



Покупайте оригинальные и аналоговые запчасти для
сельхозтехники Джон Дир в компании Аврора Агро Партс на
www.aa-p.ru

9320, 9420, 9520 and 9620 Tractors

OPERATOR'S MANUAL 9320, 9420, 9520 and 9620 Tractors (European Edition)

OMAR228223 Issue A7 (ENGLISH)

CALIFORNIA Proposition 65 Warning

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

If this product contains a gasoline engine:

WARNING

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

The State of California requires the above two warnings.

John Deere Waterloo Works

European Edition

LITHO IN U.S.A.

Introduction

Foreword

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

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

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

RIGHT-HAND AND LEFT-HAND sides are determined by facing in the direction of forward travel.

WRITE PRODUCT IDENTIFICATION NUMBERS (P.I.N.) in the Specification or Identification Numbers section. Accurately record all the numbers to help in tracing the machine should it be stolen. Your dealer also needs these numbers when you order parts.

File the identification numbers in a secure place off the machine.

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

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

THE TIRE MANUFACTURER'S warranty supplied with your machine may not apply outside the U.S.

RW29387,00001BE -19-20OCT05-1/2



RXA0084704 -UN-20OCT05

RW29387,00001BE -19-20OCT05-2/2

Quick Reference Specifications

CAPACITIES (Approximate):

Fuel Tank 1026 L (270 gal)

Cooling System 63 L (15 gal)

Crankcase with Filter 42 L (11 gal)

Transmission/Axle:

.. Without PTO 134 L (35 gal)

.. With PTO 138 L (36 gal)

Hydraulic System:

.. Without Hitch - Standard 103 L (27 gal)

.. With Hitch - Standard 106 L (28 gal)

See Specifications Section for Additional Specifications

RW29387,00004A6 -19-07DEC06-1/1

Contents

	Page		Page
Safety	05-1	Electric Mirror	25-11
Safety Signs	10-1	Field Office	25-12
Controls and Instruments		Beverage Cooler	25-12
Front Console	15-1	Storage Drawer	25-12
Ignition Switch	15-1	Pull-Down Sunshade	25-13
Front Console Display	15-2	GreenStar Connectors	25-14
Corner Post Display	15-2	Plug & Play	25-15
Side Console—Standard Cab	15-3	Implement Connector	25-16
Side Console—Deluxe Cab	15-4	Accessory Electrical Outlets	25-17
Shift and PTO Levers	15-5	Auxiliary Power Strip	25-18
Armrest Controls	15-6	Mobile Radio and Antenna	25-19
Vehicle Monitor	15-7	Monitor Mounts	25-20
Display Functions	15-10	Break-In Period	
Calibrating Tire Size	15-12	Engine	30-1
Single Beam Radar	15-13	Oil and Filters	30-1
Dual Beam Radar	15-14	Operating the Engine	
Performance Monitor	15-15	Engine Operation	35-1
Lights		Auxiliary Heaters	35-4
Road Lights	20-1	Engine Operation	35-5
Field Lights	20-2	Cold Weather Starting	35-6
Turn Signals, Horn, and High/Low Beam	20-3	Battery Booster or Charger	35-7
Delayed Egress Lighting	20-4	Operating the Tractor	
Use Safety Lights and Devices	20-5	Avoid Pesticides	40-1
Hazard Lights	20-5	Emergency Exit	40-2
Beacon Light	20-6	Seat Belts	40-3
Seven-Terminal Outlet	20-7	Passenger Seat	40-3
Operator Station		Hydraulic System Warm-Up	40-4
Seat	25-1	Drivetrain Protection	40-5
Armrest Control	25-3	Transmission Operation	40-6
Seat	25-4	Transmission Shifting	40-9
Steering Wheel	25-4	Automatic Powershift	40-13
Hand Brake	25-5	Brakes	40-14
Air Flow and Temperature	25-6	Field Cruise and Foot Decelerator	40-15
Using ClimaTrak™ (ATC)—If Equipped		Differential lock	40-15
(Serial No. 010001-)	25-8	Implement Management System	
Change ClimaTrak™ (ATC) Unit Display		Description	45-1
From Fahrenheit to Centigrade	25-9	Display Codes	45-2
Windshield Wipers/Washer	25-10		
Clock	25-11		

Continued on next page

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

COPYRIGHT © 2007
DEERE & COMPANY
Moline, Illinois
All rights reserved
A John Deere ILLUSTRATION® Manual

	Page		Page
Functions	45-3	Wheel Slip	75-10
Operation	45-5	Maximum Ballast	75-11
		Implement Guidelines	75-11
Hydraulics and Selective Control Valves		Wheel Weights	75-12
Standard Hydraulic Hoses	50-1	Quik-Tatch Weights	75-14
SCV Operation	50-4	Liquid Ballast	75-15
Operator Presence Sensor	50-13		
Remote Hydraulic Connections		Wheels, Tires, and Treads	
Power Beyond	55-1	Guidelines	80-1
Spray Pumps	55-3	Tire Inflation Pressures	80-2
Hydraulic Standard Components	55-4	Tire Combinations	80-4
Implement Connection Example 1	55-5	Tread Width	80-5
Implement Connection Example 2	55-6	Wheel Adjustment	80-6
Implement Connection Example 3	55-7	Wheel Torque Wrench Adapter	80-7
Implement Connection Example 4	55-8	Wheel Adjustment	80-8
Implement Connection Example 5	55-9	10 or 12-Bolt Wheel	80-10
Implement Connection Example 6	55-10	Steering Stops	80-15
Implement Connections	55-11		
Motor Seal Drain Filter	55-11	Transport	
Drawbar and PTO		Road Transport	85-1
Drawbar	60-1	Use Safety Lights and Devices	85-1
PTO	60-8	Road Transport	85-2
		Transport Towed Equipment at Safe Speeds	85-2
Hitch		Carrier Transport	85-3
Components	65-1	Towing Tractor	85-4
Controls	65-1		
Height Limit	65-3	Fuels, Lubricants, and Coolants	
Rate of Drop	65-3	Diesel Fuel	90-1
External Raise/Lower Switch	65-4	Lubricity of Diesel Fuel	90-1
Manual Lowering Feature	65-5	Handling and Storing Diesel Fuel	90-2
Load/Depth Control	65-6	Testing Diesel Fuel	90-2
Position Control	65-6	Bio-Diesel Fuel	90-3
Float Position	65-6	Diesel Fuel	90-4
Draft Control	65-7	Fuel Tank	90-5
Hitch Slip Command	65-8	Minimizing the Effect of Cold Weather on	
Sway Blocks	65-9	Diesel Engines	90-6
Quick Coupler	65-10	Diesel Engine Break-In Oil	90-7
Implement Level	65-12	Diesel Engine Oil	90-8
Lateral Float	65-13	Diesel Engine Oil and Filter Service Intervals	90-9
Hitch Conversion	65-13	Extended Diesel Engine Oil Service	
		Intervals	90-10
TouchSet Depth Control		Oil Filters	90-10
Depth Control	70-1	Diesel Engine Coolant	90-11
		Drain Intervals for Diesel Engine Coolant	90-12
Performance Ballasting		Operating in Warm Temperature Climates	90-12
Guidelines	75-1	Additional Information About Diesel	
Ballast Worksheet	75-2	Engine Coolants and Supplemental Coolant	
Guidelines	75-3	Additives	90-13
Power Hop	75-4	Testing Diesel Engine Coolant	90-14
Calculating Ballast	75-5	Transmission/Axle and Hydraulic Oil	90-15
Unballasted Tractor Weight Chart	75-6	Transmission	90-15

Continued on next page

	Page		Page
Grease	90-16	Driveshafts	105-13
Mixing of Lubricants	90-16	Hitch Components	105-15
Alternative and Synthetic Lubricants	90-17	Hitch Sensor	105-16
Lubricant Storage	90-17	PTO	105-16
Maintenance and Service Intervals		Maintenance—Cooling System	
Service Intervals	95-1	Coolant Level	110-1
Hood	95-4	Testing Coolant	110-1
Hood Release Tool	95-4	Drain, Flush, and Refill Cooling System	110-2
Front Grille	95-5		
Side Shields	95-5	Maintenance—Fuel System	
Batteries	95-6	Water Separator	115-1
High-Pressure Washer	95-6	9220-9320-9420-9520	
Compressed Air	95-6	Fuel Filter	115-1
		9320-9420-9520	
General Maintenance and Inspection		Secondary Fuel Filter	115-2
Tires and Wheel Bolts	100-1	Fuel Filters	115-2
Radar Sensor		Bleeding Fuel System—	
Clean Radar	100-2	9320-9420-9520-9620	115-3
Neutral Start System	100-2	Fuel Tank Sump	115-4
Transmission PARK system	100-3		
Transmission Secondary Brake System	100-4	Maintenance—Electrical System	
Transmission Park Brake Pads	100-5	Fuses and Relays	120-1
Engine Air Filters	100-6	Handling Halogen Light Bulbs Safely	120-10
Cab Air Filter	100-8	Handling HID Light Bulbs Safely	120-11
Grille Screens, Radiator, and Oil Cooler	100-9	Front Floods	120-12
Inspect and Clean Fuel Sump Screen	100-10	Head Lights	120-13
Batteries	100-11	Replacing Instrument and Display	
Belt Tensioner	100-13	Illumination Light Bulb	120-14
Drive Belt Routings	100-15	Dome Light	120-14
Manual Brakes	100-16	Roof Floods	120-15
Seat Belts	100-16	Courtesy Light	120-15
Air Conditioning System	100-17	Fender Floods	120-16
Axle End Play	100-18		
Engine Crankshaft Damper	100-18	Troubleshooting	
Transmission Drive Shaft Damper	100-18	Engine	125-1
		Transmission	125-6
Lubrication		Hydraulic System	125-8
Engine Oil and Filter	105-1	Brakes	125-8
Transmission/Axle oil lubrication		Hitch	125-9
Checking	105-3	Selective Control Valves	125-11
Changing	105-4	Depth Control	125-12
Transmission/Axle oil filter		Electrical System	125-13
Changing	105-6	Operator Enclosure	125-15
Hydraulic Oil and Filter			
Checking Oil Level	105-7	Service Codes	
Changing Oil	105-8	Codes	130-1
Changing Filter	105-8		
Hydraulic Reservoir Screen	105-9	Storage	
Reservoir Breather Filter	105-9	Long-Term Storage	135-1
Motor Seal Drain Filter	105-10	Paint Finish Care	135-2
Hinge Pins	105-10		
Steering Pin Bushings	105-12		

Continued on next page

	Page
Specifications	
General Specifications	140-1
Overall Dimensions	140-3
Ground Speeds	140-4
Identify Zinc-Flake Coated Fasteners	140-5
Metric Bolt and Cap Screw Torque Values	140-6
Unified Inch Bolt and Cap Screw Torque Values.	140-7
Declaration of Conformity	140-8
Identification Numbers	
Serial Number Plates	145-1
Keep Proof of Ownership	145-3
Keep Machines Secure	145-3
Glossary	
Glossary of Terms	155-1

Safety

Recognize Safety Information

This is the 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.



RW29387,00001C0 -19-06NOV02-1/1

T81389 -UN-07DEC88

Understand Signal Words

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

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

⚠ DANGER

⚠ WARNING

⚠ CAUTION

RW29387,00001C1 -19-06NOV02-1/1

TS187 -19-30SEP88

Follow Safety Instructions

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

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

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

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



TS201 -UN-23AUG88

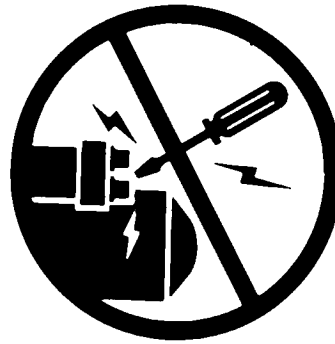
DX,READ -19-03MAR93-1/1

Prevent Machine Runaway

Avoid possible injury or death from machinery runaway.

Do not start engine by shorting across starter terminals. Machine will start in gear if normal circuitry is bypassed.

NEVER start engine while standing on ground. Start engine only from operator's seat, with transmission in neutral or park.



TS177 -UN-11JAN89

DX,BYPAS1 -19-29SEP98-1/1

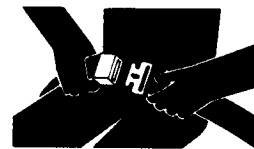
Use Seat Belt Properly

Use a seat belt when you operate with a roll-over protective structure (ROPS) or cab to minimize chance of injury from an accident such as an overturn.

Do not use a seat belt if operating without a ROPS or cab.

Replace entire seat belt if mounting hardware, buckle, belt, or retractor show signs of damage.

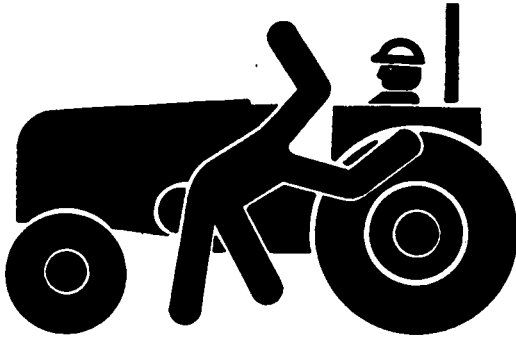
Inspect seat belt and mounting hardware at least once a year. Look for signs of loose hardware or belt damage, such as cuts, fraying, extreme or unusual wear, discoloration, or abrasion. Replace only with replacement parts approved for your machine. See your John Deere dealer.



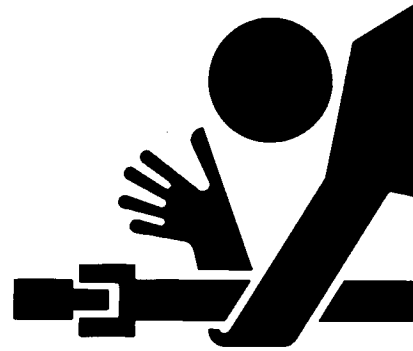
TS205 -UN-23AUG88

DX,ROPS1 -19-07JUL99-1/1

Operating the Tractor Safely



TS213 -UN-23AUG88



TS276 -UN-23AUG88

Careless use of the tractor can result in unnecessary accidents. Be alert to hazards of tractor operation. Understand causes of accidents and take every precaution to avoid them. Most common accidents are caused from:

- Tractor roll-over
- Improper starting procedures
- Crushing and pinching during hitching
- Collisions with other motor vehicles
- Entanglement in PTO shafts
- Falling from tractor

Avoid accidents by taking the following precautions:

- Put transmission in PARK before dismounting. Leaving transmission in gear with engine stopped will NOT prevent the tractor from moving.
- Be sure everyone is clear of tractor and attached equipment before starting engine.
- Never try to get on or off a moving tractor.
- When tractor is left unattended, put transmission in PARK, lower implements to the ground, stop the engine, and remove the key.
- Never go near an operating PTO or an operating implement.
- Always fasten your seat belt.

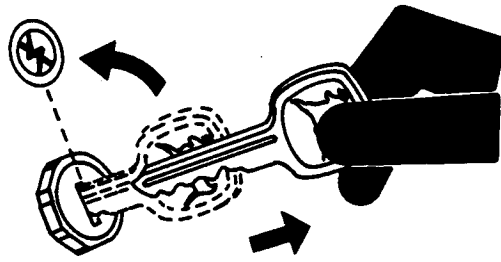
AG,RF30435,1986 -19-18NOV99-1/1

Stopping and Parking Tractor

Tractor roll-over, collisions, runaway tractors, and people being crushed under machines and implements can happen when operators ignore safety.

To avoid these accidents, take some precautions:

- Signal before stopping, turning, or slowing down on public roads
- Pull over to side of road before stopping
- Slow down before braking
- Pump brakes when stopping on slippery surfaces
- Be careful when towing and stopping heavy loads
- Shift speed-shift lever to NEUTRAL and range-shift lever to PARK position on MST transmission
- Shift lever to PARK on PowerShift transmission
- Lower all equipment when leaving tractor
- Remove key
- Lock wide-swing drawbar into solid or transport position



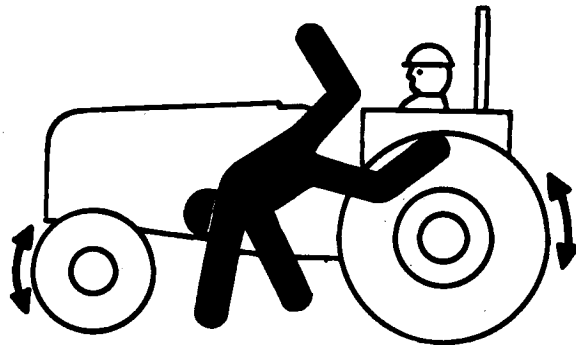
TS230 -UN-24MAY89

AG,RF30435,1987 -19-12OCT05-1/1

Keep Riders Off Machine

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

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



TS290 -UN-23AUG88

DX,RIDER -19-03MAR93-1/1

Handle Fuel Safely—Avoid Fires

Handle fuel with care: it is highly flammable. Do not refuel the machine while smoking or when near open flame or sparks.

Always stop engine before refueling machine. Fill fuel tank outdoors.

Prevent fires by keeping machine clean of accumulated trash, grease, and debris. Always clean up spilled fuel.



TS202 -UN-23AUG88

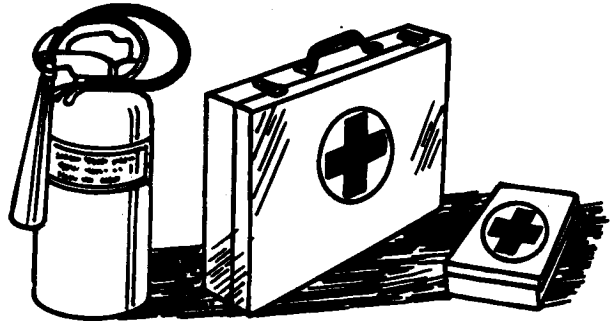
DX,FIRE1 -19-03MAR93-1/1

Prepare for Emergencies

Be prepared if a fire starts.

Keep a first aid kit and fire extinguisher handy.

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



TS291 -UN-23AUG88

DX,FIRE2 -19-03MAR93-1/1

Handle Starting Fluid Safely

Starting fluid is highly flammable.

Keep all sparks and flame away when using it. Keep starting fluid away from batteries and cables.

To prevent accidental discharge when storing the pressurized can, keep the cap on the container, and store in a cool, protected location.

Do not incinerate or puncture a starting fluid container.



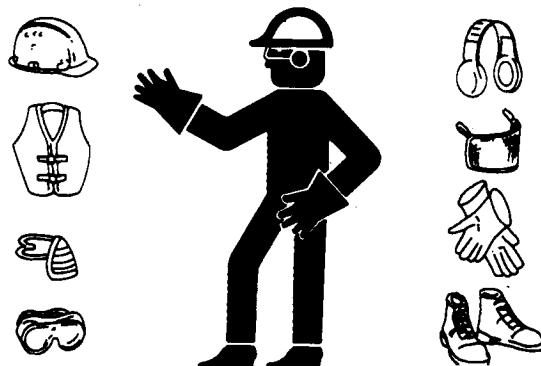
TS1356 -UN-18MAR92

DX,FIRE3 -19-16APR92-1/1

Wear Protective Clothing

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 -19-03MAR93-1/1

TS206 -UN-23AUG88

Protect Against Noise

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

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



DX,NOISE -19-03MAR93-1/1

TS207 -UN-23AUG88

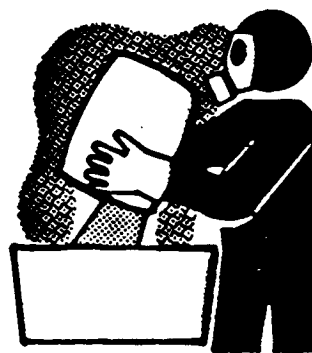
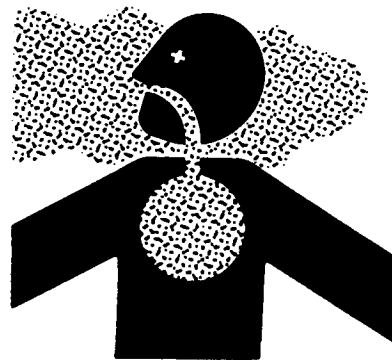
Handle Agricultural Chemicals Safely

Chemicals used in agricultural applications such as fungicides, herbicides, insecticides, pesticides, rodenticides, and fertilizers can be harmful to your health or the environment if not used carefully.

Always follow all label directions for effective, safe, and legal use of agricultural chemicals.

Reduce risk of exposure and injury:

- Wear appropriate personal protective equipment as recommended by the manufacturer. In the absence of manufacturer's instructions, follow these general guidelines:
 - Chemicals labeled '**Danger**': Most toxic. Generally require use of goggles, respirator, gloves, and skin protection.
 - Chemicals labeled '**Warning**': Less toxic. Generally require use of goggles, gloves, and skin protections.
 - Chemicals labeled '**Caution**': Least toxic. Generally require use of gloves and skin protection.
- Avoid inhaling spray or dusts.
- Always have soap, water, and towel available when working with chemicals. If chemical contacts skin, hands, or face, wash immediately with soap and water. If chemical gets into eyes, flush immediately with water.
- Wash hands and face after using chemicals and before eating, drinking, smoking, or urination.
- Do not smoke or eat while applying chemicals.
- After handling chemicals, always bathe or shower and change clothes. Wash clothing before wearing again.
- Seek medical attention immediately if illness occurs during or shortly after use of chemicals.
- Keep chemicals in original containers. Do not transfer chemicals to unmarked containers or to containers used for food or drink.
- Store chemicals in a secure, locked area way from human or livestock food. Keep children away.
- Always dispose of containers properly. Triple rinse empty containers and puncture or crush containers and dispose of properly.



A34471

TS220 -UN-23AUG88

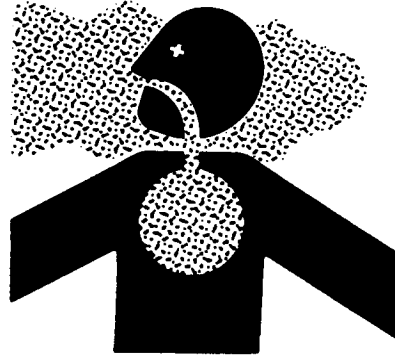
A34471 -UN-11OCT88

Avoid Contact with Pesticides

This enclosed cab does not protect against inhaling harmful pesticides. If pesticide use instructions require respiratory protection, wear an appropriate respirator inside the cab.

Before leaving the cab, wear personal protective equipment as required by the pesticide use instructions. When re-entering the cab, remove protective equipment and store either outside the cab in a closed box or some other type of sealable container or inside the cab in a pesticide resistant container, such as a plastic bag.

Clean your shoes or boots to remove soil or other contaminated particles prior to entering the cab.



TS220 -UN-23AUG88



TS272 -UN-23AUG88

DX,CABS -19-03MAR93-1/1

Stay Clear of Rotating Drivelines

Entanglement in rotating driveline can cause serious injury or death.

Keep tractor master shield and driveline shields in place at all times. Make sure rotating shields turn freely.

Wear close fitting clothing. Stop the engine and be sure PTO driveline is stopped before making adjustments, connections, or cleaning out PTO driven equipment.



TS1644 -UN-22AUG95

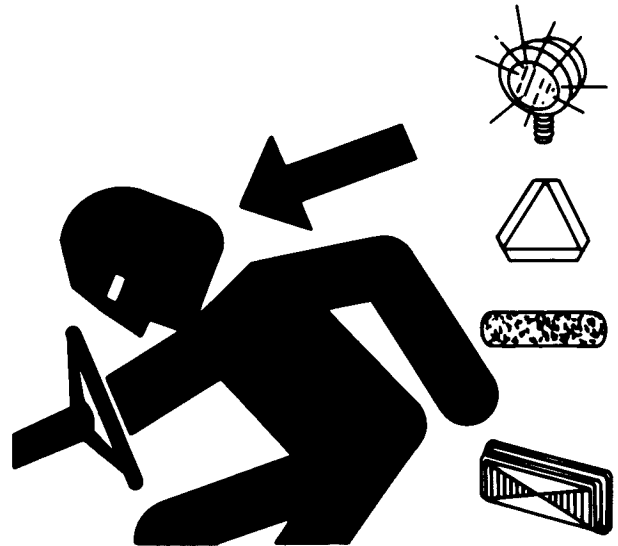
DX,PTO -19-12SEP95-1/1

Use Safety Lights and Devices

Avoid injury or death caused by collision with another vehicle.

While operating tractor on a public roadway or highway day or night:

- Turn on flashing warning lights except where prohibited by law.
- Use headlights.
- Dim headlights for oncoming vehicles.
- Frequently check for traffic approaching from the rear.
- Always use turn signals.
- **DO NOT** use rear facing floodlights which may blind or confuse other drivers.
- Make sure a Slow Moving Vehicle (SMV) emblem is installed and visible.
- Make sure all lighting and marking devices are functional and clean.
- Comply with all traffic regulations.
- Promptly replace or repair lighting and marking that has been damaged or lost. An implement safety lighting kit is available from your John Deere Dealer.



TS951 -UN-12APR90

OU1092A,00001C6 -19-05OCT04-1/1

Transport Towed Equipment at Safe Speeds

Do not exceed the maximum transport speed. This tractor is capable of operating at transport speeds that exceed the maximum allowable transport speed for most towed implements.

Before transporting a towed implement, determine from signs on the implement or information provided in the implement's operator manual the maximum transport speed. Never transport at speeds that 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

In the absence of manufacturer's information, observe these transport speed limits:

- **For towed equipment without brakes, do not transport at speeds above 32 km/h (20 mph)**
- **For towed equipment with brakes, do not transport at speeds above 40 km/h (25 mph)**

Do not attempt transport if:

- The fully loaded implement **without brakes** weighs more than 1.5 t (3300 lb) and more than 1.5 times the weight of the tractor
- The fully loaded implement **with brakes** weighs more than 4.5 times the weight of the tractor



RXA0055336 -UN-18FEB05

RX,TOW1 -19-18JUN01-1/1

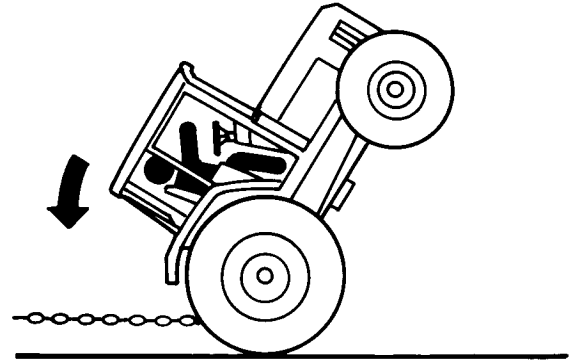
Freeing a Mired Machine

Attempting to free a mired machine can involve safety hazards such as the mired tractor tipping rearward, the towing tractor overturning, and the tow chain or tow bar (a cable is not recommended) failing and recoiling from its stretched condition.

Back your tractor out if it gets mired down in mud. Unhitch any towed implements. Dig mud from behind the rear wheels. Place boards behind the wheels to provide a solid base and try to back out slowly. If necessary, dig mud from the front of all wheels and drive slowly ahead.

If necessary to tow with another unit, use a tow bar or a long chain (a cable is not recommended). Inspect the chain for flaws. Make sure all parts of towing devices are of adequate size and strong enough to handle the load.

Always hitch to the drawbar of the towing unit. Do not hitch to the front pushbar attachment point. Before moving, clear the area of people. Apply power smoothly to take up the slack: a sudden pull could snap any towing device causing it to whip or recoil dangerously.



TS1645 -UN-15SEP95



TS263 -UN-23AUG88

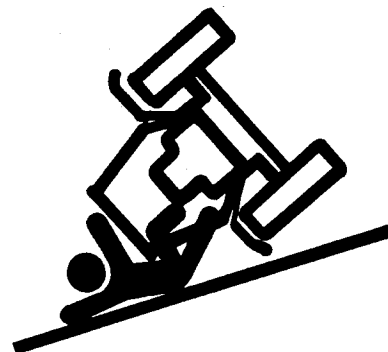
DX,MIREO -19-07JUL99-1/1

Use Caution on Hillsides

Avoid holes, ditches, and obstructions which can cause tractor roll-over, especially on hillsides. Avoid sharp turns on hills.

Never drive near the edge of a gully or steep embankment.

Driving out of a ditch, mired condition, or up a steep slope could cause tractor to tip over rearward. Back out of these situations if possible.



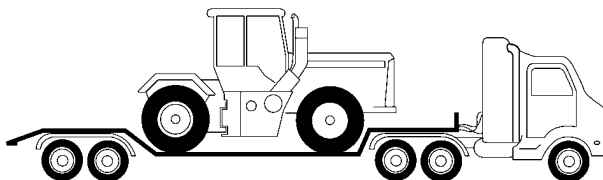
RW13093 -UN-07DEC88

AG,RF30435,1988 -19-18NOV99-1/1

Transport Tractor Safely

Transport a disabled tractor on a flat-bed carrier. Securely chain tractor to carrier.

If towing a tractor, never tow faster than 8 km/h (5 mph). Have an operator steer and brake tractor. Always haul the tractor if long distance moving is required.



RW26778 -JN-01FEB00

AG,RX15494,2339 -19-02FEB00-1/1

Service Cooling System Safely

Explosive release of fluids from pressurized cooling system can cause serious burns.

Shut off engine. Only remove filler cap when cool enough to touch with bare hands. Slowly loosen cap to first stop to relieve pressure before removing completely.



TS281 -JN-23AUG88

DX,RCAP -19-04JUN90-1/1

Practice Safe Maintenance

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

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

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

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

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

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



TS218 -UN-23AUG88

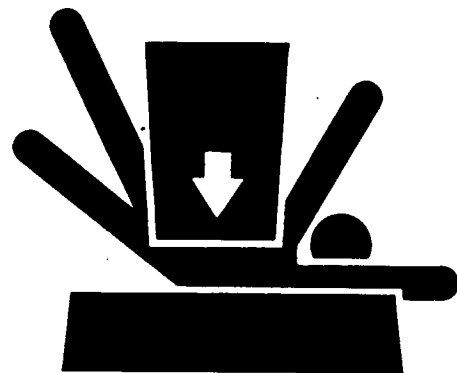
DX,SERV -19-17FEB99-1/1

Support Machine Properly

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.



TS229 -UN-23AUG88

DX,LOWER -19-24FEB00-1/1

Remove Paint Before Welding or Heating

Avoid potentially toxic fumes and dust.

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

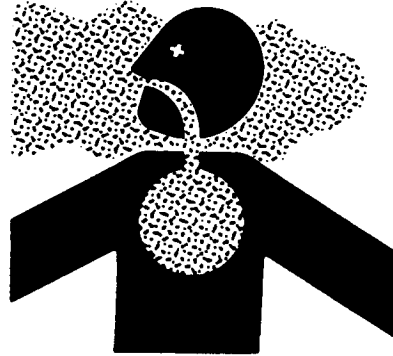
Remove paint before heating:

- 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.



TS220 -UN-23AUG88

DX,PAINT -19-24JUL02-1/1

Avoid Heating Near Pressurized Fluid Lines

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.



TS953 -UN-15MAY90

DX,TORCH -19-10DEC04-1/1

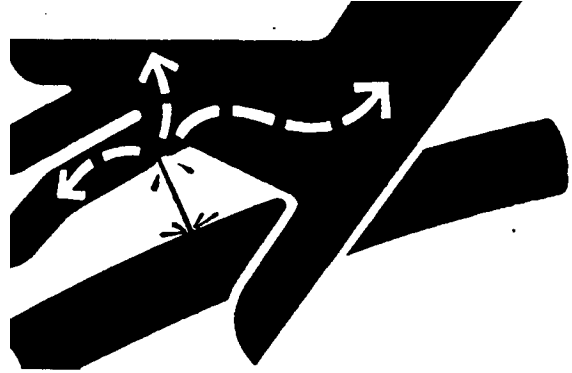
Avoid High-Pressure Fluids

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

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

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

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



X9811 -UN-23AUG88

DX,FLUID -19-03MAR93-1/1

Service Accumulator Systems Safely

Escaping fluid or gas from pressurized hydraulic accumulator systems can cause serious injury. Extreme heat can cause the accumulator to burst, and pressurized lines can be accidentally cut. Do not weld or use a torch near a pressurized accumulator or pressurized line.

Relieve pressure from the hydraulic system before removing accumulator. Never attempt to relieve hydraulic system or accumulator pressure by loosening a fitting.

Accumulators cannot be repaired.



TS281 -UN-23AUG88

DX,WW,ACCLA -19-15APR03-1/1

Protect Against High Pressure Spray

Spray from high pressure nozzles can penetrate the skin and cause serious injury. Keep spray from contacting hands or body.

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



TS1343 -UN-18MAR92

DX,SPRAY -19-16APR92-1/1

Handling Batteries Safely



CAUTION: Battery gas can explode. Keep sparks and flames away from batteries. Use a flashlight to check battery electrolyte level.

Never check battery charge by placing a metal object across the posts. Use a voltmeter or hydrometer.

Always remove grounded (-) battery clamp first and replace it last.



TS204 -UN-23AUG88



CAUTION: Sulfuric acid in battery electrolyte is poisonous. It is strong enough to burn skin, eat holes in clothing, and cause blindness if splashed into eyes.

Avoid the hazard by:

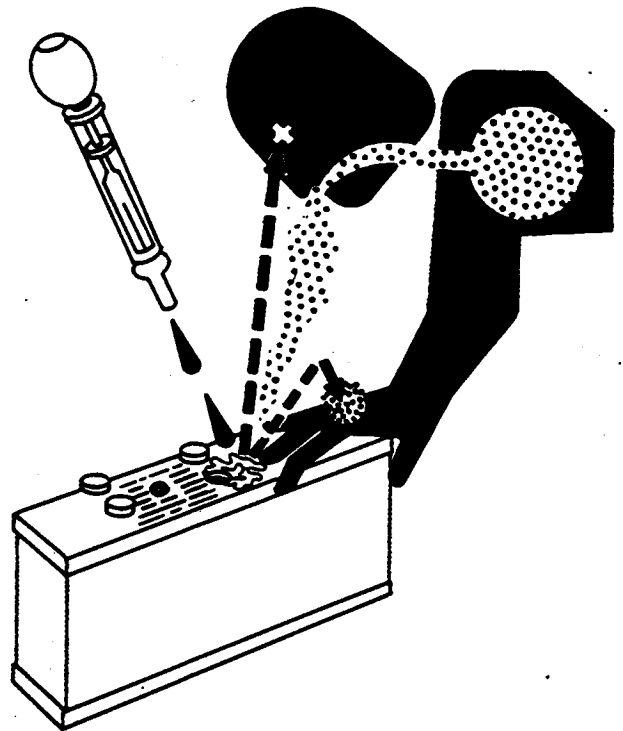
1. Filling batteries in a well-ventilated area.
2. Wearing eye protection and rubber gloves.
3. Avoiding breathing fumes when electrolyte is added.
4. Avoiding spilling or dripping electrolyte.
5. Use proper jump start procedure.

If you spill acid on yourself:

1. Flush your skin with water.
2. Apply baking soda or lime to help neutralize the acid.
3. Flush your eyes with water for 15—30 minutes. Get medical attention immediately.

If acid is swallowed:

1. Do not induce vomiting.
2. Drink large amounts of water or milk, but do not exceed 2 L (2 quarts).
3. Get medical attention immediately.



TS203 -UN-23AUG88

Dispose of Waste Properly

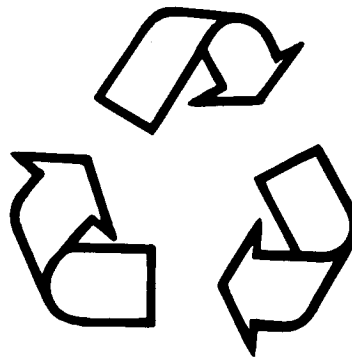
Improperly disposing of waste can threaten the environment and ecology. Potentially harmful waste used with John Deere equipment include such items as oil, fuel, coolant, brake fluid, filters, and batteries.

Use leakproof containers when draining fluids. Do not use food or beverage containers that may mislead someone into drinking from them.

Do not pour waste onto the ground, down a drain, or into any water source.

Air conditioning refrigerants escaping into the air can damage the Earth's atmosphere. Government regulations may require a certified air conditioning service center to recover and recycle used air conditioning refrigerants.

Inquire on the proper way to recycle or dispose of waste from your local environmental or recycling center, or from your John Deere dealer.



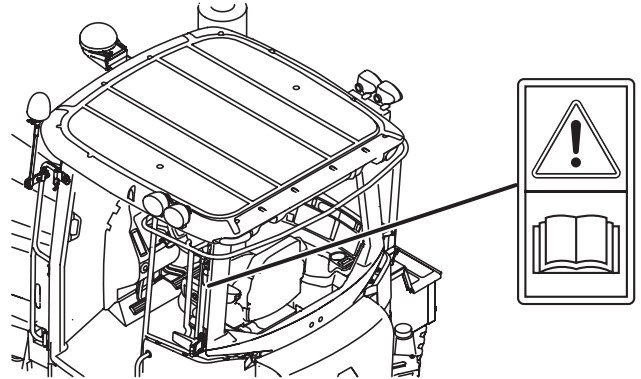
TS1133 -UN-26NOV90

DX,DRAIN -19-03MAR93-1/1

Safety Signs

Operator's Manual

This operator's manual contains important information necessary for safe machine operation. Carefully observe all safety rules to avoid accidents.

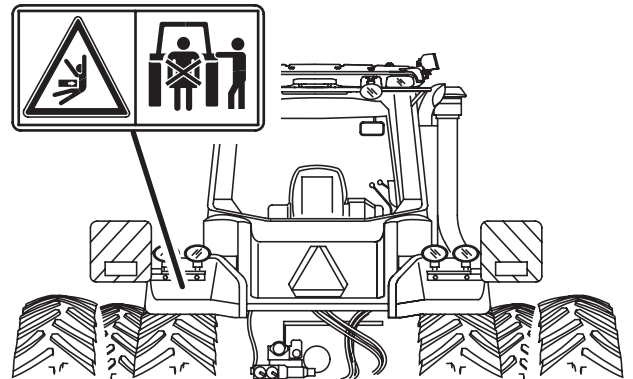


RXA0091368 -UN-03NOV06

RW29387,00001C2 -19-03NOV06-1/1

External Hitch Control Switch

Stay clear of three-point hitch lift range when operating hitch using external control switch.

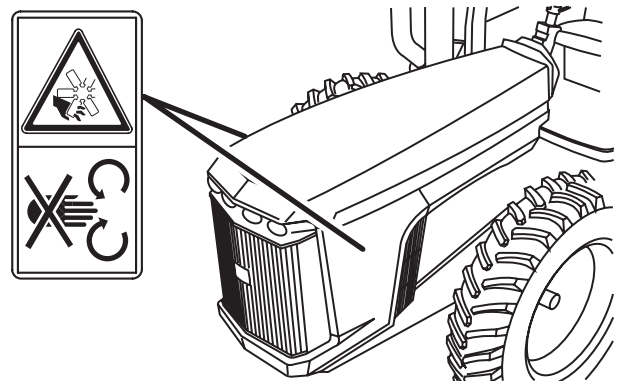


RXA0091369 -UN-03NOV06

RW29387,00001C3 -19-03NOV06-1/1

Fan

Avoid bodily injury from rotating engine fan: Keep hands out of fan discharge area when engine is running.

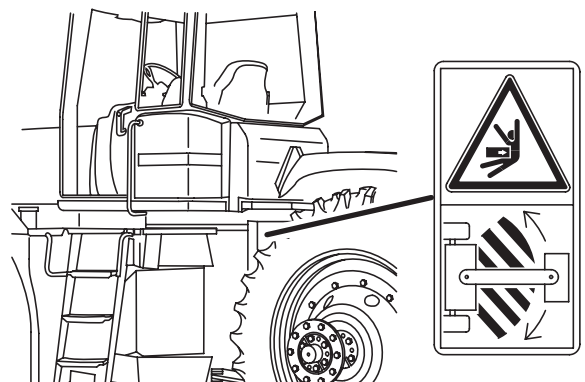


RXA0057263 -UN-21SEP01

RW29387,00001C4 -19-06NOV02-1/1

Hinge and PTO

Stay clear of the middle of the tractor when tractor is running.

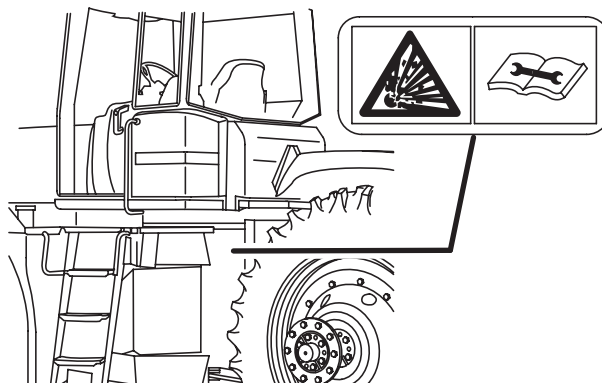


RXA0057239 -UN-21SEP01

RW29387,00001C5 -19-06NOV02-1/1

Powershift Transmission Park Brake

Contains spring under load. Prevent injury from sudden release by removing cap screws evenly.

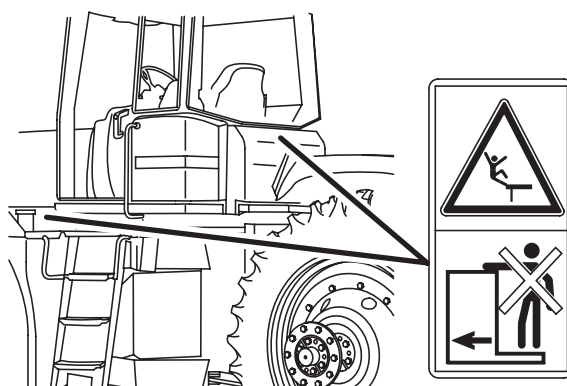


RW29387,0000480 -19-20SEP03-1/1

RXA0070976 -UN-24SEP03

Handrail

Use handrails when using steps and platforms on the outside of the cab.

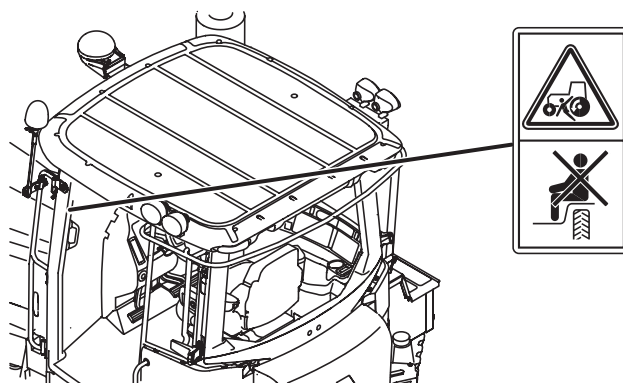


RW29387,00001C6 -19-06NOV02-1/1

RXA0055696 -UN-21SEP01

No Riders

Riders are not allowed on any external surface.

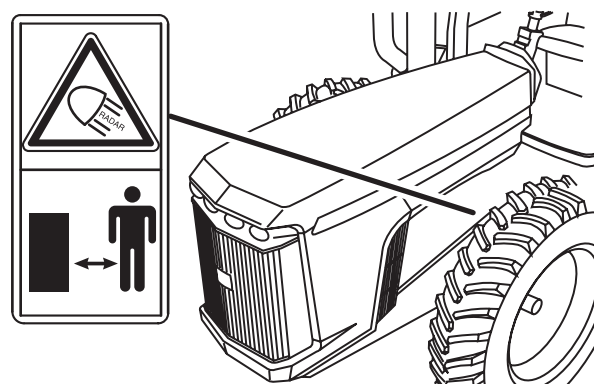


RW29387,000075E -19-03NOV06-1/1

RXA0091370 -UN-03NOV06

Radar Sensor

Stay clear of the radar sensor when engine is running.



BB92646,00000B1 -19-14OCT05-1/1

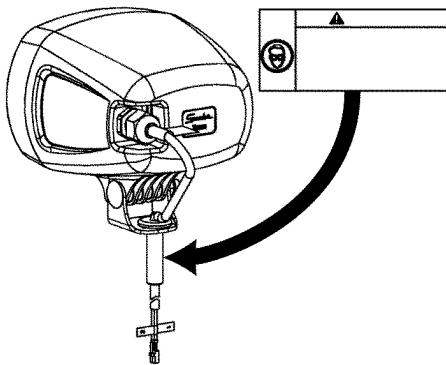
RXA0084645 -UN-14OCT05

HID Light Safety Label



RXA0090498 -UN-24AUG06

Warning-Decal on Rear Fender HID Light



RXA0091056 -UN-12OCT06

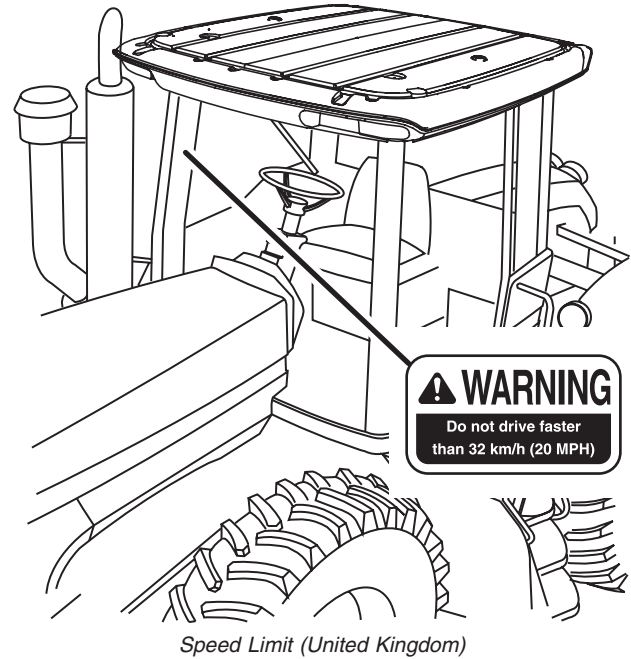
A CAUTION (Warning, Xenon Lights Only)

Manufacturer's warning reads as follows:
Hazardous voltage inside. To prevent
accidental shock, remove power and
wait 5 minutes before servicing.
Failure to comply could result in
serious injury.

RW29387,00004E7 -19-07DEC06-1/1

Speed Limit (United Kingdom)

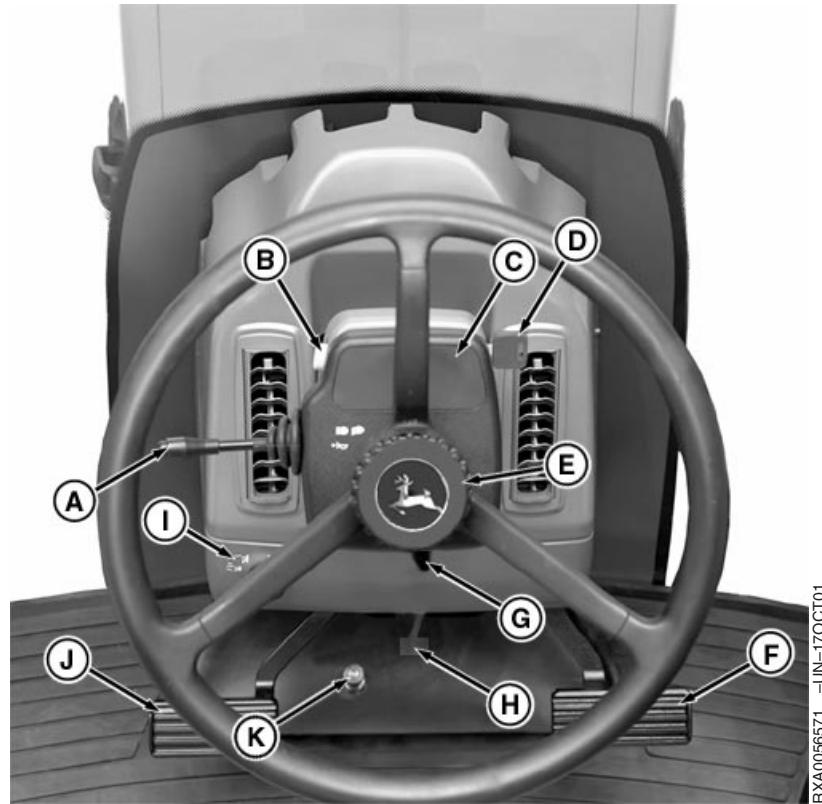
Operate tractor at safe speeds.



RW29387,0000034 -19-12MAY06-1/1

Controls and Instruments

Front Console

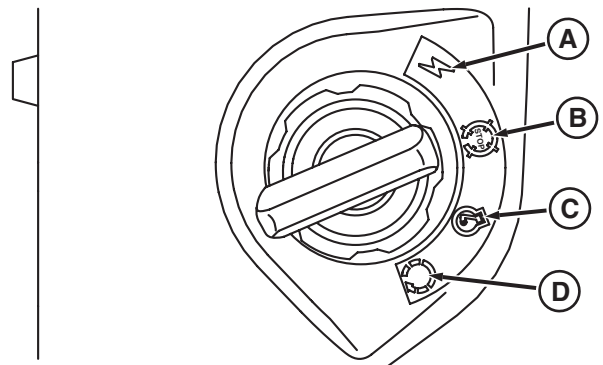


- | | | | |
|---|------------------------------------|--------------------------------|---------------------------|
| A—Turn Signal Lever, Dimmer Switch, Horn, Flash-to-Pass | C—Front Console | F—Brake Pedal | I—Air Flow Direction Knob |
| B—Ether Aid Switch | D—Key Switch | G—Steering Column Tilt Release | J—Clutch Pedal |
| | E—Steering Wheel Telescope Release | H—Steering Column Foot Release | K—Differential Lock |

RW29387,00001C7 -19-06NOV02-1/1

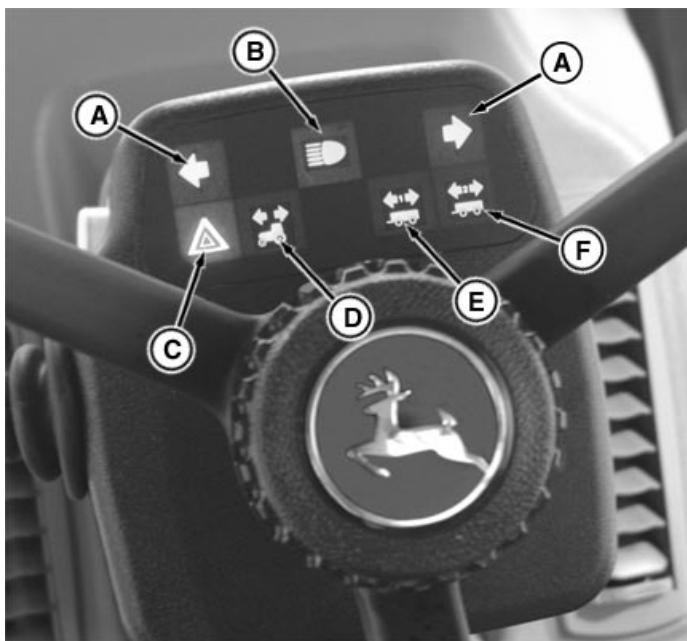
Ignition Switch

- A—Accessories
B—Off
C—Run
D—Start



RW29387,00004E5 -19-08JAN04-1/1

Front Console Display



FXA0056330 -UN-29AUG01

A—Turn Indicators
B—High-Beam Indicator

C—Hazard Light Indicator
D—Tractor Light Indicator

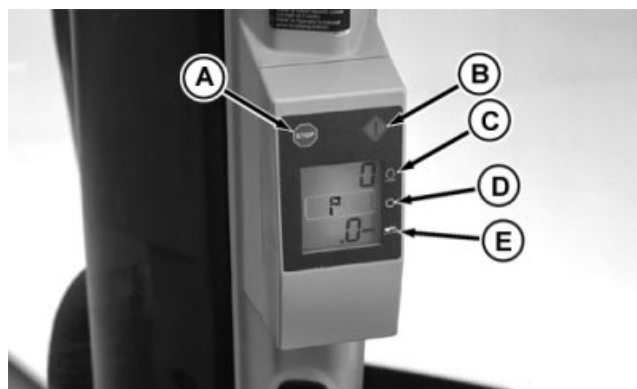
E—Trailer 1 Light Indicator

F—Trailer 2 Light Indicator

RW29387,00001C8 -19-06NOV02-1/1

Corner Post Display

A—Stop Engine Symbol
B—Service Alert Symbol
C—Engine Speed
D—Transmission Gear
E—Ground Speed¹

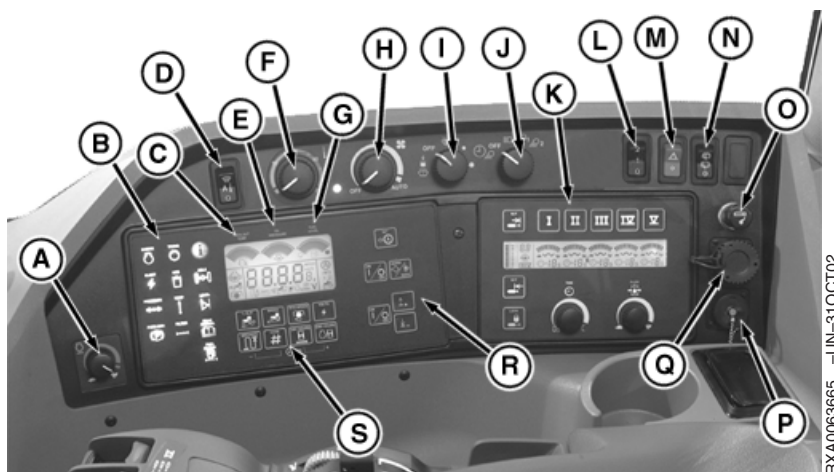


FXA0056085 -UN-14AUG01

¹Displays True Ground Speed WITH Radar—Displays Wheel Speed WITHOUT Radar

RW29387,00001C9 -19-06NOV02-1/1

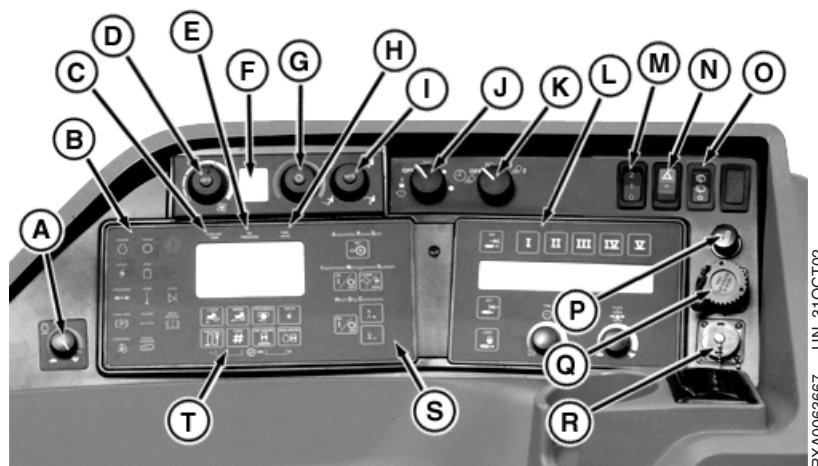
Side Console—Standard Cab



- | | | | |
|------------------------------|------------------------------|--|----------------------------------|
| A—Field Cruise | D—Air Conditioning Switch | L—Field Light Switch | Q—Diagnostic Outlet ¹ |
| B—Vehicle Monitor Indicators | E—Oil Pressure | M—Hazard Light Switch | R—Implement Management System |
| C—Coolant Temperature | F—Temperature Control | N—Rear Washer/Wiper Switch (If Equipped) | S—Display Functions Touchset |
| | G—Fuel Level | O—Cigarette Lighter (If Equipped) | |
| | H—Blower Speed Control | P—Convenience Electrical Outlet | |
| | I—Front Wiper Switch | | |
| | J—Light Switch | | |
| | K—SCV TouchSet Control Panel | | |

¹ Used by your John Deere Dealer

Side Console—Deluxe Cab



- | | | | |
|----------------------------|---|--|-----------------------------------|
| A—Field Cruise | D—Fan Speed Control | J—Wiper Control | P—Cigarette Lighter (If Equipped) |
| B—Vehicle Monitor | E—Engine Oil Pressure Gauge | K—Light Switch | Q—Diagnostic Outlet ¹ |
| C—Engine Temperature Gauge | F—ClimaTrak™ Display (late version) | L—SCV TouchSet Control Panel | R—Convenience Electrical Outlet |
| | G—Air Conditioning Switch/Temperature Control | M—Field Light Switch | S—Implement Management System |
| | H—Fuel Level | N—Hazard Light Switch | T—Display Functions |
| | I—Air Flow Control | O—Rear Washer/Wiper Switch (If Equipped) | |

ClimaTrak is a trademark of Deere & Company

¹ Used only by your John Deere Dealer

RW29387,00001CB -19-06OCT05-1/1

Shift and PTO Levers



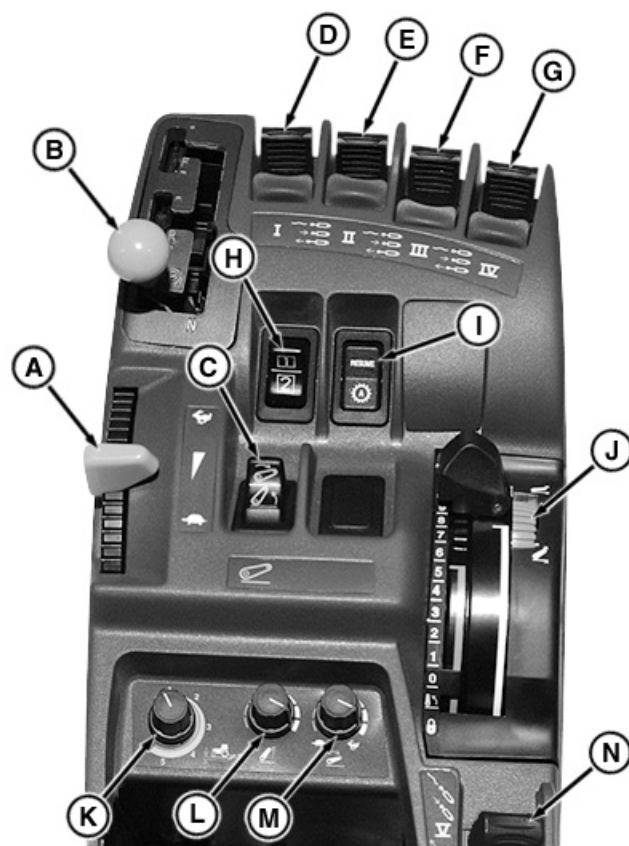
A—PTO Lever (If Equipped)

B—Gearshift Lever

RW29387_00001CC -19-06NOV02-1/1

Armrest Controls

- A—Hand Throttle
- B—Gearshift Lever
- C—Hitch Raise/Lower Switch
- D—Remote Hydraulic Lever (SCV I)
- E—Remote Hydraulic Lever (SCV II)
- F—Remote Hydraulic Lever (SCV III)
- G—Remote Hydraulic Lever (SCV IV)
- H—Sequence Switch (IMS)
- I—Automatic Powershift Resume Switch
- J—Hitch Control Stop
- K—Hitch Load/Depth Control¹
- L—Hitch Height Limit¹
- M—Hitch Rate of Drop¹
- N—Remote Hydraulic Lever (SCV V)



PXA0072743 -UN-05JAN04



PXA0071073 -UN-25SEP03

Hand Throttle-Late Version Rib

¹Inside Armrest

Vehicle Monitor Warning System

IMPORTANT: See your John Deere Dealer if any system indicates malfunction.

Vehicle monitor warning system alerts operator to malfunctions or needed service of the engine, transmission, electrical and hydraulic systems.

Indicators light and warning sounds momentarily when the key switch is turned to the ON position.

A serious malfunction is indicated when the **Stop Engine Symbol** (A) flashes and warning continues to sound in conjunction with a system indicator and function indicator. **Stop engine immediately** and determine the cause.

A serious problem has developed when the **Service Alert Symbol** (B) flashes and warning sounds five times in conjunction with a system, function, or status indicator. Observe gauges and indicator lights.

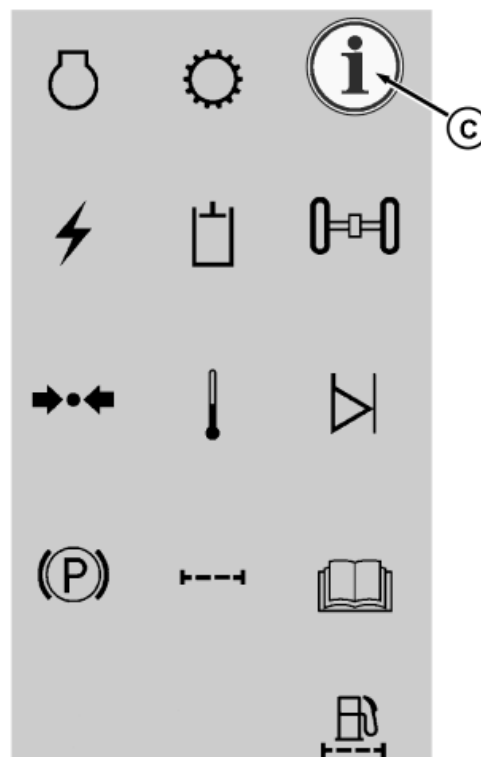
A problem has developed when the **Information Symbol** (C) flashes in conjunction with a system, function, or status indicator. Continue to operate tractor and address problem when convenient.

Service codes can be viewed on the digital display whenever a "priority" lights. (See Changing Display Functions in this section.) One problem will be displayed at a time, with most severe problem overriding all others. (See Service Codes Section.)

A—PRIORITY—Stop Engine Symbol
B—PRIORITY—Service Alert Symbol
C—PRIORITY—Information Symbol



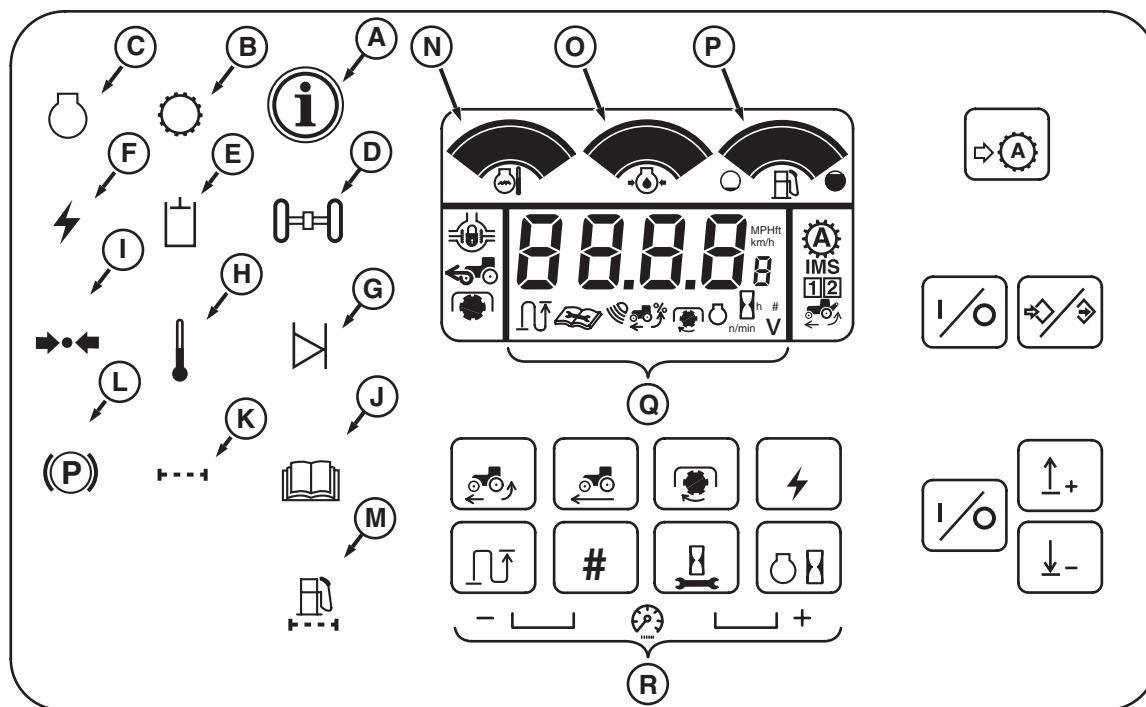
RXA0056168 -UN-14AUG01



Vehicle Monitor Indicators

RXA0055974 -UN-01AUG01

Vehicle Monitor



A “**PRIORITY**” is the STOP ENGINE, SERVICE ALERT, or INFORMATION indicators.

A “**SYSTEM**” refers to engine, transmission, hydraulic, electrical, or axle indicators.

A “**FUNCTION**” refers to pressure, temperature, level, or filter.

A “**STATUS**” indicates operational mode.

Continued on next page

RW29387.00001CF -19-06NOV02-1/2

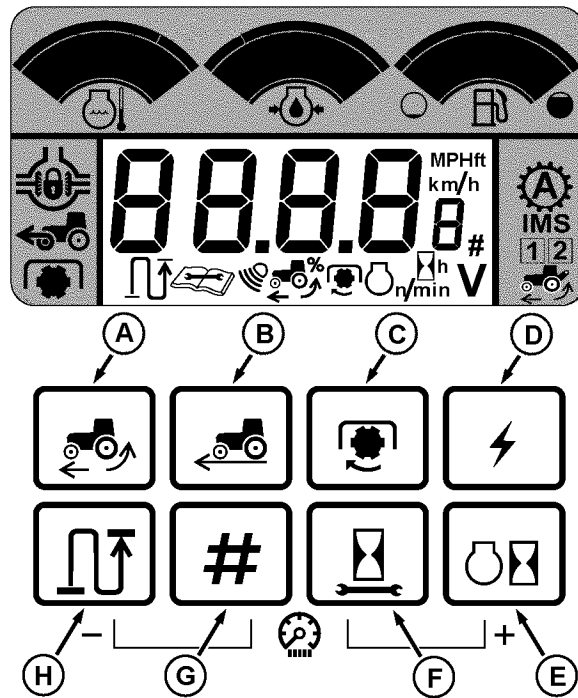
RX40053736 -UN-18MAY01

Controls and Instruments

KEY	INDICATOR	FUNCTION
A	INFORMATION	Problem has developed possibly reducing performance—Continue to operate tractor and address problem when convenient—Push Code # and check displayed code—Indicator flashes in conjunction with a “SYSTEM”, “FUNCTION”, or “Status” indicator
B	Transmission	Flashes in conjunction with “PRIORITY” and “FUNCTION” indicators
C	Engine	Flashes in conjunction with “PRIORITY” and “FUNCTION” indicators
D	Axle	Flashes in conjunction with “PRIORITY” and “FUNCTION” indicators
E	Hydraulic	Flashes in conjunction with “PRIORITY” and “FUNCTION” indicators
F	Electrical	Flashes in conjunction with “PRIORITY” and “FUNCTION” indicators
G	Level	Flashes in conjunction with “PRIORITY” and “SYSTEM” indicators
H	Temperature	Flashes in conjunction with “PRIORITY” and “SYSTEM” indicators
I	Oil Pressure	Flashes in conjunction with “PRIORITY” and “SYSTEM” indicators
J	Read Manual	Lights in conjunction with "PRIORITY" indicator and "FUNCTION" indicator—See Service Sections
K	Filter	Flashes in conjunction with “PRIORITY” and “SYSTEM” indicators
L	Park Brake	Indicates when (<i>Powershift</i>) transmission is in PARK position
M	Fuel Filter	Indicates fuel filter restriction or low fuel pressure
N	Coolant Temperature	Indicates engine coolant temperature
O	Oil Pressure	Indicates engine oil pressure
P	Fuel	Indicates remaining amount of fuel—Flashes when approximately 75-95 L (20-25 gal) of fuel remains
Q	Digital Display *	Displays percent wheel slip, ground speed, PTO speed, distance traveled, service codes, hours since last service, electrical system voltage and total engine hours
R	Function Selectors	Changes digital display functions
* Wheel Slip, Ground Speed, and Distance Traveled requires radar for accurate reading		

RW29387,00001CF –19–06NOV02–2/2

Changing Display Functions



RW26348 -UN-28JUN99

A—Wheel Slip Percentage
B—Ground Speed

C—PTO Speed
D—Voltage

E—Engine Hours
F—Service Hours

G—Diagnostic Codes
H—Distance Traveled

NOTE: Display can be changed to read in Metric units. See your John Deere dealer for correct procedure.

Display functions are changed using the touch switches on the right side of the vehicle monitor.

Ground Speed and Wheel Slip (TRACTORS WITH RADAR)

NOTE: Dashes are displayed for tractors **without** radar unit.

Radar will display true ground speed on corner post below 26 km/h. (16 mph) and actual wheel speed above 27 km/h. (16 mph).

The calculated ground speed does not allow for traction slip.

Press % slip switch (A) to display percent of wheel slip.

Press switch (B) to display true ground speed. Pressing switch a second time will change to a calculated speed. Display will alternate between axle speed and true ground speed each time switch is pressed.

PTO Speed

Press PTO speed switch (C) to display the PTO rpm.

Volts

Press volts switch (D) to display the current system voltage in tenths of volts.

Engine Hours

NOTE: Tenths of hours digit is half size and decimal point is implied.

Press engine hours switch (E) to display accumulated engine hours.

Service Hours

Press service hours switch (F) to display operating hours since tractor was last serviced. Display will show current service hours and service book symbol will flash when operating hours since last service exceeds interval set point.

NOTE: The service hour set point can be changed. See your John Deere Dealer.

Default service interval set point is 250 hours. Press switch (F) for 3 seconds to reset to zero after scheduled service.

Diagnostic Code

Press code switch (G) to display code for current active alarm, if any. Press switch to display electronic controller and code number. Record controller and code number for future reference.

Check code displayed with codes listed in Service Codes Section to find possible solution for problem listed beside service code. If code displayed requires a service technician, identifying the possible problem by using the code number will help arrive at a quicker solution.

NOTE: Alarms can be suppressed, for the duration of the operation, by pressing the code switch for 7 seconds. The alarm will reappear the next time the tractor is started, if the problem still exists.

Distance Traveled

NOTE: Radar is required for accurate readings to adjust for traction slippage.

Press distance switch (H) to display distance in feet (meters) since tractor was started or distance traveled was reset. Reset to zero by pressing switch for three seconds.

Engine Coolant Temperature

Hold switches (B) and (G) simultaneously to display current engine coolant temperature in degrees Fahrenheit. Pushing them a second time toggles them back to degrees Celsius. They continue to toggle back and forth with each subsequent push.

Hydraulic Oil Temperature

Hold switches (C) and (F) simultaneously to display current hydraulic oil temperature in degrees Fahrenheit. Pushing them a second time toggles them back to degrees Celsius. They continue to toggle back and forth with each subsequent push.

Display Light Intensity

Night-time light intensity for all displays can be adjusted when the light switch is in the "ON" position.

Pressing switches (E) and (F) simultaneously on panel will INCREASE the light intensity. Pressing switches (G) and (H) simultaneously will DECREASE the intensity.

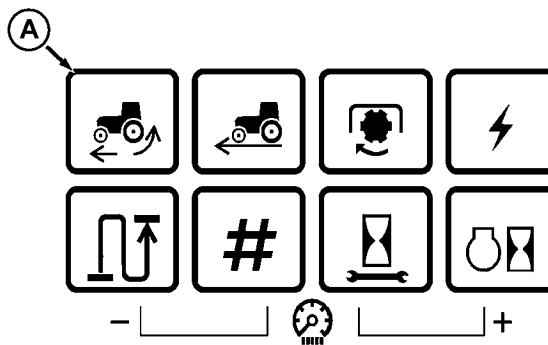
NOTE: Key switch must be left ON for 30 seconds to save new setting.

Calibrating Tire Size—With Radar

NOTE: Calibrating tire size is necessary to obtain accurate wheel slip percentage. Calibration needs to be taken on a hard surface with no load.

Drive tractor straight at 8 km/h (5 mph) while pressing and holding wheel slip switch (A) for three seconds. Display will read zero percent wheel slip if calibrated correctly. Display will read **Err** if not calibrated correctly.

NOTE: Tractor must be moving and radar installed correctly to insure correct wheel slip calibration. (See *SINGLE BEAM RADAR OR DUAL BEAM RADAR* in this section.)

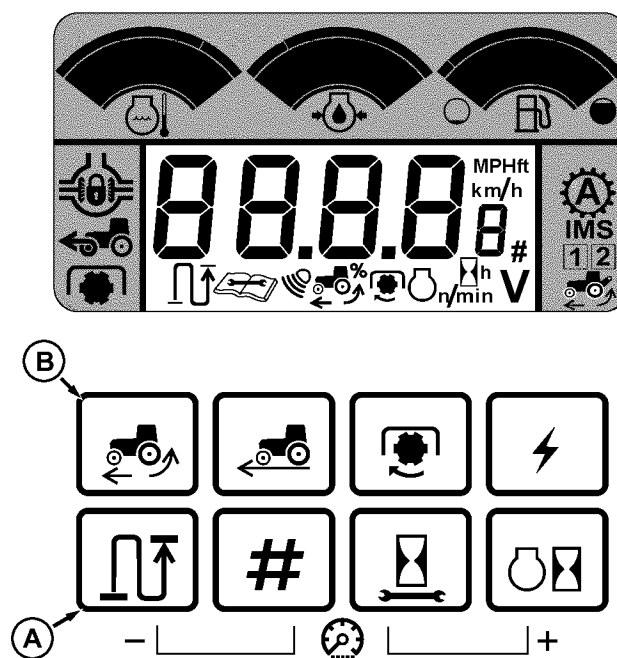


A—Wheel Slip Percentage

RW26360 -UN-28JUN99

RW29387,00001D1 -19-23SEP05-1/1

Single Beam Radar



RW26350 -UN-28JUN99

A—Distance Traveled

B—Wheel Slip Percentage

NOTE: Configure tractor as needed, using ballast guidelines and install implement. Drive tractor in level field without a draft load (implement raised), to avoid wheel slip, at approximately 3.2 km/h (2 mph).

NOTE: Changing tire size or loading of tractor can cause angle of radar to change which will require a recalibration of the radar system.

NOTE: Radar will display true ground speed on corner post below 26 km/h. (16 mph) and actual wheel speed above 27 km/h. (16 mph).

Mark a straight-line course of 122 m (400 ft).

At starting point, press and hold distance touch switch (A) for 3 seconds. Display will show zero.

Drive tractor at approximately 3.2 km/h (2 mph) to the 122 m (400 ft) mark and stop.

NOTE: Do not backup if end point is exceeded. Return to starting point and repeat procedure.

Press percent slip touch switch (B) and distance touch switch (A) simultaneously. Display will show “End” if calibration was successful. If not, display will show “Err” and calibration should be performed again at a slightly faster speed, but less than 11.3 km/h (7 mph).

RW29387,00001D2 -19-23SEP05-1/1

Dual Beam Radar

NOTE: On tractors with factory or dealer installed dual beam radar, it is not necessary to calibrate vehicle speed.

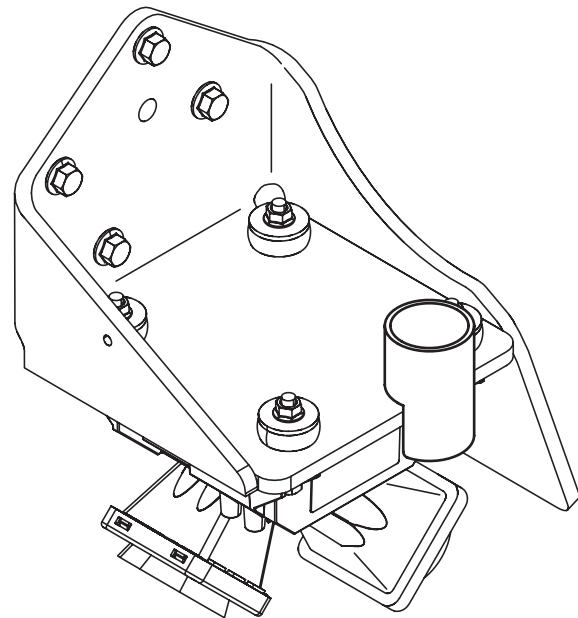
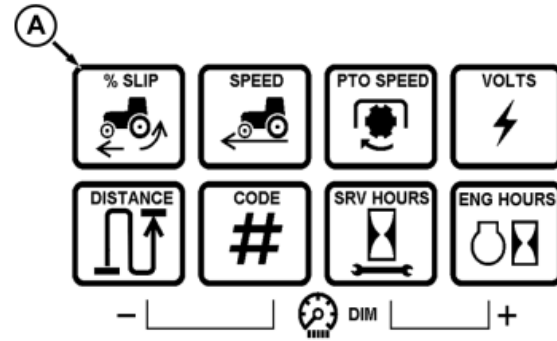
May need to reset % slip value if:

- Wheel speed and radar speed are not equal when slip is not present
- Tire size is changed
- Wheel slip is displayed when slip should not be present

Reset % slip value by:

- Drive tractor on a hard level surface at a constant speed of 8.0 km/h (5 mph)
- It is recommended to have an implement connected to the tractor but not engaged in the ground (no load).
- Press and hold % slip touch pad (A) for a minimum of 3 seconds to zero out slip.

A—% Slip Touch Pad



Dual Beam Radar

RW29387,0000021 -19-13OCT05-1/1

RW26232 -UN-02JUN99

PXA0080339 -UN-23MAY05

Performance Monitor—If Equipped

NOTE: Ignition switch must be in the ON position to operate performance monitor.

Performance monitor displays information related to various speeds, area, distance, time and alarm data.

Bar graph displays wheel slip and monitor backlight intensity.

Area, wheel slip, slip alarm, width, implement indicator, distance, backlight brightness, and service hours can be adjusted or preset.

A radar sensor is required for an accurate calculation of wheel slip, area covered, distance or speed. Without a radar sensor, values are estimates based on wheel speed.

NOTE: Tractors built prior to January 2003, press and hold **AREA** touch pad for 8 seconds to change display from **English** to **Metric** units.

Tractors built after January 2003, turn to **CCU24 address** Default Display Mode **Type: Calibration**
Display Options: 000 English (mi/h, feet, etc.)
001 Metric (SI) (km/h, meters, etc.)

This address selects the default display units (English or Metric).

The default display units can be changed using the performance monitor or CCU24 address.



RW29387,00001D3 -19-15MAY04-1/1

Performance Monitor—Data Entry and Saving Mode

SET/SAVE

Press a switch from the touch pad, to preset or change values for:

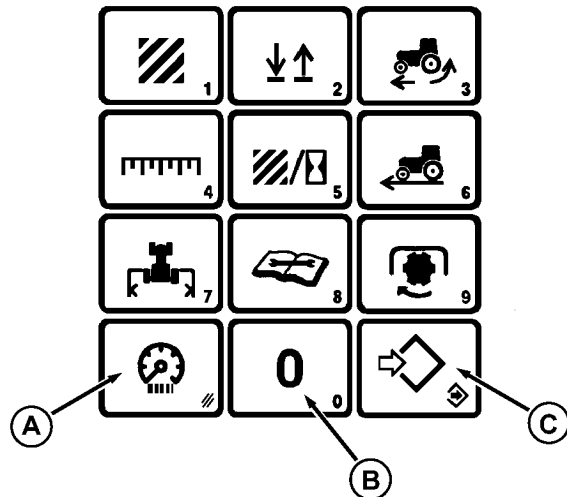
- Area
- % Slip Alarm
- Distance
- Implement Width
- Implement Selector
- Time Since Last Service
- Service Interval
- Backlight Brightness

1. Press **SET/SAVE** (C) to change the numeric value. Display field will flash.

NOTE: Press **CANCEL** (A) to restore previous value **before** pressing **SET/SAVE**.

Press “0” **ZERO** switch (B) for 4 seconds to reset a numeric value to “0”.

2. Input a numeric value using touch pads, then press **SET/SAVE** (C) again.



A—CANCEL
B—“0” ZERO
C—SET/SAVE

RW26352 –UN–28JUN99

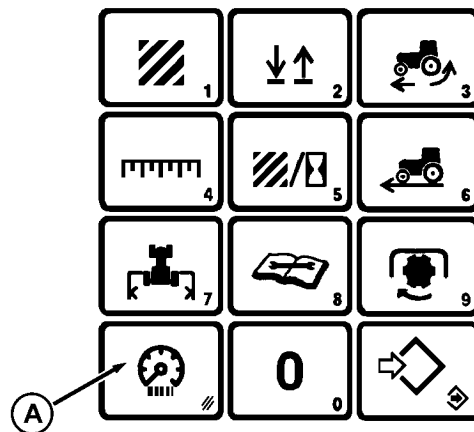
RW29387,00001D4 –19–06NOV02–1/1

Performance Monitor—Adjusting Backlight

The DIM switch (A) can adjust the backlight intensity of the **performance monitor** and all **cab displays** of the display console (system adjustment).

1. Press **DIM** to display system backlight intensity for displays in the cab.
2. Press **DIM** switch again to display backlight setting of the performance monitor. A *bell* symbol will be displayed.

A—DIM Switch



RW26353 –UN–28JUN99

Continued on next page

RW29387,00001D5 –19–06NOV02–1/3

NOTE: Backlight intensity will remain at maximum brightness with headlights in the OFF position.

Headlight switch must be in the ON position to make adjustments.

Ignition key must be left in the ON position for 30 seconds to save new data.

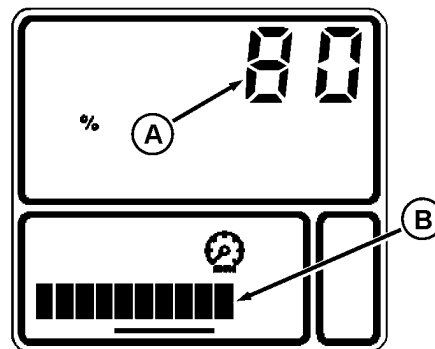
All Cab Display Backlighting

Adjusts system brightness for ALL displays in the cab.

1. Press **DIM** switch for 4 seconds. Numeric display will show system backlight setting (A) and bar graph gives a graphical display (B).
2. Hold switch to increase backlight brightness to maximum intensity. Continuing to hold switch will begin to decrease brightness.
3. Release switch at desired setting. To change direction release switch and hold again.

Alternate Adjustment:

1. Press **DIM** switch, then press **SET/SAVE** switch.
2. Input a numeric value (0—100) and again press **SET/SAVE** switch.



A—System Backlight Setting
B—Backlight Intensity

RW26099 -UN-27APR99

Continued on next page

RW29387,00001D5 -19-06NOV02-2/3

Performance Monitor Display Backlighting

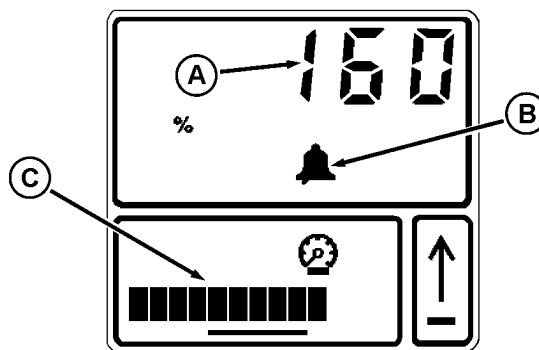
1. Press **DIM** switch twice. The numeric display (A) will show the backlight setting of the performance monitor. A bell symbol (B) will be displayed.

