

280、284、300、304、 320、324、B350 and 2C-354 Tractors



OPERATOR'S MANUAL

280、284、300、304、320、324、
B350 and 2C-354 Tractors

OMSJ16411 ISSUE A5 (ENGLISH)

CALIFORNIA

Proposition 65 Warning

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

If this product contains a gasoline engine:

⚠ WARNING

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

The State of California requires the above two warnings.

Additional Proposition 65 Warnings can be found in this manual.

约翰迪尔 (宁波) 农业机械有限公司

在中国平版印刷



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 tracking 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.

SETTING FUEL DELIVERY BEYOND PUBLISHED factory specifications or otherwise overpowering will result in loss of warranty protection for this machine.

BEFORE DELIVERING THIS MACHINE, your dealer performed a pre-delivery inspection. After operating for the first 100 hours, schedule an after-sale inspection with your dealer to ensure best performance.

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

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

CP00834,000163B -19-18DEC14-1/1

Identification View



NOTE: Tractor shown may have optional equipments.

PUC5051—UN—06OCT10

CP00834,000163C -19-18DEC14-1/1

Look for Supplemental Information

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

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

- Directions Sheet
- Installation Instructions
- Publications Supplement

Before your initial review of the manual, look through the machine literature package to see if any supplemental

information has been provided. If supplied, review this information to determine which procedures are impacted or modified by the revised instructions. Pay close attention to "CAUTION" and "IMPORTANT" statements. CAUTION statements address your safety, the safety of others and safe operation of the machine. IMPORTANT statements refer to machine adjustment, servicing and care.

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

JB06590,00006B4 -19-22JUL08-1/1

Contents

	Page		Page
Safety			
Recognize Safety Information	05-1	Store Attachments Safely	05-19
Understand Signal Words	05-1	Dispose of Waste Properly	05-19
Follow Safety Instructions	05-1		
Prepare for Emergencies	05-2	Safety Signs	
Wear Protective Clothing	05-2	Replace Damaged or Missing Safety Signs	10-1
Protect Against Noise	05-2	Operator's Manual	10-1
Handle Fuel Safely—Avoid Fires	05-3	Riders	10-1
Handle Starting Fluid Safely	05-3	Stay Clear of PTO Driveline	10-2
Keep ROPS Installed Properly	05-3	Rockshaft Control	10-2
Use Foldable ROPS and Seat Belt Properly	05-4	Radiator	10-3
Stay Clear of Rotating Drivelines	05-4		
Use Steps and Handholds Correctly	05-5	Controls and Instruments	
Read Operator Manuals for ISOBUS		Tractor Controls	15-1
Implements	05-5	Instrument Panel	15-2
Use Seat Belt Properly	05-5		
Operating the Tractor Safely	05-6	Lights	
Limited Use in Forestry Operation	05-7	Light Switch Positions	20-1
Operating the Loader Tractor Safely	05-7	Use Headlights and Floodlights	20-2
Keep Riders Off Machine	05-7	High Beam Indicator	20-3
Instructional Seat	05-8	Use Tail Lights and Warning Lights	20-3
Use Safety Lights and Devices	05-8	Use Turn Signal Lights	20-4
Use a Safety Chain	05-8	Seven Pin Outlet	20-5
Transport Towed Equipment at Safe Speeds	05-9		
Use Caution On Slopes and Uneven Terrain	05-9	Break-In Period	
Freeing a Mired Machine	05-10	Observe Engine Operation Closely	30-1
Avoid Contact with Agricultural Chemicals	05-10	Break-In Service	30-1
Handle Agricultural Chemicals Safely	05-11		
Handling Batteries Safely	05-12	Prestarting Checks	
Avoid Heating Near Pressurized Fluid Lines	05-12	Service Daily Before Start-Up	35-1
Remove Paint Before Welding or Heating	05-13		
Handle Electronic Components and		Operating the Engine	
Brackets Safely	05-13	Before Starting the Engine	40-1
Practice Safe Maintenance	05-14	Key Switch Positions	40-2
Avoid Hot Exhaust	05-14	Start the Engine	40-2
Work In Ventilated Area	05-15	Check Instruments After Starting	40-3
Support Machine Properly	05-15	Oil Pressure Warning Indicator	40-4
Prevent Machine Runaway	05-15	Charging System Indicator	40-4
Park Machine Safely	05-16	Air Pressure Warning Indicator	40-4
Transport Tractor Safely	05-16	Water Temperature Gauge	40-5
Service Cooling System Safely	05-16	Change Engine Speeds	40-5
Service Accumulator Systems Safely	05-17	Warm Up the Engine	40-5
Service Tires Safely	05-17	Restart Stalled Engine	40-5
Service Front-Wheel Drive Tractor Safely	05-17	Avoid Idling the Engine	40-5
Tightening Wheel Retaining Bolts/Nuts	05-18	Observe Engine Work and Idle Speeds	40-6
Avoid High-Pressure Fluids	05-18	Stop the Engine	40-6
Do Not Open High-Pressure Fuel System	05-18		

Continued on next page

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

COPYRIGHT © 2015
DEERE & COMPANY
Moline, Illinois
All rights reserved.
A John Deere ILLUSTRATION © Manual
Previous Editions
Copyright © 2010

Page	Page
Driving the Tractor	
Operator Training Required.....	45-1
Driving on Public Roads.....	45-1
Use Caution on Hillsides.....	45-2
Operate Transmission.....	45-3
Shifting Transmission.....	45-3
Select a Gear.....	45-3
Use Brakes.....	45-4
Operate Mechanical Front Wheel Drive.....	45-5
Stopping Tractor.....	45-6
Rockshaft and 3-Point Hitch	
Match Tractor Power to Implement.....	50-1
3-Point Hitch Components.....	50-1
Rockshaft Control Levers.....	50-1
Use Rockshaft Position Control.....	50-2
Use Rockshaft Draft Control.....	50-3
Adjust Rockshaft Rate-of-Drop.....	50-3
Prepare Implement.....	50-4
Attach Implements to 3-Point Hitch.....	50-4
Adjust Sway Chains.....	50-5
Leveling Hitch.....	50-5
Drawbar and PTO	
Observe Drawbar Load Limitations.....	60-1
Use Swinging Drawbar.....	60-1
Proper Use of Drawbar.....	60-1
Stay Clear of Rotating Drivelines.....	60-2
Attach PTO-Driven Implement.....	60-2
Operate Tractor PTO.....	60-2
Adjust PTO Clutch Operating Rod.....	60-3
Ballast	
Plan for Maximum Productivity.....	65-1
Select Ballast Carefully.....	65-1
Match Ballast to Work Load.....	65-1
Check for Correct Ballast.....	65-1
Measure Rear Wheel Slip - Manually.....	65-2
Ballast Limitations.....	65-3
Ballast Front End for Transport.....	65-3
Add Ballast on Tractor.....	65-3
Determine Maximum Rear Ballast.....	65-4
Determine Maximum Front Ballast.....	65-4
Use Cast Iron Weights.....	65-4
Install Rear Cast Iron Weights.....	65-5
Wheels, Tires and Treads	
Service Tires Safely.....	70-1
Check Implement-to-Tire Clearance.....	70-1
Check Tire Inflation Pressure.....	70-2
Tire Inflation Pressure Chart.....	70-2
Tighten Wheel/Axle Hardware Correctly.....	70-3
Tighten Nuts - Rear Axle.....	70-3
Tighten Nuts - MFWD Axle.....	70-3
Tighten Nuts - 2WD Axle.....	70-3
Tread Settings - Multi-Position Rear Wheels.....	70-4
Adjust Front Wheel Tread (2WD).....	70-5
Check Toe-In.....	70-6
Adjust Toe-In (2WD).....	70-6
Adjust Toe-In (MFWD).....	70-7
Transporting	
Use Safety Lights and Devices.....	75-1
Use a Safety Chain.....	75-1
Driving Tractor on Roads.....	75-1
Transport on Carrier.....	75-4
Fuels, Lubricants and Coolant	
Handle Fuel Safely—Avoid Fires.....	80-1
Handle Fluids Safely—Avoid Fires.....	80-1
Handling and Storing Diesel Fuel.....	80-1
Cold Weather Operation.....	80-2
Hot Weather Operation.....	80-2
Diesel Fuel.....	80-3
Lubricity of Diesel Fuel.....	80-3
Testing Diesel Fuel.....	80-4
Fill Fuel Tank.....	80-4
Alternative and Synthetic Lubricants.....	80-4
Lubricant Storage.....	80-5
Diesel Engine Break-In Oil — Non-Emissions Certified and Certified Tier 1, Tier 2, Tier 3, Stage I, Stage II, and Stage III.....	80-5
Diesel Engine Oil — Tier 2 and Stage II.....	80-6
Oil Filters.....	80-6
Diesel Engine Coolant (engine with wet sleeve cylinder liners).....	80-7
Liquid Coolant Conditioner.....	80-8
Transmission and Hydraulic Oil.....	80-9
Use Correct Transmission/Hydraulic Filter Element.....	80-9
Grease.....	80-10
Maintenance and Service Intervals	
Additional Service Information.....	85-1
Service Tractor Safely.....	85-1
Service Interval Chart - Daily or 10 Hours - 50 Hours - 250 Hours.....	85-2
Service Interval Chart - 500 Hours - 1000 Hours - Annually - 2 Years or 2000 Hours.....	85-3
Service after First 100 Hours.....	85-3
Use Correct Lubricant.....	85-3
General Maintenance and Inspection	
Service Air Cleaner.....	90-1
Check Air Intake System.....	90-1
Adjust Brake Pedal Play.....	90-2
Adjust Clutch Pedal Free Play.....	90-3
Clean Engine Crankcase Vent Tube.....	90-4
Check Engine Idle Speed.....	90-4

Continued on next page

	Page
Adjust Engine Valve Clearance	90-4
Check Hoses and Hose Clamps for Tightness	90-5
Loose Hardware Inspection	90-5
Check Neutral Start System	90-6
Throttle Adjustment	90-6
Inspect Tires	90-7

Lubrication

Use Lubricant Correctly	95-1
Check Engine Oil Level	95-1
Change Engine Oil and Filter	95-2
Check Transmission/Hydraulic System Oil Level	95-3
Service Transmission/Hydraulic Oil Filter	95-4
Lubricate Steering Spindles (2WD)	95-4
Lubricate Steering Spindles (MFWD)	95-5
Lubricate 3-Point Hitch Lift Links	95-5
Lubricate Rear Axle Bearings	95-5
Lubricate MFWD Front Axle Pivot Pins	95-6
Check MFWD Axle Housing Oil Level	95-6
Change Transmission/Hydraulic System Oil	95-6
Fill Transmission/Hydraulic Oil	95-8
Check and Fill Steering System Oil	95-8
Change MFWD Front Axle Housing Oil	95-9

Maintenance—Cooling System

Engine Cooling System Components	100-1
Clean Front Grille and Radiator	100-2
Check Coolant Level	100-2
Check Cooling System for Leaks	100-3
Flush Cooling System	100-4
Maintenance in Winter	100-5

Maintenance—Fuel System

Bleed Fuel System	105-1
Drain Water and Sediment from Fuel Tank	105-2
Replace Fuel Filter	105-2
Do Not Modify Fuel System	105-2

Maintenance—Electrical System

Observe Electrical Service Precautions	110-1
Alternator/Fan Belt Adjustment	110-1
Alternator/Fan Belt Replacement	110-2
Battery Access	110-2
Charge Battery	110-3
Clean Battery	110-3
Check Battery Condition	110-4
Remove Battery	110-4
Battery Replacement Specifications	110-4
Service Battery	110-5
Adjust Headlights	110-5
Aiming Headlights	110-6
Replace Headlight Bulbs	110-7
Replace Tail Light/Rear Turn Signal/Brake Light Bulbs	110-7
Locate Fuses	110-7
Fuse Size and Function	110-8

Troubleshooting

Transmission Troubleshooting	115-1
Hydraulic System Troubleshooting	115-2
Brakes Troubleshooting	115-3
Rockshaft and 3-Point Hitch Troubleshooting ..	115-4
Electrical System Troubleshooting	115-6

Storage

Tractor Storage	120-1
Remove Tractor From Storage	120-2

Specifications

2wd Tractor Specifications	125-1
MFWD Tractor Specifications	125-5
Max Force	125-8
Min Turning Radius	125-9
PTO Performance	125-9
Draw Performance	125-9
Hydraulic Hitch Performance	125-10
Drain and Refill Capacities	125-11
Tractor Dual-purpose Oil for Transmission and Hydraulic System Specifications	125-12
Important Torque	125-12
Metric Bolt and Screw Torque Values	125-13
Unified Inch Bolt and Screw Torque Values	125-14

Identification Numbers

Identification Plates	130-1
Record Tractor Serial Number	130-1
Record Drive Train Serial Number	130-1
Record Engine Serial Number	130-1
Record Starter Serial Number	130-2
Record Alternator Serial Number	130-2

Lubrication and Maintenance Record Charts

50, 250, 500 Hour Service Chart	135-1
1000 Hour Service Chart	135-2
Annual Service Chart	135-3
2000 Hour Service Chart	135-4
As Required Service Chart	135-5

Attachment and Wearing Part

tools	140-1
Spare parts	140-2
Attachment (Tractor parts, In the spare part case)	140-3
Part (Optional)	140-3
Wearing Part	140-3

Safety

Recognize Safety Information

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

Follow recommended precautions and safe operating practices.



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

T81389 —UN—28JUN13

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**

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

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.

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

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

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



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

DX,READ -19-16JUN09-1/1

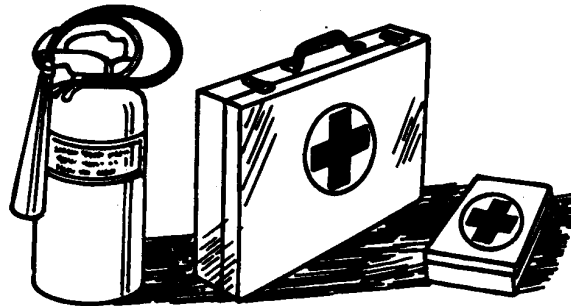
TS201 —UN—15APR13

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.



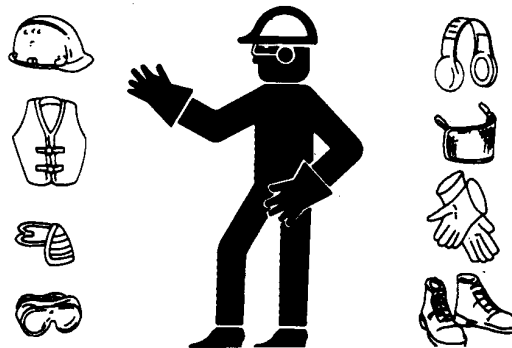
TS291 —UN—15APR13

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

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.



TS206 —UN—15APR13

DX,WEAR2 -19-03MAR93-1/1

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.



TS207 —UN—23AUG88

DX,NOISE -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.

Use only an approved fuel container for transporting flammable liquids.

Never fill fuel container in pickup truck with plastic bed liner. Always place fuel container on ground before refueling. Touch fuel container with fuel dispenser nozzle before removing can lid. Keep fuel dispenser nozzle in contact with fuel container inlet when filling.



Do not store fuel container where there is an open flame, spark, or pilot light such as within a water heater or other appliance.

DX,FIRE1 -19-12OCT11-1/1

TS202 —UN—23AUG88

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.

Do not use starting fluid on an engine equipped with glow plugs or an air intake heater.



DX,FIRE3 -19-14MAR14-1/1

TS1356 —UN—18MAR92

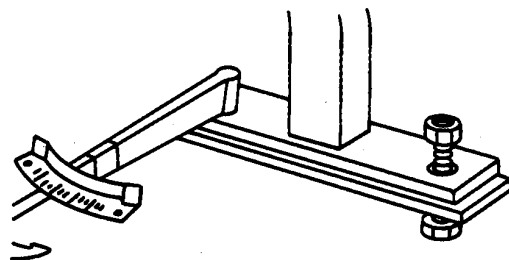
Keep ROPS Installed Properly

Make certain all parts are reinstalled correctly if the roll-over protective structure (ROPS) is loosened or removed for any reason. Tighten mounting bolts to proper torque.

The protection offered by ROPS will be impaired if ROPS is subjected to structural damage, is involved in an overturn incident, or is in any way altered by welding, bending, drilling, or cutting. A damaged ROPS should be replaced, not reused.

The seat is part of the ROPS safety zone. Replace only with John Deere seat approved for your tractor.

Any alteration of the ROPS must be approved by the manufacturer.



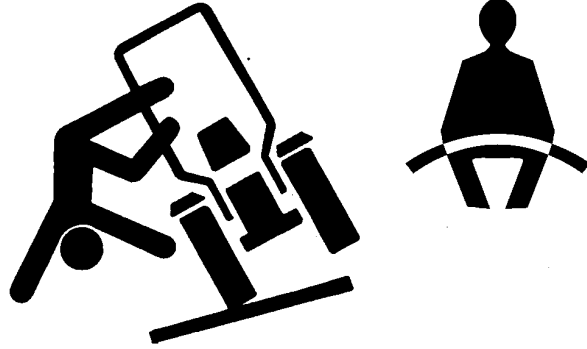
DX,ROPS3 -19-12OCT11-1/1

TS212 —UN—23AUG88

Use Foldable ROPS and Seat Belt Properly

Avoid crushing injury or death during rollover.

- If this machine is equipped with a foldable rollover protective structure (ROPS), keep the ROPS in the fully extended and locked position. **USE** a seat belt when you operate with a ROPS in the fully extended position.
 - Hold the latch and pull the seat belt across the body.
 - Insert the latch into the buckle. Listen for a click.
 - Tug on the seat belt to make sure that the belt is securely fastened.
 - Snug the seat belt across the hips.
- If this machine is operated with the ROPS folded (for example, to enter a low building), drive with extreme caution. **DO NOT USE** a seat belt with the ROPS folded.
- Return the ROPS to the raised, fully extended position as soon as the machine is operated under normal conditions.



TS1729—UN—24MAY13

DX,FOLDROPS -19-22AUG13-1/1

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 that PTO driveline is stopped before making adjustments, connections, or cleaning out PTO driven equipment.

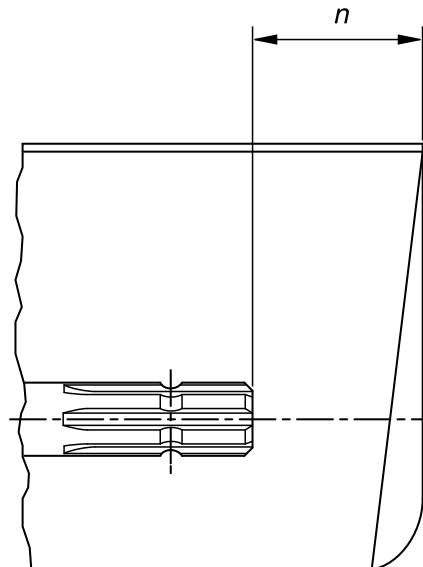
Do not install any adapter device between the tractor and the primary implement PTO drive shaft that will allow a 1000 rpm tractor shaft to power a 540 rpm implement at speeds higher than 540 rpm.

Do not install any adapter device that results in a portion of the rotating implement shaft, tractor shaft, or the adapter to be unguarded. The tractor master shield shall overlap the end of the splined shaft and the added adaptor device as outlined in the table.

PTO Type	Diameter	Splines	$n \pm 5 \text{ mm (0.20 in.)}$
1	35 mm (1.378 in.)	6	85 mm (3.35 in.)
2	35 mm (1.378 in.)	21	85 mm (3.35 in.)
3	45 mm (1.772 in.)	20	100 mm (4.00 in.)



TS1644—UN—22AUG95



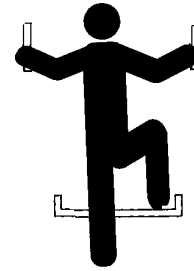
H96219—UN—29APR10

DX,PTO -19-30JUN10-1/1

Use Steps and Handholds Correctly

Prevent falls by facing the machine when getting on and off. Maintain 3-point contact with steps, handholds, and handrails.

Use extra care when mud, snow, or moisture present slippery conditions. Keep steps clean and free of grease or oil. Never jump when exiting machine. Never mount or dismount a moving machine.



T133468 —UN—15APR13

DX,WW,MOUNT -19-12OCT11-1/1

Read Operator Manuals for ISOBUS Implements

In addition to GreenStar Applications, this display can be used as a display device for any implement that meets ISO 11783 standard. This includes capability to control ISOBUS implements. When used in this manner, information and implement control functions placed on the display are provided by the implement and are the responsibility of the implement manufacturer. Some of

these implement functions could provide a hazard either to the Operator or a bystander. Read the operator manual provided by the implement manufacturer and observe all safety messages in manual and on implement prior to use.

NOTE: ISOBUS refers to the ISO Standard 11783

DX,WW,ISOBUS -19-19AUG09-1/1

Use Seat Belt Properly

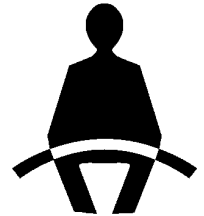
Avoid crushing injury or death during rollover.

This machine is equipped with a rollover protective structure (ROPS). USE a seat belt when you operate with a ROPS.

- Hold the latch and pull the seat belt across the body.
- Insert the latch into the buckle. Listen for a click.
- Tug on the seat belt latch to make sure that the belt is securely fastened.
- Snug the seat belt across the hips.

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,



TS1729 —UN—24MAY13

discoloration, or abrasion. Replace only with replacement parts approved for your machine. See your John Deere dealer.

DX,ROPS1 -19-22AUG13-1/1

Operating the Tractor Safely

You can reduce the risk of accidents by following these simple precautions:

- Use your tractor only for jobs it was designed to perform, for example, pushing, pulling, towing, actuating, and carrying a variety of interchangeable equipment designed to conduct agricultural work.
- This tractor is not intended to be used as a recreational vehicle.
- Read this operator's manual before operating the tractor and follow operating and safety instructions in the manual and on the tractor.
- Follow operation and ballasting instructions found in the operator's manual for your implements/attachments, such as front loaders
- Make sure that everyone is clear of machine, attached equipment, and work area before starting engine or operation.
- Keep hands, feet, and clothing away from power-driven parts

Driving Concerns

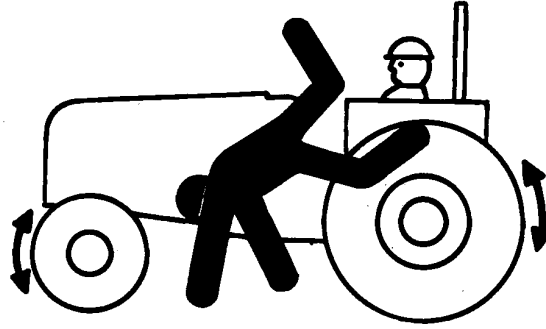
- Never get on or off a moving tractor.
- Keep all children and nonessential personnel off tractors and all equipment.
- Never ride on a tractor unless seated on a John Deere approved seat with seat belt.
- Keep all shields/guards in place.
- Use appropriate visual and audible signals when operating on public roads.
- Move to side of road before stopping.
- Reduce speed when turning, applying individual brakes, or operating around hazards on rough ground or steep slopes.
- Couple brake pedals together for road travel.
- Pump brakes when stopping on slippery surfaces.

