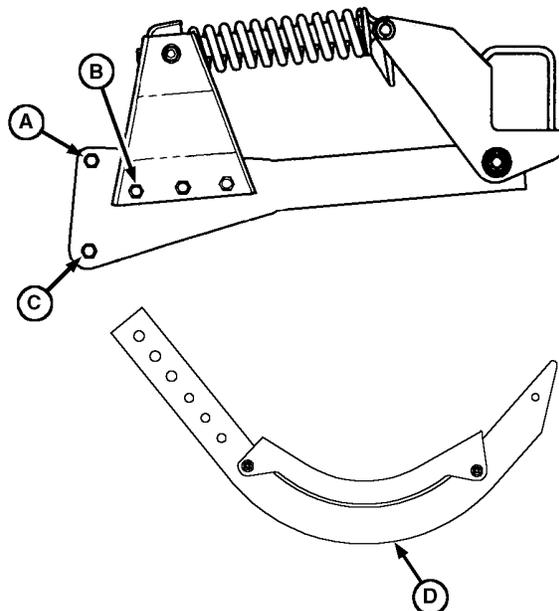
A—Spring Pin, 3/8 x 2-1/4 in (2 used)
B—Wear Shin

N56076—UN—19FEB01

NOTE: Cushion-trip standard shown.

1. Remove spring pins (A).
2. Position wear shin (B) with part number on bottom next to ripper point.
3. Install shin using spring pins.

AG,OUO6028,704-19-20OCT17



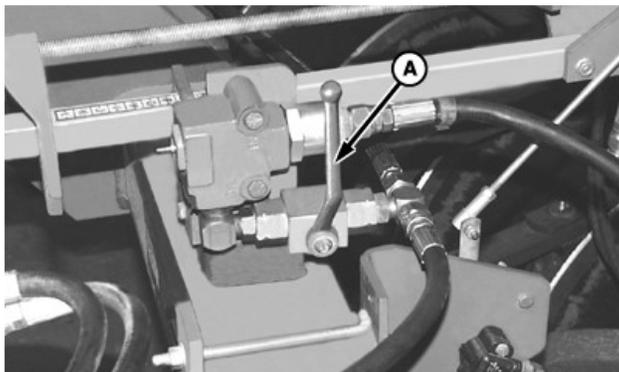
A—Cap Screw
B—Cap Screw
C—Cap Screw
D—Shank with Wear Shin

N56075—UN—19FEB01

2. Remove cap screws (B) and (C), and loosen cap screw (A).

NOTE: The operating depth of shank is based on operating requirements and tractor horsepower.

Replace Shank—Cushion-Trip Standard



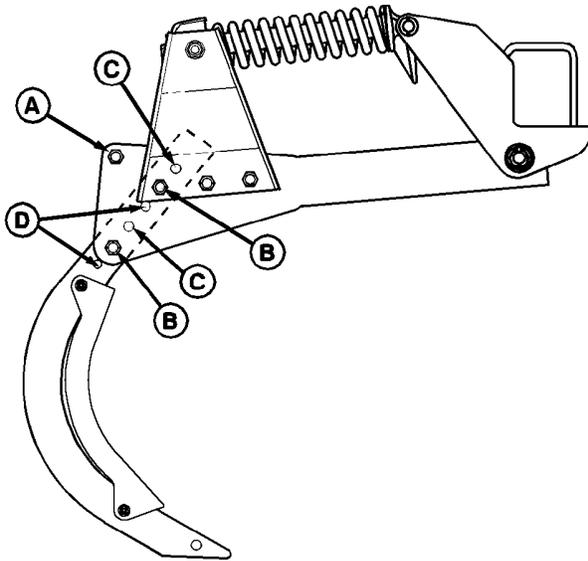
N61821—UN—25FEB03

Transport Lockup Valve in CLOSED Position

A—Transport Lockup Valve

CAUTION: Close transport lockup valve (A) when working on machine. Machine can fall, causing death or injury to you or others.

Tighten Cushion-Trip Standard U-Bolts



N56073—UN—19FEB01

- A—Cap Screw
- B—Center Position (Initial Starting Depth)
- C—Lower Position (Point Will Run Deepest)
- D—Upper position (Point Will Run Shallowest)

3. Align two mounting holes in the standard base with appropriate two mounting holes in shank at desired setting, (B), (C), or (D). (Illustration shows shank holes at (B) aligned.)
4. Install two cap screws and nuts at selected position. Tighten nuts to shown specification.

Specification

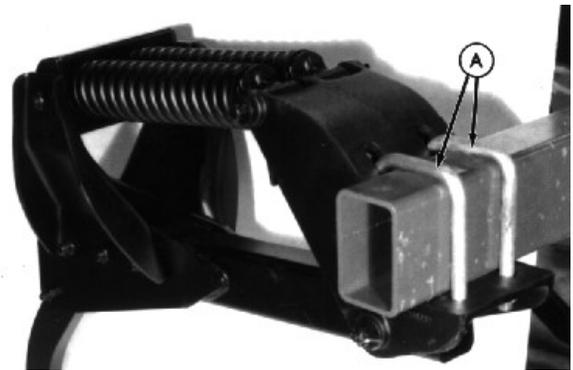
Nuts—Torque. 305 N·m
(225 lb·ft)

5. Tighten cap screw (A) to shown specification, but do not close gap in casting.

Specification

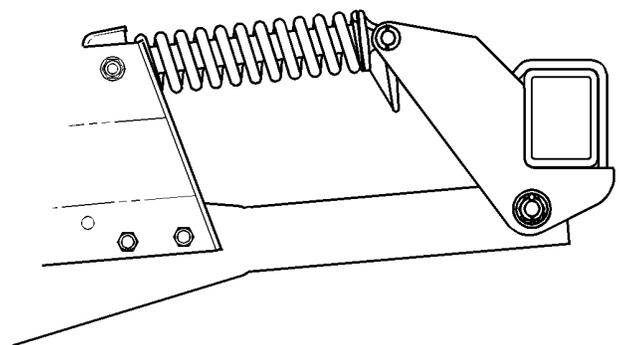
Shank Cap Screw—Torque. 217 N·m
(160 lb·ft)

KB78086,0000B56-19-20OCT17



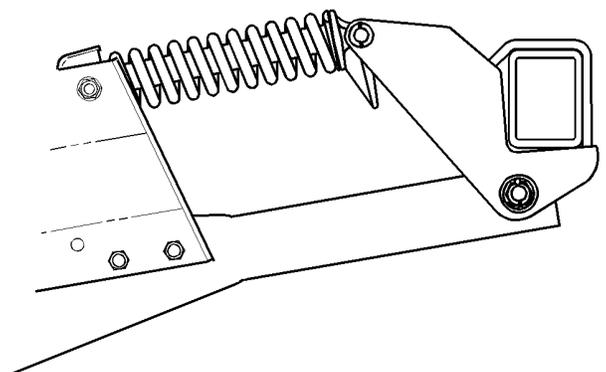
N42156HP—UN—13MAR95

Cushion-Trip Standard



N42168AU—UN—07DEC98

Evenly Tightened



N42168AV—UN—07DEC98

Not Evenly Tightened

A—U-bolts (2 used)

CAUTION: Standards weigh 127 kg (280 lb), they are heavy and awkward to handle, and can cause serious injury to you or others. Use suitable lifting device to support standard when servicing standards or U-bolts.

IMPORTANT: To prevent damage to machine, U-bolt nuts must be tightened **EVENLY** so standard is **SQUARE** on frame.

Retighten U-bolt (A) nuts after 10 hours of use as follows:

1. Partially tighten bottom nuts.
2. Tighten top nuts to specification.

Specification

Top Nuts—Torque. 407 N·m
(300 lb·ft)

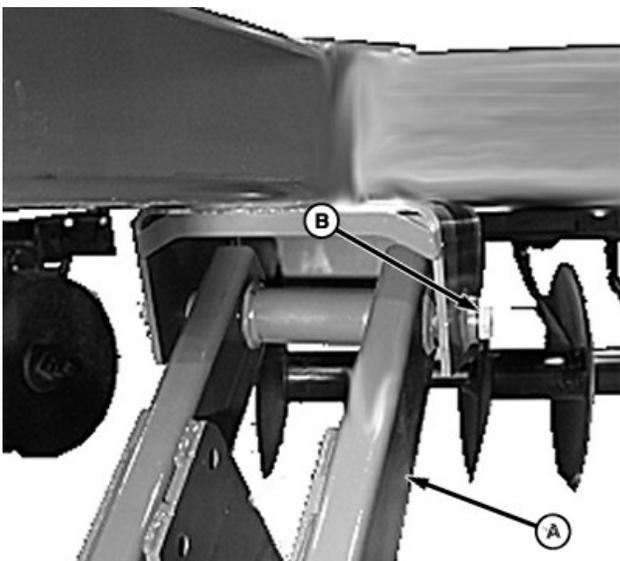
3. Tighten bottom nuts to specification.

Specification

Bottom Nuts—Torque. 407 N·m
(300 lb·ft)

NXL,PDI510,R19B-19-29APR16

Tighten Wheel Arm Module Hardware



N51723—UN—07JAN00

A—Wheel Arm
B—Bolt

IMPORTANT: Lock nuts MUST be tightened to specification to prevent pivot bearing failure on wheel arms (A).

Lock nut MUST be retightened to specification after 10 hours of use.

1. Tighten lock nut on 394 mm 15-1/2 in long bolt (B) to specification.

Specification

Lock Nut—Torque. 678 N·m
(500 lb·ft)

2. Repeat process on the other wheel arm.

OOU6061,000214A-19-20OCT17

Replace Scrapers

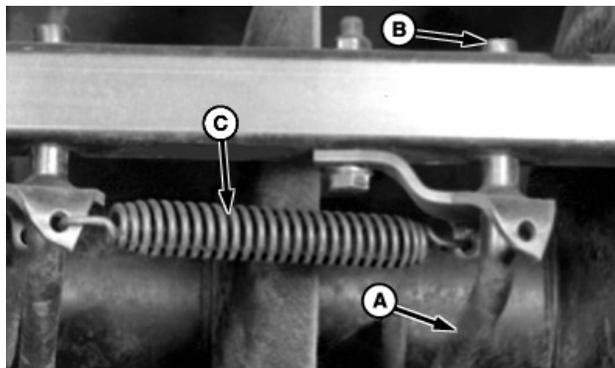


N42181WZ—UN—17DEC97

A—Lock Nut

CAUTION: Self-adjusting scrapers are sharp and spring-loaded and can cause serious injury to you or others. Wear protective gloves to help prevent injury from cutting edges of blades or scraper.

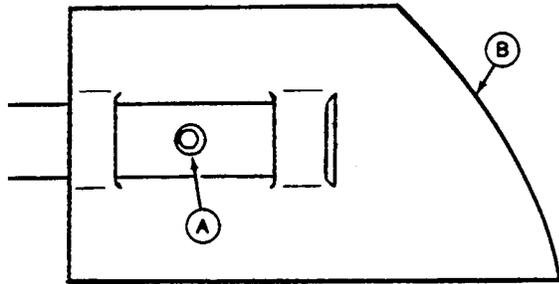
1. Remove lock nut (A), cap screw, and washer.



N93680—UN—10AUG11

A—Scraper Arm
B—Scraper Tube
C—Spring

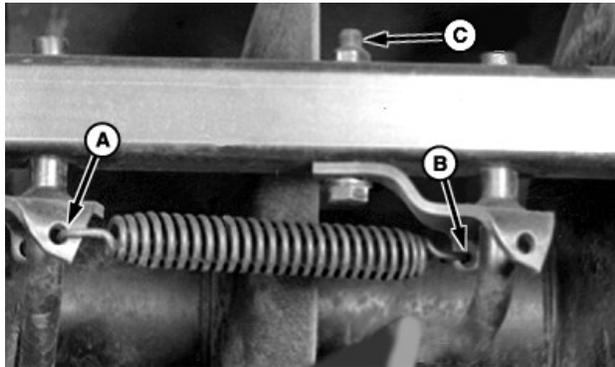
2. Attach locking pliers to scraper arm (A) that has spring in lower hole.
3. Pull scraper against spring and outward from scraper tube (B).
4. Disconnect spring (C).



N41035—UN—06OCT88

A—Spring Pin
B—Scraper

- Remove spring pin (A) and scraper (B).
- Install new scraper on scraper arm. Drive in new spring pin centered in scraper arm.



N93681—UN—09AUG11

A—Upper Hole
B—Lower Hole
C—Lock Nut

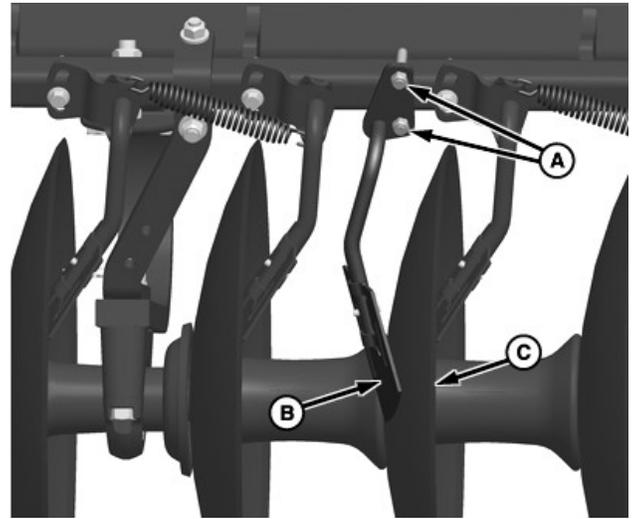
- Install scraper with spring in upper hole (A) first.