NOTE: System backlight intensity remains displayed on the bar graph (C).

2. Press **SET/SAVE** switch and input a numeric value (0—255).

Backlight intensity can be adjusted brighter or dimmer than vehicle monitor or corner post display.

3. Press **SET/SAVE** switch. Backlight intensity will adjust.
4. Hold "**0**" **ZERO** to switch the performance monitor backlight ON or OFF.



A—Numeric Display
B—Bell Symbol
C—Backlight Intensity

RW26102 -UN-27APR99

RW29387,00001D5 -19-06NOV02-3/3

Performance Monitor—Service

1. Press the **SERVICE** switch (A) to display hours accumulated since the last service.

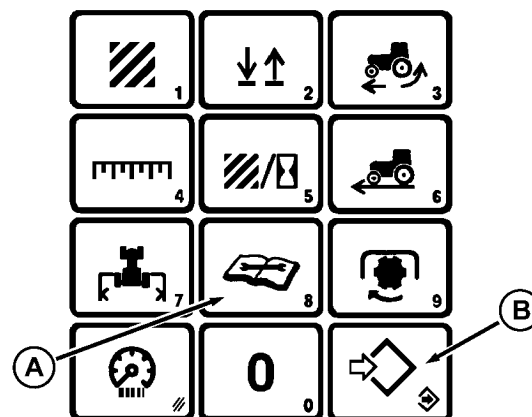
The alarm symbol will flash and a chime will sound when the service interval is reached.

2. Press **SET/SAVE** switch (B) to change service time. Input a service time (0.0—9999.9 hrs), and press **SET/SAVE** switch (B) again.

NOTE: Pressing any switch on the touch pad will shut off the alarm until the tractor is started again.

The alarm feature can be shut off by storing a "0" in the service interval data. The monitor will start counting hours beginning at zero.

3. Press switch again to display programmed service intervals. An alarm symbol will be displayed.
4. Press **SET/SAVE** switch to change a service interval. Input desired service hours (0—999 hrs), and again press **SET/SAVE** switch.



A—SERVICE Switch
B—SET/SAVE Switch

RW26354 -UN-28JUN99

RW29387,00001D6 -19-06NOV02-1/1

Performance Monitor—Area, Distance, Area/H, Width, and PTO RPM

NOTE: Calculations for AREA and AREA/H are based on implement width and ground speed. Use a radar sensor for the most accurate values.

AREA

Press **AREA** switch (C) to display accumulated area in acres or hectares. The implement arrow indicator (B) must be in the down position to accumulate area.

Hold **ZERO** switch (I) to clear accumulated area.

DISTANCE

Press **DISTANCE** switch (E) to display distance accumulated in meters or feet.

Distance is accumulated with the implement indicator (B) in the down position.

Measurement is cleared when the ignition is switched to the OFF position.

AREA/H

Press **AREA/H** switch (D) to display the current measurement for area coverage per hour.

Implement indicator must be in the down position.

WIDTH

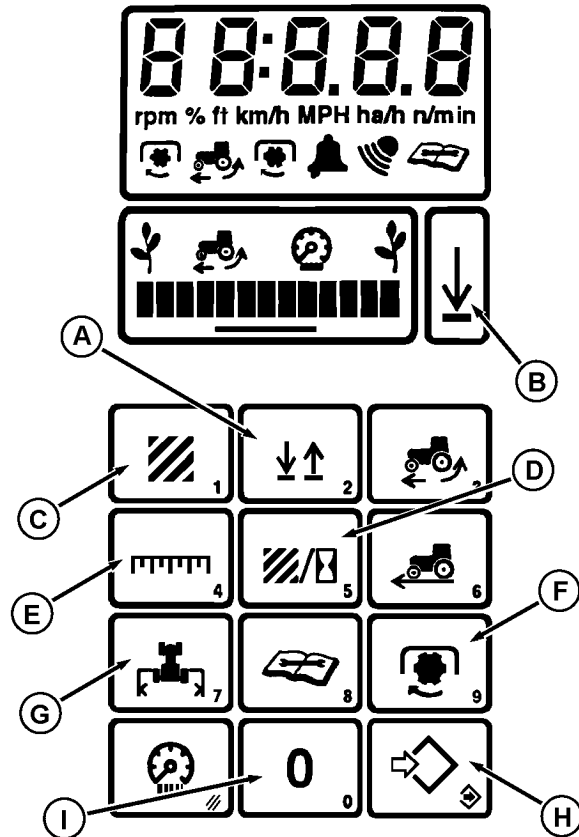
Press **WIDTH** switch (G) to display measurement for implement width.

Press **SET/SAVE** switch (H) to change implement width.

Input implement width and press **SET/SAVE** switch (H).

PTO RPM

Press **PTO RPM** switch (F) to display PTO speed.



RW26355 -JUN-28JUN99

Performance Monitor—Operation and Calibration

IMPLEMENT:

Press the **IMPLEMENT** switch (A) to change implement indicator arrow (B) to the "up" or "down" position.

When the implement indicator arrow points down, all measurement functions are engaged.

The indicator arrow can be controlled by an optional, external implement switch. (See your John Deere Dealer.)

NOTE: An optional implement mounted switch is available from your John Deere Dealer.

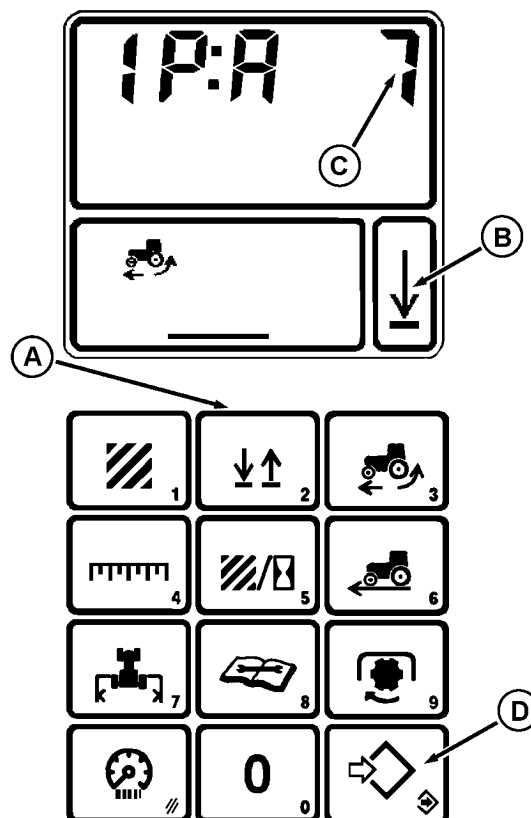
Implement Selector Calibration:

Procedure coordinates the position of the indicator arrow (B) to the position of the hitch or implement switch.

1. Hold **IMPLEMENT** switch (A) four seconds to change the function code (C).

Display will show "IP:" and a function code (3, 7, 8, 13 or 32). This number indicates which device controls the implement arrow (B).

- **3**—Hitch position sensor (raise limit setting)
- **7**—External implement switch or "Implement" switch on touch pad
- **8**—PTO "ON"
- **13**—SCV No. 1 (timed out)
- **32**—First downward or upward movement automatically selects which external device will control the implement indicator arrow (an "optional" implement switch or the hitch position sensor). The "A" in the display (IP:A) represents this Auto-Seek mode.



A—Implement Switch
B—Implement Indicator
C—Function Code
D—SET/SAVE Switch

RW26356 -UN-28JUN99

Continued on next page

RW29387,00001D8 -19-06NOV02-1/2

NOTE: *If switch (A) does not control the indicator arrow, "7" has not been selected as a function code.*

For applications which use the hitch sensor or implement switch exclusively, use "3" or "7".

A "0" or any other number other than the above will completely shut off the "implement" function.

2. Press **SET/SAVE** switch (D). Input 3, 7, 8, 13 or 32 using touch pad, then press **SET/SAVE** switch again.

RW29387,00001D8 -19-06NOV02-2/2

Performance Monitor—Wheel Slip

Radar must be operational to provide true ground speed. If true ground speed is not available, "---" will be displayed.

NOTE: Illustration shows current wheel slip (C) is 4% and alarm setting at 6%. Each bar on the bar graph represents 2% slip.

1. Press **% SLIP** switch (A). Bar graph and numeric display will show current wheel slip.
2. Press switch again to display the wheel slip alarm setting. Alarm symbol (E) will be displayed.

NOTE: Bar graph (C) flashes when wheel slip exceeds alarm setting.

3. Press **SET/SAVE** switch (B) to change alarm value.
4. Input alarm setting using touch pad, then press **SET/SAVE** switch again.

NOTE: Entering "0" as an alarm value will shut off alarm.

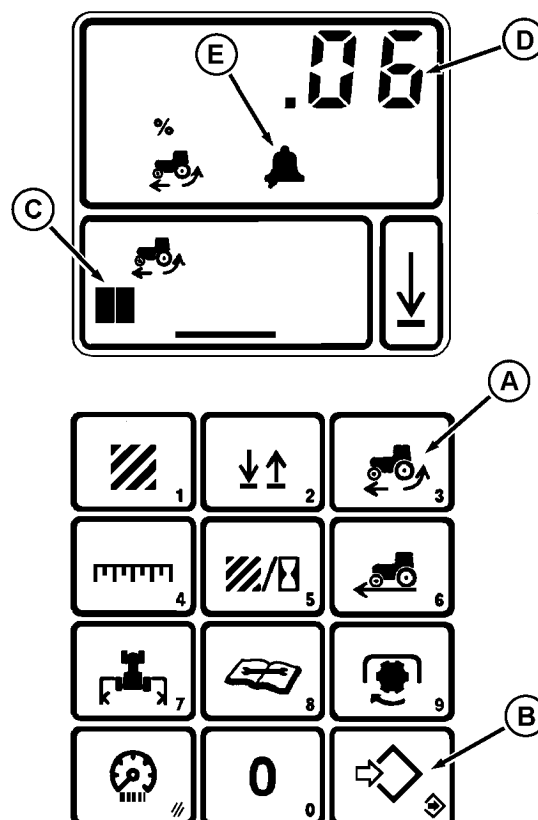
Calibration:

Drive tractor 8 km/h (5 mph) with no load. Wheels must not be slipping.

Press the "**0**" **ZERO** switch for 4 seconds. "CAL" will be displayed during calculation.

NOTE: "Err" will flash on display field if calibration was not performed correctly. Repeat calibration procedure.

Display will return to percent slip if calibration was successful.



A—% SLIP
B—SET/SAVE
C—Bar Graph
D—Numeric Display
E—Wheel Slip Alarm

RW26357 -UN-28JUN99

RW29387,00001D9 -19-06NOV02-1/1

Performance Monitor—Vehicle Speed

1. Press **SPEED** switch (A) to display actual ground speed (F) with radar. The tractor must be in motion. The radar symbol (E) will be displayed.
2. Press switch again to display wheel speed (F). Press switch again to toggle between these modes.

NOTE: True ground speed can be different than wheel speed. If tractor is not equipped with radar, only wheel speed will be displayed.

Radar Calibration:

Mark a 122 meter (400 ft) straight-line course (start and finish lines).

1. Press **SPEED** switch (A) and **DISTANCE** (B) for 4 seconds. Display field will show "---" and the "ft" and "m" symbols will flash. The "implement" arrow indicator (D) should be pointing up.

NOTE: **SPEED** and **DISTANCE** switches must be pressed at the same time for correct calibration.

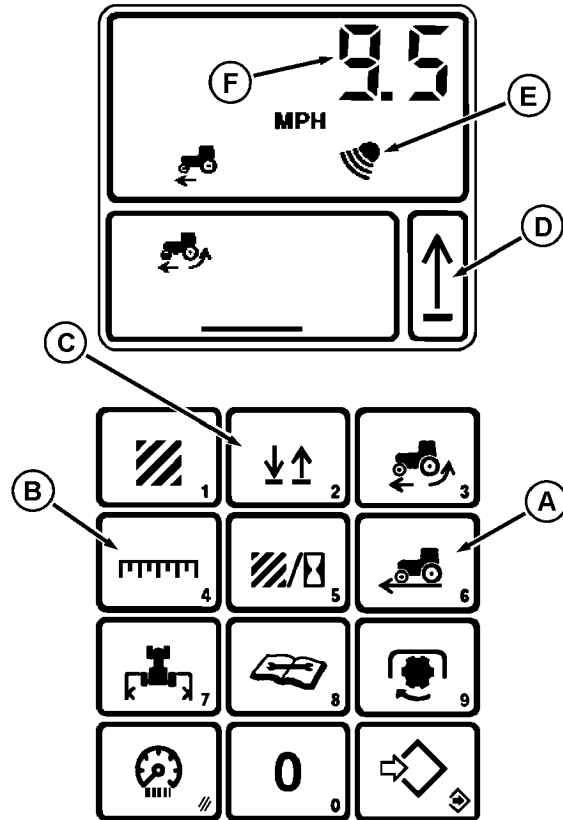
2. Drive tractor approximately 3 km/h (2 mph) on a hard surface with no load. As the tractor crosses the start-line, press the **IMPLEMENT** switch (C), to point the indicator arrow to the down position.

3. Press the **IMPLEMENT** switch (C) as you cross the finish-line to change the arrow to the up position.

Display will alternate between "122 m and 400 ft" when calibration is successful.

NOTE: **Err** will flash on display if calibration was not performed correctly. Previous calibration value will stay in memory.

Press **SPEED** switch (A) to display vehicle speed or another display.



- A—SPEED
 B—DISTANCE
 C—IMPLEMENT
 D—Implement Indicator
 E—Radar Indicator
 F—Wheel/Ground Speed

RW26358 -JUN-28JUN99

Lights

Operating Road Lights



CAUTION: Avoid injury caused by accidental collision with another vehicle. Use headlights, flashing warning lights, and turn signals day and night. Always comply with traffic regulations when driving tractor on a road and follow local regulations for equipment lighting and marking. Dim headlights to low-beam for oncoming vehicles. Avoid using flood lights which could blind or confuse other drivers.

The ROAD LIGHT switch (A) has four positions and operates regardless of the key switch position:

OFF POSITION—(B)

Switches off all lights

PARK POSITION—(C)

- Clearance Low Voltage Headlights (H)
- Red Tail Lights (I)

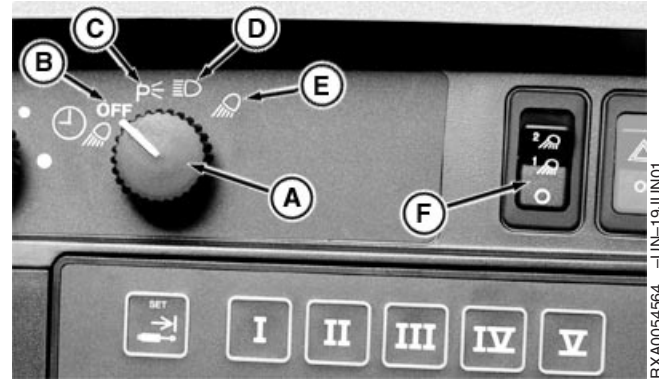
ROAD POSITION—(D)

- Red Tail Lights (I)
- High or Low Beam Headlights (H)

FIELD POSITION—(E)

Activates field lights. Use switch (F) to select field light combinations. (See Operating Field Lights).

- A—Road Light Switch
- B—Off Position
- C—Park Position
- D—Road Position
- E—Field Position
- F—Field Light Switch
- G—Clearance Low Voltage Head Light
- H—High or Low Beam Head Light
- I—Red Tail Lights
- J—Amber Turn Lights



RXA0054564 -UN-19JUN01



RXA0054567 -UN-19JUN01



RXA0054565 -UN-19JUN01

Operating Field Lights

CAUTION: Avoid injury caused by accidental collision with another vehicle. Avoid using Field lights while driving on roads which could blind or confuse other drivers.

The field light switch (B) has three positions and operates when the ROAD LIGHT switch (A) is in the FIELD POSITION.

OFF POSITION—0
Field Lights Off

FIELD POSITION—1

Low Beam Position:

Headlights
Front Grille Flood Lights
Rear Fender Flood Lights
Red Tail Lights
—

High Beam Position:

Headlights
Front Grille Flood Lights
Rear Fender Flood Lights
Red Tail Lights
Front Grille Spot Light (Optional)

FIELD POSITION—2

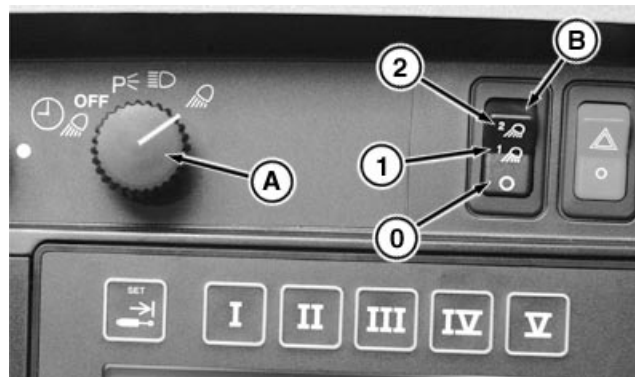
Low Beam Position:

Headlights
Front Grille Flood Lights
Rear Fender Flood Lights
Red Tail Lights
Roof Flood Lights (Optional)
—

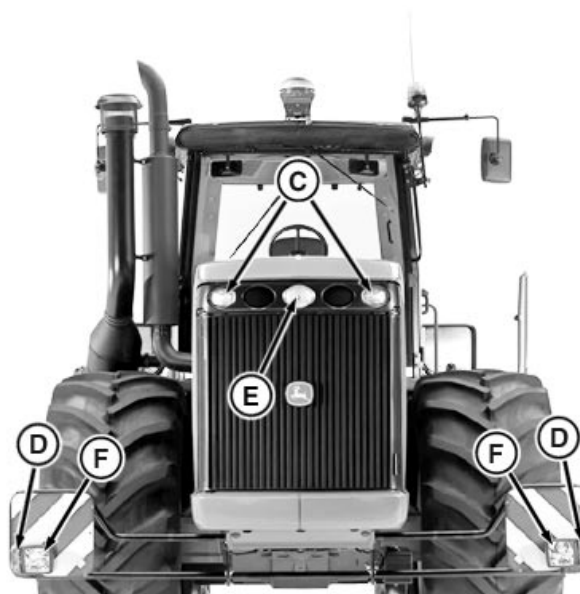
High Beam Position:

Headlights
Front Grille Flood Lights
Rear Fender Flood Lights
Red Tail Lights
Roof Flood Lights (Optional)
Front Grille Spot Light (Optional)

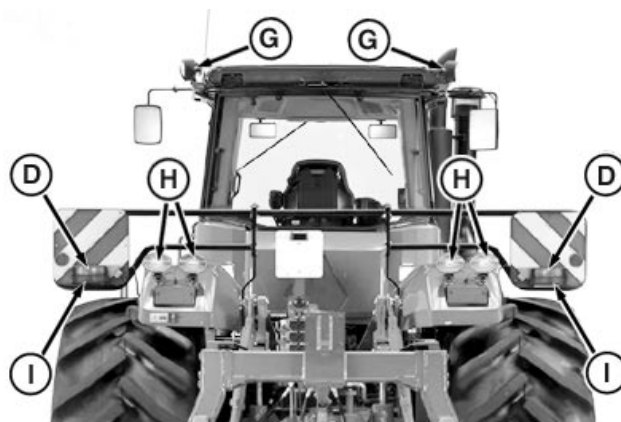
A—Road Light Switch
B—Field Light Switch
C—Front Grille Flood Lights
D—Amber Hazard/Turn Lights
E—Front Spot Light (If Equipped)
F—Headlights
G—Roof Flood Lights (If Equipped)
H—Rear Fender Flood Lights
I—Tail Lights



FXA0054563 —UN-19JUN01



FXA0084713 —UN-20OCT05



FXA0084714 —UN-20OCT05

RW29387,00001DC —19-20OCT05-1/1

Operating Turn Signals, Horn, and High/Low Beam

Turn Signals:

Push lever (A) up for a right turn, or pull down for a left turn. Return lever to center position after completing turn.

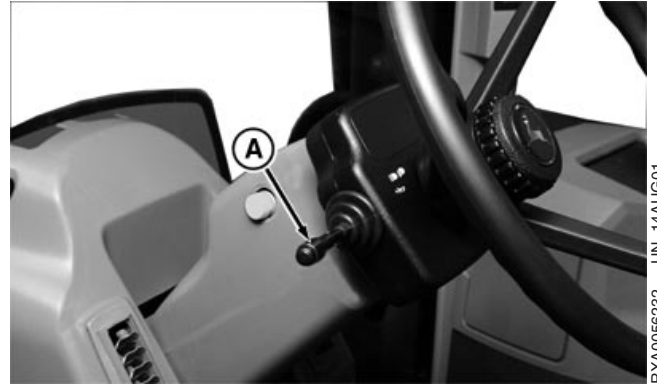
Horn:

Push inward on end of lever (A) to activate horn.

High/Low Beam:

Push lever (A) forward to activate high beam headlights. Pull lever into center position to operate low beam. Pull lever toward you and release to flash high beam.

Dim headlights for oncoming vehicles. Adjust headlights correctly. (See Maintenance—Electrical System Section.)



A—Horn Push Button

RW29387_00001DD -19-06NOV02-1/1

Using Delayed Egress Lighting—*If Equipped*

Momentarily turn light switch (A) counterclockwise from the OFF position to activate delayed egress lighting. Cancel egress lighting by briefly turning switch counterclockwise again.

Front and rear flood lights will remain on for 90 seconds. Lights will then automatically shut off.

A—Light Switch



RXA0073324 —UN-28JAN04



RXA0055287 —UN-17JUL01

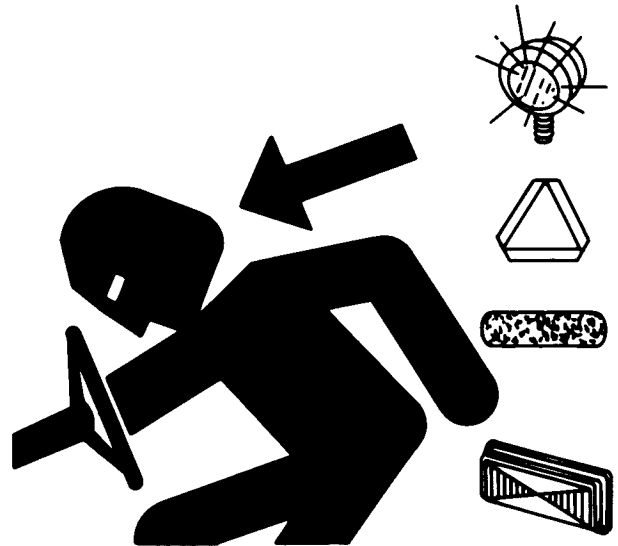
RW29387,00001DE —19-04OCT04-1/1

Use Safety Lights and Devices

Avoid injury or death caused by collision with another vehicle.

While operating tractor on a public roadway or highway day or night:

- Turn on flashing warning lights except where prohibited by law.
- Use headlights.
- Dim headlights for oncoming vehicles.
- Frequently check for traffic approaching from the rear.
- Always use turn signals.
- **DO NOT** use rear facing floodlights which may blind or confuse other drivers.
- Make sure a Slow Moving Vehicle (SMV) emblem is installed and visible.
- Make sure all lighting and marking devices are functional and clean.
- Comply with all traffic regulations.
- Promptly replace or repair lighting and marking that has been damaged or lost. An implement safety lighting kit is available from your John Deere Dealer.



TS951 -UN-12APR90

OU1092A,00001C6 -19-05OCT04-1/1

Operating Hazard Lights

Push top of switch (A) to activate lights.

Turn signals operate as hazard lights regardless of key position.

A—Hazard Light Switch



RXA0057260 -UN-24SEP01

RW29387,00001DF -19-04OCT04-1/1

Operating Rotary Beacon Light—*If Equipped*

Push switch (A) to activate the rotary beacon light assembly (B).

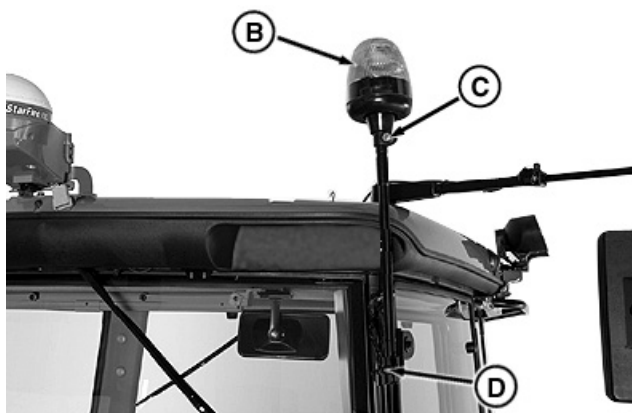
When beacon light is not used:

- Loosen nut (C) and remove light assembly (B)
- Install rubber protective cap on connector
- Loosen bracket nut (D), invert beacon support, and tighten nut

A —Beacon Light Switch
B—Light Assembly
C—Nut
D—Bracket Nut



RXA0082912 —UN-17AUG05



RXA0084020 —UN-15SEP05

RW29387,00001E0 —19-14SEP05-1/1

Using Seven-Terminal Outlet

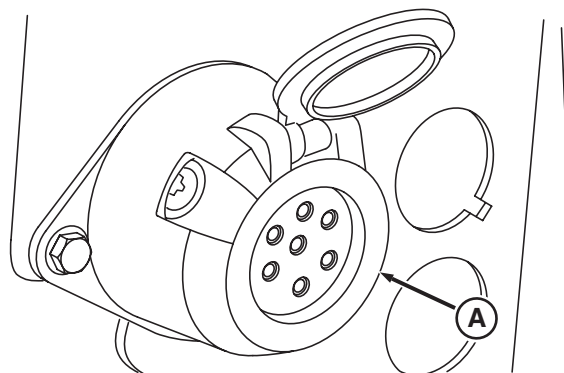
Outlet (A) is used to connect lights, turn signals, and remote electrical equipment on trailers or implements. Always use auxiliary light on towed implement when tractor rear signals and other lights are obscured.

Solid state circuits are rated for a fixed value. If any additional electrical devices need to be added to the tractor, we recommend a power strip or convenience outlets should be used in conjunction with an off/on switch. Splicing into a wire in the wrong location could cause the circuit to overload and shut the circuit down.

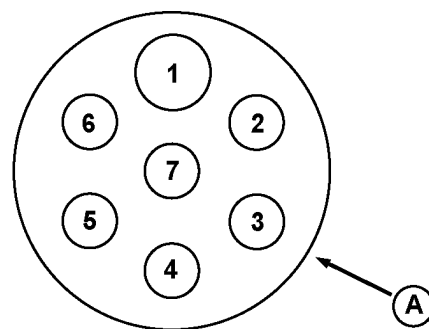
If extra implement lights and controls, such as switches are needed, contact your John Deere dealer. He can provide information on methods to tie in the light switch with one of the accessory wires located in the 7 pin terminal on the back of the tractor.

NOTE: Matching plug is available through your John Deere dealer.

Terminal	Function
1	Left Turn Light
2	Accessory
3	Ground
4	Right Turn Light
5	Left Tail Light
6	Brake
7	Right Tail Light



RXA0068235 -UN-17JAN06



RW21249A -UN-29APR99

A—Seven Terminal Outlet

RW29387,00001E1 -19-25JAN06-1/1

Operator Station

Adjusting Air Suspension Seat

Lumbar Support Adjustment

Rotate lever (A) to any of five positions.

Weight and Height Adjustment

Turn key to ON position. Press lower portion of switch (D) to lower or upper portion to raise the seat to adjust for individual weight and height.

Armrest Height Adjustment

Press button (E) or turn handle (F) to adjust armrest height.

Backrest Angle

Pull up handle (G) and lean on backrest to recline seat to desired angle.

Seat Swivel

Lift up on handle (H) to detent position to allow seat to swivel. Push down on handle to lock seat in position.

Fore-Aft Seat Position

Pull up on handle (I) to allow the seat to slide forward or backward.

Damping

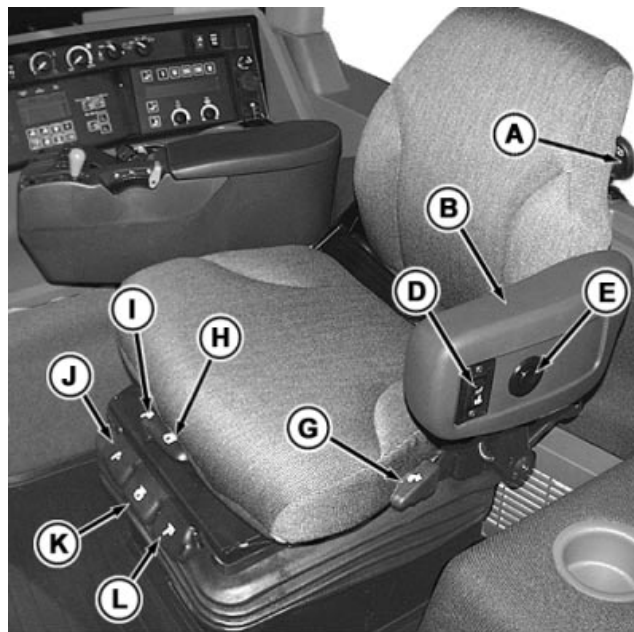
Handle (J) infinitely adjusts suspension shock. Moving lever to farthest down position provides the firmest ride; farthest up position provides softest ride.

Sideways Movement Lock

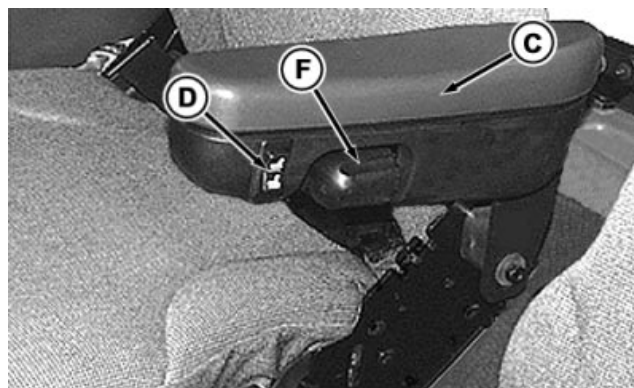
Push down on handle (K) to allow seat to move sideways. Pull up on handle to lock seat in position.

Fore-Aft Movement Lock

Push down on handle (L) to allow seat to move fore and aft. Pull up to prevent fore-aft movement.



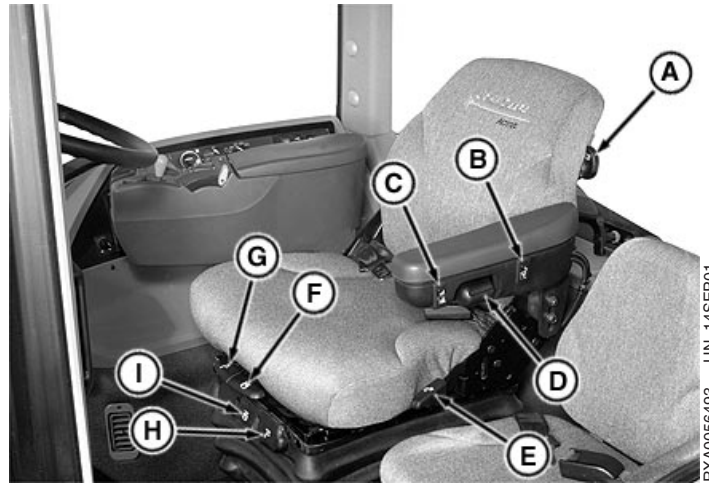
Seat with Fold-Down Armrest



Seat with Flip-up Armrest—Used with Passenger Seat

- A—Lumbar Support
- B—Fold-Down Armrest
- C—Flip-Up Armrest
- D—Seat Height Adjustment
- E—Armrest Adjustment
- F—Armrest Adjustment
- G—Backrest Angle
- H—Seat Swivel
- I—Fore-Aft Adjustment
- J—Suspension Shock Damping
- K—Sideways Movement Lock
- L—Fore-Aft Movement Lock

Adjusting Active Seat—If Equipped



A—Lumbar Support
B—Ride Firmness Control
C—Seat Height

D—Armrest Height
E—Backrest Angle

F—Seat Swivel
G—Fore-Aft Adjustment

H—Fore-Aft Movement Lock
I—Lateral Movement Lock

NOTE: Before operating tractor, adjust active seat to your height and weight. This will allow you to get the most from **ride zone protection**. Active seat has a built-in buffer at the high and low end of vertical seat travel, resulting in a much smoother ride.

Lumbar Support Adjustment

Rotate lever (A) to any of five positions.

Ride Firmness Control

Ride firmness switch (B) provides three different levels of seat suspension performance. Press upper portion “+” of switch for the firmest ride or lower portion “—” for the softest ride.

Ride Zone Protection

The seat is ride zone protected. The seat will automatically adjust back into the protected zone when operator adjusts the seat height position at or near the vertical seat travel limits.

Height Adjustment

NOTE: Compressor continues to operate until air system is optimized for the given seat height and operator weight. For best seat performance, position seat slightly lower than usual.

Turn key switch to ON position. Press lower portion of switch (C) to lower the seat. Press upper portion of switch to raise the seat.

Armrest Height Adjustment

Turn handle (D) to adjust armrest height.

Backrest Angle

Pull up handle (E) and lean on backrest to recline seat to desired angle.

Seat Swivel

Lift up on handle (F) to detent position to allow seat to swivel. Push down on handle to lock seat in position.

Fore-Aft Seat Position

Pull up on handle (G) to allow the seat to slide forward or backward.

NOTE: *Fore-Aft and Lateral Movement locks should remain in the UNLOCKED position for maximum performance.*

Fore-Aft Movement Lock

Pull up on handle (H) to allow seat to move fore and aft. Push down to prevent fore-aft movement.

Lateral Movement Lock

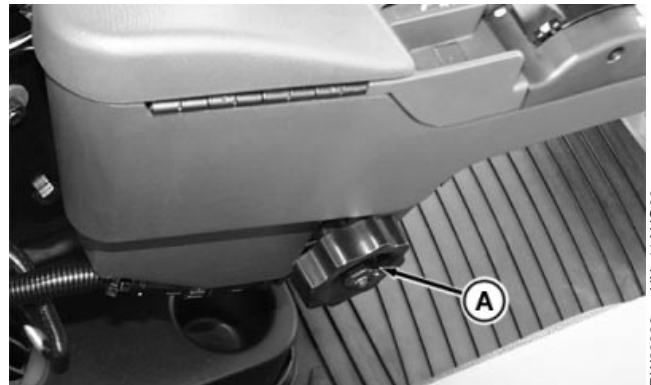
Push down on handle (I) to allow seat to move sideways. Pull up on handle to lock seat in position.

RW29387,00001E3 -19-06NOV02-2/2

Adjusting Armrest Control

Push in and turn knob (A) to move console fore or aft and up and down.

A—Armrest Adjustment Knob



Armrest Adjustment Knob-Early Version

RW26992 -UN-11AUG00

RW29387,0000478 -19-16SEP03-1/2

Loosen knob (A) to move console up or down, at a 45 degree angle. Tighten knob to lock in place.

A—Armrest Adjustment Knob



Armrest Adjustment Knob-Late Version

RXA0068409 -UN-25JUN03

RW29387,0000478 -19-16SEP03-2/2

Operator Presence Sensor

PTO and SERVICE ALERT indicators will flash for 5 seconds with an audible warning horn if operator leaves seat with PTO engaged. After 5 seconds, INFORMATION indicator will light, and PTO indicator light will stop flashing.

NOTE: PTO does not disengage while operator is absent from the seat.

Hydraulic and SERVICE ALERT indicators will flash for 5 seconds with an audible warning horn if operator leaves seat with SCV in detented flow. After 5 seconds, INFORMATION indicator will light, and hydraulic indicator light will stop flashing.

NOTE: SCV does not disengage while operator is absent from the seat.

RW29387,00001E5 -19-04OCT04-1/1

Adjusting Steering Wheel

Telescope

Rotate knob (A) counterclockwise to extend or retract the steering wheel. Rotate knob clockwise to lock.

Tilt

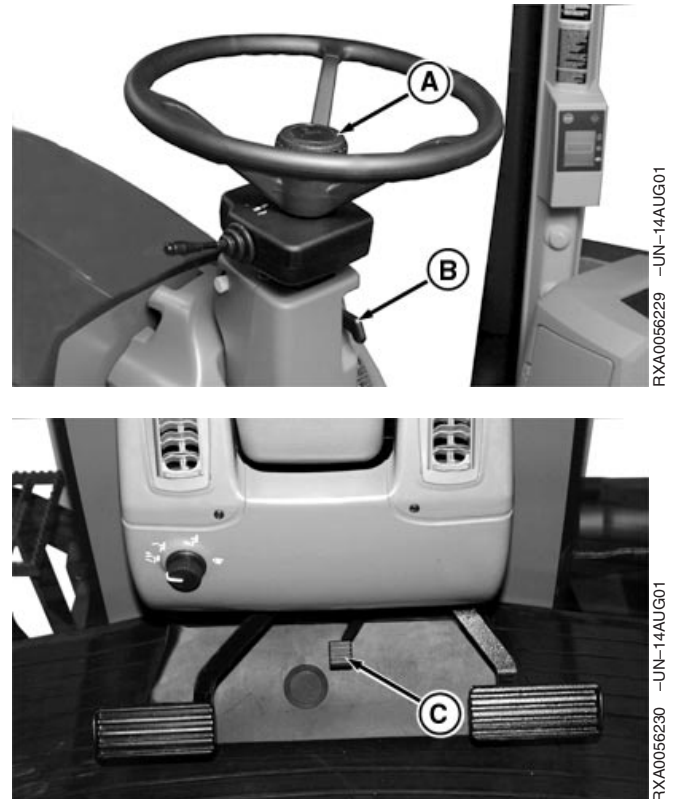
Pull up on lever (B) and move the steering column to the desired position. Release lever to lock.

Exit Position

Push down on foot pedal (C) to permit steering column to automatically move up, out of operator's way for easy entry or exit.

Push down on foot pedal and pull down on steering wheel to return steering column to previous setting.

- A—Telescoping Knob
- B—Tilt Lever
- C—Column Foot Pedal

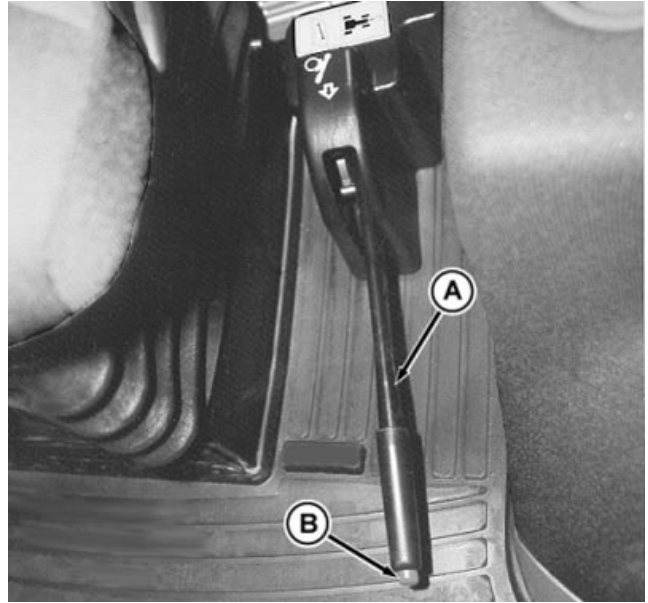


RW29387,00001E6 -19-04OCT04-1/1

Using Secondary Hand Brake

Pull secondary hand brake (A) upward to engage brake. To release secondary brake, push button (B) on end of brake handle and release to downward position.

- A—Hand Brake
- B—Push Button

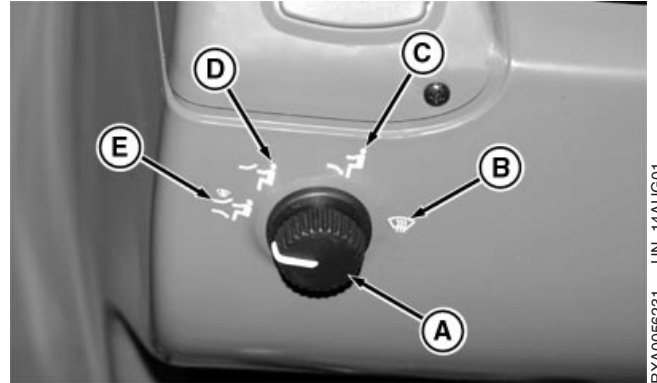


RW29387,00001E7 -19-12MAY06-1/1

Controlling Air Flow

Turn control (A) to direct air flow between windshield and dash or a combination of both.

- A—Air Flow Control
- B—Windshield
- C—Floor
- D—Dash
- E—Windshield, Dash, and Floor



RW29387,00001E8 -19-06NOV02-1/1

RXA0056231 -UN-14AUG01

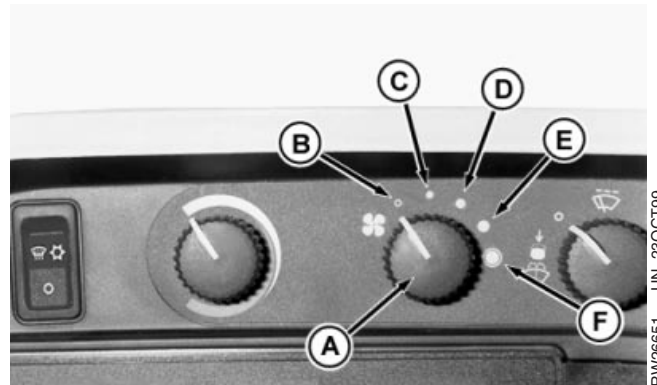
Adjusting Fan Speed

Turn knob (A) to desired fan speed.

NOTE: The purge position is designed to exhaust hot air rapidly from the cab.

The pressurization blower operates whenever the fan speed switch is in the ON position.

- A—Fan Speed Control
- B—Off
- C—Low
- D—Medium
- E—High
- F—Purge



RW29387,00001E9 -19-06NOV02-1/1

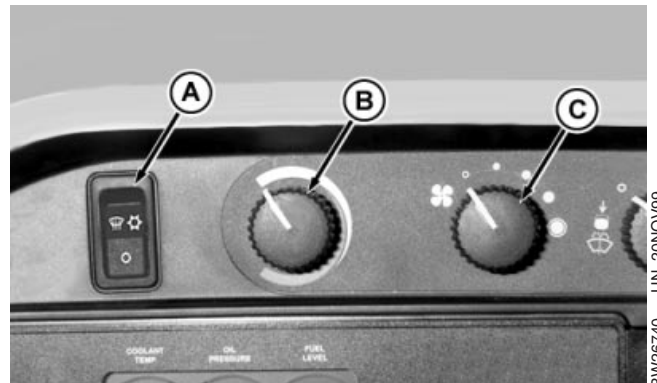
RW26651 -UN-23OCT99

Controlling Temperature

Blower knob (C) and air conditioning switch (A) must be in the ON position before the air conditioning system will operate.

Knob (B) controls the heater and defroster temperature.

Put switch (A) in the ON position to defog the windows, and adjust knob (B) to desired temperature.



RW29387,00001EA -19-06NOV02-1/1

RW26740 -UN-20NOV99

Using ClimaTrak® (ATC) —If Equipped (Serial No. -010000)

Set switch to automatic position (A).

Select desired reference temperature by turning control knob (B).

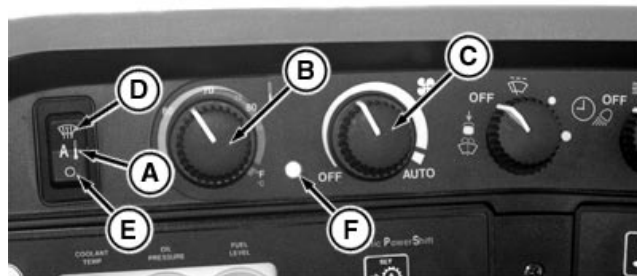
Set fan speed control (C) to AUTO position.

NOTE: Fan speed adjusts automatically in AUTO position. Turning speed control (C) to manual mode settings provides continuous fan speed.

Fan continues to operate when switch is in position (E).

Select DEFOG setting (D) to reduce condensation inside the cab.

NOTE: If fault indicator (F) flashes during operation, see your John Deere Dealer.

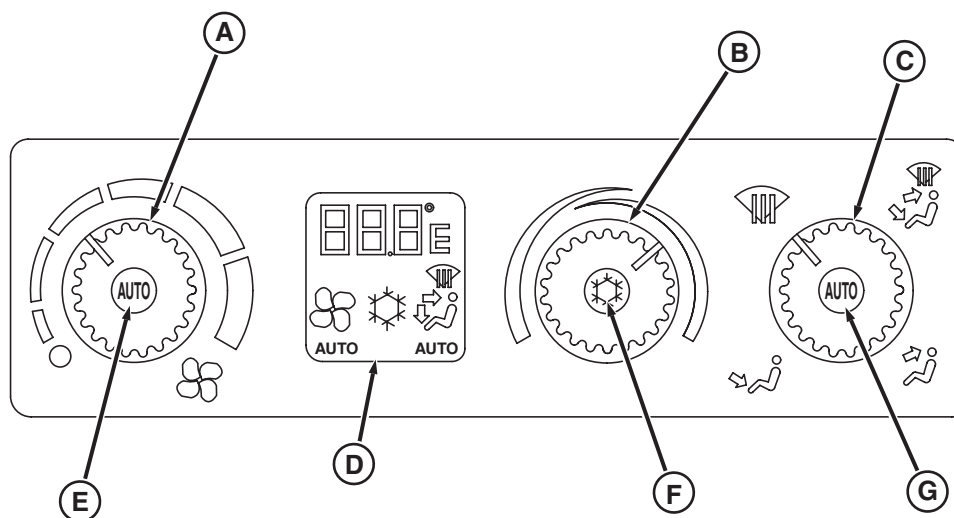


- A—ClimaTrak Control Position
- B—Temperature Control
- C—Fan Speed Control
- D—DEFOG Position
- E—ClimaTrak OFF Position
- F—System Fault Indicator

ClimaTrak is a trademark of Deere & Company

RW29387,0000426 -19-17APR03-1/1

Using ClimaTrak™ (ATC)—If Equipped (Serial No. 010001-)



A—Blower Speed Control
B—Temperature Set Control
C—Air Flow Mode Control

D—LCD
E—AUTO Blower Control
Mode

F—Economy Mode ON/OFF
Switch

G—AUTO Air Flow Mode

System Control and Display Panel

There are three controls and a LCD window on the right side console for ClimaTrak (ATC) system.

1. Blower Speed Control (A) with AUTO switch (E)
2. Temperature Set Control (B) with Economy switch
3. Four position mode control (C) with AUTO switch
 - Defog/Windshield
 - Dash
 - Defog/Dash/Floor
 - Floor

Ambient air temperature is displayed on the LCD (D). Upon adjustment of the temperature control knob and at tractor start up, the temperature set point (desired temperature) is displayed for 10 seconds. Ambient air temperature (obtained from sensor outside of cab at air inlet) is adjusted using a correction factor to minimize the effect of vehicle heat.

When the system is in automatic blower mode, a fan symbol and the word “AUTO” is displayed. When the A/C clutch may be engaged (not in economy mode), the snowflake symbol is displayed. Air flow mode is indicated by an arrow pointing toward the feet, toward the chest, and a defog symbol. The word “AUTO” appears below the man when the system is in automatic air flow mode.

AUTO Air Flow position switch: There are four positions for functionality and comfort.

- Defog/Dash/Floor — to be set when heat and defogging is required
- Defog — to be set when Defog/Floor mix is not able to remove fogging problem
- Floor — to be set when heat is required and there is no defog requirement
- Dash — Air is directed to panel louvers when in cool mode

Change ClimaTrak™ (ATC) Unit Display From Fahrenheit to Centigrade

Change Temperature °C or °F Unit Display

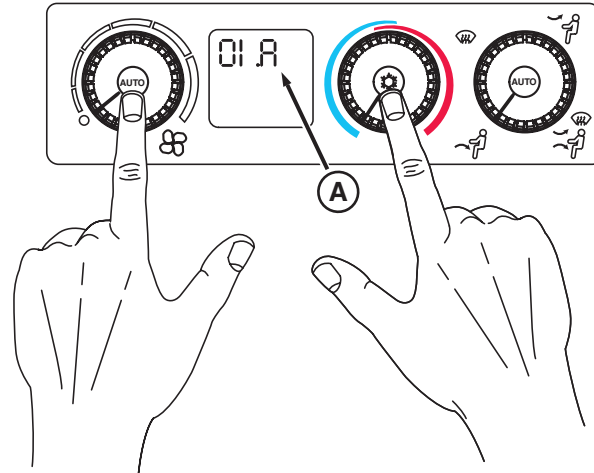
Change temperature unit display mode using controls and LCD window on the right side console for ClimaTrak (ATC) system.

1. Turn the blower to off
2. Turn temperature control to maximum cooling
3. Turn mode control to foot (heat) position
4. Then by pressing the Auto Control Blower button and the Economy Mode (see top illustration) button within 0.1 seconds of each other (essentially the same time)

Temperature unit display mode will be visually indicated by all of the LCD symbols being turned off except for the letters **DIA** (A) where ambient air temperature would normally be displayed. **DIA** will be displayed for 10 seconds after entering change mode.

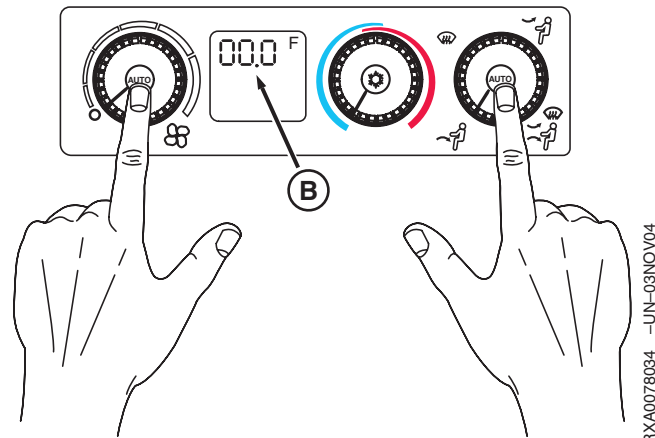
Change the temperature units (B), either °C or °F, which can be toggled by pressing the Auto Blower and the Auto Mode Control buttons at same time (see bottom illustration). The active unit will then be utilized upon exiting change mode.

Change mode is exited with the same procedure as when entered, by first turning the blower to off, the temperature to max. cool, then air flow mode control to foot (heat) position, and pressing the Auto Blower and Economy Mode (snowflake) button at the same time.



Press Auto Control Blower and Economy Mode

FXA0078033 -JN-03NOV04



Press Auto Blower and Auto Mode

FXA0078034 -JN-03NOV04

A—DIA
B—Temperature Units

Operating Windshield Wiper and Washer

Rotate knob (A) to activate four wiper positions:

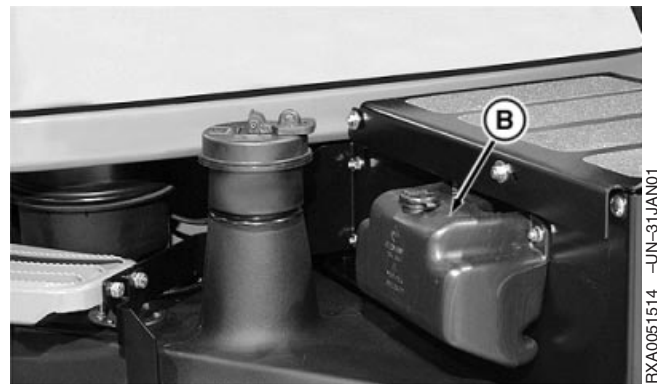
- Off
- Intermittent
- Slow
- Fast

Push knob in to operate optional windshield washer.

Fill washer reservoir (B) with non-freezing windshield washer solvent.

NOTE: Windshield washer nozzles can be adjusted by inserting a small pin into nozzle opening.

A—Windshield Wiper Knob
B—Windshield Washer Reservoir



RW29387,00001EC -19-04OCT04-1/1

Operating Rear Windshield Wiper and Washer—If Equipped

Switch (A) has three operating positions:

Top **WASHER** position—hold switch down to activate washer

Center **ON** position—windshield wiper is activated

Bottom **OFF** position

A—Rear Windshield Washer/Wiper Switch



RW29387,00001ED -19-06NOV02-1/1

Setting the Clock

Press and hold the HOUR button (A) until the correct hour appears. Release button.

Press and hold the MIN button (B) until the correct minute appears. Release button.

A—HOUR Button
B—MIN Button



RW29387,00001EE -19-06NOV02-1/1

RW29387,00001EE -19-06NOV02-1/1

Using Electric Rear View Mirror—If Equipped

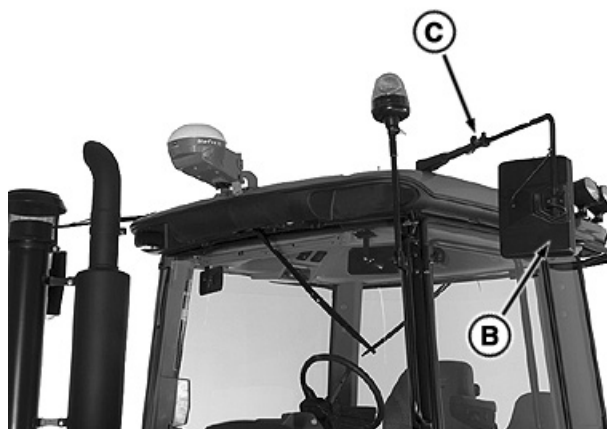
Push switch (A) in the direction desired to adjust left or right outside rear view mirror (B).

Loosen knob (C) to adjust distance of the mirror from cab.

A—Switch
B—Mirror
C—Knob



RXA0083060 -UN-17AUG05



RXA0084067 -UN-19SEP05

RW29387,000001F -19-12MAY06-1/1

Using Field Office—*If Equipped*

IMPORTANT: The field office is not intended to carry heavy objects or to be used as a seat.

Field office provides storage and electrical power source for on board electronic equipment. Lift pad (A) to access field office.

A—Field Office Pad



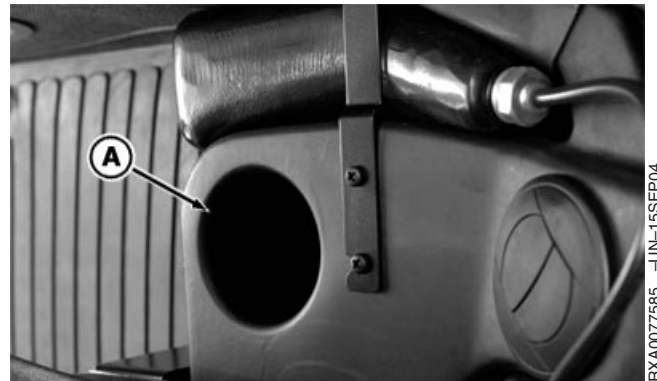
RW26657 -UN-23OCT99

RW29387,00001F0 -19-06NOV02-1/1

Beverage Cooler

Beverage cooler is located in the air conditioning vent (A) located on the right-hand side of the seat.

A—Air Conditioning Vent



RXA0077585 -UN-15SEP04

OU1092A,0000021 -19-20SEP05-1/1

Storage Drawer

Storage drawer (A) located to the left of the seat provides an out-of-the way spot for tools, gloves and safety equipment.

A—Storage Drawer



RXA0073432 -UN-09FEB04

OU1092A,0000022 -19-20SEP05-1/1

Pull-Down Sunshade—If Equipped

Pull-Down Sunshade (A) reduces glare when operating in bright sunlight. The pull-down sunshade allows operator flexibility in amount of window coverage.

A—Pull-Down Sunshade



RXA0073434 -UN-09FEB04

OU1092A,0000023 -19-20SEP05-1/1

GREENSTAR™ System Connections—Early Version

NOTE: Requires notching corner post trim for harness routing to mobile processor.

Tractors after (Serial Number 10,000-) connector (C) was removed and wiring integrated into cab harness.

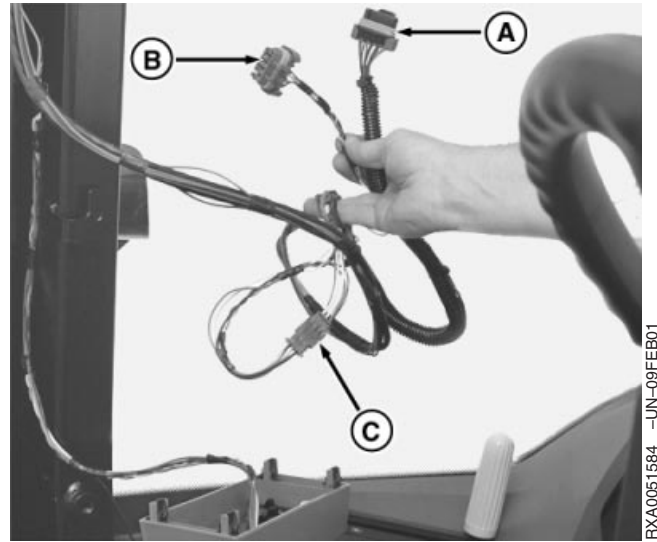
Connectors (A), (B), and (C) are behind the corner post cover.

Connector (D) is under the cab roof below the front wiper motor.

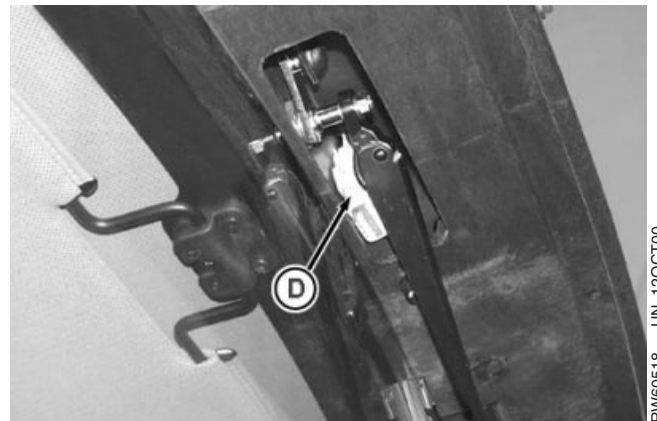
Connector (E) is located at the rear of the tractor.

See your John Deere Dealer for installation assistance.

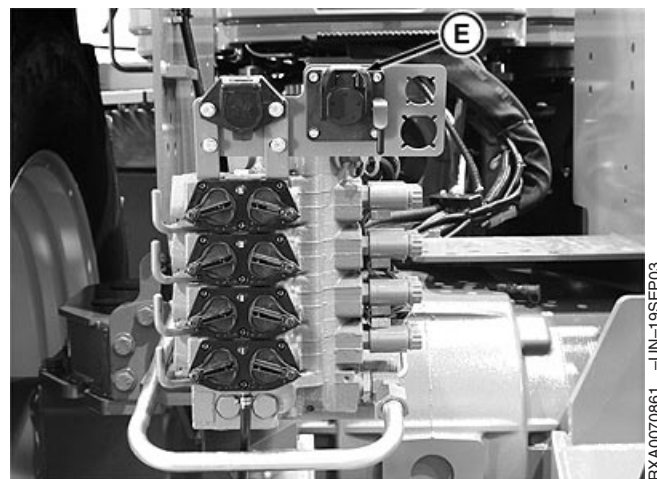
- A—Display Monitor Connector
- B—Mobile Processor Connector
- C—Corner Post Display Connector
- D—GPS Receiver Connector
- E—Implement Connector



RXA0051584 -UN-09FEB01



RW60518 -UN-12OCT00



RXA0070861 -UN-19SEP03

GREENSTAR is a trademark of Deere & Company

RW29387,000048B -19-12MAY06-1/1

GREENSTAR™ Plug & Play Connections-Late Version—If Equipped

Components included in plug & play option include:

- 1—Vehicle side quick-coupler for StarFire receiver (A) and GreenStar harness connector (B) (Bracket is dealer installed).
- 2—GreenStar display mobile processor mounting bracket (C).
- 3—Bulk Head Connector for GSD4, GSD2100 and GSD2600 Displays (D).
- 4—Ground Speed or Radar Speed Connector (E).
- 5—Implement connector (F).
- 6—Tractor specific components for GreenStar AutoTrac.

Install bracket (C) for GreenStar Display.

NOTE: Bracket (C) can be adjusted to provide desired position for GreenStar Display Monitor.

Install harness from display to bulk head connector (D).

NOTE: See your John Deere dealer for wiring harnesses needed to connect to GSD4, GSD2100 and GSD2600 displays.

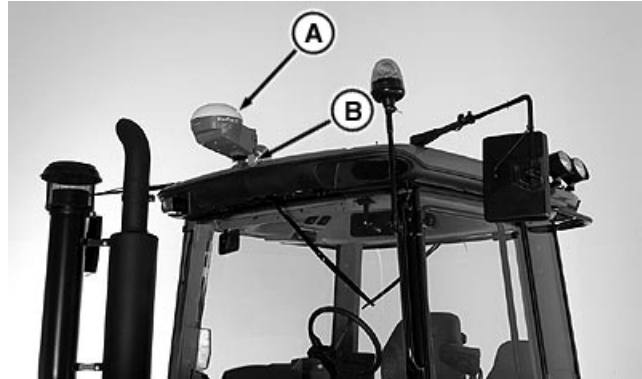
Connect StarFire connector (B) to StarFire receiver (A).

NOTE: See your John Deere dealer for wiring harnesses needed to connect to StarFire receiver.

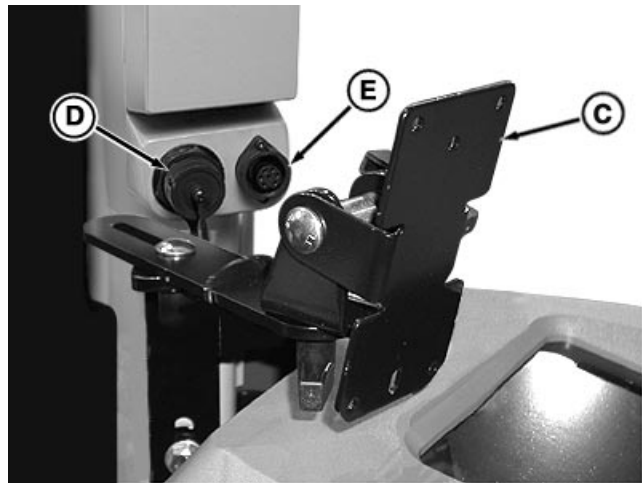
Requires additional components for fully functional GreenStar AutoTrac steering system.

See your John Deere Dealer for installation assistance.

- A—StarFire Receiver
- B—GreenStar Connector
- C—GreenStar Display Mobile Processor Mounting Bracket
- D—Bulk Head Connector for GSD4, GSD2100 and GSD2600 Displays
- E—Ground Speed or Radar Speed Connector
- F—Implement Connector

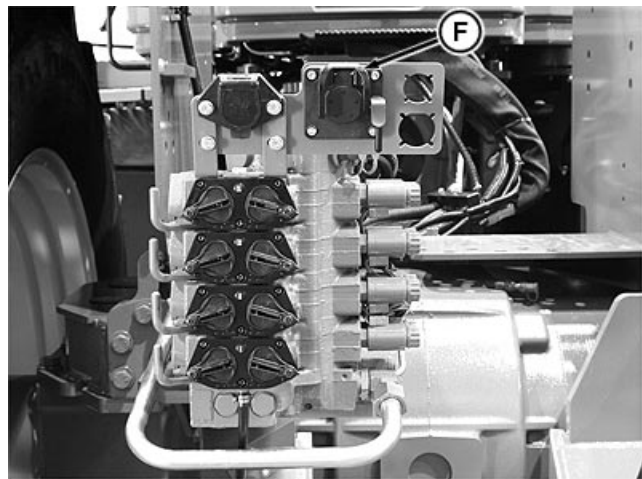


RXA0089034 —UN-15MAY06



RXA0084137 —UN-12OCT05

Mobile Processor Mounting Bracket



RXA0084599 —UN-12OCT05

Using Implement Connector

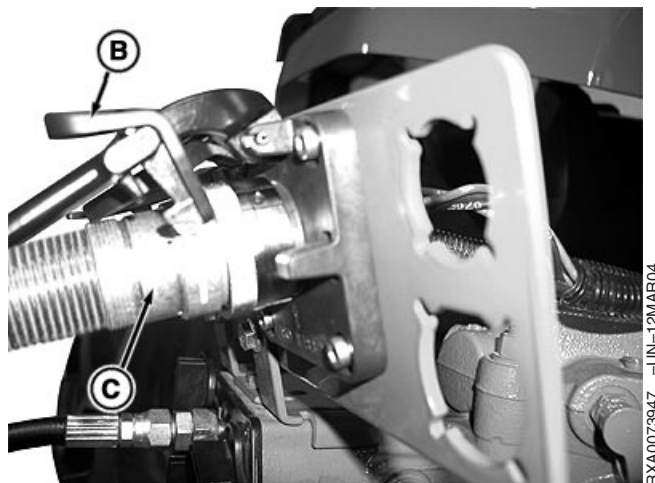
Push release lever (A), open connector and insert implement connector (C). Connector latch (B) will be in raised position.

Lower latch until lever (D) is in latched position. This will prevent implement harness from being pulled out of connector.

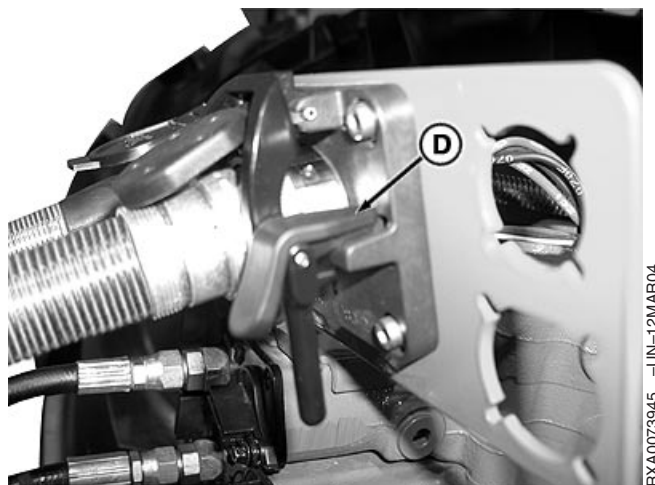
- A—Lever
- B—Latch
- C—Implement Connector
- D—Lever



RXA0073943 -UN-12MAR04



RXA0073947 -UN-12MAR04



RXA0073945 -UN-12MAR04

OU1092A.0000059 -19-20SEP05-1/1

Using Electrical Outlets

IMPORTANT: Diagnostic outlet (A) is only to be used by your John Deere Dealer. Other uses could damage the tractor's electronic components.

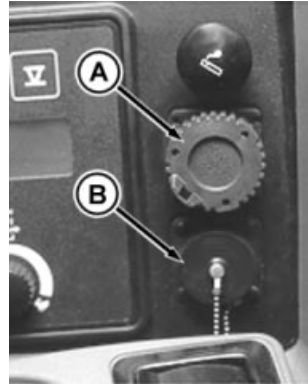
The 12-volt outlet (B) is used when connecting auxiliary equipment. An additional electrical outlet (C) is installed on left corner of the field office.

Pin (D) provides (key) switched power, pin (E) provides battery power (hot) and pin (F) is ground. Use auxiliary equipment installation instructions or see your John Deere Dealer.

NOTE: Each outlet is protected by a 30-amp fuse.

Remove storage tray of field office and locate wiring for additional cigarette-lighter type, 12-volt power sources. See your John Deere Dealer for parts.

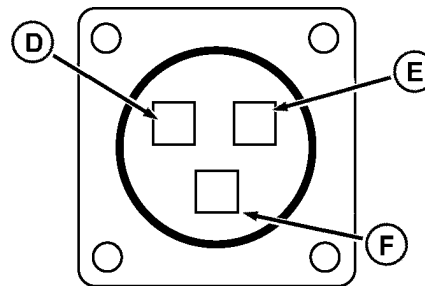
- A—Diagnostic Outlet
- B—Accessory Outlet
- C—Optional Accessory Outlet
- D—Switched Power Circuit
- E—Battery Circuit
- F—Ground



RW26671 -UN-25OCT99



RW26645 -UN-21OCT99



RW26646 -UN-21OCT99



RW56061 -UN-21AUG96

RW29387,00001F2 -19-06NOV02-1/1

Using Auxiliary Power Strip—If Equipped

IMPORTANT: Power strip is not a surge suppressor. Electrical equipment with program memory requires protection from damage of electrical surges and spikes.

The power strip (A) provides six outlets, of 12-volt power with grounds. This power is 30 amp switched and 30 amp unswitched. The connectors can be used when connecting auxiliary equipment.

Adapters plug directly into power strip as unswitched power. To change to switched power on cigar lighter adapter or standard adapter (with three wires), remove small tab at end of slot on plug and rotate plug 180 degrees.

*NOTE: The small white dot on adapter plug face next to the cap hinge indicates circuit is **unswitched**. If dot is opposite cap hinge, circuit is **switched**.*

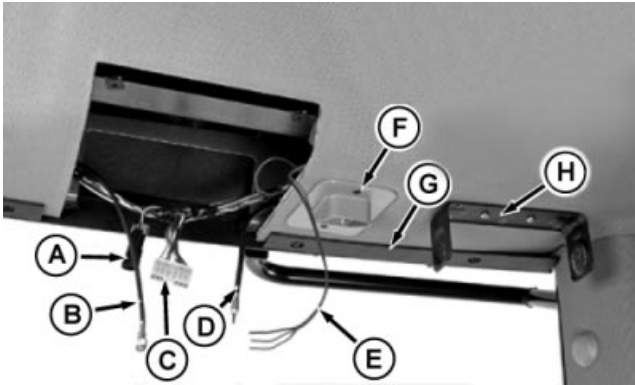
Adapters are available from your John Deere Dealer for the following: cigarette lighter adapters, 3-way convenience adapters, and standard adapters.



A—Auxiliary Power Strip

RW29387,00001F3 -19-06NOV02-1/1

Installing Mobile Radio and Antenna—If Equipped



RXA0065578 -UN-12FEB03



RW26640 -UN-13OCT99

A—Rotary Beacon Connector
B—Mobile Radio Antenna

C—AM/FM Connector
D—AM/FM Antenna

E—Mobile Radio Power Leads
F—Console Light

G—Roof Trim
H—Mobile Radio Bracket

CAUTION: Under no circumstances should mobile radio antenna be mounted to rear of cab or antenna cable be routed near harness for electrical system controllers or operator controls. Failure to follow these precautions could expose operator to radio frequency energy levels higher than recommended by American National Standards Institute (ANSI) and/or could cause undesirable performance of electronically controlled systems.

IMPORTANT: Avoid possible interference of tractor electronics by keeping radio, power and antenna cables close to the cab roof.

CAUTION: Prevent possible personal injury. Disconnect battery ground cable before any electrical repair.

NOTE: Tractors built late 2003 are not business band radio ready and do not include a mounting plate or wiring harness unless specified when tractor was ordered. See John Deere dealer to install business band radio. For tractors that are business band radio ready, follow installations steps below.

Install radio as illustrated.

Another mounting choice is to use the two studs on right rear cab post.

Remove existing entertainment radio bezel to gain access to power leads (E) and antenna cable (B).

Power leads are pre-installed to be powered by the key switch. Should radio operation require battery power at all times, the power source can be easily changed. Remove upholstery from side console and locate the electrical junction block near the relays. Find red wire No. 262 and install a wire from junction block post to the radio.

NOTE: Black wire of power leads is mobile radio ground.

Connect antenna cable to radio. Remove rain cap on outer roof and attach non-ground plane type antenna to the mount. Antenna mount is 1-1/8 in. - 24 thread. The cable connector for radio is a PL259 type. Adapters are available through radio equipment suppliers.

NOTE: Antenna should be trimmed to appropriate variable standing wave ratio (VSWR). A professional installer is recommended.

Install the radio bezel after the mobile radio cable and wires are routed.

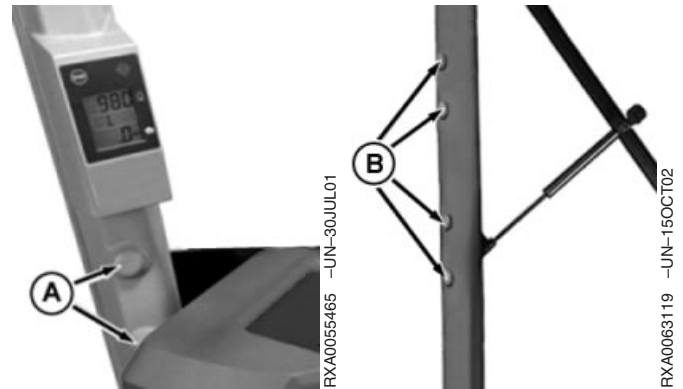
RW29387,00001F5 -19-16SEP04-2/2

Using Monitor Mounts

Mounting Locations

- A—Corner Post Display
- B—Rear Cab Post
- C—Side Console

Monitor mounting points (A) are used to connect implement monitors to the cab.



RW29387,00001F6 -19-06NOV02-1/1

Break-In Period

Break-In Check—*First 100 Hours*

Engine is ready for normal operation.

During the **first 100 HOURS** observe the following:

IMPORTANT: John Deere Break-in oil must be added if oil level is below the **ADD** mark on dipstick. **DO NOT** fill above the crosshatch pattern or the **FULL** mark.

- Tighten wheel and axle bolts after 3 hours and after 10 hours of operation, or every 2 hours under severe conditions. Continue to tighten to specified

torque daily during the first week of operation. (See **ADJUSTING AND TIGHTENING WHEELS**, in **Wheels, Tires, and Treads** Section).

- Perform Daily or 10 Hour Service, checking engine oil and coolant levels more frequently
- Check for leaks
- Operate engine at heavy loads without sustained maximum load
- Avoid idling the engine longer than 5 minutes
- Closely observe coolant temperature during operation
- Check air intake system hoses and clamps

RW29387,00001F7 -19-06NOV02-1/1

Break-In Check—*After First 100 Hours*

IMPORTANT: Refill with John Deere Break-in Oil for an additional 100 hours, if tractor is used under light load conditions during first 100 hours.

- Change engine oil and filter

- Change fuel pre-filter
- Change transmission/axle filter
- Change hydraulic oil filter

NOTE: Reset service hours to zero after service.

RW29387,00001F8 -19-06NOV02-1/1

Operating the Engine

Engine Fuel System and Power Rating

Fuel System

IMPORTANT: Modification or alteration of the injection system will terminate the warranty to the purchaser.

Do not attempt to service injection system. Special training and special tools are required. See your John Deere Dealer.

Engine Certification/Power Rating

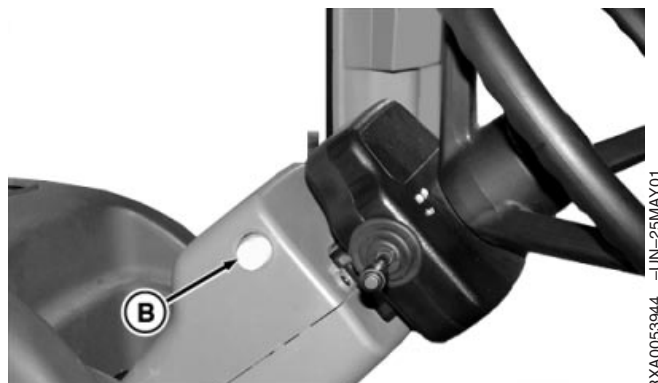
The kW (hp) rating on the **engine** emissions certification label specifies the gross engine kW (hp), which is flywheel power without fan. In most applications this will not be the same rating as the advertised **tractor** kW (hp) rating.

RW29387,00001F9 -19-06NOV02-1/1

Starting the Engine



A—Ignition Key Switch



B—Ether Aid Switch



CAUTION: Avoid the possibility of personal injury or death:

- Be sure everyone is clear of tractor and attached equipment.
- Start engine only from the operator seat.
- Do not start engine by shorting across starter terminals. Tractor will start in gear if normal circuitry is bypassed.
- Engine starting with shift lever in gear indicates a malfunction of the starting circuit. Repairs should be made immediately by your John Deere Dealer.

NOTE: Engine speed will be limited until operating temperature is reached.

On-board electronics may require slightly longer cranking times during engine startup.



CAUTION: Avoid personal injury and damage to the engine. Inject fluid only while engine is turning. Follow safety information on the container. Do not carry starting fluid cans inside cab.

Cold Weather Starting

Turn ignition key (A) and press ether switch (B) once starter has engaged. Release the key after engine starts.

Hold ether switch for two or three seconds after engine starts. Repeat this step until engine runs without faltering.

IMPORTANT: Idle the engine at approximately 1200 rpm with no load for one to two minutes to assure adequate lubrication. Do not operate under full load until engine has reached normal operating temperature.

Make sure:

- Transmission shift lever is in PARK position
- SCV levers are in NEUTRAL position
- PTO is disengaged
- Hand throttle is in low idle position
- Depress brake and clutch pedals
- Sound horn

IMPORTANT: Avoid starter damage. Do not operate starter more than 30 seconds. Wait at least two minutes before trying again.

Turn ignition key (A) to engage starter. Release key when engine starts.

Cold Weather Starting And Operation— Internal Starting Aid

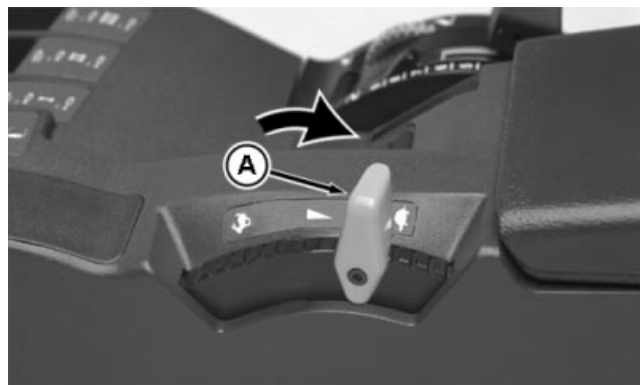
The internal starting aid alters fuel injection timing to enhance starting. Operating time of the starting aid is dependent upon coolant temperature and throttle position.

Use the following procedure:

Put throttle (A) in **SLOW IDLE** (900 rpm) position.

Avoid unnecessary engine idling. Operate at minimum of 1200 rpm if idling longer than three minutes.

Start engine. Leave throttle in slow idle position.



A—Throttle

Operating Characteristics:

- Operating cycle time varies from 3—30 seconds depending on temperature after engine is started.
- Moving throttle from the slow idle position will cancel starting aid cycle.
- Engine may run rougher and have increased diesel knock after the end of starting aid cycle. **This is normal.** Engine will run smoother as engine temperature increases.

18-Speed Powershift Transmission Cold Weather Operating Characteristics

- When temperature is -10 °C (14°F) or lower it will take one minute to get the park brake released with operator in the seat and transmission into gear. Several shifts between PARK and NEUTRAL may be required.
- When temperature is -10 °C (14°F) or above it will take 3 seconds to get the park brake released with operator in the seat.
- When shift lever is moved to NEUTRAL the corner post display will show “N” for three seconds. If park brake does not release “N” will change back to “P”. Move shift lever back to PARK then back to NEUTRAL until “N” displays more than three seconds. Shift to desired gear, release clutch very slowly to get transmission to modulate into gear.

- During cold weather starting, transmission will not shift into 14F through 18F speeds until normal operating temperature has been reached. Delayed shifting, slow hydraulic operation, hard steering, and limited engine rpm may also be noticeable until operating temperature is obtained.

OU1092A,0000001 -19-12MAY06-2/2

Using Auxiliary Heaters—If Equipped



CAUTION: Avoid electrical shock or fire. Use a three-wire, 14 AWG (14 gauge), heavy-duty electrical cord with 15-amp rating, suitable for outdoor use. Always plug electrical cord into an outlet protected by GFI (ground fault interrupter).

Auxiliary heater is available from your John Deere Dealer:

- Engine Coolant (1000 W)—*If Equipped*

Connect the heater and the ground fault interrupter to a ground fault protected 220-volt electrical outlet.

IMPORTANT: The ground fault interrupter on the tractor protects the tractor only and does not protect electrical wiring supplying power to the tractor. Test all ground fault interrupters before each use.

AG,RX15494,2668 -19-02FEB00-1/1

Operating the Engine

Working speeds down to 1500 rpm are suitable at reduced throttle.

Under full throttle and full load conditions, engine should **not** run continuously below 1800 rpm.

Idling the Engine:

Avoid unnecessary engine idling. Operate at minimum of 1200 rpm if idling longer than three minutes.

Restarting Stalled Engine:

Restart stalled engine **IMMEDIATELY** to prevent excessive heat buildup.

Stopping the Engine:

- Stop tractor and pull throttle back to slow idle position
- Put shift lever in PARK position (A)
- Lower all equipment to the ground
- Make sure SCV levers are in NEUTRAL position
- Make sure PTO lever is disengaged



CAUTION: Remove ignition switch key to prevent accidents.

Turn ignition key to **OFF** position and remove key.



RXA0051516 -UN-31JAN01

A—PARK Position

Changing Starting Fluid Cans



CAUTION: Avoid possible personal injury. Starting fluid is highly flammable. Do not use near fire, sparks, or flames. Read the caution information on the container. Protect container against damage. Do not carry extra or empty ether cans inside cab.

Open front grille.

Remove safety cap and plastic spray nozzle from new can.

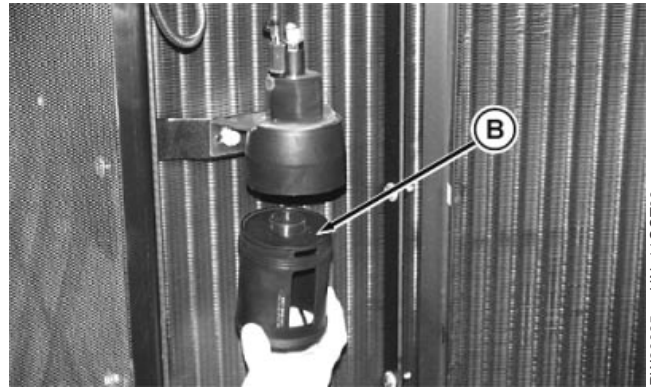
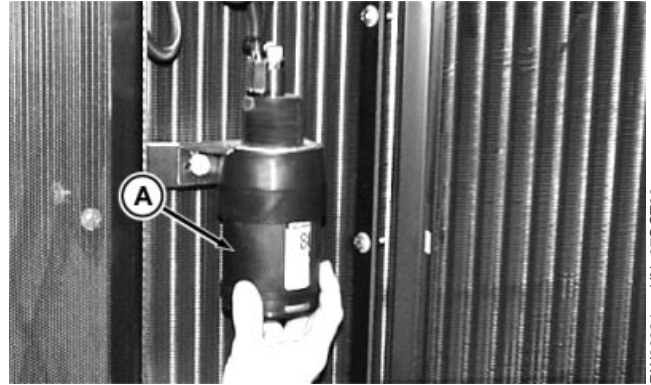
Loosen canister holder (A) to remove old can.