Towing Loads

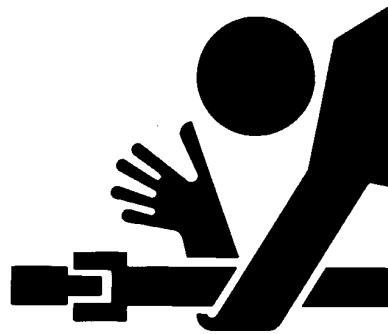
- Be careful when towing and stopping heavy loads. Stopping distance increases with speed and weight of towed loads, and on slopes. Towed loads with or without brakes that are too heavy for the tractor or are towed too fast can cause loss of control.
- Consider the total weight of the equipment and its load.
- Hitch towed loads only to approved couplings to avoid rearward upset.

Parking and Leaving the Tractor

- Before dismounting, shut off SCVs, disengage PTO, stop engine, lower implements/attachments to ground



TS290—UN—23AUG88



TS276—UN—23AUG88

and securely engage park mechanism, including the park pawl and park brake. In addition, if tractor is left unattended, remove key.

- Leaving transmission in gear with engine off will NOT prevent the tractor from moving.
- Never go near an operating PTO or an operating implement.
- Wait for all movement to stop before servicing machinery.

Common Accidents

Unsafe operation or misuse of the tractor can result in accidents. Be alert to hazards of tractor operation.

The most common accidents involving tractors:

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

DX,VW,TRACTOR -19-21AUG09-1/1

Limited Use in Forestry Operation

The intended use of John Deere tractors when used in forestry operations is limited to tractor-specific applications like transport, stationary work such as log splitting, propulsion, or operating implements with PTO, hydraulic, or electrical systems.

These are applications where normal operation does not present a risk of falling or penetrating objects. Any forestry

applications beyond these applications, such as forwarding and loading, requires fitment of application-specific components including Falling Object Protective Structure (FOPS) and/or Operative Protective Structures (OPS). Contact John Deere dealer for special components.

DX,WW,FORESTRY -19-12OCT11-1/1

Operating the Loader Tractor Safely

When operating a machine with a loader application, reduce speed as required to ensure good tractor and loader stability.

To avoid tractor rollover and damage to front tires and tractor, do not carry load with your loader at a speed over 10 km/h (6 mph).

To avoid tractor damage do not use a front loader or a sprayer tank if the tractor is equipped with a 3 Meter Front Axle.

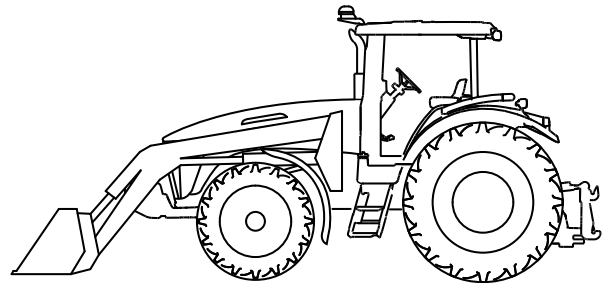
Never allow anyone to walk or work under a raised loader.

Do not use loader as a work platform.

Do not lift or carry anyone on loader, in bucket, or on implement or attachment.

Lower loader to ground before leaving operators station.

The Rollover Protective Structure (ROPS) or cab roof, if equipped, may not provide sufficient protection from load



TS1692 —UN—09NOV09

falling onto the operators station. To prevent loads from falling onto the operators station, always use appropriate implements for specific applications (that is, manure forks, round bale forks, round bale grippers, and clammers).

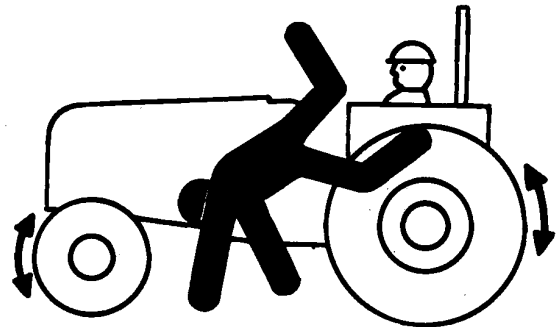
Ballast tractor in accordance to Ballast Recommendations in PREPARE TRACTOR section.

DX,WW,LOADER -19-18SEP12-1/1

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.

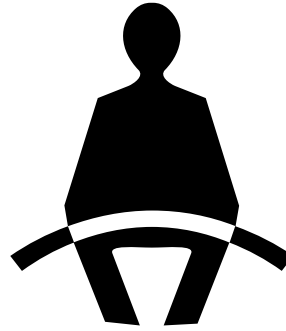


TS290 —UN—23AUG88

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

Instructional Seat

The instructional seat, if so equipped, has been provided only for training operators or diagnosing machine problems.



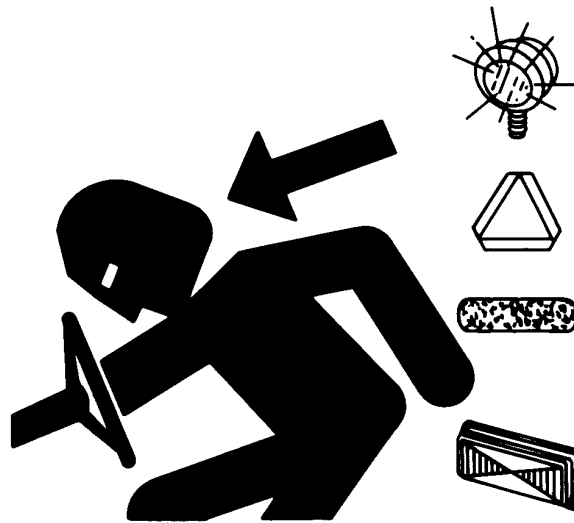
TS1730 —UN—24MAY13

DX,SEAT,NA -19-22AUG13-1/1

Use Safety Lights and Devices

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

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



TS951 —UN—12APR90

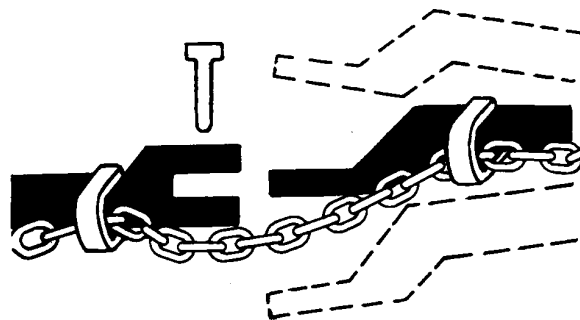
DX,FLASH -19-07JUL99-1/1

Use a Safety Chain

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

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

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



TS217 —UN—23AUG88

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

Transport 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:

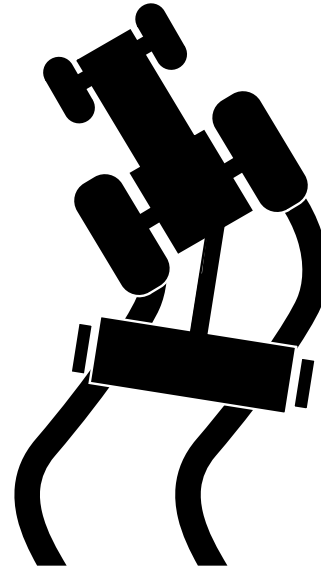
- Loss of control of the tractor/implement combination
- Reduced or no ability to stop during braking
- Implement tire failure
- Damage to the implement structure or its components

Implements without brakes:

- Do not transport at speeds greater than 32 km/h (20 mph).
- Must weigh less than 1.5 times the tractor weight and less than 1.5 t (3300 lb) when fully loaded.

Implements with brakes:

- If the manufacturer does not specify a maximum transport speed, do not tow at speeds greater than 40 km/h (25 mph).
- When transporting at speeds up to 40 km/h (25 mph) the fully loaded implement must weigh less than 4.5 times the tractor weight.



- When transporting at speeds between 40—50 km/h (25—31 mph) the fully loaded implement must weigh less than 3.0 times the tractor weight.

DX,TOW1 -19-12OCT11-1/1

TS1686 —UN—27SEP06

Use Caution On Slopes and Uneven Terrain

Avoid holes, ditches, and obstructions which cause the tractor to tip, especially on slopes. Avoid sharp uphill turns.

Driving forward 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.

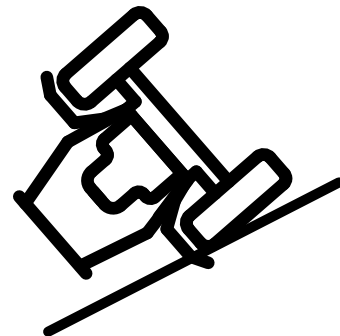
Danger of overturn increases greatly with narrow tread setting, at high speed.

Not all conditions that can cause a tractor to overturn are listed. Be alert for any situation in which stability may be compromised.

Slopes are a major factor related to loss-of-control and tip-over accidents, which can result in severe injury or death. Operation on all slopes requires extra caution.

Never drive near the edge of a gully, drop-off, ditch, steep embankment, or a body of water. The machine could suddenly roll over if a wheel goes over the edge or the ground caves in.

Choose a low ground speed so you will not have to stop or shift while on a slope.



Avoid starting, stopping or turning on a slope. If the tires lose traction, disengage the PTO and proceed slowly, straight down the slope.

Keep all movement on slopes slow and gradual. Do not make sudden changes in speed or direction, which could cause the machine to roll over.

DX,WW,SLOPE -19-12OCT11-1/1

RXA0103437 —UN—01JUL09

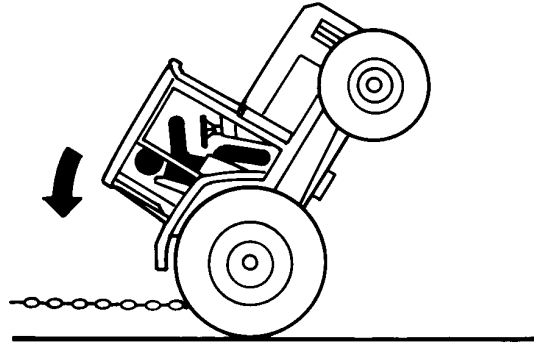
Freeing a Mired Machine

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.



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

TS1645—UN—15SEP95

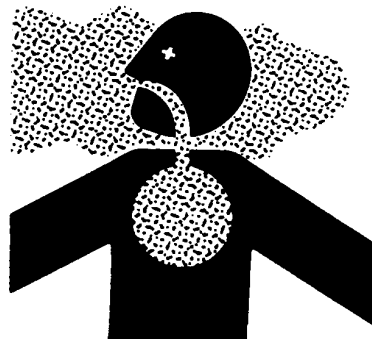
TS263—UN—23AUG88

Avoid Contact with Agricultural Chemicals

This enclosed cab does not protect against inhaling vapor, aerosol or dust. 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.



DX,CABS -19-25MAR09-1/1

TS220—UN—15APR13

TS272—UN—23AUG88

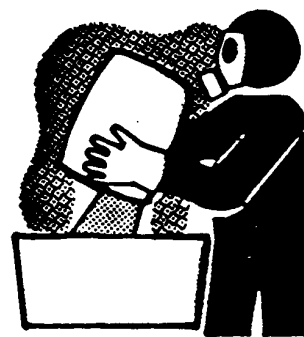
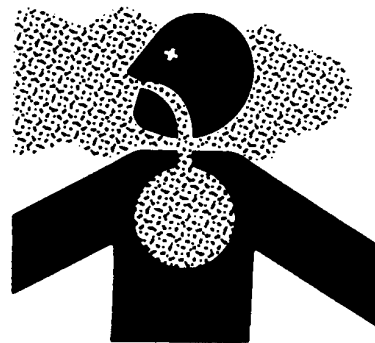
Handle Agricultural Chemicals Safely

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 vapor, aerosol or dust.
- 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 away 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

DX,WW,CHEM01 -19-24AUG10-1/1

TS220 —UN—15APR13

A34471 —UN—11OCT88

Handling Batteries Safely

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 grounded clamp last.

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

Avoid hazards by:

- Filling batteries in a well-ventilated area
- Wearing eye protection and rubber gloves
- Avoiding use of air pressure to clean batteries
- Avoiding breathing fumes when electrolyte is added
- Avoiding spilling or dripping electrolyte
- Using correct battery booster or charger procedure.

If acid is spilled on skin or in eyes:

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

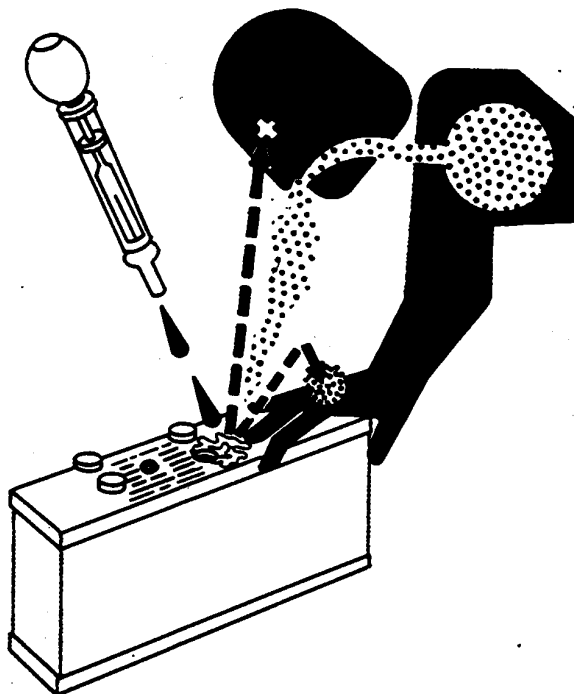
If acid is swallowed:

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

WARNING: Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. **Wash hands after handling.**



TS204—UN—15APR13



TS203—UN—23AUG88

DX,WW,BATTERIES -19-02DEC10-1/1

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

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.

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

TS220 —UN—15APR13

Handle Electronic Components and Brackets Safely

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

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

If installing or servicing a global positioning receiver mast used on an implement, use proper lifting techniques and wear proper protective equipment. The mast is heavy and can be awkward to handle. Two people are required when mounting locations are not accessible from the ground or from a service platform.



DX,WW,RECEIVER -19-24AUG10-1/1

TS249 —UN—23AUG88

Practice Safe Maintenance

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

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

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

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

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

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



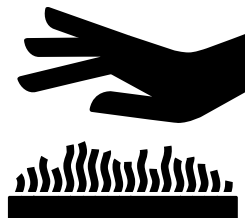
TS218 —UN—23AUG88

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

Avoid Hot Exhaust

Servicing machine or attachments with engine running can result in serious personal injury. Avoid exposure and skin contact with hot exhaust gases and components.

Exhaust parts and streams become very hot during operation. Exhaust gases and components reach temperatures hot enough to burn people, ignite, or melt common materials.



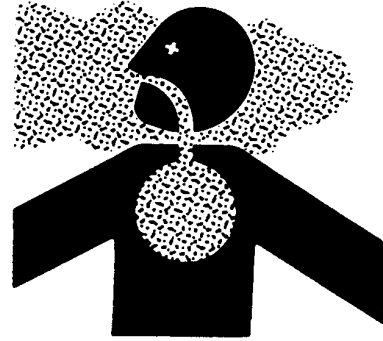
RG17488 —UN—21AUG09

DX,EXHAUST -19-20AUG09-1/1

Work In Ventilated Area

Engine exhaust fumes can cause sickness or death. If it is necessary to run an engine in an enclosed area, remove the exhaust fumes from the area with an exhaust pipe extension.

If you do not have an exhaust pipe extension, open the doors and get outside air into the area.



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

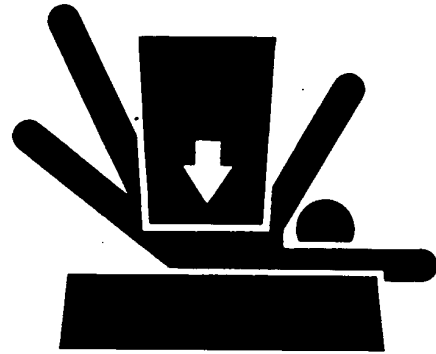
TS220 —UN—15APR13

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.



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

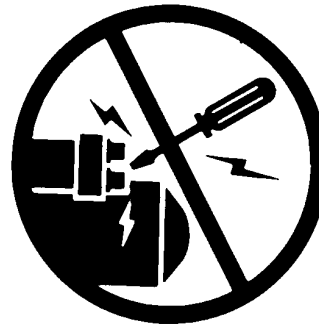
TS229 —UN—23AUG88

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.



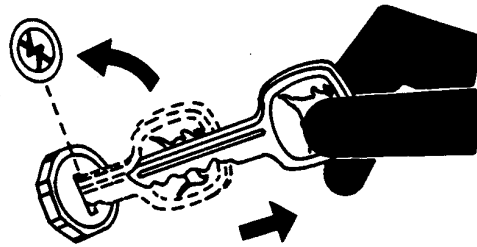
DX,BYPAS1 -19-29SEP98-1/1

TS177 —UN—11JAN89

Park Machine Safely

Before working on the machine:

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



TS230 —UN—24MAY89

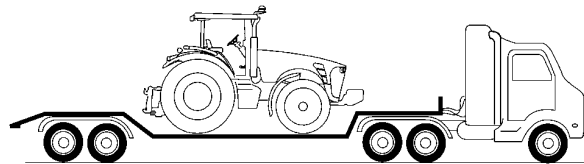
DX,PARK -19-04JUN90-1/1

Transport Tractor Safely

A disabled tractor is best transported on a flatbed carrier. Use chains to secure the tractor to the carrier. The axles and tractor frame are suitable attachment points.

Before transporting the tractor on a low-loader truck or flatbed rail wagon, make sure that the hood is secured over the tractor engine and that doors, roof hatch (if equipped) and windows are properly closed.

Never tow a tractor at a speed greater than 10 km/h (6 mph). An operator must steer and brake the tractor under tow.



RXA0103709 —UN—01JUL09

DX,WW,TRANSPORT -19-19AUG09-1/1

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 —UN—15APR13

DX,WW,COOLING -19-19AUG09-1/1

Service Accumulator Systems Safely

Escaping fluid or gas from systems with pressurized accumulators that are used in air conditioning, hydraulic, and air brake 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 pressurized system before removing accumulator.

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.



T5281 —UN—15APR13

DX,WW,ACCLA2 -19-22AUG03-1/1

Service Tires Safely

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

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

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

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

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

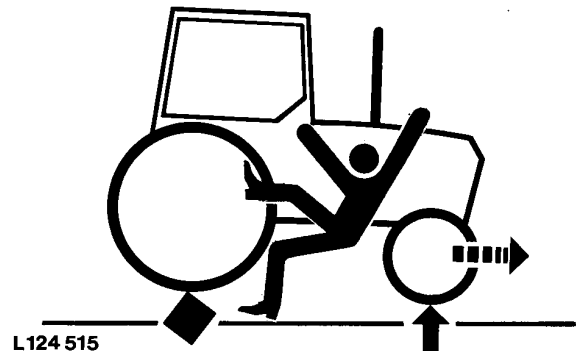


RXA0103438 —UN—11JUN09

DX,WW,RIMS -19-19AUG09-1/1

Service Front-Wheel Drive Tractor Safely

When servicing front-wheel drive tractor with the rear wheels supported off the ground and rotating wheels by engine power, always support front wheels in a similar manner. Loss of electrical power or transmission hydraulic system pressure will engage the front driving wheels, pulling the rear wheels off the support if front wheels are not raised. Under these conditions, front drive wheels can engage even with switch in disengaged position.

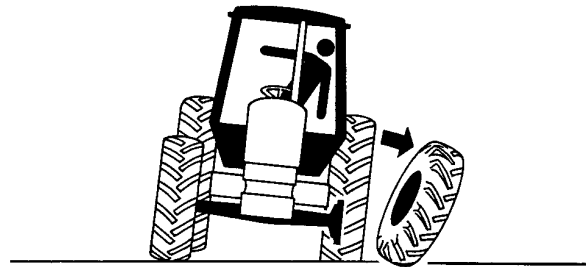


L124515 —UN—06AUG04

DX,WW,MFWD -19-19AUG09-1/1

Tightening Wheel Retaining Bolts/Nuts

Torque wheel retaining bolts/nuts at the intervals specified in section Break-In Period and Service.



L124 516

L124516 —UN—03JAN95

DX,WW,WHEEL -19-12OCT11-1/1

Avoid High-Pressure Fluids

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

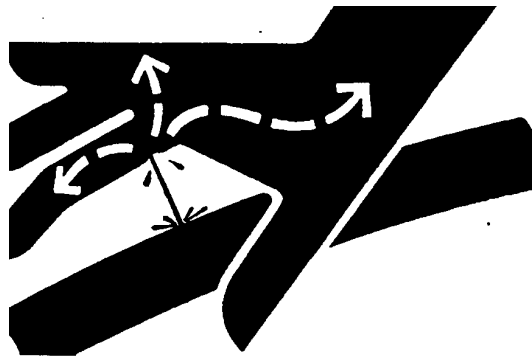
Replace worn or damaged hose assemblies immediately with John Deere approved replacement parts.

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

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

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

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



with this type of injury should reference a knowledgeable medical source. Such information is available in English from Deere & Company Medical Department in Moline, Illinois, U.S.A., by calling 1-800-822-8262 or +1 309-748-5636.

X9811 —UN—23AUG88

DX,FLUID -19-12OCT11-1/1

Do Not Open High-Pressure Fuel System

High-pressure fluid remaining in fuel lines can cause serious injury. Do not disconnect or attempt repair of fuel lines, sensors, or any other components between the high-pressure fuel pump and nozzles on engines with High Pressure Common Rail (HPCR) fuel system.

Only technicians familiar with this type of system can perform repairs. (See your John Deere dealer.)



TS1343 —UN—18MAR92

DX,WW,HPCR1 -19-07JAN03-1/1

Store Attachments Safely

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

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



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

TS219 —UN—23AUG88

Dispose of Waste Properly

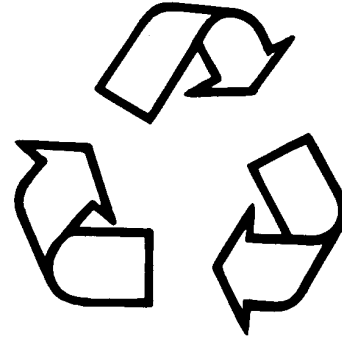
Improperly disposing of waste can threaten the environment and ecology. Potentially harmful waste used with John Deere equipment include such items as oil, fuel, coolant, brake fluid, filters, and batteries.

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.



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

TS1133 —UN—15APR13

Safety Signs

Replace Damaged or Missing Safety Signs

IMPORTANT: Install new safety signs if old signs are damaged, lost or cannot be read. Install a new safety sign when replacing any part that previously had a safety sign.

Keep safety signs clean and in good condition. Replacement signs are available. See your John Deere dealer.

JB06590,00003C2 -19-06MAR09-1/1

Operator's Manual



PUC5025—UN—05OCT10

On Left Side Fender



Decal

PUC1613—UN—03NOV08

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

AH98466,00010E7 -19-05OCT10-1/1

Riders



PUC5026—UN—05OCT10

On Left-Hand Side Fender



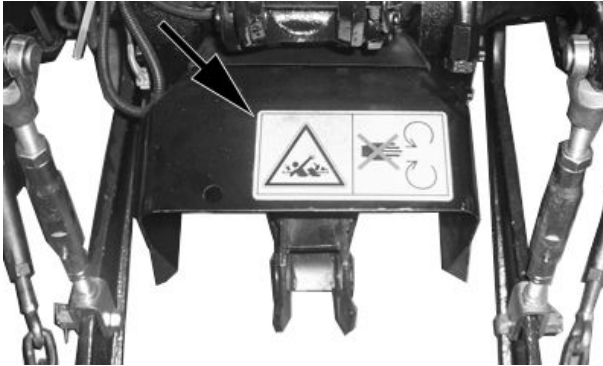
Decal

PUC1615—UN—03NOV08

Riders could fall off and be seriously injured or killed. Never carry riders.