IMPORTANT: Premature scraper wear can occur. Do not position scrapers too tightly against blades. Gangs should revolve freely.

- Connect spring to lower hole (B), pull against spring tension; starting scraper arm to hole of scraper tube. Straighten scraper arm with hole in tube and work scraper arm in place. Remove locking pliers.
- Install cap screw, washer, and new lock nut (C).

NX_M63750,AX-19-09AUG11

Adjust Convex Scraper—Optional



N93690—UN—16AUG11

A—Lock Nuts
B—Scraper Assembly
C—Blade

- Loosen lock nuts (A).
- Slide scraper assembly (B) until edge is 1.5—3 mm (1/16—1/8 in) from blade (C).

NXH8,M63760,ZJ1-19-15AUG11

Service Gangs

Necessary Tools
Hammer, 907 g (32 oz)
Wrench, Large
Torque Wrench, 678 N·m (500 lb·ft) Capacity

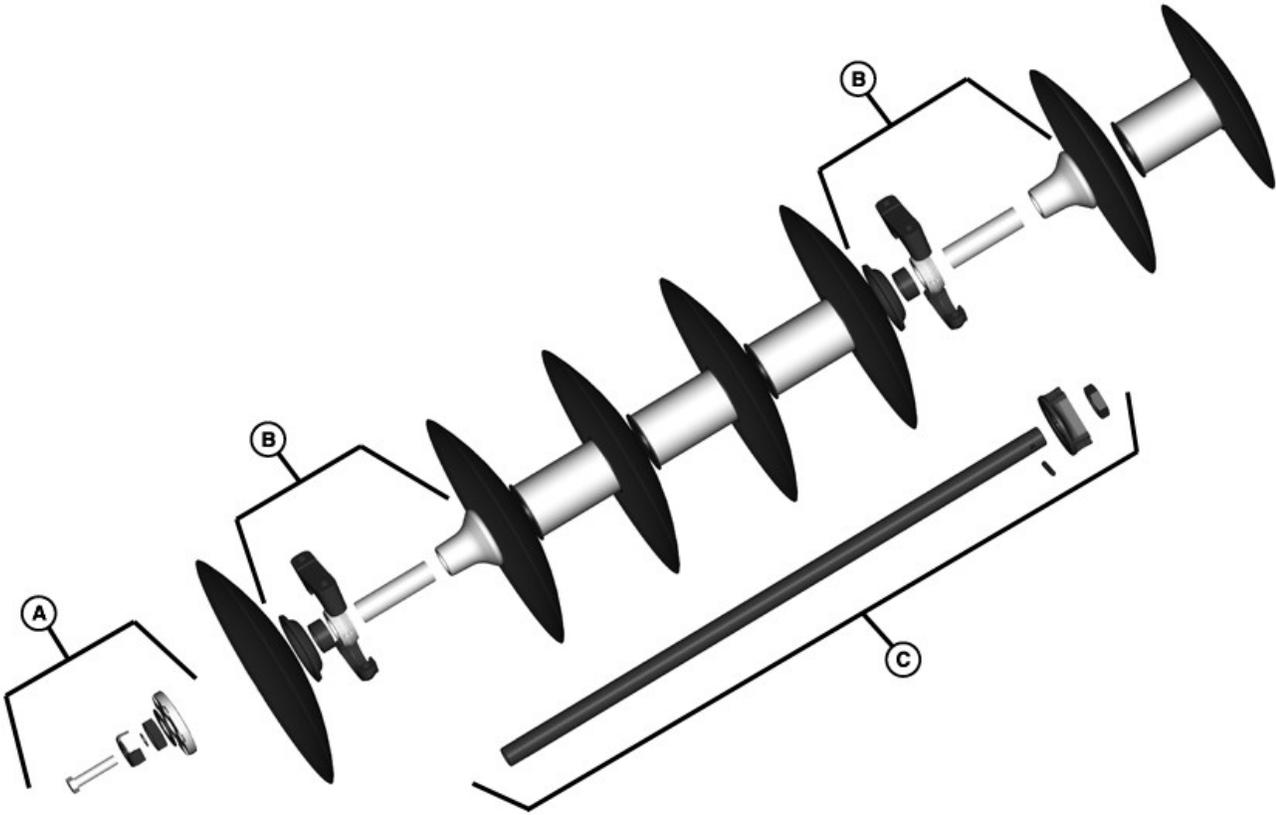
⚠ CAUTION: Gangs weigh approximately 685 kg (1510 lb), are sharp, and can fall or roll causing serious injury or death to you or others. When removing gangs, use suitable lifting device or jackstand to prevent injury or damage.

Use large wrench to keep gang from rotating when attached to machine. Use wooden blocks to keep gang from rolling when removed from machine. Wear gloves and other safety equipment to avoid injury.

- Remove nuts and cap screws fastening gang bearings to standards.
- Raise machine slightly to roll gang away from machine.
- Use large wrench to prevent gang from rotating. Support frame.
- Only use tools described in this section to loosen or tighten gang nuts.

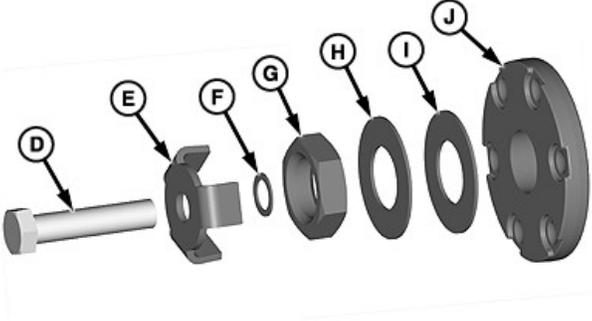
KB78086,0000ABF-19-15FEB18

Gang Component Diagram



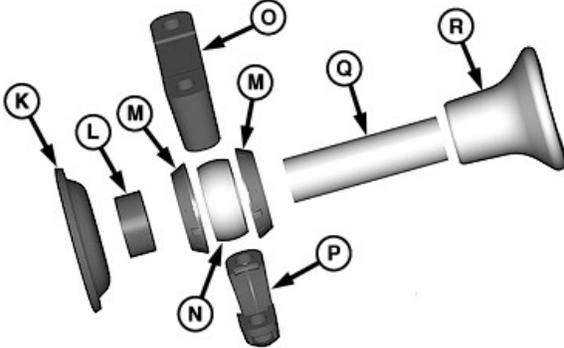
Gang Components

N90989—UN—04FEB11



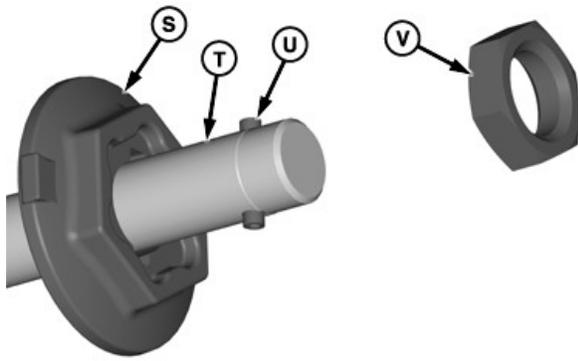
(A) Gang Nut Assembly

N91022—UN—19MAR18



(B) Bearing Assembly

N90994—UN—17MAR11



N90991—UN—17MAR11

(C) Gang Bolt Assembly

- C—Gang Bolt Assembly
- D—Lock Bolt, M24
- E—Collar
- F—Washer, Serrated
- G—Gang Nut, M50
- H—Washer
- I—Spacer
- J—Cast Ring
- K—Special Washer
- L—Spacer
- M—Bearing Liner
- N—Bearing
- O—Upper Bearing Casting
- P—Lower Bearing Casting
- Q—Sleeve
- R—Spool
- S—Head Casting
- T—Gang Bolt
- U—Roll Pin
- V—Nut

- A—Gang Nut Assembly
- B—Bearing Assembly

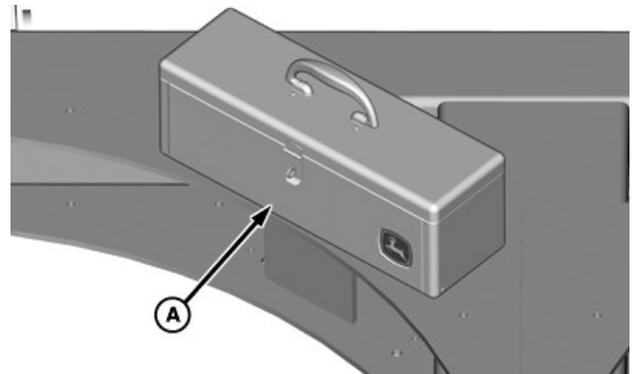
*NOTE: Gang shown for general reference only.
Component order and quantity vary with machine.
Number of spacers (I) varies with disk blade type.*

Inspect following parts for wear or damage:

- Bent gang bolt (T)
- Worn or damaged special washers (K), spacers (L), or spools (R)
- Mushroomed spools (R)
- Loose, worn, or broken bearing liners (M)
- Loose, worn, or rough bearings (N)
- Worn, broken, distorted, or loose bearing castings (O) and (P)
- Broken sleeves (Q)
- Worn or broken disk blades

KB78086,0000ABE-19-02NOV17

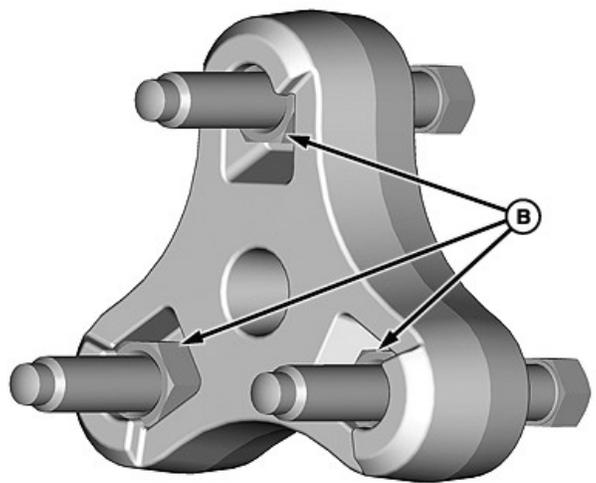
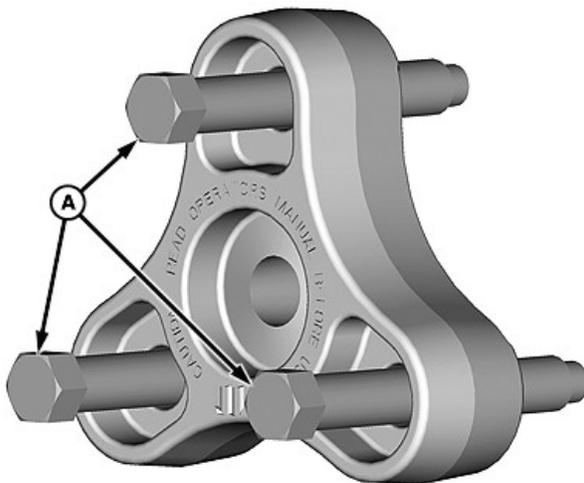
Assemble Gang Bolt Tensioner



N95425—UN—19OCT18

A—Toolbox

1. Remove gang bolt tensioner from toolbox (A).



Gang Bolt Tensioner

N92077—UN—13OCT11

A—Cap Screws (3 used)

B—Nuts (3 used)

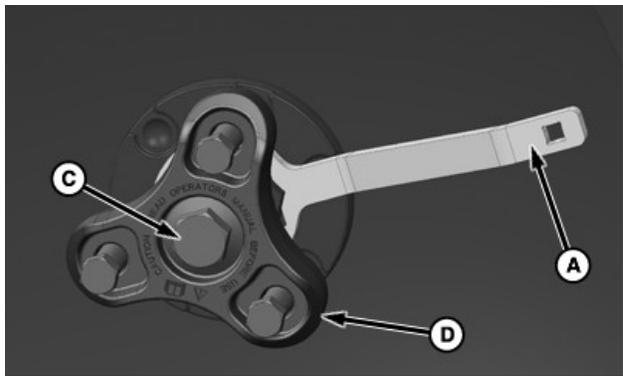
2. Assemble gang bolt tensioner as shown.

IMPORTANT: Clean cap screws and lubricate threads using grease before each use.

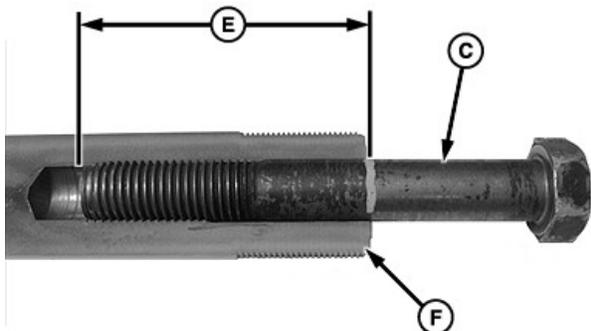
3. Lubricate threads of cap screws (A) and nuts (B) using grease.