Install new can and tighten canister holder.

IMPORTANT: Avoid drawing dust into engine. Always keep a starting fluid can in position, or clean bottom of canister holder and install bottom side up (B).

A—Canister Holder

B—Starting Fluid Canister



RW29387,00001FD -19-06NOV02-1/1

Using a Booster Battery or Charger

CAUTION: Gas given off by batteries is explosive. Keep sparks and flames away from batteries. Before connecting or disconnecting a battery charger, turn charger OFF. Make last connection and first disconnection at a point away from batteries.

IMPORTANT: Be sure polarity is correct before making connections. Reversed polarity will damage electrical system and/or possibly cause a battery explosion.

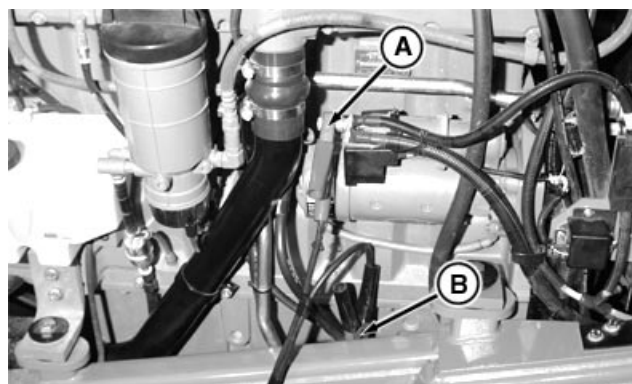


TS204 -UN-23AUG88

A—Positive Terminal
B—Negative Terminal

BOOSTER BATTERY

1. Attach one cable (red) to the remote positive terminal (A) of the starter and positive terminal of booster battery.
2. Attach the second (black) battery cable to negative terminal of booster battery. Attach other end to the battery ground cable (B) at tractor frame.
3. Remove ground cable (B) first when disconnecting.



FXA0057598 -UN-11OCT01

BATTERY CHARGER

1. Attach positive charger lead to positive remote terminal (A) with charger in OFF position. Attach negative charger lead to negative ground (B) at tractor frame, away from batteries.
2. Switch charger to ON position and charge battery according to charger manufacturers instructions.
3. Switch charger to OFF position. Remove negative charger lead first, then positive lead.

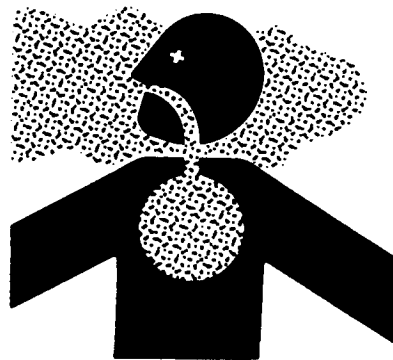
RW29387,00001FE -19-06NOV02-1/1

Operating the Tractor

Avoid Contact With Pesticides

CAUTION: This enclosed cab does not protect against inhaling harmful pesticides.

1. When operating in an environment where harmful pesticides are present, wear a long-sleeved shirt, long-legged pants, shoes, and socks.
2. If pesticide use instructions require respiratory protection, wear an appropriate respirator inside the cab.
3. Wear personal protective equipment as required by the pesticide use instructions when leaving the enclosed cab:
 - into a treated area,
 - to work with contaminated application equipment such as nozzles which must be cleaned, changed, or redirected.
 - to become involved with mixing and loading activities.
4. Before re-entering the cab, remove protective equipment and store either outside the cab in a closed box or some other type of sealable container or inside the cab in a pesticide resistant container, such as a plastic bag.
5. Clean your shoes or boots to remove soil or other contaminated particles prior to entering the cab.



TS220 -UN-23AUG88



TS272 -UN-23AUG88

RW29387,00001FF -19-06NOV02-1/1

Clean Tractor of Hazardous Pesticides

CAUTION: Avoid personal injury. Clean inside of cab and outside of tractor after application of hazardous pesticides. Pesticide residue can build up.

Clean exterior and interior of tractor daily to prevent contamination:

- Sweep or vacuum the floor of cab.
- Clean headliners and inside cowlings of cab.
- Wash entire exterior of vehicle.
- Dispose of any wash water with hazardous concentrations of active or non-active ingredients according to published regulations or directives.

RW29387,0000200 -19-06NOV02-1/1

Using Emergency Exit

The rear window (A) provides a large exit path if the cab door is blocked in a emergency situation.

Unlatch rear window and push open.

A—Rear Window



RXA0089035 -UN-15MAY06

RW29387,0000201 -19-12MAY06-1/1

Using Seat Belts



CAUTION: Minimize chance of possible injury from an accident. Use seat belt (A) when operating the tractor.

Use seat belts when operating the tractor.

Inspect seat belts and mounting hardware annually. (See INSPECTING SEAT BELTS, in General Maintenance and Inspection Section).

A—Seat Belt



RXA0051629 -UN-01MAR01

RW29387,0000202 -19-06OCT05-1/1

Using Passenger Seat



CAUTION: Avoid possible injury. Use seat belts (A) when riding in the optional passenger seat.

Use optional passenger seat to provide suitable seating accommodation when transporting an additional person.

Inspect seat belts and mounting hardware annually. (See INSPECTING SEAT BELTS, in General Maintenance and Inspection Section).

A—Seat Belt



RXA0051627 -UN-01MAR01

RW29387,0000203 -19-06NOV02-1/1

Standard Hydraulic System Warm-Up

Avoid operating the tractor under load until hydraulic system has warmed up.

Install jumper hose (A) into the number one SCV coupler.

Shift transmission to PARK position and operate engine at 1500 rpm.

Push switch on SCV setup panel for number one SCV (B). Turn time control knob (C) to (continuous) detent position "C".

Pull SCV I lever to extend detent position.

Push switch on SCV setup panel for number two SCV and turn time control knob to continuous detent position.

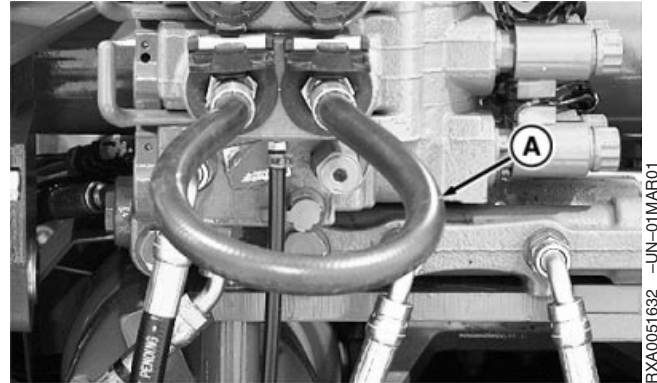
Pull SCV II lever to extend detent position.

Select SCV I and turn oil flow rate knob (D) counterclockwise until engine is slightly loaded (approximately 7.0—7.2).

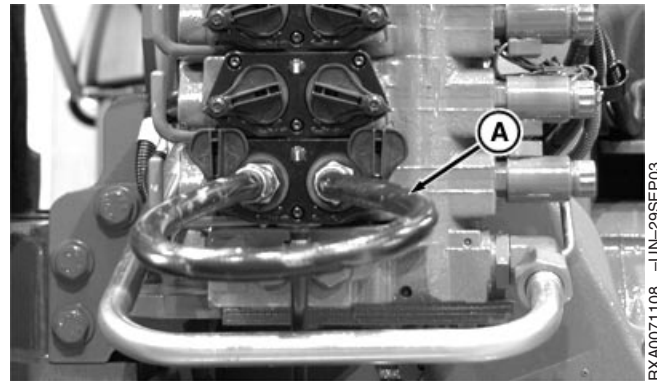
Return SCV I and II levers to neutral position, after the hydraulic system has warmed.

NOTE: Hydraulic oil warm-up temperature of 50°C (122°F) is recommended for continuous use applications, such as air seeders.

- A—Jumper Hose
- B—Number One SCV
- C—Time Control Knob
- D—Oil Flow Rate Knob



Early SCV Covers



Late SCV Covers



OU1092A,0000030 -19-12MAY06-1/1

Drive Train Protection—9420, 9520 and 9620

IMPORTANT: 9620 Only: When Engine Air Filter Restriction Warning is activated (CCU 030) the engine performance will be reduced. Service engine air filter immediately.

NOTE: Drive train protection system only affects operations in gears with maximum operating speeds below 9.2 km/h (5.7 mph).

When tractor is loaded to a very low engine speed, the PowerShift transmission may default to PARK as a drivetrain protection.

To engage transmission, move PowerShift transmission lever to PARK, reduce load, and then shift back into desired operating gear.

A PCU Diagnostic code will be stored and displayed when this condition occurs.

The drivetrain protection system is gear-sensitive and will not be apparent in most situations. It does not

affect load starting and only affects operations in gears with maximum operating speeds below 8 kph (5 mph). Full engine horsepower, plus 7 percent power bulge is available in all other gears. With proper ballast, 4WD tractor is traction limited not power limited, at slow ground speeds.

Electronic engine controls provide protection from drivetrain overloading. Engine horsepower is automatically reduced to protect drivetrain components when:

- Operating with extremely heavy ballast and full power lugging in gears below 8.4 km/h (5.2 mph) for tractors with 110 mm axles
- Operating with extremely heavy ballast and full power lugging in gears below 7.6 km/h (4.7 mph) for tractors with 120 mm axles
- Using a three-point hitch whenever hitch is not at upper raise limit
- Using PTO when tractor ground speed is less than 0.8 km/h (0.5 mph)
- See your John Deere Dealer for more details.

Gear	9420 Power*	9520 Power*	9620 Power*
8	425 hp (317 kW)	450 hp (336 kW)	500 hp (373 kW)
7	425 hp (317 kW)	450 hp (336 kW)	475 hp (354 kW)
6	400 hp (298 kW)	450 hp (336 kW)	450 hp (335 kW)
5	400 hp (298 kW)	425 hp (317 kW)	425 hp (317 kW)
4	375 hp (280 kW)	400 hp (298 kW)	400 hp (298 kW)
3	375 hp (280 kW)	375 hp (280 kW)	375 hp (280 kW)
2	375 hp (280 kW)	375 hp (280 kW)	375 hp (280 kW)
1	375 hp (280 kW)	375 hp (280 kW)	375 hp (280 kW)

* Power Management - 9420 with Powershift Transmission, 9520 and 9620 with Powershift Transmission and 120 mm diameter axles

RW29387,00006CF -19-20DEC06-1/1

Transmission Operation



CAUTION: Avoid personal injury or damage to the tractor. If the engine starts with the shift lever in gear, there is a malfunction of the starting circuit. Repair should be done immediately by your John Deere Dealer.

IMPORTANT: Prevent transmission or clutch damage:

- **Never rest foot on the clutch pedal while tractor is moving**
- **Do not allow tractor to coast by disengaging clutch or shifting transmission into NEUTRAL position**
- **Never attempt to start tractor by towing or pushing**

- **Always stop tractor completely before shifting transmission to PARK position or NEUTRAL position**
- **Avoid excessive ballast**
- **Avoid continuous operation under full throttle and full load conditions below 1800 rpm**

Optimum engine speed is 1800—2100 rpm in normal working conditions. Using a higher gear and lower engine speed for light load operation saves fuel and reduces wear. Under full load conditions, use full throttle engine speed.

RW29387,0000206 -19-06NOV02-1/1

Operating the Transmission



RW55470 -UN-20JUL94



RXA0073438 -UN-09FEB04

A—Transmission Shift Lever

CAUTION: Avoid personal injury or damage to the tractor. If the engine starts with the shift lever in gear, there is a malfunction of the starting circuit. Repair should be made immediately by your John Deere Dealer.

IMPORTANT: Prevent transmission or clutch damage:

- Never depress clutch pedal while tractor is rolling downhill or coasting as transmission over-speed and reduced lubrication will occur and serious transmission damage may result
- Never attempt to start tractor by towing or pushing
- Stop tractor completely before shifting transmission to PARK position
- Avoid excessive ballast
- Avoid continuous operation under full throttle and full load conditions below 1800 rpm

Transmission can be shifted, without use of clutch pedal, either into a forward or reverse direction.

Clutch pedal allows operator maximum manual control of modulation for ease of connecting to implements, operating in confined areas or slow movement of tractor during precise manoeuvres. Depress clutch pedal to preselect a forward or reverse “command” gear.

When shift lever is moved to NEUTRAL position, the park brake will release and the corner post display will show the pre-selected forward or reverse gear and the letter “N” for NEUTRAL. When lever is in forward or reverse, the display will show an “F” or an “R” along with the “commanded” gear.

Engine will only start with shift lever (A) in PARK or NEUTRAL position. Shifts are made one at a time by “bumping” lever. Pushing and holding lever or pulling and holding lever will result in continuous up or down shifts.

Transmission is shifted using lever (A) on the armrest control.

NOTE: Operator presence safety device is built into the seat to prevent shifting into gear unless operator is in the seat or the clutch pedal is depressed.

NOTE: When tractor is loaded to a very low engine speed, the PowerShift transmission may default to PARK as a drivetrain protection.

To engage transmission, move PowerShift transmission lever to PARK, reduce load, and then shift back into desired operating gear.

A PCU Diagnostic code will be stored and displayed when this condition occurs.

RW29387,0000207 -19-20DEC06-2/2

Shifting the Transmission

Shift Lever Positions

PARK — Rear slot (A)—Park brake applied when lever is fully forward in slot.

Reverse — Center slot (B)— Tractor will begin moving rearward when lever enters this slot. Push lever forward for downshifts and pull rearward for upshifts.

Forward — Front slot (C)—Tractor will begin moving forward when lever enters this slot. Push lever forward for upshifts and pull rearward for downshifts.

NOTE: *Transmission is in NEUTRAL position whenever shift lever is not in PARK, forward or reverse positions.*

“Command” Gears

NOTE: *Optimum engine speed is 1600—2100 rpm in normal working conditions. Using a higher gear and lower engine speed for light load operation saves fuel and reduces wear. Under full load conditions, use full throttle engine speed.*

Each time transmission enters the forward or reverse section of the shift pattern, transmission will start in the “command” gear, shown on corner post display.

Transmission will start out in 7F and 2R after engine is started. These are the default “command” gears. Start-up default “command” gears may be permanently changed. See your John Deere Dealer.¹

Once placed in Forward or Reverse, the “command” gear changes to the last gear of operation before shifting to NEUTRAL.

The initial “command” gear can also be changed prior to initiating motion to match the operation.



A—PARK
B—Reverse Gears
C—Forward Gears

¹Programmed forward gear can be changed from 7F to either 5F or 9F; reverse gear can be changed from 2R to 1R..

Forward Gear between 1 and 13 may be preselected by depressing clutch pedal and pushing or pulling shift lever until desired "command" gear is displayed.

Reverse Gear between 1 and 3 may be preselected by depressing clutch pedal and pulling or pushing shift lever until desired "command" gear is displayed.

Transmission will start out in preselected forward or reverse gear when clutch pedal is released.

Cold Weather Starting

When temperature is -10 °C (14°F) or lower it will take one minute to get the park brake released with operator in the seat and transmission into gear. Several shifts between PARK and NEUTRAL may be required.

When temperature is -10 °C (14°F) or above it will take 3 seconds to get the park brake released with operator in the seat.

When shift lever is moved to NEUTRAL the corner post display will show "N" for three seconds. If park brake does not release "N" will change back to "P". Move shift lever back to PARK then back to NEUTRAL until "N" displays more than three seconds. Shift to desired gear, release clutch very slowly to get transmission to modulate into gear.

During cold weather starting, transmission will not shift into 14F and 18F speeds until normal operating temperature has been reached. Delayed shifting, slow hydraulic operation, hard steering, and limited engine rpm may also be noticeable until operating temperature is obtained.

Shifting From Reverse

The highest forward gear the transmission will automatically shift to is 11F, when shifting from reverse. For example, if transmission is in 13F and is shifted to reverse, and then back to forward, transmission will automatically shift to 11F.

However, if transmission is in 13F or higher and tractor is stopped by using the clutch or shifting to NEUTRAL and not shifted through reverse, transmission will be in 13F when shifted forward again.

Shifting—Without Using Clutch Pedal

Hold lever to shift up or down to selected gear. Transmission will shift one gear at a time until lever is released.

“Bump” lever to quickly shift up or down to selected gear. Transmission will skip gears, if lever is moved faster than transmission can shift.

Shifting—Using Clutch Pedal

IMPORTANT: Clutch pedal must be fully depressed to completely disengage clutch for correct operation.

Hold lever to shift up or down until desired gear is displayed. Transmission will go into “commanded” gear when clutch pedal is released.

“Bump” lever to quickly shift up or down until desired gear is displayed. Transmission will go into “commanded” gear when clutch pedal is released.

Rapid Shift

When tractor is in light load condition, such as transport, transmission can be shifted very fast by rapidly “bumping” shift lever to reach transport speed quickly.

To reach transport speed quickly, depress clutch pedal and rapidly “bump” shift lever to 13F. Transmission will shift directly to 13F when clutch is released. Once tractor is underway in 13F, “bump” shift lever to 18F.

Double Shift

Transmission, under load, can be made to shift two gears at a time when operating in gears 5F—12F by double “bumping” shift lever to slow down or speed up when making headland turns. A double “bump” down shift is also useful in field operation when hitting a “tough” spot.

Shuttle Shifting (Direction Change)

Moving shift lever between Forward and Reverse slots causes transmission to modulate directly to opposite direction of travel without clutching or braking.

Shuttle shift occurs between last “commanded” forward and reverse gears.

Shuttle shifting can be performed between gears 11th Forward and 3rd Reverse.

Ground Speed Matching



CAUTION: Avoid possible accident and injury from loss of vehicle control. Never coast down hill.

Transmission will match ground speed as clutch is released after tractor slows when clutch pedal is depressed at speeds greater than 13F or 3R.

Transmission will not match ground speeds as clutch is released after tractor slows when clutch pedal is depressed at speeds below 13F or 3R. Transmission will remain in 13F or 3R even if tractor comes to complete stop.

Transmission will not up shift to match ground speed as clutch is released, if tractor speeds up while clutch pedal is depressed.

RW29387,0000208 –19–13MAY04–4/4

Operating Automatic Powershift

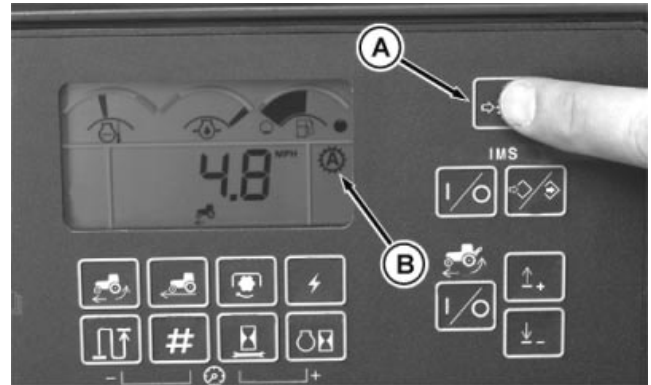
Automatic PowerShift shifts the transmission to maintain engine speed. Automatic PowerShift will not shift above the maximum gear selected. The controller determines shift points based on throttle setting, engine speed, and engine load.

The transmission will downshift as many gears as necessary under heavy load. A change in throttle position allows a maximum downshift or upshift of three gears.

Set throttle to full engine rpm.

Select the maximum forward gear.

Press the **SET** switch (A). Automatic PowerShift indicator (B) will light. Automatic PowerShift will automatically downshift and upshift as engine rpm or load changes.



A—SET Switch
B—Automatic Power Shift Indicator

RW29387_0000209 -19-06NOV02-1/2

Any manual shift cancels Automatic PowerShift. Pushing the **RESUME** switch (A) restores control of shifting to Automatic PowerShift.

Depressing the clutch pedal suspends Automatic PowerShift but will not cancel the Automatic PowerShift function. Automatic PowerShift will resume when clutch pedal is released.

NOTE: Automatic PowerShift can be programmed into Implement Management System (IMS). See Implement Management System Section.

Automatic PowerShift is cancelled when:

- Operator shifts transmission
- Operator shifts to NEUTRAL or REVERSE



A—Resume Switch

RXA0053638 -UN-17MAY01

RW29387_0000209 -19-06NOV02-2/2

Using the Brakes

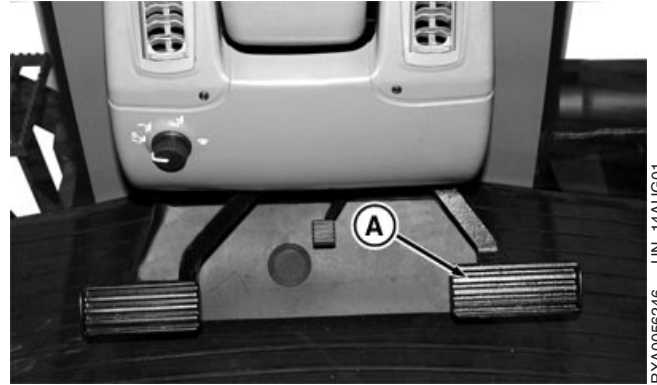


CAUTION: Avoid possible personal injury. Reduce speed if towed load weighs more than the tractor or transporting loads under adverse conditions. Avoid hard braking applications. (See implement manual and **DRIVING TRACTOR ON ROADS**, Transport Section).

IMPORTANT: Avoid unnecessary wear on the brakes. **DO NOT** rest foot on the brake pedal during tractor operation.

Test brakes with engine stopped to be sure manual brake system is functioning. (See **CHECKING MANUAL BRAKES**, in General Maintenance and Inspection Section).

Press brake pedal (A) to stop tractor while disengaging the clutch.



A—Brake Pedal

RW29387,000020A -19-06NOV02-1/1

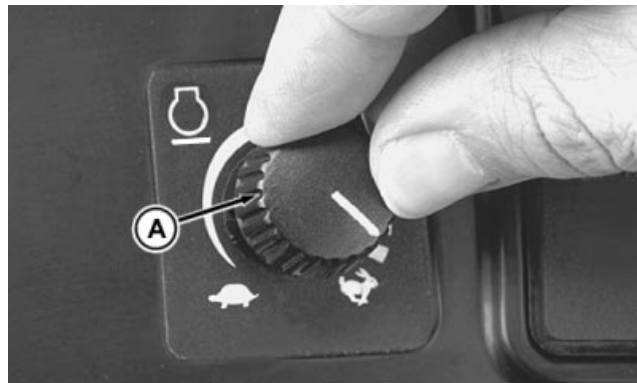
Using Field Cruise and Foot Decelerator

Field Cruise—Push engine throttle all the way forward and turn knob (A) to set engine speed as follows:

- **OFF** (Turn knob fully clockwise)
Use for heavy tillage field work, such as moldboard plowing, chisel plowing or ripping
- **ON** (Turn knob counterclockwise from detent)
Use when constant speed is required for a particular application, such as planting, fertilizing, or applying herbicide
Engine speed can be adjusted from 1450—2100 rpm by rotating knob
Engine speed remains constant at set speed below full load conditions

Foot Decelerator¹ —Push button (B) to lower engine rpm until released. Speed resumes when released.

A—Field Cruise Knob
B—Foot Decelerator



RXA0056423 -UN-29AUG01



RW56067A -UN-08MAR99

¹ Foot decelerator lower limit can be changed. See your John Deere Dealer.

RW29387,000020B -19-06NOV02-1/1

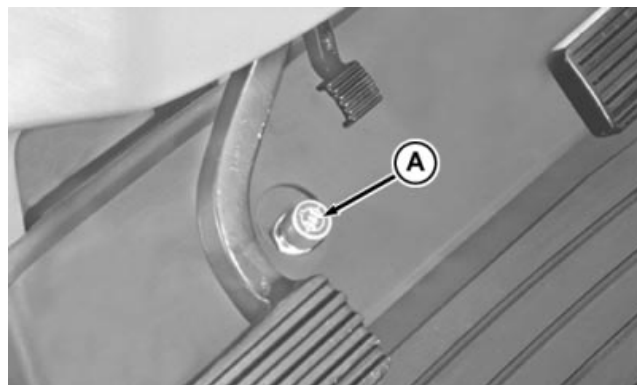
Using Differential Lock

NOTE: During cold weather, oil may need to be warmed before differential lock will function correctly.

When one wheel starts to spin, engage differential lock by pressing switch (A). Indicator light on display panel shows engagement.

Differential lock can be disengaged by using brake pedal or decelerator button.

A—Differential Lock Switch



RW55265A -UN-08MAR99

RW29387,000020C -19-12MAY06-1/1

Implement Management System

Implement Management System (IMS) — Description



Implement Management System (IMS) allows multiple tasks to be performed with the touch of one switch.

IMS has two sequences in which to store learned functions. A sequence is defined as the start of the first recorded function to the completion of the last recorded function.

NOTE: Tractor must be moving to program or execute a sequence. Learned sequences will remain stored after engine stops.

NOTE: When “R” reverse is displayed on the corner post display, IMS sequences cannot be learned.

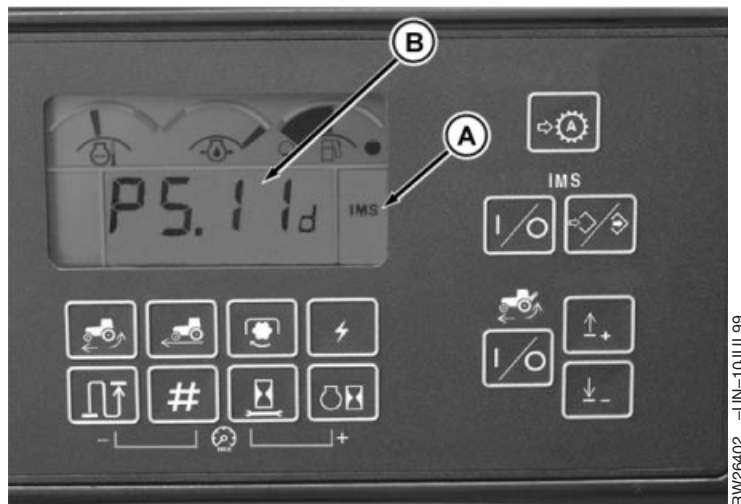
A sequence is executed according to the **distance** required to perform a series of functions when the system is in the LEARN mode. A maximum of 12 functions can be learned for each sequence.

LEARNED FUNCTIONS

Item	Function(s)
Hitch	RAISE/LOWER
TouchSet Depth Control	UP/DOWN
PST Transmission Gear	Upshift or Downshift in Forward Gear
Auto Shift	CANCEL, RESUME
SCV	Detent EXTEND, Detent RETRACT, Float ON, and CANCEL

RW29387,000020D -19-30APR04-1/1

Implement Management System (IMS) — Display Codes



A—ON/OFF Indicator

B—LEARNED Functions Indicator

ON/OFF indicator (A) will display when Implement Management System is activated.

Press IMS **ON/OFF** switch to OFF, then ON to view the functions programmed in the two sequences.

Stored sequences and LEARNED functions (B) will be displayed in the order learned.

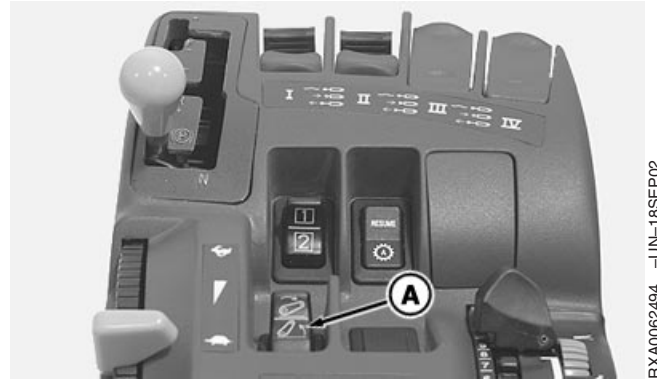
VEHICLE MONITOR DISPLAY CODES

Code	Definition
SE 1	Sequence #1 Follows
SE 2	Sequence #2 Follows
3 Pt U	Three-Point Hitch UP
3 Pt d	Three-Point Hitch DOWN
PS.X U	Shift UP to Gear
PS.X d	Shift Down to Gear
APS	Automatic PowerShift RESUME
Hy X E	EXTEND SCV Valve
Hy X r	RETRACT SCV Valve
Hy X F	FLOAT SCV Valve
Hy X 0	CANCEL SCV Valve
DiFF 1	Differential Lock ON
DiFF 0	Differential Lock OFF
End	End of Sequence

IMS Functions — *Hitch*

Hitch (A) can be raised or lowered during a sequence.

A—Hitch Switch



RXA0062494 -UN-18SEP02

RW29387,000020F -19-06NOV02-1/1

IMS Functions — *Transmission*

The transmission (A) can be upshifted or downshifted during LEARN mode. Shifts made within (2) seconds of one another are considered one event.

If the learned sequence requires **downshifting** (shifting from 7F to 5F for example), IMS will not upshift to reach the desired gear (activating sequence with transmission in 3F will not shift from 3F to 5F).

If the learned sequence requires **upshifting** (shifting from 7F to 9F for example), IMS will not downshift to reach the desired gear (activating sequence with transmission in 11F will not shift from 11F to 9F).

Manually shifting while a sequence is executing will only cancel transmission control for the remainder of that sequence. The learned shift changes will remain.

IMS functions only in forward gears.



RXA0062496 -UN-18SEP02

A—Transmission Shift Lever

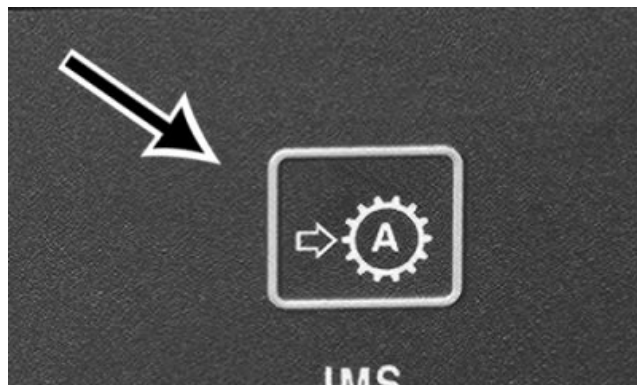
RW29387,0000210 -19-06NOV02-1/1

IMS Functions — Automatic PowerShift

NOTE: Automatic PowerShift maximum gear must be set each time the tractor is started.

Automatic PowerShift can be cancelled or resumed during LEARN mode.

Automatic PowerShift is cancelled by programming a transmission shift in IMS. (See OPERATING AUTOMATIC POWERSHIFT, in Operating the Tractor Section.)



RW29387,0000211 -19-06NOV02-1/1

IMS Functions — Selective Control Valves

NOTE: Learning requires SCV to be in **detent position**.

Flow Rate and Timed Detent will **not** be learned and can be changed at any time.

IMS can learn four functions for SCVs:

- **Extend Detent**
- **Retract Detent**
- **Float ON**
- **Cancel Detent**

SCV control switch (A) must be in the neutral position during execution of a sequence.

NOTE: SCVs can be operated manually without causing a sequence to abort.

TouchSet Scraper Control can not be programmed in IMS.



A—SCV Switch

RW29387,0000212 -19-06NOV02-1/1

IMS Functions — *Differential Lock*

Differential lock (A) can be engaged or disengaged during a sequence.

A—Differential Lock Switch



RW29387,0000213 -19-06NOV02-1/1

RXA0062499 -UN-18SEP02

Operating The Implement Management System (IMS)

NOTE: Tractor must be moving at a speed of at least 0.5 kph (0.31 mph) to program or execute a sequence. Learned sequences will remain stored after engine stops.



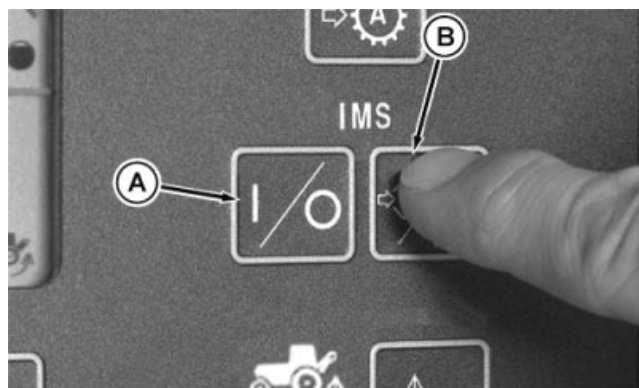
CAUTION: Avoid possible injury and loss of tractor control.

- A stored high gear in a learned sequence could initiate rapid shift changes when activating IMS.
- Clear IMS sequence after application is completed. (See **CLEARING IMS SEQUENCE**, in this section.)

Inadvertent use of IMS could cause unexpected tractor or implement movement.

NOTE: Press IMS **ON/OFF** switch to OFF, then ON to view the functions programmed in the two sequences.

1. Press **ON/OFF** switch (A).
2. Press **LEARN/SAVE** switch (B).



A—ON/OFF Switch
B—LEARN/SAVE Switch

Continued on next page

RW29387,0000214 -19-04NOV04-1/2

RW26382 -UN-07JUL99

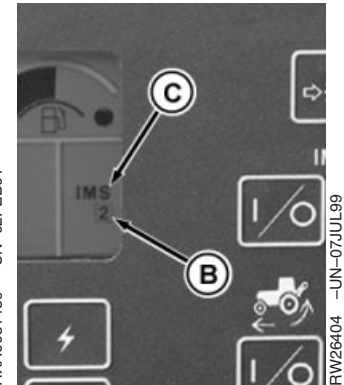
3. Press **SEQUENCE 1** or **SEQUENCE 2** switch (A) on armrest control. Indicator light (B) will show the sequence being learned and an audible signal will sound.

NOTE: Depressing the clutch pedal during a learn mode allows several functions to be performed at the same distance marker.

4. Perform desired functions.
5. Press **LEARN/SAVE** switch to store the functions and end the learning mode. Sequence number indicator will stop flashing. IMS indicator light (C) will remain on.

NOTE: Depressing the clutch pedal during a sequence will suspend the remaining functions until clutch pedal is released.

6. Press the desired sequence switch and the sequence of learned events will begin. When sequence concludes, the sequence number (B) will no longer display.



A—Sequence Switch
B—Sequence Indicator
C—IMS Indicator

RW29387,0000214 -19-04NOV04-2/2

Aborting IMS

Any of the following will cause IMS to shut off (abort):

- Pressing **ON/OFF** switch while sequence is executing
- Pressing **LEARN/SAVE** switch during execution
- Pressing the **opposite sequence** switch during execution
- Allowing speed to drop to less than 0.5 kph (0.31 mph)
- Shifting transmission to NEUTRAL position
- If 45 seconds elapses without operator input during the **LEARN** or **SEQUENCE** execution mode

RW29387,0000215 -19-04NOV04-1/1

Clearing IMS Sequence

1. Press IMS **ON/OFF** switch to ON.
2. Put transmission in PARK position.
3. Press **LEARN/SAVE** switch.
4. Press **SEQUENCE** switch.
5. Press **LEARN/SAVE** switch again.

RW29387,0000216 -19-06NOV02-1/1

Hydraulics and Selective Control Valves

Connecting and Disconnecting Hydraulic Hoses

CAUTION: Push transport lock touch switch (A) on SCV TouchSet monitor before attaching or detaching implements to prevent implement movement and possible personal injury.

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

Be sure hose ends are clean prior to use to minimize hydraulic system contamination.

Clean dust covers (B). Lift dust covers upward to expose coupler ports.

NOTE: Remote cylinder couplers are designated "I" through "V". "I" is the **bottom** coupler.

Check to be sure connection on coupler matches cylinder travel direction required.

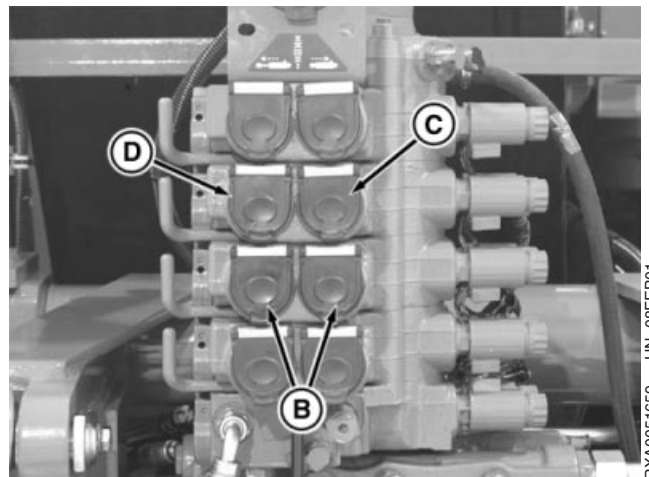
Plug return hose into retract side of coupler (C)

Plug pressure hose into extend side of coupler (D)

- A—Transport Lock Touch Switch
- B—Dust Covers
- C—Retract Side
- D—Extend Side

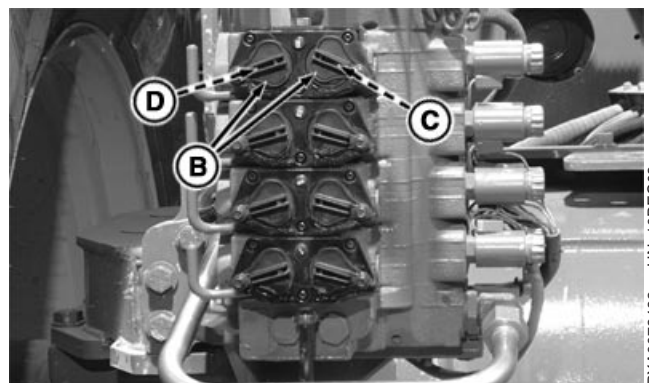


RW26141 -UN-08MAY99



RXA0051659 -UN-08FEB01

SCV Dust Covers—Early Version



RXA0072482 -UN-10DEC03

SCV Dust Covers—Late Version

Continued on next page

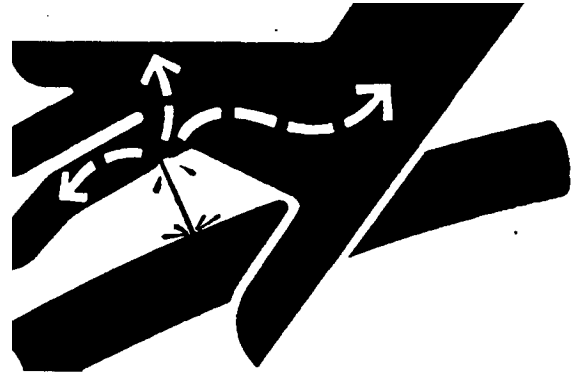
OU1092A,0000001 -19-06OCT05-1/3

Follow procedure on following page when connecting hoses under pressure.

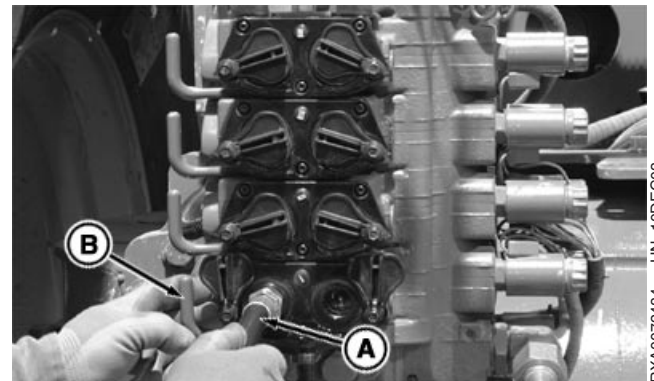
- ⚠ CAUTION:** Escaping fluid under pressure can penetrate the skin causing serious injury.
- Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure.
- Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.
- If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source. Such information is available from Deere & Company Medical Department in Moline, Illinois, U.S.A.

NOTE: When install hydraulic hoses under pressure, follow procedure listed or hose may not stay seated.

- Push extend hose (A) forward until contacting coupler.
- Pull back on lever (B) while continuing to push forward on hose. This will allow coupler poppet to retract.
- With hose fully inserted into coupler, release lever allowing it to go back to the center position. This will lock hose in place.
- Push retract hose (C) forward until contacting coupler.
- Push forward on lever (D) while continuing to push forward on hose. This will allow coupler poppet to retract.
- With hose fully inserted into coupler, release lever allowing it to go back to the center position. This will lock hose in place.

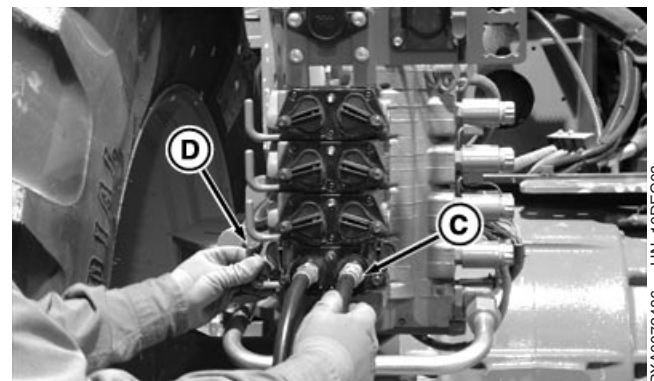


X9811 -UN-23AUG88



FXA0072484 -UN-10DEC03

Install Extend Hose



FXA0072486 -UN-10DEC03

Install Retract Hose

- A—Extend Hose
- B—Lever
- C—Retract Hose
- D—Lever

Move SCV switch to neutral position with no time flow “commanded”.

Release extend hose (A) by pulling rearward on lever (B).

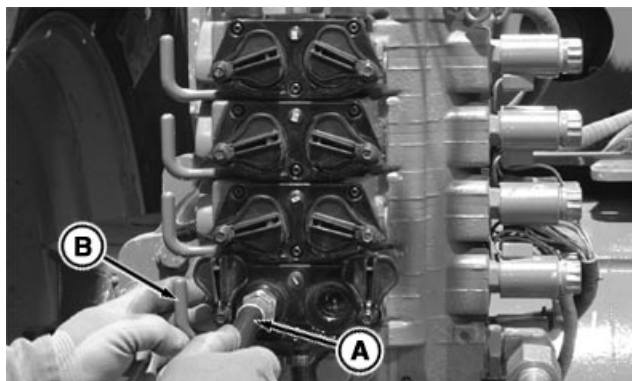
Release retract hose (C) by pushing forward on lever (D).

To relieve hydraulic pressure in implement, move SCV control switch down and forward to float position (E), while engine is running.

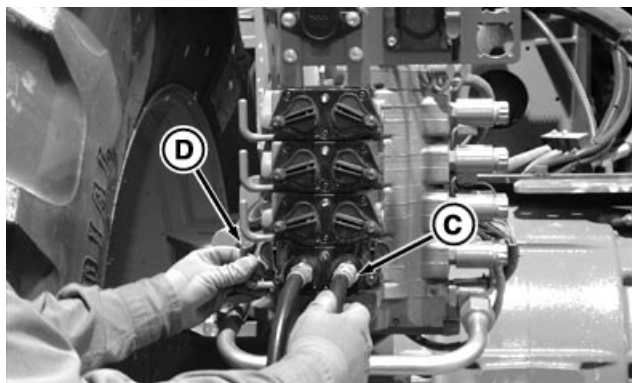
Push dust cover back into SCV receptacle. (Early Version)

Turn dust cover back over SCV receptacle. (Late Version.

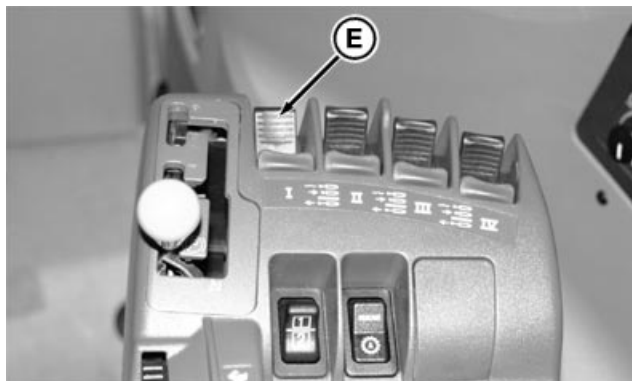
- A—Extend Hose
- B—Lever
- C—Retract Hose
- D—Lever
- E—Float Position



Remove Extend Hose



Remove Retract Hose



OU1092A,0000001 -19-06OCT05-3/3

Using SCV TouchSet™ Controls and Monitor



CAUTION: Push transport lock touch switch (F) on SCV TouchSet monitor before attaching or detaching implements to prevent implement movement and possible personal injury.

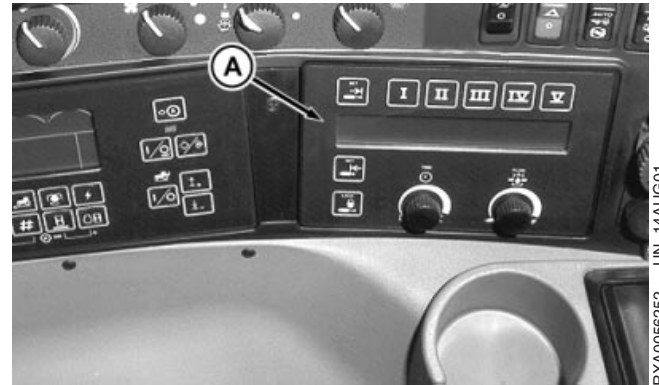
Hydraulic setup and adjustment panel on side console provides operational display of SCV function and a means to set flow rate and detent time operation for each SCV.

At start up, display will show all SCV numbers and symbols for 2 seconds. After start up, SCV monitor displays selected time for each SCV.

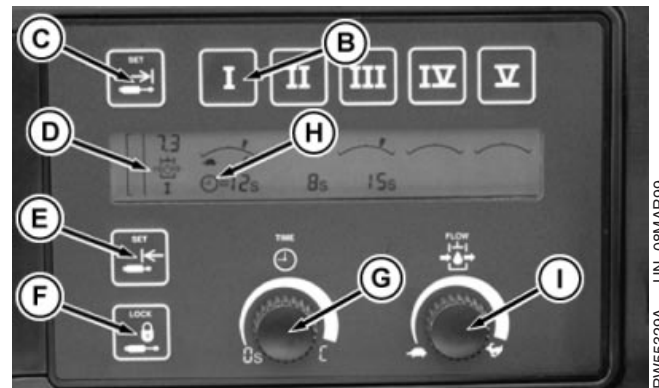
Select SCV number (I—V). SCV monitor will enter adjustment mode. Bar graph display will show rabbit, turtle and clock symbols (H) for selected SCV. Digital display shows flow setting and detent time for selected SCV (D).

In adjustment mode, selected SCV settings can be changed. Adjustment mode remains activated for 20 seconds after which time display returns to normal operation.

In normal mode, SCV monitor will only display current detent time settings for each SCV. Flow rate will be displayed as a bar graph.



RXA0056252 -UN-14AUG01



RW55329A -UN-08MAR99

- A—Controls and Monitor
- B—SCV Selector Touch Switch
- C—Cylinder Extend Limit Touch Switch¹
- D—Display-SCV Selected and Flow Rate
- E—Cylinder Retract Limit Touch Switch¹
- F—Transport Lock Touch Switch
- G—Detent Time Adjustment
- H—Display-Flow Rate and Time Detents
- I—Flow Rate Adjustment

TouchSet is a trademark of Deere & Company

¹ Cylinder Extend and Retract Limit Touch Switches used with TouchSet Depth Control only

RW29387,0000218 -19-06NOV02-1/1

Determining Total Flow Demand

1. Check flow setting for each function, independently. (See implement operator's manual, applications section, to determine correct motor flow settings.)

Examples of functions which can cause the pump to operate at high pressure:

- Down pressure systems (drills, air seeders, disks)—usually can be considered to be zero flow demand after completion of raise or lower cycle.
- Auxiliary flow control valves (vacuum flow control)—Completely open implement flow control valve and adjust tractor flow rate to desired setting
- Cylinder functions, where line or orifice restrictions control flow—Adjust tractor flow control to point where cycle time just begins to decrease.
- Auxiliary control valves (implement stack valves, row guidance)—Adjust tractor flow control to lowest setting resulting in correct operation

2. Determine total flow demand by adding flow requirements for each SCV using settings determined in Step 1. Include hitch and power-beyond flow requirements, if applicable. (Refer to chart for correct settings.)

3. Determine if flow demand exceeds available pump flow (Refer to chart for available pump flow) :

- Flow demand is less than available pump flow but there is performance concern. (See your John Deere Dealer.)
- Flow demand exceeds pump flow:
 - Increase engine rpm, if possible
 - Decrease flow setting on non-critical functions
 - Convert implement open center valves to closed center operation, if possible

STANDARD 74 cc PUMP FLOW AVAILABLE

Engine rpm	Flow at 83.4°C (150 °F)	
	L/min	gpm
1000	89	23
1500	136	36
2000	182	48

HITCH FLOW (Fast Rate)

Hitch Cylinder Diameter (mm)	Flow	
	L/min	gpm
90/90	61	16
90/100	68	18

RW29387,0000219 -19-30APR04-1/1

Adjusting Selective Control Valve Flow Rate

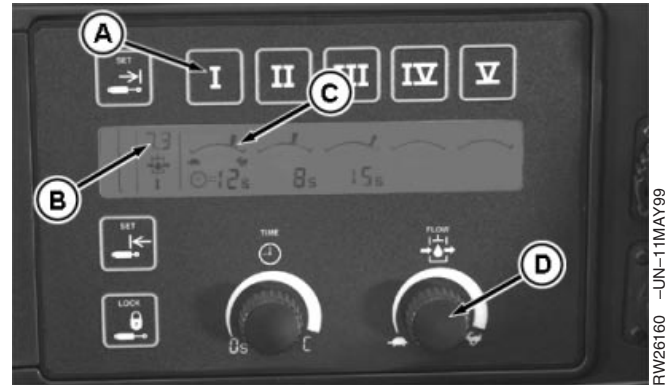
CAUTION: Excessive operating speed can cause damage or injury. Full extension or retraction of cylinder should take at least 2 seconds.

Adjust rate of operation for each job. Rate should be slow enough to be safe, yet fast enough to be practical.

Change flow setting as follows:

1. Press selected SCV switch (A). Display below touch switch shows previous rate of flow.
2. Turn flow rate knob (D) clockwise (rabbit) to increase flow or counterclockwise (turtle) to decrease flow. Flow setting is shown on bar graph display (C) and, during adjustment, on digital display (B).

NOTE: SCV can be operated to observe flow rate while in adjustment mode. Reduced cylinder cycle times and/or a reduction in motor speed may result if total flow demand exceeds available pump flow.



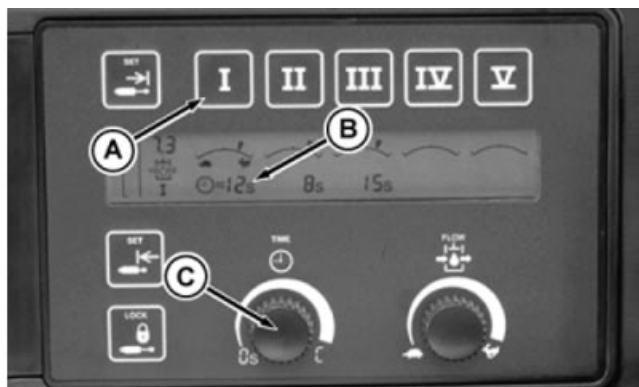
A—SCV Switch
B—Digital Display
C—Bar Graph Display
D—Flow Rate Knob

SCV FLOW OUTPUT (APPROXIMATE)

SCV Flow Settings	Flow	
	L/min	gpm
0.1 ^a	—	—
1.0	3.6	1.0
2.0	7.2	1.9
3.0	10.2	2.7
4.0	14.4	3.8
5.0	19.2	5.0
6.0	24.0	6.4
7.0	31.2	8.2
8.0	39.6	10.5
9.0	65.4	17.2
10.0	114	30.0

^a0.1 = Minimum Flow Setting

Adjusting Timed Detent



A—SCV Selector Switch

B—Time Setting Display

C—Detent Time Adjustment

Timed Detent Function:

Three selected timed detents are available to hold each SCV function for an adjustable time.

- 0 (No Timed Detent)—hold control switch in extend or retract position. Oil flow continues until control lever is released. (This position is recommended for implements requiring frequent height or depth adjustments.)
- 1—19 Seconds (Adjustable Timed Detent)—control switch is moved to full (detented) extend or retract position and released. Lever returns to neutral. Oil flow continues until time selected expires. (This position is recommended for implements operating at full depth or with depth stops on the cylinders.)
- C (Continuous Flow)—control lever is moved to full (detented) extend or retract position and released. Lever returns to Neutral. Oil flow continues until control lever is moved away from Neutral or until tractor is shut off. (This position is recommended for

hydraulic motor use or applications where a continuous flow of oil is required.)

Timed Detent Adjustment:

Press selected SCV lever (A). Display below touch switch shows set time.

Adjust displayed timed detent by turning knob (C) clockwise (longer detent time or "C" continuous detent time). Turn knob counterclockwise (shorter detent time or "0" zero detent time). Time setting is shown on display (B).

Settings will take effect immediately. SCV can be operated to observe detents while in adjust mode.

NOTE: Move SCV lever slightly forward or rearward from neutral to cancel a detent function manually.

RW29387,000021B -19-06NOV02-1/1

Using SCV Control Levers



CAUTION: Prevent possible personal injury. Hydraulic hoses are reversed at the couplers if cylinder is extending when it should be retracting. Switch hoses at the coupler.

Cover (A) can be moved to cover SCV levers (I—IV) when not in use.

SCV control levers (I—V) have six positions:

- **Neutral**—Lever returns to center position when released except in float position
- **Extend** (rearward between Neutral and Extend Detent)—variable flow to extend cylinder, proportional to lever movement; shuts off when returned to center position
- **Extend Detent** (rearward to "click" position)—timed flow to extend cylinder, based on detent time setting and at a rate set by flow rate control (See Adjusting Timed Detent and Adjusting Selective Control Valve Flow Rate in this section) Lever returns to neutral when released
- **Retract** (forward between Neutral and Retract Detent)—variable flow to retract cylinder, proportional to lever movement; shuts off when returned to center position
- **Retract Detent** (forward to "click" position)—timed flow to retract cylinder, based on detent time setting and at a rate set by flow rate control. (See Adjusting Timed Detent and Adjusting Selective Control Valve Flow Rate in this section.) Lever returns to neutral when released
- **Float** (fully forward and down into locked position)—valve is open to sump to allow cylinder to extend or retract to allow implement to follow ground contour; must be pulled up and out of locked position to disengage

NOTE: To relieve hydraulic pressure in implement, move SCV control lever to float position, while engine is running.



RXA0073365 -UN-02FEB04



RXA0052100 -UN-06MAR01

A—SCV Switch Cover

SCV Lever—Neutral Position

Neutral (A) allows flow to continue until timed detent has expired. If no timed detent was "commanded", then both extend and retract valves will be off.

NOTE: SCV control lever should be in neutral position at tractor start up.

Levers in extend or retract position automatically return to neutral when the lever is released. Float position will remain detented.

Any position other than neutral or float will be ignored, until lever is cycled to neutral after engine start up.



A—SCV Neutral Position

RW29387,000021D -19-06NOV02-1/1

SCV Lever—Extend Position

Pull lever slightly to rear of neutral. This slowly extends cylinder at a variable flow rate as a percent of maximum flow rate (rate that was set when flow rate was set for corresponding SCV) and proportional to amount of lever travel between neutral and extend detent position. (See ADJUSTING SELECTIVE CONTROL VALVE FLOW RATE, in this section.) Lever returns to neutral and flow stops when released.

Pull the lever all the way rearward to extend the remote cylinder at maximum rate. Detent operation mode depends on the SCV detent selected. (See SCV LEVER EXTEND DETENT POSITION, in this section).

NOTE: Time setting is ignored in extend position.



RW29387,000021E -19-06NOV02-1/1

SCV Lever—*Extend Detent Position*

Pull lever rearward to "click" detent position and release. Lever will return to neutral position, but flow will continue at rate set on SCV TouchSet panel with SCV flow rate and flow time knobs (as last set for corresponding SCV). (See ADJUSTING SELECTIVE CONTROL VALVE FLOW RATE and ADJUSTING DETENT TIME, in this section.)

Flow timing will start when SCV lever is first moved into detent but not before. Oil flow will start as soon as SCV lever is moved but will not reach preset rate until just before lever is moved to detent position. SCV flow time should be adjusted so cylinder will be fully extended when time has elapsed.

Detent can be cancelled by moving SCV lever slightly forward or rearward from neutral after lever has returned to neutral or by holding lever in extend position for more than 0.8 seconds after lever is released from detent.

NOTE: *Detent positions are ignored at startup until lever is cycled to neutral.*



RW29387,000021F -19-06NOV02-1/1

SCV Lever—*Retract Position*

Push lever slightly forward of neutral. This slowly retracts cylinder at a variable flow rate as a percent of maximum flow rate (rate set when flow rate was set for corresponding SCV) and proportional to amount of lever travel between neutral and extend detent position. (See ADJUSTING SELECTIVE CONTROL VALVE FLOW RATE, in this section.) Lever returns to neutral and flow stops when released.

Push the lever forward to the first detent notch to retract the remote cylinder at maximum rate. Detent operation mode depends on the SCV detent selected. (See SCV LEVER RETRACT DETENT POSITION, in this section).

NOTE: Time setting is ignored in retract position.



RXA0073368 -UN-02FEB04

RW29387,0000220 -19-06NOV02-1/1

SCV Lever—*Retract Detent Position*

Push lever forward to "click" detent position and release. Lever will return to neutral position, but flow will continue at rate set on SCV TouchSet panel with SCV flow rate and flow time knobs (as last set for corresponding SCV). (See ADJUSTING SELECTIVE CONTROL VALVES FLOW RATE and ADJUSTING TIMED DETENT, in this section.)

Flow timing will start when SCV lever is first moved into detent but not before. Oil flow will start as soon as SCV lever is moved but will not reach preset rate until just before lever is moved to detent position. SCV flow time should be adjusted so cylinder will be fully retracted when time has elapsed.

Detent can be cancelled by moving SCV lever slightly forward or rearward from neutral after lever has returned to neutral or by holding lever in retract position for more than 0.8 seconds after lever is released from detent.

Moving lever quickly from neutral to float position will cause continuous operation and allow motor to turn freely.

NOTE: *Detent positions are ignored at startup until lever is cycled to neutral.*



RXA0073368 -UN-02FEB04

RW29387,0000221 -19-06NOV02-1/1

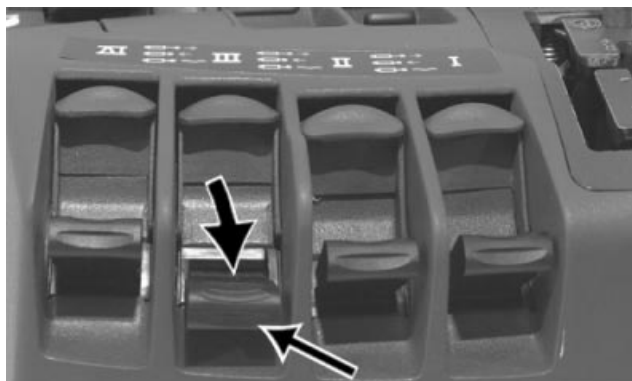
SCV Lever—Float Position

Push SCV lever all the way forward and down to lock in float position. Lever will remain in this position and SCV will remain in float position until lever is returned to neutral position. Cylinder is free to extend or retract, letting implement follow ground. Float symbol on SCV TouchSet monitor will be displayed when lever is in float position.

NOTE: Time setting is ignored in Float position.

If lever is in float position at engine start up, float function will operate if lever was moved to float position at least 10 seconds before engine was shut off and had not moved out of float position. If lever was not operated in this manner, float function will be disabled until lever is cycled to neutral.

Cycle cylinder fully in both directions after being used in the float position to ensure cylinder is filled with oil.



FXA0051670 -UN-12FEB01

RW29387,0000222 -19-06NOV02-1/1

Operator Presence Sensor

A sensor built into seat alerts operator when leaving seat with SCV engaged. Hydraulic and Service Alert indicator lights will flash for 5 seconds with an audible warning signal with the transmission in PARK or NEUTRAL position, and SCV lever in the “Continuous” or “Timed Detent” modes.

NOTE: SCV does not disengage while operator is absent from the seat.

RW29387,0000223 -19-06NOV02-1/1

Remote Hydraulic Connections

Using Load-Sensing Hydraulic System—*Power-Beyond*

Power-beyond is used as a pressure/flow source for auxiliary functions equipped with independent flow control valves. Use power-beyond when:

- Tractor SCV control is not needed
- No other SCV outlet is available

Power-beyond functions require a "load-sense" signal to regulate pump pressure, therefore, a "load-sense" hydraulic line is used. Certain equipment may require modification. (See your John Deere Dealer.)

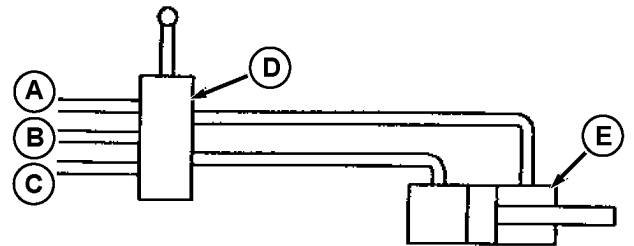
RW29387,0000553 -19-05OCT04-1/1

Examples Using Load-Sensing Hydraulic System—*Power-Beyond*

Example 1 —Control valves with a load-sense provide a load-sense signal to hydraulic system and can be operated manually or by solenoids.

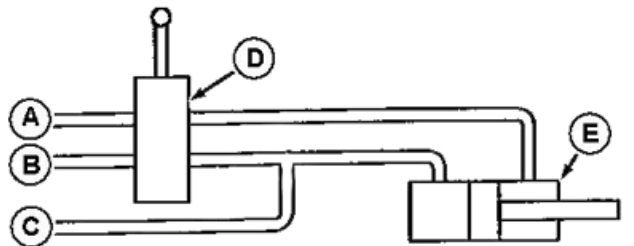
Example 2 —Control valve directs oil into extend or retract circuits. Connect load-sense line to circuit requiring pressure. An example is a wagon lift cylinder with load supported by mechanical stops in full down position. Load-sense signals pump when increased pressure is needed. Pressure remains low when not needed.

A—Return Line
B—Pressure Line
C—Load-Sense Line
D—Control Valve
E—Cylinder



Example 1

RW55109A -UN-18MAR99



Example 2

RXA0073530 -UN-17FEB04

Continued on next page

RW29387,0000554 -19-05OCT04-1/2

IMPORTANT: Circuit allows cylinder "leak-down" through load-sense line (C). If leakage is not acceptable for operation, use Example 3.

Example 3—Control valve directs oil into extend or retract circuits, either requiring high pressure. Connect load-sense line to pressure line before control valve.

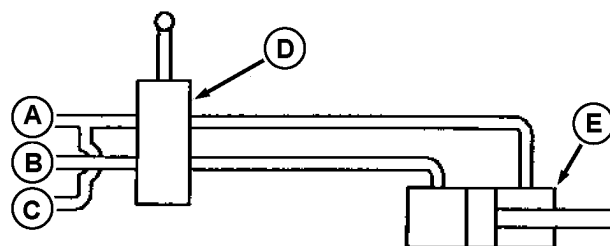
NOTE: System will maintain a maximum pressure of 20000 kPa (200 bar) (2900 psi) as long as power-beyond hoses are connected.

An example is a folding implement, where pressure is needed to extend or retract cylinders.

Example 4—Pressure-compensated flow control valve is used to regulate hydraulic motor speed. Connect load-sense line to pressure line after control valve.

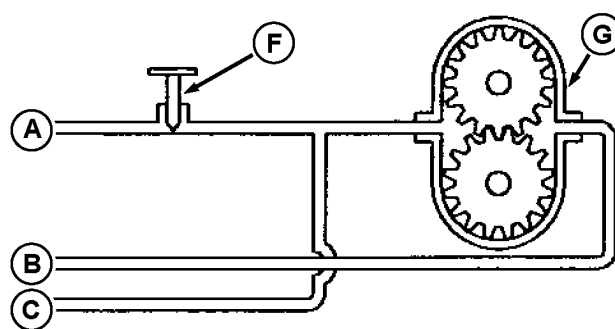
NOTE: Motor speed can fluctuate when other functions cause system pressure change. Minimize fluctuations by installing a pressure-compensated flow control valve.

- A—Pressure Line
- B—Return Line
- C—Load-Sense Line
- D—Control Valve
- E—Cylinder
- F—Pressure-Compensated Flow Valve
- G—Hydraulic Motor



Example 3

RW55111A -JUN-08MAR99



Example 4

RW55112A -JUN-08MAR99

Using Hydraulic Spray Pumps

1. Follow spray pump manufacturers recommendations for pump model selection, setup and operation.

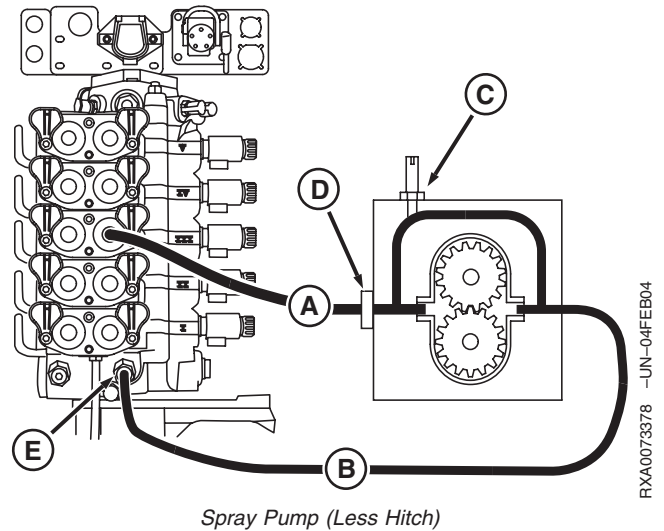
NOTE: Select the smallest displacement motor recommended for multiple hydraulic function operation. The smaller displacement will lower total hydraulic flow demand and improve overall system performance.

3. Connect motor pressure line (A) to retract port of SCV (right-hand side).

NOTE: Use of SCV 3, 4, or 5 for standard hydraulic system is suggested. Use SCV 4 or 5 for High Flow hydraulic system.

4. Connect return line (B) to power beyond return coupler (E).
5. Activate SCV by moving lever forward to retract detent position and adjust hydraulic flow rate per pump manufacturers guidelines.
6. Shut off spray pump by moving SCV control lever to float position (full forward and down). Stopping spray pump by moving SCV to neutral position will cause high pressure oil to be trapped between SCV and pump. This may cause damage to spray pump seals. This applies to motors using the SCV pressure and return couplers.

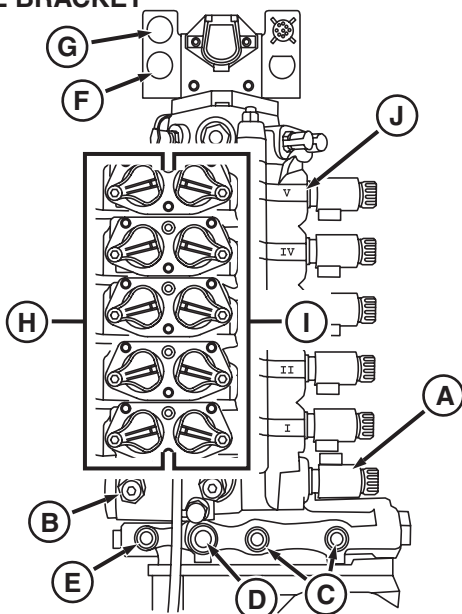
IMPORTANT: Some motors are not equipped with over-speed protection. Extended operation above recommended speed can cause failure.



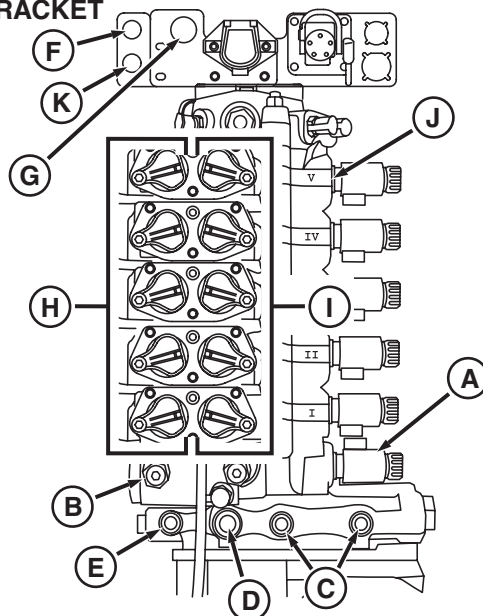
- A—Pressure Line
- B—Return Line
- C—Needle Valve (Closed)
- D—Inlet Line Orifice (Remove)
- E—Power Beyond Return Coupler

Standard Hydraulic Component Identification

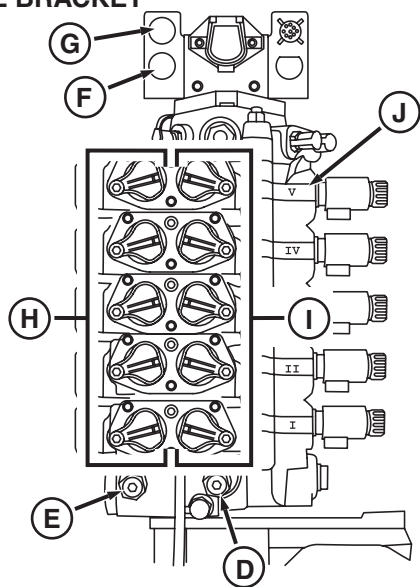
**STANDARD HYDRAULIC - WITH HITCH
(OLD) STYLE BRACKET**



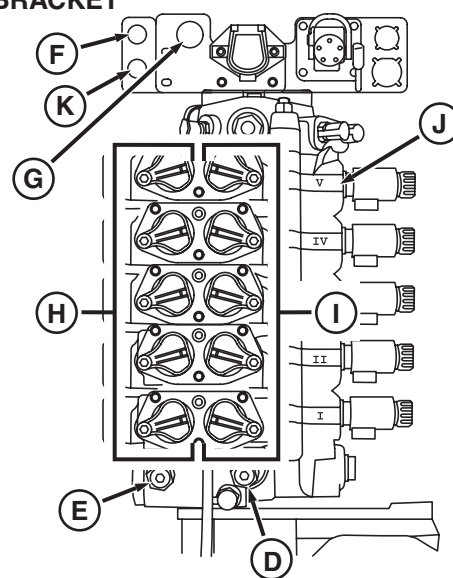
**STANDARD HYDRAULIC - WITH HITCH
(NEW) STYLE BRACKET**



**STANDARD HYDRAULIC - LESS HITCH
(OLD) STYLE BRACKET**



**STANDARD HYDRAULIC - LESS HITCH
(NEW) STYLE BRACKET**



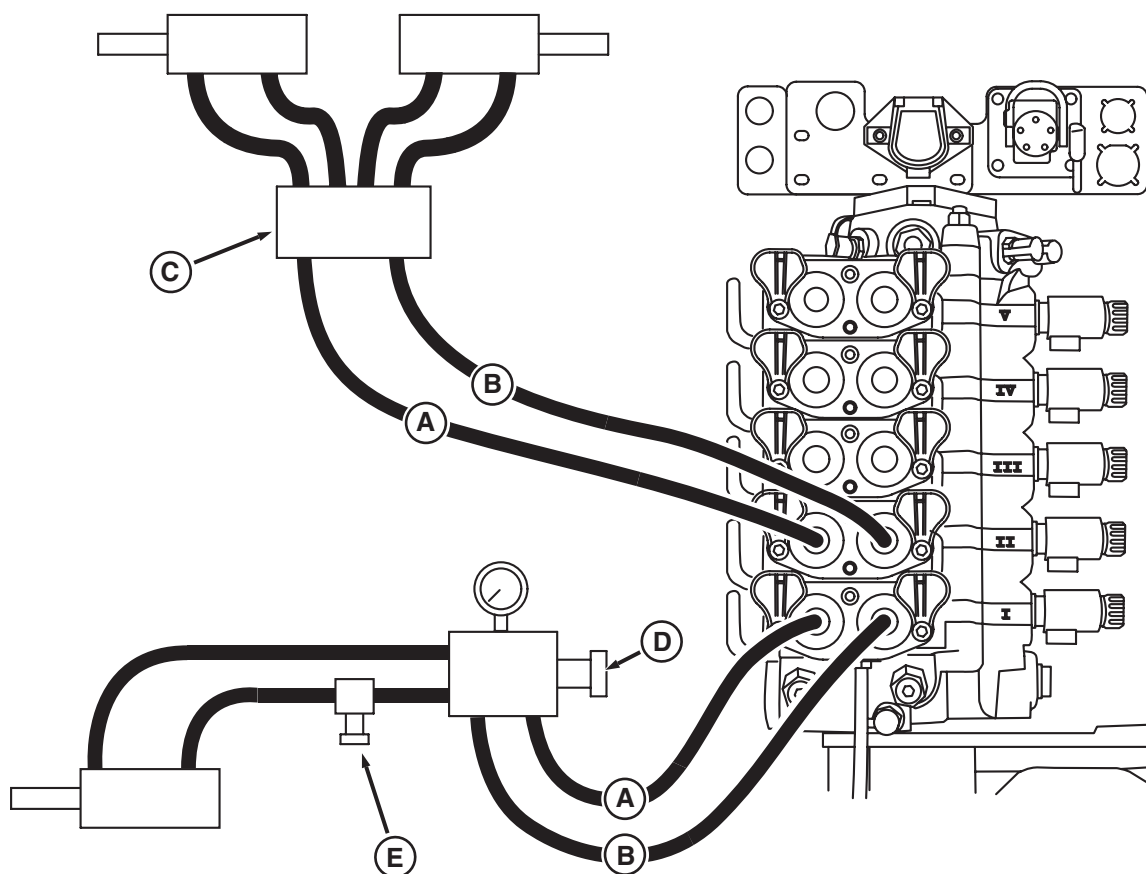
- A—Hitch Valve
- B—Hitch Valve Pressure Port
- C—Hitch Return Ports
- D—Power-Beyond Return Port
- E—Power-Beyond Pressure Port
- F—Power-Beyond Load Sense Coupler

- G—Motor Seal Drain Port
- H—Extend Ports
- I—Retract Ports

- J—Field Installed 5th SCV
- K—Not Used

RXA0073524 -UN-03MAR04

Implement Connection Example 1—Pressure Control Valve Applications (Grain Drills or Air Seeders with Constant Down-Pressure System)—Less Hitch—Standard Hydraulics



A—Extend Coupler Line
B—Retract Coupler Line

C—Selector Valve

D—Pressure Control Valve

E—Transport Lock Valve

For implements using active down force set flow control to continuous and move lever to detent position.

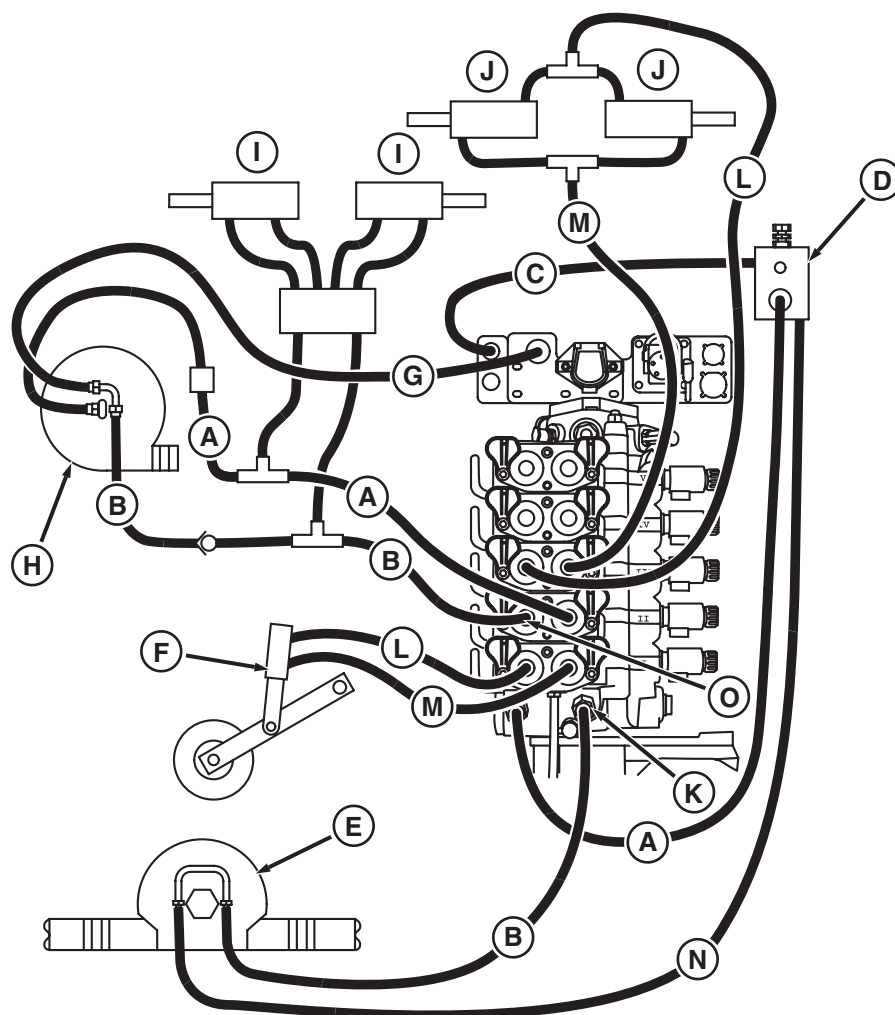
This will cause hydraulic pump to operate at maximum pressure which may cause overheating of hydraulic oil

if operating at same time outside air temperature is high. To avoid this problem, try not to operate more than one hydraulic motor with tractor hydraulic system when active down force is being used.

OU1092A.0000015 -19-15SEP04-1/1

RXA0073510 -UN-03MAR04

Implement Connection Example 2—Motor Application Using Motor Case Drain—Less Hitch—Standard Hydraulics



A—Power Beyond Pressure Line
B—Power Beyond Return Line
C—Load Sense Line

D—Control Valve
E—Vacuum Motor
F—Raise/Lower Cylinder
G—Motor Seal Drain Line

H—Fan
I—Marker
J—Fold
K—Power Beyond Ports

L—Extend Coupler Line
M—Retract Coupler Line
N—Controlled Flow Line
O—Hose Tip

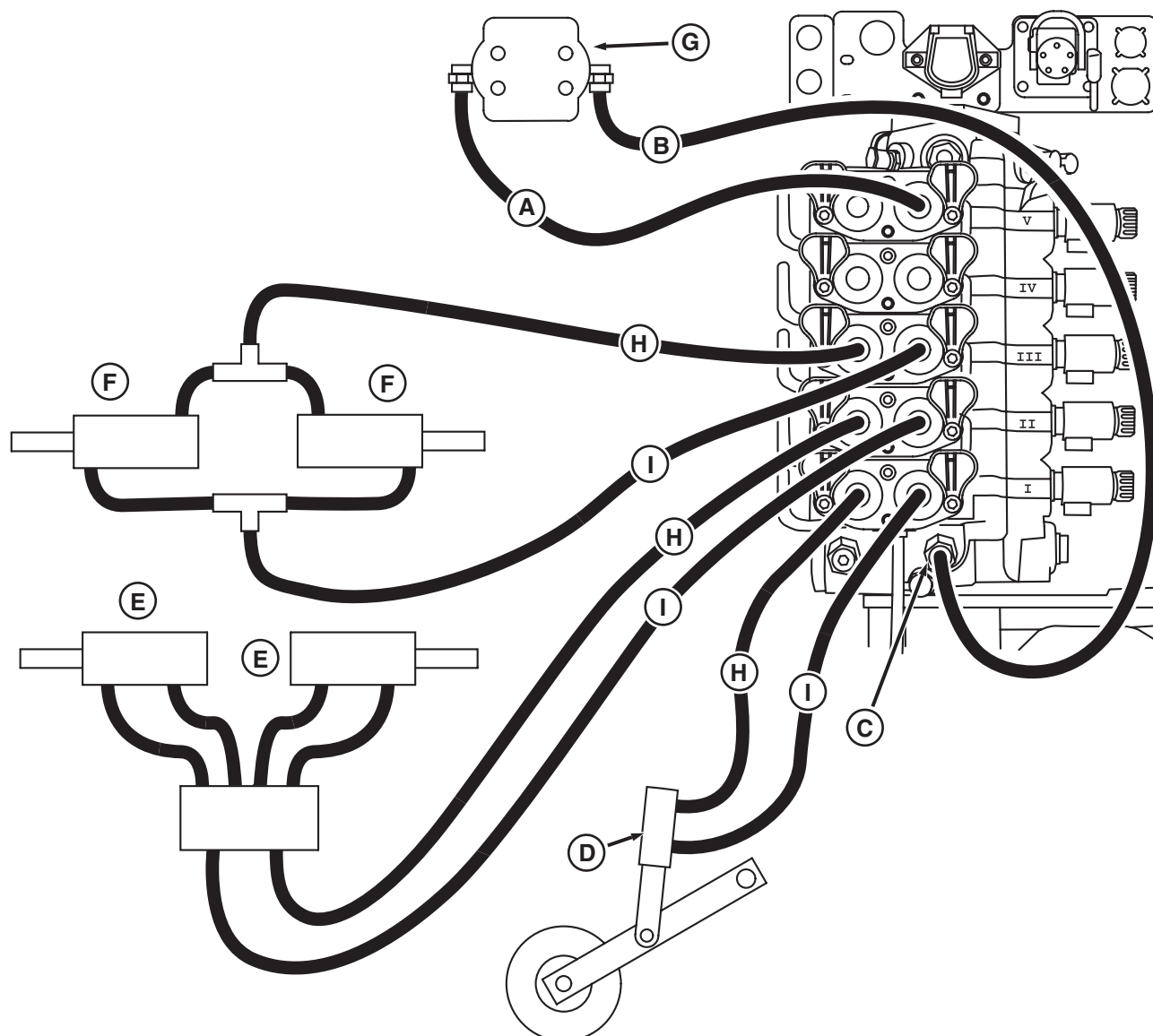
In this motor application (E) is being operated from power beyond which requires a load sense connection (C) to signal hydraulic pump for operation.

The second motor (H) is equipped with motor case drain line (G). Pressure oil comes from the retract port on the SCV and return oil is routed to the extend port. When motor return oil is routed to an SCV, a special

return hose tip (N) with check valve is required to prevent high pressure oil from moving back toward the motor and possibly damaging the seals. When the motor is shut off, the SCV lever is moved to float position to allow motor to coast to a stop. Moving lever to neutral will cause motor to stop abruptly and may damage seals.