AH98466,00010E8 -19-05OCT10-1/1

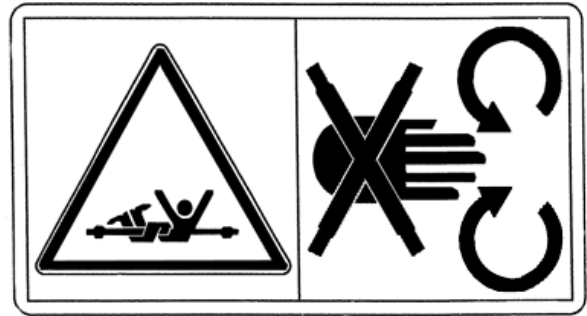
Stay Clear of PTO Driveline



On PTO Shield

Entanglement in rotating driveline can cause serious injury or death. Keep driveline shields in place at all times. Make sure that rotating shields turn freely. Wear

PUC2881 —UN—02MAR10



Decal

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

PUC1619 —UN—21NOV08

AH98466,00010E9 -19-05OCT10-1/1

Rockshaft Control



On Rear Side of Right Fender

Stay clear of three-point hitch lift range when operating the rockshaft.

PUC5027 —UN—05OCT10

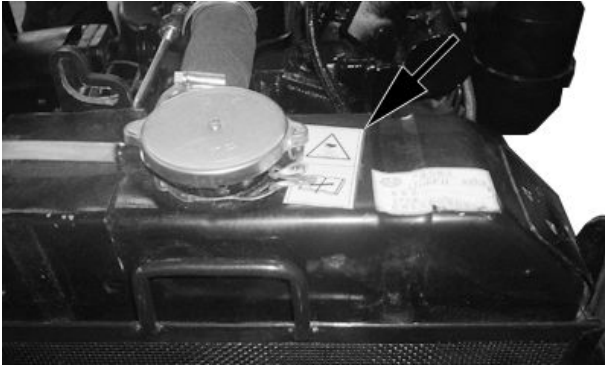


Decal

PUC1633 —UN—27NOV08

AH98466,00010EA -19-05OCT10-1/1

Radiator



PUC2882 —UN—02MAR10



Decal

PUC1620 —UN—21NOV08

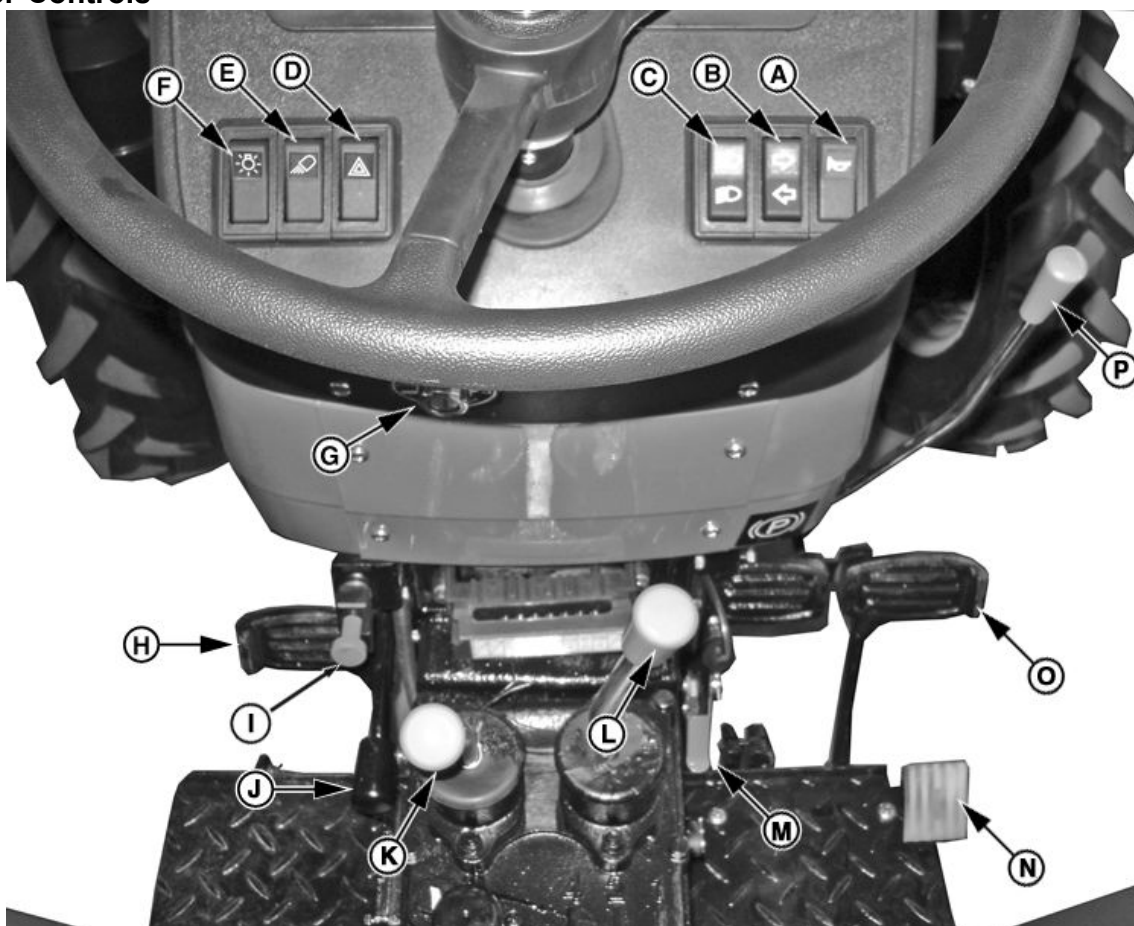
Pressurized cooling system. To prevent burn injury due to uncontrolled release of steam and hot coolant:

- Wait until radiator has cooled before touching
- Remove radiator cap slowly

SP55916,0000B54 -19-14DEC10-1/1

Controls and Instruments

Tractor Controls



A—Horn Switch
B—Turn Signal Switch
C—High/Low Beam Switch
D—Warning Light Switch

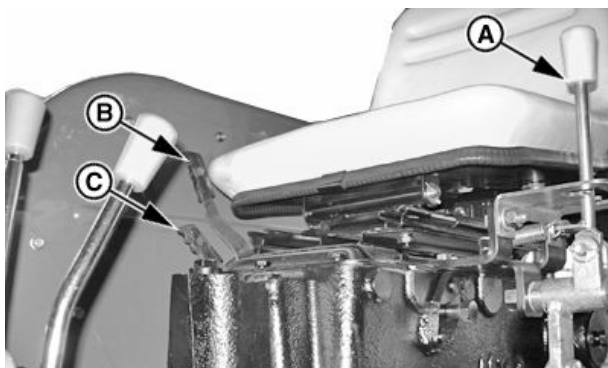
E—Floodlight Switch
F—Light Switch
G—Ignition Switch
H—Clutch Pedal
I—Flameout Wire

J—MFWD Lever
K—Range Shift Lever
L—Gear Shift Lever
M—Park Brake Lever

N—Foot Throttle
O—Brake Pedals
P—Hand Throttle

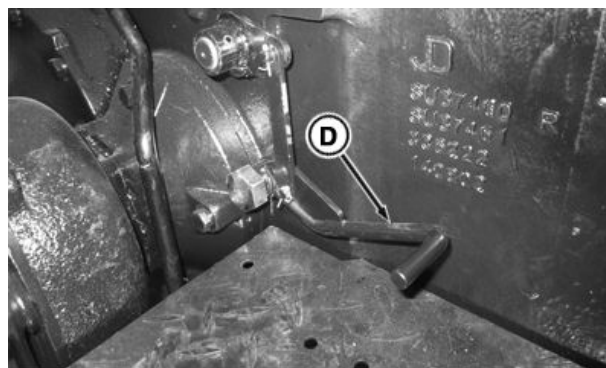
CP00834,000163D -19-08DEC14-1/2

N4A0003871—UN—11NOV14



A—PTO Lever
B—Draft Control Lever

C—Position Control Lever

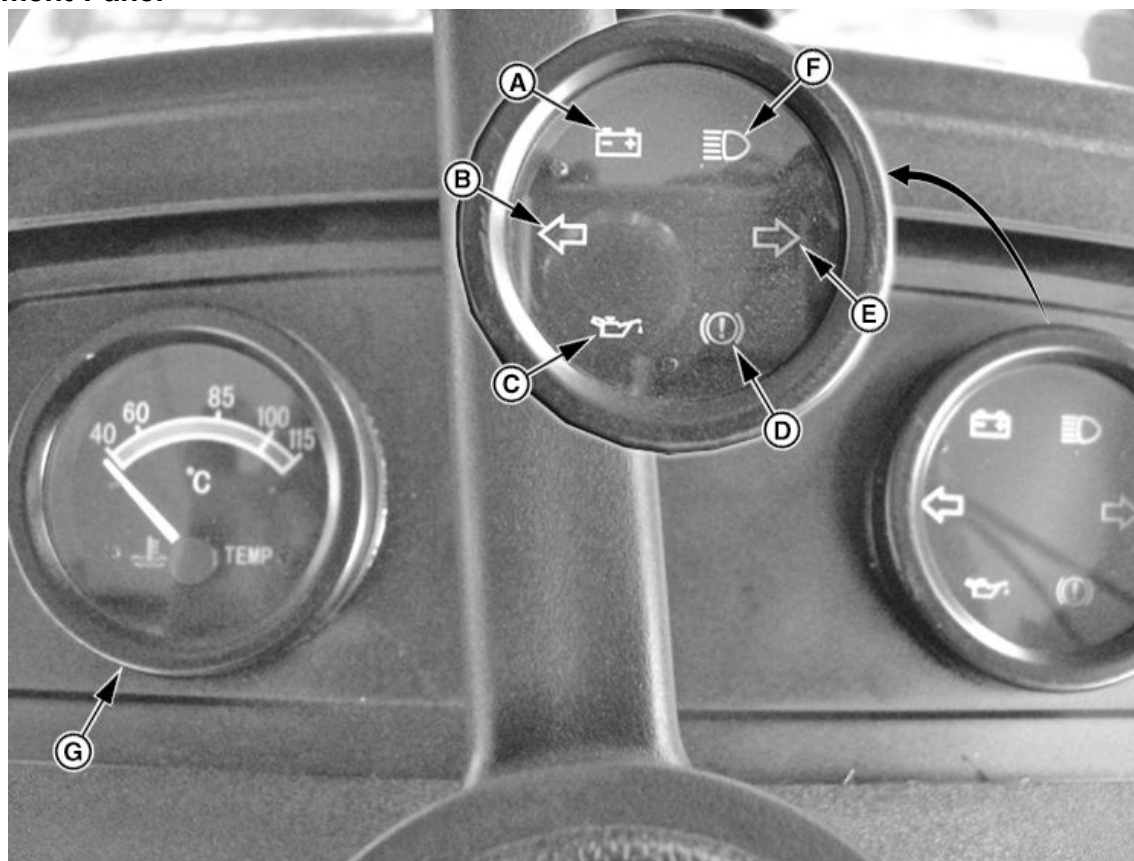


D—Differential Lock Control Pedal

CP00834,000163D -19-08DEC14-2/2

N4A0003872—UN—11NOV14

Instrument Panel



A—Charging System Indicator
B—Left Turn Signal Indicator

C—Oil Pressure Warning Indicator
D—Air Drag Annunciator Indicator

E—Right Turn Signal Indicator
F—High Beam Indicator

G—Water Temperature Gauge

PUC5030 —UN—05OCT10

AH98466,00010ED -19-19NOV10-1/1

Lights

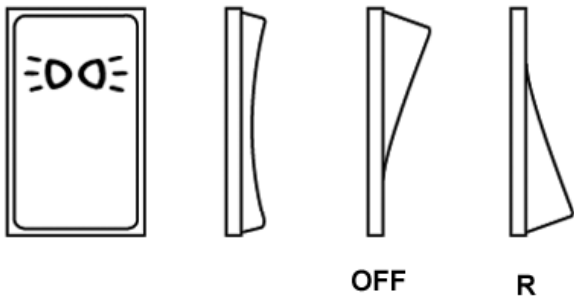
Light Switch Positions

Tractor light switch has two positions.

Light Switch		
Function	Tail Lights	Headlights
OFF	OFF	OFF
ROAD	ON	ON

R—ROAD Position

OFF—OFF Position



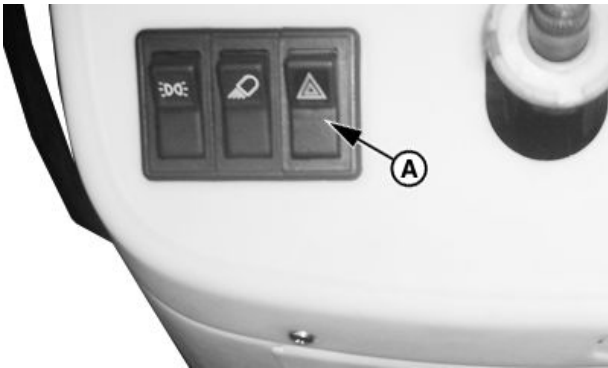
PUC5153 —UN—02NOV10

JB06590,0000879 -19-08NOV10-1/3

Warning Light Switch

It is only used to switch ON the warning lights.

A—Warning Light Switch



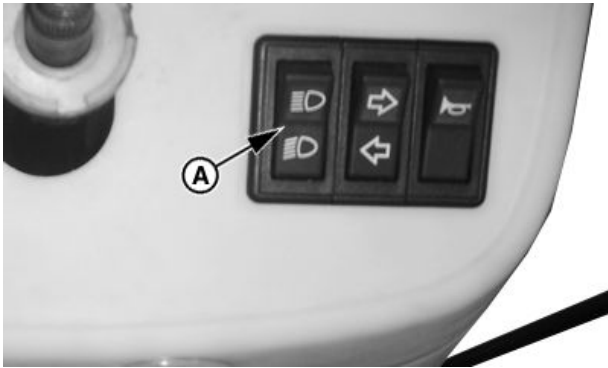
PUC2883 —UN—02MAR10

JB06590,0000879 -19-08NOV10-2/3

High/Low Beam Switch

High/low beam switch is used to choose bright headlights or dimmed headlights.

A—High/Low Beam Switch



PUC2884 —UN—02MAR10

JB06590,0000879 -19-08NOV10-3/3

Use Headlights and Floodlights

CAUTION: When operating on a road, move high/low beam switch to either bright or dim position. Never use flood lights when transporting. Bright lights could blind drivers of other vehicles as they approach.

Dual-beam headlights are used in daytime or at night. Switch to road light position when driving on highway.

Always switch high/low beam switch to low beam position before meeting another vehicle.

Keep headlights adjusted properly. (See Adjust Headlights in Maintenance—Electrical System section.)

IMPORTANT: Rear-facing floodlights may blind or confuse driver of other vehicles approaching from behind. When driving or transporting tractor on public roads, use road lights only, never use floodlights.

Floodlights are for field work only. Do not use floodlights on roads.

A—Headlights
B—Floodlights

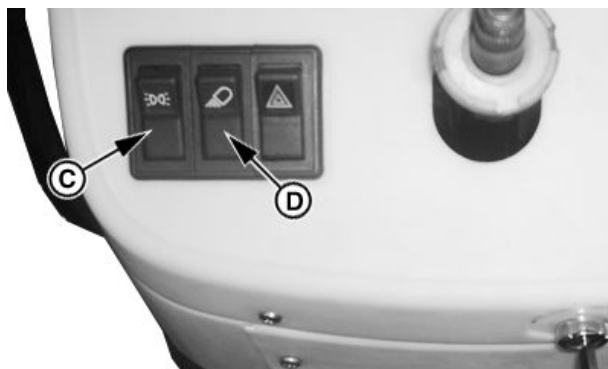
C—Light Switch
D—Floodlight Switch



PUC2885 —UN—02MAR10



PUC2886 —UN—02MAR10



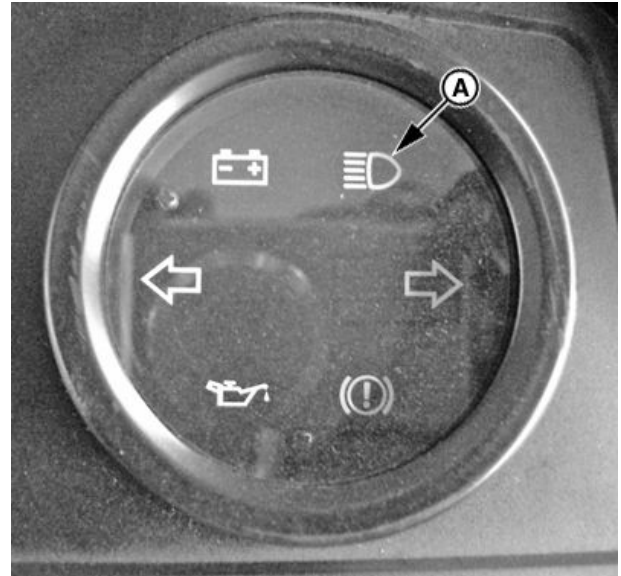
PUC2887 —UN—02MAR10

JB06590.000087A -19-03MAR10-1/1

High Beam Indicator

High beam indicator (A) glows high/low beam switch is switched to high beam position.

A—High Beam Indicator



PUC5031 —UN—05OCT10

AH98466,00010EE -19-05OCT10-1/1

Use Tail Lights and Warning Lights

Tail lights (B) are ON when the tractor light switch (D) is in ROAD position.

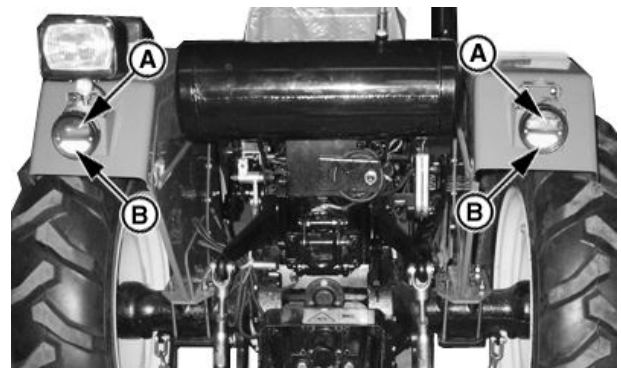
Be sure that tail light lenses are clean before driving on a road, so that other drivers can see them easily.

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 hand signals or turn signal lights.

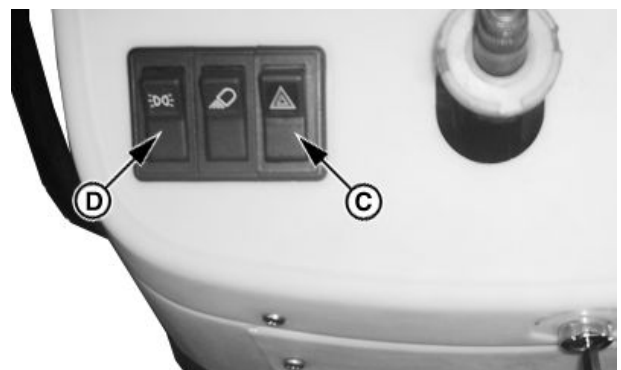
Use headlights, warning lights, and turn signals day and night. Follow local regulations for equipment lighting and marking. Keep lighting and marking visible and in good working order. Replace or repair lighting and marking that has been damaged or lost. An implement safety lighting kit is available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

Warning lights can be turned ON or OFF with warning light switch (C).

Flashing warning lights do not indicate turning. Switch off the warning lights before operating the turn signal lights.



PUC2888 —UN—02MAR10



PUC2889 —UN—02MAR10

A—Warning Lights
B—Tail Lights

C—Warning Light Switch
D—Light Switch

JB06590,000087B -19-03MAR10-1/1

Use Turn Signal Lights

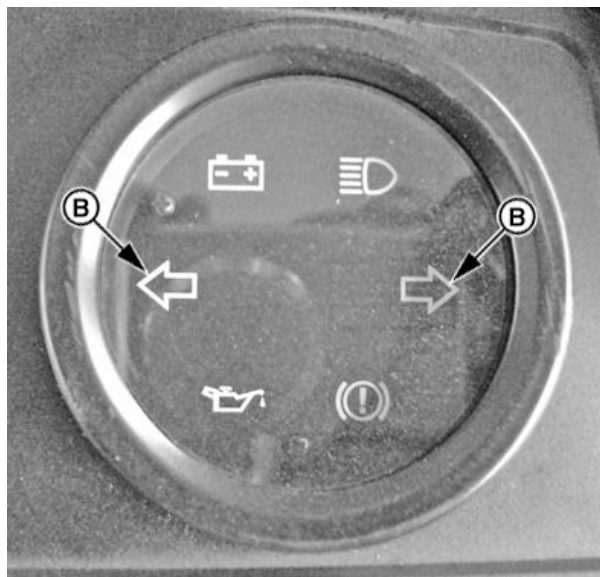
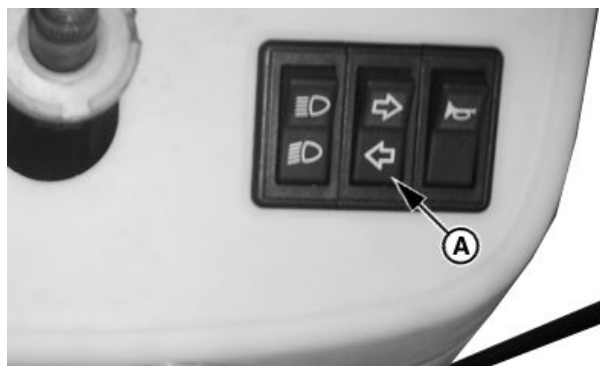
IMPORTANT: Turn signal switch (A) is not functional when warning lights are flashing. Switch off warning lights with the warning light switch before operating turn signal switch.

Press turn signal switch (A) down to indicate left-hand turn and up to indicate right-hand turn. Turn signal indicators (B) on instrument panel flashes to indicate turn direction.

NOTE: Be sure to return turn signal switch (A) manually, to center position after turning.

A—Turn Signal Switch

B—Turn Signal Indicators



PUC2890 —UN—02MAR10

PUC5032 —UN—05OCT10

AH98466,00010EF -19-05OCT10-1/1

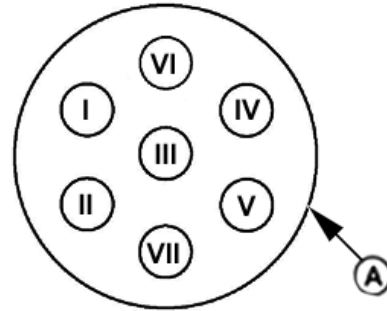
Seven Pin Outlet

Seven pin 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.