KB78086,0000ADF-19-20OCT17

Disassemble Gangs

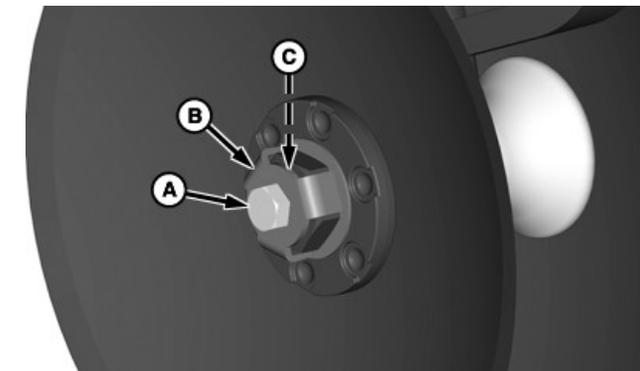


N113120—UN—16JUL14



Cross Section View

N92716—UN—19OCT18



N90998—UN—10FEB11

- A—Lock Bolt, M24
- B—Collar
- C—Washer, Serrated

IMPORTANT: Before disassembling a gang, record diameter and location of blades and location of bearings for correct gang assembly.

Retain gang bolt hardware in order removed. (See GANG COMPONENT DIAGRAM in this manual.)

1. Remove and retain M24 lock bolt (A), collar (B), and serrated washer (C).

- A—Wrench
- B—Gang Nut, M50
- C—Cap Screw, M24 x 170 Grade 10.9
- D—Gang Bolt Tensioner
- E—Dimension, Length 106 mm (4.17 in)
- F—Gang Bolt

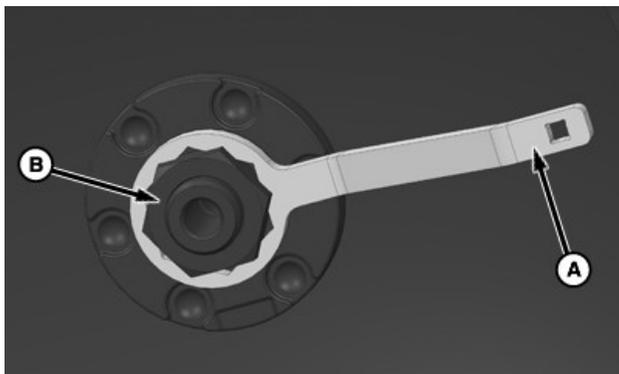
2. Place wrench (A) on the gang nut (B).

IMPORTANT: Cap screw (C) MUST engage gang bolt 106 mm (4.17 in) (E) to prevent gang bolt (F) damage.

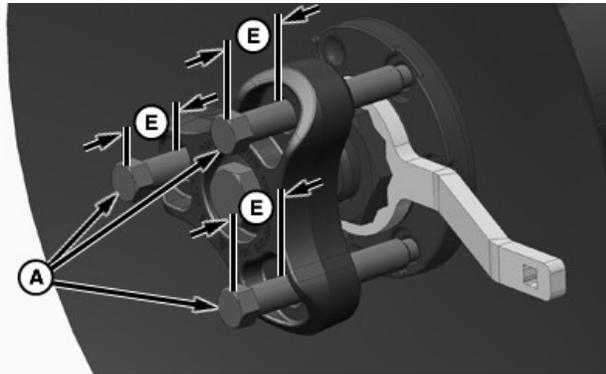
Lubricate cap screw using grease on threads.

NOTE: Mark cap screw (C) to determine proper gang bolt engagement.

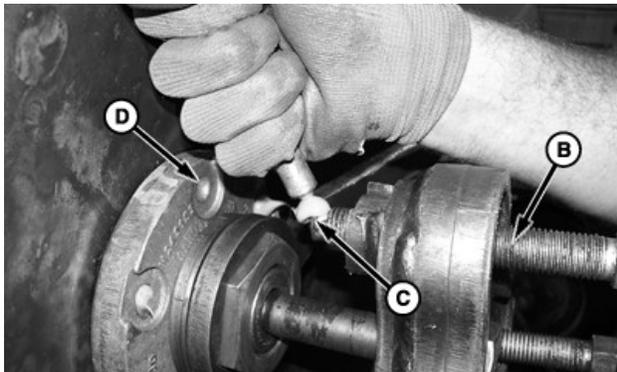
3. Lubricate threads on M24 x 170 cap screw (C) using grease and install through the gang bolt tensioner (D) as shown. Verify that the gang bolt threads are engaged a minimum of 106 mm (4.17 in) (E).



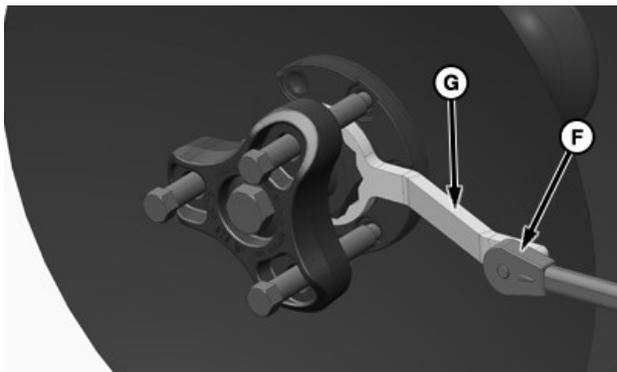
N113119—UN—16JUL14



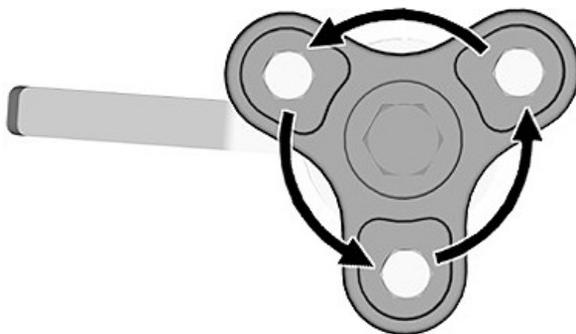
N113121—UN—16JUL14



N92057—UN—26APR11



N113122—UN—16JUL14



N92712—UN—19FEB15

Tightening Sequence Diagram

- A—Cap Screw (3 used)
- B—Threads
- C—Contact Points
- D—Dimple
- E—Dimension, Length

- F—Ratchet
- G—Wrench

IMPORTANT: Lubricate compression cap screws (A) using grease on threads (B), contact points (C), and cast ring dimples (D).

Compression cap screws **MUST** align with the cast ring dimples.

4. Lubricate compression cap screws (A) using grease on threads (B), contact points (C), and cast ring dimples (D).
5. Hand tighten compression cap screws until fully engaged in the gang bolt tensioner. Verify that compression cap screws are equal length (E) to the gang bolt tensioner.

IMPORTANT: DO NOT use an impact wrench when tightening compression cap screws to prevent damaging the gang bolt tensioner.

DO NOT exceed 190 N·m (140 lb·ft) when tightening compression cap screws to prevent damaging the gang bolt tensioner.

NOTE: Compression cap screws do not reach equal torque values simultaneously. Tightening cap screws individually is necessary to achieve correct gang bolt tension.

6. Tighten compression cap screws in a circular pattern, turning one a full rotation before moving to the next. (See Tightening Sequence Diagram.)
7. After each compression cap screw is tightened two full rotations, attempt to remove gang nut using ratchet (F) and wrench (G).

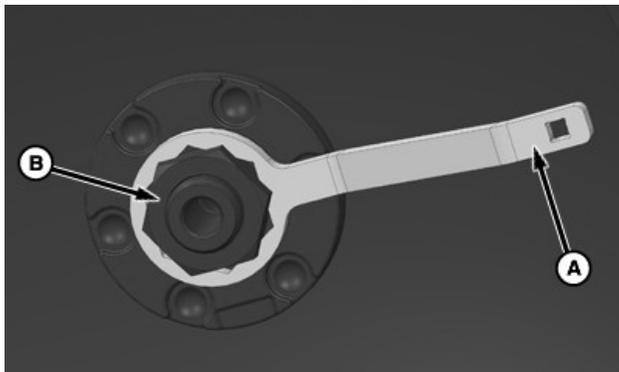
IMPORTANT: DO NOT use an impact wrench when tightening compression cap screws to prevent damaging the gang bolt tensioner.

DO NOT exceed 190 N·m (140 lb·ft) when tightening compression cap screws to prevent damaging the gang bolt tensioner.

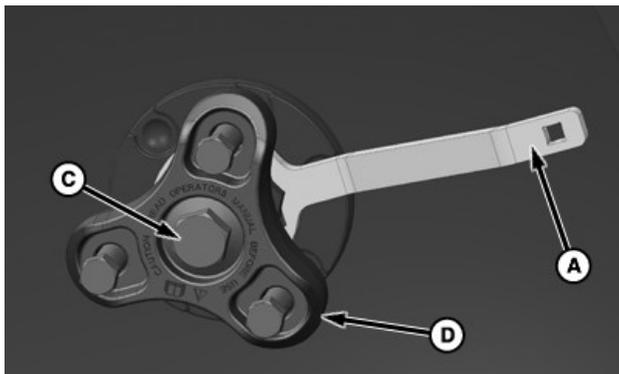
NOTE: Compression cap screws do not reach equal torque values simultaneously. Tightening cap screws individually is necessary to achieve correct gang bolt tension.

8. If the nut cannot be removed, tighten each compression cap screw another quarter turn in a circular pattern until nut can be removed. (See Tightening Sequence Diagram.)
9. Remove gang bolt tensioner by loosening each compression cap screw one full rotation in sequence. Repeat if necessary.
10. Remove and retain gang nut. Disassemble gang.

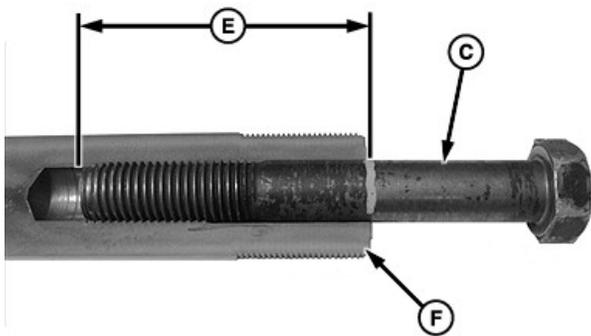
Assemble Gangs



N113119—UN—16JUL14



N113120—UN—16JUL14



N92716—UN—19OCT18

Cross Section View

- A—Wrench
- B—Gang Nut, M50
- C—Cap Screw, M24 x 170 Grade 10.9
- D—Gang Bolt Tensioner
- E—Dimension, Length 106 mm (4.17 in)
- F—Gang Bolt

IMPORTANT: Before assembly, remove all dirt, grit, rust, or paint from spools and center of blades using wire brush. There must be metal-to-metal contact between spools and blades for correct gang tension.

1. Assemble components in the order they were removed. (See GANG COMPONENT DIAGRAM.)

IMPORTANT: If a gang bolt tensioner (D) is unavailable, M50 gang nut (B) MUST be tightened to specification.

Specification

M50 Gang Nut (B)—Torque..... 2644 N·m
(1950 lb·ft)

2. Place wrench (A) on the gang nut.

CAUTION: Hammer can deflect when striking wrench (A) causing injury. Take necessary precautions when performing this step to avoid injury.

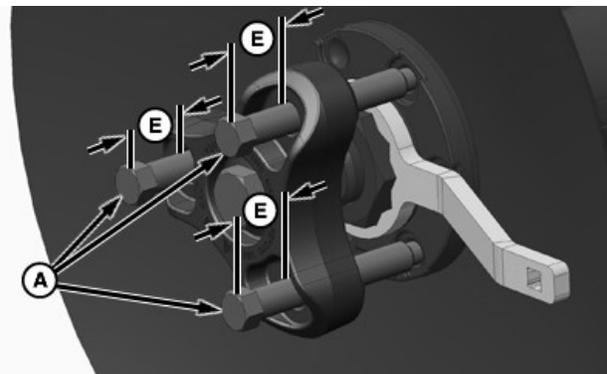
3. Tighten M50 gang nut (B) and remove gaps between components using wrench and hammer.

IMPORTANT: Cap screw (C) MUST engage gang bolt 106 mm (4.17 in) (E) to prevent gang bolt (F) damage.

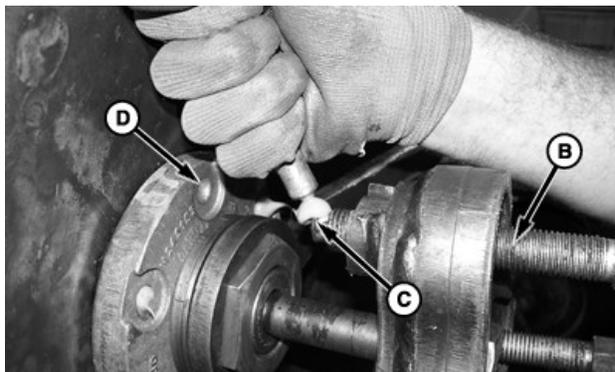
Clean cap screws and lubricate threads using grease before each use.