RXA0077610 -UN-05OCT04

Implement Connection Example 3—Closed Center Valve, Pump at High Pressure—Less Hitch—Standard Hydraulics



A—Pressure Line
B—Return Line
C—Power Beyond Return coupler

D—Raise/Lower cylinder
E—Markers

F—Fold
G—Hydraulic Motor

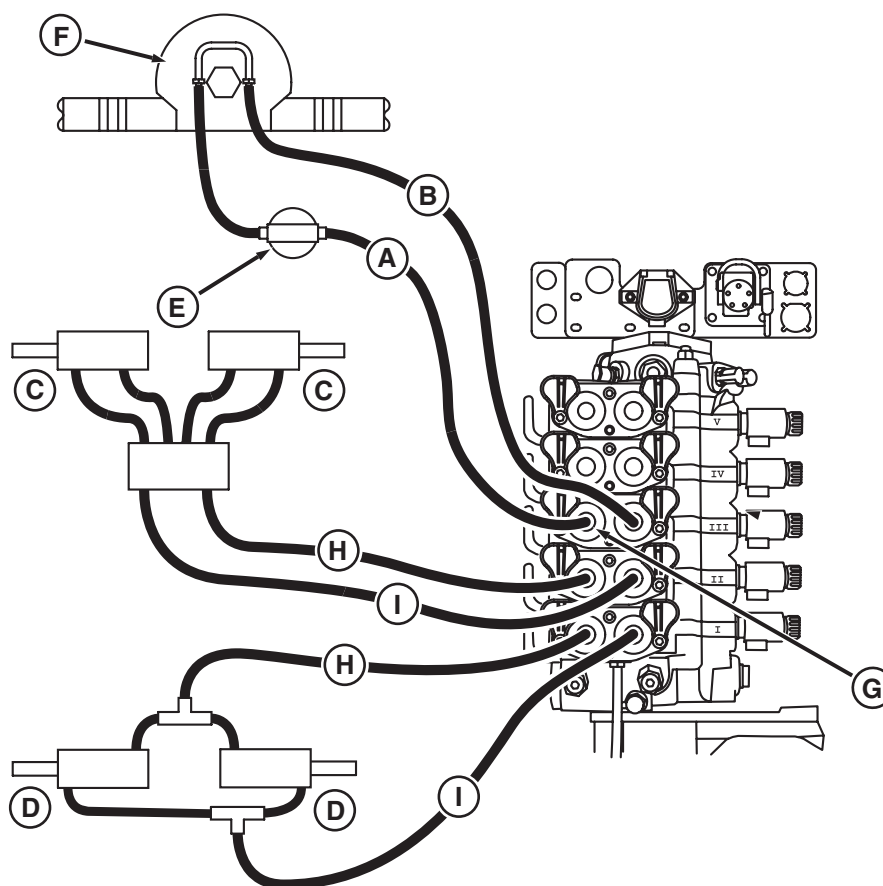
H—Extend Coupler Line
I—Retract Coupler Line

In this application motor (G) receives pressure oil from the retract port on SCV. Return oil is routed to power beyond return port. When the motor is shut off, the SCV lever is moved to float position to allow motor to

coast to a stop. Moving lever to neutral can cause motor to stop abruptly and may damage seals. Since return oil is routed to power beyond return port, no special hose tip is required.

FXA0073511 -UN-03MAR04

Implement Connection Example 4—Planter with Vacuum Motor and Return Line to SCV Using Motor Return Tip—Less Hitch—Standard Hydraulics



A—Pressure Line
B—Return Line
C—Marker

D—Fold
E—Flow Control Valve (Wide Open)

F—Vacuum Motor
G—Special Hose Tip
H—Extend Coupler Line Motor Return Tip

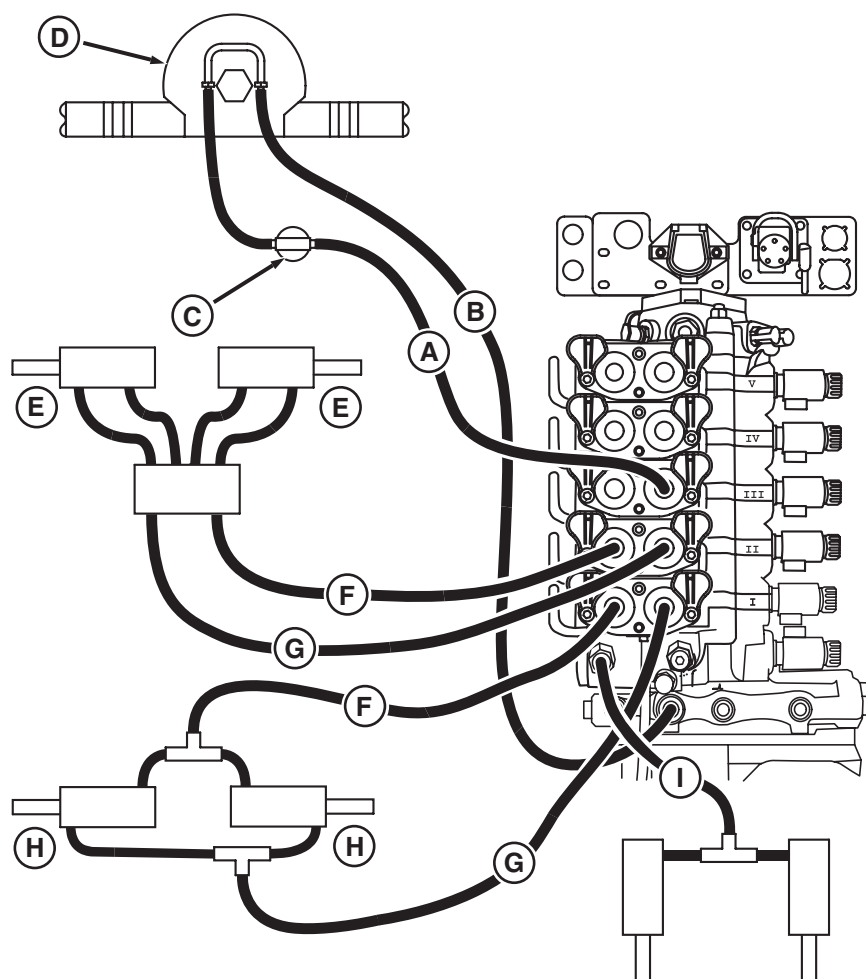
I—Retract Coupler Line
J—Case Drain Line

In this application vacuum motor (F), similar to a planter blower, receives pressure oil from the retract port on SCV. Since return oil is routed to an SCV, a special return hose tip with check valve is required to prevent high pressure oil from moving back toward the motor and possibly damaging the seals. When motor is shut off, the SCV lever is moved to float position to allow motor to coast to a stop. Moving lever to neutral will cause motor to stop abruptly and may damage seals.

Flow control valve (F) should be wide open and flow controlled by SCV setup panel. If flow is controlled by flow control valve, it will cause hydraulic pump to operate at maximum pressure which may cause overheating of hydraulic oil if operating at same time outside air temperature is high.

RXA0073535 -UN-11MAR04

Implement Connection Example 5—Planter with Vacuum Motor and Return Line to Motor Return—With Hitch—With Lift Assist—Standard Hydraulics



A—Pressure Line
B—Return Line
C—Flow Control Valve (Wide Open)

D—Vacuum Motor
E—Fold

F—Extend Coupler Line
G—Retract Coupler Line

H—Markers
I—Lift Assist

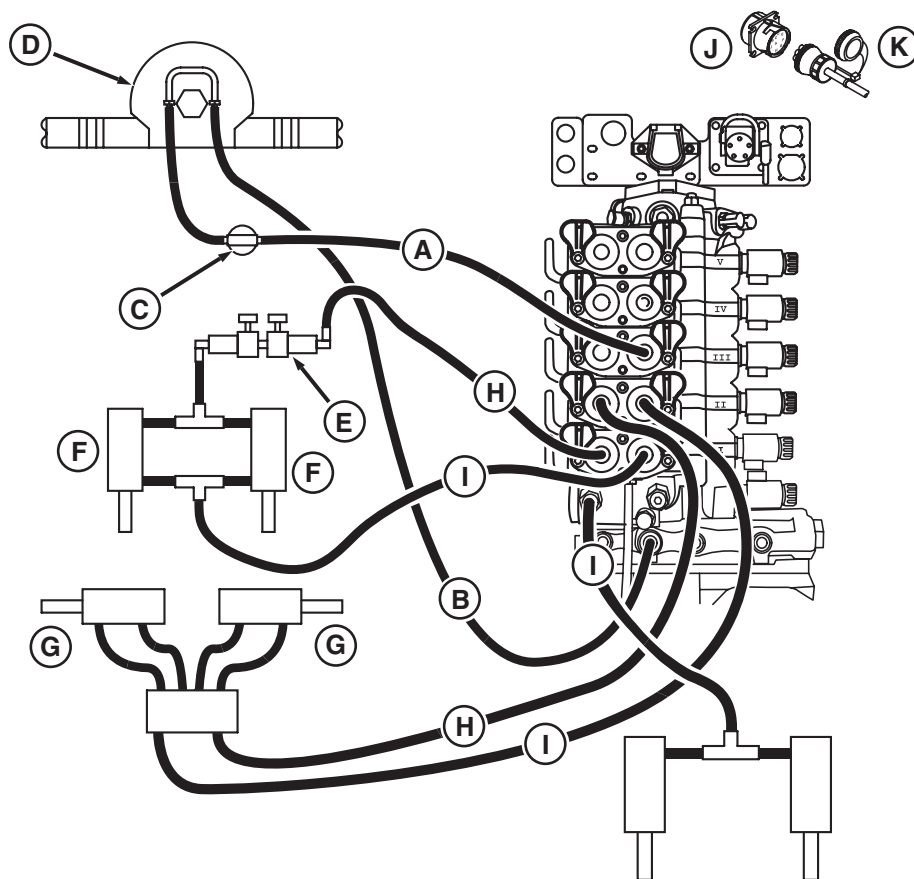
In this application vacuum motor (D) receives pressure oil from the retract port of SCV. Return oil is routed to power beyond return port. If return hose is equipped with special return hose tip, it can be connected directly to left-hand side of coupler three. When the motor is shut off, the SCV lever is moved to float position to allow motor to coast to a stop. Moving lever to neutral will cause motor to stop abruptly and may damage seals.

Control valve (C) is wide open and flow is controlled by tractor control panel. If valve is used to control oil flow, pump will operate at maximum pressure which may cause overheating of hydraulic oil if operating at same time outside air temperature is high.

Lift assist is controlled by hitch lever.

RXA0073564 -UN-26APR04

Implement Connection Example 6—Planter with Vacuum Motor and Return Line to Motor Return—With Hitch—Lift Assist—Standard Hydraulics



A—Pressure Line
B—Return Line
C—Flow Control Valve (Wide Open)

D—Vacuum Motor
E—Control Valve
F—Lift Assist

G—Markers
H—Extend Coupler Line
I—Retract Coupler Line

J—Tractor 9-Pin Connector
K—Special 9-Pin Connector

In this application vacuum motor (D) receives pressure oil from the retract port of SCV. Return oil is routed to power beyond return port. If return hose is equipped with special planter return hose tip, it can be connected directly to left-hand side of coupler three. When the motor is shut off, the SCV lever is moved to float position to allow motor to coast to a stop. Moving lever to neutral will cause motor to stop abruptly and may damage seals.

Control valve (C) is wide open and flow is controlled by tractor control panel. If valve is used to control oil

flow, pump will operate at maximum pressure which may cause overheating of hydraulic oil if operating at same time outside air temperature is high.

SCV #1 is used to control both the valve and lift assist. The special 9-pin harness (K) contains a loop circuit that disables tractor hitch control unit when it is connected to 9-pin connector (J) that is wired into tractor main electrical harness.

FXA0073563 -UN-26APR04

Using Implement Requiring Large Volumes of Oil



CAUTION: Do not add hydraulic oil to reservoir with engine running. Injury from unexpected hitch or cylinder movement can occur.

IMPORTANT: Power loss and excess heat generation can result if the additional large volume of oil is not removed after using the implement. Removing too much oil can result in malfunction when raising the hitch or using the “extend” function of SCVs.

Cycle all implement cylinders after starting tractor.

Check the hydraulic oil level. (See CHECKING HYDRAULIC OIL LEVEL in the Lubrication Section.)

Add oil if required.

Lower implement to return oil to the reservoir.

Recheck oil level when implement is removed.

Drain any excess oil from hydraulic reservoir.

RW29387,0000556 -19-08JAN04-1/1

Motor Seal Drain Filter—If Equipped

The motor seal drain protects motor and shaft seals by allowing filtered motor housing oil return to hydraulic reservoir with minimal back pressure.

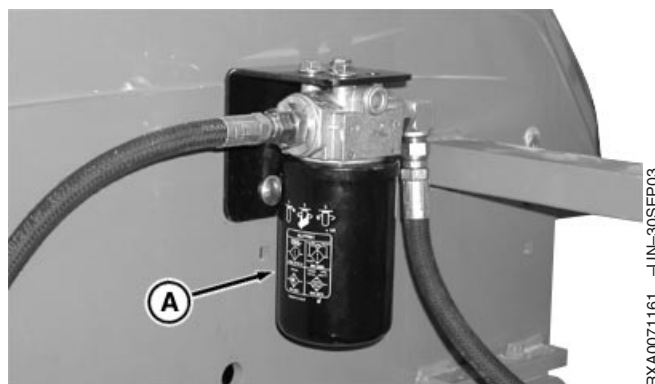
NOTE: There are two different types of motor seal drain couplers. Order the correct implement hose tip for the motor seal drain coupler equipped with the tractor. Tips can be ordered through John Deere Parts.

Motor Seal Drain Coupler

AM102487
RE214614

Implement Hose Tip

AM37983
AA59671



A—Motor Seal Drain Filter

RW29387,0000557 -19-12OCT05-1/1

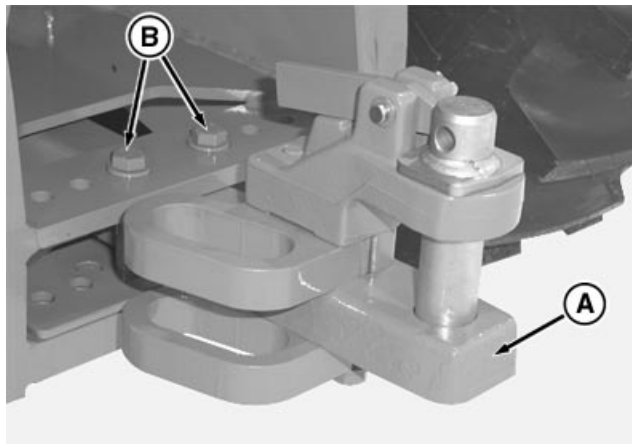
Drawbar and PTO

Observing Drawbar Load Limitations

IMPORTANT: Certain heavy equipment can place excessive strain on drawbar (A). Strain is greatly increased by speed and rough ground. Maximum static vertical load on drawbar should not exceed 2043 kg (4500 lb).

Tighten drawbar locking bolts (B) with shims to 435 N•m (322 lb-ft) and drive slowly, if heavier loads are expected.

A—Drawbar
B—Bolts



RXA0051679 -UN-14AUG01

RW29387,0000229 -19-06OCT05-1/1

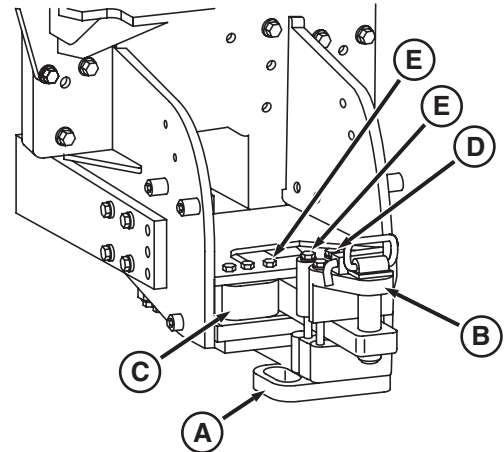
Heavy Duty Drawbar Load Limitations—If Equipped

IMPORTANT: Heavy duty drawbar support must be used when maximum static vertical load exceeds 2043 kg (4500 lb).

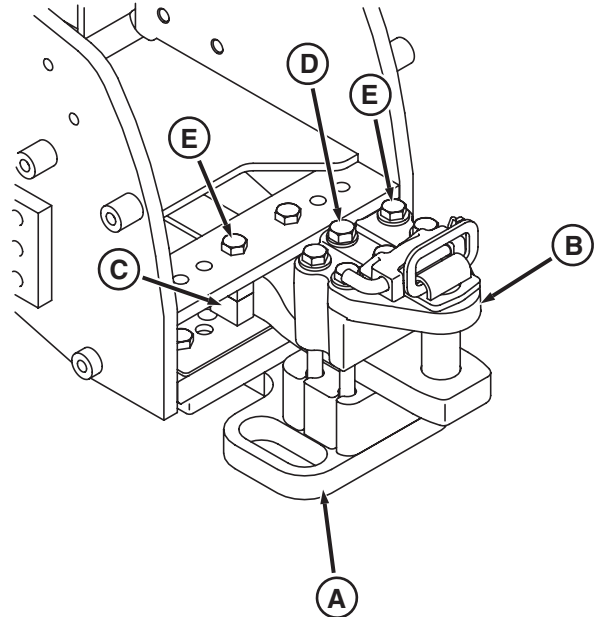
Maximum Static Vertical Drawbar Load	
Short Drawbar Position	4900 kg (11,000 lb)
Long Drawbar Position	4082 kg (9,000 lb)

Attach drawbar brace (A), hammerstrap (B) and spacer block (C) using cap screws (D) and (E).

- A—Drawbar Brace
- B—Hammerstrap
- C—Spacer Blocks
- D—Cap Screws, M22
- E—Cap Screws, M20



Heavy Duty Drawbar Support (Early Version)



Heavy Duty Drawbar Support (Late Version)

RXA0070703 -UN-25SEP03

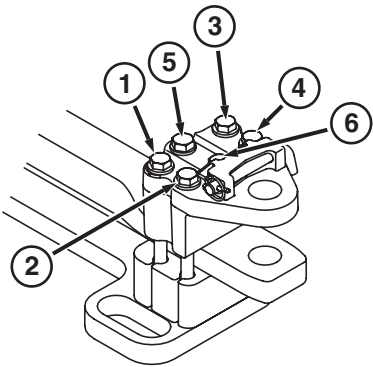
RXA0073984 -UN-18MAR04

Continued on next page

RW29387,0000559 -19-05OCT04-1/4

Torque cap screws in crisscross sequence:

- A — Torque number 1
- B — Torque number 4
- C — Torque number 2
- D — Torque number 3
- E — Torque number 1
- F — Torque number 4
- G — Torque number 2
- H — Torque number 3
- I — Torque number 5
- J — Torque number 6
- K — Torque number 5
- L — Torque number 6



PXA0072567 -JUN-12DEC03

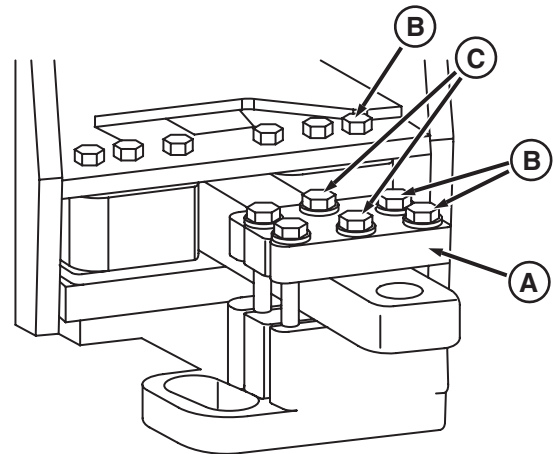
Item	Measurement	Specification
Torque Specifications		
Cap Screws 1, 2 3 and 4.	Torque	610 N•m 450 lb-ft
Cap Screws 5 and 6	Torque	750 N•m 550 lb-ft

IMPORTANT: Drive slowly when moving heavy draft loads.

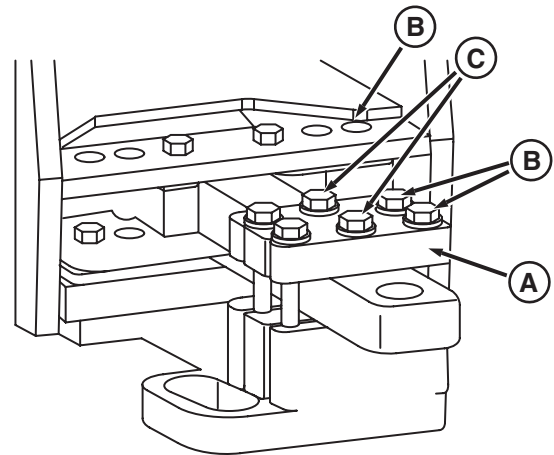
IMPORTANT: Clamp plate must be installed when hammerstrap is not used.

Install clamp plate (A) using cap screw (B) and (C).

- A—Plate
- B—Cap Screws, M22
- C—Cap Screws, M20



Heavy Duty Hammerstrap (Early Version)



Heavy Duty Hammerstrap (Late Version)

RXA0070704 -UN-25SEP03

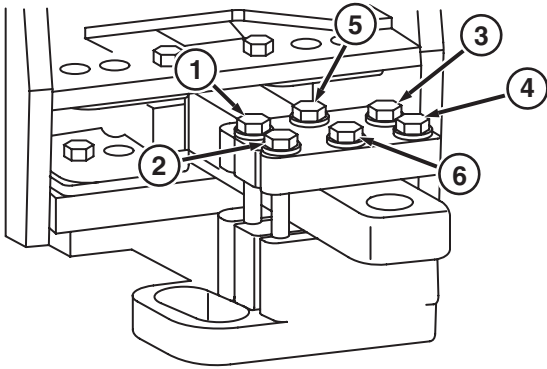
RXA0073936 -UN-17MAR04

Continued on next page

RW29387.0000559 -19-05OCT04-3/4

Torque cap screws in crisscross sequence:

- A** — Torque number 1
- B** — Torque number 4
- C** — Torque number 2
- D** — Torque number 3
- E** — Torque number 1
- F** — Torque number 4
- G** — Torque number 2
- H** — Torque number 3
- I** — Torque number 5
- J** — Torque number 6
- K** — Torque number 5
- L** — Torque number 6



RXA0073937 -UN-11MAR04

Item	Measurement	Specification
Torque Specifications		
Cap Screws 1, 2 3 and 4.	Torque	610 N•m 450 lb-ft
Cap Screws 5 and 6	Torque	750 N•m 550 lb-ft

RW29387,0000559 -19-05OCT04-4/4

Selecting Drawbar Position

IMPORTANT: Drawbar must be positioned, as instructed in ATTACHING PTO DRIVEN IMPLEMENT, in this section, for PTO-driven implement.

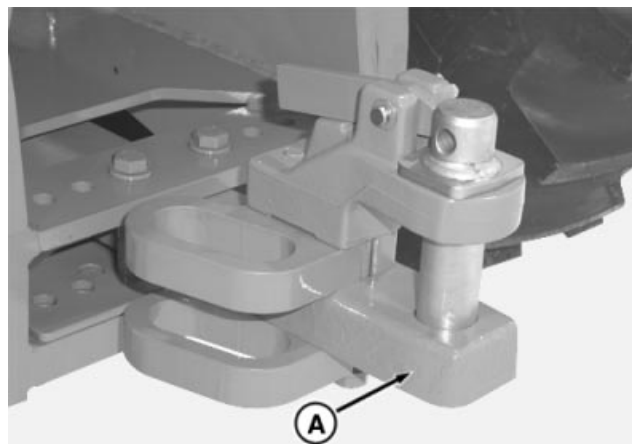
Drawbar (A) length can be extended:

1. Loosen drawbar locking bolts.
2. Remove front drawbar pin (B).
3. Slide drawbar to desired position.
4. Install front drawbar pin.
5. Tighten drawbar locking bolts.

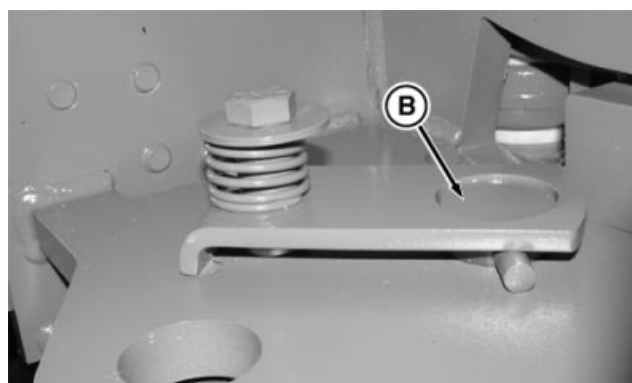
Drawbar Locking Bolts—Specification

Bolt—Torque.....435 N•m (322 lb-ft)

A—Drawbar
B—Drawbar Pin



RXA0051681 –UN-12FEB01



RXA0051685 –UN-12FEB01

RW29387,000022A –19-06NOV02-1/1

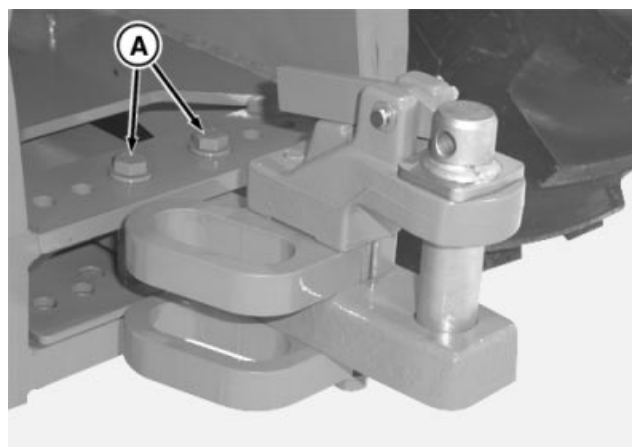
Adjusting Drawbar Side-to-Side

1. Remove drawbar locking bolts (A).
2. Slide drawbar to desired position.
3. Install a locking bolt against each side of drawbar.

Drawbar Locking Bolts—Specification

Bolt—Torque.....435 N•m (322 lb-ft)

A—Locking Bolts



RXA0051682 –UN-12FEB01

RW29387,000022B –19-06NOV02-1/1

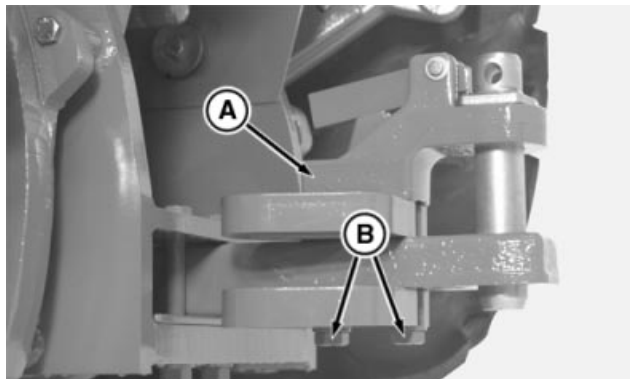
Installing Clevis Assembly

Clevis assembly (A) must be attached *only* to the top of the drawbar. Tighten two cap screws (B).

Clevis Cap Screws—Specification

Cap Screw—Torque750 N•m (553 lb-ft)

A—Clevis Assembly
B—Cap Screws



RXA0051684 -UN-12FEB01

RW29387,000022C -19-06NOV02-1/1

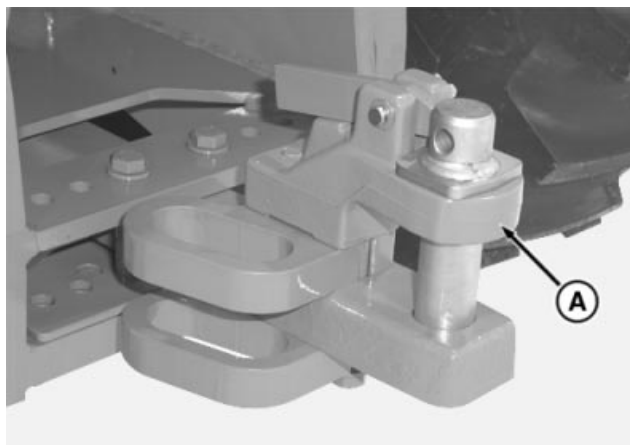
Using Clevis Assembly

IMPORTANT: Before using PTO shaft, or whenever it might cause interference, remove clevis assembly.

Clevis assembly (A) must be attached *only* to the top of the drawbar.

If towed implement also has a clevis assembly, insert pin only through tractor drawbar. DO NOT insert pin through all four members.

A—Clevis Assembly



RXA0051683 -UN-12FEB01

RW29387,000022D -19-06NOV02-1/1

Attaching PTO Driven Implement—If Equipped

⚠ CAUTION: Entanglement in rotating driveline can cause serious injury or death.

Keep PTO shield and driveline shields in place at all times. Make sure rotating shields turn freely.

Wear close fitting clothing. Stop the engine and be sure PTO driveline is stopped before making adjustments, connections, or cleaning PTO-driven equipment.

1. Lock drawbar in center position and remove clevis assembly, if implement will be attached to drawbar. Drawbar hitch pin must be behind end of PTO shaft by distance (A).

PTO 1000 rpm - 20 Splines—Specification

Shaft—Diameter45 mm (1-3/4 in.)

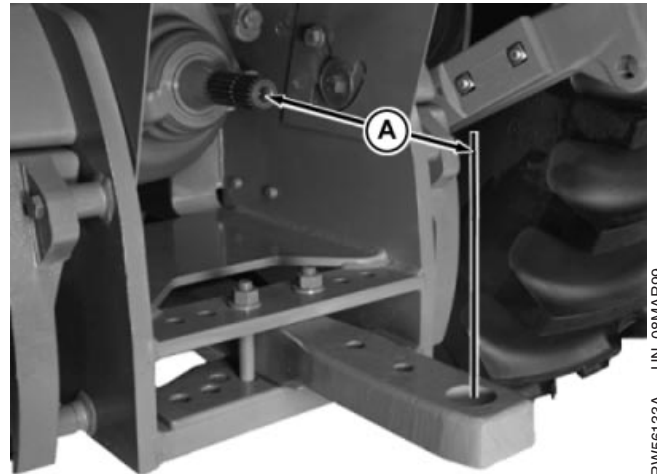
PTO—Specification

Shaft End to Hitch Pin Hole—
Distance..... 508 mm (20.0 in.)

2. Attach implement to drawbar before connecting PTO driveline. If implement will be connected to quick-coupler, be sure drawbar will not interfere. Remove it if necessary.
3. Connect driveline to PTO shaft. Turn shaft slightly by hand, to line up splines. Be sure yoke is in correct position and firmly locked.
4. Lower master shield. Set shield in intermediate position if necessary for clearance.



TS1644 -UN-22AUG95



RW56133A -UN-08MAR99

A—PTO Shaft to Pin Hole Distance

RW29387,000022E -19-06NOV02-1/1

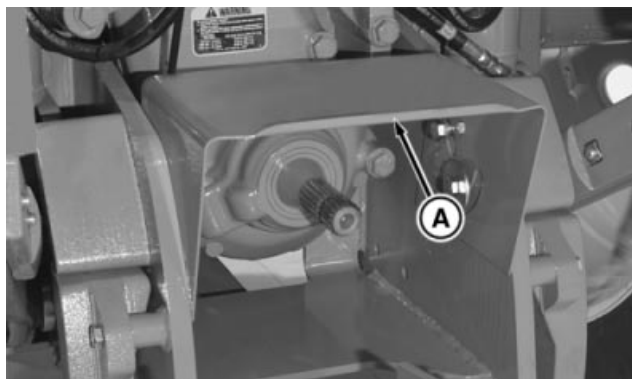
Using PTO Master Shield—If Equipped

CAUTION: Avoid possible injury. Tractor master shield (A) should be in place at all times except for special applications as directed in the implement operator's manual. Do not use shield as a step.

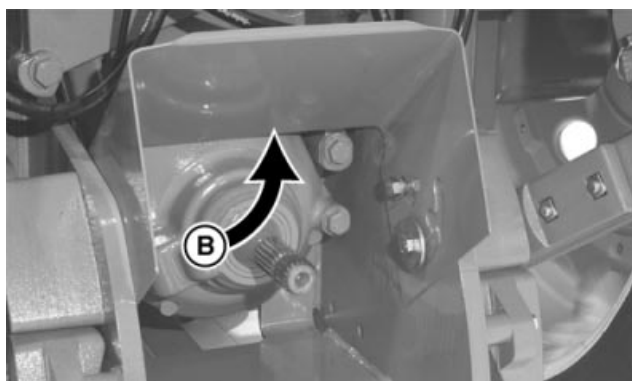
Master shield can be tipped up (B) to provide clearance while connecting PTO shaft. *DO NOT* operate PTO with shield in the fully raised position.

Master shield (C) can be lowered to improve drawbar visibility, when drawbar is being used without PTO.

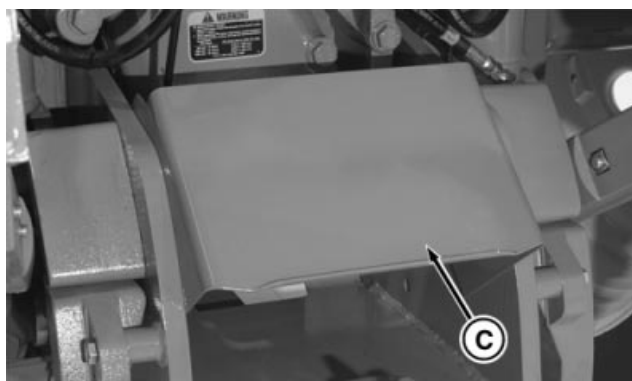
- A—PTO Shield
- B—Raised Position
- C—Lowered Position



RXA0051686 -UN-12FEB01



RXA0051689 -UN-13FEB01



RXA0051692 -UN-12FEB01

RW29387,000022F -19-06NOV02-1/1

Operating PTO—If Equipped



CAUTION: Avoid personal injury. Stop the engine and allow the PTO driveline to stop before making adjustments, connections, or cleaning of PTO-driven equipment.

Always disengage the PTO when not in use.

Lift PTO control lever (A) and push forward to engage PTO. PTO is fully independent and is not affected by traction clutch.

NOTE: Rapid engagement of PTO will result in damage to PTO drivelines and implements.

Using Correct Engine Speed

Correct speed is very important. For standard PTO speed (1000 rpm), operate engine at 1900 engine rpm.

A warning alarm and PTO warning lights will light on the vehicle monitor as long as the PTO overspeed exists.

Disengaging PTO

IMPORTANT: Idle engine before disengaging PTO clutch lever. Make sure implement has stopped before shutting off engine. Loss of cooling oil can cause PTO brake damage.

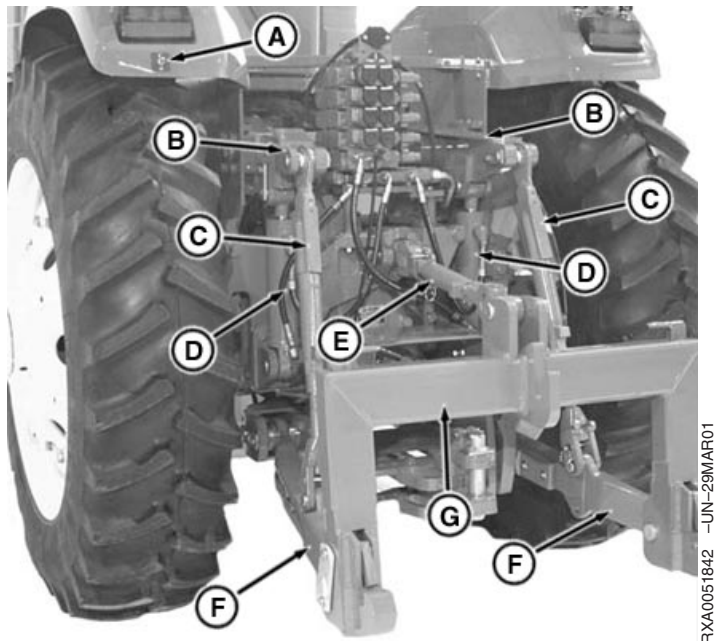
Pull PTO control lever back to disengage clutch and engage PTO brake.



A—PTO Lever

Hitch

Hitch Components



A—External Raise/Lower
Switch

B—Lift Arms
C—Lift Links

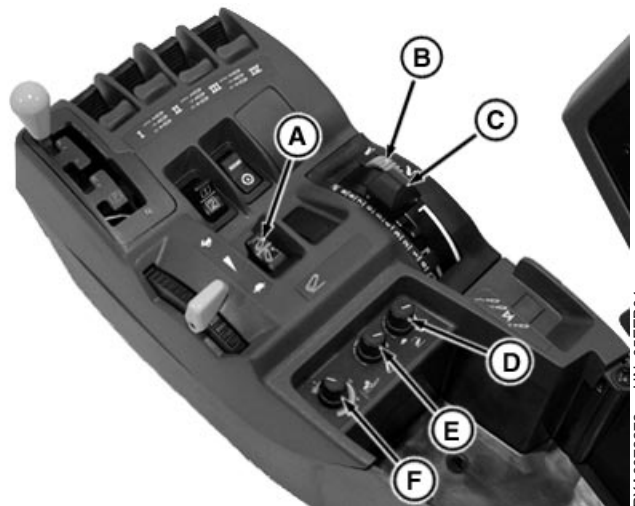
D—Lift Cylinders
E—Center Link

F—Draft Links
G—Quick-Coupler

RW29387,0000231 -19-06NOV02-1/1

Hitch Controls

A—Raise/Lower Switch
B—Hitch Control Stop
C—Hitch Control Lever
D—Rate of Drop Control
E—Height Limit Control
F—Load/Depth Control



RW29387,0000232 -19-06NOV02-1/1

Using Hitch Control Lever and Raise/Lower Switch

CAUTION: Prevent possible injury. Use only the hitch control lever (A) when attaching or detaching implements. Do not use raise/lower switch (E).

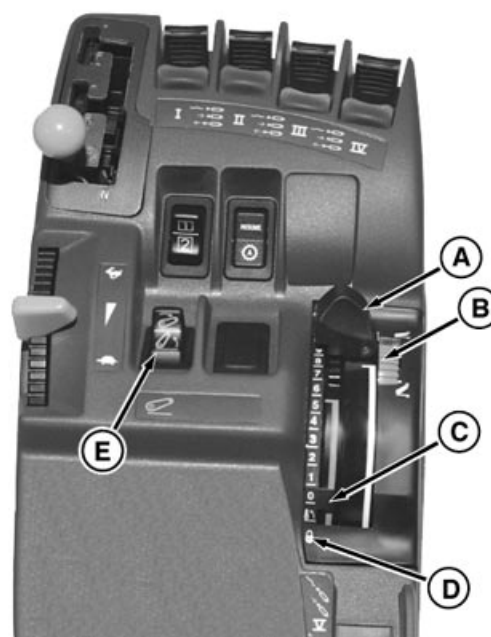
Hitch control lever (A) is used to raise and lower hitch, and to set implement working depth. Pull lever rearward to raise; push lever forward to lower.

Move stop (C) against lever by turning stop wheel (B) to set implement working depth. Hitch will lower to same working depth each time. If necessary to lower the hitch below the preset depth, the control lever can be lifted and pushed past the stop.

Raise/lower switch (E) allows raising and lowering during turns, without having to move the hitch control lever.

CAUTION: To prevent possible injury and equipment damage while transporting, set the hitch control lever in the transport lock position (D). This will prevent lowering the hitch.

Raise/lower switches are disabled when the control lever is in the transport lock position (D). Hitch can raise when starting tractor with the hitch control lever in the transport lock position.



A—Hitch Control Lever
B—Depth Stop Wheel
C—Depth Stop
D—Transport Lock Position
E—Raise/Lower Switch

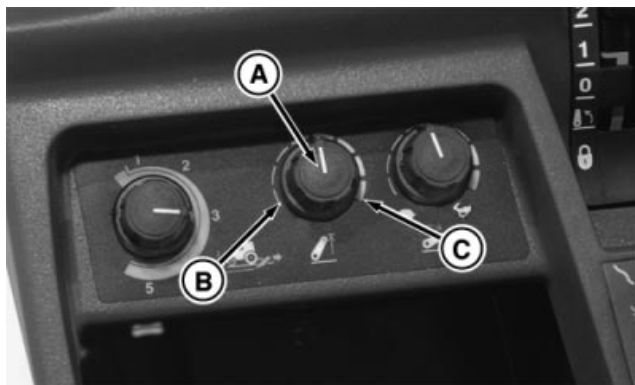
RXA0073374 -UN-05FEB04

RW29387,0000233 -19-06NOV02-1/1

Adjusting Height Limit

Hitch height limit is controlled by turning control knob (A). Turning knob fully counterclockwise (B), height is limited to 25 percent of the maximum height. Turning knob fully clockwise (C), hitch can be raised to maximum height.

- A—Control Knob
- B—25% Maximum Height
- C—Maximum Height



RXA0051846 -UN-22FEB01

RW29387,0000234 -19-06NOV02-1/1

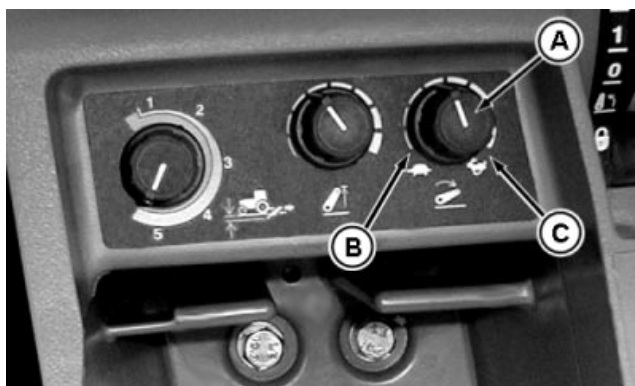
Adjusting Rate of Drop



CAUTION: Excessive drop speed can cause damage or injury. Fully lowering implement should require at least two seconds.

Turn control knob (A) counterclockwise (B) to decrease drop speed, or clockwise (C) to increase drop speed.

- A—Control Knob
- B—Decrease Drop Speed
- C—Increase Drop Speed



RW26128 -UN-06MAY99

RW29387,0000235 -19-06NOV02-1/1

Using External Raise/Lower Switch

CAUTION: To prevent injury or damage caused by tractor movement, be sure transmission is in **PARK** position before using external raise/lower switch. Stay clear of interference points when using external raise/lower switch.

Pull external raise/lower switch (A) outward and hold switch up to raise hitch, or down to lower. Hitch moves at slower speed when using external raise/lower switch.

NOTE: Hitch system is disabled when external raise/lower switch is used.

To **RESET Hitch Control System**, move hitch control lever (B) to actual position of the hitch, or use raise/lower switch (C).

- A—External Raise/Lower Switch
- B—Hitch Control Lever
- C—Raise/Lower Switch



RXA0051847 -UN-27FEB01



RXA0073375 -UN-05FEB04

RW29387,0000236 -19-06NOV02-1/1

Using Hitch Manual Lowering Feature



CAUTION: Avoid personal injury or death. Do not disconnect any hitch sensors, solenoids, or connectors from the hitch control valve (A) when tractor is running or key switch on. Unexpected hitch movement can occur. Stay clear of hitch area when starting engine.

To prevent injury or death caused by tractor movement, stay clear of implement and hitch linkages when using Hitch Manual Lowering Feature.

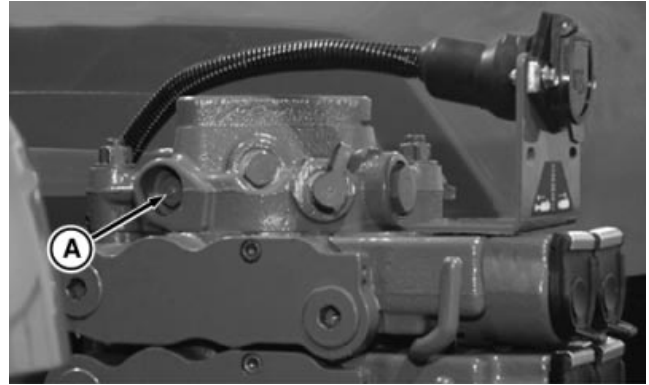
Hitch movement during startup may indicate a malfunction. See your John Deere Dealer.

NOTE: Hitch will slowly raise if lever is in the transport position at startup.

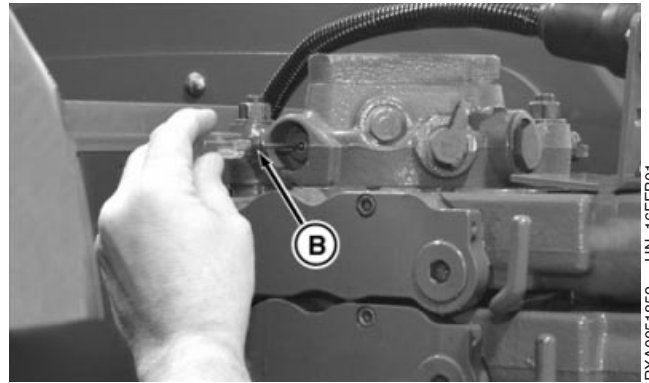
Hitch manual lowering is possible when hydraulic pressure and/or electrical power is not available.

Remove plug (A) to access the manual lowering screw. Turn screw counterclockwise using a screwdriver (B) to lower the hitch.

NOTE: The hitch cannot be raised mechanically. Both hydraulic and electrical power are required to raise the hitch.



RXA0051851 -UN-27FEB01



RXA0051852 -UN-16FEB01

A—Plug
B—Screwdriver

RW29387,0000237 -19-12OCT05-1/1

Using Load/Depth Control



CAUTION: Prevent hitch movement and possible injury. Turn load/depth control fully counterclockwise (A) to “position” control before attaching or detaching implements.

Hitch has two operating modes: “position” or “draft” control.

A—Load/Depth Control Knob

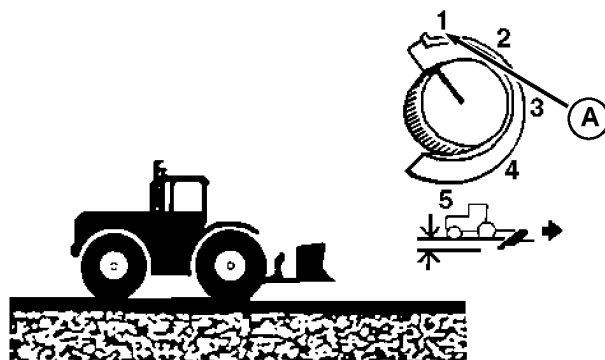


RW29387,0000238 -19-06NOV02-1/1

Using Position Control

When load/depth control is turned fully counterclockwise (A) to “position” control, the hitch is held at the selected position.

A—Position Control



RW29387,0000239 -19-06NOV02-1/1

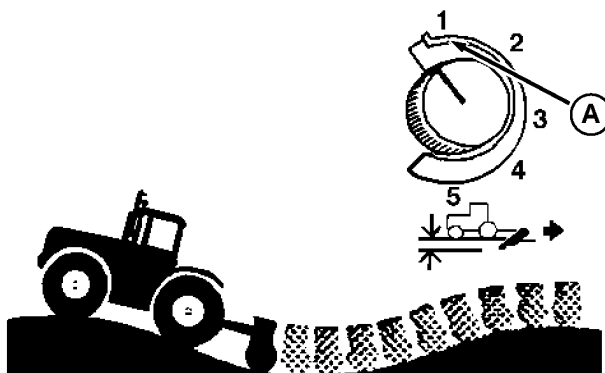
Using Float Position

Equipment having depth-gauge wheels may require floating operation to follow ground contours.

Set load/depth control to “position” control (A) and push hitch control lever fully forward.

NOTE: Lift links can be adjusted for lateral float. (See *LATERAL FLOAT*, in this section.)

A—Float Position



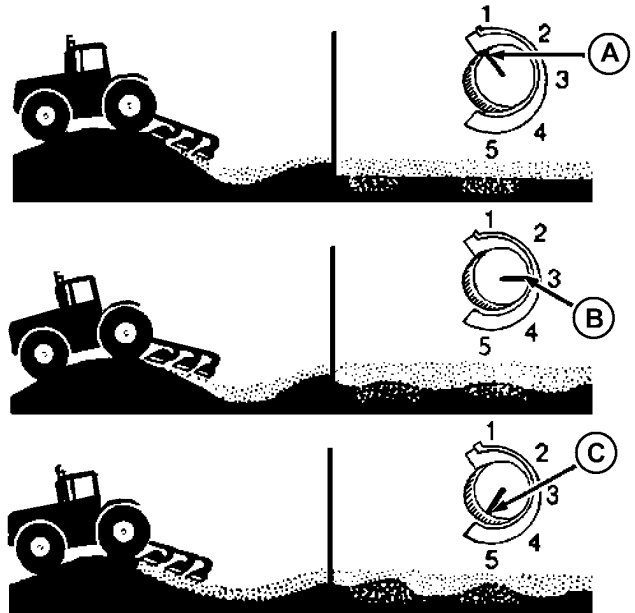
RW29387,000023A -19-06NOV02-1/1

Using Draft Control

When load/depth control is turned to numbered area (B), depth is automatically varied as ground conditions require. The setting of the control depends on implement being used and field or soil conditions.

Turning the control counterclockwise (A) reduces draft response. Turning the control clockwise increases draft response. With the control turned to a higher number (C), the implement is raised as resistance (soil density) increases and lowered as resistance decreases. Typical settings:

Integral Field Cultivator	4—5
Integral Moldboard Plow	3—5
Semi-Integral Moldboard Plow	2—4
Integral Chisel Plow	2—4
Integral Ripper/Subsoiler	1—3



A—Counterclockwise
B—Numbered Control
C—Clockwise

RW56092A -JUN-20NOV99

RW29387,000023B -19-06NOV02-1/1

Using Hitch Slip Command (HSC)



RXA0073376 -UN-05FEB04



RW26700 -UN-04NOV99

NOTE: Tractor must be equipped with **radar**, and load/depth control must be in **draft** control mode for HSC to function.

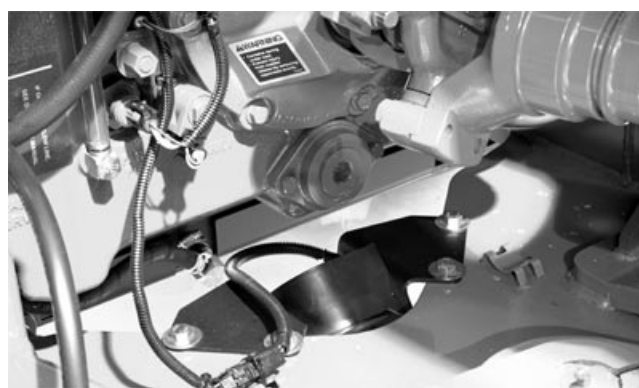
Hitch can be operated with draft sensing only, or with draft and Hitch Slip Command.

Hitch Slip Command (HSC) uses wheel slip to supplement the draft control system and help maintain more uniform working depth.

1. Adjust hitch control lever (A) and load/depth control (B), with HSC in OFF position, to set operating depth and draft response.

NOTE: Changing response setting will affect operation only when wheel slip exceeds 10%.

2. Press **ON/OFF** switch (C) and set initial response setting (F) to 8 using **INCREASE/DECREASE** switches (D). HSC indicator (E) will light. Higher values provide more/faster response while lower values provide less/slower responses.
3. Push hitch control lever (A) further forward if HSC reduces depth and wheel slip more than desired.



Radar

RXA0073433 -UN-09FEB04

- A—Hitch Control Lever
- B—Load/Depth Control
- C—ON/OFF Switch
- D—Increase/Decrease Switches
- E—Hitch Slip Command Indicator
- F—Response Setting

Continued on next page

RW29387,000023C -19-16SEP04-1/2

NOTE: Slip control response range is 1—10. Response setting (F) is momentarily displayed whenever HSC is switched ON or the increase/decrease switches are used.

The responsiveness of the HSC can be adjusted independently from draft response using the **INCREASE/DECREASE** switches (D).

The appropriate setting will depend on implement type, soil conditions, and tractor setup.

Response Setting Guidelines *

Chisel Plow	2—4
Subsoiler	5—7
Moldboard Plow	7—9
V-Ripper	8—10

* Appropriate setting will depend on implement type, soil conditions, and tractor setup

RW29387,000023C -19-16SEP04-2/2

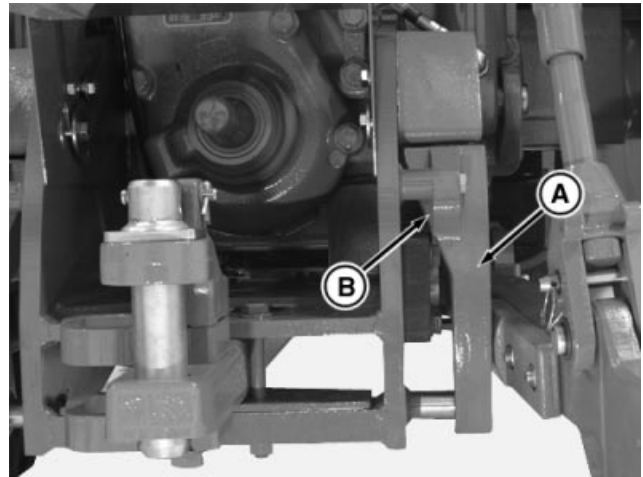
Using Sway Blocks

Install sway blocks (A) with thick end toward frame, to minimize side sway of hitch.

Tighten attaching bolts to 230 N•m (170 lb-ft).

IMPORTANT: Prevent interference of draft links with tires. Be sure distance between tires is at least 1168 mm (46 in.) with equal distance from center line of tractor. If distance between tires must be less than 1168 mm (46 in.), sway should be limited. (See **OBSERVING TREAD WIDTH LIMITATIONS**, in **Wheels, Tires, and Treads Section**.)

Move each sway block to opposite side of tractor to allow side sway when hitch is lowered. Install sway blocks with tapered sides (B) outward from frame.



A—Sway Blocks
B—Tapered Side

RXA0051870 -UN-16FEB01

RW29387,000023D -19-06NOV02-1/1

Attaching Implement to Quick Coupler

CAUTION: Avoid possible bodily injury or machine damage. Put transmission in **PARK** position and check the full range of hitch operation for interference, binding, or PTO separation whenever an implement is attached.

Do not stand between tractor and implement.

1. Turn load/depth control fully counterclockwise (A) before attaching or detaching implements.
2. Pull up on coupler latch handles (B).

IMPORTANT: Contacting implement hitch pins with the levers in the locked position can result in damage to the latch mechanism.

3. Lower hitch until quick coupler hooks are lower than implement hitch pins.
4. Back up tractor to implement.

A—Counterclockwise
B—Coupler Latch Handle



RW26126 -UN-06MAY99



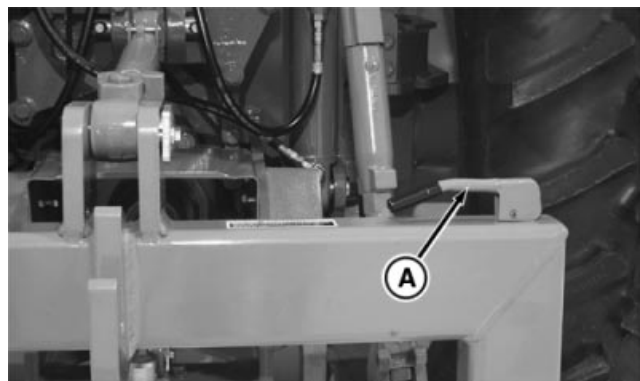
RXA0051873 -UN-16FEB01

RW29387,000023E -19-15SEP04-1/3

5. Raise hitch enough to engage implement pins in hooks.

CAUTION: Avoid bodily injury or machine damage. Be sure implement is attached correctly; incorrect attachment can allow implement to be pulled over the tractor wheel and onto the operator station.

6. Push coupler latch handles (A) down to lock implement to quick coupler.
7. Connect hydraulic hoses and electrical connections.



RXA0051876 -UN-16FEB01

A—Coupler Latch Handle

Continued on next page

RW29387,000023E -19-15SEP04-2/3

8. Slowly pull hitch control lever (A) to raise implement. Check for interference. Lower implement to ground and adjust upper height limit control if necessary.

9. Turn load/depth control (B) to desired setting.

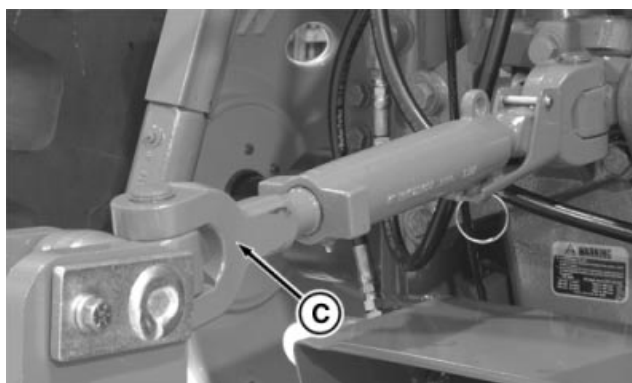
IMPORTANT: Check for interference or binding of center link end (C) and quick coupler, when using optional high lift capacity hitch.

If interference or binding is found, use standard lift capacity center link end. See your John Deere Dealer.

A—Hitch Control Lever
B—Load/Depth Control
C—Center Link End



RXA0073391 -UN-05FEB04



RXA0051880 -UN-16FEB01

RW29387,000023E -19-15SEP04-3/3

Detaching Implement From Quick Coupler

1. Raise both latch levers (A) with implement raised.
2. Disconnect hydraulic hoses and electrical connections.
3. Lower implement to ground. Continue lowering quick coupler until hook clears implement hitch pins.
4. Carefully drive tractor away from implement.

A—Coupler Latch Handle



RXA0051883 -UN-15FEB01

RW29387,000023F -19-06NOV02-1/1

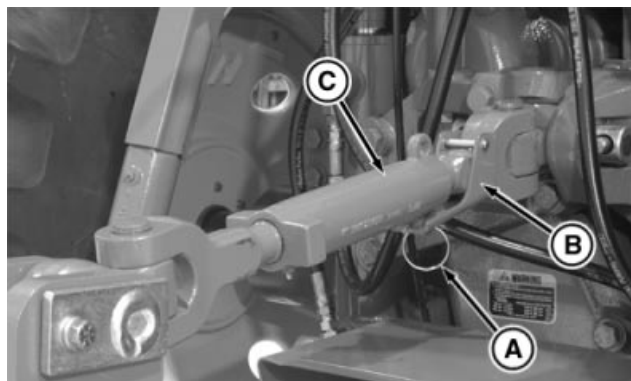
Adjusting Implement Level

1. Adjust center link to level implement front-to-rear.
2. Remove lock pin (A). Disengage handle (B) and rotate center portion (C) to lengthen or shorten center link.

Center Link—Specification

Adjustment—Length747—868 mm (29.5—34.3 in.)

3. Push handle down and install lock pin to hold center link in position. Measure between centers of attaching pins.



RXA0051884 -UN-15FEB01

A—Lock Pin
B—Handle
C—Center Link Body

RW29387,0000240 -19-06NOV02-1/2

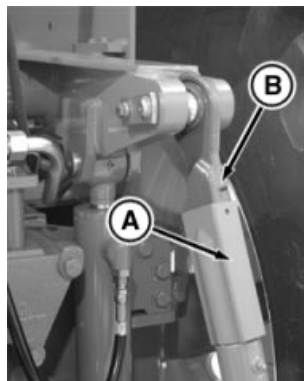
4. Adjust either lift link to level implement side-to-side. Raise sleeve (A) and slide over pin (B). Use a wrench to rotate center portion of lift link (C).

5. Measure between centers of attaching pins.

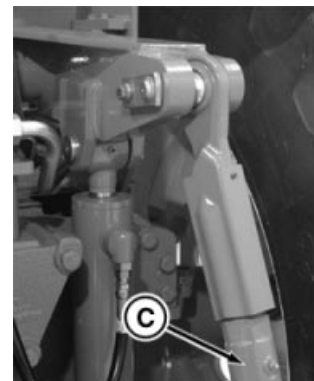
Lift Link—Specification

Adjustment—Length1030—1150 mm (40.5—45.3 in.)

A—Sleeve
B—Pin
C—Lift Link



RXA0051885 -UN-15FEB01



RXA0051886 -UN-15FEB01

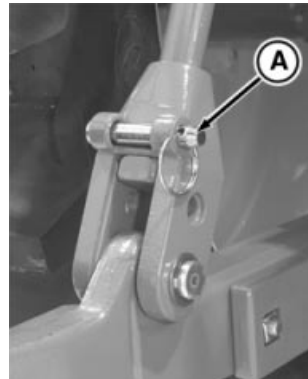
RW29387,0000240 -19-06NOV02-2/2

Lateral Float

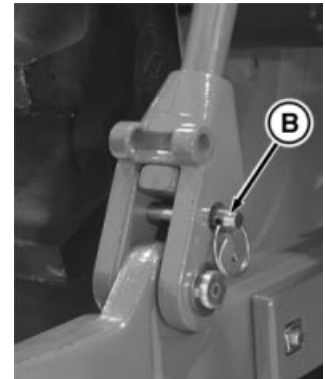
Placing lateral float pins in upper holes (A) allows either draft link to raise slightly as implement follows ground surface.

Put lateral float pins in lower holes (B) to hold implement rigidly.

A—Upper Holes
B—Lower Holes



FXA0051887 -UN-16FEB01



FXA0051888 -UN-16FEB01

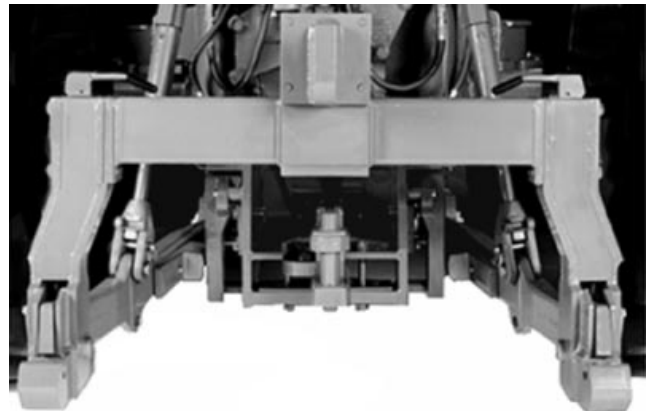
RW29387,0000241 -19-06NOV02-1/1

Hitch Conversion—Convertible Quick Coupler

Quick-coupler is convertible to Category 4 or Category 4N. Use Category 4 whenever possible, especially for heavy loads. The greater width gives more strength.

NOTE: Your John Deere Dealer can supply parts to adapt Category 4 hitch to Category 4N implements.

Use following procedure to convert Quick-coupler:

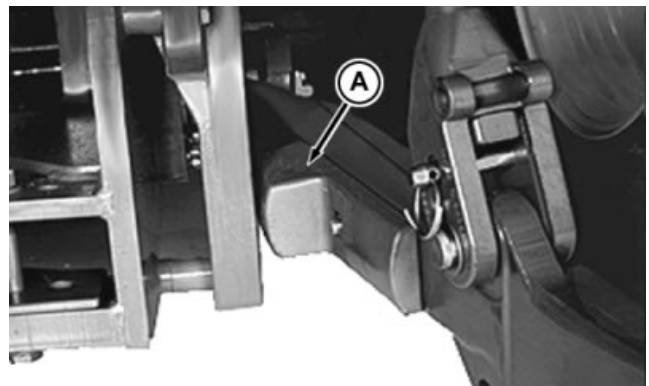


RW26137 -UN-07MAY99

RW29387,0000242 -19-06NOV02-1/4

1. Turn thick ends (A) forward on draft link bumpers for Category 4; thin ends forward for Category 4N.
2. Loosen rear cap screw and remove forward cap screw. Pivot bumper on rear cap screw. Reinstall front cap screw. Tighten cap screws securely.

A—Draft Link Bumper



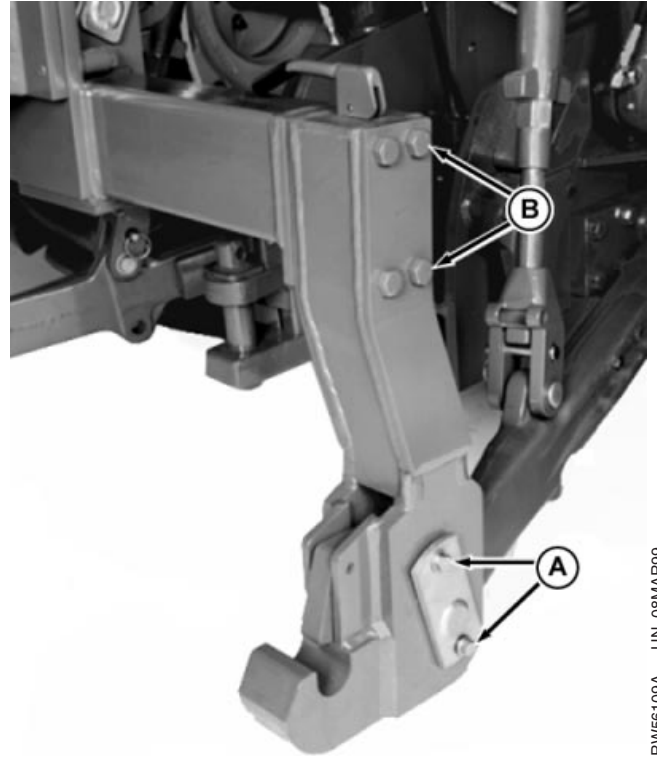
RW56108A -UN-08MAR99

Continued on next page

RW29387,0000242 -19-06NOV02-2/4

3. Support center of quick-coupler.
4. Remove pin retaining bolts (A) and pins from draft link.
5. Remove side member cap screws (B).

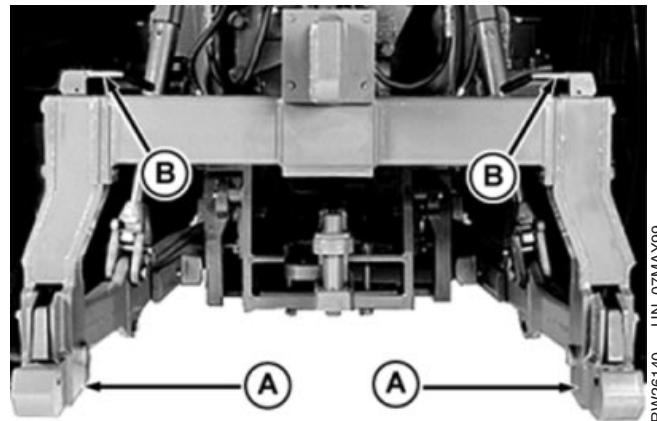
A—Side Members
B—Coupler Latch Handles



RW56109A -UN-08MAR99

RW29387,0000242 -19-06NOV02-3/4

6. Switch ends with quick-coupler side members (A) (left member to right end and right to left). Tighten cap screws securely.
7. Turn latch handles (B) inward.



RW26140 -UN-07MAY99

RW29387,0000242 -19-06NOV02-4/4

TouchSet Depth Control

Using TouchSet™ Depth Controls



CAUTION: Avoid personal injury or death. Do not attempt to install depth control sensors on implements not intended for this system. See implement operator's manual.

Moving control unit, sensor, connectors, or linkages, when engine is running, may cause unexpected movement. Stay clear of implement when starting engine.

Tractor selective control valves (SCV I and/or III) can be used to electronically control raising, lowering, and setting of implement depth, without leaving the cab.

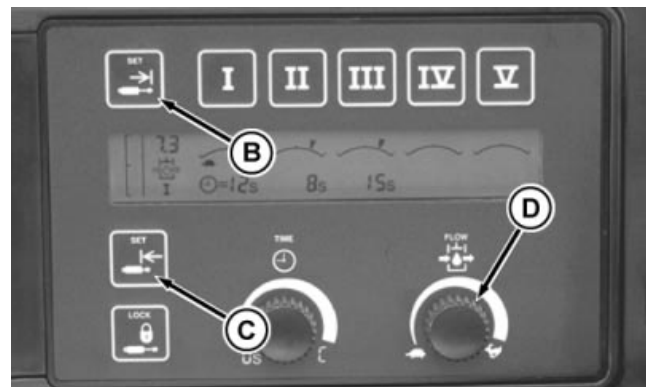
Control levers (A) are used to control implement operating depth and height that implement will raise.

Touch switches (B) and (C) set limits of implement movement controlled by SCV control switch for repeatability of implement raised and lowered positions.

Flow control (D) adjusts flow rate for each SCV to determine speed at which implement will raise and lower.



FXA0073383 -UN-05FEB04



RW55302A -UN-08MAR99

- A—SCV I & III Control Switch
- B—Raise Position Set Switch
- C—Lower Position Set Switch
- D—Flow Rate Adjustment Knob

TouchSet is a trademark of Deere & Company

RW29387,0000243 -19-06NOV02-1/1

Attaching Implement and Control System



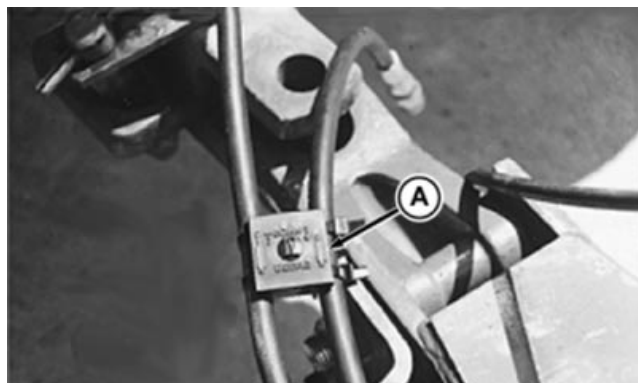
CAUTION: Escaping fluid under pressure can penetrate the skin causing serious injury. Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines.

NOTE: Hose identification kits are available from your John Deere Dealer.

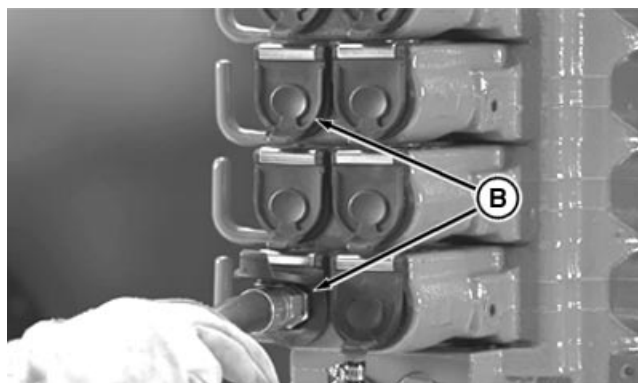
1. Identify control hoses (A).
2. Back tractor into position and attach hitch link to drawbar. Be sure hitch pin is locked into position.
3. Stop tractor engine.

IMPORTANT: Be sure to correctly connect depth control hoses to couplers. If hose connections are reversed, machine will not respond to system controls.

4. Push implement control hoses into SCV I and/or III couplers (B) as required. **Extend** hose always goes in **left** coupler.



FW26035 -UN-29MAR99



RXA0063679 -UN-01NOV02

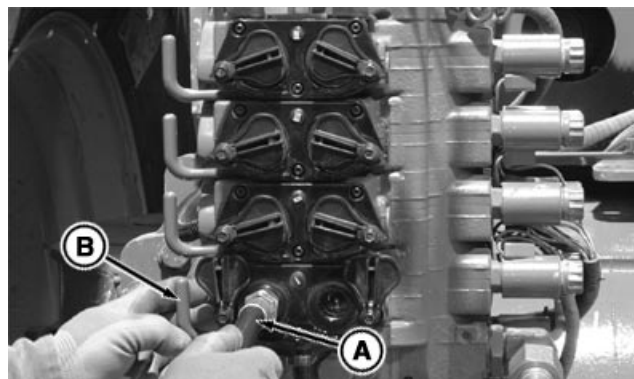
A—Hose Identification
B—SCV Couplers

Continued on next page

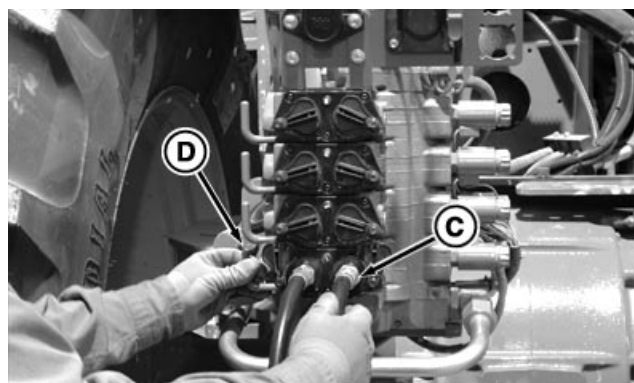
OU1092A,0000002 -19-15SEP04-1/2

NOTE: When installing hydraulic hoses under pressure, follow procedure listed or hose may not be seated.

5. Push extend hose (A) forward until contacting coupler.
6. Pull back on lever (B) while continuing to push forward on hose. This will allow coupler poppet to retract.
7. With hose fully inserted into coupler, release lever allowing it to go back to the center position. This will lock hose in place.
8. Push retract hose (C) forward until contacting coupler.
9. Push forward on lever (D) while continuing to push forward on hose. This will allow coupler poppet to retract.
10. With hose fully inserted into coupler, release lever allowing it to go back to the center position. This will lock hose in place.
11. Attach implement wiring harness to tractor implement connector.



Install Extend Hose



Install Retract Hose

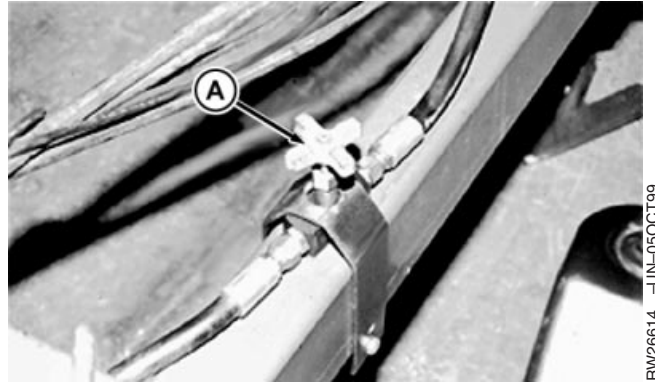
A—Extend Hose
B—Lever
C—Retract Hose
D—Lever

OU1092A,0000002 -19-15SEP04-2/2

Checking Depth Control Operation

Open implement lock-up valve (A).

A—Lock-Up Valve



RW26614 -UN-05OCT99

RW29387,0000245 -19-06NOV02-1/2

IMPORTANT: If setup panel does not show a “P” at start-up, depth control system is not correctly connected or the hoses are reversed.

Start engine and raise and lower implement with SCV I and /or SCV III control lever (A). Pulling lever rearward will raise implement and pushing lever forward will lower implement. Check tractor hydraulic oil level after cycling cylinders. Add oil if necessary.

Push SCV control lever (A) forward to desired implement operating depth.

Push switch (C) to set operating depth. Implement will lower to same working depth each time the switch is pushed forward to the detent “click” position and released.

Pull SCV control lever back to raise implement to desired height. Push switch (B) to set upper limit. Implement will raise to same height each time the lever is pulled back to the detent “click” position and released.

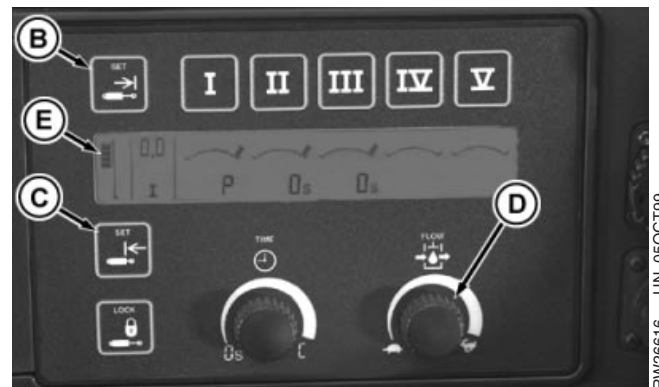
NOTE: Symbols (E) show upper and lower settings.

Adjust flow rate (D) to determine speed at which implement will raise and lower. If implement goes beyond depth settings, flow rate is too high.

NOTE: System can over-riden by using SCV I and/or III levers. Settings are restored by resetting SCV I and/or III to the detent “click” position.



RXA0073383 -UN-05FEB04



RW26616 -UN-05OCT99

A—SCV I & III Control Levers
B—Raise Position Set Switch
C—Lower Position Set Switch
D—Flow Rate Adjustment Knob
E—Setting Display

RW29387,0000245 -19-06NOV02-2/2

Detaching Implement



CAUTION: Serious personal injury can result if hydraulic hoses are disconnected under pressure. Move SCV lever to the float position and push transport lock touch switch on SCV TouchSet monitor before disconnecting.

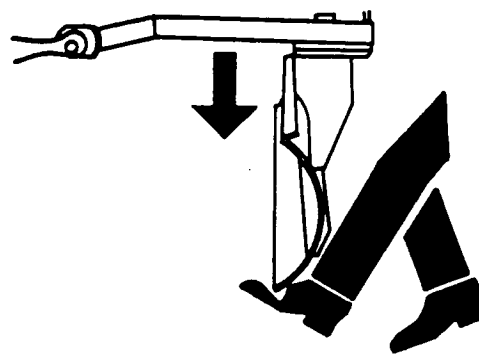
Lower implement with engine running.

Stop engine.

Disconnect control system wiring harness.

Disconnect hydraulic hoses.

Remove hitch pin from drawbar. Drive tractor away from implement.



TS687 -UN-28SEP89

RW29387,0000246 -19-06NOV02-1/1

Restoring SCV Control

NOTE: SCV is restored to normal operation whenever tractor is started with wiring harness disconnected.

Start engine with no implement connection to restore SCV control to normal operation.



PXA0073417 -UN-05FEB04

RW29387,0000247 -19-06NOV02-1/1

Performance Ballasting

General Performance Guidelines

Attaining Optimum Performance

Before adding ballast to your tractor, consider these important factors to attain optimum performance:

- Total tractor weight and static weight split (percent of static weight on front and rear axles)
- Type of ballast used (cast weight or liquid)
- Tire inflation pressures

Recommended Weight Split

Tractor should be weighed to accurately determine amount and type of ballast. Weight should be distributed depending on how tractor is equipped and the operating conditions.

Recommended weight splits (percent):

	Front	Rear
Towed	51—55	49—45
Implement		
Hitch-Mounted	55—60	45—40
Implement		
High Load	65—70	30—35
Transfer		
Implements		

NOTE: Use 60—65 weight split on front when operating with heavy draft implements causing extreme weight transfer from front to rear.

Correct Ballast

Use no more ballast than necessary, and adjust ballast as tractor use changes.

For correct ballast, measure amount of travel reduction (% slip) of the drive wheels. Under normal field conditions, travel reduction should be 8—12 percent. Add more weight to drive wheels if slip is excessive. If there is less than minimum percent slip, ballast should be removed, unless needed for stability.

Correct ballast allows for most efficient use of tractor's available power and will not make up for an implement

which is too big for the tractor. Adding ballast will not improve performance, if engine speed falls below rated speed and/or wheel slip is not beyond the recommended range.

Correct Inflation Pressure

Inflate tires to correct pressure to carry load on each axle for optimum tractive performance.

Selecting Ballast Carefully

Factors Determining Amount of Ballast

Soil surface—Loose or firm
Type of implement—Integral/semi-integral or towed
Travel speed—Slow or fast
Tractor power output—Partial or full load
Tires—Single or dual; small or large

Pulling a lighter load at a higher speed is more economical and more efficient than pulling heavier loads at a lower speed.

Too Little Ballast

Excessive wheel spin
Power loss
Tire wear
Fuel waste
Lower productivity

Too Much Ballast

Soil compaction
Power loss
Increased load
Fuel waste
Lower productivity

Ballast Limitations

IMPORTANT: Tractor weight exceeding heavy ballast limits should be avoided and can void the warranty due to "overload" conditions.

Ballast should be limited by the lowest of either tire capacity or tractor capacity.

Carrying capacity of each tire should not be exceeded. If a greater amount of weight is needed, larger duals or triples should be considered.

Worksheet to Calculate Ballast Changes

IMPORTANT: Ballast should not exceed weight required to result in recommended percent slip at 6.6 km/h (4.1 mph) MINIMUM.

NOTE: Complete this entire worksheet before adding or changing any ballast, or air pressures.

1. Determine desired weight split for your operation.	_____ % Front		
2. Record desired weight of tractor (See Ballasting Guide).	_____		
	Front	Rear	Total
3. Percent of Weight Split from Step No. 1 multiplied by Step No.2 (Desired Weight) results in Total Front Weight. For Rear Weight, subtract front weight from Total Weight.	_____	_____	_____
4. Weight of tractor as determined from the UNBALLASTED TRACTOR WEIGHT CHART, in this section, or weight from scale.	_____	_____	_____
5. Ballast needed (subtract tractor weight in Step No. 4 from desired weight in Step No. 3	_____	_____	
6. Add ballast.	_____	_____	
7. Add ballast from Step No. 6 to weights from Step No. 4.	_____	_____	
8. Set tire pressure for operating conditions using weights from Step No. 7. (See appropriate inflation pressure table).		_____	

NOTE: You are now ready to test for wheel slippage. See MEASURING WHEEL SLIP, in this section.

RW29387,0000249 -19-14MAY04-1/1

Ballasting for Engine Horsepower

A guide in ballasting tractors is to use engine horsepower combined with the kind of ballast needed for a particular job—light, medium or heavy. Start the process with the lightest ballast that can do the job. Then add ballast as needed to get performance desired.

NOTE: *Correct weight split must be maintained when adding or removing ballast. Cast weight is preferred to get the best tractive performance.*

More or less weight will be needed if different travel speeds are used. Higher speeds do not require as much weight. The final indication of correct ballast is wheel slip measured in the field.

NOTE: *Radar is recommended to continually monitor wheel slip. Checking wheel slip manually is possible but will only show slip in one area of the field. Knowing the correct average wheel*

slip is necessary to maintain optimum tractive performance.

Add more weight if slip is excessive. Remove weight if there is less than minimum percent slip.

If implement pull at full load is 5.5 mph (8.8 km/h) or more, tractor may operate unballasted. Medium ballast is a better choice, if operating at full load between 4.5 and 5.5 mph (7.2 and 8.8 km/h). Heavy ballast should only be used for the few implements (such as deep rippers) which require full-load traction below 4.5 mph (7.2 km/h).

IMPORTANT: **Never add ballast that results in continuous full-power loads below 4.1 mph (6.6 km/h). Continued operation below 4.1 mph (6.6 km/h) at full load will shorten drive train life.**

Tractor	Engine kW (hp)	kg/kW (lbs/hp) *	Total kg (lbs) *
9320 (110 mm axles)	280 (375)	48—73 (80—120)	13562—20412 (29900—45000)
9420 (110 mm axles)	317 (425)	48—73 (78—120)	15105—23133 (33300—51000)
9520 (120 mm axles)	336 (450)	45—73 (74—120)	15105—24494 (33300—54000)
9620 (120 mm axles)	373 (500)	40—66 (67—108) **	15105—24494 (33300—54000) **

* Minimum kg/kW (Lbs/hp) is calculated using lightest factory shipping weight

** Maximum ballast for 9620 is 24494 kg (54000 lb) or 66 kg/kW (108 lbs/hp).

Ground Speed	Light Ballast Above 8.9 km (5.5 mph)	Medium Ballast 7.4 to 8.6 km (4.6 to 5.5 mph)	Heavy Ballast 7.2 km (4.5 mph) or Less
kg/kW (lbs/Eng-hp)	61 (100) or Less	64—67 (105—110)	70—73 (115—120)

Note: Maximum ballast is 73 kg/kW (120 lbs/Eng-hp).