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

Terminal	Function	Wire Color
1	Left Turn	Blue
2	None	
3	Communal Loop	Black
4	Right Turn	White
5	Tail Lamp	Orange
6	Brake Lamp	Green
7	None	

A—Seven Pin Outlet



AH98466,0001192 -19-08NOV10-1/1

PUC1828—UN—08FEB09

PUC1711—UN—16JAN09

Break-In Period

Observe Engine Operation Closely

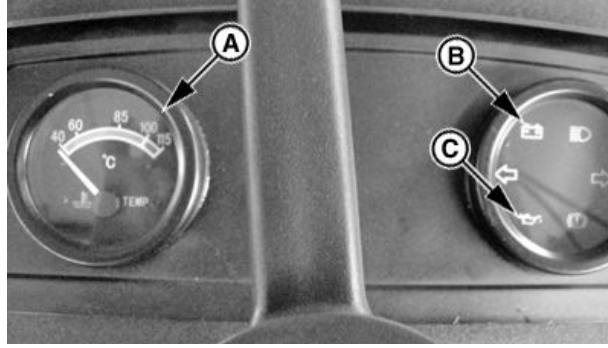
IMPORTANT: The engine is ready for normal operation. Be extra cautious during the first 100 hr., until you become thoroughly familiar with the sound and feel of your new tractor. Stay extra attentive and alert.

Warm up tractor carefully. Check charging system indicator (B), oil pressure warning indicator (C) and water temperature gauge (A).

Avoid unnecessary engine idling (5 min.).

Check engine oil, coolant, transmission/hydraulic, and mechanical front wheel drive (if equipped) fluid levels frequently. Watch for fluid leaks.

NOTE: If engine oil must be added, use seasonal viscosity grade oil. Use only lubricants meeting specifications given in the Fuels, Lubricants, and Coolant section.



A—Water Temperature Gauge
B—Charging System Indicator

C—Oil Pressure Warning Indicator

PUC5034—UN—05OCT10

AH98466,00010F2 -19-08NOV10-1/1

Break-In Service

IMPORTANT: Keep wheel hardware tight to avoid tractor damage. Check torque on wheel bolts before operating, twice during first 10 hr. of operation, after 50 hr. of operation, and periodically thereafter.

During the First 10 hr. of Operation:

Use only specified engine oil if needed. (See Diesel Engine Oil in Fuels, Lubricants, and Coolant section.)

Perform service listed for 10 hr. in Service Interval Chart. (See Maintenance and Service Intervals section.)

Tighten wheel bolts. (See Wheels, Tires, and Treads section.)

After the First 50 hr. of Operation:

Tighten wheel bolts. (See Wheels, Tires and Treads section.)

Check alternator/fan belt tension. (See Alternator/Fan Belt Adjustment, in Maintenance - Electrical System section.)

Tighten air intake system bolts. Check gasket for damage. (See Check Air Intake System, in General Maintenance and Inspection section.)

Check cooling system hose clamps. (See Check Cooling System For Leaks, in Maintenance - Cooling System section.)

Check brake linkage and brake pedal adjustment. (See Adjust Brake Pedal Free Play in General Maintenance and Inspection section.)

Check clutch linkage and clutch pedal adjustment. (See Adjust Clutch Pedal Free Play, in General Maintenance and Inspection section.)

Check PTO clutch linkage. (See Adjust PTO Clutch Operating Rod, in Drawbar and PTO section.)

Perform service listed for 50 hr. and 10 hr. in Service Interval Chart. (See Maintenance and Service Intervals section.)

After the First 100 hr. of Operation:

Rinse transmission/hydraulic oil filter elements and replace them if necessary. (See Replace Transmission/Hydraulic Oil Filter, in Lubrication section.)

Change MFWD axle oil. (See Change MFWD Axle Oil, in Lubrication section.)

Change MFWD wheel hub oil. (See Change MFWD Wheel Hub Oil, in Lubrication section.)

Change engine oil and filter. (See Change Engine Oil and Filter, in Lubrication section.)

Perform 100 hr. Service, 10 hr. Service, and 50 hr. Service.

JB06590,000029D -19-03FEB09-1/1

Prestarting Checks

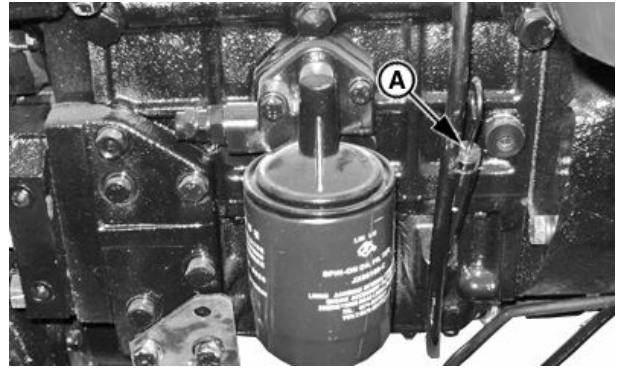
Service Daily Before Start-Up

NOTE: Park tractor on level ground before executing checks.

1. Check engine oil level. Remove and clean dipstick (A) and reinsert fully. Remove it and check oil level. The safe operating range is between the upper and lower marks of the dipstick. (See Check Engine Oil Level in Lubrication section.)

Do not operate the engine if oil level is below minimum mark. In this case, add recommended oil. (See Fuels, Lubricants and Coolant section.)

A—Engine Oil Level Dipstick



PUC5173 —UN—08NOV10

AH98466,000119B -19-08NOV10-1/3

2. Check prefilter (A) of air cleaner. (See Service Air Cleaner in General Maintenance and Inspection section.)

A—Prefilter

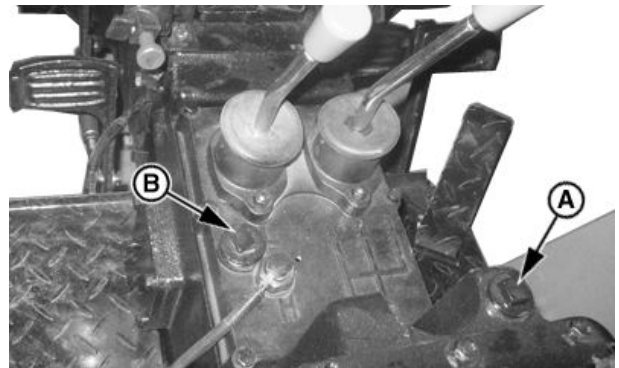


PUC2892 —UN—03MAR10

AH98466,000119B -19-08NOV10-2/3

3. Check transmission and hydraulic oil level. Check hydraulic oil level at dipstick (A) and transmission oil level at dipstick (B). Remove and clean dipsticks and reinsert fully. Remove it and check oil level. The safe operating range is between the upper and lower marks on the dipstick. If level is low add oil through fill port. (See Check Transmission/Hydraulic System Oil Level, in Lubrication section.)
4. Drain water and sediments from fuel filter. (See Drain Water and Sediment from Fuel Filter in Maintenance—Fuel System section.)
5. Check coolant/water level in radiator. Add coolant/water if necessary. (See Check Coolant Level in Maintenance—Cooling System section.)
6. Check MFWD axle and wheel hub oil level.
7. Check fuel level.
8. Check inflation pressures of front and rear wheels. Adjust to specifications if necessary.

IMPORTANT: If operating in extremely wet or muddy conditions, lubricate several additional



A—Hydraulic Oil Level Dipstick B—Transmission Oil Level Dipstick

components daily as well. (See Lubricate Steering Spindles in Lubrication section.)

PUC2893 —UN—03MAR10

AH98466,000119B -19-08NOV10-3/3

Operating the Engine

Before Starting the Engine

⚠ CAUTION: Prevent asphyxiation. Engine exhaust fumes can cause sickness or death to you or someone else.

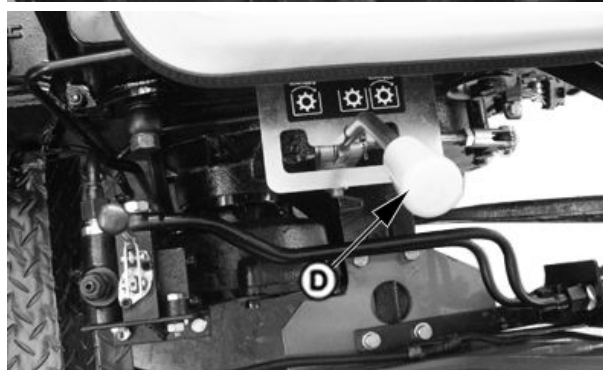
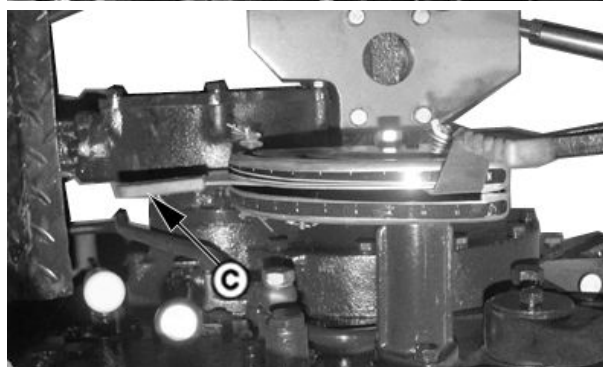
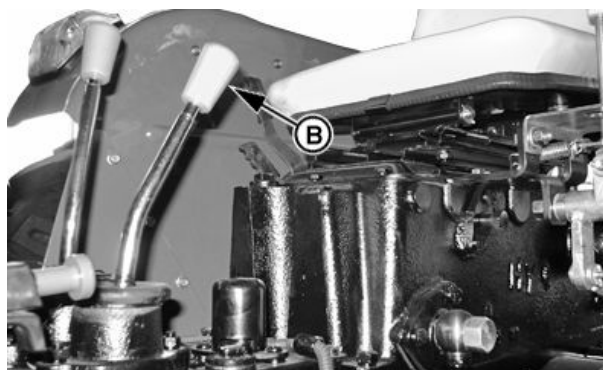
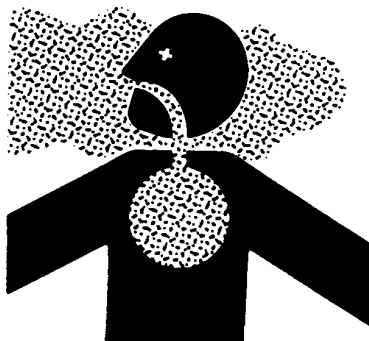
If you must operate engine in a building, be positive there is adequate ventilation. Either use an exhaust pipe extension to remove the exhaust fumes or open doors and windows to bring enough outside air into the area.

1. Check fuel gauge to be sure that tractor has plenty of fuel.
2. Disengage PTO lever (D) and put gear shift lever (B) in neutral position. Starter will not operate if PTO lever (D) and range shift lever (B) are not in these positions.
3. Place position control lever (C) in lower position.
4. Check charging system (battery) indicator and oil pressure warning indicator. They should glow when ignition key is turned to ON position.

If any indicator does not function properly, see your John Deere dealer.

B—Range Shift Lever
C—Position Control Lever

D—PTO Lever



TS220 —UN—15APR13

PUC5035 —UN—05OCT10

PUC0046 —UN—07APR09

PUC0028 —UN—03APR09

AH98466,00010F3 -19-05OCT10-1/1

Key Switch Positions

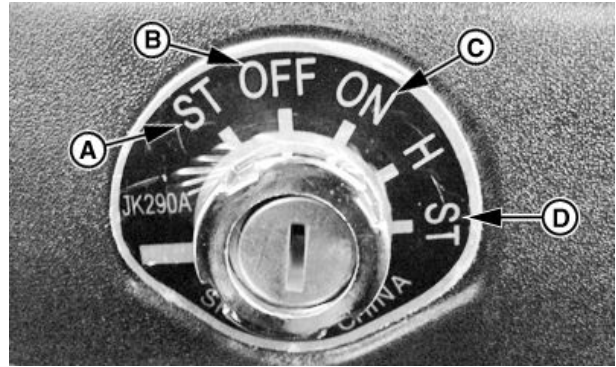
Start Position (A/D) - Turn key to Start position when starting engine. Key will return to ON position when released. See following procedure for proper starting procedure.

OFF Position (B) - Turn key to OFF position from ON positions to turn off electrical accessories. Make sure that key switch is in ON position when engine is running.

ON Position (C) - After turning key to Start position and releasing key, key returns to ON position. ON position enables ON circuit allowing engine to run.

A—Start Position
B—OFF Position

C—ON Position
D—Start Position



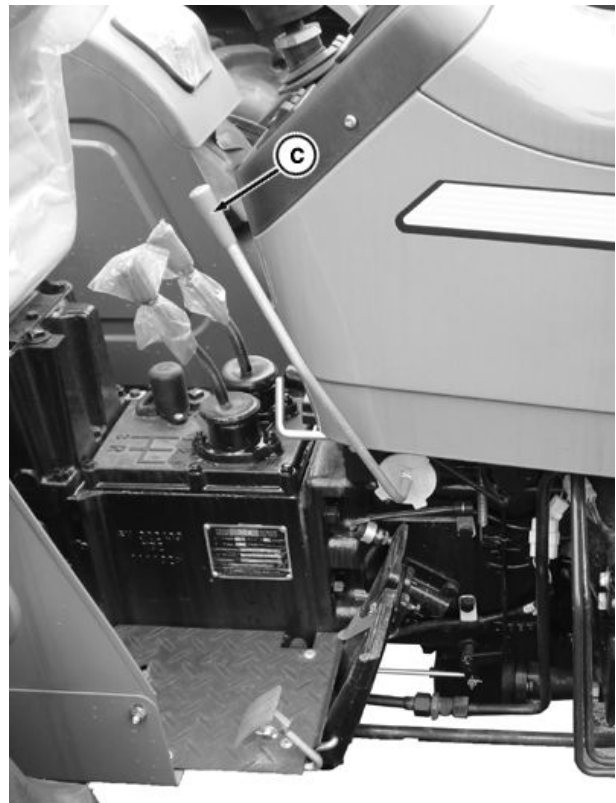
PUC5175 —UN—19NOV10

AH98466,00011AF -19-19NOV10-1/1

Start the Engine

1. Push hand throttle (C) rearward (approximately 1/3 of lever travel) to increase engine speed. Engine may not start with throttle at completely forward position.

C—Hand Throttle



N4A0002901 —UN—08SEP13

Continued on next page

CP00834,000163E -19-08DEC14-1/2

⚠ CAUTION: Avoid possible injury or death from a machine runaway.

DO NOT start engine by shorting across starter terminals. Machine will start in gear and move if normal circuitry is bypassed.

⚠ CAUTION: Set the parking brake before starting engine.

Start engine only from operator's seat with transmission in **PARK** or **NEUTRAL**. **NEVER** start engine while standing on ground.

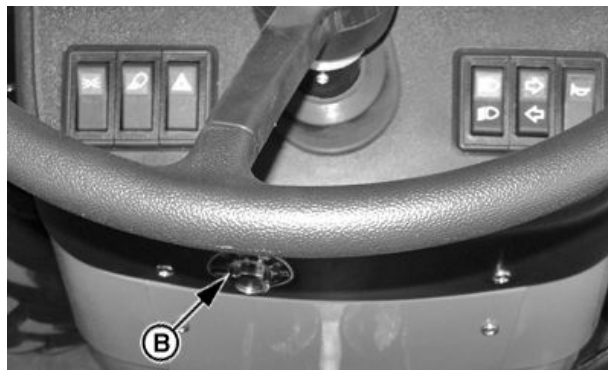
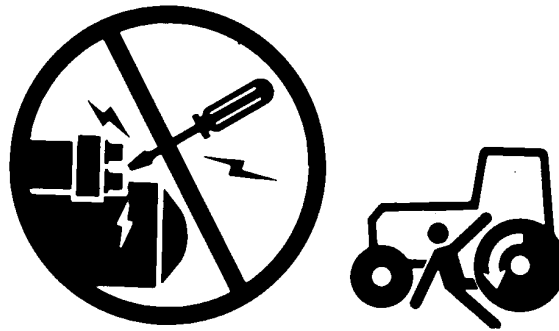
IMPORTANT: **DO NOT** run a cold engine at full throttle.

2. Make sure that the gear shift lever is in neutral and PTO lever is in disengaged position. Depress clutch pedal (A) and turn ignition switch (B) fully clockwise to **START** position. Release key when engine starts. If key is released before engine starts, wait until starter and engine stop turning before trying again. Check that all indicators are off after engine starts.

IMPORTANT: **DO NOT** operate starter more than 15 sec. at a time. If engine does not start, wait at least 2 min. for the starter motor to cool before trying again. If engine does not start in three attempts, refer to Troubleshooting section.

A—Clutch Pedal

B—Ignition Switch



TS177 —UN—11JAN89

PUC5036 —UN—05OCT10

PUC5037 —UN—05OCT10

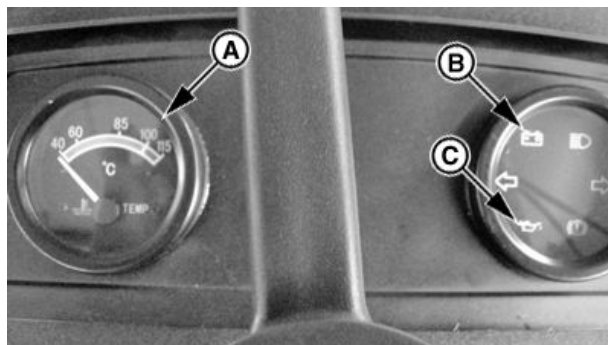
CP00834,000163E -19-08DEC14-2/2

Check Instruments After Starting

IMPORTANT: If charging system indicator (B) or oil pressure warning indicator (C) remains on, or if water temperature gauge (A) goes into the red zone, stop engine and determine the cause.

A—Water Temperature Gauge
B—Charging System Indicator

C—Oil Pressure Warning Indicator



PUC5034 —UN—05OCT10

AH98466,00010F5 -19-08NOV10-1/1

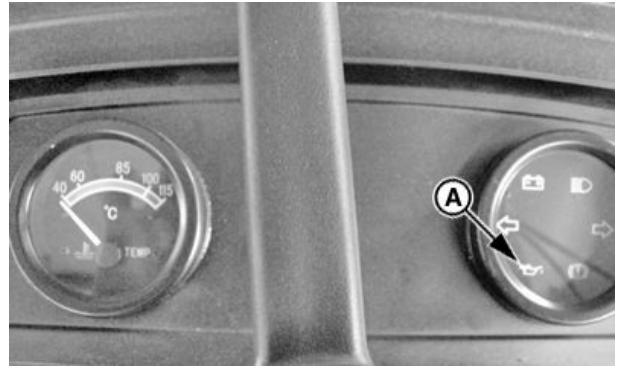
Oil Pressure Warning Indicator

Oil pressure warning indicator (A) lights and stay lit if engine oil pressure falls below minimum.

IMPORTANT: NEVER operate engine without sufficient oil pressure. If indicator stays on for longer than 5 sec. under normal operating conditions, stop engine and check for cause.

If low oil level is not the problem, see your John Deere dealer.

A—Oil Pressure Warning Indicator



PUC5038 —UN—05OCT10

AH98466,00010F6 -19-05OCT10-1/1

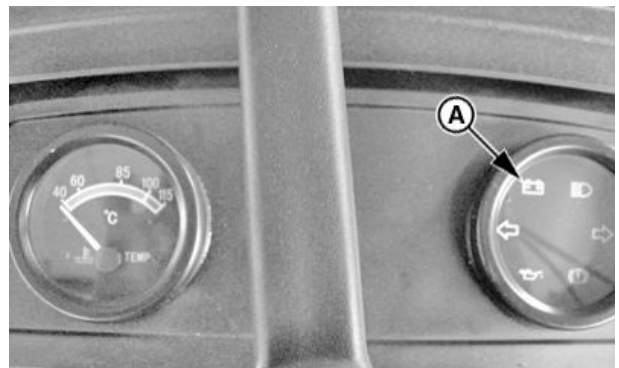
Charging System Indicator

Charging system indicator (A) lights when alternator output is low. Indicator should light when key is turned to START position and go off when engine starts.

If indicator stays lit for longer than 5 sec. in normal operation, stop engine and check for cause.

If loose or broken fan belt is not the cause, see your John Deere dealer.

A—Charging System Indicator



PUC5039 —UN—05OCT10

AH98466,00010F7 -19-05OCT10-1/1

Air Pressure Warning Indicator

Air pressure warning indicator (A) lights if air pressure for air trailer brakes is not sufficient.

Indicator should light momentarily when key is turned to START position, and go off when engine starts.

A—Air Pressure Warning Indicator



PUC5040 —UN—05OCT10

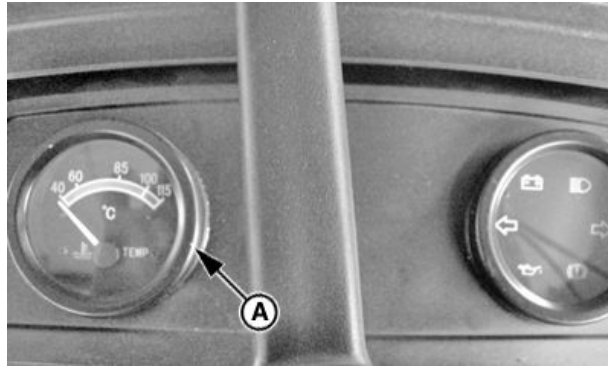
AH98466,00010F8 -19-05OCT10-1/1

Water Temperature Gauge

The needle on the water temperature gauge (A) rises as engine warms up. If needle reaches red zone, stop engine and determine the cause.

CAUTION: DO NOT remove radiator cap until water has had a chance to cool down. Always loosen radiator cap slowly to relieve any excess pressure.

Check water level in radiator when engine cools. Also check front grille on hood and radiator for plugging. Check fan belt tension. If problem is not corrected, see your John Deere dealer.



A—Water Temperature Gauge

AH98466,00010F9 -19-05OCT10-1/1

PUC5041—UN—05OCT10

Change Engine Speeds

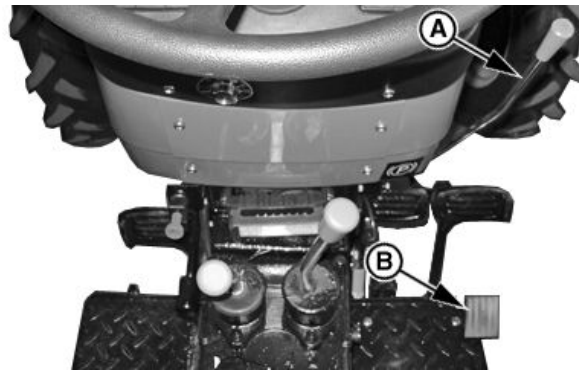
To increase or decrease engine speed, use hand throttle (A). Engine will maintain set speed until hand throttle is moved again.

Maximum speed is attained with lever all the way up, and minimum speed with lever all the way down.

To temporarily increase engine speed, use foot throttle (B). Engine speed returns to prior speed as soon as foot throttle lever is released.

A—Hand Throttle

B—Foot Throttle



AH98466,00010FA -19-05OCT10-1/1

PUC5043—UN—05OCT10

Warm Up the Engine

Do not place tractor under full load until it is properly warmed up.

1. Idle engine at about 800—1000 rpm for several minutes.
2. Run engine at about 1900 rpm and under light load until engine reaches normal operation condition.

JB06590,00002A9 -19-03FEB09-1/1

Restart Stalled Engine

IMPORTANT: Be sure to observe the following, or damage to turbocharger and booster could occur.