NOTE: Mark cap screw (C) to determine proper gang bolt engagement.

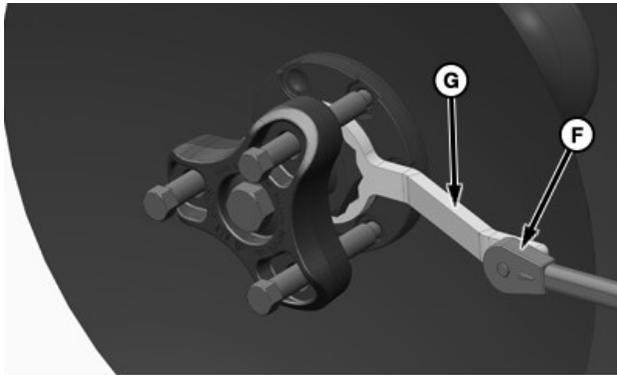
4. Lubricate threads on M24 x 170 cap screw (C) using grease and install through the gang bolt tensioner (D) as shown. Verify that the gang bolt threads are engaged a minimum of 106 mm (4.17 in) (E).



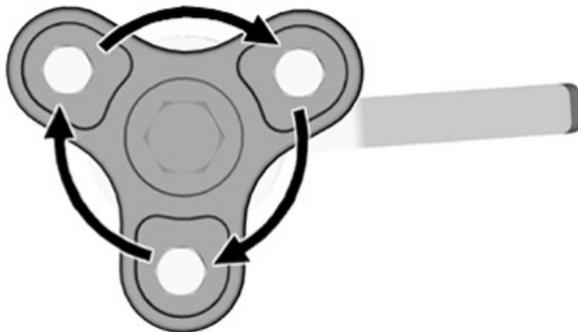
N113121—UN—16JUL14



N92057—UN—26APR11



N113122—UN—16JUL14



N92060—UN—19FEB15

Tightening Sequence Diagram

- A—Cap Screw (3 used)
- B—Threads
- C—Contact Points
- D—Dimple
- E—Dimension, Length
- F—Torque Wrench
- G—Wrench

IMPORTANT: Lubricate compression cap screws (A) using grease on threads (B), contact points (C), and cast ring dimples (D).

Compression cap screws MUST align with the cast ring dimples.

5. Lubricate compression cap screws (A) using grease on threads (B), contact points (C), and cast ring dimples (D).
6. Hand tighten compression cap screws until fully engaged in the gang bolt tensioner. Verify that compression cap screws are equal length (E) to the gang bolt tensioner.

IMPORTANT: DO NOT use an impact wrench when tightening compression cap screws to prevent damaging the gang bolt tensioner.

NOTE: Compression cap screws do not reach equal torque values simultaneously. Tightening cap screws individually is necessary to achieve correct gang bolt tension.

7. Tighten each compression cap screw a quarter turn

in a circular pattern until specification is reached. (See Tightening Sequence Diagram.)

Specification

Compression Cap	
Screw—Torque.	190 N·m (140 lb·ft)

8. PREFERRED ASSEMBLY METHOD:

1. Adjust torque wrench (F) to specification.

Specification

Torque Wrench Setting—Torque.	271 N·m (200 lb·ft)
---------------------------------------	------------------------

2. Tighten gang nut using torque wrench inserted into end of wrench (G).

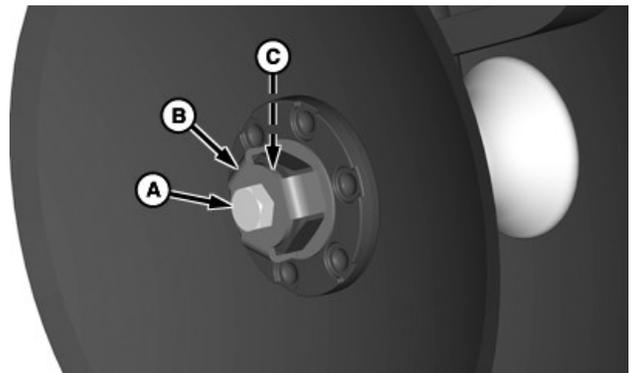
9. ALTERNATE ASSEMBLY METHOD:

⚠ CAUTION: Hammer can deflect when striking wrench (G) causing injury. Take necessary precautions when performing this step to avoid injury.

IMPORTANT: Use 907 g (32 oz) hammer ONLY.

1. Tighten gang nut using hammer and wrench (G).
2. Strike wrench handle 10 times minimum **AFTER** nut stops rotating.

10. Remove gang bolt tensioner by loosening each compression cap screw one full rotation in sequence.



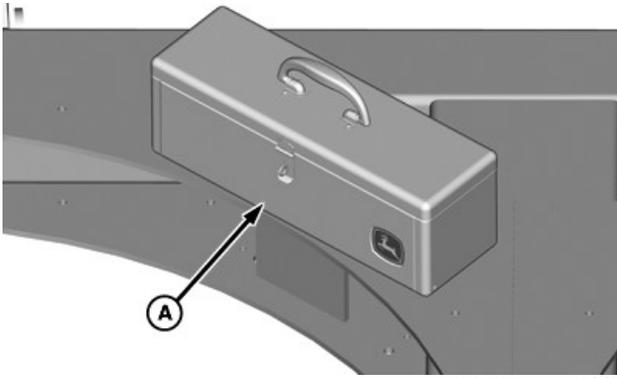
N90998—UN—10FEB11

- A—Lock Bolt, M24
- B—Collar
- C—Washer, Serrated

11. Install M24 lock bolt (A), collar (B), and serrated washer (C) and tighten to specification.

Specification

Lock Bolt, M24—Torque.	678 N·m (500 lb·ft)
--------------------------------	------------------------



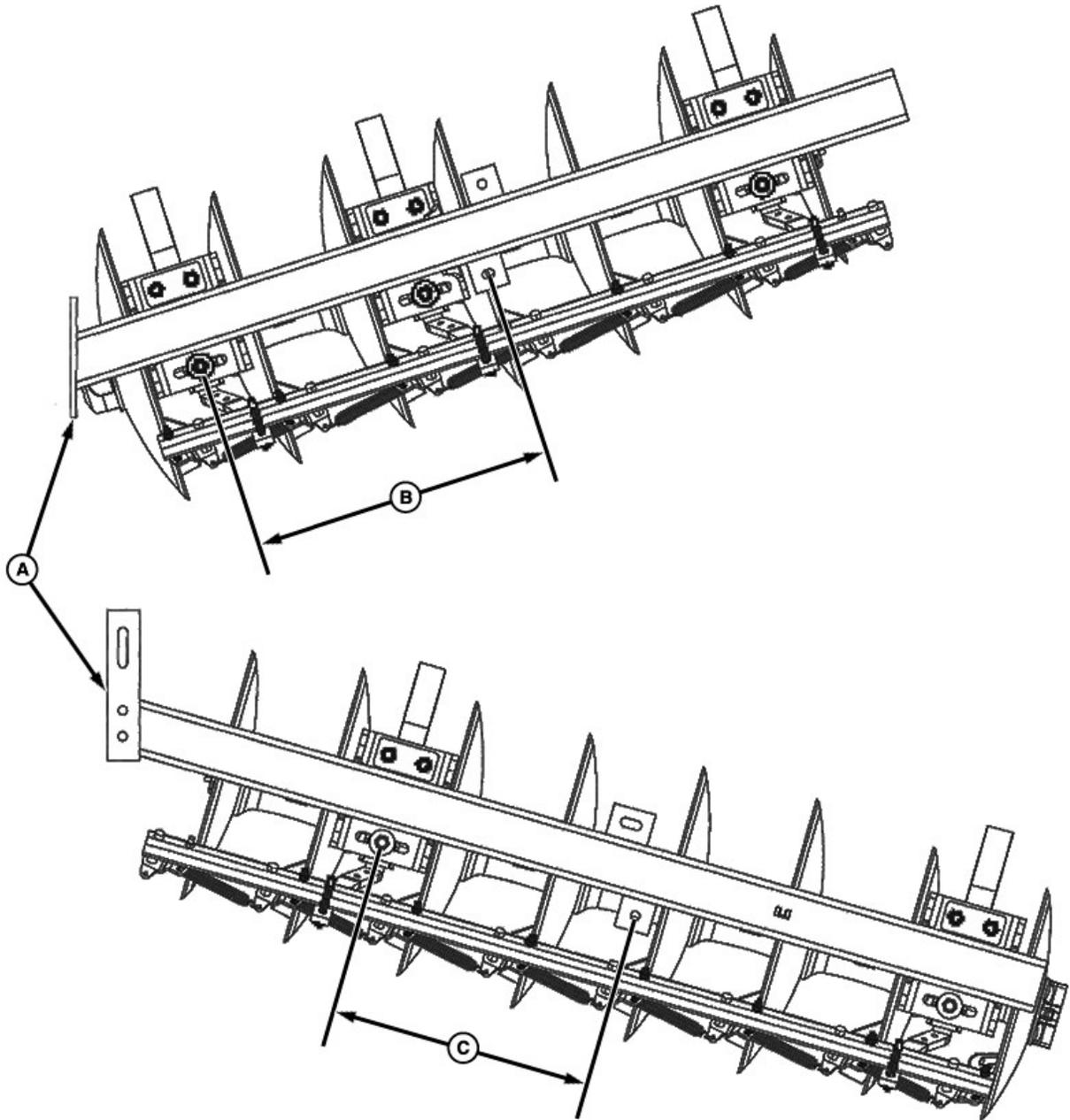
N95425—UN—19OCT18

A—Toolbox

12. Disassemble gang bolt tensioner and store in toolbox (A).

KB78086.0000ABC-19-20OCT17

5-Standard—Right-Hand Disk Gangs Illustrated



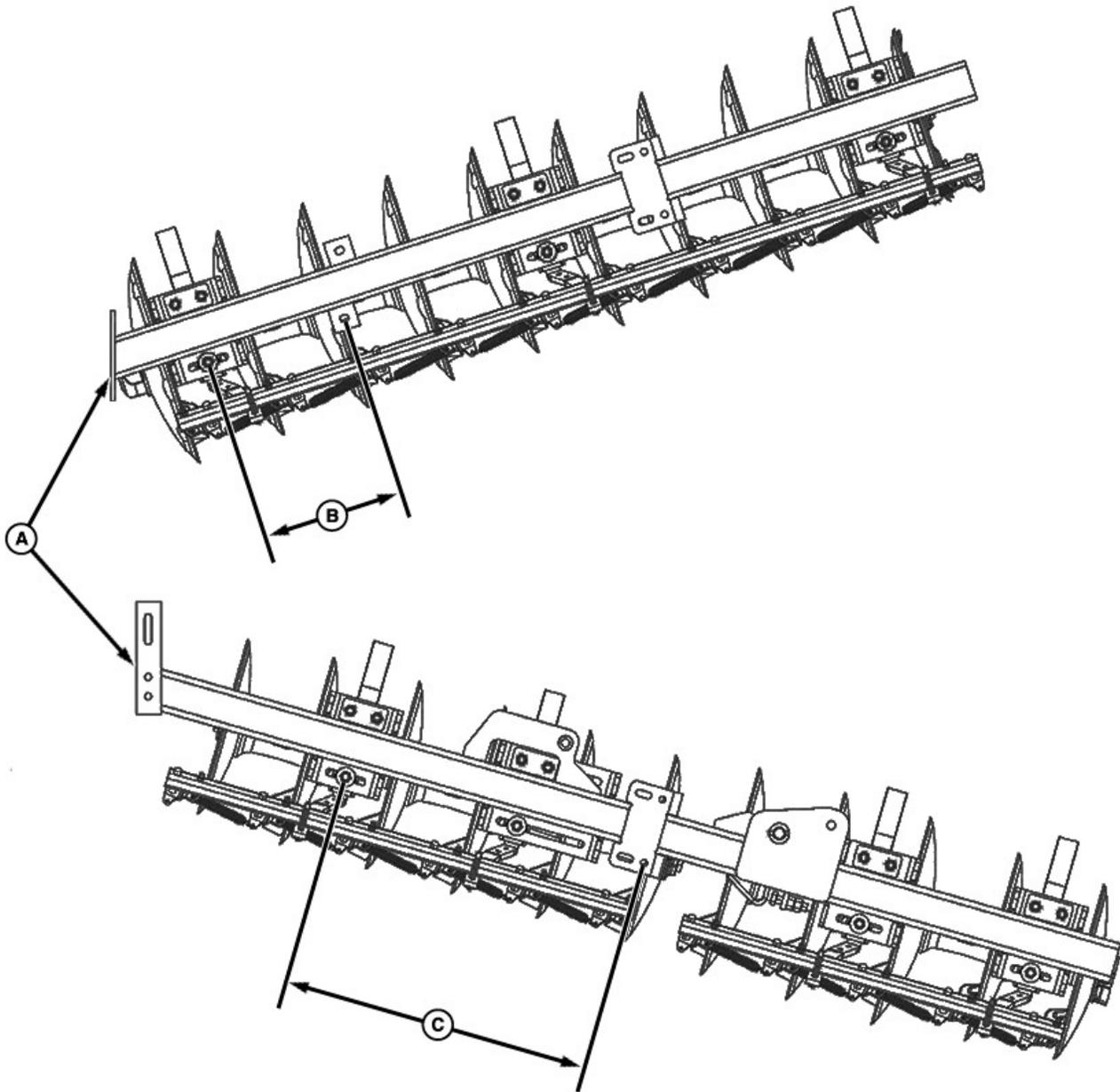
A—Disk Gangs, 279 mm (11 in) Spacing
B—715.7 mm (28.18 in)