Controlling Power Hop

Power hop is a condition where the tractor exhibits severe bounce and/or jump at field working speeds under 16 km/h (10 mph). Power hop is associated with tractors pulling towed implements at medium to high draft loads in loose, dry soil on top of a firm base and/or when climbing hills. As a result, the tractor cannot maintain pull due to loss of traction, rough ride, or both.

Adjust inflation pressures *only* after following the performance guidelines (recommended weight split, correct ballast, and correct inflation pressures):

1. A) Increase **FRONT** tire pressure by 41—55 kPa (0.4—0.6 bar) (6—8 psi) over the rated pressure for the axle load. Follow steps 2 and 3 below.

B) If power hop remains a problem, reduce front tire pressure to the rated pressure. Then raise the **REAR** tire inflation pressure by 41-55 kPa (0.4-0.6 bar) (6-8 psi) above rated pressure for the axle load. Follow steps 2, 3, and 4 below.

NOTE: Raising the front or rear inflation pressure depends on weight splits, operating conditions

(steep slopes) or travel speeds. On steep slopes and operating speeds above 8.8 km/h (5.5 mph) raising the rear tire pressure is recommended.

Tires on one of the two axles must remain at rated pressure.

Ballast tractor so no more than 55 percent of the total tractor weight is on the front, for best power hop control.

2. Remove any liquid ballast and replace with cast weight equivalent, if power hop remains a problem.
3. Liquid ballast has a stiffening effect that causes a rough ride. If liquid ballast is used in the rear tires, *all tires on the axle must be filled to the same level* which should not exceed 40 percent fill.

IMPORTANT: Do not use liquid ballast in the front tires.

4. If power hop remains a problem, see your John Deere Dealer.

RW29387,000024B -19-06NOV02-1/1

Calculating Ballast—*Tractors Without Hitch*

Add enough weight to the rear axle to achieve the desired weight split. To increase total weight per engine horsepower add equal amounts of weight to each axle. The chart below illustrates how weight splits between the front and rear axles are affected as weight is added to the rear axle only.

ADD	9320	9420	9520	9620
1000 lb	59/41%	59/41%	59/41%	59/41%
2000 lb	57/43%	57/43%	57/43%	57/43%
3000 lb	55/45%	55/45%	55/45%	55/45%
4000 lb	54/46%	54/46%	54/46%	54/46%
5000 lb	53/47%	53/47%	53/47%	53/47%

Factory Recommendation for Overall Best Performance

Model	Front Ballast	Rear Ballast	Weight Split
9320	0	3920 lb	54/46
9420	2800 lb	7080 lb	53/47
9520	2800 lb	7080 lb	53/47
9620	2800 lb	7080 lb	53/47

Cast Weights Required for Ballast Recommendation

2130 lb — 1-165 lb plus 2-450 lb weights on each dual wheel

2800 lb — 1-1400 lb weight each inner wheel

3930 lb — 1-450 lb installed on each inside/inner wheel and 1-165 lb plus 3-450 lb weights on each rear wheel

7080 lb — 1 set of 20 rear frame weights and 1- 1400 lb installed on each rear inside/inner wheel and 1-165 lb plus 2-450 lb weights on each dual

RW29387,000024C -19-30APR04-1/1

Calculating Ballast—*Tractors With Hitch*

Tractors equipped with a 3-Point Hitch have approximately a 55/45 percent front to rear weight split. This split needs to be maintained for most hitch-mounted implements.

Factory Recommendation for Overall Best Performance

Model	Front	Rear
9320	2130 lb	3030 lb
9420	2130 lb	3030 lb
9520	2130 lb	3030 lb
9620	2130 lb	3030 lb

Cast Weights Required for Ballast Recommendation

2130 lb — 1-165 lb plus 2-450 lb weights on each dual wheel

3030 lb — 1-450 lb installed on each inside/inner and 1-165 lb plus 2-450 lb weights on each rear dual wheel

RW29387,000024D -19-30APR04-1/1

Unballasted Tractor Weight Chart—Pounds

Divide weight in pounds by 2.2 to obtain kg.

Tractor	9320 OPTIONS				9420 OPTIONS			
	NO HITCH NO PTO	HITCH - NO PTO	PTO - NO HITCH	HITCH and PTO	NO HITCH NO PTO	HITCH - NO PTO	PTO - NO HITCH	HITCH and PTO
620/70R42 - Duals - Cast/Steel								
FRONT	20340	19820	20640	20120	20340	19820	20640	20120
REAR	12910	15210	13660	15960	12910	15210	13660	15960
TOTAL	33250	35030	34300	36080	33250	35030	34300	36080
Lb/hp	89	93	91	96	78	82	81	85
FRONT	61%	57%	60%	56%	61%	57%	60%	56%
REAR	39%	43%	40%	44%	39%	43%	40%	44%
650/85R38 - Singles - Cast								
FRONT	—	—	—	—	—	—	—	—
REAR	—	—	—	—	—	—	—	—
TOTAL	—	—	—	—	—	—	—	—
Lb/hp	—	—	—	—	—	—	—	—
FRONT	—	—	—	—	—	—	—	—
REAR	—	—	—	—	—	—	—	—
650/85R38 - Duals - Cast/Steel								
FRONT	21150	20630	21450	20930	21150	20630	21450	20930
REAR	13720	16020	14470	16770	13720	16020	14470	16770
TOTAL	34870	36650	35920	36080	37700	36650	35920	37700
Lb/hp	93	98	96	101	82	98	96	101
FRONT	61%	56%	60%	56%	61%	56%	60%	56%
REAR	39%	44%	40%	44%	39%	44%	40%	44%
620/70R46 - Duals - Cast/Steel								
FRONT	20610	20090	20910	20390	21610	20090	20910	20390
REAR	13180	15480	13930	16230	13180	15480	13930	16230
TOTAL	33790	35570	34840	36620	33790	35570	34840	36620
Lb/hp	90	95	93	98	80	84	82	86
FRONT	61%	56%	60%	56%	61%	56%	60%	56%
REAR	39%	44%	40%	44%	39%	44%	40%	44%

Unballasted Tractor Weight Chart—Pounds

Divide weight in pounds by 2.2 to obtain kg.

Tractor	9320 OPTIONS				9420 OPTIONS			
	NO HITCH NO PTO	HITCH - NO PTO	PTO - NO HITCH	HITCH and PTO	NO HITCH NO PTO	HITCH - NO PTO	PTO - NO HITCH	HITCH and PTO
710/70R38 - Duals - Cast/Steel								
FRONT	20880	—	21180	—	20880	—	21180	—
REAR	13450	—	14200	—	13450	—	14200	—
TOTAL	34330	—	35380	—	34330	—	35380	—
Lb/hp	92	—	94	—	81	—	83	—
FRONT	61%	—	60%	—	61%	—	60%	—
REAR	39%	—	40%	—	39%	—	40%	—
710/70R42 - Duals - Cast/Steel								
FRONT	22174	—	22474	—	21100	—	21400	—
REAR	14744	—	15494	—	13770	—	14520	—
TOTAL	36918	—	37968	—	34870	—	35920	—
Lb/hp	98	—	101	—	82	—	85	—
FRONT	60%	—	59%	—	61%	—	60%	—
REAR	40%	—	41%	—	39%	—	40%	—
800/70R38 - Singles - Cast								
FRONT	—	—	—	—	—	—	—	—
REAR	—	—	—	—	—	—	—	—
TOTAL	—	—	—	—	—	—	—	—
Lb/hp	—	—	—	—	—	—	—	—
FRONT	—	—	—	—	—	—	—	—
REAR	—	—	—	—	—	—	—	—
800/70R38 - Duals - Cast/Steel								
FRONT	21719	—	22010	—	21710	—	22010	—
REAR	14380	—	15130	—	14380	—	15130	—
TOTAL	36090	—	37140	—	36090	—	37140	—
Lb/hp	96	—	99	—	96	—	99	—
FRONT	60%	—	59%	—	60%	—	59%	—
REAR	40%	—	41%	—	40%	—	41%	—

Unballasted Tractor Weight Chart—Pounds

Divide weight in pounds by 2.2 to obtain kg.

Tractor	9520 OPTIONS				9620 OPTIONS			
	NO HITCH NO PTO	HITCH - NO PTO	PTO - NO HITCH	HITCH and PTO	NO HITCH NO PTO	HITCH - NO PTO	PTO - NO HITCH	HITCH and PTO
620/70R42 - Duals - Cast/Steel								
FRONT	20340	19820	20640	20120	20340	19820	20640	20120
REAR	12910	15210	13660	15960	12910	15210	13660	15960
TOTAL	33250	35030	34300	36080	33250	35030	34300	36080
Lb/hp	78	82	81	85	67	70	69	72
FRONT	61%	57%	60%	56%	61%	57%	60%	56%
REAR	39%	43%	40%	44%	39%	43%	40%	44%
650/85R38 - Singles - Cast								
FRONT	—	—	—	—	—	—	—	—
REAR	—	—	—	—	—	—	—	—
TOTAL	—	—	—	—	—	—	—	—
Lb/hp	—	—	—	—	—	—	—	—
FRONT	—	—	—	—	—	—	—	—
REAR	—	—	—	—	—	—	—	—
650/85R38 - Duals - Cast/Steel								
FRONT	21150	20630	21450	20930	21150	20630	21450	20930
REAR	13720	16020	14470	16770	13720	16020	14470	16770
TOTAL	37700	36650	35920	37700	34870	36650	35920	37700
Lb/hp	82	98	96	101	77	98	96	101
FRONT	61%	56%	60%	56%	61%	56%	60%	56%
REAR	39%	44%	40%	44%	39%	44%	40%	44%
620/70R46 - Duals - Cast/Steel								
FRONT	21610	20090	20910	20390	20610	20090	20910	20390
REAR	13180	15480	13930	16230	13180	15480	13930	16230
TOTAL	33790	35570	34840	36620	33790	35570	34840	36620
Lb/hp	80	84	82	86	68	71	70	73
FRONT	61%	56%	60%	56%	61%	56%	60%	56%
REAR	39%	44%	40%	44%	39%	44%	40%	44%

Unballasted Tractor Weight Chart—Pounds

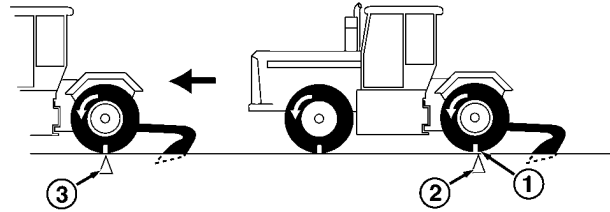
Divide weight in pounds by 2.2 to obtain kg.

Tractor	9520 OPTIONS				9620 OPTIONS			
	NO HITCH NO PTO	HITCH - NO PTO	PTO - NO HITCH	HITCH and PTO	NO HITCH NO PTO	HITCH - NO PTO	PTO - NO HITCH	HITCH and PTO
710/70R38 - Duals - Cast/Steel								
FRONT	20880	—	21180	—	20880	—	21180	—
REAR	13450	—	14200	—	13450	—	14200	—
TOTAL	34330	—	35380	—	34330	—	35380	—
Lb/hp	81	—	83	—	69	—	71	—
FRONT	61%	—	60%	—	61%	—	60%	—
REAR	39%	—	40%	—	39%	—	40%	—
710/70R42 - Duals - Cast/Steel								
FRONT	21150	—	21450	—	21150	—	21450	—
REAR	13720	—	14470	—	13720	—	14470	—
TOTAL	34870	—	35920	—	34870	—	35920	—
Lb/hp	77	—	80	—	70	—	72	—
FRONT	61%	—	60%	—	61%	—	60%	—
REAR	39%	—	40%	—	39%	—	40%	—
800/70R38 - Singles - Cast								
FRONT	—	—	—	—	—	—	—	—
REAR	—	—	—	—	—	—	—	—
TOTAL	—	—	—	—	—	—	—	—
Lb/hp	—	—	—	—	—	—	—	—
FRONT	—	—	—	—	—	—	—	—
REAR	—	—	—	—	—	—	—	—
800/70R38 - Duals - Cast/Steel								
FRONT	21760	—	22060	—	21760	—	22060	—
REAR	14030	—	15080	—	14330	—	15080	—
TOTAL	36090	—	37140	—	36090	—	37140	—
Lb/hp	96	—	99	—	72	—	74	—
FRONT	60%	—	59%	—	60%	—	59%	—
REAR	40%	—	41%	—	40%	—	41%	—

Measuring Wheel Slip—*MANUALLY*

NOTE: Wheel slip can be easily determined, automatically, with Performance Monitor, if equipped with optional radar unit. (See Controls and Instruments Section.)

1. Mark a tire.
2. With tractor working, mark a starting point on the ground.
3. Follow tractor and mark the ground again where tire completes 10 full revolutions.



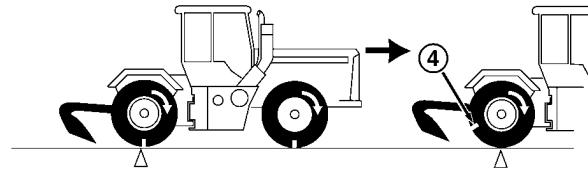
RW26774 -JUN-02FEB00

RW29387,0000251 -19-30APR04-1/2

4. At working speed, go back with implement raised. Count revolutions between same two marks.
5. Use second count and chart to determine slippage. Remember 8—12 percent is ideal.

Wheel Slippage Chart

Wheel Revolutions (Step 4)	Percent of Slip	Result
10	0	Remove Ballast
9-1/2	5	
9-1/3	8	Proper Ballast
8-3/4	12	
8	20	Add Ballast
7-1/2	25	
7	30	



RW26775 -JUN-02FEB00

6. Adjust ballast or load to give 8—12 percent slippage at 4.1 mph (6.6 km/h), without exceeding maximum ballast level.

NOTE: Available horsepower is greatly reduced when wheel slip drops below eight percent.

RW29387,0000251 -19-30APR04-2/2

Determining Maximum Ballast

IMPORTANT: Do not overload tires. If maximum weight shown in chart is not enough for safety, reduce load or install tires with more load capacity.

NOTE: For tractors with dual or triple tires, maximum ballast is not normally limited by tire carrying capacity.

Use appropriate ballast for a particular operating condition. Tractors should have only enough ballast to maintain safe steering control.

Adjust ballast as tractor use changes. For example, adjust ballast when changing from mounted to towed implements.

IMPORTANT: To extend drive train life and avoid excessive soil compaction and rolling resistance, avoid adding too

much ballast. Never add ballast that results in continuous full-power loads below 6.6 km/h (4.1 mph).

IMPORTANT: Do not ballast tractor over 24494 kg (54000 lb) or the total load capacity of the tires, whichever is least.

Remove ballast if tractor engine labors when pulling heavy loads below 6.6 km/h (4.1 mph).

MAXIMUM LOAD PER WHEEL

Tire Size	Load Rating	40 km/h (25 mph)
620/70R42	160A8	4500 kg (9910 lb)
650/85R38	173A8	6500 kg (14300 lb)
710/70R38	166A8	5300 kg (11700 lb)
620/70R46	162A46	4750 kg (10500 lb)
710/70R42	168A8	5590 kg (12320 lb)
800/70R38	173A8	6500 kg (14300 lb)

RW29387,0000252 -19-11MAY04-1/1

Implement Guidelines

Front-Mounted Implements:

Front frame reinforcement is recommended whenever the tractor has front-mounted dozer blades or spray tanks, is used in scraper applications, or is equipped with front frame ballast.

The reinforcement attaches to the underside of the front axle and to the outside of the front frame behind the front axle. See your John Deere Dealer for parts and assistance.

Towed Scrapers:

IMPORTANT: Under scraper or severe applications, tighten wheel bolts every 2 HOURS until all cap screws remain at 600 N•m (445 lb-ft).

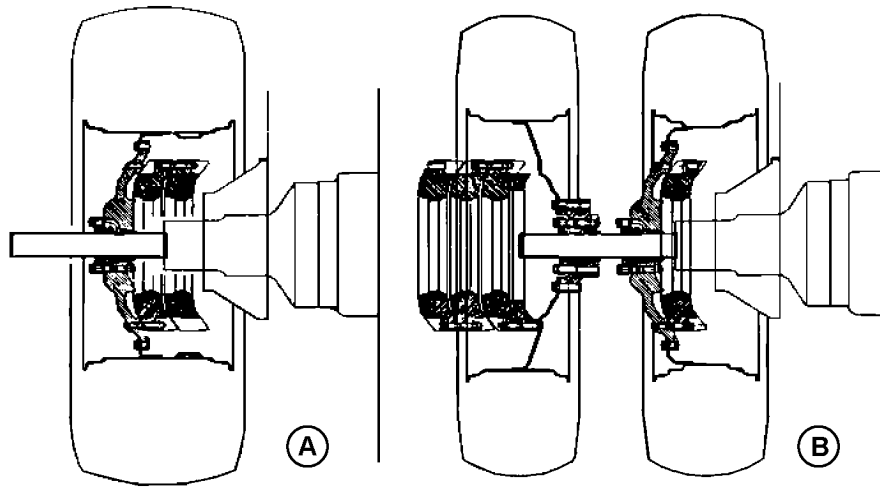
Follow manufacturers instruction in attaching and using scraper.

NON-APPROVED USES

Spray Tanks - Mounted forward of grille screen
Spray Tanks - Unbalanced
Scrapers - Without proper tractor/scraper drawbar and frame/axle supports (9320, 9420, 9520)
Tiling Plows - Mounted to tractor frame or hitch
Fully Mounted Hitch Implements - Center of gravity greater than 609 mm (24 in.) beyond hitch points
Fully Mounted Hitch Implements - Total weight exceeds 6350 kg (14000 lb) - Category 4 without additional implement mounted lift assist.
Fully Mounted Hitch Implements - Total weight exceeds 6123 kg (13500 lb) - Category 3 without additional implement mounted lift assist.
9420 and 9520 with Category 3 Hitch - Deep ripping/plowing applications using full horsepower (Use Category 4 hitch)
Extreme Draft Loads - Requiring two tractors hooked in tandem
Tow Hooks - Adding tow hooks is not an option
9620 is not recommended (not approved) for scraper applications

RW29387,0000253 -19-14MAY04-1/1

Using Cast Hub Wheel Weights



A—Single Wheel (100 mm Axle)

B—Dual Wheels (100, 110 and 120 mm Axle)

FW26744 -UN-22NOV99



CAUTION: When installing weights, use appropriate equipment or see your John Deere Dealer.

IMPORTANT: When installing new cast wheel weights with holes drilled for M20 cap screws on standard duty cast wheels with holes drilled for M16 cap screws, use M16 cap screws.

When installing older cast weights (prior to 2002) with holes drilled for M16 cap screws on heavy duty cast wheels with holes drilled for M20 cap screws, use M16 cap screws. In this situation, it will be necessary to hold the heads of the cap screws because knurling will not prevent screws from turning.

Old steel wheels (prior to 2002) only use M16 cap screws. New steel wheels have 3 - M20 holes and 3 - M16 holes to allow usage of either old wheel weights or new wheel weights.

No combination exists which would require either the wheels or weights to have new holes drilled in them.

Cast iron weights of 75 kg (165 lb) or 205 kg (450 lb) are available for cast or steel wheels. Weights can be installed on inside or outside of wheel. Use diagrams showing placement of weights or see your John Deere Dealer.

Continued on next page

OU1092A,0000004 -19-06OCT05-1/2

Weight Attaching Bolts—Specification

M16-Bolt—Torque	310 N•m (230 lb-ft)
M20-Bolt—Torque	610 N•m (450 lb-ft)

Install weights on wheel.

For additional weights, install bolts in previous weight.
Rotate alternate weight to align bolts with weight holes.

Tighten bolts and then retighten after driving
approximately 100 meters (100 yd).

Retighten bolts after working **3 HOURS** and again after **10 HOURS**.

Check torque every 250 hours.

IMPORTANT: Inside wheel weight must have at least
**25 mm (1 in.) clearance between weight
and tractor components.**

**Do NOT stack more than 690 kg
(1520 lb) of weights together—three
205 kg (450 lb) weights and one 75 kg
(165 lb) weight.**



RW22473 -UN-15FEB93

OU1092A,0000004 -19-06OCT05-2/2

Installing QUIK-TATCH Frame Weights

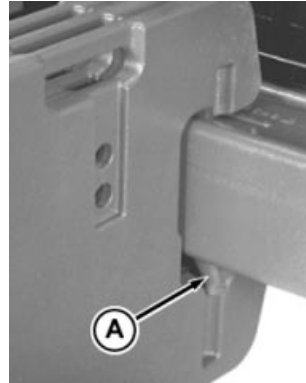
Up to 20 QUIK-TATCH weights can be installed on rear frame of tractor.

When required, install QUIK-TATCH weights, balanced on each side of center (A). The first two weights must be installed as a pair.

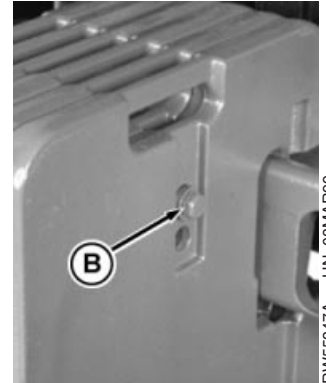
To hold six weights or fewer in position, insert retaining bolts (B) through holes and secure with a nut. Tighten to 230 N•m (170 lb-ft).

When eight or more weights are installed, insert retainers between weights, one with threaded hole upward and the other with threaded hole downward. Tighten bolts to 230 N•m (170 lb-ft).

- A—Center
- B—Retaining Bolts



RW55346A -UN-08MAR99



RW55347A -UN-08MAR99

Installing Front Weights



RW56137 -UN-26AUG96

Rear Weights Over Differential Case



RXA0054129 -UN-11JUN01

Optional Front Weight Support

Using Liquid Ballast

Tire Size	Liquid Weight per Tire	
	40% Fill	75% Fill
620/70R42	390 kg (859 lb)	779 kg (1716 lb)
650/85R38	561 kg (1236 lb)	1052 kg (2319 lb)
710/70R38	462 kg (1017 lb)	924 kg (2033 lb)
620/70R46	451 kg (995 lb)	899 kg (1983 lb)
710/70R42	523 kg (1154 lb)	1047 kg (2308 lb)
800/70R38	639 kg (1397 lb)	1270 kg (2794 lb)



CAUTION: Avoid possible injury. Installing liquid ballast requires special equipment and

training. See your John Deere Dealer or a tire service store.

IMPORTANT: Liquid ballast is not preferred. Liquid weight greatly increases tire stiffness at lower operating pressures, and greatly reduces ride performance.

Use calcium chloride to prevent water from freezing. A mixture of 3.5 lb of calcium chloride per gallon (0.4 kg per liter) will not freeze solid above -50°F (-45°C).

RW29387,0000256 -19-30APR04-1/2

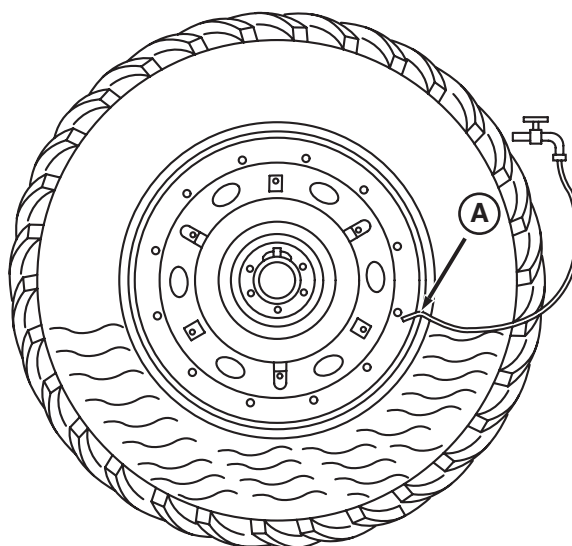
IMPORTANT: A maximum liquid fill of 40 percent is recommended for better tractor performance.

NOTE: Use of alcohol as liquid ballast is not recommended.

In areas where freezing is not a problem and water is used as a ballast, multiply the weight shown in the table by 0.8.

Fill tube-type or tubeless tires up to valve level (40 percent full) with valve (A) in the 4 o'clock position. Radial and bias tires hold the same amount of liquid. When putting liquid in rear tires, make sure all tires on the axle have the same amount of liquid fill.

A—Valve



RW71542 -UN-05SEP00

RW29387,0000256 -19-30APR04-2/2

Wheels, Tires, and Treads

Tire Inflation Pressure Guidelines

Check tire inflation pressure *at least* every two weeks, while tires are cool using an accurate dial or stick-type gauge having 10 kPa (0.1 bar) (1 psi) graduations.

NOTE: *Use a special air-water gauge and measure with valve stem at bottom if tires contain liquid ballast.*

Checking inflation pressures of inner wheels is much easier, if valve stems of inner and outer tires are aligned at the time the outer wheel is installed.

Correctly inflated radial tires will show a deflection of the sidewall. This is normal and will not harm the tire.

Inflation pressures less than 83 kPa (0.8 bar) (12 psi) should be monitored frequently because of the increased risk of low pressure air leaks.

NOTE: *Bead slip can be experienced in high-traction conditions, with single tire usage. Increasing the inflation pressure will help but will reduce traction.*

Maximum tire pressure is specified on tire sidewall.

Determine correct tire pressure by weighing tractor using the following procedure:

- Front axle weight with implement lowered
- Rear axle weight with implement raised

Set tire inflation pressures according to weight measured. *Ballasting and tire inflation pressure may need to be adjusted when operating conditions change.* Use the inflation tire charts on the following pages.

NOTE: *If tractor is equipped with front-mounted implement, raise implement when determining front axle weight and lower implement when determining rear axle weight. If tractor is*

equipped with both a front and rear-mounted implement, raise both implements.

IMPORTANT: Inflation pressures exceeding heavy ballast guidelines of 76 kg/kW (125 lbs/hp) are not recommended. Tractor efficiency will be decreased. Use larger dual or triple wheels.

Managing Tire Inflation Pressures

IMPORTANT: Integral implements transfer significant weight to rear axle. Include this added weight when determining correct inflation pressures. (See chart in Optimum Performance/Ballast section.)

Tractors operating on steep side slopes or furrow plowing should increase rear tire pressures 30 kPa (0.3 bar) (4 psi) above the values listed for base pressures 80 kPa (0.8 bar) (12 psi) and above to compensate for lateral weight transfer. For base pressures below 80 kPa (0.8 bar) (12 psi), pressure should be increased by 30 percent.

NOTE: *All tires on an axle must have the same inflation pressure.*

Tractors with heavy hitch-mounted implements require increased rear tire inflation pressures to carry the increased weight during transport.

Reduce pressures to correct pressure for towed implement operation.

Using Tubes with Tubeless Radial Tires

Inflation pressure can be set as low as 40 kPa (0.4 bar) (6 psi), if high quality (natural rubber) tubes are used. Lower quality tubes require the minimum inflation pressure of 80 kPa (0.8 bar) (12 psi). Direct questions regarding tube quality to your tire dealer.

Recommended Inflation Pressures—Single Tires

Axle Load Kg (lb)	650/85R38 173A8 kPa(bar)(psi)	800/70R38 173A8 kPa(bar)(psi)
4535 (10000)	55(0.55)(8)	55(0.55)(8)
4760 (10500)	55(0.55)(8)	55(0.55)(8)
4990 (11000)	55(0.55)(8)	55(0.55)(8)
5215 (11500)	55(0.55)(8)	55(0.55)(8)
5440 (12000)	55(0.55)(8)	55(0.55)(8)
5670 (12500)	55(0.55)(8)	55(0.55)(8)
5895 (13000)	60(0.60)(9)	55(0.55)(8)
6120 (13500)	70(0.70)(10)	55(0.55)(8)
6350 (14000)	70(0.70)(10)	55(0.55)(8)
6575 (14500)	75(0.75)(11)	55(0.55)(8)
6800 (15000)	75(0.75)(11)	60(0.60)(9)
7030 (15500)	80(0.80)(12)	70(0.70)(10)
7255 (16000)	85(0.85)(13)	70(0.70)(10)
7485 (16500)	90(0.90)(14)	70(0.70)(10)
7710 (17000)	100(1.00)(15)	75(0.75)(11)
7935 (17500)	100(1.00)(15)	80(0.80)(12)
8165 (18000)	120(1.20)(16)	80(0.80)(12)
8390 (18500)	120(1.20)(16)	85(0.85)(13)
8615 (19000)	120(1.20)(17)	85(0.85)(13)
8845 (19500)	120(1.20)(17)	90(0.90)(14)
9070 (20000)	125(1.25)(18)	100(1.00)(15)
9525 (21000)	130(1.30)(19)	110(1.10)(16)
9975 (22000)	140(1.40)(20)	120(1.20)(17)
10430 (23000)	150(1.50)(22)	120(1.20)(17)
10885 (24000)	160(1.60)(23)	125(1.25)(18)
11430 (25000)	170(1.70)(25)	140(1.40)(20)
11790 (26000)	190(1.90)(28)	145(1.45)(21)
12245 (27000)	215(2.15)(31)	150(1.50)(22)
12700 (28000)	225(2.25)(33)	160(1.60)(23)

RW29387,0000258 -19-13MAY04-1/1

Recommended Inflation Pressures—Dual Tires

Axle Load Kg (lb)	620/70R42 Group 47 160A8 kPa(bar)(psi)	710/70R38 Group 47 166A8 kPa(bar)(psi)	620/70R46 Group 48 162A8 kPa(bar)(psi)	650/85R38 Group 48 173A8 kPa(bar)(psi)	710/70R42 Group 48 168A8 kPa(bar)(psi)	710/70R42 Group 48 173A8 kPa(bar)(psi)	800/70R38 Group 38 173A8 kPa(bar)(psi)
4535 (10000)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)
4760 (10500)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)
4990 (11000)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)
5215 (11500)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)
5440 (12000)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)
5670 (12500)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)
5895 (13000)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)
6120 (13500)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)
6350 (14000)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)
6575 (14500)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)
6800 (15000)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)
7030 (15500)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)
7255 (16000)	50(0.50)(7)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)
7485 (16500)	50(0.50)(7)	40(0.40)(6)	50(0.50)(7)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)
7710 (17000)	50(0.50)(7)	40(0.40)(6)	50(0.50)(7)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)
7935 (17500)	55(0.55)(8)	40(0.40)(6)	50(0.50)(7)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)
8165 (18000)	55(0.55)(8)	40(0.40)(6)	50(0.50)(7)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)
8390 (18500)	60(0.60)(9)	40(0.40)(6)	55(0.55)(8)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)
8615 (19000)	70(0.70)(10)	50(0.50)(7)	55(0.55)(8)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)	40(0.40)(6)
8845 (19500)	70(0.70)(10)	50(0.50)(7)	60(0.60)(9)	50(0.50)(7)	50(0.50)(7)	50(0.50)(7)	40(0.40)(6)
9070 (20000)	70(0.70)(10)	50(0.50)(7)	70(0.70)(10)	50(0.50)(7)	50(0.50)(7)	50(0.50)(7)	40(0.40)(6)
9525 (21000)	75(0.75)(11)	55(0.55)(8)	70(0.70)(10)	50(0.50)(7)	50(0.50)(7)	50(0.50)(7)	40(0.40)(6)
9975 (22000)	80(0.80)(12)	60(0.60)(9)	75(0.75)(11)	55(0.55)(8)	55(0.55)(8)	55(0.55)(8)	40(0.40)(6)
10430 (23000)	85(0.85)(13)	70(0.70)(10)	80(0.80)(12)	60(0.60)(9)	60(0.60)(9)	60(0.60)(9)	50(0.50)(7)
10885 (24000)	90(0.90)(14)	70(0.70)(10)	85(0.85)(13)	70(0.70)(10)	70(0.70)(10)	70(0.70)(10)	50(0.50)(7)
11430 (25000)	100(1.00)(15)	75(0.75)(11)	85(0.85)(13)	70(0.70)(10)	70(0.70)(10)	70(0.70)(10)	50(0.50)(7)
11790 (26000)	110(1.10)(16)	80(0.80)(12)	100(1.00)(15)	75(0.75)(11)	75(0.75)(11)	75(0.75)(11)	55(0.55)(8)
12245 (27000)	120(1.20)(17)	85(0.85)(13)	110(1.10)(16)	80(0.80)(12)	75(0.75)(11)	75(0.75)(11)	60(0.60)(9)
12700 (28000)	120(1.20)(17)	85(0.85)(13)	110(1.10)(16)	85(0.85)(13)	85(0.85)(13)	85(0.85)(13)	70(0.70)(10)
13150 (29000)	125(1.25)(18)	90(0.90)(14)	120(1.20)(17)	90(0.90)(14)	85(0.85)(13)	85(0.85)(13)	70(0.70)(10)
13605 (30000)	130(1.30)(19)	100(1.00)(15)	120(1.20)(17)	100(1.00)(15)	100(1.00)(15)	100(1.00)(15)	75(0.75)(11)
14060 (31000)	140(1.40)(20)	110(1.10)(16)	125(1.25)(18)	110(1.10)(16)	110(1.10)(16)	110(1.10)(16)	80(0.80)(12)
14510 (32000)	140(1.40)(20)	110(1.10)(16)	140(1.40)(20)	110(1.10)(16)	110(1.10)(16)	110(1.10)(16)	80(0.80)(12)
14970 (33000)	150(1.50)(22)	120(1.20)(17)	145(1.45)(21)	120(1.20)(17)	120(1.20)(17)	120(1.20)(17)	90(0.90)(13)
15420 (34000)	150(1.50)(22)	120(1.20)(17)	145(1.45)(21)	120(1.20)(17)	120(1.20)(17)	120(1.20)(17)	95(0.95)(14)
15875 (35000)	—	125(1.25)(18)	150(1.50)(22)	125(1.25)(18)	125(1.25)(18)	125(1.25)(18)	105(1.05)(15)

Using Correct Tire Combinations



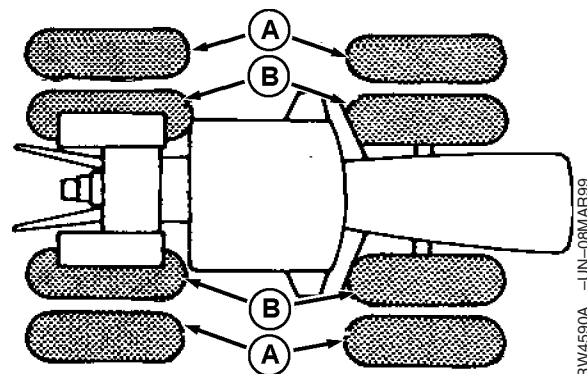
CAUTION: Avoid possible injury. High-speed transport with outer duals removed can cause loss of steering control and reduce vehicle stability. Reduce speed immediately if loss of steering control occurs.

If outer duals must be removed, adjust wheels to wider tread and travel at slow speeds.

IMPORTANT: Avoid excessive drive train wear or a possible reduction in performance. Do not mix worn and new tires, bias and radial, or tires of different diameters. Do not use R2 tires in combination with R1.

When radial-ply tires are used as inner dual (B), outer dual (A) may be bias-ply tires.

Any other mixing of radial-ply and bias-ply tires is not recommended.



A—Outside Dual
B—Inside Dual

RW4590A -UN-08MAR99

RW29387,000025A -19-06NOV02-1/1

Using Dual Tires

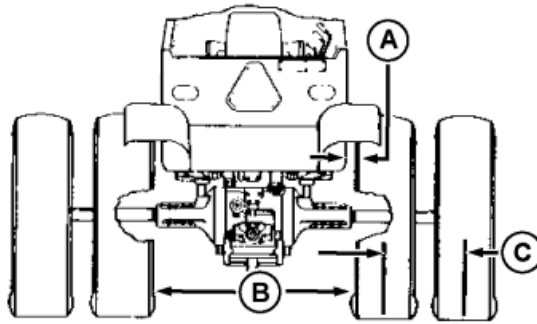
IMPORTANT: Installation of dual tires 800 mm (31.5 in.) or wider can cause damage to the axles from overloading.

Installation of dual tires 800 mm (31.5 in.) or wider is not recommended unless certain precautions are

followed. See your John Deere Dealer for recommendations.

RW29387,000025B -19-29NOV06-1/1

Observing Tread Width Limitations



RW19282A -UN-26MAR99

A—Clearance

B—Width

C—Tire Spacing

IMPORTANT: Tires must have at least 25 mm (1 in.) clearance (A) with fenders. Clearance (B) between tires must be at least 1041 mm (41 in.), with tires equal distance from center line.

Clearance between tires must be at least 1179 mm (46.4 in.) for category IV hitch, 1036 mm (40.8 in.) for category IV N, and 1047 mm (41.2 in.) for category III hitch, when no side sway is permitted on mounted implements. With sway allowed, check tire clearance before using equipment.

Shims from your John Deere Dealer will further reduce hitch side sway and lengthening lift links to maximum length will provide more

clearance for "row cropping" at 762 mm (30 in.) treads.

IMPORTANT: With dual tires, refer to following chart for minimum spacing between tires (C). (See Using Radial and Bias-Ply Tires for more information.)

Steering stops may be required for some tread settings.

Extremely wide wheel spacings provide higher loads for axle bearings and shafts. Try to minimize overall tread width.

Maximum Tread Width

Hitch-Mounted Implements	3050 mm (120 in.)
Towed Implement	3455 mm (136 in.)

Tire Section	Tire Centerline	Minimum Spacing
620 (24.5)		751 mm (29.6 in.)
650 (25.5)		773 mm (30.4 in.)
710 (28.8)		850 mm (33.5 in.)
800 (30.5)		941 mm (37.1 in.)

RW29387,000025C -19-15SEP04-1/1

Tread Widths—Singles or Duals

Approximate tread ranges for each tire size are shown in the following chart:

NOTE: See *Observing Tread Width Limitations* in this section.

TREAD WIDTH—SINGLE WHEELS

Tire Size	Inner Tire Range (Minimum—Maximum)
800/70R38	1876—2630 mm (73.9—103.5 in.)

TREAD WIDTH—DUAL WHEELS

Tire Size	Inner Tire Range (Minimum—Maximum)	Outer Range (Minimum—Maximum)
620/70R42 Cast/Steel	1689—2063 mm (66.5—81.2 in.)	3240—3615 mm (127.6—142.3 in.)
620/70R46 Cast/Steel	1689—2063 mm (66.5—81.2 in.)	3240—3615 mm (127.6—142.3 in.)
650/85R38 Cast/Steel	—	—
710/70R38 Cast/Steel	1782—1935 mm (70.2—76.2 in.)	3471—3624 mm (136.7—142.7 in.)
710/70R42 Cast/Steel	1782—2002 mm (70.2—78.8 in.)	3471—3691 mm (136.7—145.3 in.)
800/70R38	1876—2188 mm (73.9—86 in.)	3763—4077 mm (148—160.5 in.)

RW29387,000025D -19-29NOV06-1/1

Installing Wheel Rim to Cast Wheel



CAUTION: Avoid the possibility of personal injury. Never operate tractor with loose wheel bolts.

NOTE: The wheel rim (A) has one **tight fit** hole that is smaller than other holes. One **slot fit** hole is 180 degrees from the tight fit hole.

Install and hand tighten bolt in the **tight fit** hole (B).

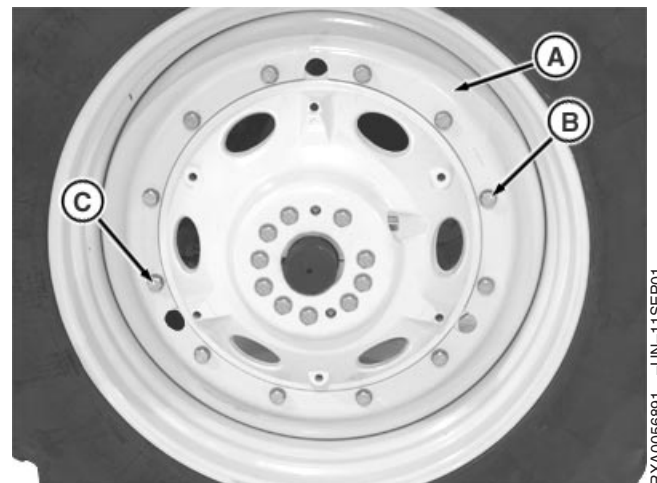
Install and hand tighten bolt in the **slot fit** hole (C).

Install and hand tighten remaining bolts.

Tighten all bolts to 600 N•m (445 lb-ft).

Drive tractor 100 meters (100 yd) and retighten bolts.

Tighten again at **3 HOURS** and **10 HOURS**. Continue to tighten to specified torque daily during the first week of operation.



A—Wheel Rim
B—Tight Fit Hole
C—Slot Fit Hole

RXA0056891 -UN-11SEP01

RW29387,000025E -19-06NOV02-1/1

Wheel Torque Wrench Adapter—JDG679

The JDG679 Torque Wrench Adapter (A), 32 mm (3/4 in.) drive is designed for easy access to sleeve bolts on inner cast wheels with outside duals in place.

Torque wrench adapter should be at **90° angle** from torque wrench shaft for correct torque specification.

See your John Deere Dealer to order.

Specification

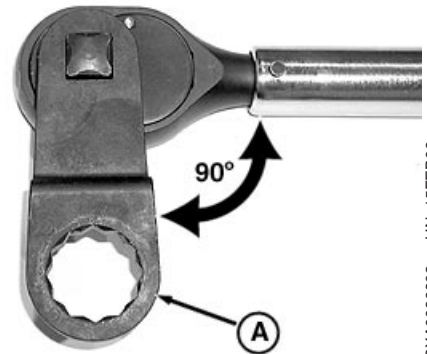
Cast Wheel Cap Screws—Torque610 N•m (450 lb-ft)

When unable to use Adapter at 90° angle from torque wrench shaft, use this formula to calculate correct torque setting.

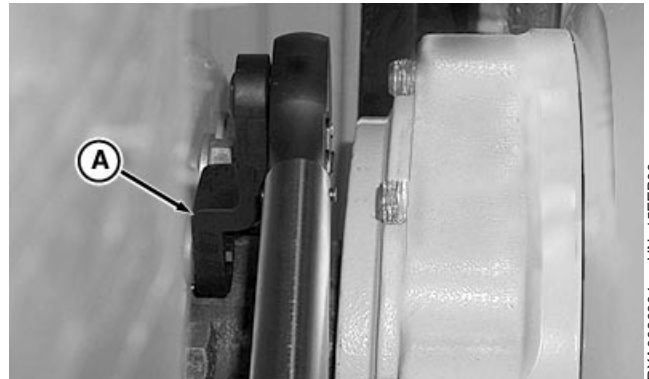
Tw	=	Torque setting on the torque wrench
Ta	=	Torque actually being applied to the nut or cap screw
L	=	Length from the point of force (center of the wrench handle) to the center of head of torque wrench
A	=	Application distance from center of torque wrench head to the center of adapter which is 95 mm (3.75 in.)

Example: Torque wrench length = 0.91 m (36 in.), wrench adapter = 0.1 m (4 in.), so new Ta for torque wrench setting is 549 N•m (405 lb-ft).

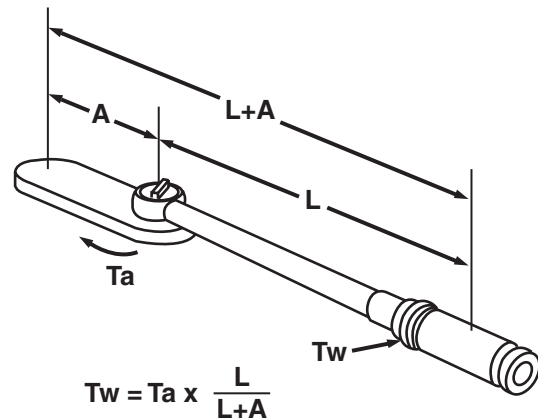
A—JDG679 Torque Wrench Adapter



RXA006802 -UN-15FEB06

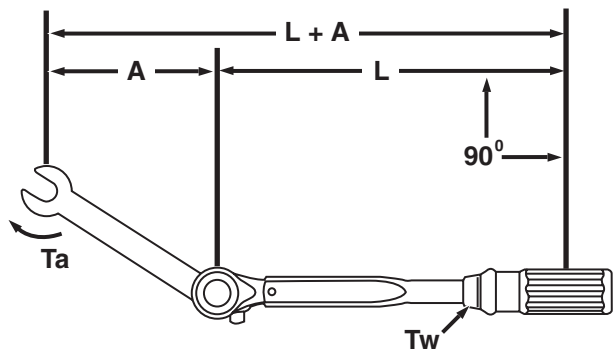


RXA006804 -UN-15FEB06



RXA0061214 -UN-19JUN02

$$Tw = Ta \times \frac{L}{L+A}$$



RXA0062101 -UN-15AUG02

Adjusting and Tightening Wheels—Drive Wheel and Dual Standard Hubs



CAUTION: Avoid personal injury. Never operate the engine with transmission in gear when adjusting wheels. Wheels on the ground could pull supported wheels off jackstands.

Never operate tractor with a loose rim, wheel, or hub.

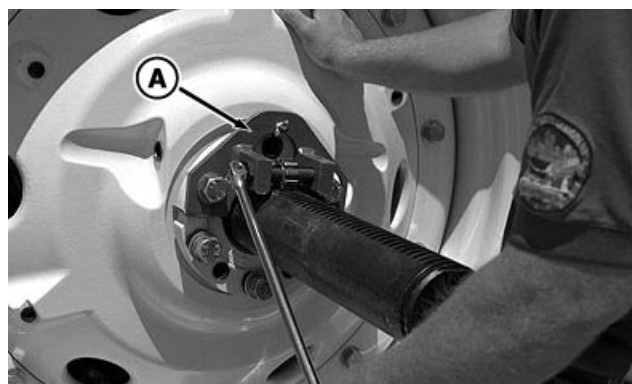
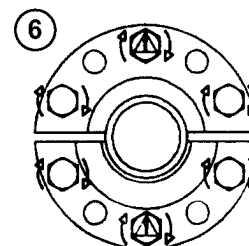
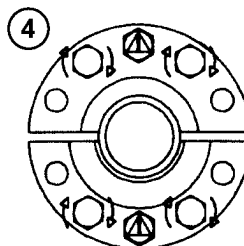
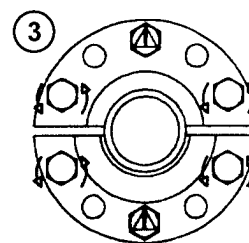
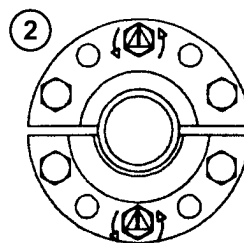
IMPORTANT: Carefully follow procedure. Failure to do so could lead to wheel hub damage.

IMPORTANT: Clean any paint, grease, film, rust or debris from axle shafts prior to position and installing wheel hubs and sleeves. Do NOT apply any lubricant to cap screws or threads.

1. Raise the tractor on level ground and turn wheel so rack on the axle is upward.
2. Loosen the lower hub center bolt against the retaining nut. Loosen the outer hub sleeve bolts.
3. Tighten the inner jack screws on the upper and lower hub sleeves to loosen sleeves. Tighten jack screws up to 500—600 N•m (370—440 lb-ft) if necessary.

NOTE: Strike end of axle with a heavy hammer and use penetrating oil if sleeves are difficult to break loose.

4. Remove jack screws from upper hub sleeve and install JDG667A for 100 mm axle and JDG668A for 110 mm axle Wheel Adjusting Tool (A) (available from your John Deere Dealer) using sleeve bolts. Move wheel to desire position. Observe tread width limitations.
5. Remove adjusting tool and jack screws.



A—Wheel Adjusting Tool

RW26331 -UN-24JUN99

RXA0072370 -UN-05DEC03

Continued on next page

OU1092A,0000005 -19-06OCT05-1/2

IMPORTANT: Keep the face of hub sleeves even to prevent hub breakage or bolt loosening.

6. Tighten hub sleeve bolts to 204 N•m (150 lb-ft) beginning with the center bolt in the lower sleeve, then criss-crossing the other bolts. Retighten bolts to 410 N•m (300 lb-ft) using the same sequence.

Drive tractor a minimum of 100 meters (100 yd) and tighten bolts to 600 N•m (445 lb-ft).

IMPORTANT: If tractor is operated with wheel sleeve loose for 4 -5 hours, it is necessary to replace sleeves.

Retighten bolts after working **3 HOURS** and again after **10 HOURS**. Continue to tighten to specified torque daily during the first week of operation.

OU1092A,0000005 -19-06OCT05-2/2

Adjusting and Tightening Wheels-Heavy-Duty Drive Wheels and Dual Hubs—10 or 12 Bolt



CAUTION: Avoid personal injury. Never run the engine with transmission in gear when adjusting wheels. Wheels on the ground could pull supported wheels off jackstands.

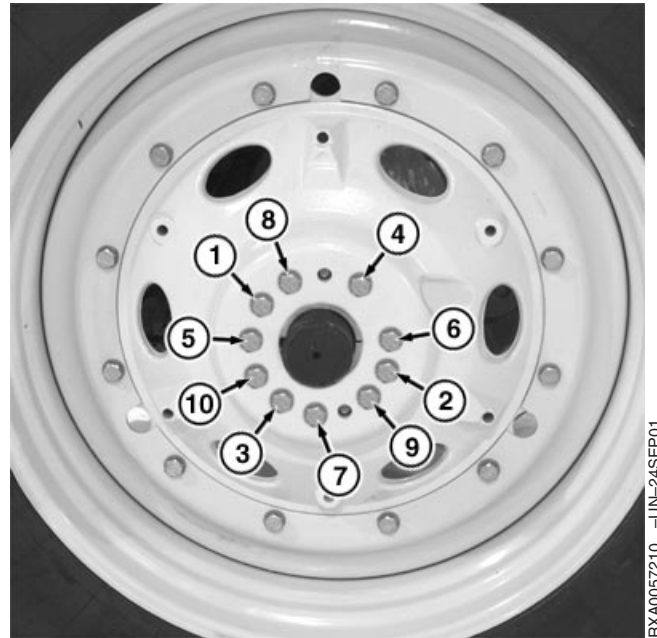
Never operate tractor with a loose rim, wheel or hub.

IMPORTANT: Tractors may be equipped with either 10 or 12 bolt heavy-duty drive wheels and hubs. Only difference in service procedure is the sequence in which the sleeve bolts are tightened. Numbers indicating proper torquing sequence are cast into wheel hub.

Carefully follow procedure. Failure to do so could lead to sleeve or cast wheel damage.

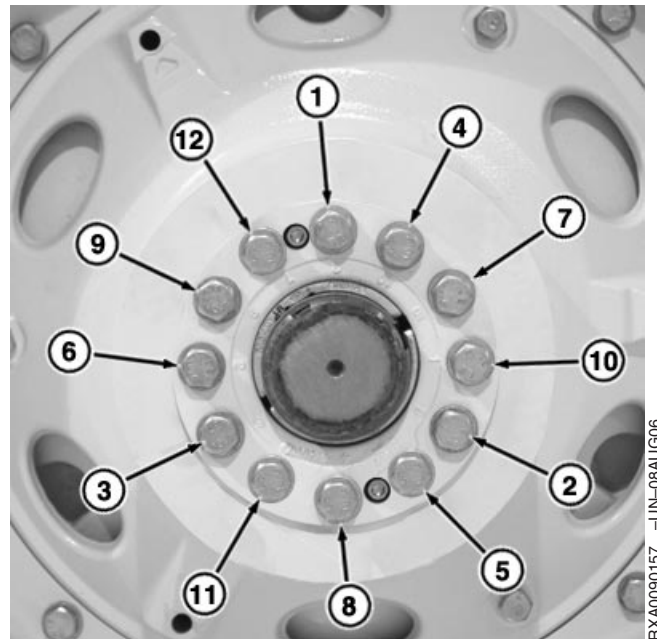
IMPORTANT: Clean any paint, grease, film, rust or debris from axle shafts, cap screws, and threads prior to position and installing wheel sleeves and cast wheel. **DO NOT** apply any lubricant to cap screws, threads, wheel or axle.

1. Raise the tractor on level ground and support tractor with jackstands.
2. Loosen (without removing) sleeve bolts (1—10 or 1—12) just enough to move wheel.



10 Bolt Heavy-Duty Drive Wheel

FXA0057210 -UN-24SEP01



12 Bolt Heavy-Duty Drive Wheel

FXA0090157 -UN-08AUG06

Continued on next page

RW29387,00004E5 -19-22DEC06-1/3

IMPORTANT: Do not loosen or remove the two allen head screws. Doing so could result in wheel jamming or damage.

NOTE: Adjusting tool is not compatible with heavy-duty cast wheel.



CAUTION: Use a hoist, wheel dolly or proper lifting equipment to safely slide and adjust wheels on axles and avoid possibility of personal injury.

Failure to follow torquing sequence and procedure will result in damage to wheel sleeves and may result in personal injury. Wheel bolt torques are critical and require repeated tightening.

3. Move wheel to desired position.
4. Tighten bolts (1—10 or 1—12) in numerical torque sequence until bolts maintain initial torque. Make sure wheel is perpendicular to axle.

Specification

Wheel Bolts-Initial—Torque405 N•m
300 lb-ft

5. Tighten bolts (1—10 or 1—12) in numerical order until bolts maintain final torque.

Specification

Wheel Bolts-Final—Torque610 N•m
450 lb-ft

IMPORTANT: Some sleeve bolts may loosen as sleeve is tightened. Repeat star shaped numbered sequence torquing pattern until ALL sleeve bolts maintain the proper torque. Failure to follow procedure could result in damage to equipment and may result in personal injury.

6. Drive tractor unloaded in a large **figure-8** pattern a minimum of four times and tighten bolts in numerical order until bolts maintain final torque of 610 N•m (450 lb-ft).

IMPORTANT: Keep wheel sleeve cap screws tightened to specification. If tractor is operated with loose wheel sleeves or under-torqued cap screws it may be necessary to replace sleeves and cast wheels.

7. Torque bolts after working **3 HOURS, 10 HOURS**, and **DAILY** during the first week of operation or until bolts **do not** move when re-torquing.

*NOTE: Continue to check torque a minimum of **weekly** if used for normal scraper operations.*

RW29387,00004E5 -19-22DEC06-3/3

Adjusting and Tightening—10 Bolt Heavy-Duty Dual Wheel Hubs



CAUTION: Avoid personal injury. Never run the engine with transmission in gear when adjusting wheels. Wheels on the ground could pull supported wheels off jackstands.

Never operate tractor with a loose rim, wheel, or hub.

IMPORTANT: Carefully follow procedure. Failure to do so could lead to wheel hub damage.

IMPORTANT: Clean any paint, grease, film, rust or debris from axle shafts prior to position and installing wheel hubs and sleeves. **DO NOT** apply any lubricant to cap screws or threads.

1. Raise the tractor on level ground and support tractor with jackstands.
2. Loosen (without removing) sleeve bolts (1—10) just enough to move wheel.

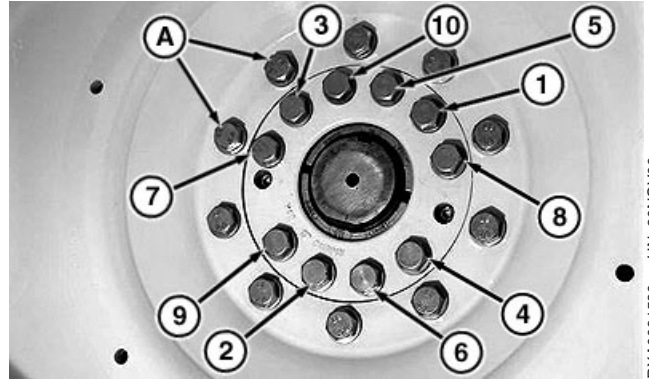
IMPORTANT: Do not loosen or remove the two allen head screws. Doing so could result in wheel jamming or damage.

NOTE: Adjusting tool is not compatible with heavy-duty wheel hub.

3. Move wheel to desired position.
4. Tighten bolts (1—10) in numerical order until bolts maintain torque of 405 N•m (300 lb-ft). Make sure wheel is perpendicular to axle.
5. Tighten bolts (1—10) in numerical order until bolts maintain torque of 610 N•m (450 lb-ft).
6. Using a star shaped pattern, torque all wheel to hub cap screws (A) as needed to maintain torque.

Specification

Bolts (A) Initial Torque—Torque.....405 N•m
300 lb-ft



A—Cap Screws

Specification

Bolts (A) Final Torque—Torque610 N•m
450 lb-ft

IMPORTANT: Repeat torquing pattern until **ALL** bolts maintain the proper torque. Failure to follow procedure could result in damage to equipment and may result in personal injury.

7. Drive tractor a minimum of 100 meters (110 yd) and tighten bolts in numerical order until bolts maintain torque of 610 N•m (450 lb-ft).

IMPORTANT: If tractor is operated with wheel sleeve loose for 4-5 hours, it is necessary to replace sleeves.

8. Torque bolts after working **3 HOURS, 10 HOURS,** and **DAILY** during the first week of operation.

*NOTE: Continue to check torque a minimum of **weekly** if used for normal scraper operations.*

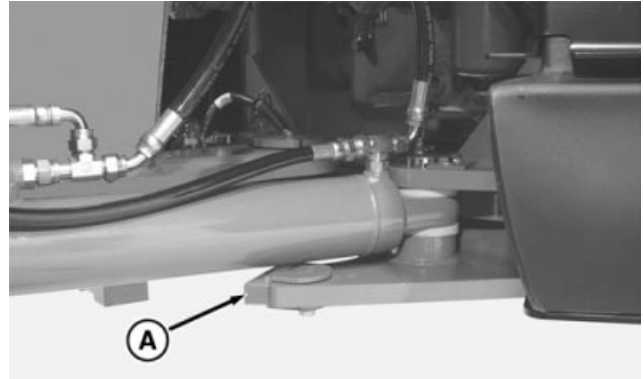
RW29387,00002DD -19-01DEC06-2/2

Using Steering Stops

NOTE: Steering Stops of 3°, 5°, and 10° are available through your John Deere Dealer. The correct steering stops are installed at the factory with tire option ordered.

IMPORTANT: Steering stops (A) must be installed if tractor is equipped with dual tires when outer tire treads are greater than 3343 mm (131.6 in.) or if equipped with triple tires.

Check clearance by turning steering wheel to full left and full right positions and full axle oscillation after installing steering stops and adjusting wheel treads.



FXA0051889 -UN-16FEB01

A—Steering Stops

Tighten steering stop retaining cap screw to 90 N•m (66 lb-ft).

Tires	Steering Stop	Tread Spacing Range	
		Inner Tire	Outer Tire
620/70R42 Duals	5°	1689-2062 mm (66.5-81 in.)	3241-3614 mm (127.6-142 in.)
620/70R46 Duals	10°	1689-2062 mm (66.5-81 in.)	3241-3614 mm (127.6-142 in.)
650/85R38 Duals	—	—	—
710/70R38 Duals	5°	1783-1935 mm (70-76 in.)	3472-3625 mm (137-143 in.)
710/70R42 Duals	10°	1783-1935 mm (70-76 in.)	3472-3625 mm (137-143 in.)
800/70R38 Duals	10°	1876-2188 mm (74-86 in.)	3763-4075 mm (148-160 in.)

RW29387,0000260 -19-08MAY06-1/1

Transport

Driving Tractor On Roads



CAUTION: 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.

Check headlights, flashing warning lights, tail lights, and road transport lights before operating tractor on highway. Avoid using front grille flood and spot lights which could blind or confuse other drivers. Adjust rear-view mirrors and clean windows and SMV emblem.

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 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.

Brakes—Avoid hard application of brakes.

Hitch—Set hitch control lever in transport lock position to prevent possible injury or equipment damage from lowering of hitch while transporting.

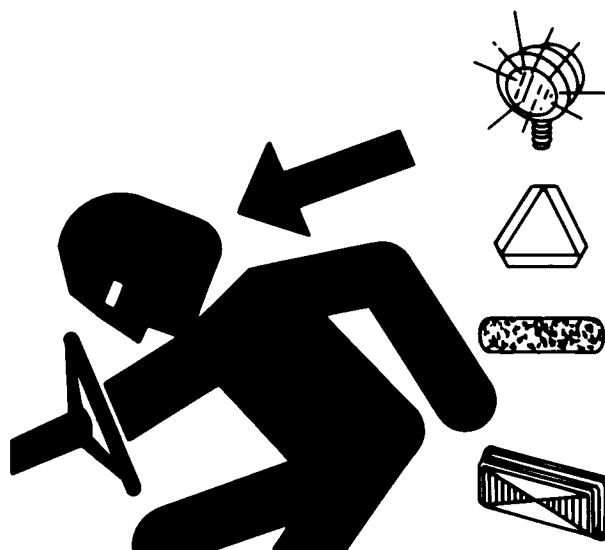
Remote Cylinders—Push transport lock touch switch on SCV TouchSet monitor to eliminate possibility of lowering an implement during transport by inadvertently bumping the extend/retract lever.

RW29387,0000261 -19-06NOV02-1/1

Use Safety Lights and Devices

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

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



TS951 -UN-12APR90

DX,FLASH -19-07JUL99-1/1

Transporting with Ballast

- ⚠ CAUTION:** Avoid possible injury when transporting heavy rear-mounted implements. Drive slowly over rough ground, regardless of how much ballast used.

Add weight if needed for stability. Add enough ballast to maintain steering control.

RW29387,0000262 -19-06NOV02-1/1

Transport Towed Equipment at Safe Speeds

Do not exceed the maximum transport speed. This tractor is capable of operating at transport speeds that exceed the maximum allowable transport speed for most towed implements.

Before transporting a towed implement, determine from signs on the implement or information provided in the implement's operator manual the maximum transport speed. Never transport at speeds that 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

In the absence of manufacturer's information, observe these transport speed limits:

- **For towed equipment without brakes, do not transport at speeds above 32 km/h (20 mph)**
- **For towed equipment with brakes, do not transport at speeds above 40 km/h (25 mph)**

Do not attempt transport if:

- The fully loaded implement **without brakes** weighs more than 1.5 t (3300 lb) and more than 1.5 times the weight of the tractor
- The fully loaded implement **with brakes** weighs more than 4.5 times the weight of the tractor



RXA0055336 -19-

RW29387,0000263 -19-06NOV02-1/1

Transporting on Carrier

The best method of transporting a disabled tractor is to haul it on a flatbed carrier.

CAUTION: Stop engine and remove key before working in hinge area.

IMPORTANT: Install hinge lock, originally equipped with tractor, on hinge cylinders before transporting tractor.

Steer tractor straight ahead to install hinge lock (A).

Chain tractor to carrier securely. Drive slowly.

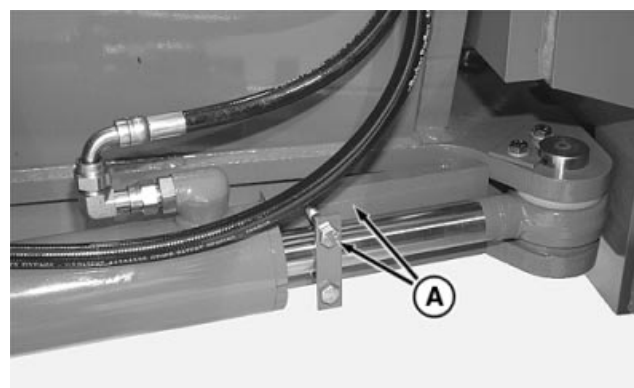
IMPORTANT: Be sure hinge lock is removed from hinge area before operating tractor.

Store hinge lock on tractor as shown (B).

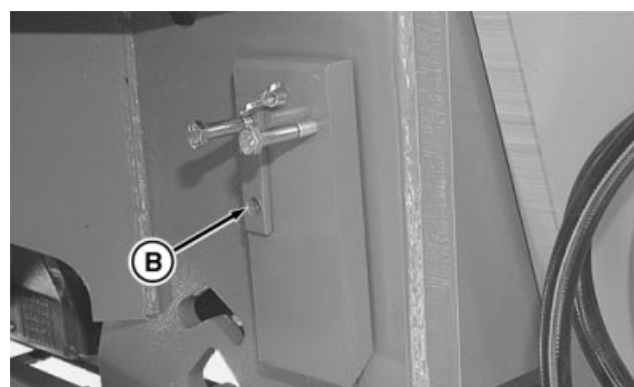
A—Hinge Lock
B—Hinge Lock Storage



RW13091 -UN-07DEC88



RXA0051891 -UN-22FEB01



RXA0051892 -UN-22FEB01

RW29387,0000265 -19-06NOV02-1/1

Towing—Rear Wheels Off Ground

If tractor must be towed, the best method is to lift rear axle and tow tractor backward.

CAUTION: Stop engine and remove key before working in hinge area.

IMPORTANT: Install hinge lock on tractor hinge cylinders before transporting tractor.

1. Steer tractor straight ahead to install hinge lock (A).
2. Disconnect front axle by removing front axle drive shaft.

NOTE: It is not necessary to release internal park brake on 9020 Series tractors (Serial No. 011408—) because rear wheels are off the ground and front driveline is disconnected.

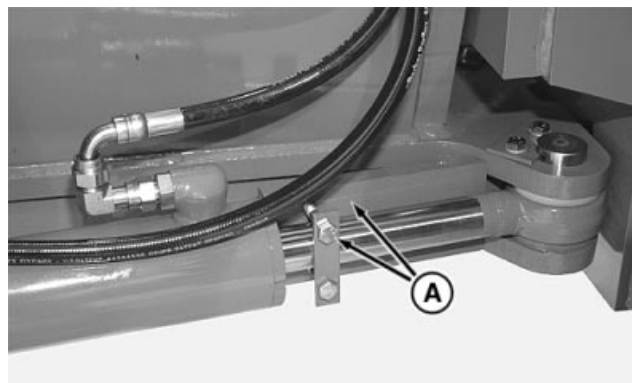
3. Release park brake on 18 Speed Powershift transmission. If tractor can not be started to release the park brake, see your John Deere Dealer for special tools to release the brake.

CAUTION: Never tow faster than 16 km/h (10 mph).

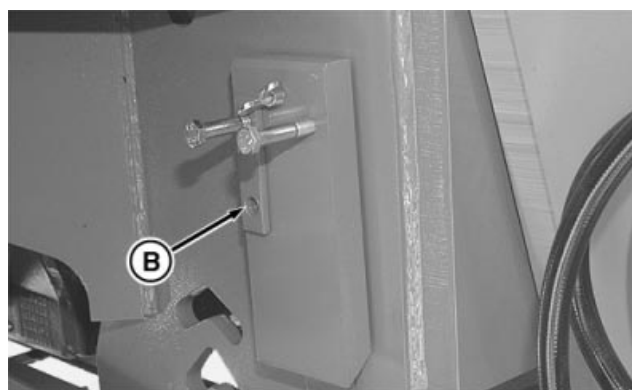
4. Lift tractor by rear axle housings. Attach tow bar to tractor drawbar. Couple as closely as possible.
5. Tow tractor slowly and cautiously.

IMPORTANT: Be sure hinge lock is removed from hinge area before operating tractor.

6. Store hinge lock (B) on tractor.



RXA0051891 —UN-22FEB01



RXA0051892 —UN-22FEB01

A—Hinge Lock
B—Hinge Lock Storage

OU1092A,0000034 —19-29SEP03-1/1

Towing—All Wheels On Ground

IMPORTANT: Never attempt to start tractor by towing.

Avoid damaging the transmission and hydraulic systems. Operate engine above 1250 rpm to provide adequate system lubrication. All pressure indicator lights must be off.

Do not exceed 8 km/h (5 mph) when towing the tractor.

Park brake has to be released before towing. Special tools are required to release park brake. See your John Deere Dealer.

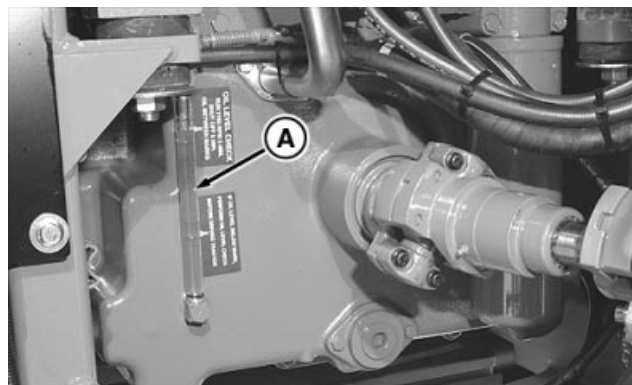
Check transmission/axle oil level sight glass (A) and hydraulic oil level (B). (See Lubrication Section.)

Attach tow bar to drawbar for towing.

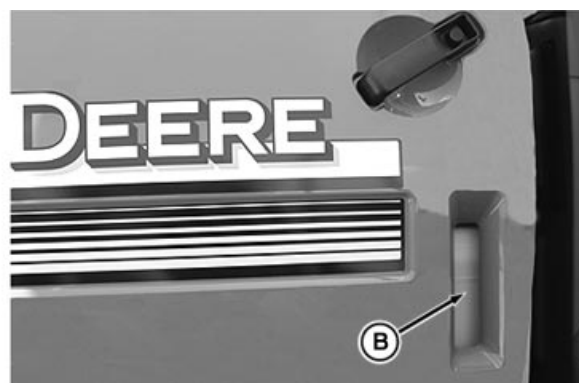
If tractor starts, shift transmission to NEUTRAL position (C).

Steer and brake the tractor while being towed.

- A—Transmission/Axle Oil Level Sight Glass
- B—Hydraulic Oil Level
- C—Neutral Position



RXA0051893 -UN-22FEB01



RXA0062934 -UN-08OCT02



RXA0052054 -UN-30JUL01

RW29387,0000267 -19-14MAY04-1/1

Freeing a Mired Tractor

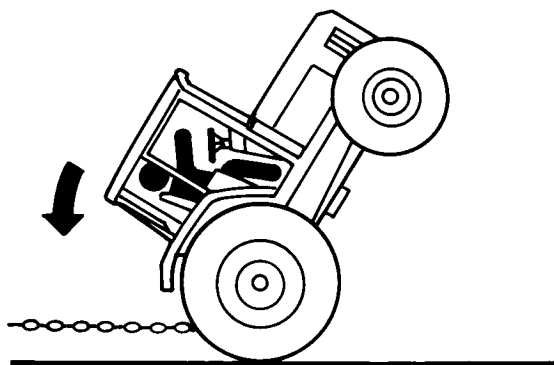
Attempting to free a mired machine can involve safety hazards such as the mired tractor tipping rearward, the towing tractor overturning, and the tow chain or tow bar (a cable is not recommended) failing and recoiling from a stretched condition.

Back tractor out if mired down in mud. Unhitch any towed implements. Dig mud from behind the rear of the rear wheels. Place boards behind the wheels to provide a solid base and try to back out slowly. If necessary, dig mud from the front of the wheels and drive slowly ahead.

Use a tow bar or long chain of adequate size and strong enough to handle the load. Inspect chain for flaws. Always attach vehicles drawbar to drawbar whether pulling forward or rearward. Clear area of people and other hazards before moving.

IMPORTANT: Avoid damaging transmission/axle system. Never attempt to start tractor by towing.

If possible, run engine at 1250 rpm to provide lubrication, steering and brakes. Have an operator steer and brake tractor.



TS1645 -UN-15SEP95



TS263 -UN-23AUG88

RW29387,0000268 -19-06NOV02-1/1

Fuels, Lubricants, and Coolants

Diesel Fuel

Consult your local fuel distributor for properties of the diesel fuel available in your area.

In general, diesel fuels are blended to satisfy the low temperature requirements of the geographical area in which they are marketed.

Diesel fuels specified to EN 590 or ASTM D975 are recommended.

Required fuel properties

In all cases, the fuel shall meet the following properties:

Cetane number of 45 minimum. Cetane number greater than 50 is preferred, especially for temperatures below -20°C (-4°F) or elevations above 1500 m (5000 ft).

Cold Filter Plugging Point (CFPP) below the expected low temperature OR **Cloud Point** at least 5°C (9°F) below the expected low temperature.

Fuel lubricity should pass a minimum level of 3100 grams as measured by ASTM D6078 or maximum

scar diameter of 0.45 mm as measured by ASTM D6079 or ISO 12156-1.

Sulfur content:

- Diesel fuel quality and fuel sulfur content must comply with all existing emissions regulations for the area in which the engine operates.
- Use of diesel fuel with sulfur content less than 0.10% (1000 ppm) is **STRONGLY** recommended.
- Use of diesel fuel with sulfur content 0.10% (1000 ppm to 0.50% (5000 ppm) may result in **REDUCED** oil and filter change intervals.
- **BEFORE** using diesel fuel with sulfur content greater than 0.50% (5000 ppm), contact your John Deere dealer.
- **DO NOT** use diesel fuel with sulfur content greater than 1.0%.

IMPORTANT: Do not mix used diesel engine oil or any other type of lubricating oil with diesel fuel.

IMPORTANT: Improper fuel additive usage may cause damage on fuel injection equipment of diesel engines.

DX,FUEL1 -19-17NOV05-1/1

Lubricity of Diesel Fuel

Most diesel fuels manufactured in the United States, Canada, and the European Union have adequate lubricity to ensure proper operation and durability of fuel injection system components. However, diesel fuels manufactured in some areas of the world may lack the necessary lubricity.

IMPORTANT: Make sure the diesel fuel used in your machine demonstrates good lubricity characteristics.

Fuel lubricity should pass a minimum load level of 3100 grams as measured by ASTM D6078 or a maximum scar diameter of 0.45 mm as measured by ASTM D6079 or ISO 12156-1.

If fuel of low or unknown lubricity is used, add John Deere **PREMIUM DIESEL FUEL CONDITIONER** (or equivalent) at the specified concentration.

DX,FUEL5 -19-27OCT05-1/1

Handling and Storing Diesel Fuel



CAUTION: Handle fuel carefully. Do not fill the fuel tank when engine is running.

DO NOT smoke while you fill the fuel tank or service the fuel system.

Fill the fuel tank at the end of each day's operation to prevent water condensation and freezing during cold weather.

Keep all storage tanks as full as practicable to minimize condensation.

Ensure that all fuel tank caps and covers are installed properly to prevent moisture from entering.

Monitor water content of the fuel regularly.

When using bio-diesel fuel, the fuel filter may require more frequent replacement due to premature plugging.

Check engine oil level daily prior to starting engine. A rising oil level may indicate fuel dilution of the engine oil.

IMPORTANT: The fuel tank is vented through the filler cap. If a new filler cap is required, always replace it with an original vented cap.

When fuel is stored for an extended period or if there is a slow turnover of fuel, add a fuel conditioner to stabilize the fuel and prevent water condensation. Contact your fuel supplier for recommendations.

DX,FUEL4 -19-19DEC03-1/1

Testing Diesel Fuel

DIESELSCAN™ is a John Deere fuel analysis program that can be used to monitor the quality of your fuel. The DIESELSCAN analysis verifies fuel type, cleanliness, water content, suitability for cold weather operation, and whether the fuel meets specifications.

Check with your John Deere dealer for availability of DIESELSCAN kits.

DIESELSCAN is a trademark of Deere & Company

DX,FUEL6 -19-14NOV05-1/1

Bio-Diesel Fuel

Consult your local fuel distributor for properties of the bio-diesel fuel available in your area.

Bio-diesel fuels may be used ONLY if the bio-diesel fuel properties meet the latest edition of ASTM D6751, EN 14214, or equivalent specification.

It is recommended to purchase bio-diesel fuel blended with B100 from a BQ-9000 Accredited Producer or a BQ-9000 Certified Marketer as recommended by the National Bio-diesel Board.

The maximum allowable bio-diesel concentration is a 5% blend (also known as B5) in petroleum diesel fuel. It has been found that bio-diesel fuels may improve lubricity in concentrations up to this 5% blend.

When using a blend of bio-diesel fuel, the engine oil level must be checked daily when the air temperature is -10°C (14°F) or lower. If oil becomes diluted with fuel, shorten oil change intervals accordingly.

IMPORTANT: Raw pressed vegetable oils are NOT acceptable for use as fuel in any concentration in John Deere engines.

These oils do not burn completely, and will cause engine failure by

leaving deposits on injectors and in the combustion chamber.

A major environmental benefit of bio-diesel fuel is its ability to biodegrade. This makes proper storage and handling of bio-diesel fuel especially important. Areas of concern include:

- Quality of new fuel
- Water content of the fuel
- Problems due to aging of the fuel

Potential problems resulting from deficiencies in the above areas when using bio-diesel fuel in concentrations above 5% may lead to the following symptoms:

- Power loss and deterioration of performance
- Fuel leakage
- Corrosion of fuel injection equipment
- Coked and/or blocked injector nozzles, resulting in engine misfire
- Filter plugging
- Lacquering and/or seizure of internal components
- Sludge and sediments
- Reduced service life of engine components

Consult your fuel supplier for additives to improve storage and performance of bio-diesel fuels.

DX,FUEL7 -19-14NOV05-1/1

Fuel Storage

IMPORTANT: Proper fuel storage is critical. Use clean storage and transfer tanks. Periodically drain water and sediment from bottom of tank. Store fuel in a convenient place away from buildings.

Avoid storing fuel over long periods of time. If there is a very slow fuel turnover in the fuel or storage tank, a

fuel conditioner may need to be added. This conditioner can be poured directly into fuel tank or bulk storage tank.

NOTE: To reduce fuel gelling and control wax separation during cold weather, John Deere Fuel Flow Improver, or equivalent, may be added to fuel or bulk storage tank.

RW29387,000026A -19-06NOV02-1/1

Filling Fuel Tank



CAUTION: Avoid possible personal injury:

- Always stop engine when refueling.
- Do not refuel while smoking or when near open flame or sparks.
- Handle fuel with care. Always clean up spilled fuel.
- Fill fuel tank outdoors.
- Prevent fires by keeping machine clean of accumulated trash, grease, and debris.



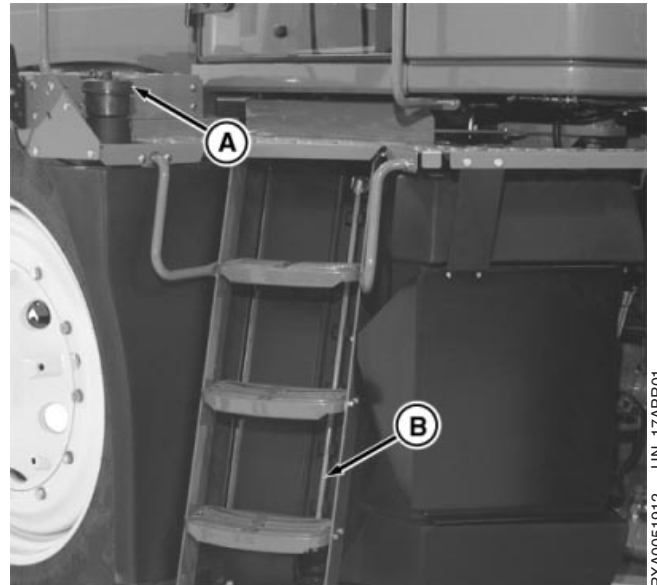
TS202 -UN-23AUG88

Raise fuel cap lock lever (C) and rotate counterclockwise. Remove fuel cap (A) and fill fuel tanks at end of each day. This prevents condensation in tank as moist air cools.

NOTE: When digital display fuel gauge flashes, approximately 20 to 25 gallons of fuel remains.

Approximately 265 L (70 gal) of fuel remains when the fuel level is at the bottom of sight tube (B).

- A—Fuel Cap
B—Site Tube
C—Fuel Cap Lock



RXA0051912 -UN-17APR01



RXA0051914 -UN-10SEP01

RW29387,000026B -19-07MAY04-1/1

Minimizing the Effect of Cold Weather on Diesel Engines

John Deere diesel engines are designed to operate effectively in cold weather.

However, for effective starting and cold weather operation, a little extra care is necessary. The information below outlines steps that can minimize the effect that cold weather may have on starting and operation of your engine. See your John Deere dealer for additional information and local availability of cold weather aids

Use Winter Grade Fuel

When temperatures fall below 5°C (40°F), winter grade fuel (Grade No. 1-D fuel in North America) is best suited for cold weather operation. Winter grade fuel has a lower cloud point and a lower pour point.

Cloud point is the temperature at which wax will begin to form in the fuel and this wax causes fuel filters to plug. **Pour point** is the temperature at which fuel begins to thicken and becomes more resistant to flow through fuel pumps and lines.

NOTE: On an average, winter grade fuel has a lower BTU (heat content) rating. Using winter grade fuel may reduce power and fuel efficiency, but should not cause any other engine performance effects. Check the grade of fuel being used before troubleshooting for low power complaints in cold weather operation.

Air Intake Heater

An air intake heater is an available option to aid cold weather starting.



CAUTION: Do not use any starting fluid with an air intake heater.

Starting Fluid

A starting fluid port on the intake is available to aid cold weather starting.



CAUTION: Do not use any starting fluid with an engine equipped with glow plugs

Coolant Heater

An engine block heater (coolant heater) is an available option to aid cold weather starting.

Seasonal Viscosity Oil and Proper Coolant Concentration

Use seasonal grade viscosity engine oil based on the expected air temperature range between oil changes and proper concentration of low silicate antifreeze as recommended. (See DIESEL ENGINE OIL and ENGINE COOLANT requirements this section.)

Diesel Fuel Flow Additive

Use John Deere Premium Diesel Fuel Conditioner (Winter) or equivalent to treat fuel during the cold weather season. This winter formulation is a combination diesel fuel conditioner and anti-gel additive.

IMPORTANT: Treat fuel when outside temperature drops below 0°C (32°F). For best results, use with untreated fuel. Follow all recommended instructions on label.

Winterfronts

Use of fabric, cardboard, or solid winterfronts is not recommended with any John Deere engine. Their use can result in excessive engine coolant, oil, and charge air temperatures. This can lead to reduced engine life, loss of power and poor fuel economy. Winterfronts may also put abnormal stress on fan and fan drive components potentially causing premature failures.

If winterfronts are used, they should never totally close off the grill frontal area. Approximately 25% area in the center of the grill should remain open at all times. At no time should the air blockage device be applied directly to the radiator core.

Radiator Shutters

If equipped with a thermostatically controlled radiator shutter system, this system should be regulated in such a way that the shutters are completely open by

the time the coolant reaches 93°C (200°F) to prevent excessive intake manifold temperatures. Manually controlled systems are not recommended.

If air-to-air aftercooling is used, the shutters must be completely open by the time the intake manifold air temperature reaches the maximum allowable temperature out of the charge air cooler.

For more information, see your John Deere dealer.

DX,FUEL10 -19-16DEC05-2/2

Diesel Engine Break-In Oil

New engines are filled at the factory with John Deere ENGINE BREAK-IN OIL. During the break-in period, add John Deere ENGINE BREAK-IN OIL as needed to maintain the specified oil level.

Change the oil and filter after the first 100 hours of operation of a new or rebuilt engine.

After engine overhaul, fill the engine with John Deere ENGINE BREAK-IN OIL.

If John Deere ENGINE BREAK-IN OIL is not available, use a diesel engine oil meeting one of the following during the first 100 hours of operation:

- API Service Classification CE
- API Service Classification CD
- API Service Classification CC
- ACEA Oil Sequence E2
- ACEA Oil Sequence E1

After the break-in period, use John Deere PLUS-50™ or other diesel engine oil as recommended in this manual.