Should the engine stall when operating under load, depress clutch and restart it immediately to prevent abnormal heat build up. Continue with normal operation or run engine at slow idle for 1 or 2 min. before stopping.

JB06590,00002AA -19-03FEB09-1/1

Avoid Idling the Engine

Allowing engine to idle at low rpm uses fuel inefficiently, and can cause a buildup of carbon in the engine.

If tractor must be left with the engine running more than 3 or 4 min., minimum engine speed should be 1200 rpm.

JB06590,00002AB -19-03FEB09-1/1

Observe Engine Work and Idle Speeds

Slow idle speed should be 750 rpm. At light or no load, full throttle speed will increase to 2376 rpm (for 28—30 hp), 2538 rpm (for 32 hp), 2592 rpm (for 35 hp), tractors.

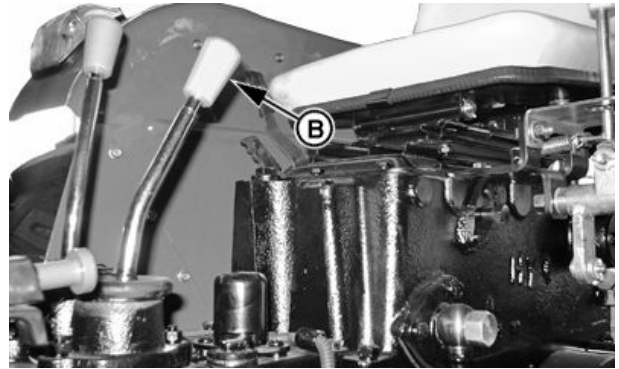
Normal working speed is 750-2200 rpm (for 28—30 hp), 750-2350 rpm (for 32 hp), 750-2400 rpm (for 35 hp) rated speed. Within these limits, engine can be put under full load.

AH98466,00011B0 -19-19NOV10-1/1

Stop the Engine

1. Put range shift lever (B) in NEUTRAL position.

B—Range Shift Lever

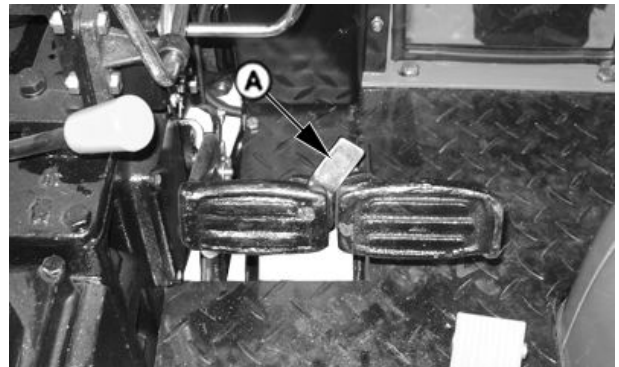


PUC5035 —UN—05OCT10

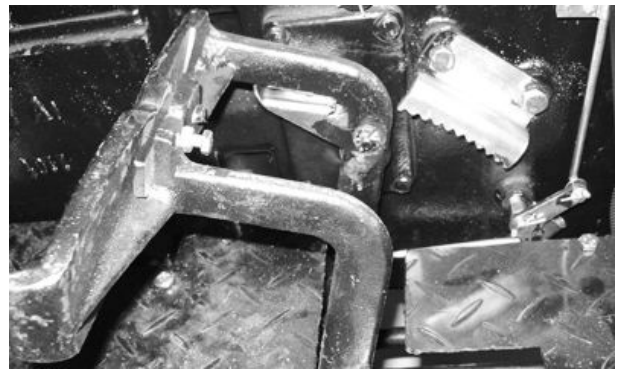
AH98466,0001191 -19-08NOV10-1/6

2. Lock brake pedals together using bar (A). Use spanner to tighten the bolt and keep the pedals locked together.

A—Brake Pedals Locking Bar



PUC1845 —UN—11FEB09



PUC1846 —UN—11FEB09

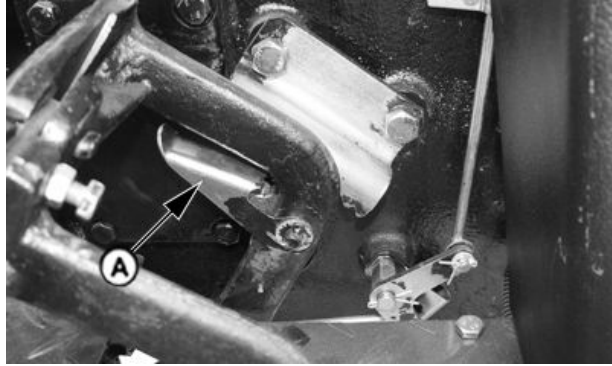
Continued on next page

AH98466,0001191 -19-08NOV10-2/6

3. Set parking brake by pressing brake pedals down and pulling up parking brake lever (A).

IMPORTANT: Cooling of certain engine parts is provided by engine oil. Stopping a hot engine suddenly could cause damage to these parts by overheating or lack of lubrication.

A—Parking Brake Lever



PUC1847 —UN—11FEB09

AH98466,0001191 -19-08NOV10-3/6

4. Push hand throttle (C) forward to slow idle position and allow engine to idle for 1 to 2 min.

C—Hand Throttle



PUC0029 —UN—03APR09

AH98466,0001191 -19-08NOV10-4/6

5. Pull flameout wire (A) (at lower left side of control support) rearward and hold until engine completely stops.

A—Flameout Wire



PUC5044 —UN—05OCT10

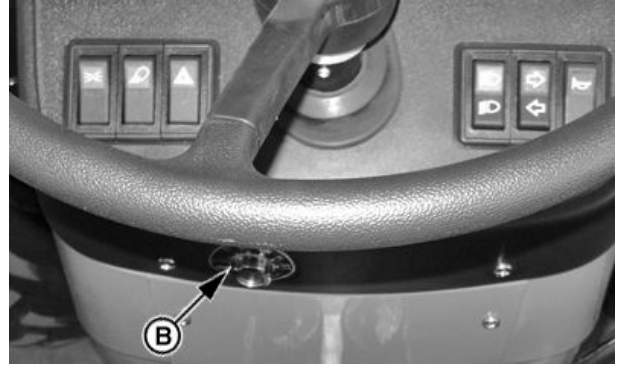
Continued on next page

AH98466,0001191 -19-08NOV10-5/6

6. Turn ignition switch (B) to the OFF position.

⚠ CAUTION: Remove key from ignition switch to prevent operation by untrained personnel.

B—Ignition Switch



PUC5037 —UN—05OCT10

AH98466,0001191 -19-08NOV10-6/6

Driving the Tractor

Operator Training Required

- Study the Operating the Engine section of this manual before operating tractor.
- Operate tractor in an open, unobstructed area under the direction of an experienced operator.
- Learn use of all controls.
- Operator experience is required to learn moving, stopping, turning and other characteristics of tractor.

JB06590,00002AF -19-03FEB09-1/1

Driving on Public Roads

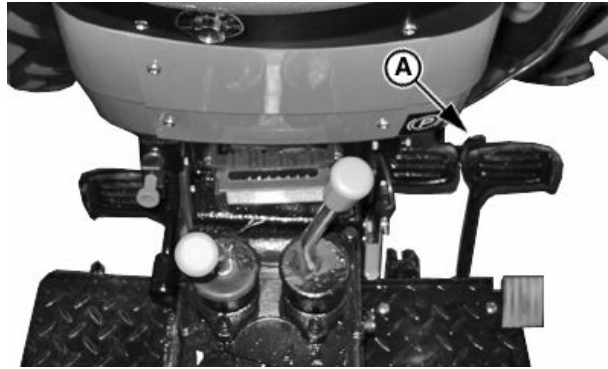
CAUTION: When transporting on a public road or highway, use accessory lights and devices for adequate warning to operators of other vehicles. Check local governmental regulations. Various safety devices are available from your John Deere dealer. Keep safety items in good condition. Replace missing or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

Observe the following precautions when operating the tractor on the road:

CAUTION: Before operating tractor on a road, lock brake pedals together. Use brakes lightly and cautiously at transport speeds.

1. Couple brake pedals together with bolt spanner using brake pedal locking bar (A). Avoid hard application of brakes. Reduce speed if towed load weighs more than the tractor and is not equipped with brakes. (Consult implement operator's manual for recommended transport speeds.)

Use additional caution when transporting towed loads under adverse surface conditions and when turning



A—Brake Pedal Locking Bar

or braking on inclines. Be sure that wheel tread is adjusted wide to provide maximum stability.

IMPORTANT: To prevent unnecessary wear, never “ride” the brakes by resting a foot on the pedals.

PUC5045—UN—05OCT10

Continued on next page

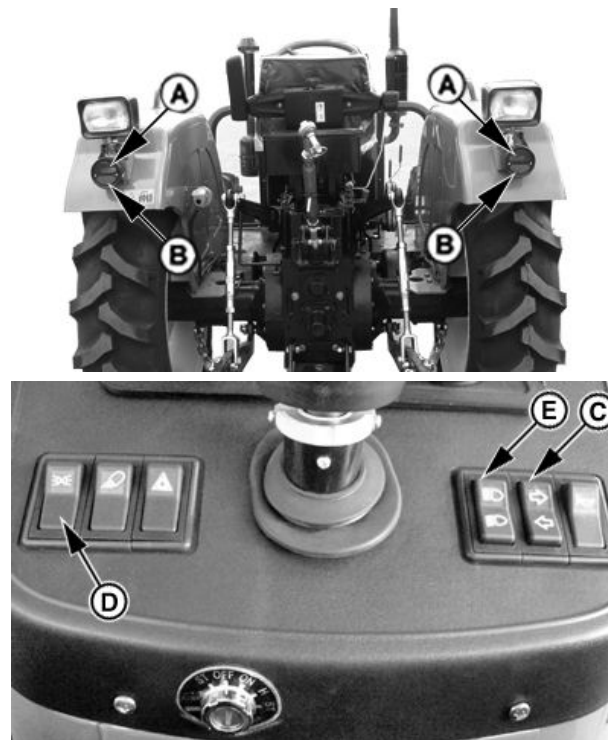
AH98466,00010FD -19-05OCT10-1/2

2. Check local laws and regulations for lighting requirements. Be sure that warning lights (A) and tail lights (B) are clean and visible. If towed or rear-mounted equipment obstructs these safety devices, install warning lights on equipment. (See your John Deere dealer.)
3. Press light switch (D) to road position and high/low beam switch (E) to high beam position.

Always move high/low beam switch (E) to low beam position when meeting another vehicle. Never use floodlights (if equipped) or any other lights which could blind or confuse other drivers.
4. Use turn signal switch (C) when turning. Be sure to return turn signal switch (C) to center position after turning.
5. Drive slowly enough to maintain safe control at all times. Before descending a hill, shift to a gear low enough to control speed without using brakes. Slow down for rough ground and sharp turns, especially when transporting heavy, rear mounted equipment.
6. To reduce tire wear, be sure to disengage front-wheel drive (if equipped).

A—Warning Lights
B—Tail Lights
C—Turn Signal Switch

D—Light Switch
E—High/Low Beam Switch



PUC1824 —UN—08FEB09

PUC5046 —UN—05OCT10

AH98466,00010FD -19-05OCT10-2/2

Use Caution on Hillsides

Always wear seat belt with ROPS in upper position.

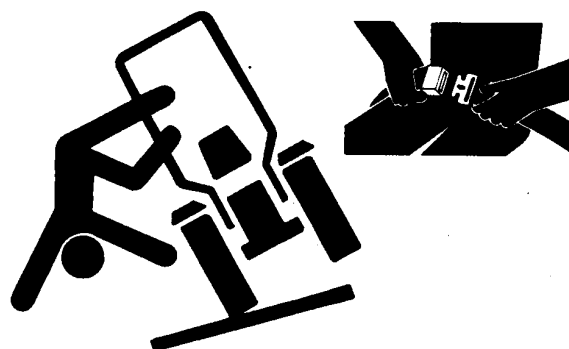
Avoid holes, ditches, and obstructions which cause the tractor to tip, especially on hillsides. Avoid sharp, uphill turns.

Never drive near the edge of a gully or steep embankment—it might cave in.

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

CAUTION: Avoid injury! Use extra caution when driving on slopes. To increase traction and provide 4-wheel braking, engage mechanical front wheel drive (MFWD) when driving on slopes. Be aware that MFWD may improve access to dangerously sloped terrain, thereby increasing the possibility of a tipover.

To improve braking on sloped, icy, wet or graveled surfaces, engage the MFWD. Add ballast to the tractor



and travel at a reduced speed to avoid skidding and loss of steering control.

Danger of overturn increases greatly with narrow tread setting, at high speed.

Hitch towed loads only to drawbar. When using a chain, take up the slack slowly.

TS205 —UN—23AUG88

MX,SAIP,CA1 -19-31JUL03-1/1

Operate Transmission

Range shift lever (A) provides two forward speed ranges: high and low.

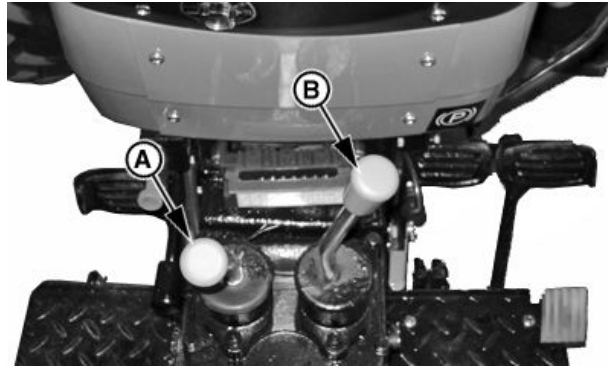
Gear shift lever (B) provides four forward speeds: 1st, 2nd, 3rd and 4th and one reverse speed.

Using range shift lever (A), and gear shift lever (B) in different combinations, eight forward speeds and two reverse speeds can be obtained.

To start the engine, gear shift lever must be in NEUTRAL position.

A—Range Shift Lever

B—Gear Shift Lever



PUC5176 —UN—19NOV10

NR25796,0001ACA -19-07DEC10-1/1

Shifting Transmission

IMPORTANT: To prevent transmission damage, **DO NOT** use speed shift on-the-go. To prevent unnecessary wear, never ride the clutch by resting a foot on the pedal.

Depress clutch pedal (A) and stop tractor before shifting either range shift lever or gear shift lever. Release clutch pedal gradually to take up load smoothly.

A—Clutch Pedal



PUC5036 —UN—06OCT10

AH98466,00010FE -19-05OCT10-1/1

Select a Gear

IMPORTANT: To extend drive train life and avoid excessive soil compaction and rolling resistance, avoid ballasting for **CONTINUOUS** full power operations in gears slower than B-1 change to L-4 (280 model), other H-1. When using front-wheel drive, ballasting to one gear slower is appropriate.

The tractor may be operated in any gear with engine speeds between 1265 and 2300 rpm. Within these limits, the engine can be put under full load. For light load operation, use a higher gear and lower engine speed. This saves fuel and reduces wear.

NR25796,0001ACB -19-07DEC10-1/1

Use Brakes

⚠ CAUTION: Before operating tractor on a road, lock pedals together with locking bar (B) and use spanner to tighten the bolt. Use brakes lightly and cautiously at transport speeds.

For field work, brake pedals should NOT be locked together. Instead, apply right brake pedal lightly to assist in making sharp right-hand turns and left pedal for left-hand turns.

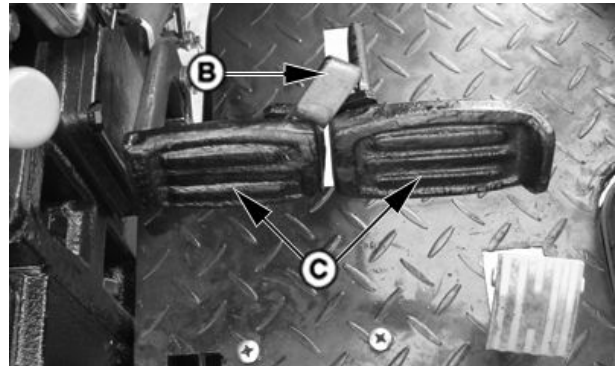
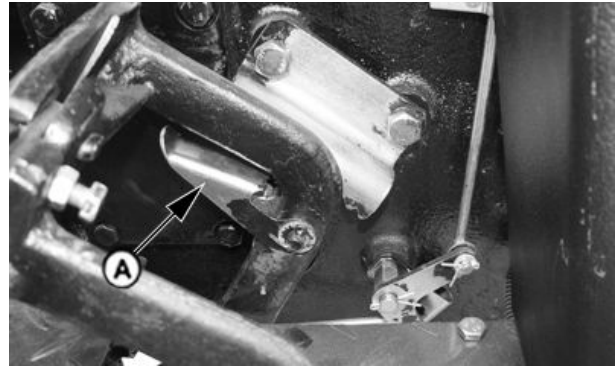
To stop tractor completely, lock brake pedals together with locking bar (B), depress brake pedals and pull up on parking brake lever (A), after coming to a complete stop. Tighten bolt of brake pedal locking bar using spanner.

To release parking brake lever (A), depress brake pedals (C) and push down parking brake lever (A).

IMPORTANT: To prevent unnecessary wear, **NEVER** ride the brakes by resting a foot on the brake pedals.

Reduce speed if towed load is not equipped with brakes and weighs more than the tractor. Avoid hard braking applications. Consult implement operator's manual for recommended transport speeds.

Use additional caution when transporting towed loads under adverse conditions, and when turning or stopping on inclines.



A—Parking Brake Lever
B—Brake Pedal Locking Bar

C—Brake Pedals

PUC1847 —UN—11FEB09

PUC1852 —UN—11FEB09

JB06590,00002B5 -19-03FEB09-1/1

Operate Mechanical Front Wheel Drive

Use mechanical front wheel drive (MFWD) as required for better traction.

CAUTION: Mechanical front wheel drive greatly increases traction. When using this option, extra caution is needed on slopes. Compared to two-wheel drive, front-wheel drive maintains traction on steeper slopes, increasing the possibility of a tip over.

When driving on icy, wet or gravel surfaces, reduce speed and be sure tractor is properly ballasted to avoid skidding and to prevent loss of steering control. Front-wheel drive provides better control under these road conditions.

IMPORTANT: To extend front tire life, engage front-wheel drive only when needed in the field. Front tires turn slightly faster than rear tires with MFWD engaged and will wear very quickly if driven in MFWD mode on hard surface for an extended period. Unless absolutely necessary, do not engage MFWD when driving on hard surfaces.

DO NOT install tire chains on front wheels - Chains will strike and damage tractor.

While towing an implement, pushing down on the MFWD lever to disengage front-wheel drive may not by itself achieve disengagement. If lever refuses to go down in attempting to disengage MFWD, this means the load must first be relieved from the power train. See step 3 below.



A—MFWD Lever

MFWD can be engaged or disengaged while in motion.

1. To engage, pull up MFWD lever (A).
2. To disengage, push MFWD lever (A) down.
3. If lever will not come up easily, this means the load must first be relieved from power train. Operator may have to perform one or more of the following in order to relieve load:
 - Drive tractor straight ahead for a few feet.
 - Stop tractor, then drive if briefly in reverse.
 - Raise implement slightly.
 - Disengage any ground-engaging tool in use.

PY14652 —UN—28JUN12

AH98466,00010FF -19-29JUN12-1/1

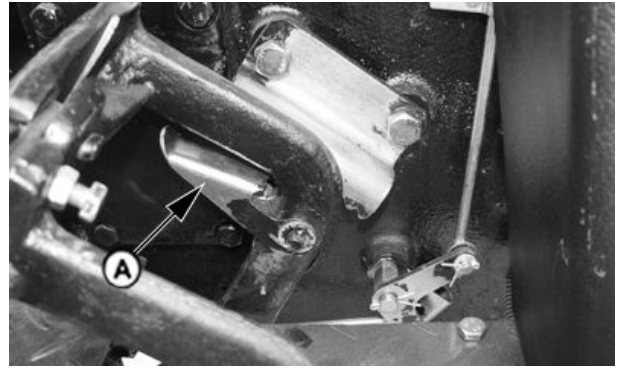
Stopping Tractor

CAUTION: Always set parking brake before dismounting. Leaving transmission in gear with engine off may not prevent tractor from moving.

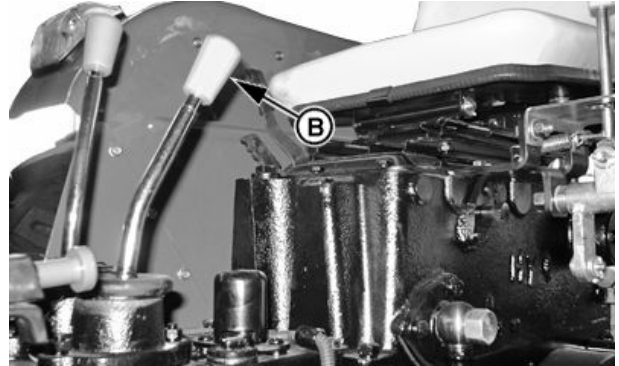
1. Place range shift lever (B) in NEUTRAL position, and apply brakes until tractor stops. Lock brake pedals together with locking bar. Press brake pedals and then pull up parking brake lever (A). Use spanner to tighten the bolt of brake pedal locking bar.
2. Lower all implements to the ground.

A—Parking Brake Lever

B—Range Shift Lever



PUC1847 —UN—11FEB09



PUC5035 —UN—05OCT10

CP00834,0001683 -19-18DEC14-1/3

IMPORTANT: Cooling of certain engine parts is provided by engine oil. Stopping a hot engine suddenly could cause damage to these parts by overheating or lack of lubrication.

3. Push hand throttle (C) forward to slow idle position. Allow engine to idle for 1 to 2 min.

C—Hand Throttle



PUC5048 —UN—08OCT10

Continued on next page

CP00834,0001683 -19-18DEC14-2/3

4. Pull flameout wire (A) rearward and hold until engine completely stops.
5. Turn key to OFF position and remove.

⚠ CAUTION: Remove key from key switch to prevent operation by untrained personnel.