C—623.6 mm (24.55 in)

N128390—UN—01FEB17

KB78086.000113C-19-01FEB17

7-Standard Rigid and Narrow Transport—Right-Hand Disk Gangs Illustrated



A—Disk Gangs, 279 mm (11 in) Spacing
B—448.6 mm (17.66 in)

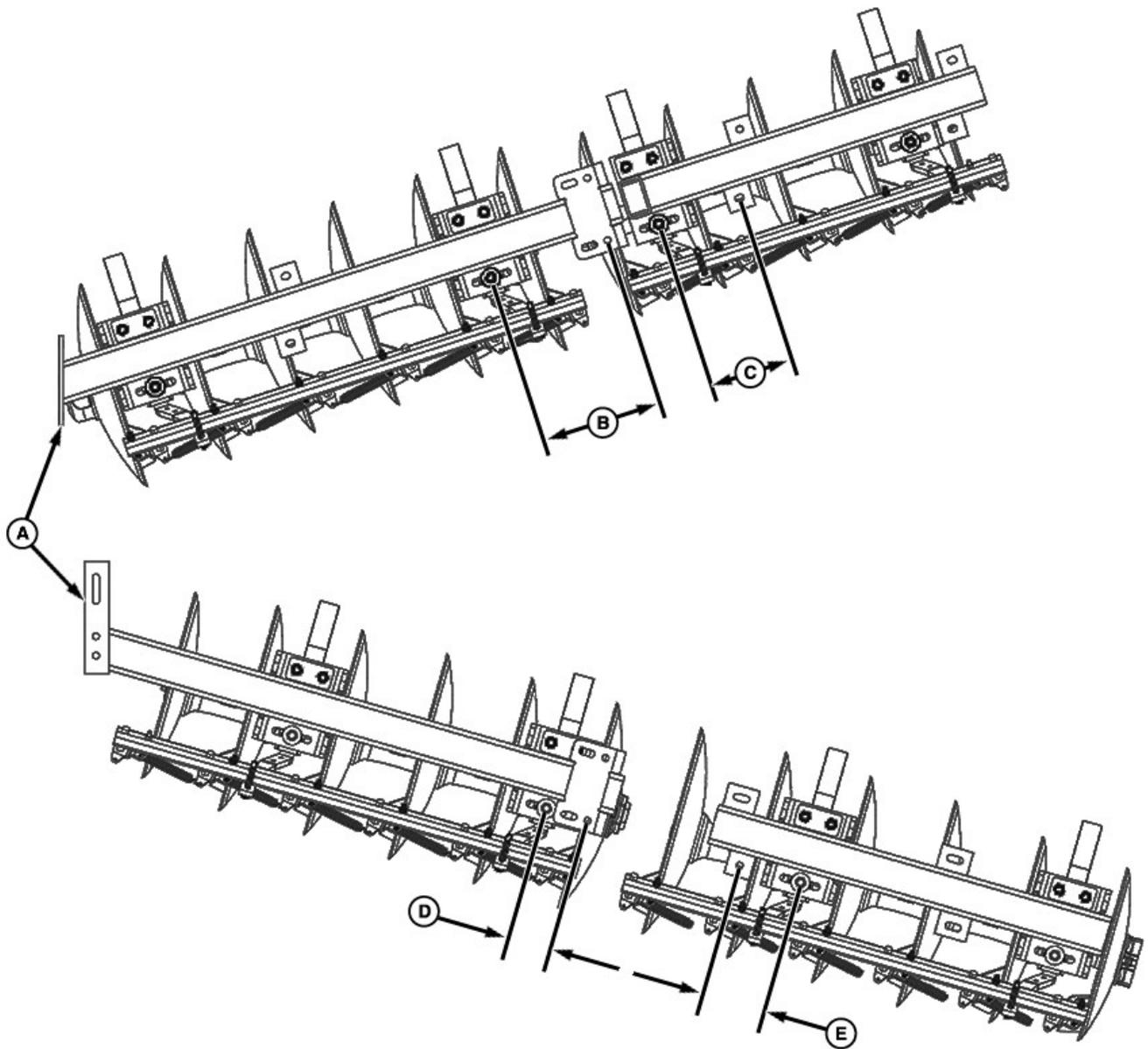
C—974.3 mm (38.36 in)

N128391—UN—01FEB17

*NOTE: The narrow transport option is shown.
Dimensions are the same for both types of
machines.*

KB78086,000113B-19-01FEB17

7-Standard Folding—Right-Hand Disk Gangs Illustrated



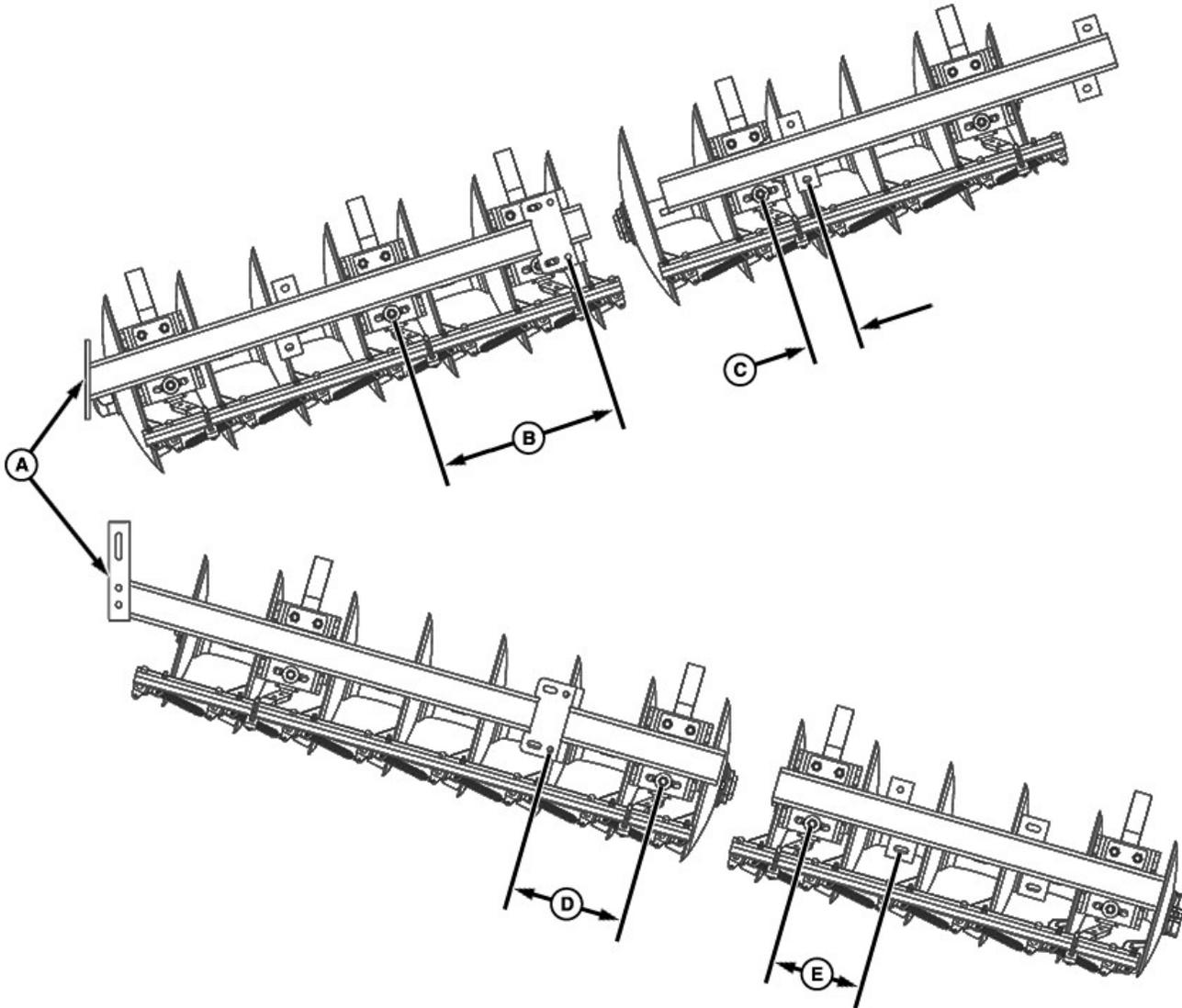
A—Disk Gangs, 279 mm (11 in) Spacing
B—388.3 mm (15.28 in)
C—264.9 mm (10.43 in)

D—135.7 mm (5.34 in)
E—200 mm (7.87 in)

N128389—UN—01FEB17

KB78086,0001138-19-01FEB17

9-Standard—Right-Hand Disk Gangs Illustrated



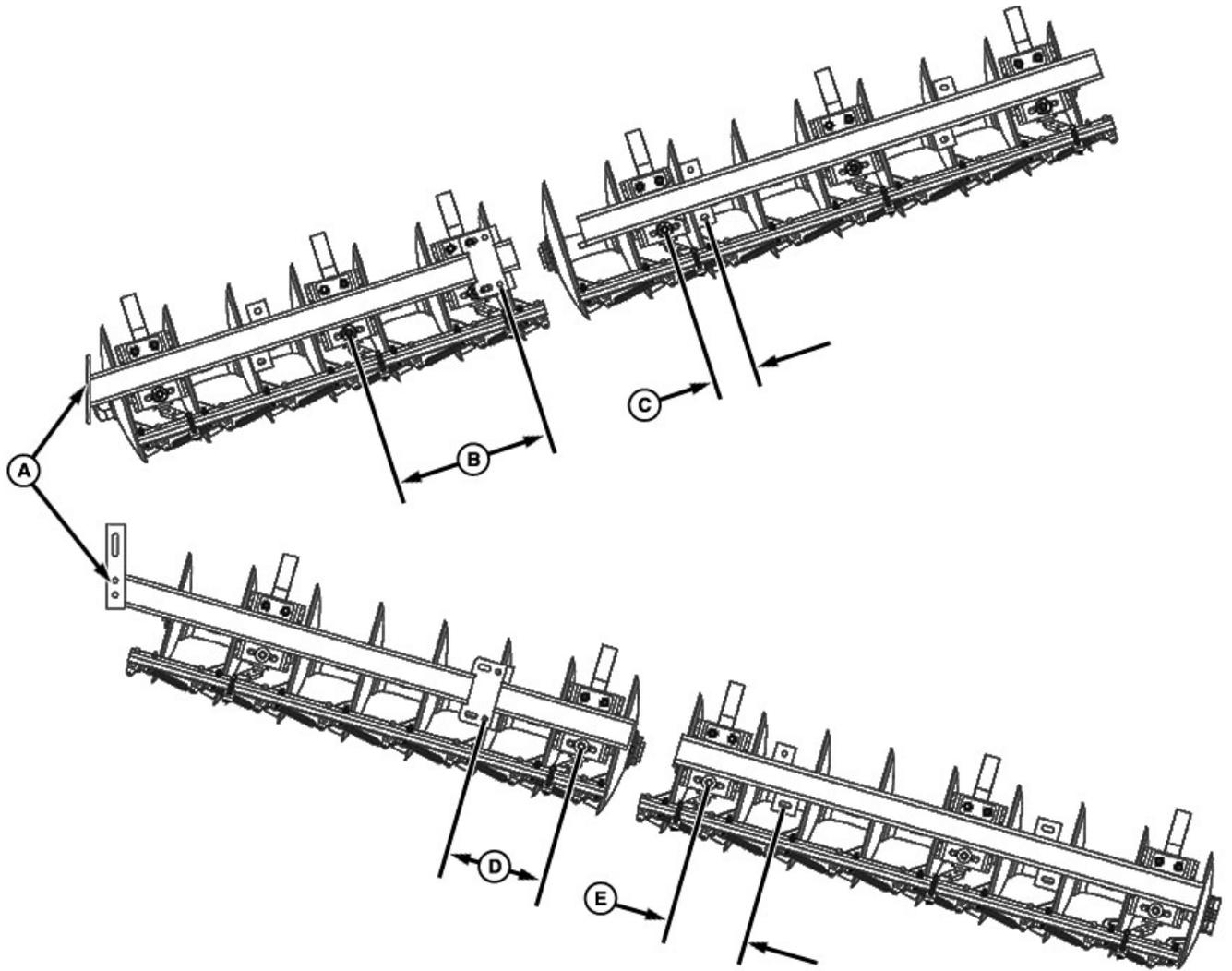
A—Disk Gangs, 279 mm (11 in) Spacing
B—667.9 mm (26.30 in)
C—175.3 mm (6.90 in)

D—234.0 mm (9.21 in)
E—422.9 mm (16.65 in)

N128392—UN—01FEB17

KB78086,000113A-19-01FEB17

11-Standard—Right-Hand Disk Gangs Illustrated



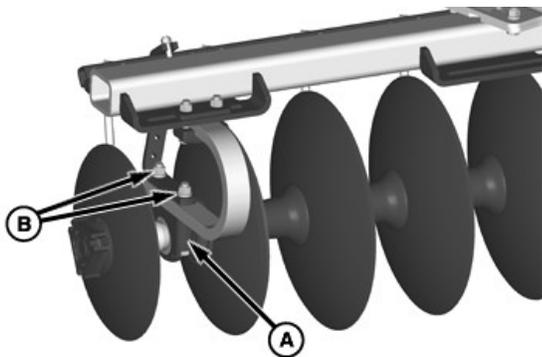
A—Disk Gangs, 279 mm (11 in) Spacing
B—667.9 mm (26.30 in)
C—175.3 mm (6.90 in)

D—234.0 mm (9.21 in)
E—422.9 mm (16.65 in)

N128393—UN—02FEB17

KB78086,0001139-19-02FEB17

Attach Gang to C-Spring Standards



A—Bearing Castings
B—Nuts

N92718—UN—09JUN11

CAUTION: Gangs weigh approximately 685 kg (1510 lb), are sharp, and can fall or roll causing serious injury or death to you or others. When attaching gangs, use suitable lifting device or jackstands to prevent injury or damage. Use wooden blocks to keep gang from rolling when not attached to machine. Wear gloves and other safety equipment to avoid injury.