IMPORTANT: Do not use PLUS-50 oil or engine oils meeting any of the following during the first 100 hours of operation of a new or rebuilt engine:

API CJ-4	ACEA E7
API CI-4 PLUS	ACEA E6
API CI-4	ACEA E5
API CH-4	ACEA E4
API CG-4	ACEA E3
API CF-4	
API CF-2	
API CF	

These oils will not allow the engine to break-in properly.

PLUS-50 is a trademark of Deere & Company.

DX,ENOIL4 -19-13SEP06-1/1

Diesel Engine Oil

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

John Deere PLUS-50™ oil is preferred.

Oils meeting one of the following specifications are also recommended:

- ACEA Oil Sequence E7
- ACEA Oil Sequence E6
- ACEA Oil Sequence E5
- ACEA Oil Sequence E4

Extended service intervals may apply when John Deere PLUS-50, ACEA E7, ACEA E6, ACEA E5, or ACEA E4 engine oils are used. Consult your John Deere dealer for more information.

Other oils may be used if they meet one or more of the following:

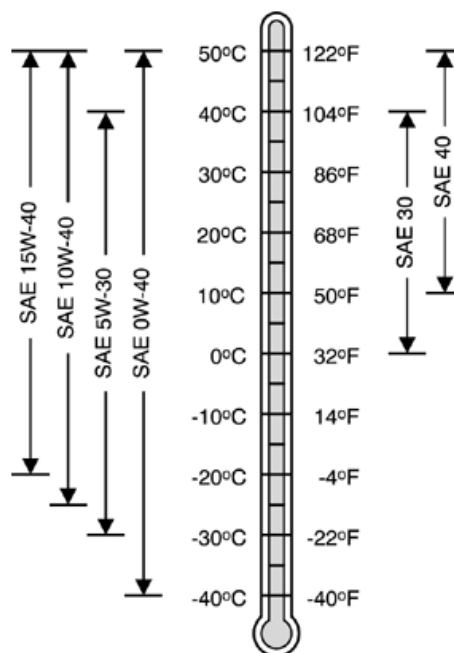
- John Deere TORQ-GARD SUPREME™
- API Service Category CJ-4
- API Service Category CI-4 PLUS
- API Service Category CI-4
- API Service Category CH-4
- API Service Category CG-4
- API Service Category CF-4
- ACEA Oil Sequence E3
- ACEA Oil Sequence E2

If oils meeting API CG-4, API CF-4, or ACEA E2 are used, reduce the service interval by 50%.

Multi-viscosity diesel engine oils are preferred.

Diesel fuel quality and fuel sulfur content must comply with all existing emissions regulations for the area in which the engine operates.

If diesel fuel with sulfur content greater than 0.50% (5000 ppm) is used, reduce the service interval by 50%.



Oil Viscosities for Air Temperature Ranges

TS1681 -UN-09OCT06

DO NOT use diesel fuel with sulfur content greater than 1.00% (10 000 ppm).

DX,ENOIL -19-13SEP06-2/2

Diesel Engine Oil and Filter Service Intervals

The oil and filter service intervals in the table below should be used as guidelines. Actual service intervals also depend on operation and maintenance practices. It is suggested to use oil analysis to determine the actual useful life of the oil and to aid in selection of the proper oil and filter service interval.

Oil and filter service intervals are based on a combination of oil pan capacity, type of engine oil and filter used, and sulfur content of the diesel fuel.

Engine Oil and Filter Service Intervals		
	Standard Drain Oil Pan	Extended Drain Oil Pan
Fuel Sulfur	Less than 0.05% (500 ppm)	
Standard Oil	250 hours	250 hours
Premium Oil	375 hours	500 hours
Fuel Sulfur	0.05 to 0.50% (500 to 5000 ppm)	
Standard Oil	150 hours	150 hours
Premium Oil	275 hours	400 hours
Fuel Sulfur	0.50% to 1.00% (5000 ppm to 10 000 ppm)	
Standard Oil	125 hours	125 hours
Premium Oil	187 hours	250 hours
Engine oil analysis is required to determine the actual extended service life of premium oils ACEA E7, ACEA E6, ACEA E5, and ACEA E4.		

Diesel fuel sulfur level will affect engine oil and filter service intervals. Higher fuel sulfur levels reduce oil and filter service intervals as shown in the table.

- Use of diesel fuel with sulfur content less than 0.05% (500 ppm) is strongly recommended.
- Use of diesel fuel with sulfur content 0.05% (500 ppm) to 0.50% (5000 ppm) may result in REDUCED oil and filter change intervals as shown in the table.
- BEFORE using diesel fuel with sulfur content greater than 0.50% (5000 ppm), contact your John Deere dealer.

Oil types (premium or standard) in the table include:

- "Premium Oils" include John Deere PLUS-50™, ACEA E7, ACEA E6, ACEA E5, or ACEA E4 oils.
- "Standard Oils" include John Deere TORQ-GARD SUPREME™, API CJ-4, API CI-4 PLUS, API CI-4, API CH-4, or ACEA E3 oils.

NOTE: The 500 hour extended oil and filter change interval is only allowed if all of the following conditions are met:

- Engine equipped with an extended drain interval oil pan
- Use of diesel fuel with sulfur content less than 0.05% (500 ppm)
- Use of premium oil: John Deere PLUS-50, ACEA E7, ACEA E6, ACEA E5, or ACEA E4
- Perform engine oil analysis to determine the actual extended service life of ACEA E7, ACEA E6, ACEA E5, and ACEA E4 oils
- Use of an approved John Deere oil filter

Extended Diesel Engine Oil Service Intervals

When John Deere PLUS-50™ oil is used with the specified John Deere filter, the service interval for engine oil and filter changes may be increased by 50% but not to exceed a maximum of 500 hours.

When ACEA E7, ACEA E6, ACEA E5, or ACEA E4 oils are used with specified John Deere filter, use engine oil analysis to determine if the service interval for engine oil and filter changes may be increased by a maximum of 50% but not to exceed 500 hours.

If John Deere PLUS-50™, ACEA E7, ACEA E6, ACEA E5, or ACEA E4 oils are used with other than the

specified John Deere filter, change the engine oil and filter at the normal service interval.

If John Deere TORQ-GARD SUPREME™, API CJ-4, API CI-4 PLUS, API CI-4, API CH-4, or ACEA E3 oils are used, change the engine oil and filter at the normal service interval.

If API CG-4, API CF-4, or ACEA E2 oils are used, change the engine oil and filter at 50% of the normal service interval.

PLUS-50 is a trademark of Deere & Company

TORQ-GARD SUPREME is a trademark of Deere & Company

DX,ENOIL8 -19-13SEP06-1/1

Oil Filters

Filtration of oils is critical to proper operation and lubrication.

Always change filters regularly as specified in this manual.

Use filters meeting John Deere performance specifications.

DX,FILT -19-18MAR96-1/1

Diesel Engine Coolant

The engine cooling system is filled to provide year-round protection against corrosion and cylinder liner pitting, and winter freeze protection to -37°C (-34°F). If protection at lower temperatures is required, consult your John Deere dealer for recommendations.

John Deere COOL-GARD™ Prediluted Coolant is preferred for service.

John Deere COOL-GARD Prediluted Coolant is available in a concentration of either 50% ethylene glycol or 55% propylene glycol.

Additional recommended coolants

The following engine coolant is also recommended:

- John Deere COOL-GARD Coolant Concentrate in a 40% to 60% mixture of concentrate with quality water.

John Deere COOL-GARD coolants do not require use of supplemental coolant additives, except for periodic replenishment of additives during the drain interval.

Other fully formulated coolants

Other fully formulated low silicate ethylene or propylene glycol base coolants for heavy-duty engines may be used if they meet one of the following specifications:

- ASTM D6210 prediluted (50%) coolant
- ASTM D6210 coolant concentrate in a 40% to 60% mixture of concentrate with quality water

Coolants meeting ASTM D6210 do not require use of supplemental coolant additives, except for periodic replenishment of additives during the drain interval.

Coolants requiring supplemental coolant additives

Other low silicate ethylene glycol base coolants for heavy-duty engines may also be used if they meet one of the following specifications:

- ASTM D4985 ethylene glycol base prediluted (50%) coolant
- ASTM D4985 ethylene glycol base coolant concentrate in a 40% to 60% mixture of concentrate with quality water

Coolants meeting ASTM D4985 require an initial charge of supplemental coolant additives, formulated for protection of heavy duty diesel engines against corrosion and cylinder liner erosion and pitting. They also require periodic replenishment of additives during the drain interval.

Other coolants

It is possible that neither John Deere COOL-GARD nor coolants meeting one of the coolant standards listed above is available in the geographical area where service is performed. If these coolants are unavailable, use a coolant concentrate or prediluted coolant with a quality additive package that provides cylinder liner cavitation protection and protects the cooling system metals (cast iron, aluminum alloys, and copper alloys such as brass) from corrosion.

The additive package must be part of one of the following coolant mixtures:

- ethylene glycol or propylene glycol base prediluted (40% to 60%) coolant
- ethylene glycol or propylene glycol base coolant concentrate in a 40% to 60% mixture of concentrate with quality water

Water quality

Water quality is important to the performance of the cooling system. Distilled, deionized, or demineralized water is recommended for mixing with ethylene glycol and propylene glycol base engine coolant concentrate.

IMPORTANT: Do not use cooling system sealing additives or antifreeze that contains sealing additives.

IMPORTANT: Do not mix ethylene glycol and propylene glycol base coolants.

DX,COOL3 -19-27OCT05-2/2

Drain Intervals for Diesel Engine Coolant

Drain the factory fill engine coolant, flush the cooling system, and refill with new coolant after the first 3 years or 3000 hours of operation.

Subsequent drain intervals are determined by the coolant used for service. At each interval, drain the coolant, flush the cooling system, and refill with new coolant.

When John Deere COOL-GARD™ is used, the drain interval may be extended to 5 years or 5000 hours of

operation, provided that the coolant is tested annually AND additives are replenished, as needed, by adding a supplemental coolant additive.

If John Deere COOL-GARD is used but the coolant is not tested OR additives are not replenished by adding a supplemental coolant additive, the drain interval is 3 years or 3000 hours of operation

If COOL-GARD is not used, the drain interval is reduced to 2 years or 2000 hours of operation.

COOL-GARD is a trademark of Deere & Company

DX,COOL11 -19-19DEC03-1/1

Operating in Warm Temperature Climates

John Deere engines are designed to operate using glycol base engine coolants.

Always use a recommended glycol base engine coolant, even when operating in geographical areas where freeze protection is not required.

IMPORTANT: Water may be used as coolant *in emergency situations only*.

Foaming, hot surface aluminum and iron corrosion, scaling, and cavitation will occur when water is used as the coolant, even when coolant conditioners are added.

Drain cooling system and refill with recommended glycol base engine coolant as soon as possible.

DX,COOL6 -19-18MAR96-1/1

Additional Information About Diesel Engine Coolants and Supplemental Coolant Additives

Engine coolants are a combination of three chemical components: ethylene glycol or propylene glycol antifreeze, inhibiting coolant additives, and quality water.

Coolant specifications

Some products, including John Deere COOL-GARD™ Prediluted Coolant, are fully formulated coolants that contain all three components in their correct concentrations. Do not add an initial charge of supplemental coolant additives to these fully formulated products.

Coolants meeting ASTM D6210 do not require an initial charge of supplemental coolant additives.

Some coolant concentrates, including John Deere COOL-GARD Coolant Concentrate, contain both glycol antifreeze and inhibiting coolant additives. Mix these products with quality water, but do not add an initial charge of supplemental coolant additives.

Coolants meeting ASTM D4985 require an initial charge of supplemental coolant additives.

Replenish coolant additives

The concentration of coolant additives is gradually depleted during engine operation. Periodic replenishment of inhibitors is required, even when John Deere COOL-GARD or another fully formulated coolant is used. Follow the recommendations in this manual for the use of supplemental coolant additives.

Why use supplemental coolant additives?

Operating without proper coolant additives will result in increased corrosion, cylinder liner erosion and pitting, and other damage to the engine and cooling system. A

simple mixture of ethylene glycol or propylene glycol and water will not give adequate protection.

Use of supplemental coolant additives reduces corrosion, erosion, and pitting. These chemicals reduce the number of vapor bubbles in the coolant and help form a protective film on cylinder liner surfaces. This film acts as a barrier against the harmful effects of collapsing vapor bubbles.

Avoid automotive-type coolants

Never use automotive-type coolants (such as those meeting ASTM D3306). These coolants do not contain the correct additives to protect heavy-duty diesel engines. They often contain a high concentration of silicates and may damage the engine or cooling system.

Water quality

Water quality is important to the performance of the cooling system. Distilled, deionized, or demineralized water is recommended for mixing with ethylene glycol and propylene glycol base engine coolant concentrate. All water used in the cooling system should meet the following minimum specifications for quality:

Chlorides	<40 mg/L
Sulfates	<100 mg/L
Total dissolved solids	<340 mg/L
Total hardness	<170 mg/L
pH	5.5 to 9.0

Freeze protection

The relative concentrations of glycol and water in the engine coolant determine its freeze protection limit.

Ethylene Glycol	Freeze Protection Limit
40%	-24°C (-12°F)
50%	-37°C (-34°F)
60%	-52°C (-62°F)
Propylene Glycol	Freeze Protection Limit
40%	-21°C (-6°F)
50%	-33°C (-27°F)
60%	-49°C (-56°F)

DO NOT use a coolant-water mixture greater than 60% ethylene glycol or 60% propylene glycol.

DX,COOL7 -19-19DEC03-2/2

Testing Diesel Engine Coolant

Testing Diesel Engine Coolant

Maintaining adequate concentrations of glycol and inhibiting additives in the coolant is critical to protect the engine and cooling system against freezing, corrosion, and cylinder liner erosion and pitting.

Test the coolant solution at intervals of 12 months or less and whenever excessive coolant is lost through leaks or overheating.

Coolant test strips

Coolant test strips are available from your John Deere dealer. These test strips provide a simple, effective

method to check the freeze point and additive levels of your engine coolant.

Compare the results to the supplemental coolant additive (SCA) chart to determine the amount of inhibiting additives in your coolant and whether more John Deere COOLANT CONDITIONER should be added.

COOLSCAN™ and COOLSCAN PLUS™

For a more thorough evaluation of your coolant, perform a COOLSCAN or COOLSCAN PLUS analysis, where available. See your John Deere dealer for information.

COOLSCAN is a trademark of Deere & Company
COOLSCAN PLUS is a trademark of Deere & Company

DX,COOL9 -19-19DEC03-1/1

Transmission/Axle and Hydraulic Oil

IMPORTANT: To ensure proper shift quality, an oil meeting HY-GARD or JDM J20C specifications must be used.

Shift quality problems and/or transmission damage may occur if the HY-GARD or JDM J20C specifications are not followed.

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

The following oils are preferred:

- John Deere HY-GARD®
- John Deere Low Viscosity * HY-GARD®

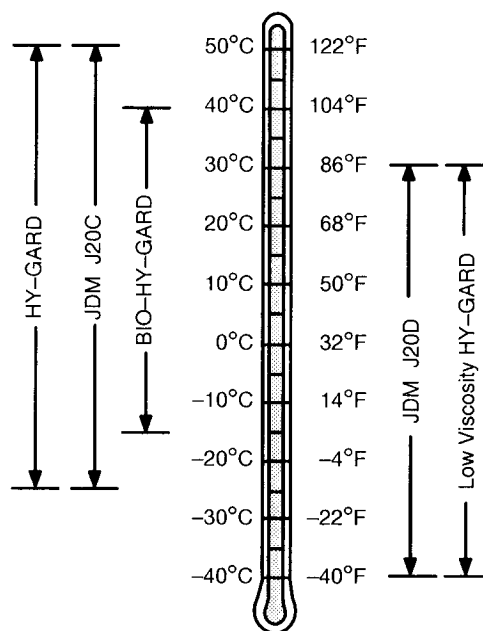
* Not for use with 18-Speed Powershift Transmission.

Other oils may be used if they meet one of the following:

- John Deere Standard JDM J20C
- John Deere Standard JDM J20D *

* Not for use with 18-Speed Powershift Transmission.

Use John Deere BIO-HY-GARD™ oil when a biodegradable fluid is required.¹



TS1651 -UN-14MAR96

HY-GARD is a trademark of Deere & Company.

BIO-HY-GARD is a trademark of Deere & Company

¹ BIO-HY-GARD meets or exceeds the minimum biodegradability of 80% within 21 days according to CEC-L-33-T-82 test method. BIO-HY-GARD should not be mixed with mineral oils, because this reduces the biodegradability and makes proper oil recycling impossible.

RX,ANT11 -19-28APR06-1/1

18-Speed Powershift Transmission

Your tractor's transmission is factory filled with John Deere HY-GARD JDM J20C™ oil.

IMPORTANT: To ensure proper shift quality, an oil meeting HY-GARD or JDM J20C specifications must be used.

Shift quality problems and/or transmission damage may occur if the HY-GARD or JDM J20C specifications are not followed.

HY-GARD is a trademark of Deere & Company

RW24911,0000269 -19-04DEC06-1/1

Grease

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

John Deere SD POLYUREA GREASE is preferred.

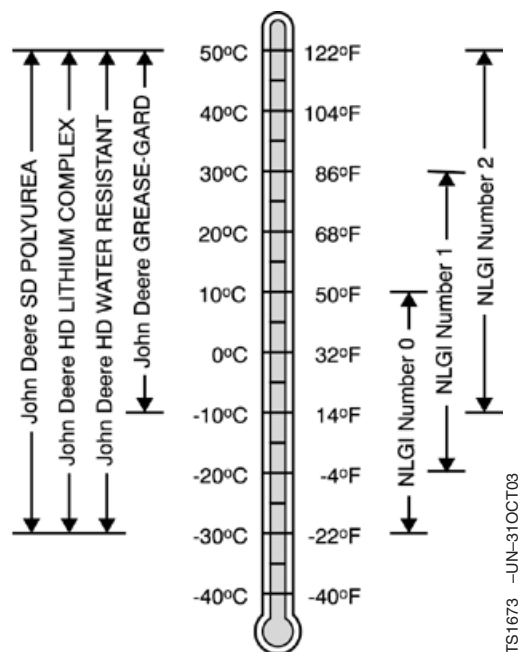
The following greases are also recommended

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

Other greases may be used if they meet the following:

NLGI Performance Classification GC-LB

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



TS1673 -UN-31OCT03

GREASE-GARD is a trademark of Deere & Company

DX,GREA1 -19-07NOV03-1/1

Mixing of Lubricants

In general, avoid mixing different brands or types of oil. Oil manufacturers blend additives in their oils to meet certain specifications and performance requirements.

Mixing different oils can interfere with the proper functioning of these additives and degrade lubricant performance.

Consult your John Deere dealer to obtain specific information and recommendations.

DX,LUBMIX -19-18MAR96-1/1

Alternative and Synthetic Lubricants

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

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

Consult your John Deere dealer to obtain information and recommendations.

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

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

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

DX,ALTER -19-15JUN00-1/1

Lubricant Storage

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

Use clean containers to handle all lubricants.

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

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

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

DX,LUBST -19-18MAR96-1/1

Maintenance and Service Intervals

Observing Service Intervals

Service required during the break-in period should be previously performed. (See Break-in Period Section.)

NOTE: A list of 10 hour/daily service checks can be found on the Service Guide decal (A) on the inside of the left side shield.

Perform all services at the hourly intervals indicated on the Service Interval Charts in this section. Record the service performed in the service record booklet.

IMPORTANT: Recommended service intervals are for average conditions. Service **MORE OFTEN** if tractor is operated under adverse conditions.



CAUTION: Lower all implements to the ground for service and repairs. If the implement needs to be in the raised position, properly support it with jack stands or blocks.



A—Service Guide

RW29387,0000278 -19-06NOV02-1/1

Service Interval Chart—Daily or 10 Hours—250 Hours—750 Hours

Item	Daily or 10 Hours	250 Hours	750 Hours
Check Engine Oil and Coolant Levels	•		
Drain Water Separator	•		
Check Transmission/Axle and Hydraulic Oil Levels	•		
Lubricate Hitch Components	•		
Lubricate Hinge Pins	•		
Inspect Tires	•		
Change Engine Oil and Filter *		•	
Replace Fuel Filter **		•	
Check Park Brake Caliper and Pads		•	
Check Manual Brakes		•	
Service Batteries		•	
Check Neutral Start System		•	
Check PARK System		•	
Clean Cab Air and Recirculation Filters **		•	
Lubricate Telescoping Drive Shafts		•	
Lubricate Lower Driveline Bearing and Shaft		•	
Lubricate Heavy-Duty Gudgeon Bearings		•	
Tighten Wheel and Weight Bolts		•	
Lubricate PTO Drive Shaft		•	
Replace Hydraulic Filter ***			•
Clean Reservoir Screen			•
Replace Reservoir Breather Filter **			•
Replace Transmission/Axle Filter ***			•
Test Coolant and Add Coolant Conditioner			•
Clean Water Separator **			•
Replace Fuel Pre-filter **			•
Clean Engine Air Intake System			•
* INITIAL oil and filter change is 100 hours maximum			
** Interval can vary according to operating conditions			
*** INITIAL filter change is 100 hours maximum			

RW29387,0000279 -19-23APR04-1/1

Service Interval Chart—1500 Hours—2000 Hours—2500 Hours—Annual—Two Years—4500 Hours

Item	1500 Hours	2000 Hours	2500 Hours	Annual	Every Two Years	Every 4500 Hours or Five Years
Change Transmission/Axle, and Hydraulic Oil	•					
Clean Transmission Sump Screen	•					
Inspect Alternator and Fan Belt Tensioner	•					
Check Park Brake Caliper and Pads	•					
Check Axle End Play *****	•					
Check Axle End Play (Normal Use)		•				
Adjust Engine Valve Clearance *			•			
Replace Primary and Secondary Engine Air Filters **				•		
Replace Cab Air and Recirculation Filters **				•		
Lubricate Hitch Sensor ***				•		
Replace Motor Seal Drain Filter— <i>If Equipped</i>				•		
Inspect Seat Belts				•		
Drain, Flush, and Refill Engine Cooling System ****					•	
Test or Replace Engine Coolant Thermostats and Radiator Cap ****					•	
Replace Engine Crankshaft Damper *****						•
Replace Transmission Drive Shaft Damper *****						•
* See your John Deere Dealer for service						
** Interval can vary according to operating conditions						
*** 250 hours when operating in extremely wet conditions						
**** SCHEDULED interval (2 years) can be extended to 3 years or 3000 hours if John Deere COOL-GARD is used						
***** SEVERE DUTY —Inspect annually and change at 3000 hours						
***** FOR HEAVY TILLAGE, FRONT BLADE OR SCRAPER APPLICATION —Check at 1500 hours.						

RW29387,000027A -19-15SEP04-1/1

Raising the Hood



CAUTION: Shut off engine before raising the hood.

Push hood release button (A) and use handle to lift hood.

Carefully pull down and latch hood to close.

A—Hood Handle



RXA0063757 -UN-06NOV02

RW29387,000027B -19-06NOV02-1/1

Hood Release Tool



Right of Hood Center

A—Hood Release Tool



Hood Release Tab (Under Tool)

B—Latch Release Tab

NOTE: JDG1004A Hood Release Tool is available through your John Deere Dealer.

1. A hood release tool JDG1004A (A) is available should button fail.

2. Position under release tab (B).

OU1092A,0000002 -19-23APR04-1/1

Opening Front Grille

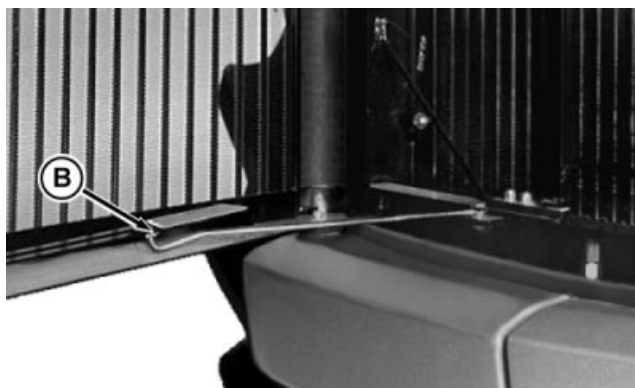
Pull handle to open grille (A).

Lift latch (B) to release grille guide rod.

A—Grille
B—Latch



RXA0054200 -UN-11JUN01



RW56151A -UN-08MAR99

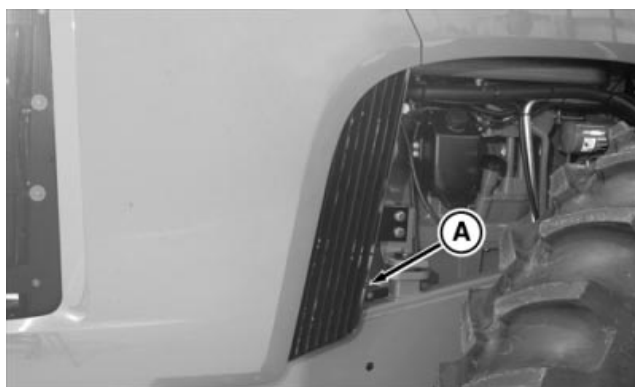
RW29387,000027C -19-06NOV02-1/1

Opening Side Shields

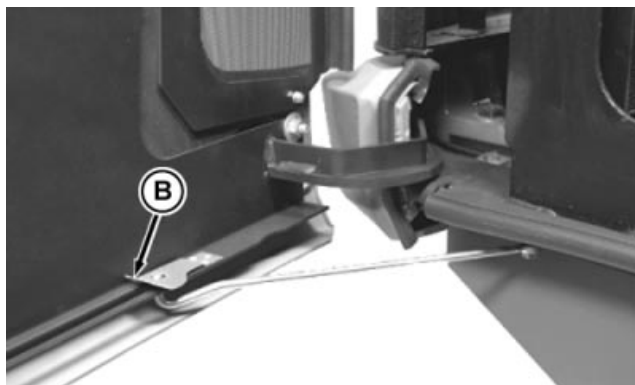
Pull handle (A) to open side shield.

Lift latch (B) to release shield guide rod.

A—Handle
B—Latch



RXA0051942 -UN-28FEB01



RW56153A -UN-08MAR99

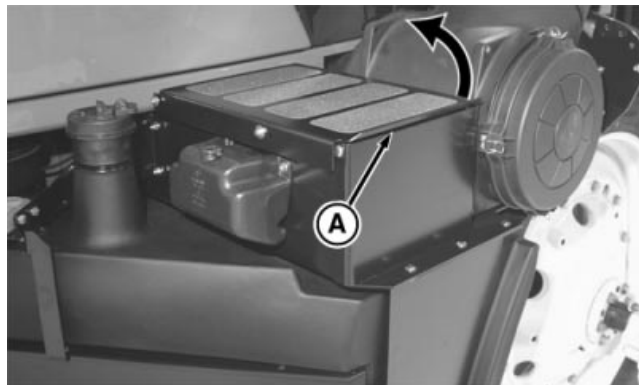
RW29387,000027D -19-06NOV02-1/1

Accessing Batteries

Lift battery box cover (A).

See SERVICE BATTERIES in the General Maintenance and Inspection Section.

A—Battery Cover

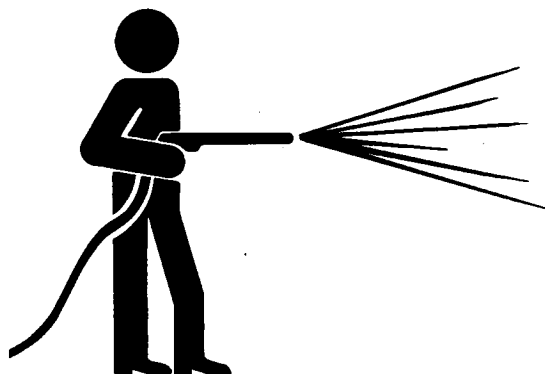


RXA0051952 -UN-28FEB01

RW29387,000027E -19-06NOV02-1/1

Using High-Pressure Washers

IMPORTANT: Directing pressurized water at electronic/electrical components or connectors, bearings and hydraulic seals, fuel injection pumps or other sensitive parts and components can cause product malfunctions. Reduce pressure, and spray at a 45 to 90 degree angle.

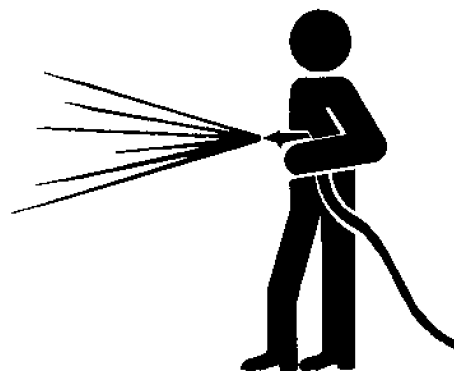


T6642EJ -UN-18OCT88

RW29387,000027F -19-06NOV02-1/1

Using Compressed Air

IMPORTANT: Directing pressurized air at electronic/electrical components or connectors, can cause build-up of static electricity and product malfunctions.



RW56455 -UN-30JUN97

RW29387,0000280 -19-06NOV02-1/1

General Maintenance and Inspection

Checking Tires

SERVICE INTERVAL — DAILY OR 10 HOURS

Inspect tires for cuts or damage. Check inflation pressure weekly.



RXA0054161 -UN-11JUN01

RW29387,0000282 -19-06NOV02-1/1

Checking Wheel and Weight Bolts

SERVICE INTERVAL — DAILY, 10 HOURS, 250 HOURS

IMPORTANT: If tractor is operated with wheel sleeve loose for 4-5 hours, it is necessary to replace sleeves.

Retighten wheel and weight bolts after working **3 HOURS**, **10 HOURS** and **DAILY** during the first week of operation.

Check and torque all wheel and weight bolts on a regular or **250 Hour** interval. See Wheels, Tires and Treads Section for bolt tightening information.



RXA0054131 -UN-11JUN01

RW29387,00005BC -19-12OCT05-1/1

Check Dual Beam Radar Sensor

SERVICE INTERVAL — DAILY, 250 HOURS

Check radar **DAILY** and keep sensor clean and clear of debris which may accumulate during operation.

IMPORTANT: Inspect radar sensor horns for dirt or debris build up, which may affect accuracy performance.

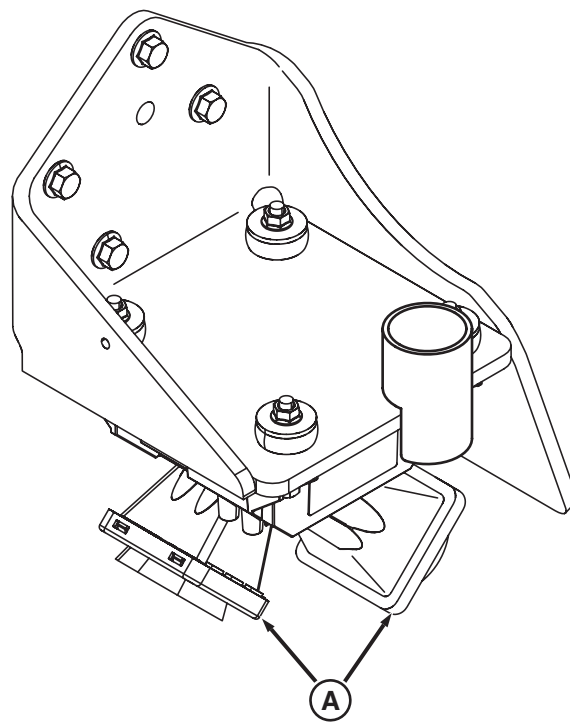
Avoid use of high pressure washer nozzle pointed directly at radar.

Avoid damage to radar and wiring harness when using sharp tools to remove dirt or packed mud around radar.

Clean radar sensor horns (A) with warm water and mild soap.

Dry with clean soft cloth.

A—Sensor Horns



Dual Beam Radar

RXA0086465 -UN-07FEB06

RW29387,000041A -19-27APR06-1/1

Checking Neutral Start System

SERVICE INTERVAL — 250 HOURS

18-Speed Powershift Transmission

Fully depress clutch and brake pedals. Move gearshift lever (A) from PARK position to a forward gear. Attempt to start engine. Starter should **NOT** engage.

If starter engages, neutral start system should be repaired by your John Deere Dealer **immediately**. Repeat this step with transmission in a reverse gear.

A—Gearshift Lever



RXA0051975 -UN-28FEB01

RW29387,0000284 -19-10JUN05-1/1

Checking PARK System

SERVICE INTERVAL — 250 HOURS

Park tractor on a 20 % incline, 0.6 m (2 ft) vertically for every 3 m (10 ft) horizontally.

Move gear shift lever (A) to PARK position. Apply hand brake.

Park system should be repaired **immediately** by your John Deere Dealer, if tractor does not hold on incline with shift lever (A) in PARK position.

A—Shift Lever



RXA0077537 -UN-16SEP04



Powershift Shifter

RXA0073351 -UN-02FEB04

RW29387_0000285 -19-16SEP04-1/1

Checking Secondary Brake System

SERVICE INTERVAL — 250 HOURS

Park tractor on a 20 % incline, 0.6 m (2 ft) vertically for every 3 m (10 ft) horizontally.

Move gear shift lever (A) to NEUTRAL position with engine running. .

Apply hand brake (B).

Secondary brake system should be repaired **immediately** by your John Deere Dealer, if tractor does not hold on incline with shift lever (A) in NEUTRAL position and hand brake on.

To release secondary brake, push button (C) on end of brake handle and release to downward position.

- A—Shift Lever
- B—Hand Brake
- C—Push Button

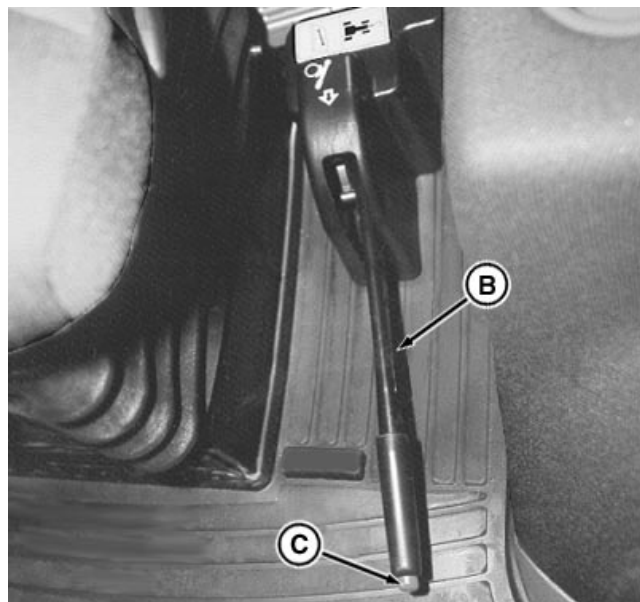


RXA0077537 -UN-16SEP04



RXA0081876 -UN-26JUN05

Powershift Shifter



RXA0082216 -UN-24AUG05

Checking PARK Brake Pads, Caliper and Rotor (Serial No.—011407)

SERVICE INTERVAL — 250 HOURS and 1500 HOURS

NOTE: Brake work should be performed by your John Deere Dealer.

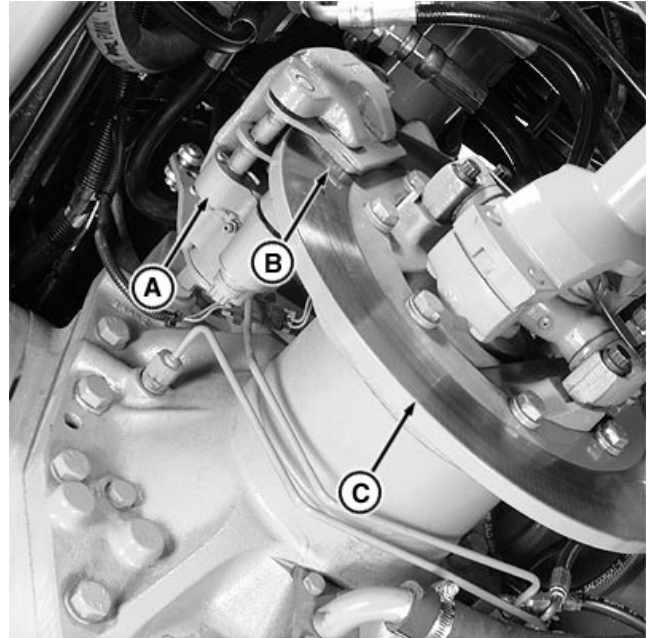
Inspect brake pads (B) for wear. Replace pads when 2 mm (5/64 in.) thickness is left.

Check caliper (A) for free movement.

Inspect rotor (C) for wear.

Park brake parts should be repaired or replaced **immediately** if found defective by your John Deere Dealer

A—Caliper
B—Brake Pads
C—Rotor



RXA0057522 -UN-05OCT01

OU1092A,0000035 -19-29SEP03-1/1

Internal Park Brake (Serial No. 011408—)

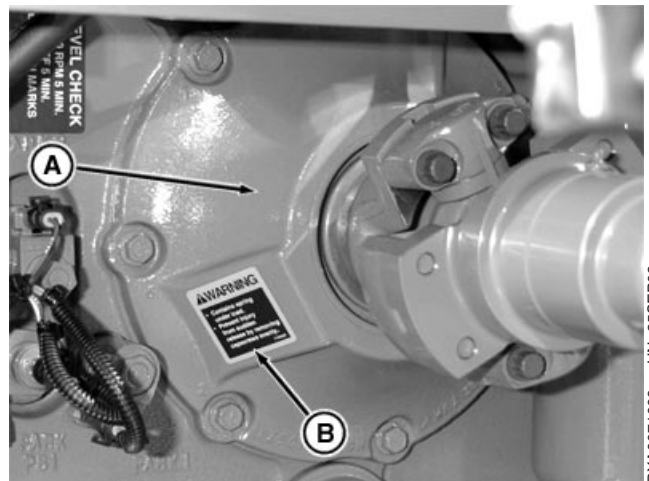
IMPORTANT: Park brake on Powershift transmission equipped tractors is spring applied and hydraulically released. If engine will not run or hydraulic system fails, park brake will be applied. Tractor cannot be towed with park brake applied. See your John Deere dealer to release park brake on a disabled tractor.



CAUTION: Label (B) states, internal park brake contains spring under load. Prevent injury from sudden release by removing cap screws evenly.

Late model tractors have an internal park brake (A). No maintenance is required.

Park brake should be repaired or replaced by your John Deere Dealer if found defective.



RXA0071069 -UN-25SEP03

A—Internal Park Brake
B—Warning Label

OU1092A,0000007 -19-15SEP04-1/1

Cleaning and Inspecting Primary Engine Air Filter

IMPORTANT: A restricted air filter will result in power loss.

IMPORTANT: Compressed air pressure should not exceed 75 psi (500 kPa) (5 bar) when used for cleaning.

NOTE: Replace filters **at least** once a year or six cleanings, or if air filter indicator remains ON.

Clean or replace the primary air filter if the filter indicator light is ON.

Clean filter using compressed air. Hold nozzle next to **inner** surface and move up and down pleats.

Hold a bright light inside filter and check carefully for damage. Discard filter if screen is damaged or filter shows the slightest rupture or hole.

Make sure gasket is in good condition.



RW29387,0000287 -19-06MAY04-1/1

Replacing Primary and Secondary Engine Air Filters

SERVICE INTERVAL — ANNUALLY *

* Interval can vary according to operating conditions

Clean or replace the primary air filter if the filter indicator light is ON.

NOTE: Replace filters **at least** once a year or every six cleanings, or if air filter indicator remains ON.

Unfasten clips (A), and remove filter cover.

Turn and pull to remove primary filter (B).

Clean dirt from inside of canister and cover.

IMPORTANT: Do not attempt to clean secondary filter.

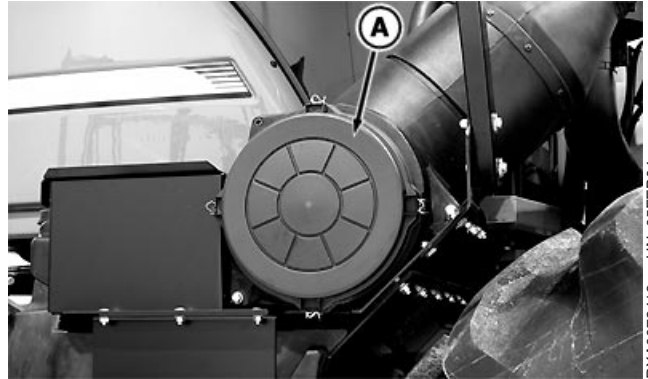
Replace secondary filter every second or third primary filter change.

Install new secondary filter immediately to prevent dust from entering air intake system.

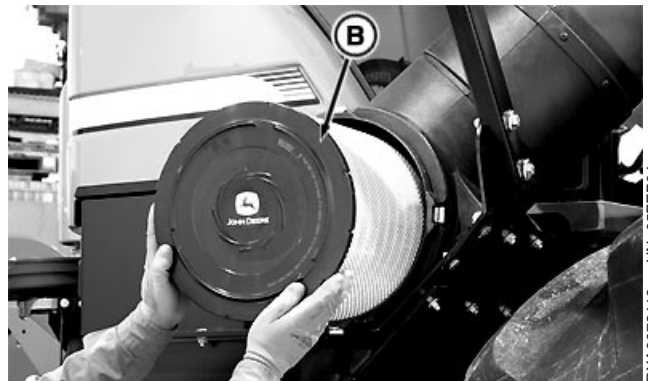
Remove secondary filter (C).

Replace filters.

- A—Clips
- B—Primary Filter
- C—Secondary Filter



RXA0073418 —UN-05FEB04



RXA0073419 —UN-05FEB04



RXA0073420 —UN-05FEB04

RW29387,0000288 —19-06NOV02-1/1

Cleaning or Replacing Cab Air Filters

SERVICE INTERVAL —

CLEAN — 250 HOURS *
REPLACE — ANNUALLY

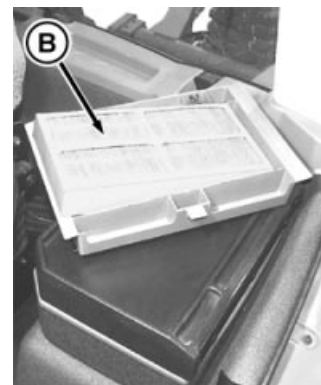
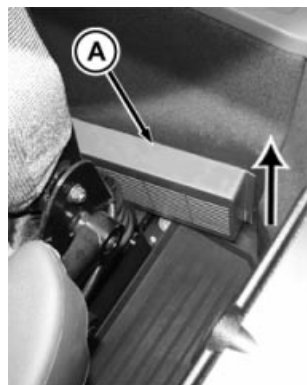
** Interval can vary according to operating conditions*



CAUTION: The air quality system air filters are not designed to filter out harmful chemicals. Follow the instructions in the implement operator's manual and those given by the chemical manufacturer when using agricultural chemicals.

Recirculation Filter

Remove filter cover (A) behind the seat and remove air filter (B). Replace or clean using compressed air. In dusty conditions, this service may be required more often.



A—Filter Cover
 B—Air Filter

RW26590 —UN-01OCT99

RW26591 —UN-01OCT99

RW29387,0000289 —19-12OCT05-1/2

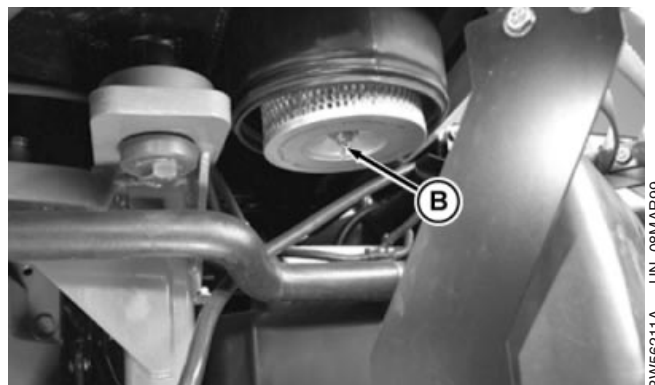
Cab Air Filter

Remove wing nut (A) from cover.

Remove wing nut (B) and air filter.

Clean with compressed air or replace.

A—Cover Wing Nut
 B—Filter Wing Nut



RW56210A —UN-06MAR99

RW56211A —UN-06MAR99

RW29387,0000289 —19-12OCT05-2/2

Cleaning Grille Screens, Radiator and Oil Cooler

Stop engine and clean screen (A) using a brush.

Clean trash from engine compartment shields.

A—Screen



RXA0054200 -UN-11JUN01

RW29387,000028A -19-06NOV02-1/2

Open front grille screen and open front side panels. Clean radiator, oil cooler, condenser, and aftercooler.



CAUTION: Compressed air pressure should not exceed 75 psi (500 kPa) (5 bar) when used for cleaning. Clear area of bystanders, guard against flying chips and wear personal protection equipment including eye protection.

Clean radiator, oil cooler, condenser, and aftercooler from behind with compressed air if a more thorough cleaning is necessary. Straighten any bent fins.



RXA0054210 -UN-11JUN01

RW29387,000028A -19-06NOV02-2/2

Inspect and Clean Fuel Sump Screen

NOTE: Early model tractors were not equipped with a sump screen.

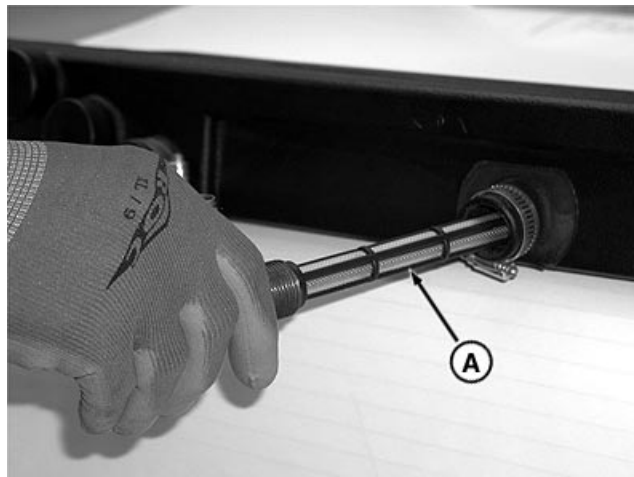
Late model tractors serial number (011474-) with sump screen should not require service unless fuel supply is disrupted due to contaminants in tank.



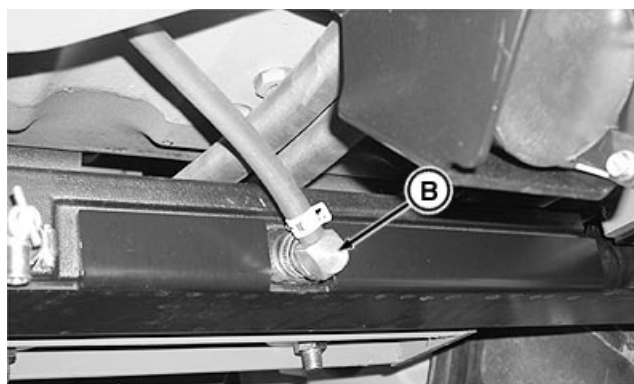
CAUTION: Fuel tanks must be completely drained before removing sump screen.

IMPORTANT: If adaptor is removed, clamp should only be loosened slightly. If clamp is removed plastic boss could relax making it difficult to reinstall adaptor. Adaptor has a pipe thread which seals with fuel tank. Apply **LOCTITE® 30558** to adaptor prior to reinstalling in tank.

1. Disconnect sump hose and remove adaptor and screen (A) from threaded boss on crossover tank (B).
2. Clean or replace as necessary.
3. Apply Loctite 30558 to adaptor threads and install adaptor and screen in threaded boss in crossover pipe.
4. Reconnect sump hose.
5. Tighten clamp.



RXA0077314 -UN-01SEP04



RXA0077283 -UN-01SEP04

A—Sump Screen
B—Crossover Tank

LOCTITE is a trademark of Loctite Corp.

OU1092A,0000007 -19-19SEP05-1/1

Servicing the Batteries

SERVICE INTERVAL — 250 HOURS

NOTE: Factory installed batteries are maintenance free and require no additional service.

However in certain conditions such as long periods of operation at high ambient temperatures or excessive engine cranking, may require adding water. See label on battery.



TS204 -UN-23AUG88



CAUTION: Never use compressed air to clean batteries. It can cause a build up of static charge leading to potential injury.

Battery gas can explode. Keep sparks and flames away from batteries. Use a flashlight to check battery electrolyte level.

Never check battery charge by placing a metal object across the posts. Use a voltmeter or hydrometer.

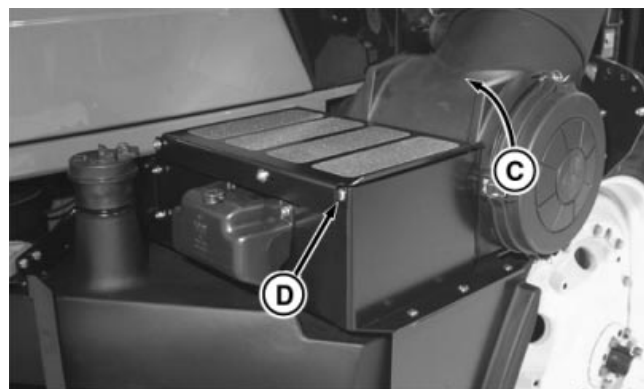
Always remove battery ground cable (B) first and connect it last. Do not let disconnected ground terminal touch metal surface.

Lift cover (C) to access batteries. Remove two bolts (D) from end panel to slide batteries from battery box.

- A—Chassis Ground (-) Cable
- B—Battery Ground (-) Cable
- C—Lift cover
- D—Cap Screws



RYA0051986 -UN-28FEB01



RYA0051987 -UN-28FEB01

Continued on next page

RW29387,000028B -19-14MAY04-1/2

Keep all connections (A) clean and tight. Remove corrosion, and wash terminals with a solution of baking soda and water.



CAUTION: Avoid contact with poisonous sulfuric acid in battery electrolyte. It is strong enough to burn skin, eat holes in clothing, and cause blindness if splashed into eyes.

Open terminal covers and disconnect battery terminals.

Clean terminals and battery posts using a baking soda and water solution.

Remove any corrosion with a terminal brush.

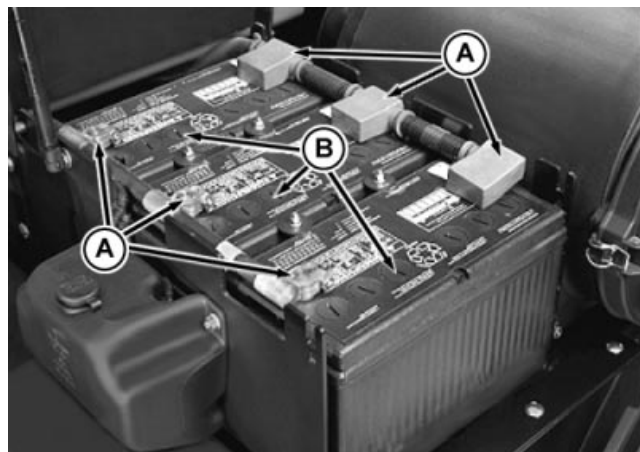
Rinse with clean water and air dry.

Connect battery terminals and apply thin coat of grease to cable ends.

Close terminal covers.

Keep all battery terminals (A) clean and tight.

NOTE: For replacement batteries follow manufacturer's recommendations.



RW56167A -UN-08MAR99

A—Connections
B—Cells

RW29387,000028B -19-14MAY04-2/2

Inspect Belt Tensioner

SERVICE INTERVAL — 1500 HOURS

IMPORTANT: Inspect all belt tensioner and pulley systems in this manner.

NOTE: Pulley and spring tensioner is serviced as an assembly.

1. With belt ON the drive, perform the following checks:

- Check to see if tensioner arm (A) is against free arm stops (B). Replace belt if this condition is seen.
- Check belt tracking mark on the pulley. Replace belt tensioner if tracking mark is considerably wider than belt.

2. With belt OFF the drive, perform the following checks:

NOTE: Do not pry between pulley and spring case.

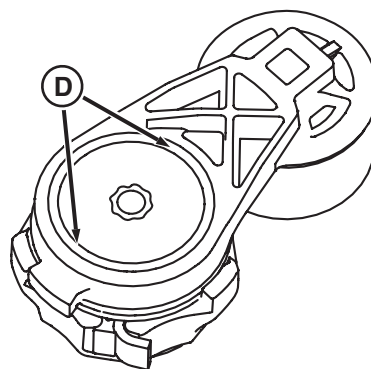
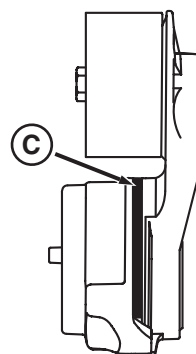
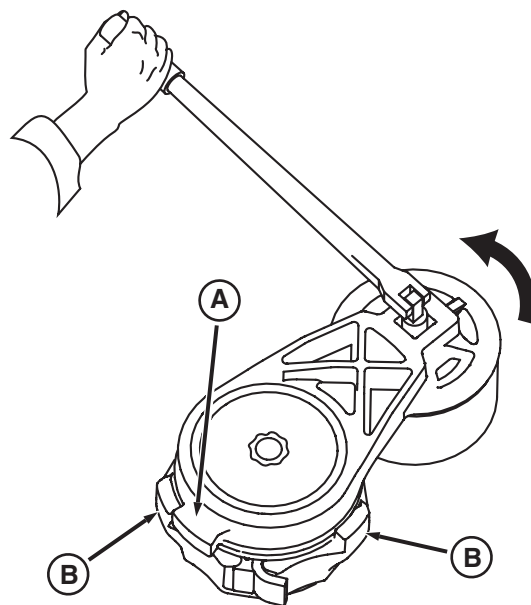
- Release tension on belt using a long-handle 1/2 in. drive tool. Remove belt from alternator pulley.
- Release tension on tension arm (A)
- Rotate tension arm (A) slowly using a 1/2 in. drive tool. Note arm should rotate smoothly between arm stops (B); if not, replace tensioner.
- Replace tension mechanism if there is:
 - Metal-to-metal contact is present between rotating and stationary parts at location (C and D) on tensioner.
 - Cracks or broken spring case or stops.

3. Install belt tensioner with cap screw to engine front cover at mounting holes tighten to specification.

Specification

Upper Belt Tensioner Mounting

Cap Screw—Torque70 N•m
(52 lb-ft)



- A—Tension Arm
- B—Free Arm Stops
- C—Metal-to-Metal Contact Between Arm and Spring Cage
- D—Metal-to-Metal Contact Between Arm and End Cap

RXA0073092 -UN-09JAN04

RXA0074277 -UN-29MAR04

RXA0073094 -UN-09JAN04

Continued on next page

RW29387,00006B4 -19-14SEP04-1/2

General Maintenance and Inspection

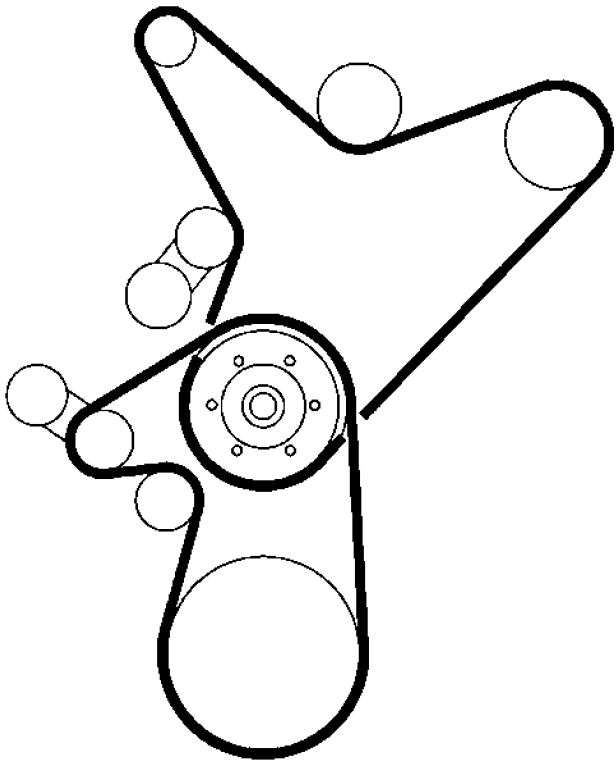
Specification

Lower Belt Tensioner Mounting

Cap Screw—Torque70 N•m
(52 lb-ft)

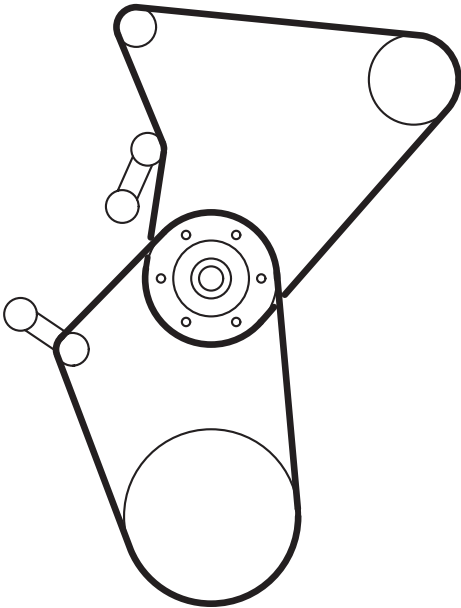
RW29387,00006B4 -19-14SEP04-2/2

Drive Belt Routings



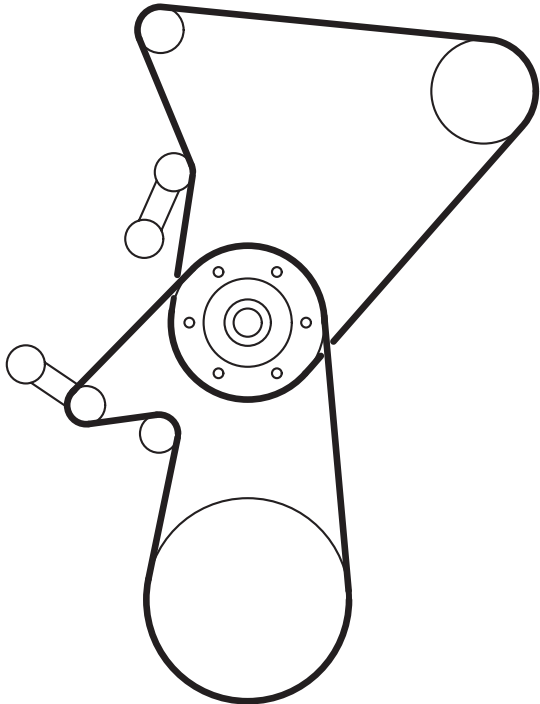
9320, 9420, 9520 Drive Belts—12.5 L Engines (Early Model)

RW41256 -UN-21AUG96



9320, 9420, 9520, 9620 Drive Belts--12.5 Engines (Later Models without Idlers)

RXA0074415 -UN-12APR04



9320, 9420, 9520 Drive Belts—12.5 L Engines (Later Model with Idlers)

RXA0068750 -UN-22SEP03

Checking Manual Brakes

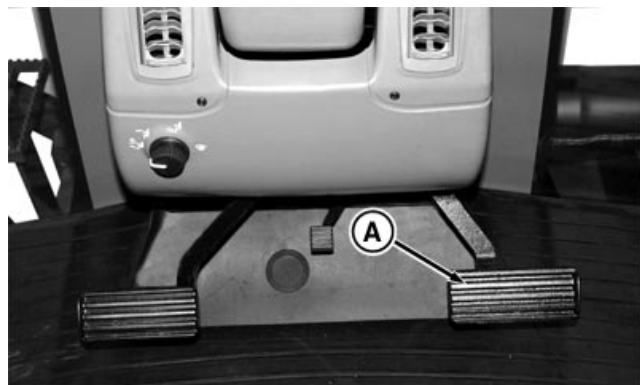
SERVICE INTERVAL — 250 HOURS

With engine stopped, check manual brakes for correct function:

1. Pump brake pedal. Pedal (A) should have a solid feel. If the pedal does not feel solid, bleeding the brakes may be necessary. See your John Deere Dealer.
2. Be sure the pedal does not settle to the end of stroke within 10 seconds after being applied. If leakage exceeds this rate, see your John Deere Dealer.

IMPORTANT: Any noticeable pedal drift downward from the point of resistance indicates brake leakage. See your John Deere Dealer.

A solid pedal is important for emergency braking conditions.



RXA0056246 -UN-14AUG01

A—Brake Pedal

RW29387,000028D -19-06NOV02-1/1

Inspecting Seat Belts

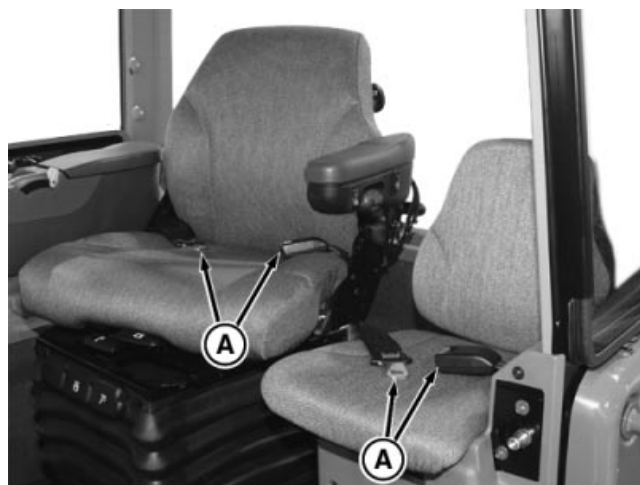
SERVICE INTERVAL — ANNUALLY



CAUTION: If the seat belt system, including the mounting hardware, buckle, belt, or retractor shows any sign of damage such as cuts, fraying, extreme or unusual wear, discoloration or abrasion, the entire seat belt system should be replaced immediately. Replace the belt system only with replacement parts approved for your machine.

Replace the complete seat belt assembly every three years regardless of appearance.

Inspect seat belts (A) and mounting hardware. If seat belts need to be replaced, see your John Deere Dealer.



RXA0051988 -UN-28FEB01

A—Seat Belts

RW29387,000028E -19-06NOV02-1/1

Checking Air Conditioning System

CAUTION: Avoid possible injury. Improper servicing may cause refrigerant to penetrate eyes and skin or cause burns.

IMPORTANT: R134A refrigerant must be used requiring special equipment and procedures. See your John Deere Dealer.

NOTE: Some oil seepage from compressor shaft seal is normal.

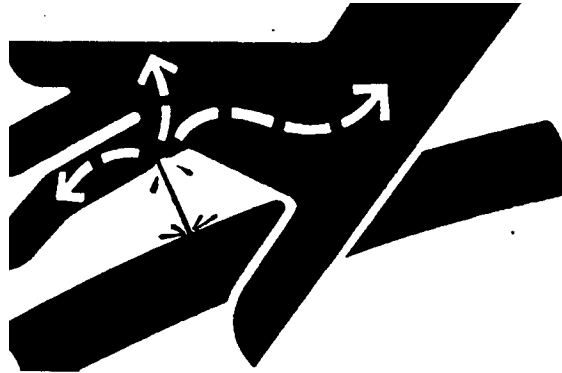
Check the following if air conditioner will not cool, or cooling is intermittent:

- Clean grille, radiator, and oil cooler condenser. (See CLEANING GRILLE SCREENS, RADIATOR and OIL COOLER in this section.)
- Inspect and clean cab air filters. Replace filters if required. (See CLEANING or REPLACING CAB AIR FILTERS in this section.)
- Remove sight glass plug (C). Operate engine at 2000 rpm. Set air conditioner switch (A) to ON position and blower switch to HIGH position (B). Check sight glass for bubbles. System may be low on refrigerant if bubbles do not disappear. Late model tractors do not have a sight glass.

NOTE: Bubbles may appear in sight glass when operating at temperatures below 18°C (65°F). This is normal. Bubbles will disappear as temperature rises. Late model tractors do not have a sight glass.

If problems persist, see your John Deere Dealer.

A—ON Switch
B—Fan Switch
C—Sight Glass

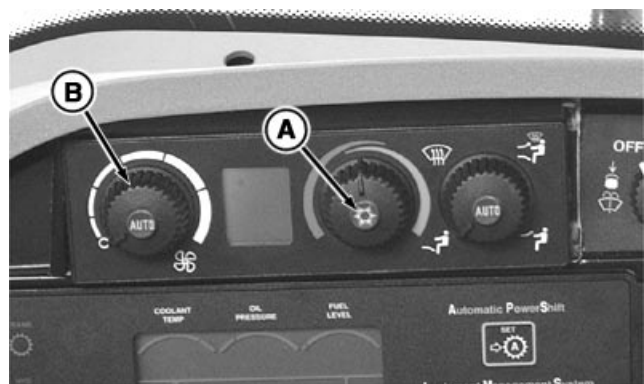


X9611 -UN-23AUG88



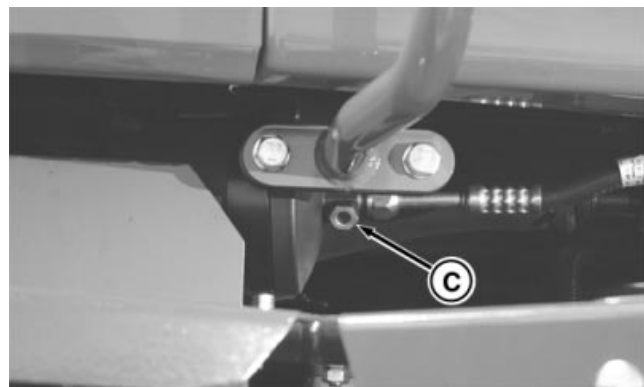
Air Conditioner Manual Controls

RW26712 -UN-08NOV99



Automatic Temperature Control

RXA0062981 -UN-09OCT02



Sight Glass Under Cab, Left Side-Early Version

RXA0051990 -UN-28FEB01

Check Axle End Play

SERVICE INTERVAL — 2000 HOURS *

** For SEVERE DUTY (Heavy Tillage, Front Blade, Scraper)—Check at 1500 hours*

Have your John Deere Dealer check axle end play.

RW29387,000002E -19-10MAY06-1/1

Replace Engine Crankshaft Damper

SERVICE INTERVAL — FIVE YEARS OR 4500 HOURS *

** For SEVERE DUTY—Inspect annually and change at 3000 hours*

Have your John Deere Dealer replace engine crankshaft damper.

RW29387,0000290 -19-06NOV02-1/1

Replace Transmission Drive Shaft Damper

SERVICE INTERVAL — FIVE YEARS OR 4500 HOURS *

** For SEVERE DUTY—Inspect annually and change at 3000 hours*

Have your John Deere Dealer replace transmission drive shaft damper.

RW29387,0000291 -19-06NOV02-1/1

Lubrication

Checking Engine Oil Level

SERVICE INTERVAL — DAILY OR 10 HOURS

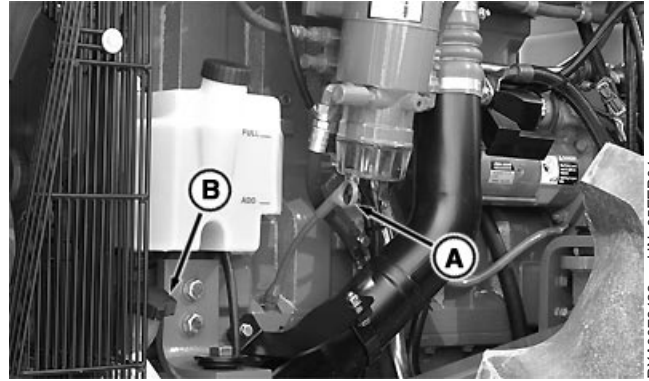
Remove dipstick (A) and check oil level with tractor on level ground before starting tractor. Oil level should be between the “ADD” and the top of the cross-hatch area on dipstick.

NOTE: *Cross-hatch area is considered FULL.*

Engine oil level indicator is a dipstick with a “crosshatch” area with a “safe” zone. After tractor has been parked on level ground overnight is best time to check oil level. Anywhere in the dipstick crosshatch safe zone is considered full.

Remove fill cap (B) if oil is required. See DIESEL ENGINE OIL in the Fuels, Lubricants and Coolant Section.

Do not operate engine with oil level below the “ADD” mark on dipstick.



A—Dipstick
B—Fill Cap

RW29387,0000292 -19-31OCT06-1/1

Changing Engine Oil and Filter

SERVICE INTERVAL —

INITIAL — 100 HOURS

SCHEDULED — 250 HOURS*

*Interval can be extended to 375 hours if PLUS-50 oil and a John Deere filter are used

IMPORTANT: Change engine oil every 125 hours if diesel fuel has a sulfur content greater than 0.5 percent.

Operate engine to warm oil. Stop engine. Turn crankcase drain fitting (A). Tighten fitting after oil drains out.

NOTE: Oil flow can be controlled by attaching a hose to the drain fitting.

Remove filter (B). Remove old packing and clean filter mounting surface. Apply a thin film of oil to new packing and install new filter. Hand-tighten filter. Do not overtighten.

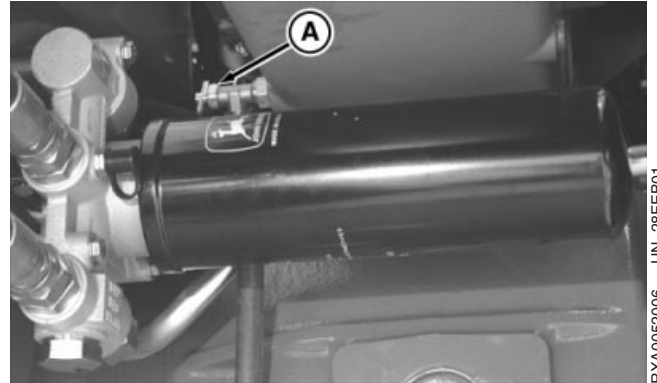
Refill crankcase with seasonal viscosity grade oil. (See DIESEL ENGINE OIL, in Fuels, Lubricants, and Coolant Section.)

Capacity with Filter

All Models 42 L (11 gal)

Start engine and check for leaks.

Stop engine. Recheck oil level.



RXA0052006 -UN-28FEB01



RW56164A -UN-08MAR99

**A—Drain Fitting
B—Oil Filter**

RW29387,0000293 -19-04OCT04-1/1

Checking Transmission/Axle Oil Level

SERVICE INTERVAL — DAILY OR 10 HOURS

IMPORTANT: Change filter after the first 100 hours of transmission operation.

Do not operate tractor without oil showing in the sight glass. Damage could occur to transmission/axle system.

Do not move tractor if oil level is visible below mark (C) with the engine off. Engine can be started to perform oil level check below.

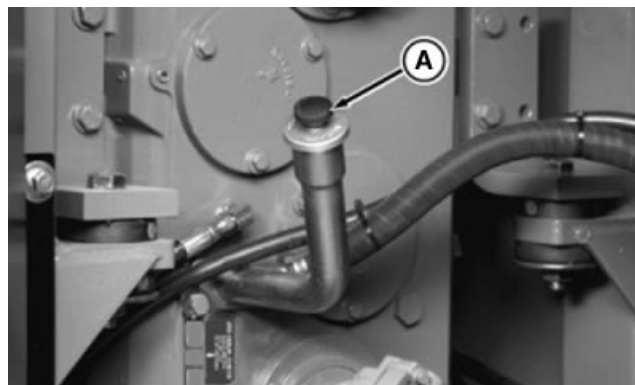
If oil level is between marks (B) and mark (C) with the engine off, it is permissible to operate the tractor. If axle pressure warning comes on, perform the complete oil level check.

IMPORTANT: To ensure proper shift quality, an oil meeting HY-GARD or JDM J20C specifications must be used.

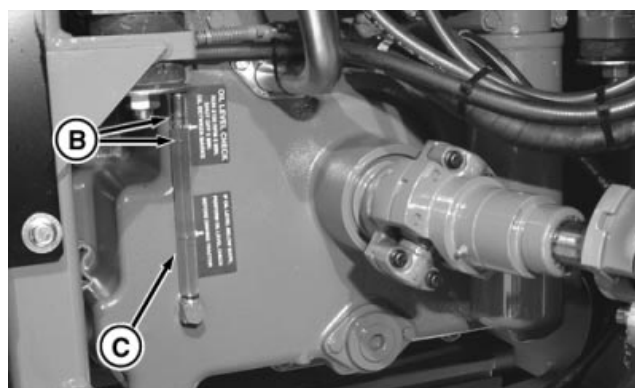
Shift quality problems and/or transmission damage may occur if the HY-GARD or JDM J20C specifications are not followed.

NOTE: Transmission/Axle oil level indicator is a sight glass with a "safe" zone. After tractor has been parked on level ground overnight is the best time to check fluid level. Anywhere in the sight glass safe zone is considered full.

1. Park tractor on level ground.
2. Operate engine at 2100 rpm, with transmission in PARK position, for at least 5 minutes (or longer with cold oil) to fill axles and return oil from the axles to the transmission.
3. Stop engine and allow the oil level to stabilize in the sight gauge for at least 5 minutes. Recheck oil level and refill at fill tube (A) as necessary.



RW71394 -UN-28JUN00



RXA0052012 -UN-28FEB01

A—Transmission Fill Tube
B—Full Oil Level Marks
C—Low Oil Level Mark

4. The final oil level at the completion of this checking procedure, with engine off, should be between marks (B).

NOTE: During tractor operation, oil can appear foamy in sight gauge.

RW29387,0000294 -19-31OCT06-2/2

Changing Transmission/Axle Oil

SERVICE INTERVAL — 1500 HOURS

IMPORTANT: Change filter after the first 100 hours of transmission operation.

Prevent premature axle failure. Carefully follow drain and fill procedure.

1. Park tractor on level ground. Allow oil to cool for five minutes.
2. Remove plug (A) from bottom of transmission.
3. Remove plug (D) and clean sump screen.
4. Reinstall sump screen and plug (D).
5. Remove three drain plugs (B) and (C) and drain both front and rear axles.
6. Drain PTO drop box, if equipped.
7. Install all drain plugs.

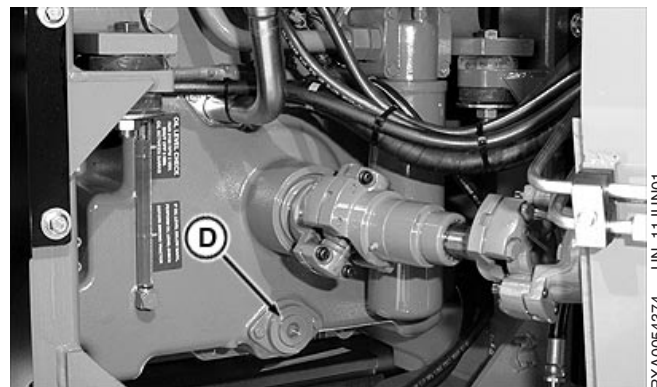
A—Transmission Drain Plug
B—Axle Drain Plug
C—Axle Drain Plugs
D—Sump Screen Plug



RXA0052015 -UN-28FEB01



RXA0052020 -UN-28FEB01



RXA0054374 -UN-11JUN01

Continued on next page

RW29387,0000295 -19-12MAY06-1/2

IMPORTANT: To ensure proper shift quality, an oil meeting HY-GARD or JDM J20C specifications must be used.

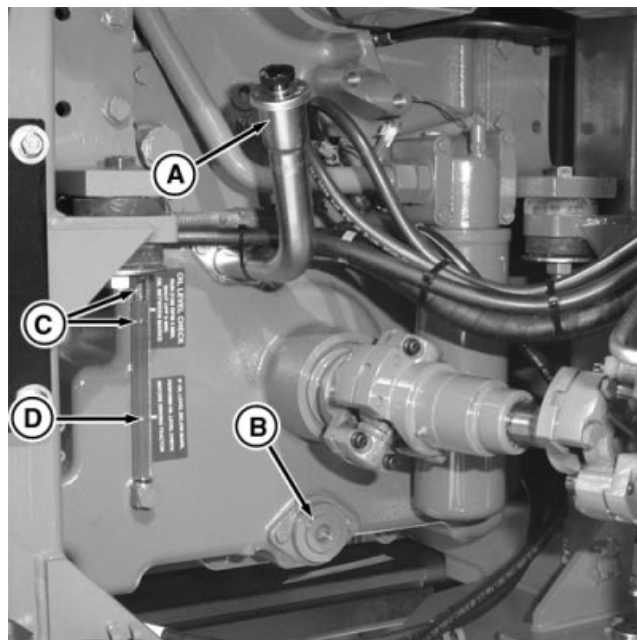
Shift quality problems and/or transmission damage may occur if the HY-GARD or JDM J20C specifications are not followed.

System Capacities *

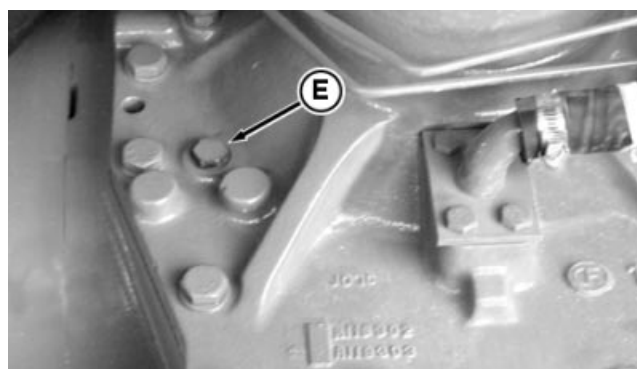
Without PTO	134 L (35.4 gal)
With PTO	138 L (36.4 gal)

* Includes axles and PTO

8. Remove axle plug (E) and (F) for filling purposes.
9. Fill transmission with oil at fill tube (A). Oil level should be between marks (C) on sight glass.
10. Put transmission in PARK position and operate engine at 900 rpm, to pump oil to axles. Stop engine when oil is at mark (D).
11. Add oil again until oil level reaches marks (C).
12. Operate engine at 900 rpm until oil flows from open ports (E) and (F).
13. Stop engine and install axle plugs (E) and (F).
14. Again fill transmission to the upper full mark (C).
15. Operate engine at 2100 rpm, with transmission in PARK for five minutes.
16. Stop engine and allow oil level to stabilize in the sight gauge for 5 minutes.
17. Recheck oil level and fill at fill tube (A) as necessary.
18. With the engine off, recheck oil level and fill at fill tube (A) as necessary. Oil should be between full marks (C) when oil change is complete.

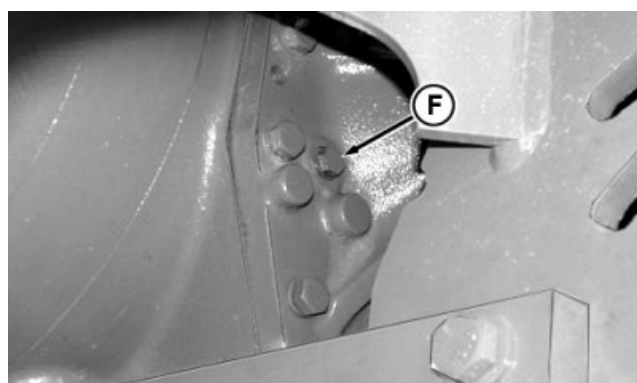


RXA0052022 -UN-28FEB01



RW60500 -UN-18JUL00

Back side of Front Axle



RW60501 -UN-18JUL00

Front side of Rear Axle

- A—Transmission Fill Tube
- B—Transmission Sump Screen
- C—Full Oil Level Mark
- D—Low Oil Level Mark
- E—Front Axle DR Plug
- F—Rear Axle DR Plug

Changing Transmission/Axle Oil Filter

SERVICE INTERVAL —

INITIAL — 100 HOURS

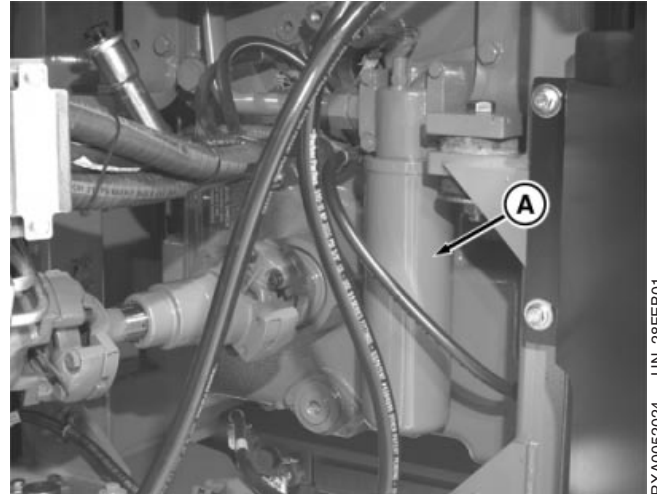
SCHEDULED — 750 HOURS

NOTE: *If transmission shift characteristics change after transmission filter change, recalibrate the transmission. See your John Deere Dealer.*

A drain pan is recommended for 1.9 L (2 qts) oil spillage when changing the transmission oil filter.

Remove transmission oil filter (A). Install new filter and tighten one-half turn after packing contacts filter housing base.

Check transmission oil level and fill as required using HY-GARD JDM J20C oil ONLY.



RXA0052024 -UN-28FEB01

A—Transmission/Axle Oil Filter

RW29387,0000296 -19-15SEP04-1/1

Checking Hydraulic Oil Level

SERVICE INTERVAL — DAILY OR 10 HOURS

Check tractor and implement for leaks before start-up. Check hydraulic oil level (A) with tractor on level ground before starting engine. If oil level is not between marks on sight gauge, DO NOT start engine.

NOTE: An exception is implements with large hydraulic cylinders that can remove large volumes of oil from the tractor's hydraulic system. Oil level should be near the bottom mark of sight gage with implement positioned to contain the maximum amount of oil.

If oil level is low, add HY-GARD Hydraulic Oil.

NOTE: Oil level in reservoir will rise as temperature rises.

Oil level in the reservoir will fluctuate depending upon the volume of oil exchanged with an attached implement.

Oil level switch, located in the reservoir below the sight gauge, will sense if oil level drops below switch level and STOP engine light will come on.



A—Hydraulic Oil Level

RXA00062933 -UN-08OCT02

RW29387,0000297 -19-15SEP04-1/1

Changing Hydraulic Oil

SERVICE INTERVAL — 1500 HOURS

Remove plug (A) and drain the hydraulic oil reservoir.

Fill reservoir with HY-GARD Hydraulic Oil between marks on sight gauge (B). Tractor should be on level ground.

Operate engine at 1500 rpm for approximately 5 minutes to pump oil through the system.