A—Flameout Wire



PUC5044 —UN—05OCT10

CP00834,0001683 -19-18DEC14-3/3

Rockshaft and 3-Point Hitch

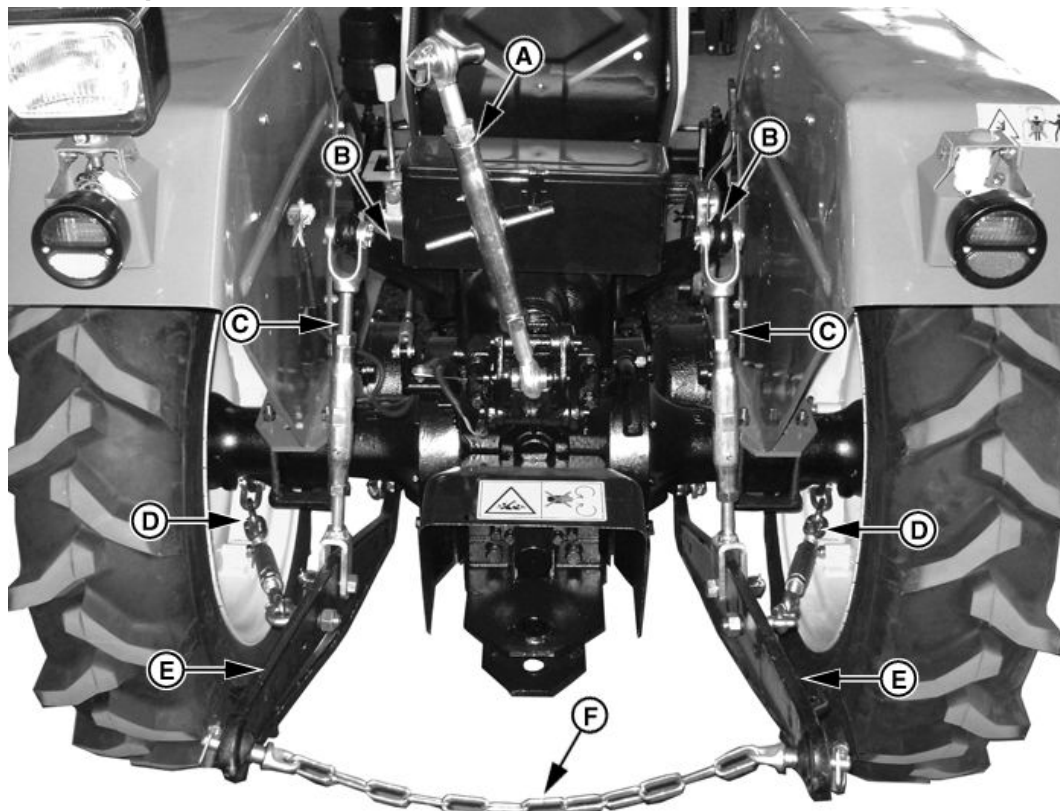
Match Tractor Power to Implement

IMPORTANT: Tractor power should be matched to the size of certain implements. Excessive power can damage an implement, and too large an implement can damage the tractor.

(Refer to your implement operator's manual for minimum and maximum power requirements before attaching an implement.)

JB06590,00002B8 -19-03FEB09-1/1

3-Point Hitch Components



A—Center Link
B—Lift Arms

C—Lift Links
D—Sway Chain

E—Draft Links
F—Chain

PUC5177 —UN—19NOV10

AH98466,00011B2 -19-19NOV10-1/1

Rockshaft Control Levers

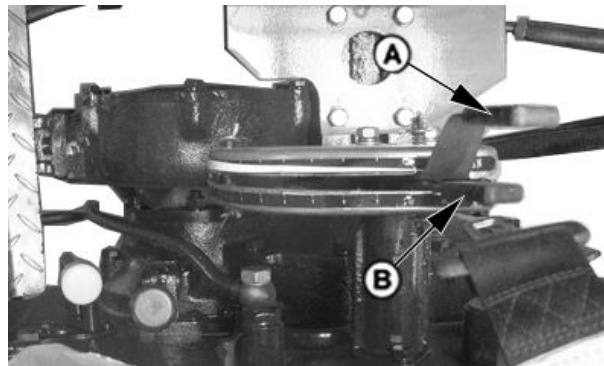
The rockshaft is controlled by position control lever (B) and draft control lever (A).

Position control lever (B) raises the hitch when pulled rearward, and lowers the hitch when moved forward. (See Use Rockshaft Position Control in this section for more information.)

Draft control lever (A) controls hitch position relative to draft loads. (See Use Rockshaft Draft Control in this section for more information.)

A—Draft Control Lever

B—Position Control Lever



PUC0035 —UN—03APR09

JB06590,00002BA -19-03FEB09-1/1

Use Rockshaft Position Control

⚠ CAUTION: To prevent unexpected movement of rockshaft, push draft control knob all the way down before attaching an implement.

Push draft control lever (A) all the way down when you do not want rockshaft to adjust automatically to draft load, such as when attaching implement to tractor.

Use position control lever (B) to control hitch movement and depth. Use position control for the following applications:

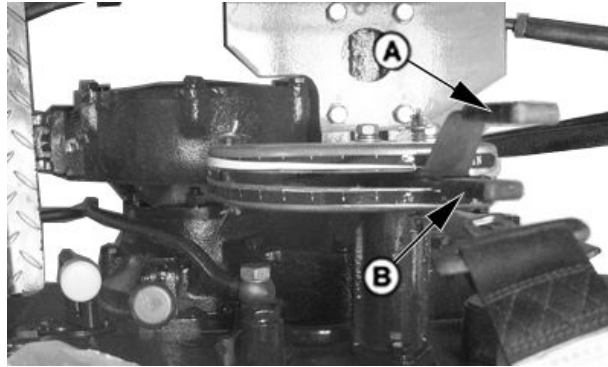
CONSTANT DEPTH use of implements on level terrain and for implements that do not engage the ground, such as spreaders or sprayers. Place position control lever (B) at desired depth.

TRANSPORT of implements and end of field turnaround. Move position control lever (B) fully rearward during transport for usage with or without load sensing.

FLOAT operation for implements with skids or depth gauge wheels designed to carry full implement weight. Push position control lever (B) all the way forward and draft control lever (A) all the way down so implement can follow the ground contour.

A—Draft Control Lever

B—Position Control Lever



PUC0035 —UN—03APR09



P9043 —UN—01AUG00

JB06590,000033F -19-09FEB09-1/1

Use Rockshaft Draft Control

The rockshaft is equipped with variable draft control system.

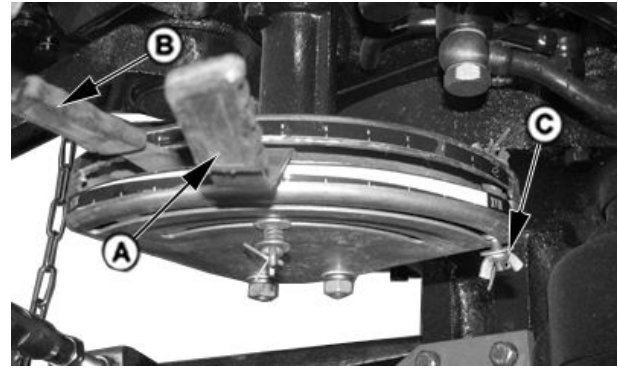
Use draft load sensing when one of the following conditions apply:

- Operating with a fully mounted implement in uneven terrain. The implement rises and lowers to follow the ground contours while maintaining a nearly constant depth.
- Operating in varying soil conditions. The implement is raised slightly to get through tough spots so you do not have to shift to a lower gear.

Draft control lever (A) controls amount of load required before hitch responds. With lever placed all the way down, there is no draft sensing. Pulling the lever up increases the amount of draft load required to override the position set by position control lever (B) and to raise the rockshaft.

For draft load sensing operation:

- Initially, place position control lever (B) in its fully forward position and draft control lever (A) in the lowest (least draft) position.
- With tractor moving, pull position control lever (B) backward to set implement operating depth. Set handwheel (C) so control lever can be brought back to



A—Draft Control Lever
B—Position Control Lever
C—Handwheel

the same exact position. When the tractor begins to slip, pull draft control lever (A) upward until desired draft sensing level is obtained.

- Position control lever (B) can also be raised slightly to override the draft control setting, in order to help get through slippery spots without getting stuck.
- Position control lever (B) can be moved fully rearward to raise the hitch at the end of the field.

JB06590,0000340 -19-09FEB09-1/1

PUC0044 —UN—03APR09

Adjust Rockshaft Rate-of-Drop

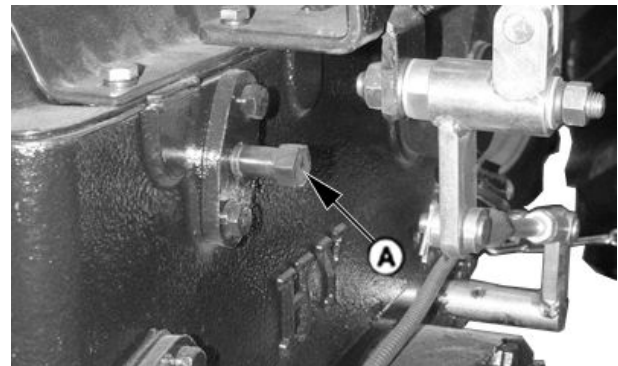
CAUTION: Excessive rate-of-drop may cause damage to equipment or injury to machine operator. Fully lowering implement should require at least 2 seconds.

Rockshaft drops faster when a heavy implement is attached. Adjust rate-of-drop screw so that it is slow enough to be safe and prevent implement damage.

Turn screw clockwise to slow rockshaft drop, and counterclockwise to speed up rate-of-drop.

To lock rockshaft in position, turn screw clockwise to the stop.

To unlock rockshaft, turn screw counterclockwise and reset rate of drop per instructions above.



A—Rate-of-Drop Screw

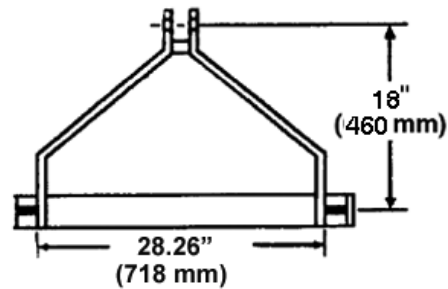
JB06590,0000395 -19-27FEB09-1/1

PUC0033 —UN—03APR09

Prepare Implement

Category I implements should have the top hole of the implement mast located 460 mm (18 in.) above the lower pins. Drill another hole in top mast or extend top mast if necessary.

Mast Height	Width Between Lower Pins	Pin Size	
		Lower	Upper
460 mm (18 in.)	718 mm (28.26 in.)	22 mm (0.86 in.)	19 mm (0.74 in.)



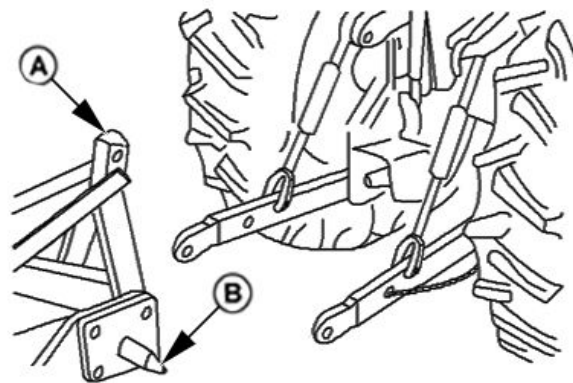
Implement Mast

SK35149,00005B0 -19-13JUL12-1/1

PY14671 —UN—13JUL12

Attach Implements to 3-Point Hitch

1. Be sure that drawbar will not interfere. If necessary, move drawbar forward or remove it. Check for any other potential interference.
2. Back tractor up to implement (A) so hitch points align. Place gear shift lever in neutral position, and pull up parking brake lever.
3. Push hand throttle all the way forward and allow engine to idle for 1 to 2 min., then turn off the engine.
4. Slip draft links over implement hitch pins (B) on both sides and retain with locking pins.
5. Attach center link to implement top mast. Retain with pin and locking pin.
6. Adjust center link and lift links as necessary. (See Leveling the Hitch in this section.)



A—Implement

B—Implement Hitch Pins

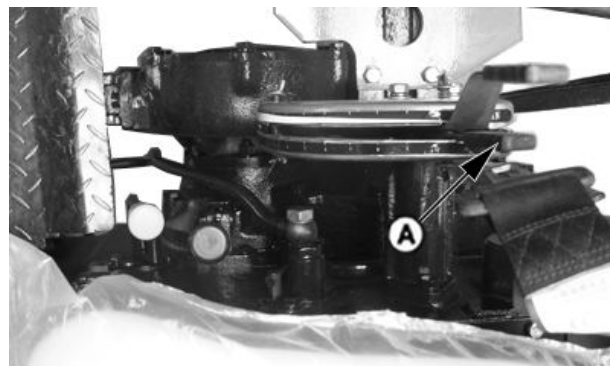
AH98466,00011B3 -19-19NOV10-1/2

PUC1754 —UN—05JAN09

CAUTION: To avoid bodily injury or machine damage whenever an implement, implement quick coupler, or other attachment is connected to the 3-Point Hitch, check full range of operation for interference, binding or PTO separation.

7. Using position control lever (A), lower and raise implement slowly and check for any interference.

A—Position Control Lever



AH98466,00011B3 -19-19NOV10-2/2

PUC0036 —UN—03APR09

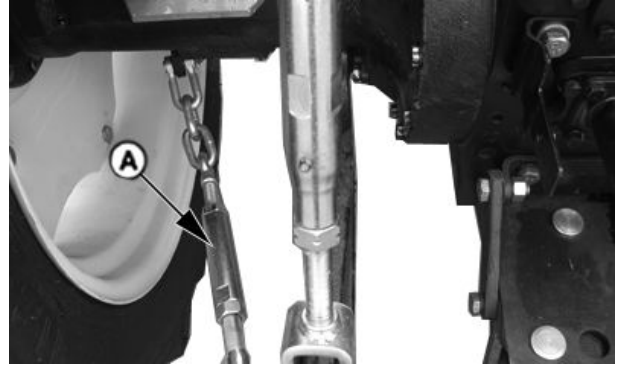
Adjust Sway Chains

NOTE: Check implement operator's manual for instructions on whether or not to allow side sway.

IMPORTANT: DO NOT shorten chains so short that they do not allow hitch to be raised completely. If chain prevents hitch from rising, hydraulic relief valve will open, causing excessive oil heating and pump or equipment damage.

NOTE: Use chain or rubber strap to keep draft links clear of rear tires when draft links are not attached to implement.

Adjust implement side sway when the rockshaft is raised for transport by loosening the jam nuts on the turnbuckle (A) and turning the turnbuckle (A) to increase or decrease the length of chain. Tighten jam nuts again when adjusted.



A—Turnbuckle

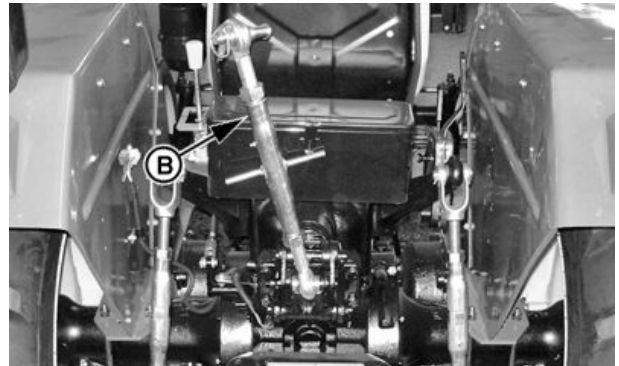
JB06590,00002BF -19-03FEB09-1/1

PUC1862 —UN—11FEB09

Leveling Hitch

1. Lower implement to take weight off hitch.

B—Center Link Body



AH98466,00011B4 -19-19NOV10-1/2

PUC5178 —UN—19NOV10

IMPORTANT: DO NOT attempt to extend center link beyond limits of locking clip or to raise lift links past the stops. Link body threads could be damaged.

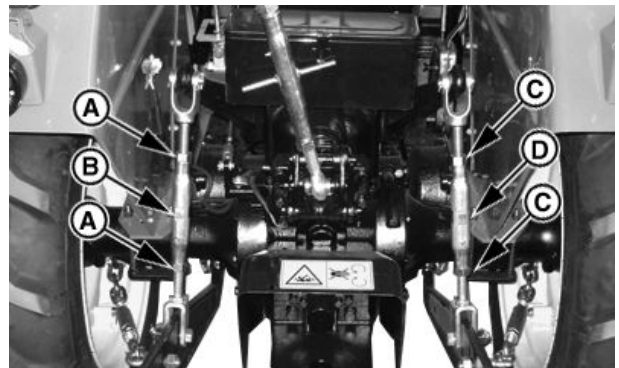
NOTE: Maximum adjustment range of the center link can only be obtained if the ends are positioned equally within the body when attached to an implement.

2. Adjust right-hand side lift link (D) and left-hand side lift link (B) to level implement side-to-side.

Loosen lock nuts (A) and rotate turnbuckle to raise or lower left-hand side draft link.

Loosen lock nuts (C) and rotate turnbuckle to raise or lower right-hand side draft link.

3. Adjust left- and right-hand lift links to accommodate various tire sizes or implement heights. For greatest range of up and down hitch motion, set lift links so that



A—Lock Nut (2 used)
B—Left-Hand Side Lift Link

C—Lock Nut (2 used)
D—Right-Hand Side Lift Link

when fully lowered, draft link balls are approximately 200 mm (7.87 in.) off the ground.

AH98466,00011B4 -19-19NOV10-2/2

PUC5179 —UN—19NOV10

Drawbar and PTO

Observe Drawbar Load Limitations

IMPORTANT: Certain heavy equipment, such as a loaded single-axle trailer, can place excessive strain on drawbar. Strain is greatly increased by speed and rough ground.

Static vertical load on drawbar should not exceed specification.

Drive slowly with heavy loads.

Specification

Static Vertical Load, Short	
Position—Capacity.....	1120 kg (2469 lb.)
Static Vertical	
Load, Extended	
Position—Capacity.....	760 kg (1675 lb.)

JB06590,0000389 -19-27FEB09-1/1

Use Swinging Drawbar

To allow drawbar to swing sideways, pull clip (A) on retaining pin. Remove retaining pin (B). If full swing of drawbar is needed, remove opposite side clip and retaining pin.

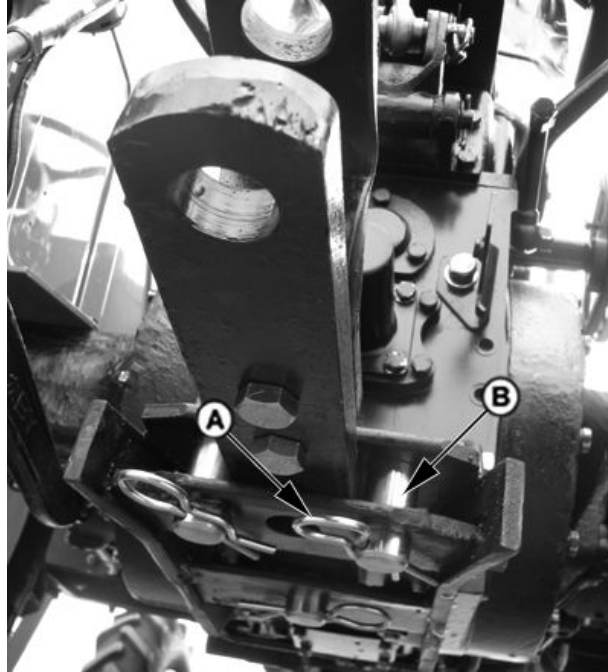
This is helpful when turning under load.

Install retaining pin (B) and clip (A) at all other times.

IMPORTANT: Install retaining pin (B) and clip (A) to prevent drawbar from swinging free during transport of towed loads.

A—Clip

B—Retaining Pin

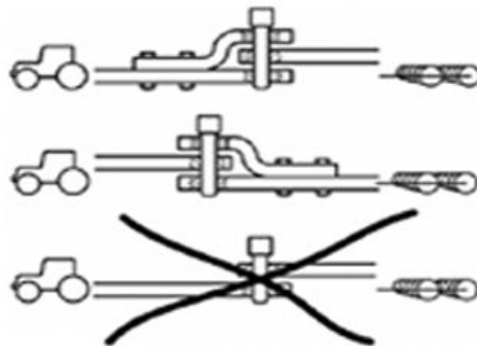


PUC1885—UN—11FEB09

JB06590,0000345 -19-12FEB09-1/1

Proper Use of Drawbar

IMPORTANT: Comply with local traffic regulations when using the drawbar. Use suitable, approved hitch pins only. Combine drawbars as shown only.



PUC1443—UN—24OCT07

JB06590,00002C5 -19-03FEB09-1/1

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

JB06590,00002C6 -19-03FEB09-1/1

Attach PTO-Driven Implement

1. Attach implement to tractor before connecting PTO drive line. Raise hitch to upward position if it is not to be used.

CAUTION: To avoid injury, stop engine before attaching implement or working in area of implement hitch.

2. Put gear shift lever in neutral. Depress brake pedals and set parking brake.
3. Push hand throttle all the way forward and allow engine to idle for 1 to 2 min. Turn off the engine.

4. If implement will be connected to 3-point hitch, make sure that drawbar does not interfere. Remove drawbar if necessary.
5. With engine off, turn shaft slightly by hand if necessary to line up splines. Connect drive line to PTO shaft. Pull out on shaft to be sure that drive line is locked to PTO shaft.
6. Check carefully for any interference, and make sure that hitch is raised to the upper position if it will not be used.

JB06590,00002C7 -19-03APR09-1/1

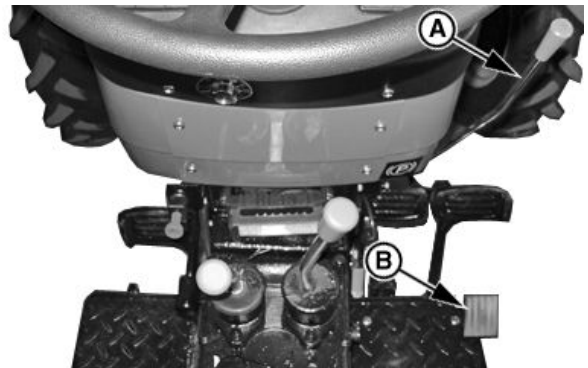
Operate Tractor PTO

NOTE: Engine will not start if PTO drive control lever is engaged.

1. Depress clutch pedal, start engine and pull hand throttle lever (A) rearward until engine speed is sufficient to start PTO implement. Engine speed must not exceed 2300 rpm.

A—Hand Throttle Lever

B—Foot Throttle



PUC5043—UN—05OCT10

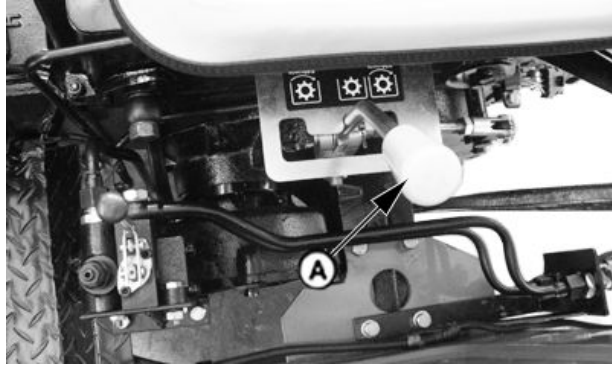
Continued on next page

CP00834,0001684 -19-18DEC14-1/2

2. Move PTO lever (A) forward or rearward to engage PTO.
3. Increase engine speed to 1990 rpm for 540 rpm and to 2025 rpm for 720 rpm PTO operation.
4. Place PTO lever (A) to neutral position to disengage PTO.

CAUTION: Turn key OFF to stop engine, depress brake pedals and set parking brake and make sure that all mechanisms have stopped before cleaning out machine or making any adjustments to PTO driven implement.