IMPORTANT: Measure C-spring positions on gang tube mounting plate slots. Then mark gang tube and label C-spring standard location **BEFORE** removing the C-Spring Standard. This will allow for proper C-Spring alignment and gang spacing during reassembly.

1. Position gang under standards. Front gangs throw dirt outward and rear gangs throw dirt inward.
2. If distance between bearings has changed, first verify that gang was correctly assembled on gang bolt. Then, if correctly assembled, loosen outer standards only.

Do not loosen standard closest to center of machine as this standard is factory set for best disking action.

Move loosened standard to align it with bearing.

3. Align marks and attach bearing castings (A) to standard closest to center of machine first, using M20 x 180 cap screws, washers, and nuts (B).
4. If inner standards had to be loosened, position them according to following instructions.

NOTE: Torque values up to 474.5 N·m (350 lb·ft) can be required to eliminate gaps between frame mounting and gang tube mounting plates. Tighten to specified value first and inspect for gaps.

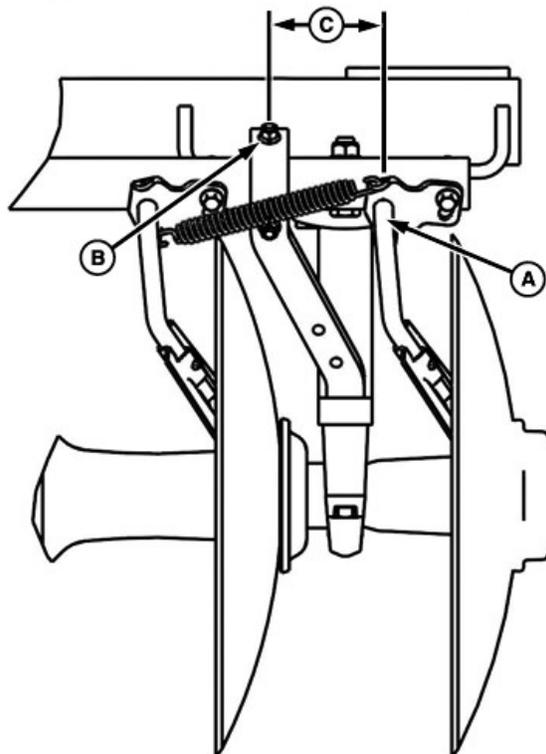
5. Tighten nuts to specification.

Specification

M20 Nut—Torque. 400 N·m
(307 lb·ft)

KB78086,0000AE7-19-20FEB14

Scraper Tube Position



Disk Gang

N94529—UN—14OCT11

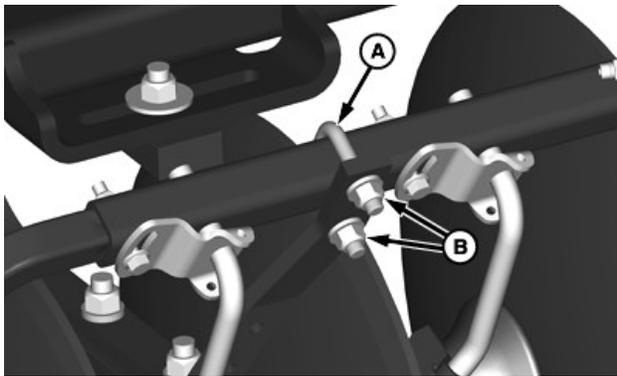
A—Scraper Arm
B—Bolt
C—Dimension

When installing scraper tube on gang, distance from center of scraper arm (A) to center of bolt (B) should measure (C) ± 6 mm (0.25 in).

Disk Gang	
Blade Spacing	Dimension (C)
279.4 mm (11 in)	135 mm (5.32 in)

KB78086,0000B59-19-09NOV11

Tighten Scraper Tube U-Bolt Nuts



N96932—UN—02MAR12

A—U-Bolt
B—Nut (2 used)

NOTE: Springs removed to show detail.

1. When tightening scraper tube U-bolt (A), snug nuts (B) evenly.
2. Tighten both nuts to specification.

Specification

Nuts—Torque. 61 N·m
(45 lb·ft)

AG,OUO6018,542-19-01MAR12

Tighten C-Springs Standards



N92717—UN—09JUN11

A—M20 x 100 Cap Screw with Lock Nut (2 used)

B—M20 x 80 Cap Screw with Washer and Lock Nut

1. Tighten nuts on cap screws (A and B) uniformly. Rotate tightening sequence among cap screws so no one cap screw is completely tightened on first attempt.

NOTE: Torque values up to 474.5 N·m (350 lb·ft) may be required to eliminate gaps between frame mounting and gang tube mounting plates. Tighten to specified value first and inspect for gaps.

Identify Disk Blades Eligible for Warranty

Loose gang bolts and operating in rock or stump conditions are most common causes of blade failures. These types of blade failure are NOT warrantable. Check gang bolts periodically, and tighten. (See Assemble Gangs in this section for proper tightening sequence.)

2. Tighten nuts to specification.

IMPORTANT: John Deere does not recommend and will not warranty any disk blades (carbon or boron) after they have been through a rolling process.

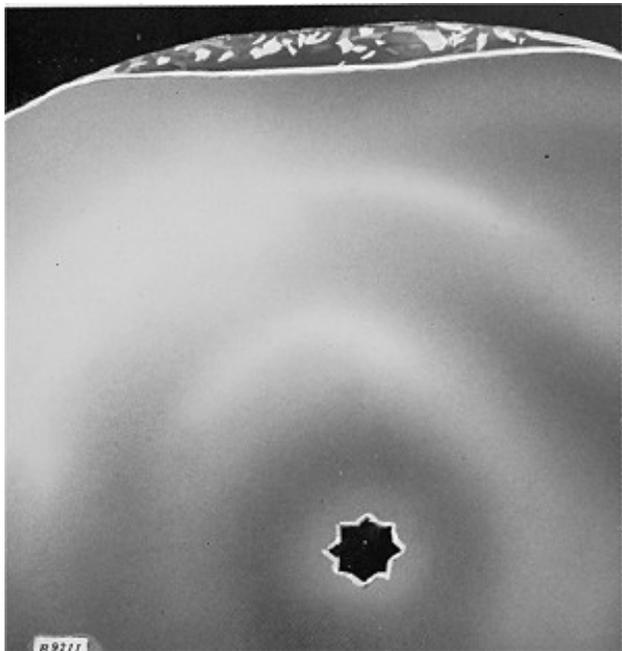
Specification

M20 Nut—Torque. 407 N·m
(300 lb·ft)

The following illustrations show types of disk blade failures that are eligible for warranty replacement.

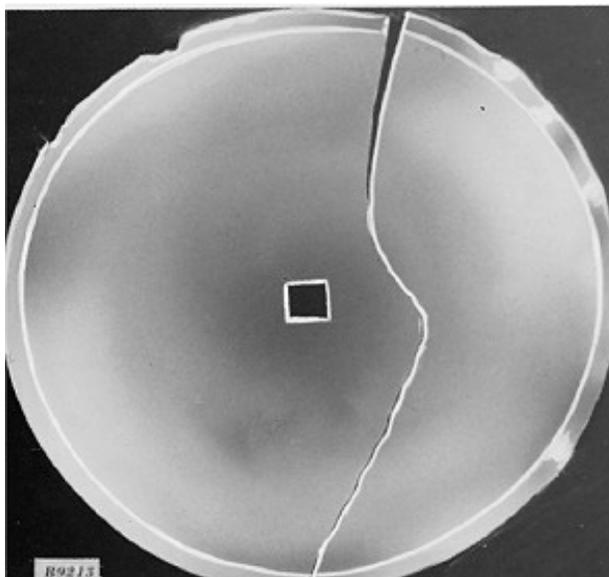
KB78086,0000AE6-19-20FEB14

Identify Disk Blades Not Eligible for Warranty



B9211—UN—11OCT88

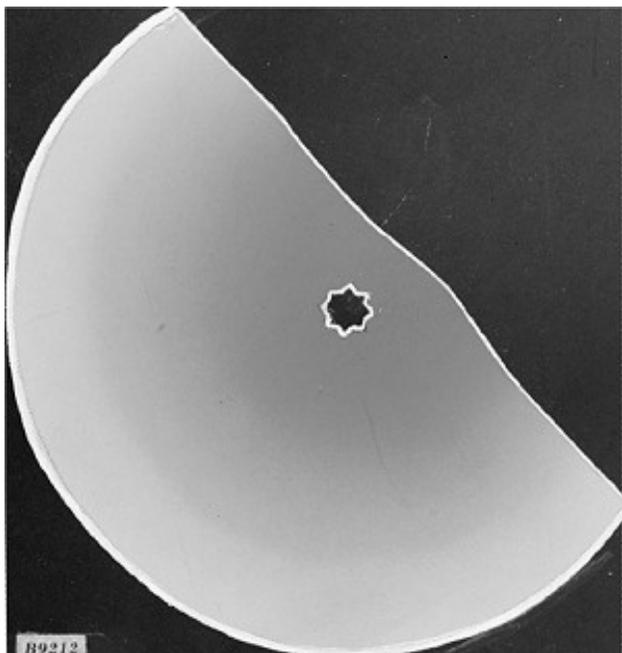
Eligible



B9213—UN—11OCT88

Not Eligible

Lamination or split blade caused by defective material.



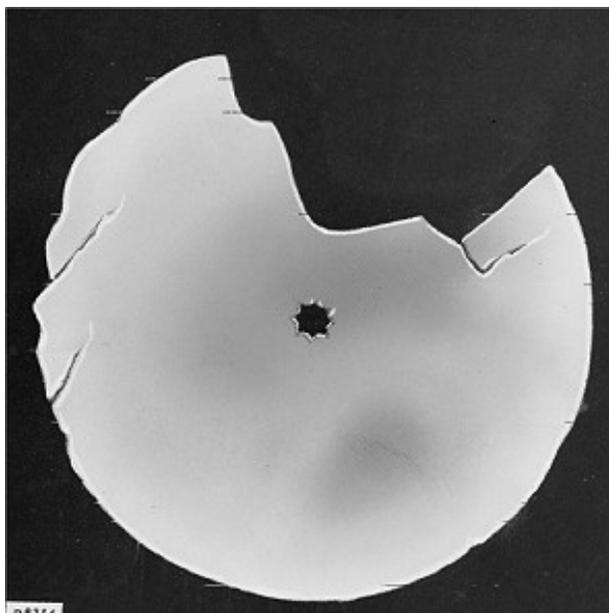
B9212—UN—11OCT88

Eligible

Straight, directional break caused by defective material.

The following illustrations show types of disk blade failures which are NOT eligible for warranty.

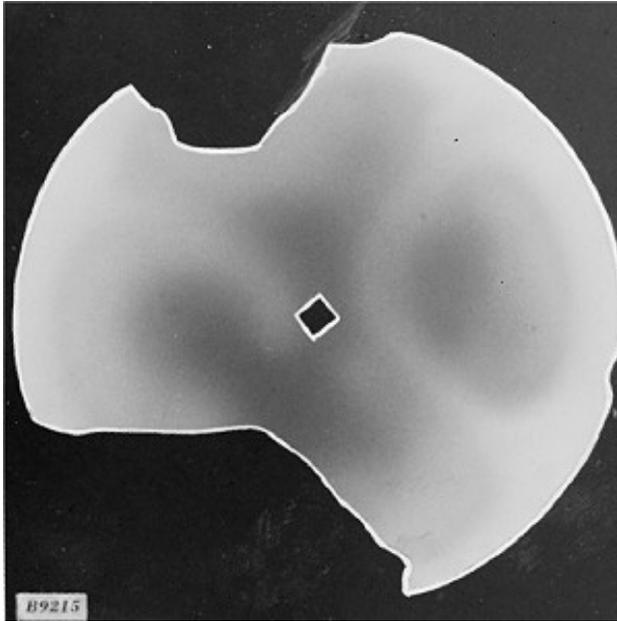
Irregular, non-directional, tear-type fracture caused by rock or stump conditions.