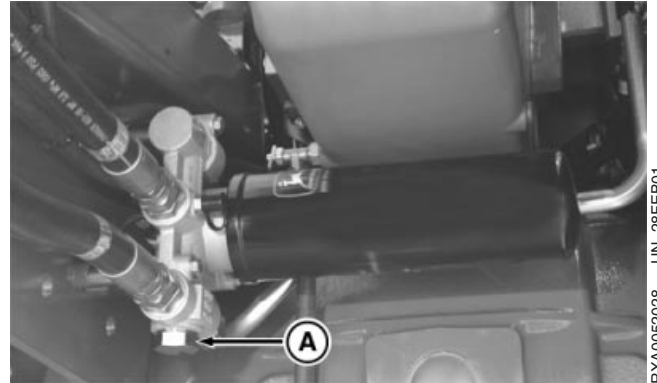
Capacities

Standard 103 L (27 gal)

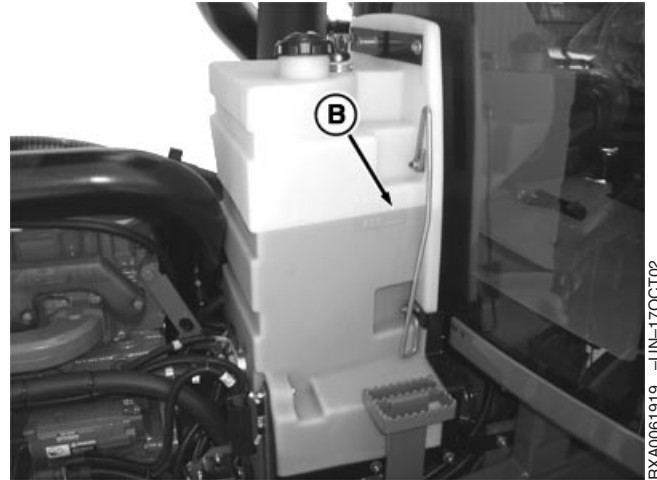
Add oil to the reservoir keeping the level within the bottom of the sight gauge. Continue to add oil to the reservoir until the level stops changing at the bottom of the sight gauge.

Operate the engine at low idle for 5 minutes with the transmission in PARK position.

Add oil as required until sight gauge level remains between sight gauge marks.



Standard Hydraulic System



A—Drain Plug
B—Sight Gauge

RW29387,00003A7 -19-15SEP04-1/1

Changing Hydraulic Filter

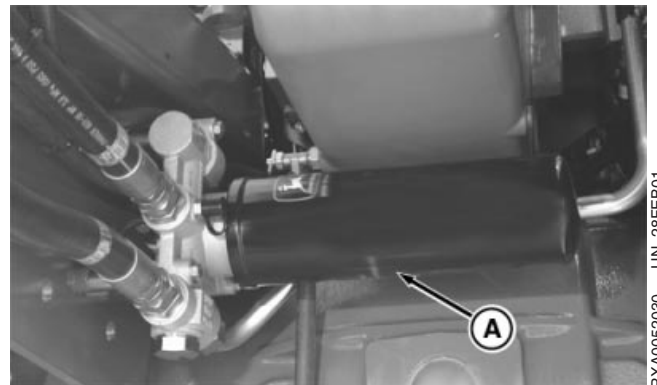
SERVICE INTERVAL — 750 HOURS *

** Interval can vary according to operating conditions*

Replace hydraulic filter (A), if hydraulic functions are slow or if indicator light comes on. Install new filter and tighten one half turn after seal contacts filter housing base.

Check reservoir oil level and fill as required.

A—Hydraulic Filter



RW29387,0000299 -19-15SEP04-1/1

Cleaning and Inspecting Hydraulic Reservoir Screen

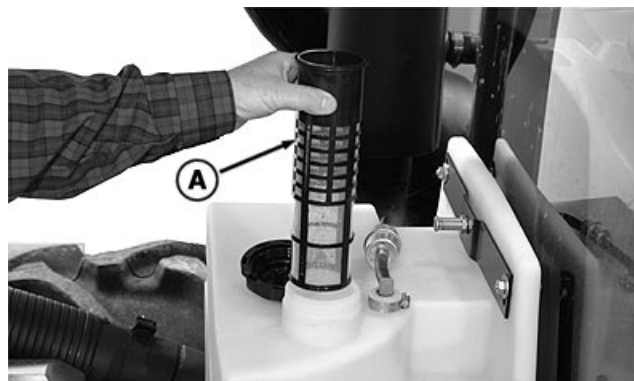
SERVICE INTERVAL — 750 HOURS *

** Interval can vary according to operating conditions*



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

Remove hydraulic reservoir cap and inspect screen (A).
Clean screen in solvent and blow dry.



RXA0062955 -UN-10OCT02

A—Screen

RW29387,000029A -19-06NOV02-1/1

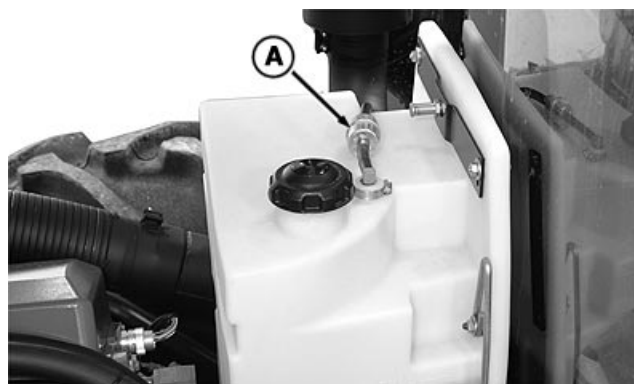
Replacing Hydraulic Reservoir Breather Filter

SERVICE INTERVAL — 750 HOURS

IMPORTANT: Verify direction (see arrow) of air flow before removing breather filter. Install new filter in same direction as one removed. Improper installation of filter could cause hydraulic system damage.

Verify direction of arrow on filter and remove filter from line.

Replace new filter in same direction as one removed.



RXA0062954 -UN-10OCT02

A—Breather Filter

RW29387,000029B -19-06NOV02-1/1

Replacing Motor Seal Drain Filter

SERVICE INTERVAL — ANNUALLY *

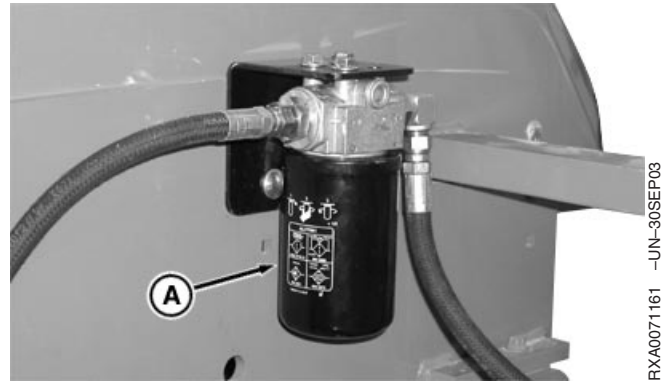
** Interval can vary according to operating conditions*

Replace motor seal drain filter (A).

Install new filter and tighten one half turn after seal contacts filter housing base.

Check reservoir oil level and fill as required.

A—Motor Seal Drain Filter



Motor Seal Drain Filter

RXA0071161 -UN-30SEP03

RW29387,00005DA -19-23APR04-1/1

Lubricating Hinge Pins

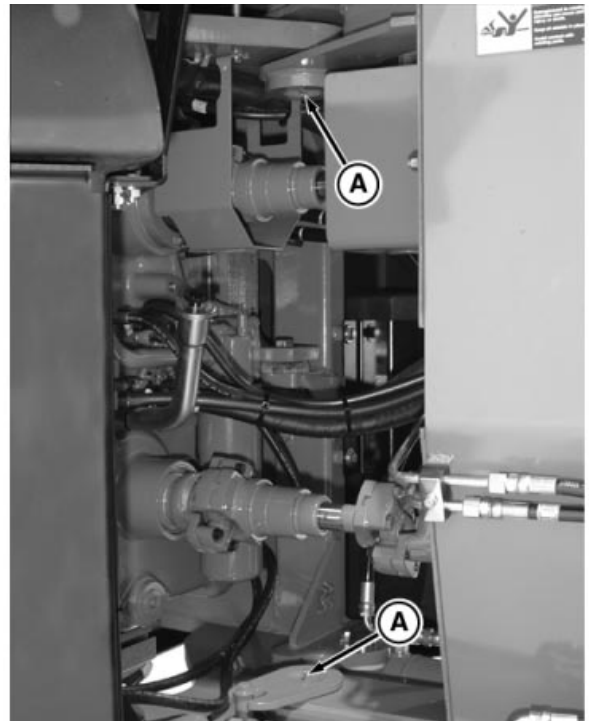
SERVICE INTERVAL — DAILY OR 10 HOURS



CAUTION: Stop engine and remove key before working in hinge area.

Lubricate upper and lower hinge pins (A) with John Deere HD grease specified in Fuels, Lubricants and Coolant Section.

A—Hinge Pins



RXA0052041 -UN-28FEB01

RW29387,000029C -19-06NOV02-1/1

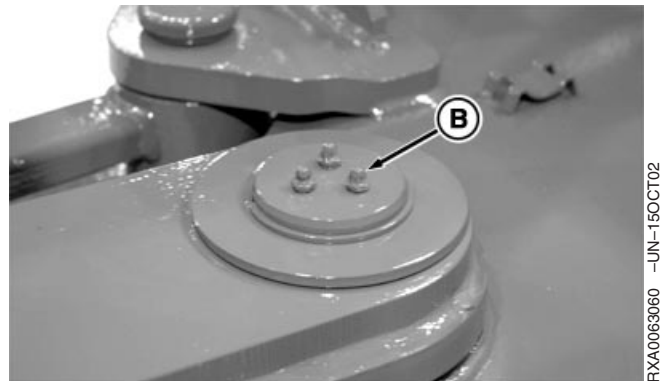
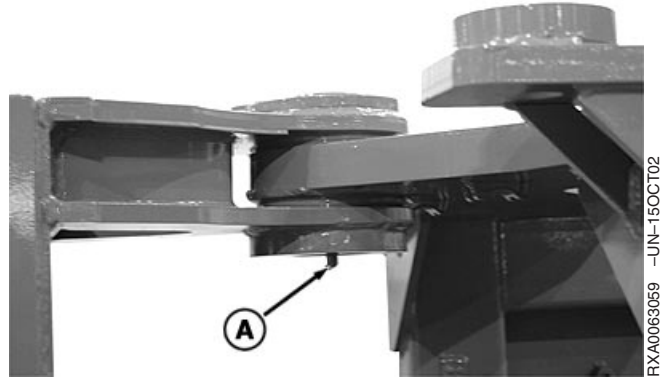
Lubricating Hinge Pins—Scraper Tractor

SERVICE INTERVAL — DAILY OR 10 HOURS

CAUTION: Stop engine and remove key before working in hinge area.

Lubricate upper (A) and lower hinge pins (B) with John Deere HD grease specified in Fuels, Lubricants and Coolant Section.

A—Upper Hinge Pin
B—Lower Hinge Pin



RW29387,000029D -19-06NOV02-1/1

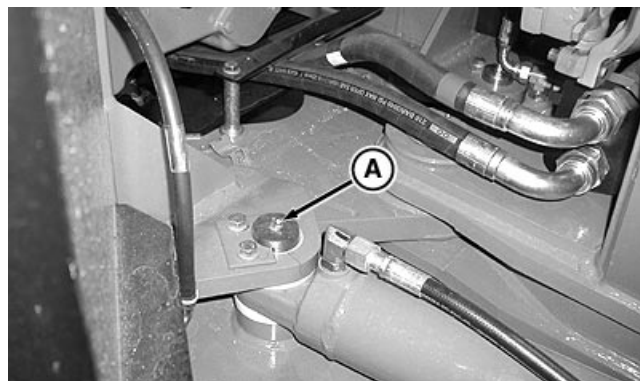
Lubricating Steering Pin Bushings—*If Equipped*

SERVICE INTERVAL — DAILY OR 10 HOURS

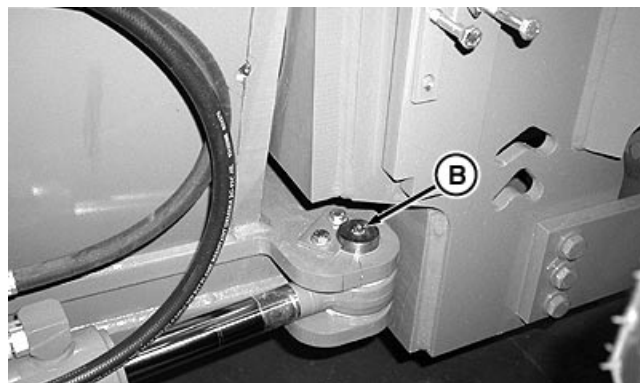
CAUTION: Stop engine and remove key before working in hinge area.

Lubricate left front (A) and rear (B), right front (C) and rear (D) steering pin bushings with John Deere HD grease specified in Fuels, Lubricants and Coolant Section.

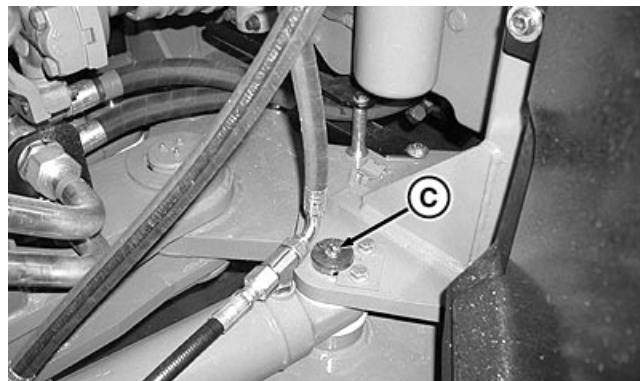
- A—Left Front Pin
- B—Left Rear Pin
- C—Right Front Pin
- D—Right Rear Pin



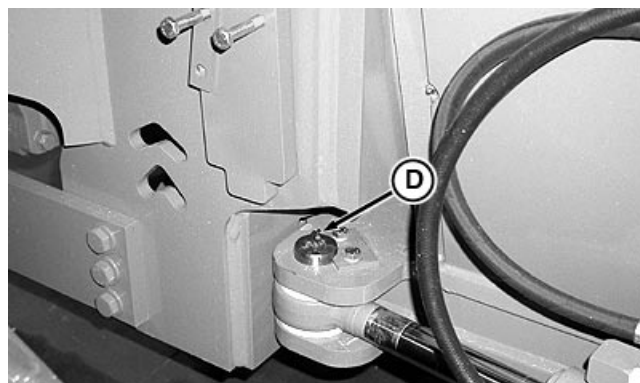
Left Front Steering Pin



Left Rear Steering Pin



Right Front Steering Pin



Right Rear Steering Pin

Lubricating Telescoping Drive Shaft and Rear Support Bearing

SERVICE INTERVAL — 250 HOURS

IMPORTANT: Do NOT over grease drive shaft bearing.

Over greasing can cause premature bearing and drive shaft failure.

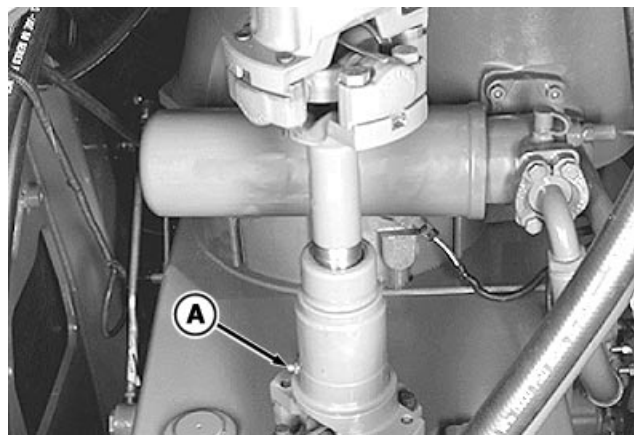
Lubricate telescoping engine and transmission drive shafts (A).

Lubricate rear drive shaft support bearing (B).

Grease every 250 hours with John Deere HD Grease as specified in Fuels, Lubricants and Coolant Section.

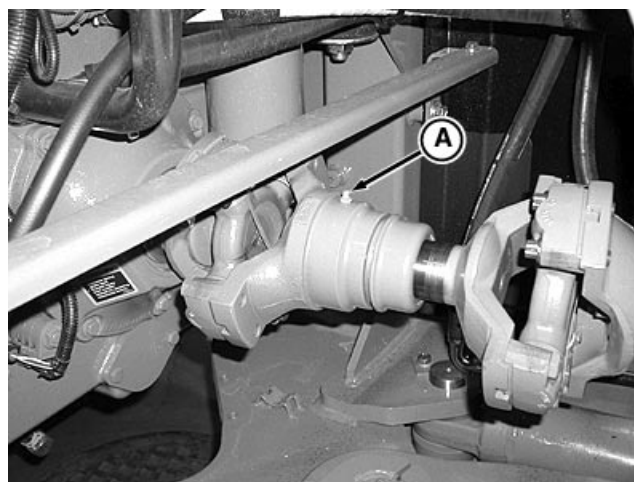
A—Drive Shaft

B—Rear Drive Shaft Support Bearing



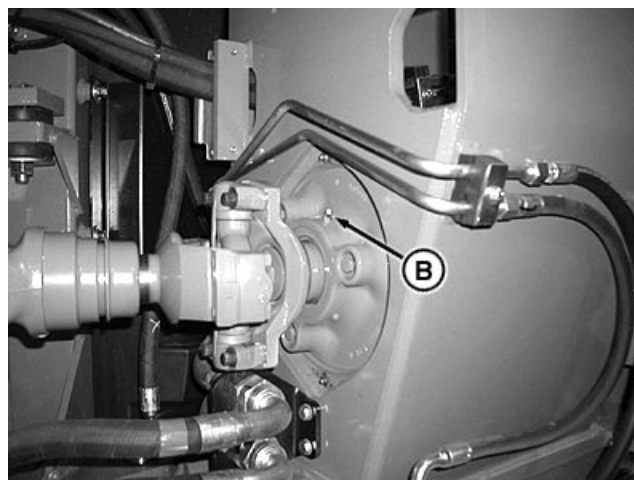
Engine Drive Shaft (Bottom View)

RXA0062957 -UN-10OCT02



Transmission Drive Shaft

RXA0087349 -UN-28FEB06



Rear Drive Shaft Support Bearing

RXA0087347 -UN-28FEB06

RW29387,00003AC -19-09MAY06-1/1

Lubricating Heavy-Duty Gudgeon Bearings

SERVICE INTERVAL — 250 HOURS

IMPORTANT: *DO NOT* over lubricate the tapered roller bearings. Doing so may result in damage to the inner grease retention seal or bearing and drive shaft.

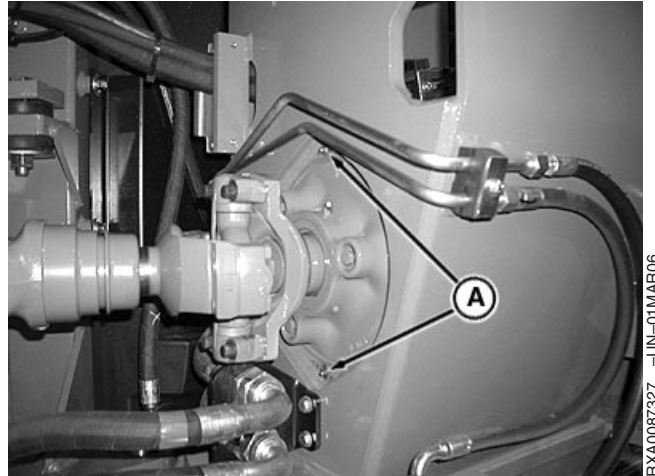
Only use a hand pump grease gun to lubricate gudgeon bearings.

Other types of grease guns fill the grease cavity at a greater speed which may push retention seal out of position allowing grease to enter gudgeon center cavity and leaves bearing without proper lubrication.

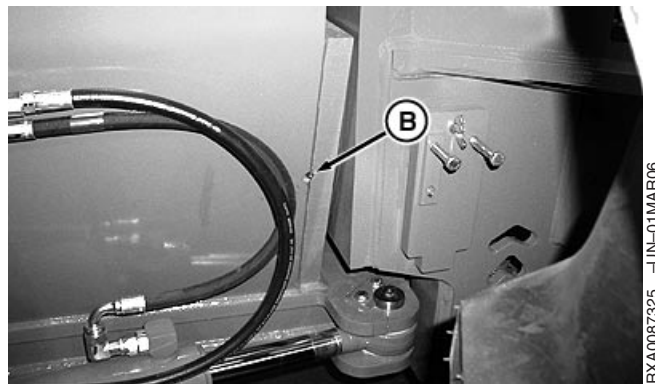
Lubricate heavy-duty gudgeon front bearing lubrication fittings (A), left rear (B) and right rear (C) bearing lubrication fittings. Give **each** fitting approximately 40 pumps of grease.

Grease every 250 hours with John Deere HD Grease as specified in Fuels, Lubricants and Coolant Section.

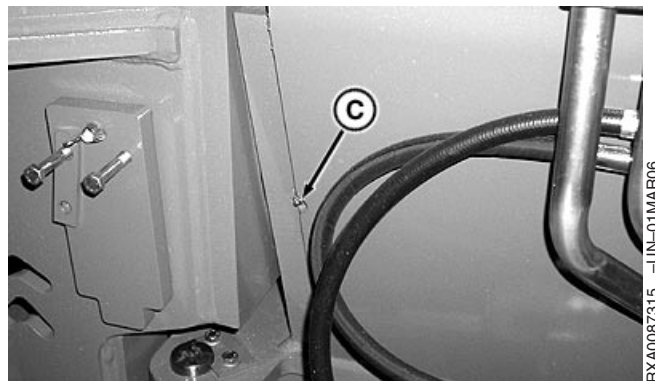
- A—Front Gudgeon Lubrication Fitting
- B—Left Rear Gudgeon Lubrication Fitting
- C—Right Rear Gudgeon Lubrication Fitting



FXA0087327 -UN-01MAR06



FXA0087325 -UN-01MAR06



FXA0087315 -UN-01MAR06

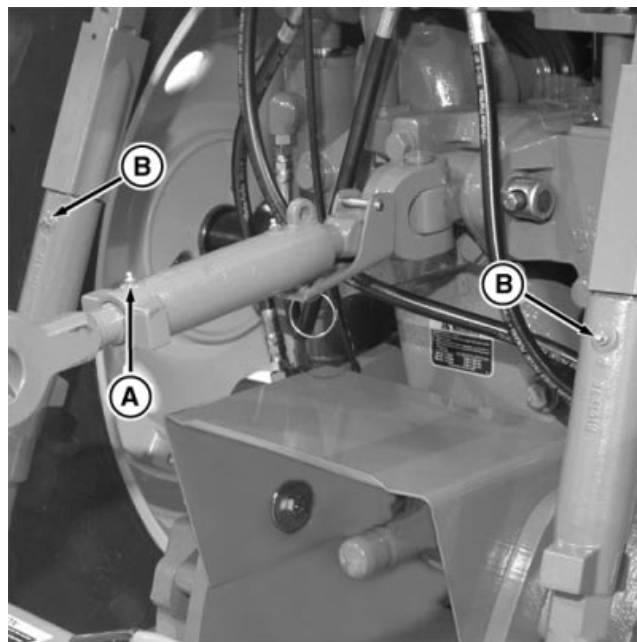
RW29387,00003AD -19-23FEB06-1/1

Lubricating Hitch Center Link and Lift Links

SERVICE INTERVAL — DAILY OR 10 HOURS

Lubricate hitch center link (A) and lift links (B).

A—Center Link
B—Lift Links



RXA0052042 -UN-28FEB01

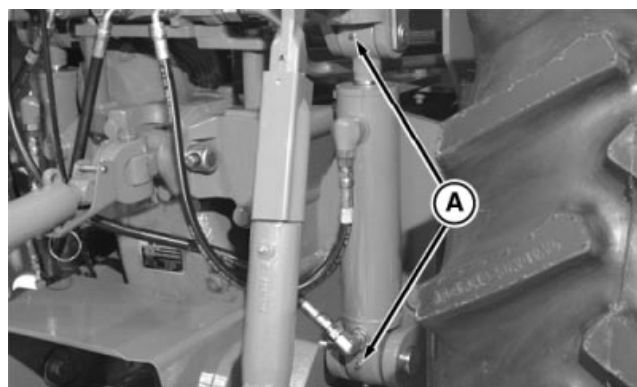
RW29387,000029E -19-12MAY06-1/1

Lubricating Lift Cylinders and Rockshaft

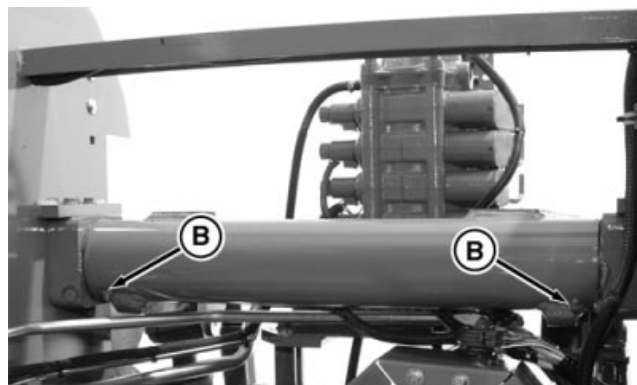
SERVICE INTERVAL — DAILY OR 10 HOURS

Lubricate lift cylinder pins (A) each side and rockshaft (B) for every 10 hours of hitch operation.

A—Lift Cylinder Pins
B—Rockshaft



RXA0052044 -UN-28FEB01



RXA0052045 -UN-28FEB01

RW29387,000029F -19-12MAY06-1/1

Lubricating Hitch Sensor

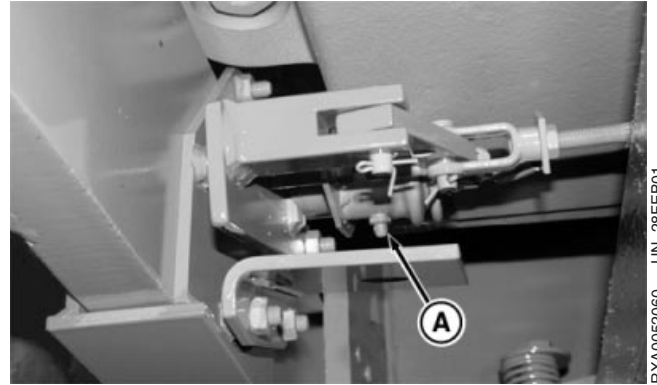
SERVICE INTERVAL — ANNUALLY *

** 250 Hours if operated in extremely wet conditions*

Lubricate the hitch sensor (A), located on left side draft link support, every 250 hours, **if operated in extremely wet conditions**.¹ Lubricate until all air is forced through the grommet.

Use John Deere HD Grease.

A—Hitch Sensor



RXA0052060 —UN—28FEB01

¹Under normal conditions, lubricate sensor annually.

RW29387,00002A0 —19—12MAY06—1/1

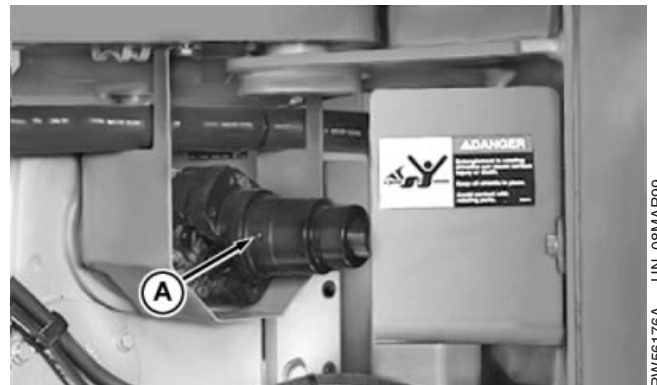
Lubricating PTO Drive Shaft

SERVICE INTERVAL — 250 HOURS

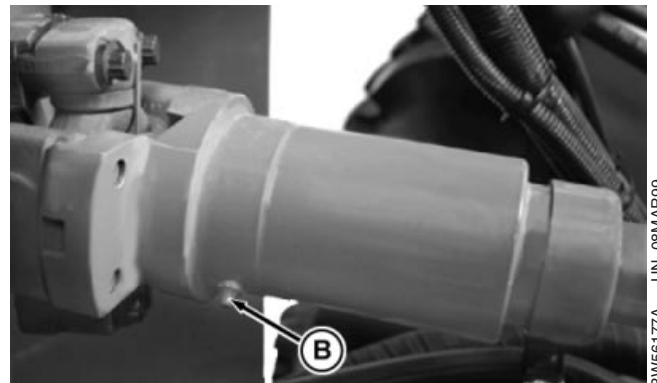
Lubricate PTO front shaft (A) and rear shaft (B).

Use John Deere HD Grease as specified in Fuels, Lubricants and Coolant Section.

**A—PTO Front Shaft
B—Rear Shaft**



RW56176A —UN—06MAR99



RW56177A —UN—06MAR99

RW29387,00002A5 —19—12MAY06—1/1

Maintenance—Cooling System

Checking Coolant Level

SERVICE INTERVAL — DAILY OR 10 HOURS

Engine stopped.

Check coolant level. Level should be at or slightly above lower mark with cold engine.

Add coolant to overflow tank if needed.



RW26155 —UN-11MAY99

RW29387,00002A6 —19-06NOV02-1/1

Testing Coolant

SERVICE INTERVAL — 750 HOURS



CAUTION: Avoid personal injury. **DO NOT** remove fill cap when engine is hot. Stop engine and wait until engine has cooled.

Slowly remove cap (A).

Check coolant using coolant test strips available from your John Deere Dealer.

Add 30 mL per liter (1.0 fl oz per quart) of coolant conditioner if needed. Drain a small amount of coolant if conditioner is added.



RXA0073423 —UN-09FEB04

A—Cap

RW29387,00002A7 —19-06NOV02-1/1

Draining, Flushing, and Refilling Cooling System

SERVICE INTERVAL —

INITIAL — 3 YEARS

SCHEDULED — 2 YEARS *

* 3 Years or 3000 Hours if John Deere COOL-GARD is used

IMPORTANT: Avoid cooling system damage. Test or replace thermostats and radiator cap. See your John Deere Dealer.



CAUTION: Avoid personal injury. Keep hands out of fan discharge area when engine is running. Do not remove fill cap when engine is hot. Stop engine and wait until engine has cooled.

1. Slowly turn the surge cap (A) to relieve pressure, then carefully remove cap.



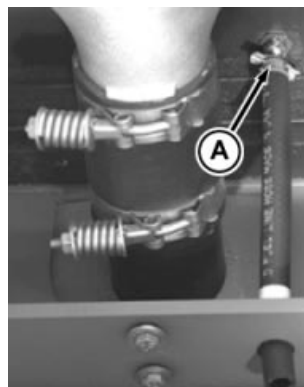
A—Cap

RW29387,00002A8 —19-06NOV02-1/3

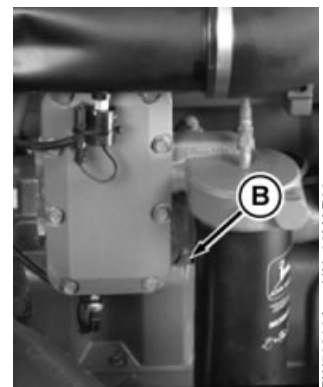
2. Remove bottom access panel and open radiator drain fitting (A) and engine block drain cock (B).

NOTE: Draining cooling system is best accomplished by removing the lower radiator hose.

A—Radiator Drain Fitting
B—Engine Drain Cock



RW56204A —UN-08MAR99



RW56206A —UN-08MAR99

Continued on next page

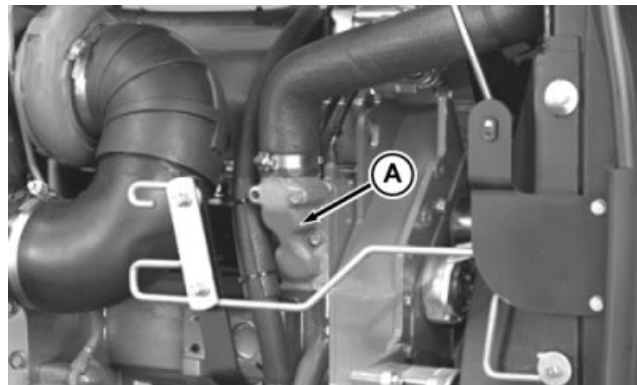
RW29387,00002A8 —19-06NOV02-2/3

3. Remove thermostat cover (A) and thermostats. Install cover without thermostats. Tighten cap screws.

IMPORTANT: Remove thermostats; operate cab heater during entire flushing procedure.

4. Close drain cocks and fill system with a *commercial cooling system cleaning solution*. Operate engine to operating temperature. Stop engine and drain system.

IMPORTANT: Never pour cold water or coolant into hot engine. Use warm water or wait until engine has cooled.



RW56214A -UN-08MAR99

A—Thermostat Cover

5. Close drain cocks and fill system with *clean water*. Operate engine to operating temperature. Stop engine and drain system.

NOTE: *Vent notch of upper thermostat should be at the top when installing.*

6. Remove thermostat cover and clean sealing area. Apply sealant to new gasket and install thermostats and gasket. Tighten cap screws to 48 N•m (35 lb-ft).
7. Close drain cocks again. Fill system with the *specified coolant*. Operate engine to circulate and mix coolant. Coolant level should be up to mark on expansion tank.

RW29387,00002A8 -19-06NOV02-3/3

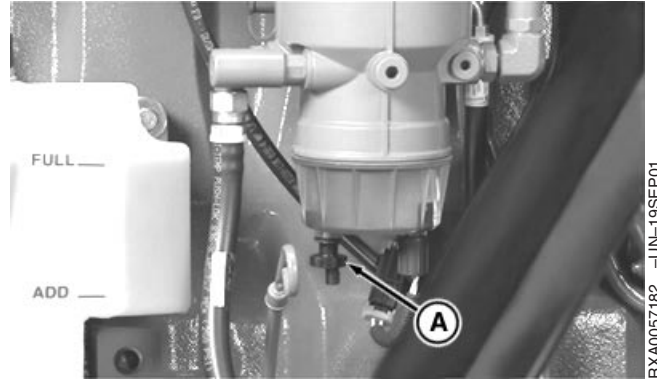
Maintenance—Fuel System

Draining Water Separator

SERVICE INTERVAL — DAILY OR 10 HOURS

Open drain valve (A) on bottom of separator and drain accumulated water.

A—Drain Valve



RW29387,00002A9 -19-06NOV02-1/1

Replacing Fuel Filter—9320-9420-9520-9620

SERVICE INTERVAL — 250 HOURS *

** Interval can vary according to operating conditions*

Loosen and remove cap (A) on filter housing.

NOTE: Depress primer (C) to loosen filter.

Remove and discard old filter.

Depress primer (C) as necessary to refill fuel level to area between marks (B), which correspond to marks on center tube inside filter housing.

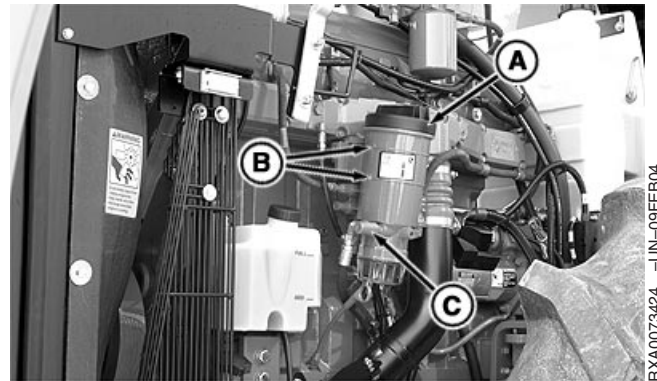
NOTE: Fuel level below the MIN mark can result in stalling. Fuel level above the MAX mark can cause fuel to overflow from the filter housing.

NOTE: Early version fuel filter system has a dual 10 micron outer/2 micron inner element (Black End-Cap). Replace with same type of element.

Late version is a primary single 10 micron filter element (Tan End-Cap), when equipped with a 2 micron secondary fuel filter. Replace with same type of element.

Install new filter and tighten cap.

Operate engine at 1200 rpm for one minute and check for leaks.



A—Cap
B—Fuel Level Marks
C—Hand Primer

RW29387,000071E -19-15SEP04-1/1

Replacing Secondary Fuel Filter—If Equipped

SERVICE INTERVAL — 250 HOURS *

** Interval can vary according to operating conditions*

Clean exterior of fuel filter (A) and mounting area.

Remove and discard old filter element.

NOTE: Do not preload fuel filter before installing, which may result in fuel contamination.

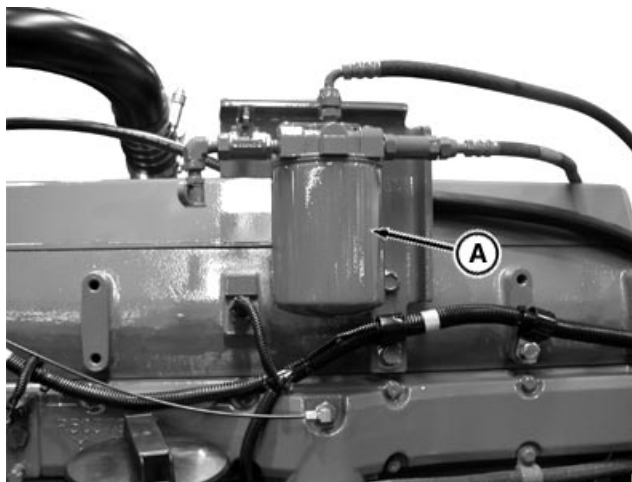
NOTE: Secondary fuel filter is a 2 micron element.

Inspect new filter to ensure O-ring seal is in correct position.

Apply thin coat of clean diesel fuel to lubricate O-ring.

Install new filter and tighten.

Operate engine at 1200 rpm for one minute and check for leaks.



A—Secondary Fuel Filter

RW29387,00003B4 -19-10MAY06-1/1

Replacing Fuel Pre-filter

SERVICE INTERVAL —

INITIAL — 100 HOURS

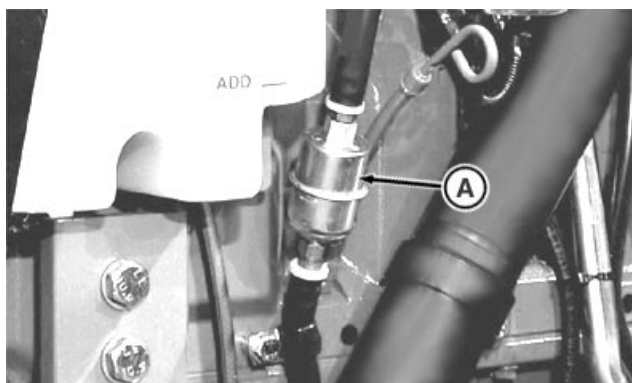
SCHEDULED — 750 HOURS *

** Interval can vary according to operating conditions*

NOTE: Early model tractors were equipped with a pre-filter. Late model tractors have a suction screen in the crossover tube of the fuel tank and do not require a pre-filter.

Remove pre-filter (A).

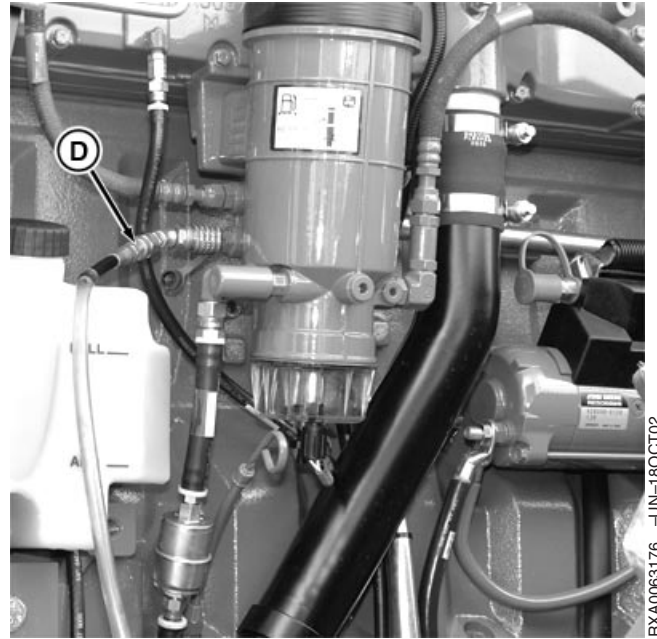
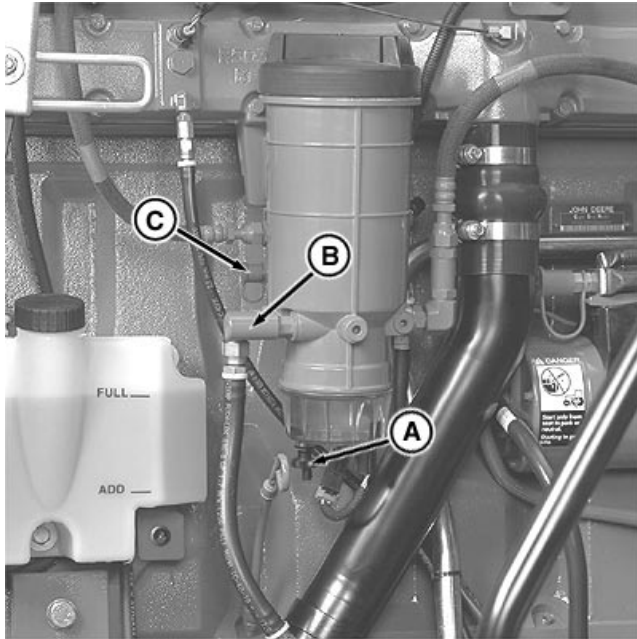
Install replacement filter.



Fuel Pre-Filter (Early Version)

A—Fuel Pre-Filter

RW29387,00002AB -19-13MAY04-1/1

Bleeding Fuel System—9320-9420-9520-9620

IMPORTANT: Fuel system must be bled after replacing fuel filter or running out of fuel. Failure to do so will result in extreme hard-starting

Open drain valve (A) and pump hand primer (B) to drain water from water separator.

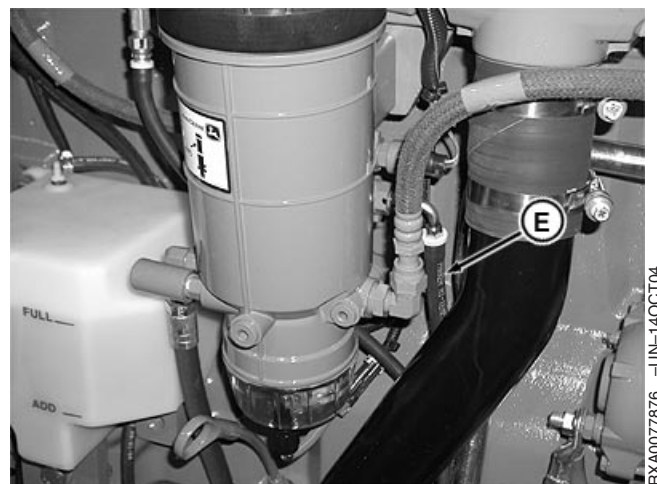
Close drain valve.

Loosen diagnostic receptacle (C) or install clear hose assembly (D) and pump hand primer (B) until fuel stream has no air bubbles.

IMPORTANT: If engine has run out of fuel, perform the following:

NOTE: To help reduce number of primer pump strokes, pinch off low pressure return to tank hose (E) with hose pliers, while pumping hand primer and while cranking the engine. Remove hose pliers after engine starts.

- Install new fuel filter
- Pump hand primer (B) 100-200 strokes
- Set engine throttle at low idle.



- A—Drain Valve
- B—Hand Primer
- C—Diagnostic Receptacle
- D—Hose Assembly
- E—Low Pressure Return Hose

- Crank engine for 20 seconds (maximum)
- Pump hand primer an additional 100 strokes if engine does not start
- Crank engine again for 20 seconds (maximum)

NOTE: *If engine does not start after 20 seconds of cranking, pump hand primer an additional 50 strokes, wait at least 1 minute to let starter cool down and attempt to start engine again.*

RW29387,0000759 -19-19OCT04-2/2

Draining Fuel Tank Sump

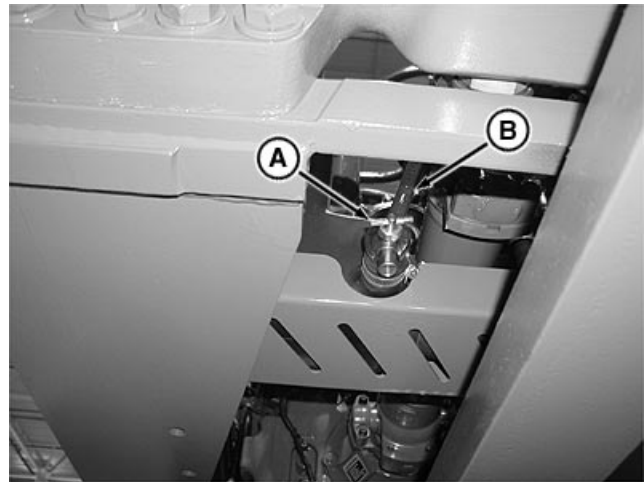
IMPORTANT: Use wrench to hold drain fitting before opening tee or damage to tank threads can occur.

Open drain tee (A) while holding drain fitting with wrench (B).

Drain fuel from tanks until clean fuel appears from tank.

Hold fitting with wrench to close drain tee.

A—Drain Tee
B—Wrench



RXA0077285 -UN-05OCT04

RW29387,00005F2 -19-05OCT04-1/1

Maintenance—Electrical System

Replacing Fuses and Relays

Remove cover to access fuse panel.

Remove upholstery from side console to access relays.

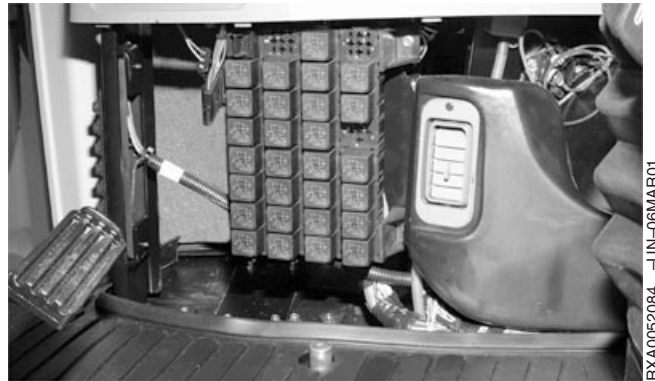
IMPORTANT: DO NOT install a fuse in location F10. This is for diagnostic readout and calibration of electronic systems used by your John Deere Dealer.

Fuse replacement must be the same rating as the original.

See your John Deere Dealer for replacement relays.



RXA0055672 -UN-30JUL01



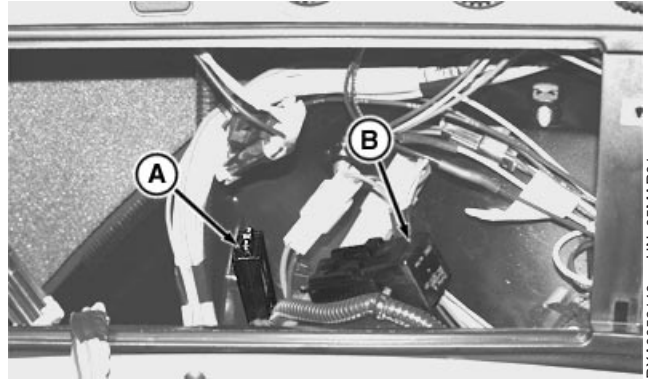
RXA0052084 -UN-06MAR01

RW29387,00002AF -19-06NOV02-1/1

GREENSTAR Implement Harness Fuse and Relay

Remove vehicle monitor from right console to replace fuse (A) and relay (B).

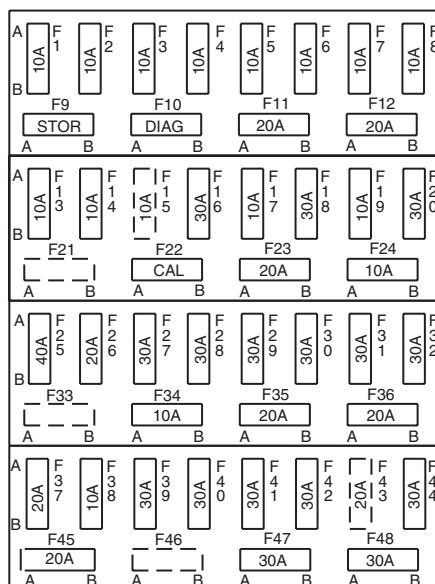
A—Fuse
B—Relay



RXA0052140 —UN-05MAR01

RW29387,00002B0 —19-06NOV02-1/1

Load Center Fuses (Serial No. -009999)



RXA0053623 -UN-18MAY01

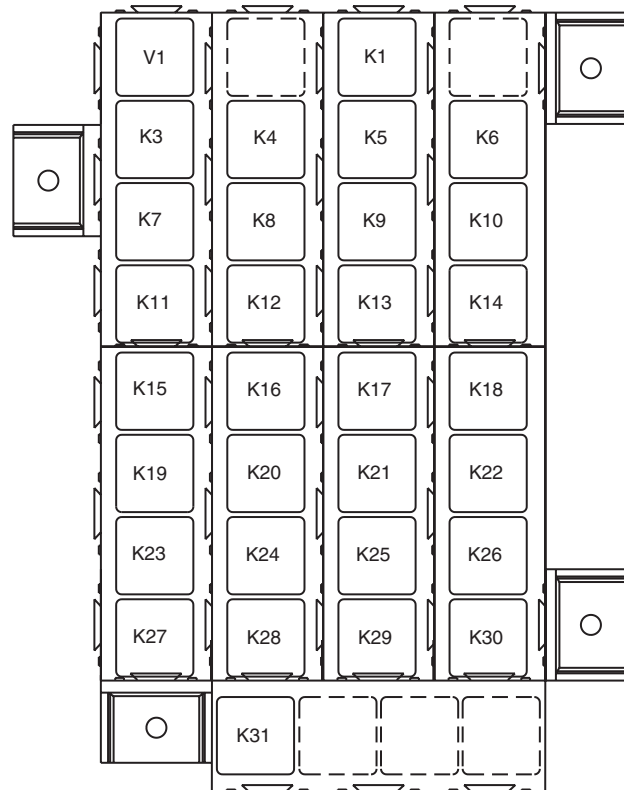
F1—Central Control Unit (CCU)	F14—Sensor Power, Radar Sensor	F26—Pressurizer Blower Motor	F41—Convenience Outlets and Junction Blocks, Field Office, Auxiliary Power Strip, and Lighter
F2—Instrument Control Unit (ICU), Warning Horn, Decelerate Switch, Brake Pedal Switch, SCV Set-Up Panel	F15—Reverse Direction Sensor Power (MST)	F27—Front Grille Spot light	F42—Hi/Lo Beam Lights
F3—Armrest Control Unit (ACU)	F16—Diagnostic Connector (Switched)	F28—Wiper Circuit	F43—Engine Control Unit (ECU)
F4—Cornerpost Display, Performance Monitor	F17—Diagnostic Connector (Unswitched)	F29—Front Grille Floods and Beacon Light	F44—Rear Fender Flood Lights
F5—Hitch Control Unit (HCU) and SCV I	F18—Key Switch	F30—Roof Floods (optional)	F45—Seat Control Power, Radio Clock
F6—SCV 2-3	F19—Radio, Clock, Dome Light, Horn, Turn Signal Switch, Hi/Low Beam Switch	F31—7-Way Accessory Outlet (Floods)	F46—Not Used
F7—SCV 4-5 Control Unit (SCo)	F20—Light Switch	F32—Warning Lights and Switch, Turn Signal Lights	F47—Convenience Outlets and Junction Blocks (Left Side), Business Band Pre-wire, Field Office
F8—Not Used	F21—Not Used	F33—Not Used	F48—Convenience Outlets and Junction Blocks (Right Side), Auxiliary Power Strip
F9—Diagnostic Fuse Storage	F22—Calibration Only	F34—18 Speed Powershift Control Unit (PCU)	
F10—Diagnostic Calibration	F23—18 Speed Powershift Control Unit (PCU)	F35—Left Tail Light	
F11—Alternator, Starting Aid	F24—Radio, Clock, ICU Backlighting, and Right Console Light	F36—Right Tail Light	
F12—Engine Control Unit (ECU)	F25—Heating, Ventilating, and Air Conditioning	F37—Not Used	
F13—Active Seat Control Unit (ACU)		F38—Operator Presence Switch, Ride Zone Protector	
		F39—7-Way Accessory Outlet	
		F40—18 Speed Powershift Control Unit (PCU)	

RW24911,0000283 -19-05NOV01-1/1

Load Center Relays and Diodes (Serial No. -009999)

NOTE: Relays Not on Load Center—Starter, Back-up Alarm, Universal Monitor, and GreenStar Implement Harness Power

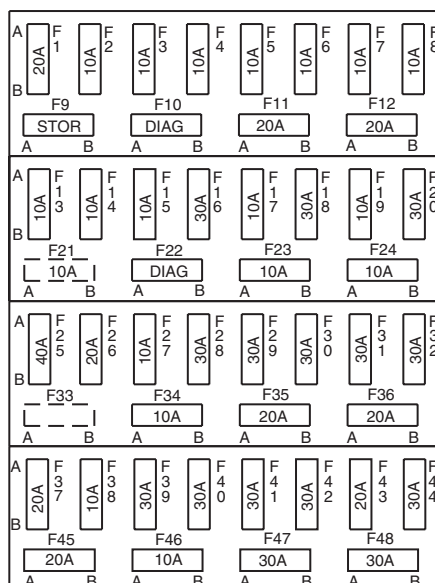
- V1—Diode Block #1
 - K1—High Beam Lights
 - K3—Roof Flood Lights (*Optional*)
 - K4—Front Grille Flood Light
 - K5—Rear Flood to 7-Way Accessory Outlet Only
 - K6—Transmission Come Home (No. 1)
 - K7—Rear Fender Flood Lights
 - K8—Right Fender Turn Lights
 - K9—Left Fender Turn Lights
 - K10—Fender Turn Lights
 - K11—Low Beam Lights
 - K12—7-Way Accessory Outlet (Accessory Power)
 - K13—Engine Controller
 - K14—Front Grille Spot Light
 - K15—ELX (Electronics)
 - K16—Transmission Clutch Override *
 - K17—Transmission Latch *
 - K18—Transmission Enable *
 - K19—Transmission Calibration Mode *
 - K20—Transmission Reverse *
 - K21—Transmission Forward *
 - K22—Transmission Not Neutral *
 - K23—Horn
 - K24—Wiper Circuit
 - K25—Intermittent Wiper Pulse
 - K26—Intermittent Wiper Enable
 - K27—Accessory
 - K28—Blower Motor Circuit
 - K29—Transmission Come Home (No. 2)
 - K30—Pressurizer Blower Motor, Air Conditioner Compressor Clutch
 - K31—K14 Grounding Relay for Front Grille Spot Light
- * —* 18-Speed Powershift



RXA0053624 -UN-18MAY01

RX15494,0000148 -19-05NOV01-1/1

Load Center Fuses (Serial No. 010001-)



- | | | | |
|--|---|--|--|
| F1—Central Control Unit (CCU) | F9—"Diag" Fuse Storage Location | F24—Radio, ICU Backlighting; Right Console Light | F40—Convenience Outlets/Junction Boxes, Field Office (If Equipped), Auxiliary Power Strip, Cigarette Lighter |
| F2—Instrument Control Unit (ICU), Hazard Horn, Decelerate Switch, SCV Set-up Panel (SUP) | F10—"Diag" Mode Enable Fuse Location | F25—Heating, Ventilating, Air Conditioning (HVAC) | F41—Front Flood Lights, Beacon Light (If Equipped), K4 Relay |
| F3—Armrest Control Unit (ACU) | F11—Alternator, Start Aid Solenoid | F26—Pressurizer Blower Motor | F42—High/Low Beam Lamp Relays |
| F4—Corner Post Display, Performance Monitor (If Equipped) | F12—Engine Control Unit (ECU) | F27—Powershift Transmission Control Unit (PCU) | F43—Engine Control Unit (ECU) |
| F5—Hitch Control Unit (HCU) and SCV I | F13—Not Used | F28—Wiper Circuit | F44—Rear Fender Flood Lights Relay |
| F6—SCV II and SCV III | F14—Sensor Power, Radar Sensor | F29—Roof Flood Lights (If Equipped) | F45—Seat Compressor Motor/Bleed Valve |
| F7—SCV IV and V Control Unit (SCo) | F15—Not Used | F30—Front Grill Spot Light | F46—AutoTrac (If Equipped) |
| F8—Steering System Control Unit (SSU) AutoTrac | F16—Diagnostic Connector (Switched) | F31—Seven-Way Accessory Outlet | F47—Convenience Outlets and Junction Boxes (Left Side), Business Band Prewire, Field Office (If Equipped) |
| | F17—Diagnostic Connector (Unswitched) | F32—Warning Lights and Switch, Turn Signal Lamps, K8 and K9 Relays | F48—Convenience Outlets/Junction Boxes (Right Side), Auxiliary Power Strip |
| | F18—Key Switch | F33—Not Used | F49—GREENSTAR™ Harness |
| | F19—Radio Clock, Dome Lamp, Step Light, Horn, Turn Signal Switch, Hi/Lo Beam Switch | F34—Powershift Transmission Control Unit (PCU) | F500—Back-Up Alarm Fuse |
| | F20—Light Switch | F35—Left Tail Lamp (North American) | |
| | F21—Powershift Control Unit (PCU) Calibration Fuse Storage | F36—Right Tail Lamp (North American) | |
| | F22—Powershift Control Unit (Calibration Only) | F37—Brake Lights | |
| | F23—Powershift Transmission Control Unit (PCU) | F38—Operator Presence Switch, RZP Controller ¹ | |
| | | F39—Seven-Way Accessory Outlet | |

¹Ride Zone Protection

NOTE: F500 is located along side LH rear ROPS post. Remove back window latch and LH pencil tray from inside rear of cab. Pull side

cover ahead slightly, fuse and relay are along side post.

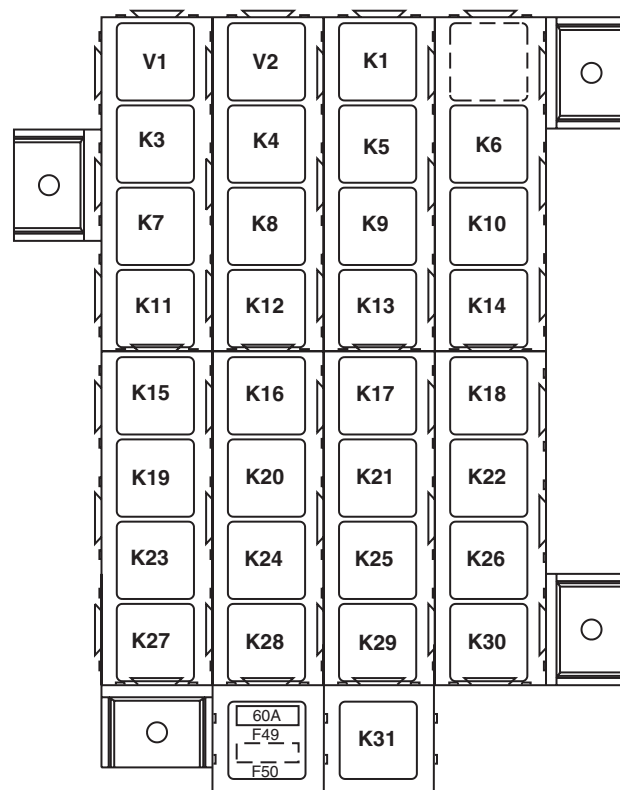
OURX984,00000D8 -19-02MAY05-2/2

Load Center Relays and Diodes (Serial No. 010001-011231)

NOTE: Relays Not on Load Center—Shipping Relay, Starter, and Back-up Alarm

^aK200/K220 are accessed by removing rear cab cover and black inner panel that control units mount to.

- K1—High Beams Relay
- K2—Not Used
- K3—Clutch Override Relay (PCU)
- K4—Front Floods Relay
- K5—Rear Floods to Accessory Outlet Only
- K6—Rear Fender Floods Relay
- K7—Front Grill Spot Light Grounding Relay
- K8—Right Turn Lamps Relay
- K9—Left Turn Lamps Relay
- K10—Brake Light Relay
- K11—Low Beams Relay
- K12—Accessory Outlet Relay
- K13—Engine Control Unit Relay
- K14—Front Grill Spot Light
- K15—ELX (Electronics) Relay
- K16—Roof Floods Relay (If Equipped)
- K17—Transmission Latch Relay (PCU)
- K18—Transmission Enable Relay (PCU)
- K19—Fender Turn Lamps Relay
- K20—Reverse Relay PST
- K21—Forward Relay PST
- K22—Not Neutral PST
- K23—Horn Relay
- K24—Wiper Circuit Relay
- K25—Intermittent Wiper Pulse Relay
- K26—Intermittent Wiper Enable Relay
- K27—Accessory Relay
- K28—Blower Motor Circuit Relay
- K29—Calibration Mode Relay (PCU)
- K30—Pressurizer Blower Motor Relay
- K31—Not Used
- K32—Not Used
- K33—Not Used
- K34—Not Used
- K200—Purge Relay^a
- K220—ATC Diagnostic Relay^a
- K300—Shipping Relay
- K301—Starter Relay
- K500—Back-Up Alarm Relay^b
- V1—Diode Block 1 (DB1) Power Supply, Starting and Charging Circuits, Lighting Circuits and PowerShift Transmission Circuits
- V2—Diode Block (DB2)

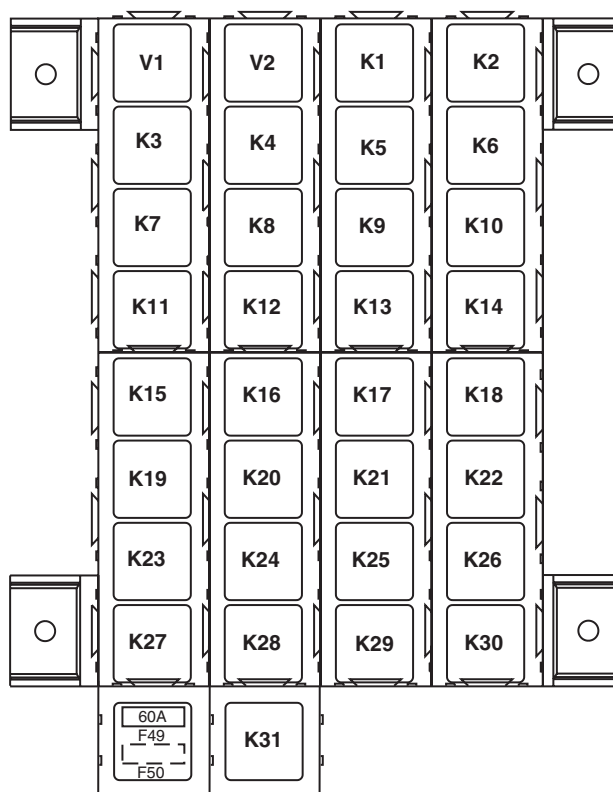


FXA0060959 -UN-28AUG02

^bK500 is located along side LH rear ROPS post. Remove back window latch and LH pencil tray form inside rear of cab. Pull side cover ahead slightly, fuse and relay are along side post.

RW29387,00002B2 -19-06NOV02-2/2

Load Center Relays and Diodes (Serial No. 011232-)



K1—High Beams Relay
 K2—Not Used
 K3—Clutch Override Relay (PCU)
 K4—Front Floods Relay
 K5—Rear Floods to Accessory Outlet Only
 K6—Rear Fender Floods Relay
 K7—Front Grill Spot Light Grounding Relay
 K8—Right Turn Lamps Relay
 K9—Left Turn Lamps Relay
 K10—Brake Light Relay
 K11—Low Beams Relay
 K12—Accessory Outlet Relay

K13—Engine Control Unit Relay
 K14—Front Grill Spot Light
 K15—ELX (Electronics) Relay
 K16—Roof Floods Relay (If Equipped)
 K17—Transmission Latch Relay (PCU)
 K18—Transmission Enable Relay (PCU)
 K19—Fender Turn Lamps Relay
 K20—Reverse Relay PST
 K21—Forward Relay PST
 K22—Not Neutral PST

K23—Horn Relay
 K24—Wiper Circuit Relay
 K25—Intermittent Wiper Pulse Relay
 K26—Intermittent Wiper Enable Relay
 K27—Accessory Relay
 K28—Blower Motor Circuit Relay
 K29—Calibration Mode Relay (PCU)
 K30—Pressurizer Blower Motor Relay
 K31—Not Used
 K32—Not Used

K33—Not Used
 K34—Not Used
 K200—Purge Relay^a
 K220—ATC Diagnostic Relay^a
 K300—Shipping Relay
 K301—Starter Relay
 K500—Back-Up Alarm Relay^b
 V1—Diode Block 1 (DB1) Power Supply, Starting and Charging Circuits, Lighting Circuits and PowerShift Transmission Circuits
 V2—Diode Block (DB2)

NOTE: Relays Not on Load Center—Shipping Relay, Starter, and Back-up Alarm

^aK200/K220 are accessed by removing rear cab cover and black inner panel that control units mount to.

^bK500 is located along side LH rear ROPS post. Remove back window latch and LH pencil tray form inside rear of cab. Pull side cover ahead slightly, fuse and relay are along side post.

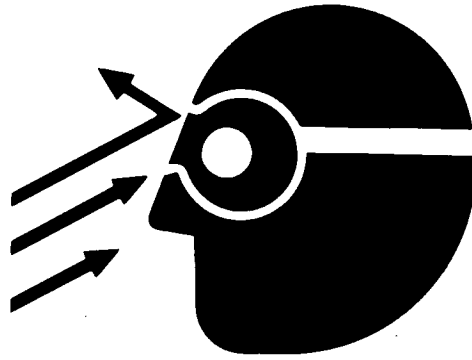
Handling Halogen Light Bulbs Safely



CAUTION: Halogen bulbs (A) contain gas under pressure. Handling a bulb improperly could cause it to shatter into flying fragments. To avoid possible injury:

- Handle bulb by its base. Keep bulb oil free; wear gloves to avoid touching glass.
- Turn light switch off and allow bulbs to cool before changing. Leave switch off until bulb change is done.
- Wear eye protection.
- Do not drop or scratch bulb. Keep moisture away.
- Place used bulb in the new bulb's carton and dispose of properly. Keep out of reach of children.

A—Halogen Bulb



TS266 –UN-23AUG88

H39474 –UN-30JUN00

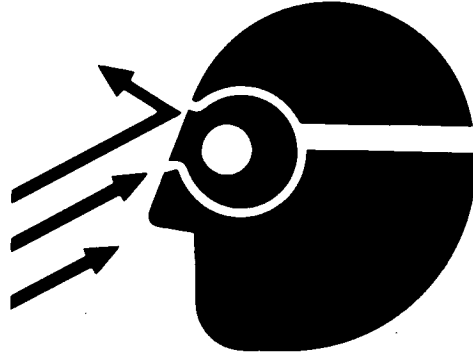
OUO1011,0005396 –19-22MAR05-1/1

Handling HID Light Bulbs Safely



CAUTION: Handling a bulb improperly could cause it to shatter into flying fragments. To avoid possible injury:

- High voltage is conducted by electrical connection between worklights and ballast unit; this connection must never be broken.
- Handle bulb by its base. Keep bulb oil free; wear gloves to avoid touching glass. Use a clean cloth and alcohol to remove any fingerprints from the glass bulb before installing. Skin oil deposited on bulb will cause overheating and premature failure.
- Do not operate bulb outside of enclosure. When operating HID bulbs have high internal pressure and if cracked or broken could explode and cause injury.
- Turn light switch off and allow bulbs to cool before changing. Leave switch off until bulb change is done.
- Wear eye protection.
- Do not drop or scratch bulb. Keep moisture away.
- Place used bulb in the new bulb's carton and dispose of properly. Keep out of reach of children.



TS266 -UN-23AUG88

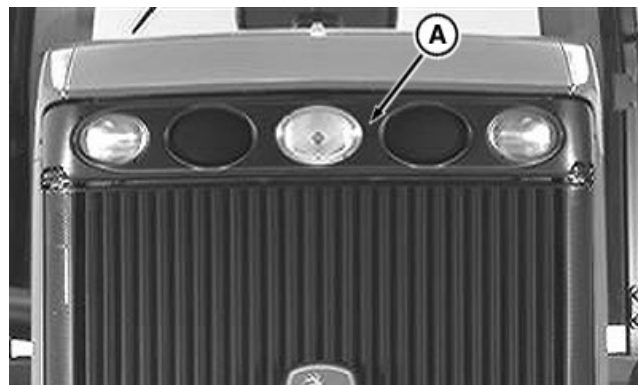
OU1092A,00003F9 -19-01AUG05-1/1

Replacing Front Flood Lights

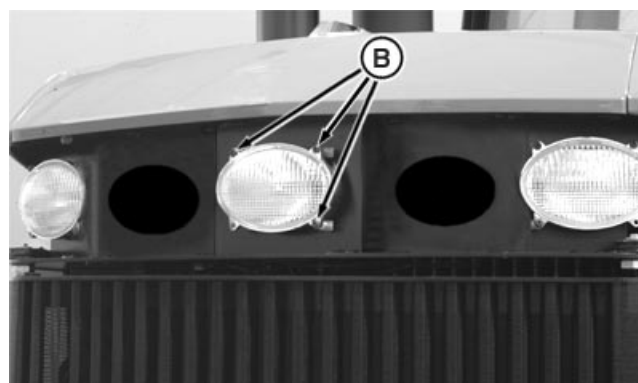


CAUTION: Wear gloves and safety glasses when handling the headlight bulbs. Bulb should cool down for three minutes after switching lights off.

The lights must never be operated without a bulb. Dangerous voltage spark-over may occur and cause damage/injury at the connector. See manufacturer's warnings packaged with replacement bulb.



RXA0054310 -UN-08JUN01



RXA0058076 -UN-30OCT01

NOTE: Headlights will need to be adjusted when bulbs are replaced. See *Adjusting Headlights* in this section.

Remove cover (A) and remove headlights adjustment screws (B).

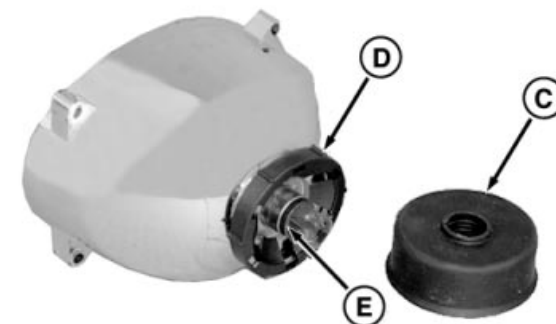
Disconnect light wiring harness.

Halogen Light

Remove rubber seal (C) and bulb retainer (D).

Twist bulb (E) counterclockwise and pull to remove.

Replace bulb and install light in reverse order.



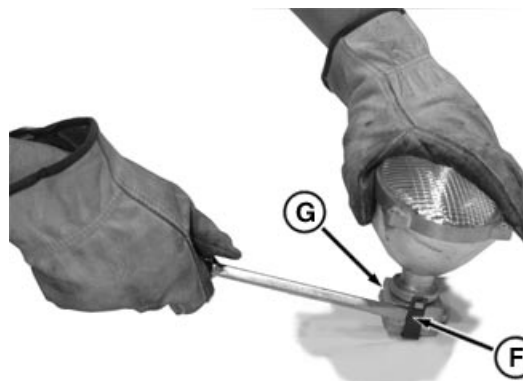
RXA0052877 -UN-17APR01

High Intensity Discharge (HID) Light

Place headlight on hard surface, while pushing down on light remove bulb retaining strap (F) using a flat screwdriver.

Remove bulb/starter assembly (G).

Install replacement bulb/starter assembly and retaining strap. Install head light in reverse order.



RXA0057682 -UN-11OCT01

- A—Headlight Cover
- B—Adjustment Screws
- C—Rubber Seal
- D—Bulb Retainer
- E—Halogen Bulb
- F—Retaining Strap
- G—HID Bulb/Starter Assembly

Adjusting Front Flood Lights

Turn three adjustment screws to move flood lights up or down and from side-to-side.

Flood lights should be adjusted parallel with light support plate and slightly down, or adjust to cover desired area.



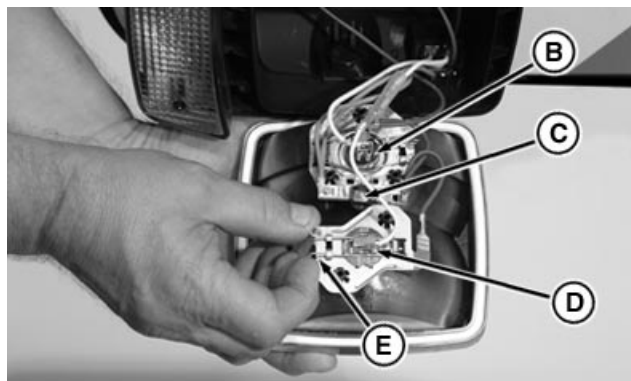
RW29387,00002B4 -19-06NOV02-1/1

Replacing Front Headlights

Remove cover (A).

Squeeze spring retainer (E) to remove bulb. Pull to remove worn out bulb.

- A—Headlight Cover
- B—Low Beam Bulb
- C—Clearance Low Voltage Head Light
- D—High Beam Bulb
- E—Bulb Retainer



RW29387,00002B5 -19-06NOV02-1/1

Adjusting Front Headlights

Loosen nut (A) to adjust headlights from side-to-side.

- A—Nut

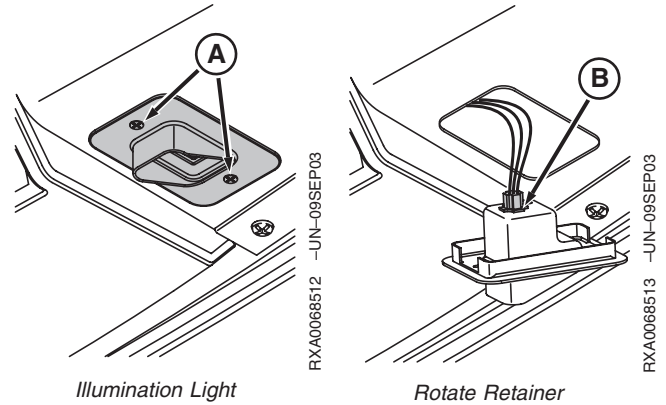


RW29387,00002B6 -19-06NOV02-1/1

Replacing Instrument and Display Illumination Light Bulb

1. Remove screws (A) and light assembly.
2. Rotate retainer (B) counterclockwise approximately 1/4 turn and remove.
3. Pull out light bulb.
4. Install new bulb in reverse order of removal.

A—Screws
B—Light Bulb Retainer



RW29387,000045F -19-09MAR06-1/1

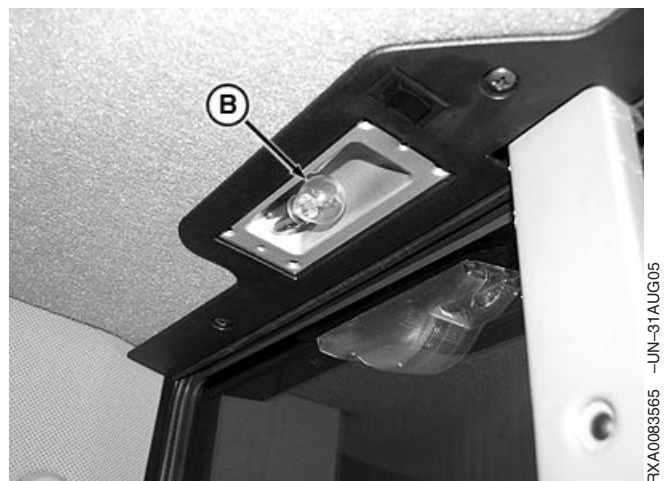
Replacing Dome Light Bulb

Remove light screws (A) and lens cover.

Push in and turn counterclockwise to remove light bulb (B).

Install new bulb in reverse order of removal.

A—Screws
B—Light Bulb



RW29387,0000018 -19-09MAY06-1/1

Replacing Roof Flood Lights—If Equipped

Twist and pull out bulb plug from back of light housing.
Unplug bulb from light harness (A).

A—Light Harness



RXA0083555 -UN-31AUG05

RW29387,00002B7 -19-20OCT05-1/1

Replacing Courtesy Light—If Equipped

Remove light screws (A) and light assembly.

Pull light plug (B) straight out from light assembly.

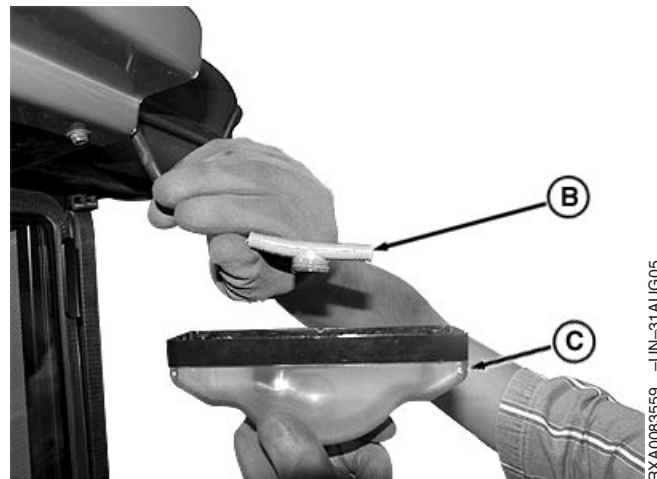
Discard light assembly (C) and replace with new assembly.

Install light assembly in reverse order of removal.

A—Screws
B—Light Plug
C—Light Assembly



RXA0083557 -UN-31AUG05



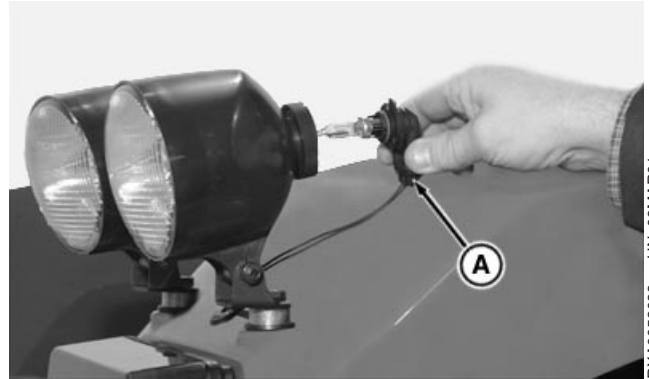
RXA0083559 -UN-31AUG05

RW29387,0000017 -19-09MAY06-1/1

Replacing Fender Mounted Flood Lights

Twist and pull out bulb plug from back of light housing.
Unplug bulb from light harness (A).