A—PTO Lever



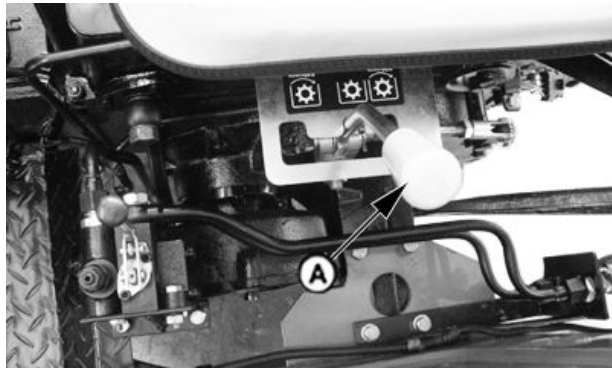
PUC0042 —UN—03APR09

CP00834,0001684 -19-18DEC14-2/2

Adjust PTO Clutch Operating Rod

1. Place PTO lever (A) in neutral position (center position).

A—PTO Lever



PUC0042 —UN—03APR09

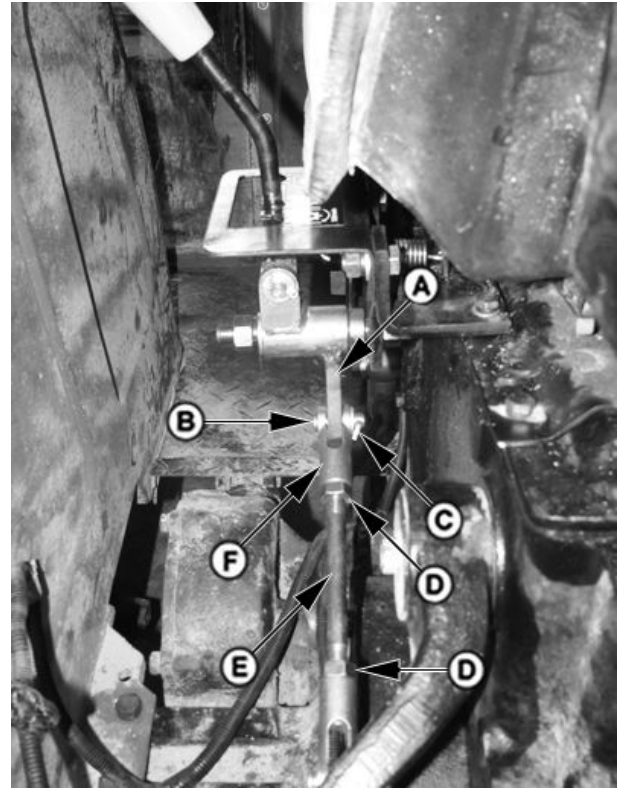
Continued on next page

JB06590,000038A -19-27FEB09-1/2

2. Remove cotter pin (C) and pin (B).
3. Disconnect PTO control lever (A) from link end (F).
4. Move PTO control lever (A) until free play is removed (resistance is felt).
5. Loosen lock nuts (D).
6. Adjust strainer (E) so that link end (F) can be connected to the PTO control lever (A).
7. Install pin (B) through link end (F) and PTO control lever (A).
8. Install cotter pin (C).

A—PTO Control Lever
B—Pin
C—Cotter Pin

D—Lock Nut (2 used)
E—Strainer
F—Link End



JB06590,000038A -19-27FEB09-2/2

PUC1981 —UN—27FEB09

Ballast

Plan for Maximum Productivity

Proper ballasting is an important factor in tractor performance. Maximum productivity can be achieved only if tractor weight is appropriate for the job.

John Deere FMO (Fundamentals of Machine Operations) publications provide in-depth information on farming subjects. TRACTORS discusses methods of determining correct tractor weight and ballast selection. MACHINERY

MANAGEMENT includes information on tractor and implement matching, and on ways to increase productivity. (These publications may be ordered using the form in the back of this manual.)

Your John Deere dealer can assist you with information on these subjects.

JB06590,00002CA -19-03FEB09-1/1

Select Ballast Carefully

Match amount of ballast needed for each job. What is right for one job may be wrong for another job. Ballast for traction and stability.

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, oversize, or dual.

JB06590,00002CB -19-03FEB09-1/1

Match Ballast to Work Load

Use no more ballast than necessary, and remove ballast when it is no longer needed.

Rather than weighing tractor down to pull heavy loads, try to reduce load. Pulling a lighter load at a higher speed is more economical and more efficient.

Too Little Ballast		Too Much Ballast	
1.	Excessive wheel slip	1.	Increased load
2.	Power loss due to churning soil	2.	Shortens transmission life
3.	Excessive tire wear	3.	Power loss due to carrying extra weight
4.	Fuel waste	4.	Tire strain
5.	Lower productivity	5.	Soil compaction
		6.	Fuel waste
		7.	Lower productivity

JB06590,00002CC -19-30MAR10-1/1

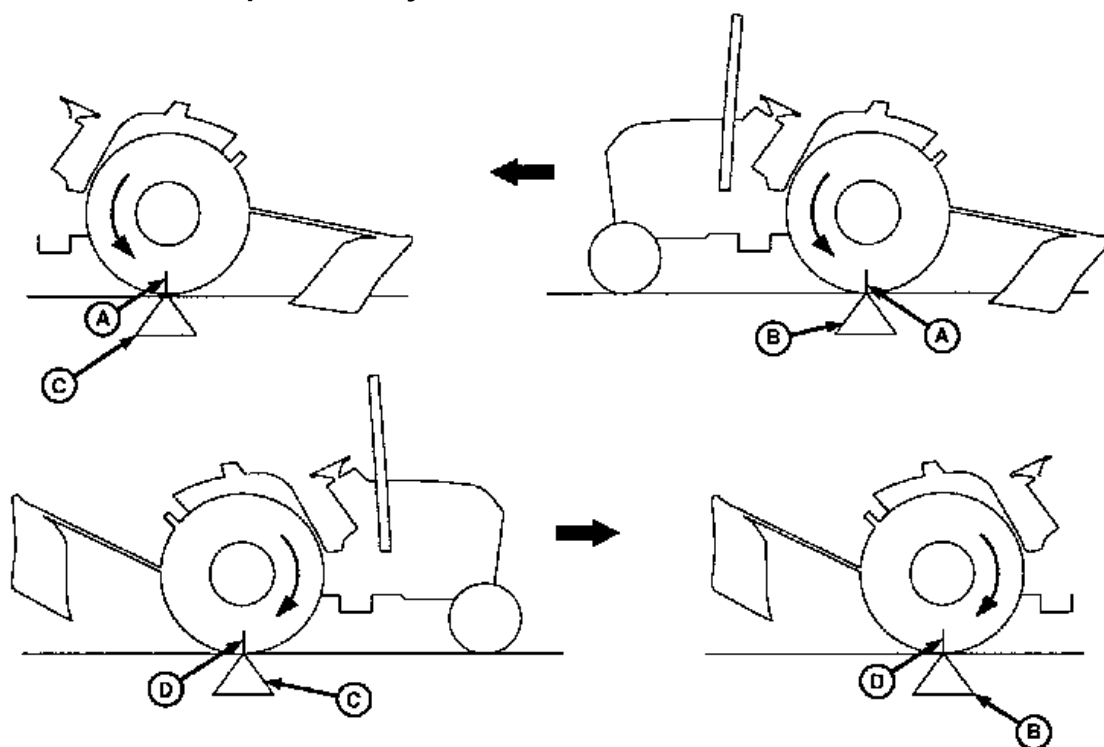
Check for Correct Ballast

The best way to check for correct ballast is to measure amount of travel reduction (slip) of the drive wheels. Under normal field conditions, travel reduction should be 10-15% for 2-wheel drive tractors or 8-12% for 4-wheel drive tractors.

Add more weight to drive wheels if slip is excessive. If the slip is less than the minimum requirement, weight should be removed appropriately.

JB06590,00002CD -19-03FEB09-1/1

Measure Rear Wheel Slip - Manually



A—Initial Tire Mark
B—Ground Starting Point

C—10 Revolutions Ground Mark D—Second Tire Mark

- Place a mark (A) on a rear tire which is easily observed (a chalk mark is recommended).
- With tractor working and implement lowered, mark a starting point (B) on the ground at the place where tire mark (A) meets the ground.
- Mark the ground again where tire mark (A) completes 10 full revolutions (C).
- With implement raised, return in the opposite direction. At the second mark on the ground (C), mark tire a second time (D).
- While driving the tractor along the same path (implement raised), count the tire revolutions required to reach starting point (B).
- Use the non-loaded wheel revolutions count in "Wheel Slippage Chart" below, to determine slippage.

NOTE: Ideal wheel slippage is 10-15 % for 2WD tractors, 8-12 % for tractors with MFWD.

- Adjust ballast or load to give correct slippage.

NOTE: Available horsepower is greatly reduced when wheel slip drops below minimum percentage.

WHEEL SLIPPAGE CHART		
Non-Loaded Wheel Revolutions (Step 5)	Estimated % Slip	Recommended Action
10	0	Remove Ballast
9-1/2	5	Remove Ballast
9	10	CORRECT BALLAST
8-1/2	15	CORRECT BALLAST
8	20	Add Ballast
7-1/2	25	Add Ballast
7	30	Add Ballast

JB06590,00002CE -19-03FEB09-1/1

PUC1450 —UN—21NOV08

Ballast Limitations

Ballast should be limited by either tire capacity or tractor capacity. Each tire has a recommended carrying capacity which should not be exceeded (see *Wheels, Tires and Treads* section). If a greater amount of weight is needed for traction, a larger tire should be considered.

Ballast can be added as either liquid or cast iron.

JB06590,00002CF -19-03FEB09-1/1

Ballast Front End for Transport

CAUTION: Front ballast may be needed for transporting rear-mounted implements. When implement is raised, drive slowly over rough ground, regardless of how much ballast is used.

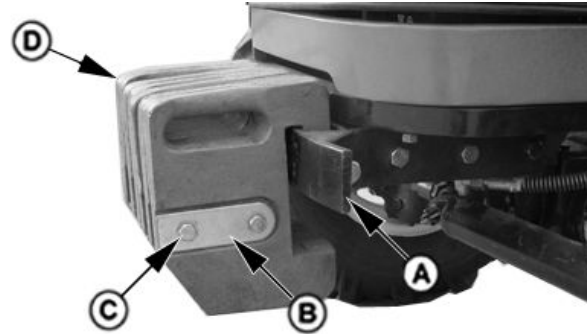
CAUTION: Use proper lifting equipment.

Specification

Front Ballast (280/284/300/304/320/ 324/2C-354 tractor)-op- tional—Weight.....	91 or 104 kg (200 or 229 lb.)
Front Ballast (B350 tractor)- standard—Weight.....	104 kg (229 lb.)

One starter weight and up to seven additional weights can be installed.

1. Install front ballast bracket (A) and starting weight.



A—Front Ballast Bracket
B—Plate

C—Bolt (2 used)
D—Weight

2. Install additional weights (D) as required.
3. Install plate (B) and bolts (C). Tighten bolts (C).

CP00834,00016DB -19-09JAN15-1/1

Add Ballast on Tractor

Add weight to front end if needed for stability. Heavy pulling and heavy rear-mounted implements tend to lift front wheels. Add enough ballast to maintain steering control and prevent tip-over.

Refer to the implement operator's manual to determine the minimum number of front weights required for your tractor model.

JB06590,00002D1 -19-03FEB09-1/1

Determine Maximum Rear Ballast

IMPORTANT: Do not overload tires. If maximum weight shown in chart is not enough for safety, reduce load or install heavier ply tires.

Too much ballast will cause excessive soil compaction and rolling resistance, and shorten drive train life. Ballast should never exceed the weight required to provide traction for continuous full power loads in third gear. Remove ballast if tractor engine labors when pulling heavy loads in the first three gears.

Rear wheel ballast should never be such that the engine cannot support full load at rated engine speed, while the tractor is moving at 7 km/h (4.3 mph). If the engine labors or stalls

below 7 km/h (4.3 mph), this indicates there is too much ballast on the rear wheels.

Chart shows carrying capacity per tire.

MAXIMUM LOAD PER WHEEL		
Tire Size Bias Ply Tires	Ply Rating	Capacity kg (lb.)
9.5—24	8	940 (2072)
9.5—24 (Paddy Field Tire—Optional)	6	1315 (2899)
11.2—24	8	1045 (2304)
11.2—24 (Paddy Field Tire—Optional)	6	1465 (3229)

CP00834,0001640 -19-08DEC14-1/1

Determine Maximum Front Ballast

Use appropriate front ballast for a particular operating condition. Two-wheel drive tractors should only have enough ballast to maintain safe steering control. Remove ballast when it is no longer needed.

Chart shows carrying capacity per tire.

IMPORTANT: Do not overload tires. If maximum weight shown in chart is not enough for safety, reduce load or install tires with a higher load rating.

MAXIMUM LOAD PER WHEEL		
Tire Size	Ply Rating	Capacity kg (lb.)
5.00-15	4	365 (805)
6.00-16	6	495 (1091)
6.00-16 (Paddy Field Tire—Optional)	6	565 (1245)

CP00834,0001641 -19-08DEC14-1/1

Use Cast Iron Weights

Cast iron weights are available for rear tires. They can be installed on the inside or outside of wheel. See your John Deere dealer for more information and recommendations on weight use and placement.

Specification

Rear Ballast
(28—32hp/2C-
354 tractor)-
standard—Weight..... 80 kg (176 lb.)

Rear Ballast
(28—32hp/2C-
354 tractor)-
optional—Weight..... 0 or 160 or 240 kg (0 or 352 or 529 lb.)
Rear Ballast
(B350 tractor)-
standard—Weight..... 160 kg (352 lb.)
Rear Ballast
(B350 tractor)-
optional—Weight..... 0 or 80 or 240 kg (0 or 176 or 529 lb.)

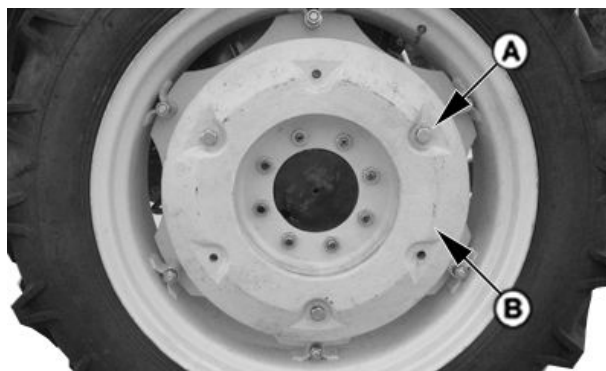
CP00834,00016DC -19-09JAN15-1/1

Install Rear Cast Iron Weights

IMPORTANT: Maximum number of weights that can be installed on rear is four on each tire.

⚠ CAUTION: Rear weights weigh 40 kg (88.2 lb.) each. Handle with care! Use appropriate equipment or have the job done by your John Deere dealer.

1. Attach first weight (B) to wheel disk, using nuts and bolts (A).
2. Install additional weights by using proper nuts and bolts.
3. Tighten all bolt retaining nuts to specification. Tighten again after a few hours of service. Check tightness regularly.



A—Nut and Bolt (6 used)

B—First Weight

PUC1869—UN—13FEB09

JB06590,00003B3 -19-30NOV10-1/1

Wheels, Tires and Treads

Service Tires Safely

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

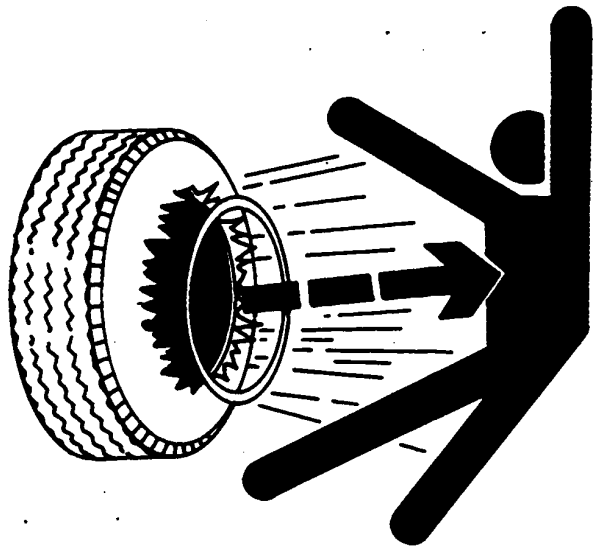
Do not attempt to mount a tire unless you have the proper equipment and experience to perform the job.

Always maintain the correct tire pressure. Do not inflate the tires above the recommended pressure.

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

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

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



TS211 —UN—15APR13

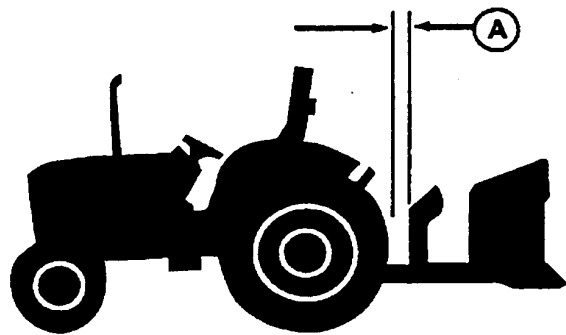
DX,RIM1 -19-27OCT08-1/1

Check Implement-to-Tire Clearance

IMPORTANT: Check for adequate clearance (A) between outside diameter of the tire and implement with hitch in raised position.

When large diameter rear tires are installed on a tractor with a 3-point hitch, a quick coupler or similar device may be required to provide adequate implement-to-tire clearance.

A—Clearance



M47177 —UN—31JAN92

MX,WTIP,AA1 -19-21APR94-1/1

Check Tire Inflation Pressure

Check tires daily for damage or noticeably low pressure.

At least every 100 hr. of operation, check inflation pressure with a gauge. Use an accurate gauge having 10 kPa (0.1 bar) (1 psi) graduations.

If tires contain liquid ballast, use a special air-water gauge and measure with valve stem at bottom.

NOTE: When furrow plowing or during hillside operation, tire pressure can be increased 28 kPa (0.28 bar) (4 psi) ABOVE maximum to prevent tire wrinkling or buckling.

IMPORTANT: Always check inflation pressure with an accurate tire gauge to prevent over-inflation. Over-inflation reduces performance and increases strain on both tire and rim.

NOTE: Following inflation information applies to both front and rear tires and Tire Inflation Pressure Chart.

1. All inflation pressures are calculated for 29 km/h (18 mph) travel speeds.
2. Operation of tires at the inflation pressures listed on chart will result in optimum tractive performance of the tire/vehicle system.

3. Inflation pressures less than 80 kPa (0.8 bar) (11.6 psi) should be monitored regularly because of the increased risk of low pressure air leaks (especially due to leaking valve cores).
4. Tractors operating on steep side slopes should increase inflation pressures 28 kPa (0.28 bar) (4 psi) above the values listed to compensate for lateral weight transfer.
5. Tires run as singles in high traction conditions sometimes experience bead slip if the bead was not fully seated or if too much lubricant was used to mount the tire. Increasing the inflation pressure will compensate for this condition but will not cause reduced traction. Consult your tire dealer if this problem occurs.
6. If higher load capacities are needed, contact your John Deere dealer for tire manufacturer's load and inflation table information.

JB06590,00002D9 -19-03FEB09-1/1

Tire Inflation Pressure Chart

Front Tires			With Little or No Added Weight e.g. Transportation			With Maximum Ballast or Heavy Mounted Implement e.g. Farming		
Tire Size	Ply Rating	Tread	kPa	(bar)	(psi)	kPa	(bar)	(psi)
4.00—16	4	F-2	250-300	(2.5-3.0)	(36.2-43.5)	250-300	(2.5-3.0)	(36.2-43.5)
5—15	8	F-2	165-220	(1.65-2.2)	(23.9-31.9)	165-220	(1.65-2.2)	(23.9-31.9)
6.00-16	6	R-1	120-160	(1.2-1.6)	(17.4-23.2)	120-160	(1.2-1.6)	(17.4-23.2)
6.0—16 (Optional—Paddy Field Tire)	6	R-1	120-160	(1.2-1.6)	(17.4-23.2)	120-160	(1.2-1.6)	(17.4-23.2)
Rear Tires			With Little or No Added Weight			With Maximum Ballast or Heavy Mounted Implement		
Tire Size	Ply Rating	Tread	kPa	(bar)	(psi)	kPa	(bar)	(psi)
9.5—24	8	R-1	80-120	(0.8-1.2)	(11.6-17.4)	80-120	(0.8-1.2)	(11.6-17.4)
9.5—24 (Optional—Paddy Field Tire)	6	PR-1	80-120	(0.8-1.2)	(11.6-17.4)	80-120	(0.8-1.2)	(11.6-17.4)
11.2-24 optional	8	R-1	80-120	(0.8-1.2)	(11.6-17.4)	80-120	(0.8-1.2)	(11.6-17.4)
11.2—24 (Optional—Paddy Field Tire)	6	PR-1	80-120	(0.8-1.2)	(11.6-17.4)	80-120	(0.8-1.2)	(11.6-17.4)

CP00834,0001643 -19-08DEC14-1/1

Tighten Wheel/Axle Hardware Correctly

CAUTION: NEVER operate tractor with a loose rim, wheel, or axle.

Any time hardware is loosened, tighten to specified torque.

NOTE: Follow checking procedure when a new tractor is first used, or wheels have been off.

1. After driving tractor about 100 m (328 ft.), and before placing it under load, tighten hardware to specified torque.
2. Check hardware after working 3 hr. and again after 10 hr.
3. Check all hardware frequently and keep it tight.

JB06590,00002DB -19-03FEB09-1/1

Tighten Nuts - Rear Axle

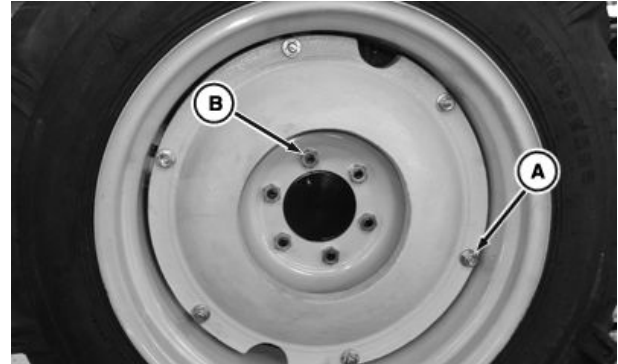
Tighten nuts in the following locations to specifications:

Specification

Wheel Rim-to-Wheel	
Disk Nuts—Torque.....	146—180 N•m (107—132 lb-ft)
Wheel Disk-to-Axle	
Nuts—Torque.....	199—235 N•m (146—173 lb-ft)

A—Wheel Rim-to-Wheel Disk Nuts (12 used)

B—Wheel Disk-to-Axle Nuts (12 used)



N4A0002902 —UN—10SEP13

CP00834,0001644 -19-08DEC14-1/1

Tighten Nuts - MFWD Axle

Tighten nuts to specifications in the following locations:

Specification

Wheel Disk-to-Axle	
Nuts—Torque.....	199—235 N•m (146—173 lb-ft)

A—Wheel Disk-to-Axle Nuts (12 used)



PUC0018 —UN—24MAR09

CP00834,0001645 -19-08DEC14-1/1

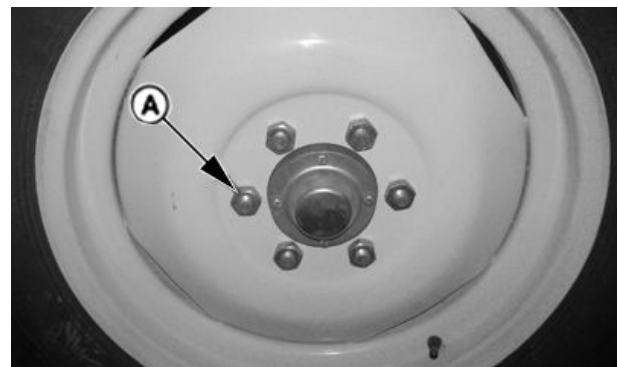
Tighten Nuts - 2WD Axle

Tighten bolts to specifications in the following locations:

Specification

Wheel Disk-to-Axle	
Nuts—Torque.....	199—235 N•m (146—173 lb-ft)

A—Wheel Disk-to-Axle Nuts (8 used)



PUC0003 —UN—13MAR09

CP00834,0001646 -19-08DEC14-1/1

Tread Settings - Multi-Position Rear Wheels

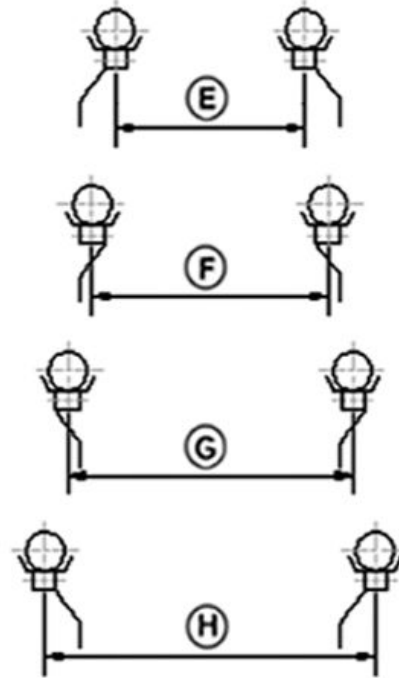
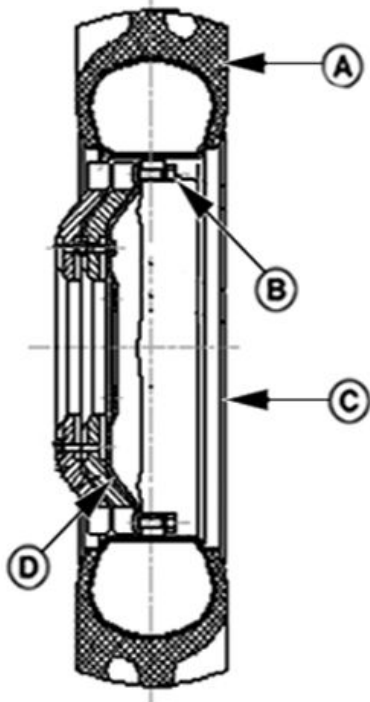
Wheel tread on rear axle with multi-position wheels can be adjusted by repositioning or exchanging the rims or by reversing the wheel disks.