B9214—UN—11OCT88

Not Eligible

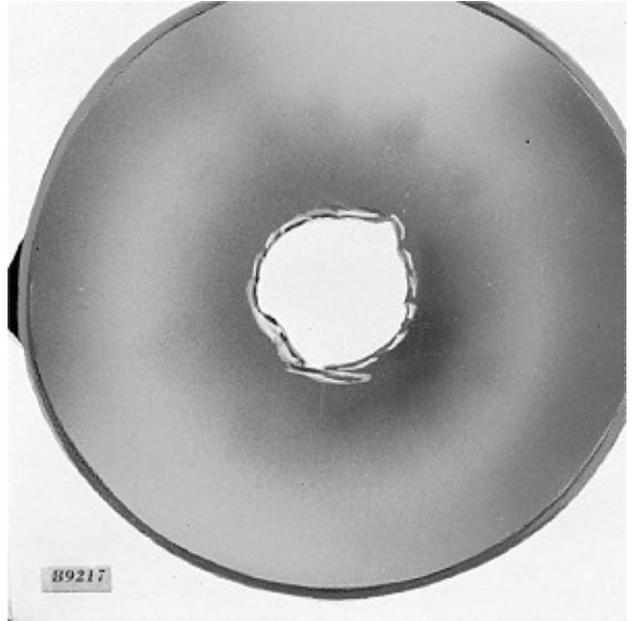
Irregular, non-directional, tear-type fracture caused by rock or stump conditions.



Not Eligible

B9215—UN—11OCT88

Irregular, non-directional, tear-type fracture caused by rock or stump conditions.

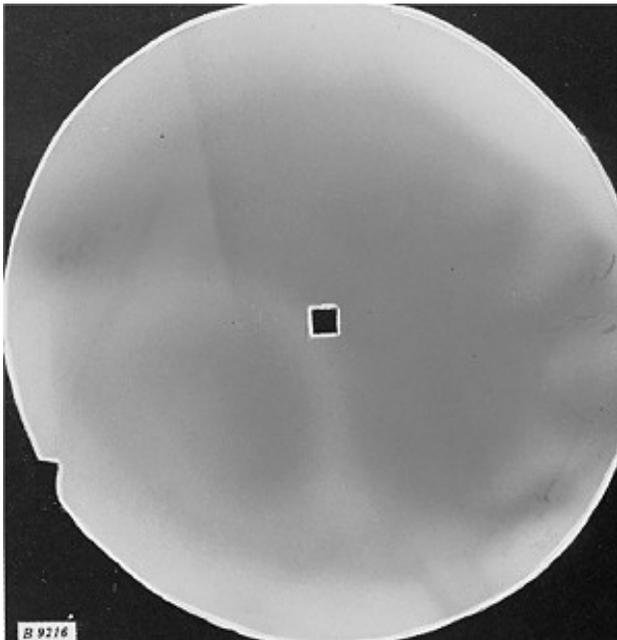


Not Eligible

B9217—UN—11OCT88

Center broken out, caused by rock or stump conditions, loose gang bolts, or frozen ground.

NXN,635,P44-19-30JUN93



Not Eligible

B9216—UN—11OCT88

Chipping caused by rock or stump conditions.

Storage

Removing Machine from Storage

1. Clean off any dirt or grease that may have accumulated on moving parts. This will prevent abrasive action that could cause excessive wear.
2. Thoroughly inspect machine for loose parts and tighten as necessary.
3. Inflate tires to specification. (See Check Tire Pressure in Service section.)
4. Clean grease off hydraulic cylinder rods.
5. If there is evidence of hydraulic oil leakage, correct problem.

KB78086,0001133-19-31JAN17

Placing Machine In Storage

1. Clean machine thoroughly to remove dirt and trash which hold moisture and cause rusting.
2. Lubricate machine. Be sure to grease gang bearings, rotate gangs, and grease again. This procedure WILL extend bearing life.
3. Store machine where it is adequately protected from weather.
4. If wings are folded during storage, relieve hydraulic pressure by positioning control lever in float with tractor engine running.
5. Coat exposed hydraulic cylinder rods with grease.
6. Inspect for worn and damaged parts. Replace parts now to make sure machine will be ready for next season.
7. Apply a good rust preventive, such as paint or a heavy coating of grease, to disk blades and rippers. Paint is available from your John Deere dealer.

AG,OUO6018,544-19-02JUN99

Specifications

Tractor Power Recommendations

It is recommended that with tractors providing PTO

power in following ranges be used with the 2720 Disk Ripper.

Machine Size	Tractor Power
5-Standard	138—205 kW (182—275 hp)
7-Standard	194—287 kW (260—385 hp)
9-Standard	252—369 kW (338—495 hp)
11-Standard	307—451 kW (412—605 hp)

KB78086,0000AEE-19-27FEB18

Downward Force on Tractor Drawbar

CAUTION: Machines with rolling baskets have negative downward force on drawbar. To avoid bodily injury, lower machine or rear parking stands to ground before removing hitch pin.

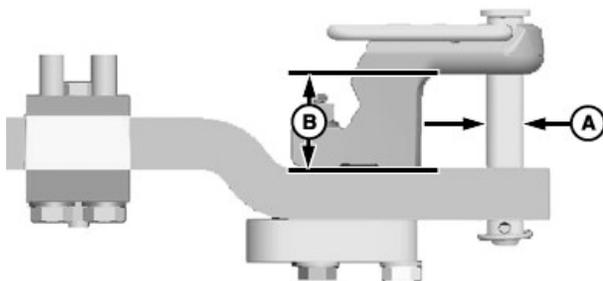
Maximum Static Vertical Force Implement Places On Tractor Drawbar		
Machine	Rolling Basket Option	Downward Force
5-Standard	With Rolling Baskets	-91 kg (-200 lb)
7-Standard	With Rolling Baskets	-363 kg (-800 lb)
9-Standard	With Rolling Baskets	-499 kg (-1100 lb)
11-Standard	With Rolling Baskets	-635 kg (-1400 lb)
All Machines	Without Rolling Baskets	227 kg (500 lb)

IMPORTANT: When transporting, rolling baskets **MUST BE LOWERED** or damage to machine can occur.

OOU6061,00024B8-19-27FEB18

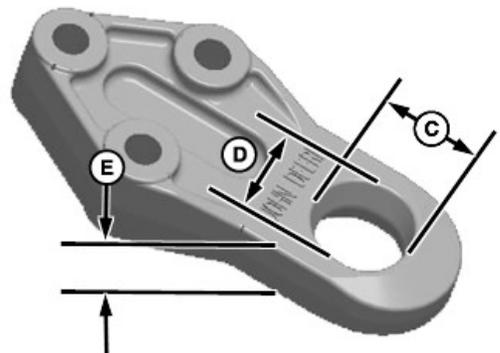
Hitch Specifications

Hitch Link Cap Screw Size	Torque
M24 Cap Screws	814 N·m (600 lb·ft)



Drawbar

N77117—UN—26JUL07



Hitch Link

N77116—UN—26JUL07

Specifications

A—Hitch Pin Diameter
B—Drawbar Opening Height

C—Slot Length
D—Slot Width
E—Link Thickness

Hitch Category	Tractor Drawbar		Hitch Link		
	Hitch Pin Diameter (A)	Drawbar Opening Height (B)	Slot Length (C)	Slot Width (D) (min.)	Link Thickness (E)
3	38 mm (1.5 in)	70—90 mm (2.75—3.54 in)	41—66 mm (1.61—2.60 in)	41 mm (1.61 in)	48 mm (1.89 in)
4	50 mm (1.97 in)	90 mm (3.54 in)	55—70 mm (2.17—2.75 in)	55 mm (2.17 in)	50 mm (1.97 in)
5	70 mm (2.75 in)	100 mm (3.94 in)	73—85 mm (2.87—3.35 in)	73 mm (2.87 in)	60 mm (2.36 in)

NOTE: Use only matching tractor drawbars and hitch links. Category 4 hitch link can be used on Category 3 drawbar with 90 mm (3.54 in) drawbar opening height.

OUO6061,00027E8-19-16AUG18

Machine Specifications—5 and 7-Standard

5-Standard Width:	3.8 m (12 ft 6 in)
Number of Standards	5
Number of Blades	30
Transport Width	5.2 m (16 ft 11 in)
Standard Transport Clearance	279 mm (11 in)
Weight Without Rolling Baskets	4853 kg (10 700 lb)
Weight With Rolling Baskets	5307 kg (11 700 lb)

7-Standard Width:	5.3 m (17 ft 6 in)
Number of Standards	7
Number of Blades	42 46 (Folding Machines)
Transport Width	6.8 m (22 ft 5 in) 5.5 m (18 ft 1 in) (Machines With Gang Fold) 4.3 m (14 ft) (Folding Machines)
Transport Height	4.1 m (13 ft 6 in) (Folding Machines)
Standard Transport Clearance	279 mm (11 in)
Weight Without Rolling Baskets	6713 kg (14 800 lb) 6577 kg (14 500 lb) (Machines With Gang Fold) 9072 kg (20 000 lb) (Folding Machines)
Weight With Rolling Baskets	7438 kg (16 400 lb) Not applicable (Machines With Gang Fold) 10 206 kg (22 500 lb) (Folding Machines)

Frames:	
Main Frame	179 x 179 x 13 mm (7 x 7 x 1/2 in)

Specifications

Hydraulic Cylinders:	
Depth Control	89 x 305 mm (3-1/2 x 12 in) 114 x 305 mm (4-1/2 x 12 in) (Folding Machine)
Gang Fold (If Equipped)	64 x 305 mm (2-1/2 x 12 in)
Wing Fold (If Equipped)	114 x 610 mm (4-1/2 x 24 in)

Depth Control System:	Crank-Adjust Single-Point
Maximum Under-Frame Clearance	953 mm (37-1/2 in)
Maximum Standard Operating Depth	406 mm (16 in)
Parabolic Cushion-Trip Standards:	
Standard Spacing	762 mm (30 in)
Standard Trip Force (Obstacle)	1043 kg (2300 lb)
Standard Trip Force (Draft.)	1860 kg (4100 lb) Non-Adjustable
Standard Trip Height	330 mm (13 in)
Wear Shin	Standard
Protection Above 330 mm (13 in)	Shear Bolt
Ground Engaging Components:	
Standard	178 mm (7 in) Cast LaserRip™ Point
Optional	70 mm (2-3/4 in) Cast LaserRip Point 127 mm (5 in) Cast LaserRip Point 254 mm (10 in) Cast LaserRip Point
Disk Gang Components:	
Standards	C-Spring
Base Equipment Blades	610 x 7 mm (24 x 1/4 in) Solid Spherical
Optional Blades	610 x 7 mm (24 x 1/4 in) Front Cut-Out and Rear Solid Spherical 660 x 7 mm (26 x 1/4 in) Solid Spherical
Spools	140 mm (5-1/2 in) Cast
Blade Spacing	279 mm (11 in)
Front Gang Angle	18° Fixed
Rear Gang Angle	16° or 14°
Bearings	Maintenance-Free (Two-Year Warranty)
Gang Bolt	50.8 mm (2 in) Round
Gang Frames	76 x 127 mm (3 x 5 in) Gang Frame Tubing
Scrapers	Combination (Rigid or Self-Adjusting)

LaserRip is a trademark of Deere & Company

Gang Maximum Operating Depth	152 mm (6 in)
Hitch	Level Lift
Tires	Main Frame: 280/70R15 (4) Main Frame—7-Standard Folding Machine: 320/70R15 Optional Main Frame: 320/70R15 (4) Optional Main Frame: 340/65R18 (4) Optional Main Frame—7-Standard Folding Machine: 340/65R18 HD (4)

AG,OUO6018,443-19-21APR17

Machine Specifications—9 and 11-Standard

9-Standard Width:	6.9 m (22 ft 6 in)
Number of Standards	9
Number of Blades	54
Transport Width	5.6 m (18 ft 5 in)
Transport Height	4.0 m (13 ft)

Specifications

9-Standard Width:	6.9 m (22 ft 6 in)
Standard Transport Clearance	279 mm (11 in)
Weight Without Rolling Baskets	10 759 kg (22 600 lb)
Weight With Rolling Baskets	11 113 kg (24 500 lb)

11-Standard Width:	8.4 m (27 ft 6 in)
Number of Standards	11
Number of Blades	66
Transport Width	5.6 m (18 ft 5 in)
Transport Height	4.5 m (14 ft 8 in)
Standard Transport Clearance	279 mm (11 in)
Weight Without Rolling Baskets	11 974 kg (26 400 lb)
Weight With Rolling Baskets	13 018 kg (28 700 lb)