A—Light Harness



FXA0052088 -UN-09MAR01

RW29387,00002B8 -19-06NOV02-1/1

Troubleshooting

Engine Troubleshooting

Symptom	Problem	Solution
Engine hard to start or will not start	Incorrect starting procedure	Review starting procedure
	No fuel	See Bleeding Fuel System
	Air in fuel line	Bleed fuel line
	Cold weather	Use cold weather starting aids
	Slow starter speed	See Starter Cranks Slowly
	Crankcase oil too heavy	Use correct oil viscosity
	Incorrect type of fuel	Consult fuel supplier; use correct fuel type for operating conditions
	Water, dirt, or air in fuel system	Drain, flush, fill and bleed system
	Clogged fuel filter	Replace filter
	Clogged sump screen	Drain tank, clean or replace screen
	Dirty or faulty injectors	Have your John Deere Dealer check injectors
Engine knocks	Insufficient oil	Add oil
	Low coolant temperature	Replace thermostats
	Engine overheating	See Engine Overheats
	Valve Lash	See your John Deere Dealer

Continued on next page

OU1092A,0000039 -19-29SEP03-1/5

Troubleshooting

Symptom	Problem	Solution
Engine runs irregularly or stalls frequently	Low coolant temperature	Replace thermostats
	Clogged in-line filter or fuel filter	Replace filters and flush in-line filter
	Clogged sump screen	Drain tank, clean or replace screen
	Water, dirt, or air in fuel system	Drain, flush, fill and bleed system
	Restricted fuel line	Clean or replace fuel line
	Dirty or faulty injectors	Have your John Deere Dealer check injectors
Below normal engine temperature	Defective thermostat or thermostat incorrectly installed	Replace thermostats
	Defective temperature gauge or sender	Check gauge, sender and connections
	Viscous fan locked up	See your John Deere Dealer

Continued on next page

OU1092A,0000039 -19-29SEP03-2/5

Symptom	Problem	Solution
Lack of power	Engine overloaded	Reduce load or shift to lower gear
	Low fast idle speed	See your John Deere Dealer
	Intake air restriction	Service air cleaner
	Clogged in-line filter or fuel filter	Replace filter(s)
	Clogged sump screen	Drain tank, clean or replace screen
	Incorrect type of fuel	Use correct fuel
	Overheated engine	See Engine Overheats
	Below normal engine temperature	Replace thermostats
	Incorrect valve clearance	See your John Deere Dealer
	Dirty or faulty injectors	Have your John Deere Dealer check injectors
	Turbocharger not functioning	See your John Deere Dealer
	Leaking exhaust manifold gasket	See your John Deere Dealer
	Implement incorrectly adjusted	See implement operator's manual
	Restricted fuel line	Clean or replace fuel line
	Incorrect ballast	Adjust ballast to load
Low oil pressure	Low oil level	Add oil
	Incorrect type of oil	Drain, fill crankcase with correct quality and viscosity of oil
High oil consumption	Crankcase oil too light	Use correct viscosity oil
	Incorrect oil refill	See Checking Engine Oil Level in the Lubrication Section
	Oil leaks	Check for leaks in lines, around gaskets and drain plug
	Defective turbocharger	See your John Deere Dealer

Continued on next page

OU1092A,0000039 -19-29SEP03-3/5

Troubleshooting

Symptom	Problem	Solution
Engine emits white smoke	Incorrect type of fuel	Use correct fuel
	Clogged or dirty air cleaner	Service air cleaner
	Engine overloaded	Reduce load or shift to a low gear
	Incorrect starting procedure	See STARTING THE ENGINE, in Operating the Engine Section
	Injection nozzles dirty	See your John Deere Dealer
	Engine out of time	See your John Deere Dealer
	Turbocharger not functioning	See your John Deere Dealer
Engine overheats	Dirty radiator core, oil cooler, or grille screens	Remove all trash
	Engine overloaded	Shift to lower gear or reduce load
	Low engine oil level	Check oil level. Add oil as required
	Low coolant level	Fill radiator to correct level, check radiator and hoses for loose connections or leaks
	Faulty radiator cap	See your John Deere Dealer
	Loose or defective fan belt	Check belt tensioner. Replace as needed
	Cooling system needs flushing	Flush cooling system
	Defective thermostat	Replace thermostats
	Defective temperature gauge or sender	See your John Deere Dealer

Continued on next page

OU1092A,0000039 -19-29SEP03-4/5

Troubleshooting

Symptom	Problem	Solution
High fuel consumption	Incorrect type of fuel	Use correct fuel
	Clogged or dirty air cleaner	Service air cleaner
	Engine overloaded	Reduce load or shift to lower gear
	Incorrect valve clearance	See your John Deere Dealer
	Injection nozzles dirty	See your John Deere Dealer
	Implement incorrectly adjusted	See implement operator's manual
	Low engine temperature	Replace thermostats
	Excessive ballast	Adjust ballast to load
	Defective turbocharger	See your John Deere Dealer
Engine power reduced (9420, 9520 and 9620)	Operating with heavy ballast and full power	See Drive Train Protection—9420, 9520 and 9620 in Operating the Tractor Section
	Using PTO with tractor stationary	See Drive Train Protection—9420, 9520 and 9620 in Operating the Tractor Section

OU1092A,0000039 -19-29SEP03-5/5

Transmission Troubleshooting

Symptom	Problem	Solution
Transmission slippage	Low oil supply	Fill system with correct oil
	Riding Clutch pedal	Remove foot from clutch pedal
	Excessive load on tractor	Lower gear and/or reduce load
	Transmission filter indicator light on	Change filter element or have your John Deere Dealer repair
Tractor will not move in any gear	Low transmission oil level	Fill transmission with correct oil
	Extremely cold transmission oil	Warm transmission oil
	Check for active diagnostic code	See your John Deere Dealer
	Transmission malfunction	Remove and inspect transmission sump screen for metal particles or See your John Deere Dealer
	Transmission drive line broken	Repair or have your John Deere Dealer repair
Tractor lacks power or moves slow	Transmission slipping	Have your John Deere Dealer repair
	Operator in too high a gear	Downshift
	Excessive load	Operator in wrong gear for operating conditions
Transmission shifts too slow	Low transmission oil level	Fill transmission with correct oil
	Sticking clutch solenoid valve	Have your John Deere Dealer repair
	Pump malfunction	Have your John Deere Dealer repair
	Transmission filter indicator light on	Change filter element or see your John Deere Dealer
Transmission shifts too fast		Have your John Deere Dealer repair
	High transmission system pressure	Have your John Deere Dealer repair
	Clutch requires calibration	Have your John Deere Dealer repair

Troubleshooting

Symptom	Problem	Solution
Transmission system overheats	Low transmission oil level	Fill transmission with correct oil
	Excessive load	Lighten load or use lower gear
	Pump malfunction	Have your John Deere Dealer repair
	Transmission filter indicator light on	Change filter element or see your John Deere Dealer
Excessive transmission noise (Under load or no load)	Low transmission oil level	Fill transmission with correct oil
	Parts worn or damaged in transmission	Have your John Deere Dealer repair
Excessive Tractor vibration	Transmission or transmission pump malfunction	Have your John Deere Dealer repair
	Parts worn or damaged in transmission	Have your John Deere Dealer repair
Excessive Noise	Transmission pump malfunction	Have your John Deere Dealer repair
	Excessive backlash in gear train	Have your John Deere Dealer repair

RW29387,00002BA -19-06NOV02-2/2

Hydraulic System Troubleshooting

Symptom	Problem	Solution
Entire hydraulic system fails to function	Low oil supply	Fill system with correct oil
	Clogged hydraulic filters	Replace hydraulic filter
	Oil cooler air passages clogged	Clean oil cooler
	High-pressure internal leak	See your John Deere Dealer
Hydraulic oil overheats	Low oil supply	Fill system with correct oil
	Oil cooler air passages clogged	Clean oil cooler
	Clogged transmission oil filter	Replace transmission filter
	Internal hydraulic leak	See your John Deere Dealer
	Implement hydraulic load not matched to tractor	See your John Deere Dealer

RW29387,00002BB -19-06NOV02-1/1

Brakes Troubleshooting

Symptom	Problem	Solution
No solid pedal feel (Engine Off)	Air in system	See your John Deere Dealer
Pedal settles (Engine Off)	Brake piston seals leaking	See your John Deere Dealer
	Brake bleeder not correctly closed	See your John Deere Dealer
	Leakage in pump control system at brake valve	See your John Deere Dealer
Excessive pedal travel or kickback (With Engine On)	Leakage in pump control system	See your John Deere Dealer
	Air in system	See your John Deere Dealer
	Brake piston seals leaking	See your John Deere Dealer
	Brake bleeder not correctly closed	See your John Deere Dealer

RW29387,00002BC -19-06NOV02-1/1

Hitch Troubleshooting

Symptom	Problem	Solution
Insufficient transport clearance	Center link too long	Adjust center link
	Lift links too long	Adjust lift links
	Implement not level	Level implement
	Implement not correctly adjusted	See implement operator's manual
	Upper height limit not correctly set	Adjust upper height limit
Hitch fails to follow lever	Malfunction in lever position sensor circuit or hitch position sensor	See your John Deere Dealer
Poor position control	Load/depth mix control on wrong position	Turn load/depth mix control to the left
	System is reset	Enable system
	Calibration fuse inadvertently moved	Be sure key switch is OFF and move fuse to spare position
	Malfunction in lever position sensor circuit or hitch position sensor	See your John Deere Dealer
Hitch drops slowly	Hitch rate-of-drop control not correctly set	Adjust rate-of-drop knob
Hitch fails to lift or lifts slowly	Excessive load on hitch	Reduce load
	Center link in wrong position	Adjust upper height limit
Implement will not operate at desired depth	Lift links too short	Adjust lift links
	Lack of penetration	See implement operator's manual
	Draft sensor failed	See your John Deere Dealer
Insufficient or no hitch response to draft load	Load/depth mix control in wrong position	Turn load/depth mix control to the right
	System is reset	Enable system
	Rate-of-drop too slow	Adjust rate-of-drop knob

Troubleshooting

Symptom	Problem	Solution
Hitch too responsive	Load/depth mix control not correctly set	Turn load/depth mix control to the left
Hitch settles too fast after tractor is parked and engine is shut off	Internal circuit leakage	See your John Deere Dealer
Hitch will not move (controls not working, including rear raise/lower switch)	Fuse(s) blown	Replace fuses
	Engine not running	Start engine
Rear raise/lower switch will not move hitch	Failure of raise/lower switch, connector, or wiring harness	See your John Deere Dealer
	Lever in transport	Move lever out of transport

RW29387,00002BD -19-06NOV02-2/2

Selective Control Valve Troubleshooting

Symptom	Problem	Solution
Remote cylinder will not lift load	Flow check	Cycle SCV levers
	Excessive load	Reduce load
	Hoses not completely installed	Attach hoses correctly
	Incorrect remote cylinder size	Use correct size cylinder
	SCV transport lock engaged	Release SCV transport lock
Remote cylinder rate of travel too fast or too slow	Incorrect flow rate	Adjust flow rate
Direction of remote cylinder travel is reversed	Incorrect hose connections	Reverse hose connections
Hoses will not couple	Incorrect hose male connectors	Replace connectors with ISO Standard connectors
Detent does not hold or releases too soon	Detent time set incorrectly	Set time correctly
	SCV lever is not being released to neutral	Release SCV lever from detent to neutral in less than 0.8 seconds
SCV lever does not release	SCV float is being "commanded"	Do not push lever down in forward position
	Lever mechanism failed	See your John Deere Dealer
Implement does not operate or does not operate correctly	Incorrect hose connections	See hose connection examples in Remote Hydraulic Connections Section
		See your John Deere Dealer

RW29387,00002BE -19-06NOV02-1/1

TouchSet Control Troubleshooting

Symptom	Problem	Solution
Depth control does not function correctly	Transport lock-up valve closed	Open valve
	Cylinders not “rephased” (synchronized)	“Rephase” (synchronize) cylinders IMPORTANT: Be sure all air is bled from depth control system
	Machine operating at different depths	Hard ground or adverse operating conditions See implement operator’s manual
	Cylinder leakage	Check for leakage Repair or replace cylinders; see your John Deere Dealer
	Insufficient tractor hydraulic pressure	Check tractor hydraulic pressure; use correct size cylinders for tractor pressure
	Hydraulic hoses not connected correctly	Reconnect correctly

RW29387,00002BF -19-06NOV02-1/1

Electrical System Troubleshooting

Symptom	Problem	Solution
Voltage indicator flashing when there is low battery voltage (key ON and engine stopped)	Defective battery	Check electrolyte level and specific gravity
	Low charging voltage	Have your John Deere Dealer check charging circuit
	High resistance in charging circuit	Have your John Deere Dealer check charging circuit
	Indicator malfunction	Have your John Deere Dealer check indicator
Voltage and SERVICE ALERT indicators flashing indicating low charging voltage (engine running)	Low engine speed	Increase speed
	Alternator belt slipping	Check belt tension
	Defective battery	Check electrolyte level and specific gravity
	Defective alternator	Have your John Deere Dealer check alternator
Voltage and SERVICE ALERT indicators flashing indicating excessive charging voltage	Excessive electrical load	Decrease load
	Faulty connection to alternator	Check wiring connections
	Defective regulator	Have your John Deere Dealer check alternator
	Excessive electrical load	Decrease load
Voltage indicator flashing indicating excessive charging voltage	Faulty connection to alternator	Check wiring connections
	Defective regulator	Have your John Deere Dealer check alternator

Troubleshooting

Symptom	Problem	Solution
Batteries will not charge	Loose or corroded connections	Clean and tighten connections
	Sulfated or worn-out batteries	Check electrolyte level and specific gravity
	Loose or defective alternator belt	Adjust belt tension or replace belts
Starter inoperative	Transmission in gear	Place transmission in PARK
	Faulty or maladjusted neutral start switch or starter solenoid malfunction	See your John Deere Dealer
	Loose or corroded connections	Clean and tighten loose connections
	Low battery output	See your John Deere Dealer
	Blown fuse	Replace fuse
Starter cranks slowly	Low battery output	Check electrolyte level and specific gravity
	Crankcase oil too heavy	Use correct viscosity oil
	Loose or corroded connections	Clean and tighten loose connections
Light system does not function; rest of electrical system functions	Blown fuse	Replace fuse
Entire electrical system does not function	Faulty battery connection	Clean and tighten connections
	Sulfated or worn out batteries	Check electrolyte level and specific gravity
	Blown fuse	Replace fuse
	Blown or loose fusible link	Replace fusible link near starter
Blower malfunctioning	Blower does not work	Check all blower fuses
Blower operates only in PURGE	Blown blower resistance assembly	See you John Deere Dealer

Operator Enclosure Troubleshooting

Symptom	Problem	Solution
Blower not keeping dust out of operator enclosure	Defective seal around filter	Check seal condition
		Check filter for correct installation
	Defective filter	Replace filter
	Excessive air leak	Seal air leaks
Blower air flow too low	Blower air flow too low	See Blower Air Flow Too Low
	Clogged filter or air intake screen	Clean
	Heater core or evaporator core clogged	Clean
Heater will not shut off	Heater hoses connected incorrectly	See your John Deere Dealer
Air conditioner not cooling	Low voltage	Check charging circuit. (See Checking Air Conditioning System in the General Maintenance and Inspection Section)
	Low refrigerant	Check sight glass. (See Checking Air Conditioning System in the General Maintenance and Inspection Section)
	Belt slipping	Check belt tension
	Heater switched on	Switch heater off
	Compressor stuck	Rock compressor pulley back and forth
Intermittent cooling	Air restriction	Clean side screens, radiator and oil cooler condenser. (See Checking Air Conditioning System in the General Maintenance and Inspection Section)
Seat suspension not working	Blown fuse	Replace fuse
Radio does not function	Blown fuse	Replace fuse

Service Codes

Diagnostic Service Codes

Service Code	Problem	Solution
Armrest Control Unit Service Codes (ACU)		
ACU 1	ACU control unit fault	Have your John Deere Dealer repair
ACU 2	SCV lever calibration	Have your John Deere Dealer repair
ACU 3	Throttle or hitch calibration fault	Have your John Deere Dealer repair
ACU 27	Calibration incomplete	Have your John Deere Dealer repair
ACU 28	ACU not calibrated	Have your John Deere Dealer repair
ACU 30	Throttle lever circuit failure	Have your John Deere Dealer repair
ACU 40	Transmission shift lever failure	Have your John Deere Dealer repair
ACU 41	ACU powered up in gear	Reset with shift lever in park
ACU 42	Transmission park position conflict	Have your John Deere Dealer repair
ACU 49	Hitch up/down selector ON at start-up	Restart with hitch up/down selector OFF
ACU 53, 54, 56, 57	Hitch control inputs open circuit or shorted	Have your John Deere Dealer repair
ACU 70	IMS switch error	Have your John Deere Dealer repair
ACU 71	Auto resume switch fault	Have your John Deere Dealer repair
ACU 110, 111, 120, 121, 130, 131, 140, 141, 150, 151	SCV control lever failure	Have your John Deere Dealer repair
Active Seat Unit Service Codes (ASU)		
ASU 10	Seat position sensor out of range	Have your John Deere Dealer repair
ASU 12	Accelerometer input out of range	Have your John Deere Dealer repair
ASU 20, 21	Battery voltage out of range	Have your John Deere Dealer repair
ASU 22	Sensor supply out of range	Have your John Deere Dealer repair
ASU 26	Flow control valve calibration problem	Have your John Deere Dealer repair
ASU 27	Seat position sensor calibration problem	Have your John Deere Dealer repair
ASU 28	Controller calibration problem	Have your John Deere Dealer repair
ASU 31	Flow control valve circuit failure	Have your John Deere Dealer repair
ASU 33	Pressure control valve circuit failure	Have your John Deere Dealer repair
ASU 35	Compressor relay circuit failure	Have your John Deere Dealer repair

Continued on next page

OU1092A,00000BB -19-10MAY06-1/18

Service Codes

Service Code	Problem	Solution
ASU 36	Compressor time out	Have your John Deere Dealer repair
ASU 37	Vent valve circuit failure	Have your John Deere Dealer repair
ASU 38	Vent time out	Have your John Deere Dealer repair
ASU 50	Seat above ride zone	Have your John Deere Dealer repair
ASU 111	Seat height switch error	Have your John Deere Dealer repair
ASU 113	Seat firmness switch error	Have your John Deere Dealer repair
ASU 120	CCD communication failure	Have your John Deere Dealer repair
ASU 121	Tractor wheel speed message not received	Have your John Deere Dealer repair
ASU 122	Hydraulic oil level message not received	Have your John Deere Dealer repair
ASU 123	Hydraulic oil temperature message not received	Have your John Deere Dealer repair
ASU 124	Engine speed message not received	Have your John Deere Dealer repair
ASU 125	Diagnostic fuse status message missing	Have your John Deere Dealer repair
ASU 207	Controller reset detected	Have your John Deere Dealer repair

ClimaTrak Display Codes (ATC) (If Equipped) (Serial No. 010001-)

Each code will have either an "a" suffix for active or an "S" suffix for stored.

01.3	Cab temperature sensor circuit voltage high	See your John Deere Dealer
01.4	Cab temperature sensor circuit voltage low	See your John Deere Dealer
03.3	Ambient temperature sensor circuit voltage high	See your John Deere Dealer
03.4	Ambient temperature sensor circuit voltage low	See your John Deere Dealer
07.3	Duct air temperature sensor circuit voltage high	See your John Deere Dealer
07.4	Duct air temperature sensor circuit voltage low	See your John Deere Dealer
08.3	Evaporator temperature sensor circuit voltage high	See your John Deere Dealer
08.4	Evaporator temperature sensor circuit voltage low	See your John Deere Dealer
09.1	Excessive A/C clutch cycling	See your John Deere Dealer
10.3	Temperature control circuit voltage high	See your John Deere Dealer
10.4	Temperature control circuit voltage low	See your John Deere Dealer
11.3	Blower control circuit voltage high	See your John Deere Dealer
11.4	Blower control circuit voltage low	See your John Deere Dealer
12.3	Water valve position sensor circuit voltage high	See your John Deere Dealer

Continued on next page

OU1092A,00000BB -19-10MAY06-2/18

Service Codes

Service Code	Problem	Solution
12.4	Water valve position sensor circuit voltage low	See your John Deere Dealer
13.1	Water valve motor not calibrated	See your John Deere Dealer
13.3	Water valve motor voltage high	See your John Deere Dealer
13.4	Water valve motor voltage low	See your John Deere Dealer
13.7	Water valve motor mechanical fault	See your John Deere Dealer
14.3	Air flow mode control circuit voltage high	See your John Deere Dealer
14.4	Air flow mode control circuit voltage low	See your John Deere Dealer
15.1	Air flow control motor not calibrated	See your John Deere Dealer
15.5	Air flow control motor circuit voltage high	See your John Deere Dealer
15.6	Air flow control motor circuit voltage low	See your John Deere Dealer
15.7	Air flow control motor mechanical fault	See your John Deere Dealer
16.3	Compressor clutch circuit voltage high	See your John Deere Dealer
16.4	Compressor clutch circuit voltage low	See your John Deere Dealer
17.3	Pressurizer blower motor circuit voltage high	See your John Deere Dealer
17.4	Pressurizer blower motor circuit voltage low	See your John Deere Dealer
18.3	Recirculation blower motor circuit voltage high	See your John Deere Dealer
18.4	Recirculation blower motor circuit voltage low	See your John Deere Dealer
19.1	Recirculation blower motor fault	See your John Deere Dealer
20.3	ATC supply voltage high	See your John Deere Dealer
20.4	ATC supply voltage low	See your John Deere Dealer
22.1	ATC memory fault	See your John Deere Dealer
23.2	ATC control unit fault	See your John Deere Dealer
24.1	ATC CAN bus fault	See your John Deere Dealer
24.9	ATC CAN Bus fault	See your John Deere Dealer
25.5	Compressor shutoff due to engine overheat	See your John Deere Dealer
26.9	ECU CAN message missing	See your John Deere Dealer

Central Control Unit Service Codes (CCU)

CCU 1	Fuel level input open circuit or shorted to more than 12 volts	Have your John Deere Dealer repair
-------	--	------------------------------------

Continued on next page

OU1092A,00000BB -19-10MAY06-3/18

Service Codes

Service Code	Problem	Solution
CCU 4	Fuel flow signal missing (Warning)	Fill fuel tank. See FUELS, LUBRICANTS, AND COOLANT SECTION Have your John Deere Dealer check injection system
CCU 5	Engine oil pressure input sensor is out of range low	Have your John Deere Dealer repair
CCU 6	Diagnostic message from ECU missing	Have your John Deere Dealer repair
CCU 7	ECU does not match tractor model	Have your John Deere Dealer repair
CCU 9	Seat switch stuck closed	Have your John Deere Dealer repair
CCU 10	Engine coolant temperature high	Have your John Deere Dealer repair
CCU 11	Engine coolant temperature very high	Have your John Deere Dealer repair
CCU 12, 13	Coolant temperature input open circuit or shorted	Have your John Deere Dealer repair
CCU 15	Hydraulic oil temperature high (Warning)	Check oil level and filter Clean grille, side screens, radiator and oil cooler
CCU 16	Hydraulic oil temperature high (STOP ENGINE)	Check oil level and filter Clean grille, side screens, radiator and oil cooler
CCU 17, 18	Hydraulic oil temperature input open circuit or shorted	Have your John Deere Dealer repair
CCU 19	Hydraulic oil temperature low (throttle speed limited)	Operate tractor at idle speed until oil warms up. See HYDRAULIC SYSTEM WARM-UP in the Operating the Tractor Section
CCU 20	Engine oil pressure low (STOP ENGINE)	Check oil level
	Incorrect type of oil	Drain, fill crankcase with correct oil. See ENGINE OIL in Fuels, Lubricants and Coolant Section
CCU 23	Engine speed signal missing	Have your John Deere Dealer repair
CCU 24	Clean oil reservoir level switch open circuit	Have your John Deere Dealer repair
CCU 25	Transmission oil pressure switch circuit open	Have your John Deere Dealer repair
CCU 26	Transmission oil pressure low (Warning)	Check transmission oil level and filter
CCU 29	Axle lube pump pressure switch open circuit	Have your John Deere Dealer repair
CCU 30	Engine air filter restricted (Warning)	Clean or replace filter. See SERVICE AIR CLEANER in the General Maintenance and Inspection Section
CCU 33	Transmission oil pressure sensor fault	Clean or replace filter. See SERVICE AIR CLEANER in the General Maintenance and Inspection Section

Continued on next page

OU1092A,00000BB -19-10MAY06-4/18

Service Codes

Service Code	Problem	Solution
CCU 37	Reverse switch circuit open	Have your John Deere dealer repair
CCU 39	Secondary steering pump is on	Have your John Deere dealer repair
CCU 40	Secondary steering switch circuit open	Have your John Deere dealer repair
CCU 45, 46	Low voltage or excessive electrical load (Warning)	<p>Check battery. See SERVICING THE BATTERIES in the General Maintenance and Inspection Section</p> <p>Check belt tensioner. See CHECKING BELT TENSIONER in the General Maintenance and Inspection Section</p> <p>Reduce electrical load</p> <p>Have your John Deere Dealer check charging system</p>
CCU 47	High voltage (Warning)	<p>Replace voltage regulator</p> <p>Have your John Deere Dealer check charging system</p>
CCU 49	High voltage (STOP ENGINE)	<p>Replace voltage regulator</p> <p>Have your John Deere Dealer check charging system</p>
CCU 50	Hydraulic oil filter restricted (Warning)	Change transmission-hydraulic oil filter
CCU 51	Transmission oil filter restricted (Warning)	Change transmission oil filter
CCU 53	Transmission Hi-Lo solenoid circuit (Warning)	If operating Hi-Lo in Lo, bump shift to Hi
CCU 55	CCU address 23 configuration invalid	Have your John Deere dealer repair
CCU 61	Hydraulic oil reservoir level low (STOP ENGINE)	Add hydraulic oil. See CHECKING HYDRAULIC OIL LEVEL in the Lubrication Section
CCU 64	Axle lube pressure low (STOP ENGINE)	Add transmission-hydraulic oil. See CHECKING TRANSMISSION/AXLE OIL LEVEL in the Lubrication Section
CCU 65	Axle lube pressure low (Warning)	<p>Add transmission-hydraulic oil. See CHECKING TRANSMISSION/AXLE OIL LEVEL in the Lubrication Section</p> <p>Operate engine with transmission in PARK/NEUTRAL at 2100 rpm at least 5 minutes to warm oil</p>
CCU 67	Electrical sensor or circuit	<p>Check fuse F14. See LOAD CENTER FUSES in the Maintenance—Electrical System Section</p> <p>Have your John Deere Dealer repair</p>
CCU 68	PTO overspeed	Reduce engine rpm
CCU 70	Operator out of seat with PTO engaged (Warning)	If not stationary PTO use, return to seat or turn off PTO before leaving cab. See OPERATOR PRESENCE SENSOR in the Operator Station Section

Continued on next page

OU1092A,00000BB -19-10MAY06-5/18

Service Codes

Service Code	Problem	Solution
CCU 72	CCD CCU Bus fault	See your John Deere Dealer for repair
CCU 75	Clutch is slipping for excessive time or load	Avoid riding clutch pedal
CCU 80	Differential lock switch circuit fault	Have your John Deere dealer repair
CCU 81	Differential lock switch circuit fault	Have your John Deere dealer repair
CCU 95	Hand throttle command missing	Check fuse F3 Have your John Deere Dealer repair as soon as possible
CCU 101	Axle lube pressure switch failed closed	Have your John Deere Dealer repair
CCU 107	IMS not responding due to hitch	Have your John Deere Dealer repair
CCU 120, 121, 122, 125	Controller fault	Have your John Deere Dealer repair
Engine Control Unit Service Codes (ECU)		
ECU 10	Cylinder #1 Electronic injector mechanical failure	Have your John Deere Dealer repair as soon as possible
ECU 13, 14, 15	Throttle voltage out of range	Have your John Deere Dealer repair as soon as possible
ECU 20	Cylinder #2 Electronic injector mechanical failure	Have your John Deere Dealer repair as soon as possible
ECU 21, 22	Sensor supply voltage out of range	Have your John Deere Dealer repair as soon as possible
ECU 23, 24	Manifold air temperature input voltage out of range	Have your John Deere Dealer repair as soon as possible
ECU 25, 26	Coolant temperature input voltage out of range	Have your John Deere Dealer repair as soon as possible
ECU 27	Throttle position data not valid or not received Engine will only idle	Have your John Deere Dealer repair as soon as possible Have your John Deere Dealer repair as soon as possible
ECU 28	ECU error	Have your John Deere Dealer repair as soon as possible
ECU 29	Torque curve selection invalid	Have your John Deere Dealer repair as soon as possible
ECU 30	Cylinder #3 Electronic injector mechanical failure	Have your John Deere Dealer repair as soon as possible
ECU 31	Cylinder #1 EUI open circuit	Have your John Deere Dealer repair as soon as possible
ECU 32	Cylinder #2 EUI open circuit	Have your John Deere Dealer repair as soon as possible
ECU 33	Cylinder #3 EUI open circuit	Have your John Deere Dealer repair as soon as possible
ECU 34	Cylinder #4 EUI open circuit	Have your John Deere Dealer repair as soon as possible
ECU 35	Cylinder #5 EUI open circuit	Have your John Deere Dealer repair as soon as possible
ECU 36	Cylinder #6 EUI open circuit	Have your John Deere Dealer repair as soon as possible
ECU 37, 38	Fuel temperature voltage out of range (sensor) - No harm to engine	Have your John Deere Dealer repair at earliest convenience

Continued on next page

OU1092A,00000BB -19-10MAY06-6/18

Service Codes

Service Code	Problem	Solution
	Engine power changes, hard or smoky starting - No harm to engine	Have your John Deere Dealer repair at earliest convenience
ECU 40	Cylinder #4 Electronic injector mechanical failure	Have your John Deere Dealer repair as soon as possible
ECU 41	Crankshaft position input missing	Have your John Deere Dealer repair as soon as possible
ECU 42	Crankshaft position input noise/pattern error	Have your John Deere Dealer repair as soon as possible
ECU 43	Pump position sensor input or cam position input missing	Have your John Deere Dealer repair as soon as possible
ECU 44	Cam position input noise/pattern error	Have your John Deere Dealer repair as soon as possible
ECU 45	ECU/Pump timing or crank position/cam position out of sync	Have your John Deere Dealer repair as soon as possible
ECU 50	Fuel rail pressure input voltage high	Have your John Deere Dealer repair as soon as possible
ECU 51	Fuel rail pressure input voltage low	Have your John Deere Dealer repair as soon as possible
ECU 57, 58, 59	Fuel supply problem	Have your John Deere Dealer repair as soon as possible
ECU 60	Cylinder #6 Electronic injector mechanical failure	Have your John Deere Dealer repair as soon as possible
ECU 62	Engine coolant temperature moderately high	Check for debris restricting radiator air flow, reduce load on engine Have your John Deere Dealer repair as soon as possible
ECU 63	Engine coolant temperature extremely high - Engine damage possible	Stop engine Have your John Deere Dealer repair immediately
ECU 66	Manifold air temperature high	Check for debris restricting aftercooler air flow Reduce load on engine Have your John Deere Dealer repair as soon as possible
ECU 67	Engine protection shutdown notification	Stop engine Have your John Deere Dealer repair immediately
ECU 68	Engine protection derate notification	Have your John Deere Dealer repair as soon as possible
ECU 69	Cylinder #5 Electronic injector mechanical failure	Have your John Deere Dealer repair as soon as possible
ECU 71	Fuel rail pressure loss detected	Have your John Deere Dealer repair as soon as possible
ECU 72	Fuel rail pressure not developed	Have your John Deere Dealer repair as soon as possible
ECU 73	Fuel rail pressure sensor voltage high	Have your John Deere Dealer repair as soon as possible
ECU 74	Fuel rail pressure sensor voltage low	Have your John Deere Dealer repair as soon as possible

Continued on next page

OU1092A,00000BB -19-10MAY06-7/18

Service Codes

Service Code	Problem	Solution
ECU 75	Water in fuel detected	Drain water from separator
ECU 76	Water in fuel sensor voltage high or low	Have your John Deere Dealer repair as soon as possible
ECU 77	Pump control valve #1 error	Have your John Deere Dealer repair as soon as possible
ECU 78	Fuel rail pressure control error	Have your John Deere Dealer repair as soon as possible
ECU 79	Pump control valve #2 error	Have your John Deere Dealer repair as soon as possible
ECU 80	Fuel level low	Fill tank with fuel
	Fuel temperature high	Have your John Deere Dealer repair as soon as possible
ECU 84	ECU power down error	Have your John Deere Dealer repair as soon as possible
	Engine dies and will not restart	Have your John Deere Dealer repair as soon as possible
ECU 88, 89	Pump control valve fuel flow not detected	Have your John Deere Dealer repair as soon as possible
	Engine does not start or runs erratically	Have your John Deere Dealer repair as soon as possible
ECU 90	Fuel rail pressure higher than expected	Have your John Deere Dealer repair as soon as possible
	Engine does not start or runs erratically	Have your John Deere Dealer repair as soon as possible
ECU 91	Current problem to injector #1	Have your John Deere Dealer repair as soon as possible
ECU 92	Current problem to injector #2	Have your John Deere Dealer repair as soon as possible
ECU 93	Current problem to injector #3	Have your John Deere Dealer repair as soon as possible
ECU 94	Current problem to injector #4	Have your John Deere Dealer repair as soon as possible
ECU 95	Current problem to injector #5	Have your John Deere Dealer repair as soon as possible
ECU 96	Current problem to injector #6	Have your John Deere Dealer repair as soon as possible
ECU 97	All injector currents out of specification	Have your John Deere Dealer repair as soon as possible
ECU 98, 99	Injector drive circuit shorted	Have your John Deere Dealer repair as soon as possible
Hitch Control Unit Service Codes (HCU)		
HCU 22	Battery voltage to hitch, out of range	Hitch may not operate correctly. Have your John Deere Dealer repair
HCU 27, 28, 29	Calibration	Hitch may not operate correctly. Have your John Deere Dealer repair
HCU 40	Valve harness connections invalid	Hitch may not operate correctly. Have your John Deere Dealer repair
HCU 41-44	Hitch valve	Hitch may not operate correctly. Have your John Deere Dealer repair

Continued on next page

OU1092A,00000BB -19-10MAY06-8/18

Service Codes

Service Code	Problem	Solution
HCU 45	Hitch sensor supply power shorted	Hitch may not operate correctly. Have your John Deere Dealer repair
HCU 49	Hitch up/down selector ON while activating external raise/lower switch or moving hitch control lever	Restart with hitch up/down selector OFF
	Hitch up/down switch circuit failed	Hitch may not operate correctly. Have your John Deere Dealer repair
HCU 50	Hitch controller	Hitch may not operate correctly. Have your John Deere Dealer repair
HCU 52	Hitch draft sensor input open circuit or shorted	Hitch may not operate correctly. Have your John Deere Dealer repair
HCU 53	Hitch load/depth circuit failure (See ACU 53)	Hitch may not operate correctly. Have your John Deere Dealer repair
HCU 54	Hitch control lever circuit failure (See ACU 54)	Hitch may not operate correctly. Have your John Deere Dealer repair
HCU 55	Hitch position sensor input open circuit or shorted	Hitch may not operate correctly. Have your John Deere Dealer repair
HCU 56	Hitch raise limit control (See ACU 56)	Hitch may not operate correctly. Have your John Deere Dealer repair
HCU 57	Hitch rate-of-drop control (See ACU 57)	Hitch may not operate correctly. Have your John Deere Dealer repair
HCU 58	External raise/lower switch	Hitch may not operate correctly. Have your John Deere Dealer repair
HCU 60	Hitch communication failure	Restart and cycle hitch
		Check fuse F3
		Hitch may not operate correctly. Have your John Deere Dealer repair
HCU 90	Low hydraulic oil level	Add hydraulic oil. (See Lubrication Section)
Instrument Control Unit Service Codes (ICU)		
ICU 94	Membrane switch stuck	Have your John Deere Dealer repair as soon as possible
ICU 95	Communication link missing	Check fuse F1
		Have your John Deere Dealer repair as soon as possible
ICU 96	Air-brake pressure low	Have your John Deere Dealer repair as soon as possible
ICU 98	Transmission come home mode	Have your John Deere Dealer repair as soon as possible
ICU 99	Vehicle monitor memory failure	Have your John Deere Dealer replace as soon as possible

Continued on next page

OU1092A,00000BB -19-10MAY06-9/18

Service Codes

Service Code	Problem	Solution
John Deere Link Service Codes (JDL)		
JDL 1	Control unit configuration and machine PIN conflict	Have your John Deere Dealer repair as soon as possible
JDL 2	Control unit power limit exceeded	Have your John Deere Dealer repair as soon as possible
JDL 3	Control unit memory capacity exceeded	Have your John Deere Dealer repair as soon as possible
JDL 4	CCD Bus fault	Have your John Deere Dealer repair as soon as possible
JDL 5	CAN Bus fault	Have your John Deere Dealer repair as soon as possible
JDL 6	Control unit voltage low	Have your John Deere Dealer repair as soon as possible
JDL 7	Control unit fault	Have your John Deere Dealer repair as soon as possible
JDL 8	Invalid time date	Have your John Deere Dealer repair as soon as possible
JDL 10	Machine data configuration fault 1	Have your John Deere Dealer repair as soon as possible
JDL 11	Machine data configuration fault 2	Have your John Deere Dealer repair as soon as possible
JDL 12	Machine data configuration fault 3	Have your John Deere Dealer repair as soon as possible
JDL 13	Machine data configuration fault 4	Have your John Deere Dealer repair as soon as possible
JDL 14	Machine data configuration fault 5	Have your John Deere Dealer repair as soon as possible
JDL 15	Calibration memory fault	Have your John Deere Dealer repair as soon as possible
JDL 16	GPS not available	Signal strength weak
JDL 17	GPS fault	Have your John Deere Dealer repair as soon as possible
JDL 18	JDL CAN error limit exceeded	Have your John Deere Dealer repair as soon as possible
JDL 50	GPS lock fault	Indicates machine has moved under an obstacle
JDL 52	GPS lock loss	Indicates machine has moved under an obstacle
JDL 54	GPS antenna/cable fault	Indicates machine has moved under an obstacle
JDL 60	Call unanswered	Indicates a call-in attempt has failed
JDL 63	Call disconnected	Indicates connection was dropped before all data had been transferred
JDL 64	Cellular signal weak or no service	Indicates connection was dropped before all data had been transferred
JDL 65	Cellular data bit error rate too high	Have your John Deere dealer repair as soon as possible
JDL 66	Cellular personal identification number blocked	Indicates personal identification number was not received by cellular service

Continued on next page

OU1092A,00000BB -19-10MAY06-10/18

Service Codes

Service Code	Problem	Solution
JDL 67	Communications service identification module fault	Indicates a service identification module failure has occurred
JDL 68	Line busy	Indicates service is not available at present time
JDL 69	Data exchange fault	Indicates connection was dropped before all data had been transferred
JDL 70	Modem fault	Indicates a modem failure has occurred
JDL 71	Data upload fault	Indicates a data transfer error has occurred during a connection
JDL 72	Data download fault	Indicates a data transfer error has occurred during a connection
Powershift Control Unit Service Codes (PCU)		
PCU 006	Engine speed too high to start a downshift	Reduce engine speed until downshift is permitted. Only one downshift will be granted after the engine speed is sufficiently reduced
PCU 013	Park commanded, park brake pressure remains high	Allow tractor hydraulic system to warm up Have your John Deere Dealer repair
PCU 017	Operator out of seat with transmission in neutral	Put tractor in park before leaving seat, or remain in seat while tractor is in neutral Operator too light to engage presence switch, or operator not positioned squarely in seat
PCU 018	Secondary park brake set while in gear	Have your John Deere Dealer repair
PCU 019	Park brake pressure sensor circuit open or shorted to ground	Have your John Deere Dealer repair
PCU 020	Park brake pressure sensor shorted to power	Have your John Deere Dealer repair
PCU 021	Clutch pedal top and bottom switch circuit conflict	Have your John Deere Dealer repair
PCU 022	Clutch pedal sensor circuit fault	Have your John Deere Dealer repair
PCU 023	Clutch pedal potentiometer out of range	Have your John Deere Dealer repair
PCU 024	Park brake previously detected not working	Have your John Deere Dealer repair
PCU 025	Park brake not holding	Have your John Deere Dealer repair
PCU 026	Tractor moving, park inhibited	Reduce speed below 470 rpm, approximately 2 km/h (1.2 mph)
PCU 027	Transmission not calibrated	Have your John Deere Dealer repair
PCU 028	Clutch partially engaged too long	Do not partially depress clutch pedal while the tractor is in gear for a period of time

Continued on next page

OU1092A,00000BB -19-10MAY06-11/18

Service Codes

Service Code	Problem	Solution
PCU 029	Park brake will not release	Have your John Deere Dealer repair
PCU 031	Clutch partially engaged	Do not partially depress clutch pedal while the tractor is in gear for a period of time, potential clutch damage may occur
PCU 032	Clutch 1 solenoid circuit fault - current too low	Have your John Deere Dealer repair
PCU 033	Clutch 1 solenoid circuit fault - current too high	Have your John Deere Dealer repair
PCU 034	Clutch 2 solenoid circuit fault - current too low	Have your John Deere Dealer repair
PCU 035	Clutch 2 solenoid circuit fault - current too high	Have your John Deere Dealer repair
PCU 036	Clutch R solenoid circuit fault - current too low	Have your John Deere Dealer repair
PCU 037	Clutch R solenoid circuit fault - current too high	Have your John Deere Dealer repair
PCU 038	Control unit fault	Have your John Deere Dealer repair
PCU 039	A reverse enable fault	Have your John Deere Dealer repair
PCU 040	Forward enable circuit fault	Have your John Deere Dealer repair
PCU 041	Forward and Reverse enable circuits conflict	Have your John Deere Dealer repair
PCU 042, 043, 044	Gear command and enable circuits conflict	Have your John Deere Dealer repair
PCU 045	Gear command and not-neutral signal conflict	Have your John Deere Dealer repair
PCU 046	Neutral or park commanded / forward or reverse enabled	Have your John Deere Dealer repair
PCU 047	Calibration fault	Have your John Deere Dealer repair
PCU 048	PCU supply voltage low with engine running	Have your John Deere Dealer repair
PCU 049	ACU commanding a gear, but clutch override relay input is low	Have your John Deere Dealer repair
PCU 050	Gear command with engine off	Have your John Deere Dealer repair
PCU 051	No tractor motion with engine running	Have your John Deere Dealer repair
PCU 053, 054, 055	Transmission oil pressure low, Sensor shorted to power or ground	Have your John Deere Dealer repair
PCU 056	Park valve circuit fault with park off	Have your John Deere Dealer repair
PCU 062	Neutral-to-gear shift requested, operator not in seat	Sit in seat to shift tractor
PCU 064	Shuttle shift with excessive ground speed	Move shift lever to N, and reduce ground speed, then shuttle shift. See OM SHIFTING THE TRANSMISSION
PCU 065	EOL checksum error during normal operation	Have your John Deere Dealer repair

Continued on next page

OU1092A,00000BB -19-10MAY06-12/18

Service Codes

Service Code	Problem	Solution
PCU 066	Shift lever in gear at start-up	Turn key off, return shift lever to park, turn key back on, or return shift lever to NEUTRAL before making shift request
PCU 067	Start in gear circuit fault	Possible attempt to "bypass start"
PCU 069	Calibration data for one or more clutches exceeds normal limits	Have your John Deere Dealer repair
PCU 070	PCU not receiving gear commands from ACU	Have your John Deere Dealer repair
PCU 071	CAN bus communication missing	Have your John Deere Dealer repair
PCU 072	RAM test failure	Have your John Deere Dealer repair
PCU 073	Serial EPROM test failure	Restart engine to clear code Have your John Deere Dealer repair
PCU 074	Software watchdog time-out / bad power down	Restart engine to clear code Have your John Deere Dealer repair
PCU 076	Transmission input speed does not match engine speed data	Have your John Deere Dealer repair
PCU 077	Transmission 2nd stage speed sensor data conflict	Have your John Deere Dealer repair
PCU 078	Transmission 5th stage speed sensor data conflict	Have your John Deere Dealer repair
PCU 079	Transmission output speed sensor #1 data conflict	Have your John Deere Dealer repair
PCU 080	Park solenoid #2 output fault	Have your John Deere Dealer repair
PCU 081	Output speed sensors disagree - no speed from output #2	Have your John Deere Dealer repair
PCU 082	Park brake backup control unit conflict	Have your John Deere Dealer repair
PCU 083, 084, 085, 086, 087, 088, 089, 090, 091, 092, 093, 094	Clutch A , B, C, L, M, H, solenoid circuit fault	Have your John Deere Dealer repair
PCU 095, 096	Transmission oil temperature too high. 095 (Warning), 096 (Stop engine)	Check Transmission fluid level Allow transmission to cool before continuing operation Have your John Deere Dealer repair
PCU 097, 098	Transmission oil temperature sensor faulty	Have your John Deere Dealer repair
PCU 099	Invalid gear request received	Have your John Deere Dealer repair

Optional SCV Control Unit Service Codes (SCo)

Continued on next page

OU1092A,00000BB -19-10MAY06-13/18

Service Codes

Service Code	Problem	Solution
SCo 22	SCo supply voltage fault	Have your John Deere Dealer repair
SCo 27	Calibration incomplete	Have your John Deere Dealer repair
SCo 28	SCo not calibrated	Have your John Deere Dealer repair
SCo 29	Calibration selected for less than 30 seconds	Have your John Deere Dealer repair
SCo 40	Valve harness connections invalid	Have your John Deere Dealer repair
SCo 60	SCV levers inoperative, SCV communication link	Stop and restart engine Have your John Deere Dealer repair
SCo 90	Low hydraulic oil level	Add hydraulic oil. See Lubrication Section
SCo 98	Option PIN configuration invalid at start-up	Stop engine and restart
SCo 99	SCo option connection change	Remove jumper harness
SCo 100	Operator not in seat with SCV in detented flow with transmission in NEUTRAL position (Warning)	If not stationary SCV use, return to seat or move SCV lever to neutral before leaving cab. See the Operator Station Section
SCo 140, 141, 142, 143, 144	SCV 4 not working	Have your John Deere Dealer repair
SCo 145	Insufficient current for SCV 4 float	Have your John Deere Dealer repair
SCo 150, 151, 152, 153, 154	SCV 5 not working	Have your John Deere Dealer repair
SCo 155	Insufficient current for SCV 5 float	Have your John Deere Dealer repair
Steering Control System Service Codes (SCS)		
SCS 020	SCS control unit fault	Have your John Deere dealer repair
SCS 022	SCS switched supply voltage fault	Have your John Deere dealer repair
SCS 023	SCS unswitched supply voltage fault	Check Fuse F6
SCS 027	SCS calibration incomplete	Have your John Deere dealer repair
SCS 028	SCS not calibrated	Have your John Deere dealer repair
SCS 029	SCS calibration fault	Have your John Deere dealer repair
SCS 041	Hitch/SCU/SCO connector fault	Remove fuse F5 and F6 Check implement position sensor connections
SCS 045	SCS sensor power fault	Have your John Deere dealer repair Check implement position sensor connections on front scraper
SCS 048	Remote sensor 1 voltage fault	Have your John Deere dealer repair Check implement position sensor connections on rear scraper
SCS 049	Remote sensor 2 voltage fault	Have your John Deere dealer repair
SCS 050	Remote sensor 3 voltage fault	Have your John Deere dealer repair
SCS 053	Average draft control setting fault message received	Have your John Deere dealer repair
SCS 056	Front scraper initial draft setting fault message received	Have your John Deere dealer repair

Continued on next page

OU1092A,00000BB -19-10MAY06-14/18

Service Codes

Service Code	Problem	Solution
SCS 057	Rear scraper initial draft setting fault message received	Have your John Deere dealer repair
SCS 060	SCV control lever message missing	Have your John Deere dealer repair
SCS 061	Clutch position information message missing	Have your John Deere dealer repair
SCS 062	True ground speed message missing	Install radar or have your John Deere dealer repair
SCS 090	SCV function disabled due to low oil level	Add hydraulic oil. See Lubrication Section
SCS 097	Option pin configuration fault	Have your John Deere dealer repair Disconnect option Start tractor engine and turn off engine
SCS 098	Option pin configuration invalid at start-up	Reconnect option with key OFF Disconnect option Start tractor engine and turn off engine
SCS 099	SCS option connection change	Reconnect option with key OFF If problem persists, have your John Deere dealer repair
SCS 100	Operator out of seat with SCV on	If not stationary SCV use, return to seat or move SCV lever to Neutral before leaving cab.
SCS 101	Remote sensor 1 voltage fault	Reactivate automatic control with SCV 1 lever when using SCV implement control
SCS 102	Remote sensor 2 voltage fault	Reactivate automatic control with SCV 3 lever when using SCV implement control
SCS 110	SCV I external control fault message received	Have your John Deere dealer repair
SCS 111	SCV I extend valve fault	Have your John Deere dealer repair
SCS 112	SCV I retract valve fault	Have your John Deere dealer repair
SCS 113	SCV I extend valve calibration fault	Have your John Deere dealer repair
SCS 114	SCV I retract valve calibration fault	Have your John Deere dealer repair
SCS 115	Insufficient current for SCV I float	Have your John Deere dealer repair
SCS 116	Remote sensor 1 voltage out of range	Have your John Deere dealer repair
SCS 120	SCV II external control fault message received	Have your John Deere dealer repair
SCS 121	SCV II extend valve fault	Have your John Deere dealer repair
SCS 122	SCV II retract valve fault	Have your John Deere dealer repair
SCS 123	SCV II extend valve calibration fault	Have your John Deere dealer repair
SCS 124	SCV II retract valve calibration fault	Have your John Deere dealer repair
SCS 125	Insufficient current for SCV II float	Have your John Deere dealer repair
SCS 130	SCV III external control fault message received	Have your John Deere dealer repair
SCS 131	SCV III extend valve fault	Have your John Deere dealer repair
SCS 132	SCV III retract valve fault	Have your John Deere dealer repair
SCS 133	SCV III extend valve calibration fault	Have your John Deere dealer repair
SCS 134	SCV III retract valve calibration fault	Have your John Deere dealer repair
SCS 135	Insufficient current for SCV III float	Have your John Deere dealer repair
SCS 136	Remote sensor 2 voltage out of range	Have your John Deere dealer repair

SCV Control Unit Service Codes (SCU)

SCU 22	SCU supply voltage fault	Have your John Deere Dealer repair
SCU 23	Battery voltage to SCV controller out of range	Check fuse F6
	SCV may not operate as normally expected	Have your John Deere Dealer repair
SCU 27, 28, 29	SCV 1, or 3 not working correctly	Have your John Deere Dealer repair
	Controller calibration	Have your John Deere Dealer repair
SCU 40	Valve harness connections invalid	Have your John Deere Dealer repair

Continued on next page

OU1092A,00000BB -19-10MAY06-15/18

Service Codes

Service Code	Problem	Solution
SCU 45	Implement sensor supply power shorted	Have your John Deere Dealer repair
	Hitch may not operate as normally expected	Have your John Deere Dealer repair
SCU 47	Hitch following sensor fault	Have your John Deere Dealer repair
SCU 48, 49	Remote position sensor circuit failure	Check implement position sensor connection when using SCV depth control (EHDC)
		Have your John Deere Dealer repair
SCU 60	SCV communication link failure	Stop and restart engine
		Have your John Deere Dealer repair
SCU 61	No data from external device	Have your John Deere Dealer repair
SCU 90	Low hydraulic oil level	Add hydraulic oil. See Lubrication Section
SCU 98	Remote control system configuration failed	Check implement connections when using SCV implement control
		Must start tractor with implement connector disconnected to reset
SCU 99	Remote control system configuration failed	Check implement connections when using SCV implement control
SCU 100	Operator not in seat with SCV in detented flow and transmission in neutral (Warning)	If not stationary SCV use, return to seat or move SCV lever to Neutral before leaving cab. See OPERATOR PRESENCE SENSOR in the Operator Station Section
SCU 101	Automatic control of implement using SCV 1 has been cancelled (Warning)	Reactivate automatic control with SCV 1 lever when using SCV implement control
SCU 102	Automatic control of implement using SCV 3 has been cancelled (Warning)	Reactivate automatic control with SCV 3 lever when using SCV implement control
SCU 103	Cancellation of external control	Have your John Deere Dealer repair
SCU 109	External command failure indication	Have your John Deere Dealer repair
SCU 110—114	SCV 1 not working correctly	Have your John Deere Dealer repair
SCU 115	Insufficient current for SCV 1 float	Have your John Deere Dealer repair
SCU 120—124	SCV 2 not working correctly	Have your John Deere Dealer repair
SCU 125	Insufficient current for SCV 2 float	Have your John Deere Dealer repair
SCU 130—134	SCV 3 not working correctly	Have your John Deere Dealer repair
SCU 135	Insufficient current for SCV 3 float	Have your John Deere Dealer repair
Steering Control Unit Service Codes (SSU)		

Continued on next page

OU1092A,00000BB -19-10MAY06-16/18

Service Codes

Service Code	Problem	Solution
SSU 001, 002	Control Unit Fault	See your John Deere Dealer
SSU 004	Vehicle Mismatch	See your John Deere Dealer
SSU 008	Activation code invalid	See your John Deere Dealer
SSU 010	Transmission mismatch	See your John Deere Dealer
SSU 020	SSU not calibrated	See your John Deere Dealer
SSU 021	Steering Valve Supply Voltage Low	See your John Deere Dealer
SSU 029	SSU EOL data fault	See your John Deere Dealer
SSU 030	SSU supply voltage fault	See your John Deere Dealer
SSU 031	Sensor supply voltage fault	See your John Deere Dealer
SSU 041	Steering wheel position sensor supply voltage fault	See your John Deere Dealer
SSU 042	Steering wheel position sensor 1 current fault	See your John Deere Dealer
SSU 043	Steering wheel position sensor 1 signal fault	See your John Deere Dealer
SSU 045	Steering wheel position sensor 1 signal mismatch	See your John Deere Dealer
SSU 051	Steering wheel position sensor 2 supply voltage fault	See your John Deere Dealer
SSU 052	Steering wheel position sensor 2 current fault	See your John Deere Dealer
SSU 053	Steering wheel position sensor 2 signal fault	See your John Deere Dealer
SSU 055	Steering wheel position sensor 2 signal mismatch	See your John Deere Dealer
SSU 065	Steering movement occurred with no steering wheel signal detected	See your John Deere Dealer
SSU 066	Steering input device calibration fault	See your John Deere Dealer
SSU 100	Operator not seated while AutoTrac active	See your John Deere Dealer
SSU 101	Operator presence switch circuit fault	See your John Deere Dealer
SSU 111	Steering valve fault	See your John Deere Dealer
SSU 153	Steering angle sensor calibration fault	See your John Deere Dealer
SSU 158	Steering angle sensor low or no motion	See your John Deere Dealer
SSU 159	Steering direction signal conflict	See your John Deere Dealer
SSU 180	Steering angle sensor output low	See your John Deere Dealer
SSU 181	Steering angle sensor output high	See your John Deere Dealer
SSU 182	Steering angle sensor signal missing	See your John Deere Dealer

Continued on next page

OU1092A,00000BB -19-10MAY06-17/18

Service Codes

Service Code	Problem	Solution
SSU 196	Steering valve deadband calibration fault	See your John Deere Dealer
SSU 197	Steering valve command low service code diagnosis	See your John Deere Dealer
SSU 198	Steering valve command high service code diagnosis	See your John Deere Dealer
SSU 199	Steering system output fault	See your John Deere Dealer
SSU 201	Wheel speed signal missing	See your John Deere Dealer
SSU 203	Transmission signal missing	See your John Deere Dealer
SSU 205	Hydraulic oil temperature signal missing	See your John Deere Dealer
SSU 206	AutoTrac resume switch message not available	See your John Deere Dealer
SSU 208	GreenStar display message fault with AutoTrac active or enabled	See your John Deere Dealer
SSU 209	TCM message missing	See your John Deere Dealer
SSU 212	MST reverse message not available	See your John Deere Dealer
SCV Setup Panel Service Codes (SUP)		
SUP 10	SCV 1, 2, or 3 display incorrect, SCV communication link	Check fuse F5 and F6 Have your John Deere Dealer repair
SUP 11	SCV 4 or 5 display incorrect, SCV communication link	Have your John Deere Dealer repair
SUP 20	Setup panel controller failure	Have your John Deere Dealer repair
Heated Leather Seat Service Codes (LED Display) (if equipped)		
LED ON longer than OFF	Heating wire failure	Have your John Deere Dealer repair
LED OFF longer than ON	Temperature sensor failure	Have your John Deere Dealer repair

OU1092A,00000BB -19-10MAY06-18/18

Storage

Placing Tractor in Long-Term Storage

IMPORTANT: If the tractor will not be used for several months, the following recommendations for storage and removal from storage will minimize corrosion and deterioration.

NOTE: Whenever possible store tractor in a building or under a roof to avoid damage resulting from prolonged exposure to the elements.

- Lower hitch, if equipped.
- Change engine oil and replace the filter.
- Service the air cleaner.
- Drain the fuel tank and add back 10 L (2.5 gal) of fuel.
- Remove ECU fuse **F12** to prevent engine from starting.
- Crank engine a few revolutions.
- Reinstall ECU fuse **F12**.
- Seal air inlets, exhaust, crankcase fill cap, fuel tank cap, radiator overflow hose, and transmission and hydraulic system fill cap using plastic bags and tape.
- Release tension on auxiliary drive belts. Remove belt from air conditioner pulley and fan pulley.
- Remove and store batteries in a cool dry location—(keep batteries charged)¹.
- Coat all exposed (machined) metal surfaces such as lift cylinders and steering cylinder rods with light coat of grease.

- Thoroughly clean tractor touching up any scratched or chipped painted surfaces
- Wax entire tractor.
- Protect tires from heat and sunlight:
 - Raise tires off the ground²
 - Cover wheels with water-proof tarpaulin
 - Avoid storing at temperatures greater than 85° F
 - Avoid direct sunlight
- Lubricate all grease fittings.
- **If tractor must be stored outside, follow additional precaution:** Cover instrument panel, control levers, and seat with sheets of material or cardboard or cover entire tractor with waterproof material to protect against the sun's rays.
- Rotate A/C compressor pulley several turns once a month to prevent seizure of compressor.

IMPORTANT: Compressor requires lubrication to maintain sealing function to retain refrigerant. Start engine and run air conditioner once a month during seasonal storage time to let compressor circulate lubricant throughout system and recharge batteries.

IMPORTANT: If system is not cooling properly, turn air conditioning switch off to avoid possible compressor damage.

¹Disconnect battery ground cable for short-term storage periods (20 to 90 days)

²Move tractor once a month if tires are not raised off the ground

Removing Tractor from Storage

Perform the following steps to remove tractor from storage:

- Remove any coverings placed in or on tractor while preparing for storage
- Unseal all openings sealed prior to storage
- Rotate A/C compressor pulley several turns
- Install auxiliary drive belts on air conditioner pulley and fan pulley
- Check all fluid levels
- Inspect tires and check tire inflation pressures. (See Wheels, Tires and Treads Section)
- Fill the fuel tank
- Install batteries and connect cables
- Perform all services for daily, 10 , 250 , 500 or 750 Hour Interval—(See Lubrication And Maintenance Sections)
- Check all instruments and indicators by turning key to the ON position

IMPORTANT: Removing F12 fuse will allow engine to turn over without starting. Performing this step will allow engine oil to be circulated before actually starting engine.

- Remove ECU fuse **F12** to prevent engine from starting
- Crank the engine a few revolutions
- Reinstall ECU fuse **F12**

IMPORTANT: DO NOT operate the starter for more than 30 seconds. Wait at least two minutes for starter to cool before trying again.

- Start engine
- Operate engine at slow idle for several minutes

IMPORTANT: If air conditioning compressor is locked up, engine operation with compressor clutch engaged will damage belt or compressor.

- Check air conditioning
- Check all other system functions
- Warm up tractor before putting engine under load

RW29387,00003D5 -19-12MAR03-1/1

Paint Finish Care

- Wash tractor regularly, particularly if it has been exposed to herbicides, pesticides, road salt or other chemical agents.
- DO NOT wash tractor in direct sunlight.
- DO NOT use strong soaps, chemical detergents, or cleaning agents containing acids, caustics, or abrasives. It is best to use commercially available car wash (non-detergent) products which will not remove protective wax, which may be applied to the paint finish.
- All cleaning agents should be rinsed promptly and not be allowed to dry on the paint surface.
- Waxing tractor occasionally is recommended to remove residue from and further protect the paint finish. DO NOT use waxes containing abrasive compounds.
- Inspect paint surface during washing or waxing for chips and scratches. Repaint any areas where paint has been damaged.

Your John Deere dealer has a full line of cleaners, waxes, and touch-up paints to help enhance the paint finishes and which are compatible with your equipment.

RW29387,000061B -19-08JAN04-1/1

Specifications

General Specifications

	9320	9420	9520	9620
Power:				
Engine	375 hp (280 kW)	425 hp (317 kW)	450 hp (336 kW)	500 hp (373 kW)
PTO hp (kW)	316 hp (236 kW)	316 hp (236 kW)	316 hp (236 kW)	316 hp (236 kW)
Rated Speed	2100 rpm	2100 rpm	2100 rpm	2100 rpm
Governed Speed Range	900—2200 rpm	900—2200 rpm	900—2200 rpm	900—2200 rpm
Operating Speed Range	1500—2100 rpm	1500—2100 rpm	1500—2100 rpm	1500—2100 rpm
Slow Idle	900±10 rpm	900±10 rpm	900±10 rpm	900±10 rpm
Fast Idle	2200±25 rpm	2200±25 rpm	2200±25 rpm	2200±25 rpm
Engine:				
Type	Diesel	Diesel	Diesel	Diesel
Cylinders	In-line 6	In-line 6	In-line 6	In-line 6
Aspiration	Turbocharged and Air-to-Air Aftercooled	Turbocharged and Air-to-Air Aftercooled	Turbocharged and Air-to-Air Aftercooled	Turbocharged and Air-to-Air Aftercooled
Lubrication	Full Pressure Full-Flow Filtration	Full Pressure Full-Flow Filtration	Full Pressure Full-Flow Filtration	Full Pressure Full-Flow Filtration
Displacement	12.5 L (766 in. ³)	12.5 L (766 in. ³)	12.5 L (766 in. ³)	12.5 L (766 in. ³)
Bore	127 mm (5.00 in.)	127 mm (5.00 in.)	127 mm (5.00 in.)	127 mm (5.00 in.)
Stroke	165 mm (6.50 in.)	165 mm (6.50 in.)	165 mm (6.50 in.)	165 mm (6.50 in.)
Compression Ratio	16.0:1	17.0:1	17.0:1	14.8:1
Capacities:				
Fuel Tank Fill	1026 L (270 gal)	1026 L (270 gal)	1026 L (270 gal)	1026 L (270 gal)
Cooling System	60 L (16 gal)	60 L (16 gal)	60 L (16 gal)	60 L (16 gal)
Crankcase	42 L (11 gal)	42 L (11 gal)	42 L (11 gal)	42 L (11 gal)
Transmission/Axles:				
.. Without PTO	134 L (35.4 gal) *	134 L (35.4 gal) *	134 L (35.4 gal) *	134 L (35.4 gal) *
.. With PTO	138 L (36.4 gal) *	138 L (36.4 gal) *	138 L (36.4 gal) *	138 L (36.4 gal) *
Hydraulic System:				
.. Without Hitch	103 L (27 gal)	103 L (27 gal)	103 L (27 gal)	103 L (27 gal)
.. With Hitch	106 L (28 gal)	106 L (28 gal)	106 L (28 gal)	106 L (28 gal)

* Capacity Includes Axles

Continued on next page

RW29387,00002D0 -19-08MAR06-1/3

Specifications

Fuel System:

Injection Pump Type:

.. All Models Unit Electronic, Electronic Governor
.. Air Cleaner Dry-Type with Secondary Element

Hydraulic System:

Type Closed center Pressure/Flow Compensated
Main Hydraulic Pump 75 cm³ (4.5 in.³) Axial Piston
Maximum Pressure 20 000 kPa (200 bar) (2900 psi)
Maximum Pump Flow 186 L/min (48 gpm)
Available Flow at One SCV 114 L/min (30 gpm)
Selective Control Valves (SCVs) Electro-hydraulic
Hitch Lift Capacity:
.. Category 3 6305 kg (13871 lb)
.. Category 4/4N 6566 kg (14445 lb)

Electrical System:

Type 12 Volt
Alternator 140 amp
Batteries 3
Cold Cranking Amps 2775

Steering:

Type Articulated Hydrostatic with Two Double Action Rams
Articulation Steering Angle 42°

Brakes:

Type Power Hydraulic Wet Disk

Transmission:

Type Electronically Activated Wet Disk Clutch
Gear Selections 18 Forward – 6 Reverse

Continued on next page

RW29387.00002D0 -19-08MAR06-2/3

Specifications

Power Take Off:

Type Fully Independent
 Speed 1000 rpm
 Size 45 mm (1-3/4 in.)
 Clutch Multiple Wet-Disk Hydraulically Activated

Sound Level:

Maximum sound level at operator's ear, measured in accordance with Directive 77/311 EEC, Annex II, with cab closed.

All Models 71.5 dBa

Weight (Average Shipping):

.. 9320 15572 kg (34330 lb) *
 .. 9420 15816 kg (34870 lb) *
 .. 9520 16370 kg (36090 lb) *
 .. 9620 16370 kg (36090 lb) *

* Less Hitch and PTO

RW29387,00002D0 -19-08MAR06-3/3

Overall Dimensions

	9320	9420	9520	9620
Wheelbase	3500 mm (137.8 in.)	3500 mm (137.8 in.)	3500 mm (137.8 in.)	3500 mm (137.8 in.)
Overall Length No Hitch and Coupler	6960 mm (274 in.)	6960 mm (274 in.)	6960 mm (274 in.)	6960 mm (274 in.)
Overall Length With Hitch and Coupler	7340 mm (289 in.)	7340 mm (289 in.)	7340 mm (289 in.)	7340 mm (289 in.)
Overall Width:				
Left Fuel Tank to Right Tank	2934 mm (115.5 in.)	2934 mm (115.5 in.)	2934 mm (115.5 in.)	2934 mm (115.5 in.)
Axle Length	3042 mm (120 in.)	3042 mm (120 in.)	3042 mm (120 in.)	3042 mm (120 in.)
Axle Diameter	110 mm (4.3 in.)	110 mm (4.3 in.)	120 mm (4.7 in.)	120 mm (4.7 in.)
Height from Ground:				
.. Top of Cab	3493 mm (137.5 in.)	3493 mm (137.5 in.)	3493 mm (137.5 in.)	3493 mm (137.5 in.)
.. Top of Air Stack	3556 mm (140 in.)	3556 mm (140 in.)	3556 mm (140 in.)	3556 mm (140 in.)
.. Top of Hood	2477 mm (97.5 in.)	2477 mm (97.5 in.)	2477 mm (97.5 in.)	2477 mm (97.5 in.)
Turning Radius				
.. Without Steering Stops	4.45 m (14.6 ft)	4.45 m (14.6 ft)	4.45 m (14.6 ft)	4.45 m (14.6 ft)
.. With 3° Stops	4.72 m (15.6 ft)	4.72 m (15.6 ft)	4.72 m (15.6 ft)	4.72 m (15.6 ft)
.. With 5° Stops	5.18 m (17.0 ft)	5.18 m (17.0 ft)	5.18 m (17.0 ft)	5.18 m (17.0 ft)
.. With 10° Stops	5.92 m (19.5 ft)	5.92 m (19.5 ft)	5.92 m (19.5 ft)	5.92 m (19.5 ft)
Crop Clearance:				
.. Axle Housing	732 mm (28.8 in.)	732 mm (28.8 in.)	732 mm (28.8 in.)	732 mm (28.8 in.)
.. Hinge Pin	470 mm (18.5 in.)	470 mm (18.5 in.)	470 mm (18.5 in.)	470 mm (18.5 in.)
.. Drawbar Support	356 mm (14 in.)	356 mm (14 in.)	470 mm (18.5 in.)	470 mm (18.5 in.)
.. Drawbar	432 mm (17 in.)	432 mm (17 in.)	432 mm (17 in.)	432 mm (17 in.)

Dimensions are for tractor equipped with standard tires

OU1092A,000003A -19-15SEP04-1/1

Ground Speeds

Group 47 Tires			Group 48 Tires		
620/70R42, 710/70R38			620/70R46, 650/85R38, 710/70R42, 800/70R38		
Gear	Speed			Speed	
	km/h	mph		km/h	mph
1	3.98	2.47		4.20	2.61
2	4.70	2.92		4.97	3.09
3	5.21	3.24		5.50	3.42
4	5.83	3.62		6.13	3.81
5	6.24	3.99		6.76	4.20
6	7.18	4.46		7.56	4.70
7	7.93	4.93		8.37	5.20
8	8.87	5.51		9.35	5.81
9	9.77	6.07		10.30	6.40
10	10.91	6.78		11.49	7.14
11	12.09	7.51		12.73	7.91
12	13.37	8.31		14.10	8.76
13	14.87	9.24		15.66	9.73
14	16.43	10.21		17.32	10.76
15	20.31	12.62		21.40	13.30
16	24.99	15.53		26.33	16.36
17	30.88	19.19		32.56	20.23
18	38.01	23.62		40.06	24.89
R1	3.98	2.47		4.20	2.61
R2	5.21	3.24		5.50	3.42
R3	5.83	3.62		6.13	3.81
R4	7.93	4.93		8.37	5.20
R5	8.87	5.51		9.35	5.81
R6	12.09	7.51		12.73	7.91

Engine at 2100 rpm

RW29387,00002D2 -19-30APR04-1/1

Identify Zinc-Flake Coated Fasteners

Standard cap screws (A) are a reflective silver color.

Zinc plated cap screws (B) are a reflective gold color.

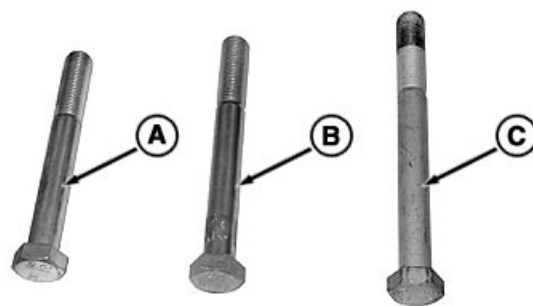
Zinc-Flake Coated cap screws (C) are a dull silver color.

NOTE: Zinc-Flake Coated fasteners are tightened to lubricated specifications, unless otherwise noted. (See Torque Value Charts in this group.)

A—Standard Cap Screws

B—Zinc-plated Cap Screw

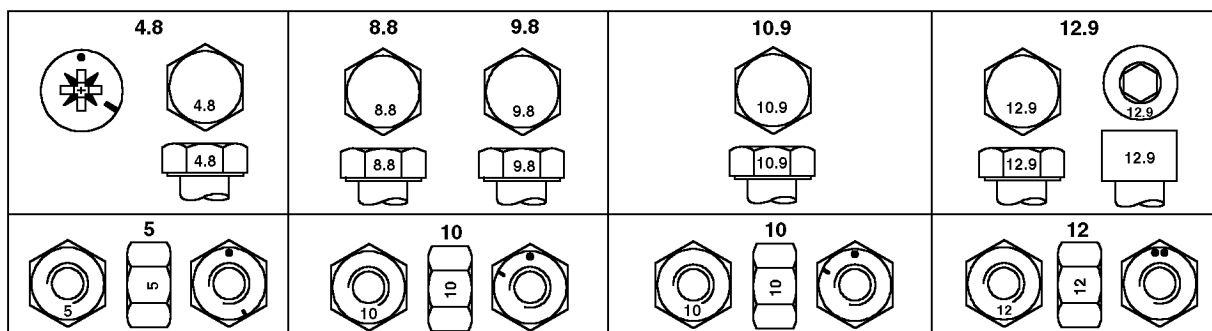
C—Zinc-Flake Cap Screw (20 mm and larger)



FXA0073812 -UN-03MAR04

RW29387,0000675 -19-22NOV04-1/1

Metric Bolt and Cap Screw Torque Values



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

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

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

^b "Dry" means plain or zinc plated without any lubrication.

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

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

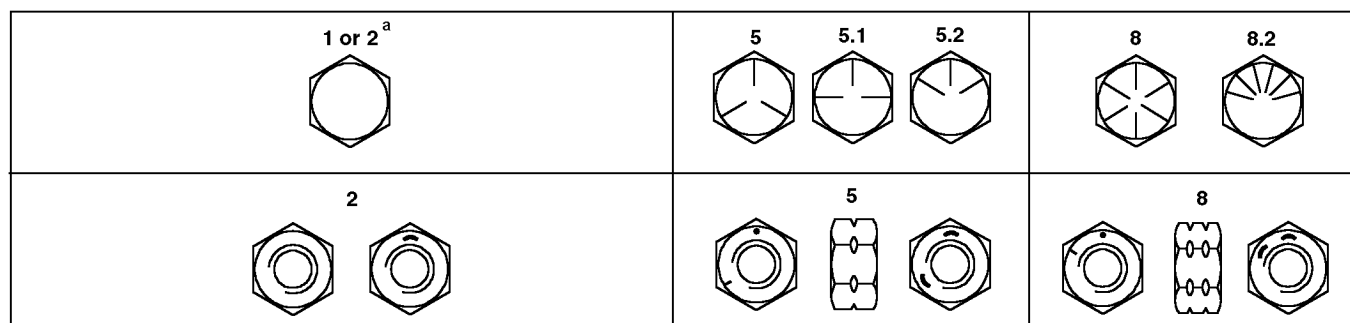
Fasteners should be replaced with the same or higher property class. If higher property class fasteners are used, these should only be tightened to the strength of the original.

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

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

TORQ2 -UN-07SEP99

Unified Inch Bolt and Cap Screw Torque Values



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

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

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

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

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

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

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

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

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

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

Declaration of Conformity

DECLARATION OF CONFORMITY

John Deere Waterloo Works
3500 East Donald Street
Waterloo, IA 50703-9322
USA

The Tractor

Models.....9320, 9420, 9520
and 9620

comply with the EU provision:

89/336/EEC....EMC Directive



Waterloo 1 November 2001, for 9320, 9420, 9520
1 June 2004, for 9620

James W. Wienkes
Manager, 7000, 8000, 9000 Series
Worldwide Tractor Engineering

Identification Numbers

Identification Plates

Each tractor has the identification plates shown on these pages. The letters and numbers stamped on the plates identify a component or assembly. ALL these characters are needed when ordering parts or identifying a tractor or component for any John Deere

product support program. Also, they are needed for law enforcement to trace your tractor if it is ever stolen. **ACCURATELY** record these characters in the spaces provided in each of the following photographs.

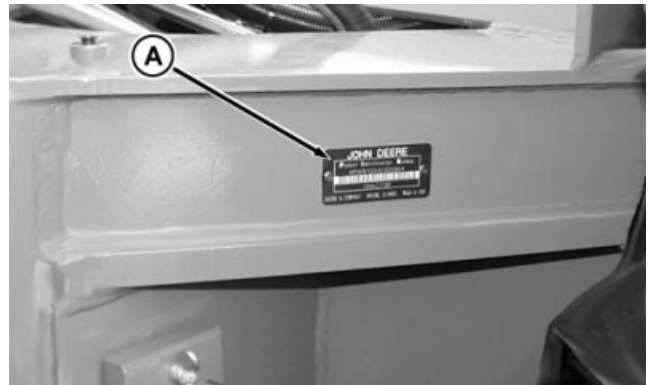
AG,RF30435,2250 -19-19NOV99-1/1

Record Tractor Identification Number

Identification plate (A) is located on top left rear hinge member of tractor.

Serial Number

* _____



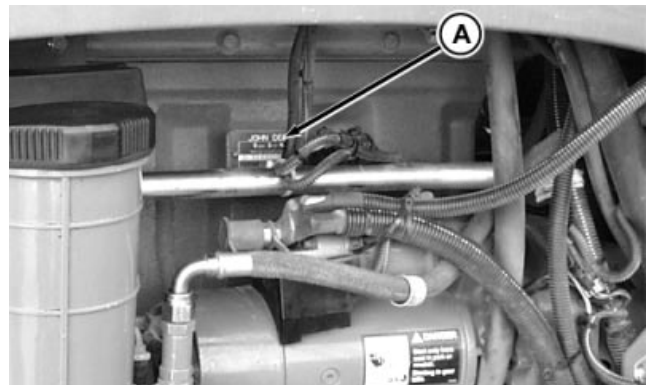
RW26745 -UN-23NOV99

AG,RF30435,2251 -19-19NOV99-1/1

Record Engine Serial Number

Identification plate (A) is located behind starter.

Serial Number



RW26746 -UN-23NOV99

AG,RF30435,2252 -19-19NOV99-1/1

Record Cab Serial Number

Identification plate (A) is located on the lower right corner of cab.

Serial Number



RW26747 -UN-23NOV99

AG.RF30435.2253 -19-19NOV99-1/1

Record Transmission Serial Number

Identification plate (A) is located in lower right of hinge area.

Serial Number

* _____ *



RXA0091537 -UN-16NOV06

Powershift Transmission

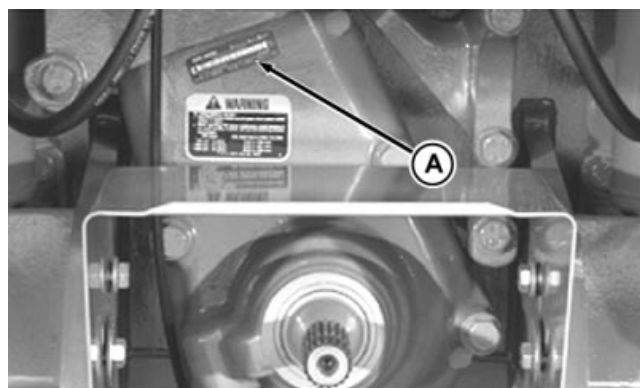
AG,RF30435,2254 -19-16NOV06-1/1

Record PTO Serial Number

Identification plate (A) is located on PTO drop box on rear of tractor.

Serial Number

* _____ *



RW26751 -UN-23NOV99

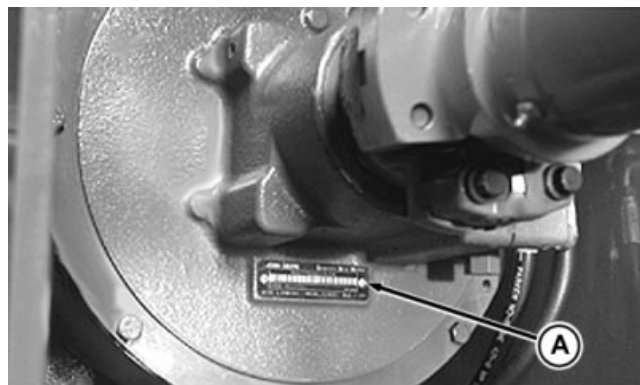
AG,RF30435,2257 -19-19NOV99-1/1

Record PTO Clutch Serial Number

Identification plate (A) is located on PTO clutch in hinge area of tractor.

Serial Number

* _____ *



RW26752 -UN-23NOV99

AG,RF30435,2258 -19-19NOV99-1/1

Keep Proof of Ownership

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

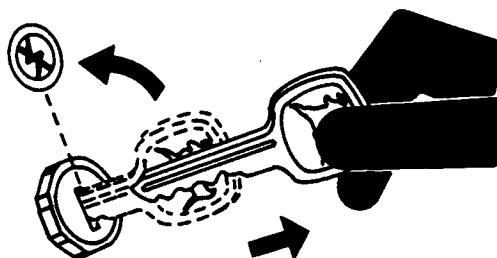


TS1680 -UN-09DEC03

DX,SECURE1 -19-18NOV03-1/1

Keep Machines Secure

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.



TS230 -UN-24MAY89

DX,SECURE2 -19-18NOV03-1/1

Glossary

Glossary of Terms

Alternating Current	AC	Electrical current that reverses its direction at regularly recurring intervals
Air Conditioning	A/C	System used for conditioning the air in the cab
Accessory	ACC	Secondary electrical system
Air Quality System	AQS	System used to control conditioned air in the cab
Armrest Control Unit	ACU	Armrest control used to control tractor functions
Cold Cranking Amperes	CCA	Refers to a battery's capability to perform during cold weather operation
Circulator Motor		Symbols for circulator motor speeds
	O	Medium Speed
	++	Fastest Speed
Central Control Unit	CCU	Computerized system for tractor monitoring
Component Technical Manual	CTM	Technical manual developed for the servicing of major components
Direct Current	DC	Electrical current flowing in one direction only
Engine Control Unit	ECU	Computerized system used to govern engine speed
Electro-Hydraulic	EH	Refers to a hydraulic valve function that is controlled electrically
Electro-Hydraulic Depth Control	EHDC	Abbreviation
Electro-Hydraulic Selective	EH SCV	Selective control valve operated with electrical solenoids
Control Valve		
Gallons Per Minute	gpm	Amount of fluid over a period of one minute
Hitch Control Unit	HCU	Computerized system used to control hitch functions
High Intensity Discharge	HID	Type of field lights use for front lighting
Hitch Slip Command	HSC	Computerized system used to supplement hitch draft control
Instrument Control Unit	ICU	Computerized system controlling tractor warning functions
Ignition	IGN	Control for starting and stopping the tractor
Implement Management System	IMS	Computerized system used to perform multi-functional tractor tasks
International Standards	ISO	Standards organization
Organization		
Number	No.	Abbreviation
Product Identification Number	PIN	Serial number relating to tractor identification
Powershift Control Unit	PCU	Computerized system used to control transmission shift functions
Pressure Control Valve	PCV	Valve used to control pressure within a system
Powershift Transmission	PST	Abbreviation
Power Take-Off	PTO	Abbreviation
Revolutions Per Minute	rpm	Abbreviation
Society of Automotive Engineers	SAE	Standards Organization
Selective Control Valve	SCV	Device used to control remote hydraulic functions
Selective Control Unit	SCU	Computerized system used to control selective control valve functions for selective control valves 1, 2, and 3
Selective Control Option	SCo	Controller for selective control valves 4 and 5
Slow Moving Vehicle	SMV	Warning sign on the rear of the tractor
Set-Up Panel	SUP	Operator control panel used to set selective control valve function

AG,OURX892,371 -19-23APR04-1/1

Index

	Page		Page
A		Corner post display 15-2	
Abbreviations	155-1	D	
Active seat	25-2	Depth control	70-1
Air		Diesel engine oil	90-8
Cab filters	100-8	Diesel fuel	90-1, 90-3
Conditioning	25-6	Differential Lock	40-15
Controls	25-6	Display functions	15-10
Engine filters	100-6	Drawbar	60-1, 60-2
Air conditioning	100-17	Drive belts	100-15
Armrest controls	15-6, 25-3	E	
ATC		Electric mirror	25-11
Display panel	25-8, 25-9	Electrical connectors	20-7, 25-15, 25-17, 25-18
Automatic powershift	40-13	Engine	
Automatic temperature control	25-7	Air filters	100-6
Auxiliary heaters	35-4	Crankshaft damper	100-18
Axle end play	100-18	Emissions certification	35-1
B		Internal starting aid	35-3
Ballast	75-1, 75-15	Oil	105-1, 105-2
Worksheet	75-2	Operating	35-1, 35-2
Battery		Engine oil	
Charger	35-7	Break-In	90-7
Service	100-11	Diesel	90-8
Beacon light	20-6	F	
Belt		Field cruise	40-15
Routing	100-15	Filters	
Tensioner	100-13	Cab air	100-8
Beverage cooler	25-12	Engine air	100-6
Bleed fuel system	115-3	Engine oil	105-2
Brakes	40-14, 100-16	Fuel	115-1, 115-2
Break-in engine oil	90-7	Hydraulic	105-10
Break-in period	30-1	Hydraulic oil	105-8
C		Transmission	105-6
Cab fan	25-6	Front console	15-1
Capacities	140-1	Fuel	
Clevis	60-7	Bleed	115-3
ClimaTrak temperature control	25-7	Diesel	90-1, 90-3
Clock	25-11	Filters	115-1, 115-2
Cold weather starting	35-2, 35-3	Handling and storing	90-2
Coolant		Lubricity	90-1
Additional information	90-13	Pre-filter	115-2
Diesel engine	90-11	Storage	90-4
Testing	90-14		
Warm temperature climates	90-12		
Cooling system	110-1		

	Page		Page
System	35-1	Implement management system	45-1
Tank	90-5	Inch torque values	140-7
Tank drain	115-4	Indicators	15-8
Fuses	120-1		
		K	
G		Key switch	15-1
Glossary	155-1		
Grease		L	
Extreme pressure and multipurpose	90-16	Lighting	
GreenStar connectors	25-15	Courtesy light	
GreenStar Connectors		Late cab	120-15
Early Version	25-14	Dome light	120-14
GREENSTAR fuses and relays	120-2	Lights	
Grille	95-5, 100-9	Beacon	20-6
Ground speed	15-24, 140-4	Delayed egress	20-4
		Hazard	20-5
H		Operating	20-1
Hand brake	25-5	Replacing	120-12
Hauling tractor	85-3	Liquid ballast	75-15
Heater	25-6	Load sensing	55-1
Hinge pins	105-11	Load/depth control	65-6
Hitch		Lubricant	
Components	65-1	Mixing	90-16
Controls	65-1, 65-2	Storage	90-17
Conversion	65-13	Lubrication	
External switch	65-4	Center link and lift links	105-15
Lubrication	105-16	Heavy-Duty gudgeon bearings	105-14
Manual lowering	65-5	Hinge pins	105-10
Slip command	65-8	Hitch sensor	105-16
Hood	95-4	Lift cylinders and rockshaft	105-15
Horn	20-3	PTO drive shaft	105-16
Hydraulic		Telescoping drive shaft	
Hoses	50-1	Support bearing	105-13
Motor seal drain filter		Lubricity of diesel fuel	90-1
Hose tip	55-11		
Reservoir breather filter	105-9	M	
Reservoir screen	105-9	Maintenance intervals	95-2
Standard hydraulic component identification	55-4	Metric torque values	140-6
		Mixing lubricants	90-16
I		Mobile radio	25-19
Identification numbers	145-1	Monitor	
Ignition switch	15-1	Mounts	25-20
Implement connector	25-16	SCV	50-4
Implement guidelines	75-11		

[illegible]

	Page
Hitch	125-9
Hydraulics	125-8
Operator enclosure	125-15
Selective control valve	125-11
Transmission	125-6
Turn signals	20-3

U

Using spray pumps	55-3
-----------------------------	------

V

Vehicle monitor	15-7
---------------------------	------

W

Water separator	115-1
Wheel	
Adjustment	80-6
10 or 12-Bolt wheel	80-10
Hop	75-4
Slip	75-10
Weights	75-12
Wrench adapter	80-7
Windshield wiper	25-10

Z

Zinc-Flake	
Coated Fasteners	140-5

John Deere Service Keeps You On The Job

John Deere Parts

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 -19-04JUN90-1/1

TS100 -UN-23AUG88

The Right Tools

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



DX,IBC,B -19-04JUN90-1/1

TS101 -UN-23AUG88

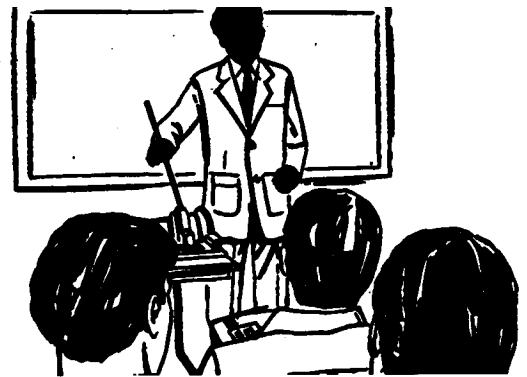
Well-Trained Technicians

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 -19-04JUN90-1/1

TS102 -UN-23AUG88

Prompt Service

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 -19-04JUN90-1/1

TS103 -UN-23AUG88

John Deere Service Keeps You On The Job