Frames:	
Main Frame	179 x 179 x 13 mm (7 x 7 x 1/2 in)
Wing Frame	102 x 152 x 9 mm (4 x 6 x 3/8 in)

Hydraulic Cylinders:	
Depth Control	9-Standard 102 x 305 mm (4 x 12 in) 11-Standard 114 x 305 mm (4.5 x 12 in)
Wing Fold	9-Standard 114 x 813 mm (4.5 x 32 in) 11-Standard 127 x 813 mm (5 x 32 in)

Depth Control System:	Crank-Adjust Single-Point
Maximum Under-Frame Clearance	953 mm (37-1/2 in)
Maximum Standard Operating Depth	406 mm (16 in)
Cushion-Trip Standards:	
Standard Spacing	762 mm (30 in)
Standard Trip Force (obstacle)	1043 kg (2300 lb)
Standard Trip Force (draft)	1860 kg (4100 lb) Non-Adjustable
Standard Trip Height	330 mm (13 in)
Wear Shin	Standard
Protection Above 13 inches	Shear Bolt
Ground Engaging Components:	
Standard	178 mm (7 in) Cast LaserRip™ Point
Optional	70 mm (2-3/4 in) Cast LaserRip Point 127 mm (5 in) Cast LaserRip Point 254 mm (10 in) Cast LaserRip Point
Disk Gang Components:	
Standards	C-Spring
Base Equipment Blades	610 x 7 mm (24 x 1/4 in) Solid Spherical
Optional Blades	610 x 7 mm (24 x 1/4 in) Front Cut-Out and Rear Solid Spherical 660 x 7 mm (26 x 1/4 in) Solid Spherical
Spools	140 mm (5-1/2 in) Cast
Blade Spacing	279 mm (11 in)
Front Gang Angle	18° Fixed
Rear Gang Angle	16° or 14°
Bearings	Maintenance-Free (Two-Year Warranty)

Specifications

Gang Bolt	50.8 mm (2 in) Round
Gang Frames	76 x 127 mm (3 x 5 in) Gang Frame Tubing
Scrapers	Combination (Rigid or Self-Adjusting)

LaserRip is a trademark of Deere & Company

Gang Maximum Operating Depth	203 mm (8 in)—610 mm (24 in Blades) 229 mm (9 in)—660 mm (26 in Blades)
Hitch	Level Lift
Tires	Main Frame: 340/65R18 (4) Optional Main: Frame 340/65R18 HD (4)
	9-Standard Wing Frame: 9.5L—15 FI D LR (4) 11-Standard Wing Frame: 11L — 15 FI D LR (4)
	Stabilizer Wheel: 9.5L—15 FI D LR (2)

KB78086,0000EB9-19-20APR17

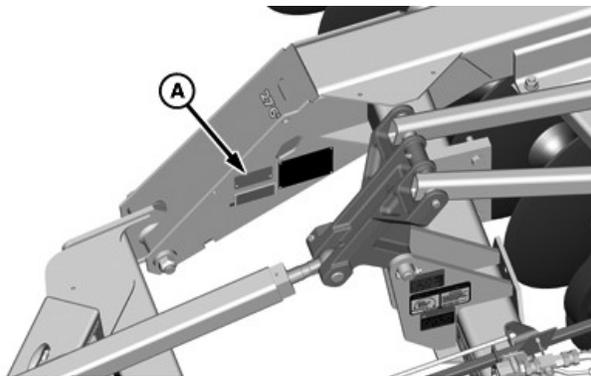
Hydraulic Requirements

17 237 kPa (172 bar) (2500 psi) tractor hydraulic system with ISO hydraulic couplers is required.

Two tractor control valves are required for this machine.

AG,OUO6018,441-19-09APR12

Record Product Identification Number (P.I.N.)



A—P.I.N. Plate

N95424—UN—07NOV11

When ordering parts, furnish product identification number found on plate (A).

Record number on line below. Also, record purchase date.

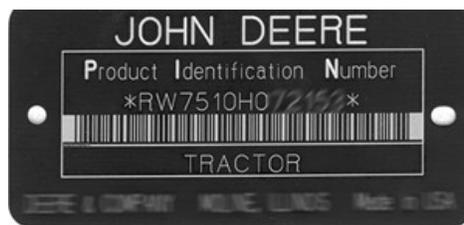
2720 DISK RIPPER

P.I.N. _____

Date Purchased _____

KB78086,0000AF2-19-04NOV11

Keep Proof of Ownership



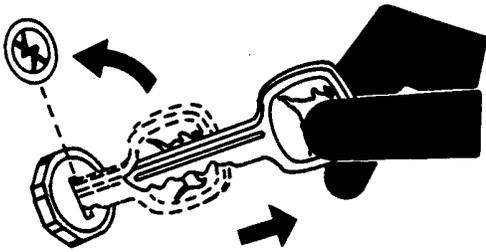
TS1680—UN—09DEC03

1. Maintain in a secure location an up-to-date inventory of all product and component serial numbers.
2. Regularly verify that identification plates have not been removed. Report any evidence of tampering to law enforcement agencies and order duplicate plates.
3. Other steps you can take:

- Mark your machine with your own numbering system
- Take color photographs from several angles of each machine

DX,SECURE1-19-18NOV03

Keep Machines Secure



TS230—UN—24MAY89

1. Install vandal-proof devices.
2. When machine is in storage:
 - Lower equipment to the ground
 - Set wheels to widest position to make loading more difficult
 - Remove any keys and batteries
3. When parking indoors, put large equipment in front of exits and lock your storage buildings.
4. When parking outdoors, store in a well-lighted and fenced area.
5. Make note of suspicious activity and report any thefts immediately to law enforcement agencies.
6. Notify your John Deere dealer of any losses.

DX,SECURE2-19-18NOV03

Interpreting the Serial Number of Your Machine		
1	World Manufacturer Code	AX — Machines produced at JD Valley City NX — Machines produced at JD Des Moines Works PX — Machines produced at JD Monterrey EK — Machines produced at JD Orenburg
2	Machine model	
3	Model Identifier Suffix	Calculated using the other 16 digits
4	Check Letter	A, B, C, D... (According to JDS G139)
5	Year of manufacture	According to the Year of manufacture table
6	Additional Information	
7	Sequential Manufacturing Serial Number	000001—999999

Each model has its own “sequential number”. The sequential number restarts at 000001 with the first machine produced each year.

Each model has its “Serial code of Machine”. This code changes whenever there is a significant change in machine configuration.

KB78086,0000C21-19-01MAY12

Interpreting the Serial Number of Your Machine - 17-Digit PIN

1NX2720XAB0123456

1
2
3 4 5 6
7

N96961—UN—26APR12

Year of Production Table (Digit 5)

Year of Manufacture Code							
Year	Code	Year	Code	Year	Code	Year	Code
2008	8	2018	J	2028	W	2038	8
2009	9	2019	K	2029	X	2039	9
2010	A	2020	L	2030	Y	2040	A
2011	B	2021	M	2031	1	2041	B

Specifications

Year of Manufacture Code							
Year	Code	Year	Code	Year	Code	Year	Code
2012	C	2022	N	2032	2	2042	C
2013	D	2023	P	2033	3	2043	D
2014	E	2024	R	2034	4	2044	E
2015	F	2025	S	2035	5	2045	F
2016	G	2026	T	2036	6	2046	G
2017	H	2027	V	2037	7	2047	H

GB52027.00011B0-19-24FEB10

Index

A	
Adjustment wrench, attaching	45-1
B	
Bearings	
Disk gang	60-24, 60-26, 60-28
Inspection	60-11
Replacement	60-11
Bolt and screw torque values	
Metric	60-3
Unified inch	60-4
C	
Checklist	
prepare machine	25-1, 55-1
Convex disk blade scraper, install	45-4
Convex scraper, adjusting	60-23
Cushion-trip standards	
Adjusting	40-3
D	
Disk	
Gang assembly	60-24, 60-28, 60-36
Gang bolt tensioner	60-25
Gang components	60-24
Gang disassembly	60-24, 60-26
Gang nut torque	60-26, 60-28, 60-36
Gang servicing	60-23
Sharpening	60-3
Disk blade warranty	60-37
Disk ripper gangs	60-31, 60-35
Down-pressure system	
Active hydraulic rolling basket	40-14
Drawbar	
Requirements	25-1
Drawbar, positioning	20-2, 35-4
F	
Finishing blade attachment	45-1
Finishing blade scraper, attaching	45-1
Front-to-rear leveling, adjusting	25-5, 40-3
G	
Gang	
Assembly	60-36
Bolt tensioner	60-25
Nut torque	60-26, 60-28, 60-36
Grease	
Multipurpose Extreme Pressure (EP)	50-1
H	
Hardware	
Tightening	25-5, 40-2, 60-3
Hardware torque values	
Metric	60-3
Unified inch	60-4
Hitch	
Specifications	70-1
Hose connections	30-2
Hydraulic cylinders, removing	60-17
Hydraulic hose replacement	60-2
Hydraulic requirements	70-5
K	
Knock out scraper	
Install	45-3
Install (c-spring standard)	45-4
L	
Lubricant Storage	
Storage, Lubricant	50-2
Lubricants, safety	50-2
Lubricate	
Wheel Bearings	50-3
Lubricate machine	25-1
Lubrication	
Eyebolts	50-2
Standards	50-3
Turnbuckle	50-2
M	
Machine	
Attaching	30-1
Operating speed	40-3
Preparing to operate	40-11
Specifications	70-2, 70-3
Metric bolt and screw torque values	60-3
Multipurpose Extreme Pressure (EP) grease ...	50-1
O	
Operating speed	40-3
Operator's manual, tractor, using	20-1
P	
Park Safely	05-11
Positioning drawbar	20-2, 35-4
Positioning jacks, transport	30-5, 35-4
Product identification number	70-5
R	
Rear gang fold	
adjust	25-6
operation	30-6
Requirements	
Drawbar	25-1
Rolling basket down-pressure, adjusting	
Tractors with electro/hyd. closed center	

systems 40-14
 Tractors with open center hyd. systems 40-15

S

Safety
 Protect against noise 05-2
 Safe maintenance, practice 05-2, 60-1
 Safety chain 30-3, 35-2
 Safety Chain
 Use 20-3
 Safety, Avoid High-Pressure Fluids
 Avoid High-Pressure Fluids 05-4, 60-2
 Safety, lubricants 50-2
 Scraper adjustment
 Self-adjusting operation 25-8
 Scraper blade replacement 60-22
 Scraper tube
 Position 60-36
 Scraper tube U-bolts, tightening 60-37
 Seal fittings
 Assembly and installation 60-5
 Series-parallel system
 Analyzing test results 60-16
 Service
 Bearing inspection 60-11
 Bearing replacement 60-11
 Shank wear shin Cushion trip 60-20
 Signal words, understand 05-1
 Single point depth control 40-9
 Slip-on point, replacing 60-18
 Specifications
 Hitch 70-1
 Machine 70-2, 70-3
 Standards 40-3
 Support Raised Equipment 05-3
 Sweeps and disks, sharpening 60-3

T

Take-Off Power 20-1
 Tensioner
 Gang bolt 60-25
 Test results, analyzing
 Depth Control Internal Leakage 60-16
 Three-point hitch, securing 20-1
 Tire
 Check pressure 25-4, 60-8
 Discarded 60-8
 Tire Repair 60-10
 Tools, sharpen 60-3
 Torque charts
 Metric 60-3
 Unified inch 60-4
 Tractor
 detaching 30-7
 Tractor operator's manual
 using 20-1

Tractor requirements, determining 20-1
 Transport lock-up valve
 engaging 30-5
 Troubleshooting 55-1

U

Unified inch bolt and screw torque values 60-4

W

Warning light connector, attaching 30-3
 Warning lights and SMV, using 30-4
 Waste oil 60-14
 Wheel Bearings
 Lubricate 50-3
 Wheel bolts and bearings 60-9
 Wheel Hardware
 Check Tightness 25-4
 Wing depth cylinders
 rephasing 40-12
 Wing fold
 checking 30-6
 Wing stabilizer wheels, adjusting 40-13

John Deere Service Keeps You On The Job

John Deere Parts



TS100—UN—23AUG88

We help minimize downtime by putting genuine John Deere parts in your hands in a hurry.

That's why we maintain a large and varied inventory—to stay a jump ahead of your needs.

DX,IBC,A-19-04JUN90

School is never out for John Deere service technicians. Training schools are held regularly to be sure our personnel know your equipment and how to maintain it. Result?

Experience you can count on!

DX,IBC,C-19-04JUN90

Prompt Service



TS103—UN—23AUG88

Our goal is to provide prompt, efficient care when you want it and where you want it.

We can make repairs at your place or at ours, depending on the circumstances: see us, depend on us.

JOHN DEERE SERVICE SUPERIORITY: We'll be around when you need us.

DX,IBC,D-19-04JUN90

The Right Tools



TS101—UN—23AUG88

Precision tools and testing equipment enable our Service Department to locate and correct troubles quickly . . . to save you time and money.

DX,IBC,B-19-04JUN90

Well-Trained Technicians



TS102—UN—23AUG88