Wheel tread can also be adjusted by exchanging the complete wheel to the opposite side of the tractor. (This maneuver permits the change from disk dished-in to disk dished-out operations without disassembling the wheel.) When changing rear wheels from one side to the other,

the arrow on side wall of tire should point in the direction of forward rotation.

The relationship of the wheel disk and rim in obtaining the different tread settings is shown in the diagrams on the following page.

A study of these diagrams before attempting to change tread settings will save unnecessary labor.



A—Tire Assembly

B—Rim Bolt
C—Wheel Rim

D—Wheel Disk

IMPORTANT: After setting wheel spacing, tighten rim-to-disk and disk-to-shaft nuts. Drive tractor 100 m (328 ft.) and tighten again.

Specification

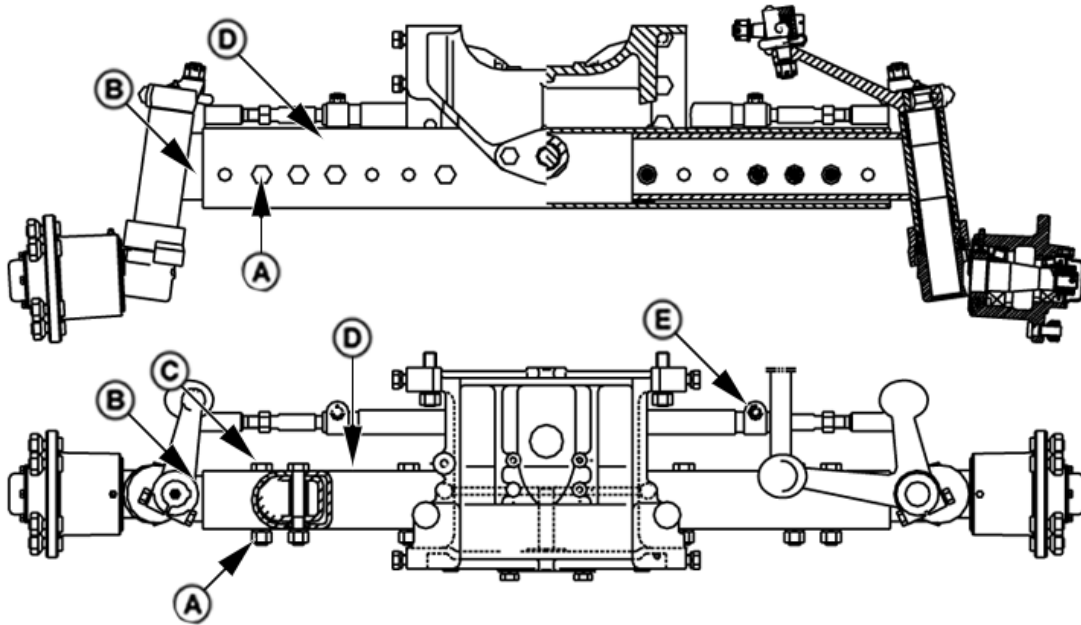
Multi-Position Rear
Wheels Rim-to-Wheel
Disk Nuts (Steel
Disk)—Torque..... 146—180 N•m (107—132 lb-ft)

Multi-Position
Rear Wheels
Disk-to-Shaft Nuts (Steel
Disk)—Torque..... 199—235 N•m (146—173 lb-ft)

TREAD WIDTH (Centerline-to-Centerline)		
Diagram	Tire Sizes	
	9.5-24	11.2-24
E	1100 mm (43.3 in.)	1130 (45.5 in.)
F	1200 mm (47.2 in.)	1230 (48.4 in.)
G	1300 mm (51.2 in.)	1330 (52.4 in.)
H	1400 mm (55.1 in.)	1430 (56.3 in.)

CP00834,0001647 -19-08DEC14-1/1

PUC5180—UN—29NOV10

Adjust Front Wheel Tread (2WD)

Each side of the front axle can be adjusted in increments of 100 mm (3.94 in.) Assure that the adjustment becomes equal in both sides.

1. Jack up front end of tractor.
2. Remove cap screws (C) and lock nuts (A).
3. Remove sleeve (B) from front axle beam (D).
4. Remove clamp screws (E) of tie rod linkage, lock nut (F) of drag link (G).
5. Slide axle knees to desired position. Both sides should be adjusted to same spacing.
6. Install sleeve (B) into front axle beam (D), cap screws (C) and nuts (A) on each side. Tighten cap screws (C) to specification.

Specification

Adjustable Front

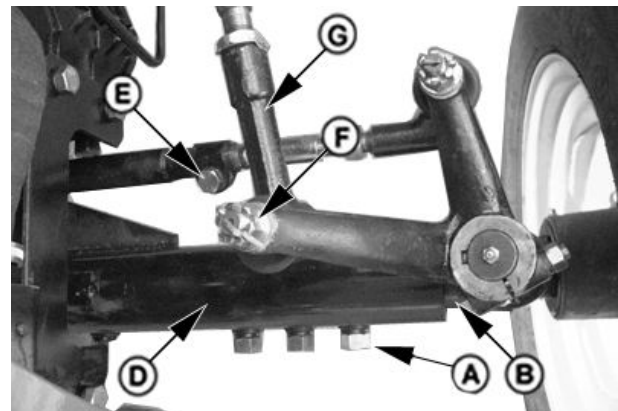
Axle to Knee Screw

(C)—Torque..... 144—160 N·m (106—118 lb-ft)

Tie Rod Clamp Screw

(E)—Torque..... 90 N·m (66 lb-ft)

7. Set toe-in. See check and adjust toe-in for your axle type.



A—Lock Nut (6 used)

B—Sleeve

C—Cap Screw (6 used)

D—Front Axle Beam

E—Clamp Screw (2 used)

F—Lock Nut

G—Drag Link

SP55916,0000B53 -19-14DEC10-1/1

PUC0041—UN—03APR09

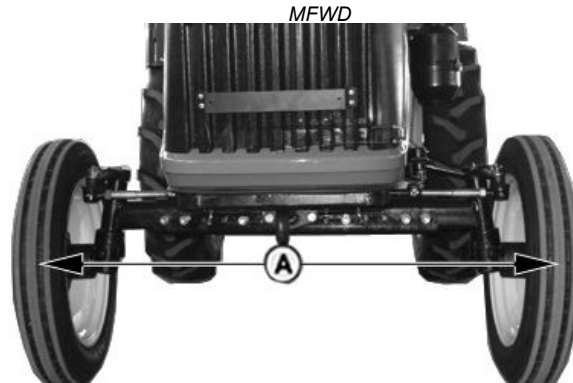
PUC0019—UN—24MAR09

Check Toe-In

1. Park machine on level surface.
2. Turn steering wheel so front wheels are in the straight ahead position. Stop engine.
3. Measure distance (A) between tire tread midpoint at hub level in front of axle. Record measurement and mark the tires.
4. Move tractor back about 1 m (3 ft.), so mark is at hub level behind the axle. Again, measure distance between tire midpoints. Record measurement.
5. Determine the difference between front and rear measurements. If the front measurement is smaller, toe is "in". If the rear is smaller, toe is "out".
6. Distance between midpoints at front of tires should be 4—8 mm less than distance measured at rear of tires. Adjust toe in if necessary. (See procedure in this section.)



PUC5181 —UN—30NOV10



PUC5182 —UN—30NOV10

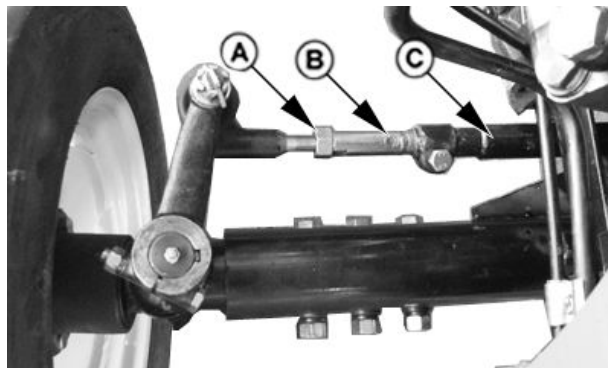
NR25796,0001AC9 -19-30NOV10-1/1

Adjust Toe-In (2WD)

1. Loosen lock nut (A) on tie rod (C).
2. Adjust tie rods on both sides of the tractor equally by the extensioner (B) to lengthen or shorten. Adjust toe in to 4—8 mm.
3. Tighten lock nuts after adjustment.

Specification

Tie Rod Lock
Nut—Torque..... 90 N·m (66 lb-ft)



PUC0021 —UN—24MAR09

A—Lock Nut (2 used)
B—Extensioner

C—Tie Rod

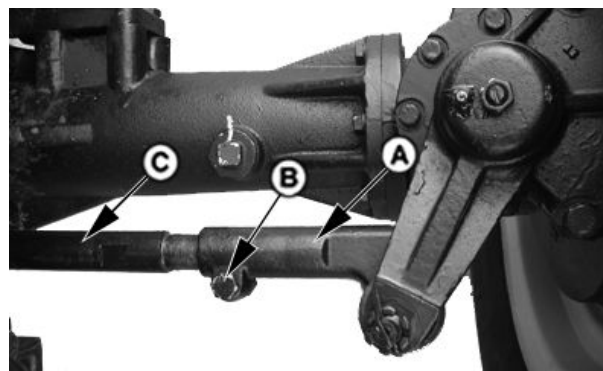
JB06590,0000417 -19-24MAR09-1/1

Adjust Toe-In (MFWD)

1. Loosen lock nut (B) of the sleeve (A).
2. Turn tie rod (C) and adjust toe-in.
3. Adjust tie rods on both sides of the tractor equally.
Adjust toe in to 4—8 mm.
4. Tighten lock nuts after adjustment.

Specification

Tie Rod Lock
Nut—Torque..... 50 N·m (35 lb-ft)



A—Sleeve
B—Lock Nut (2 used)

C—Tie Rod

JB06590,0000416 -19-24MAR09-1/1

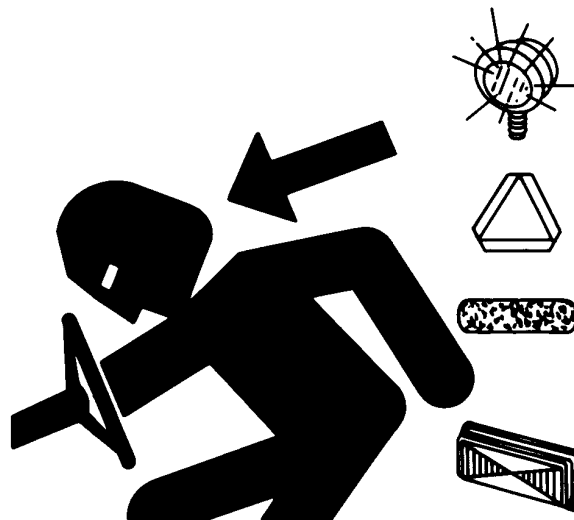
PUC1872 —UN—13FEB09

Transporting

Use Safety Lights and Devices

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

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



TS951—UN—12APR90

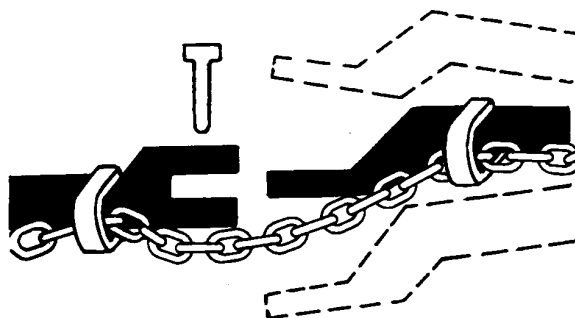
DX,FLASH -19-07JUL99-1/1

Use a Safety Chain

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

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

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



TS217—UN—23AUG88

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

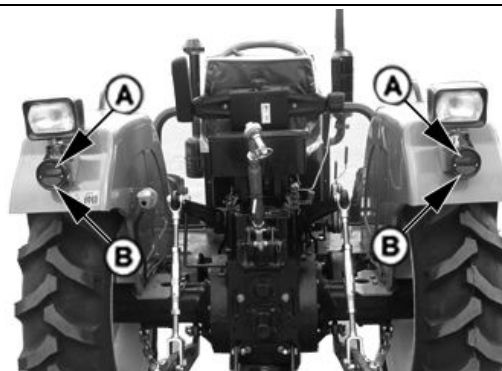
Driving Tractor on Roads

CAUTION: Observe the following precautions when operating on a road.

1. Before operating tractor on highway be sure tail lights (B) and flashing warning lights (A) work properly. Install reflectors, and auxiliary lighting equipment as required for safety and by local regulations.

CAUTION: Never operate flood lamps (if equipped) when transporting tractor. Clear bright lights at the rear of the tractor could confuse drivers of other vehicles as they approach from behind. Use only road lights for transporting.

IMPORTANT: Refer to Lights section for detailed description of lighting operations and functions.



A—Warning Lights

B—Tail Lights

PUC1824—UN—08FEB09

Continued on next page

AH98466,0001107 -19-08OCT10-1/6

2. Use turn signals when turning. Be sure to return turn signal switch (A) to center position after turning.

A—Turn Signal Switch



PUC5049 —UN—06OCT10

AH98466,0001107 -19-08OCT10-2/6

3. Before driving on a road, couple brake pedals together using locking bar (A) and use spanner to tighten the bolt. Avoid hard applications of brakes.

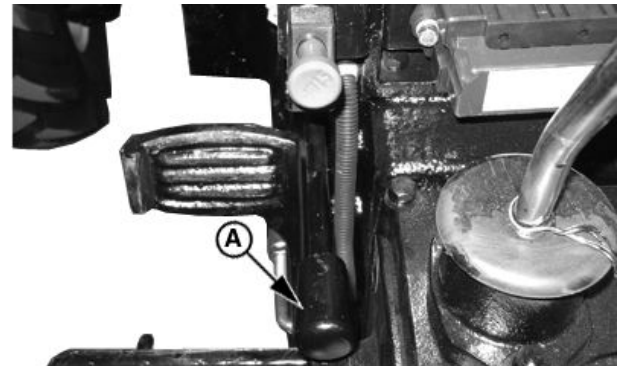
A—Brake Pedal Locking Bar



PUC5045 —UN—05OCT10

AH98466,0001107 -19-08OCT10-3/6

4. Disengage MFWD lever (A) when transporting on hard surface.
5. Drive slowly enough to maintain safe control at all times. Slow down for hillsides, rough ground, and sharp turns, especially when transporting heavy, rear-mounted equipment.
6. Before going down a hill, shift to a gear low enough to control speed without using brakes. Never coast down hill with clutch disengaged. This can over speed clutch disc and cause severe clutch damage.
7. When transporting downhill on icy or graveled grades, be alert for skids which could result in loss of steering control. To decrease chance of skids, reduce speed and be sure tractor has proper ballast.



A—MFWD Lever

PUC5047 —UN—08OCT10

Continued on next page

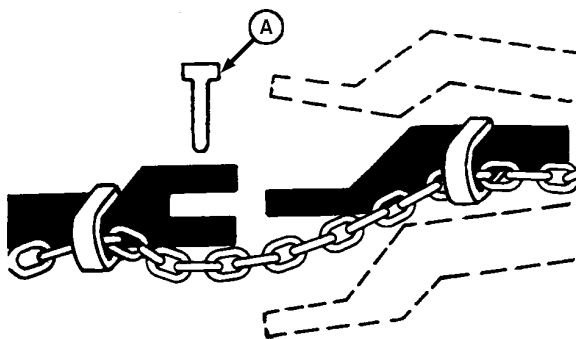
AH98466,0001107 -19-08OCT10-4/6

CAUTION: A safety chain will help drawn equipment should it accidentally separate from the drawbar. Using the appropriate adapter parts, attach the chain to the tractor drawbar support or other specified anchor location. Provide only enough slack in the chain to permit turning. See your John Deere dealer for a chain with a strength rating equal to or greater than the gross weight of the towed machine. Do not use safety chain for towing.

IMPORTANT: Safety chain is provided for transport only. It must not be used for pulling or towing implements or other items not attached to drawbar, or damage to your tractor may result.

8. Transporting Towed Loads:

Lock drawbar pin (A) in place, and use safety chain to help control drawn equipment should it accidentally separate from drawbar while transporting.



A—Drawbar Pin

LV4421—UN—02NOV99

AH98466,0001107 -19-08OCT10-5/6

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

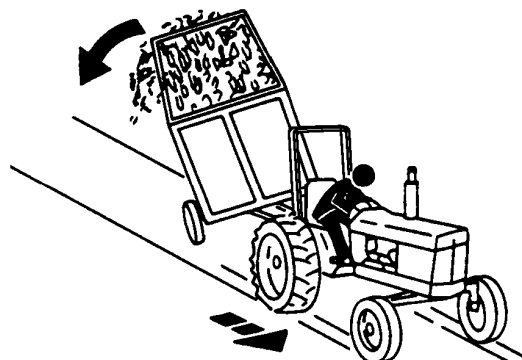
Observe these recommended maximum road speeds, or local speed limits which may be lower:

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

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

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

9. Use caution when operating tractor at transport speeds. Reduce speed if towed load weighs more



than tractor and is not equipped with brakes. (See towed equipment operator's manual for recommended transport speeds.)

10. Use additional caution when transporting towed loads under adverse surface conditions, when turning and on inclines.

11. Heavy towed or rear mounted implements may start swaying in transport. Excessive swaying will result in loss of steering control. Drive slowly and avoid quick turns of steering wheel. Refer to your implement operator's manual regarding maximum travel speed limitations.

LV4042—UN—09JUL99

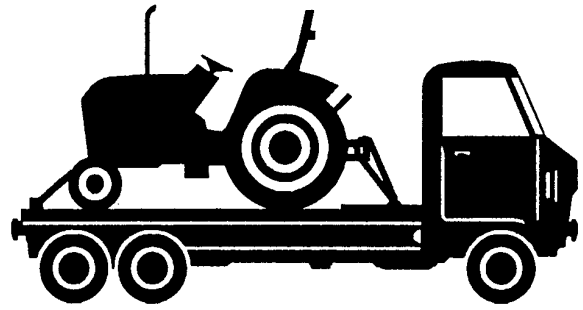
AH98466,0001107 -19-08OCT10-6/6

Transport on Carrier

⚠ CAUTION: Chain tractor to carrier securely.
Drive carrier slowly.

The best method of transporting a disabled tractor is to haul it on a flatbed carrier.

IMPORTANT: Seal exhaust pipe to prevent dirt from entering and damaging engine.



LV610 —UN—22APR94

JB06590,00002E4 -19-03FEB09-1/1

Fuels, Lubricants and Coolant

Handle Fuel Safely—Avoid Fires

Use only diesel fuel.

Handle fuel with care, it is highly flammable.

Do not refuel machine:

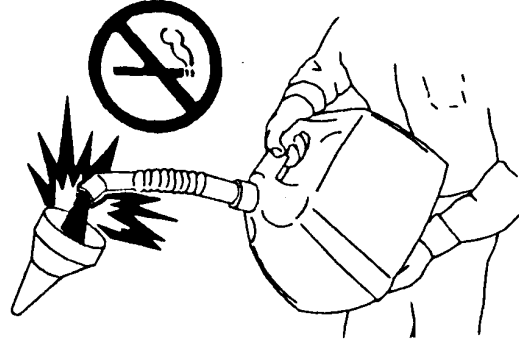
- While you smoke.
- When machine is near open flame or sparks.
- When engine is running. Stop engine.

Fill fuel tank outdoors.

Help prevent fires:

- Clean oil, grease and dirt from machine.
- Clean up spilled fuel immediately.

Do not store machine with fuel in tank in a building where fumes may reach an open flame or spark.



MT73115 —UN—09MAR90

MX,FIRE,5A1 -19-22JUL94-1/1

Handle Fluids Safely—Avoid Fires

When you work around fuel, do not smoke or work near heaters or other fire hazards.

Store flammable fluids away from fire hazards. Do not incinerate or puncture pressurized containers.

Make sure machine is clean of trash, grease, and debris.

Do not store oily rags; they can ignite and burn spontaneously.



TS227 —UN—15APR13

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

Handling and Storing Diesel Fuel

CAUTION: Reduce the risk of fire. 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 BioDiesel 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 or John Deere dealer for recommendations.

DX,FUEL4 -19-15FEB13-1/1

Cold Weather Operation

IMPORTANT: Viscosity grade selection is critical for cold weather operation of the transmission. Preheat procedures are required when operating transmission at temperatures lower than the oil's MINIMUM critical temperature.

NOTE: See TRANSMISSION AND HYDRAULIC OIL, in this section, for MINIMUM viscosity grade for a given transmission operating temperature.

Warm-Up Procedures

If preheating transmission with Auxiliary Source, preheat transmission oil to MINIMUM temperature before operating.

As an Alternate Procedure, operate tractor with transmission in neutral for approximately 20 minutes, or until oil has warmed to MINIMUM temperature as recommended above.

MX,FLIP,B -19-18MAR92-1/1

Hot Weather Operation

NOTE: See TRANSMISSION AND HYDRAULIC OIL, in this section, for correct viscosity grade for a given transmission operating temperature.

Use higher than normal viscosity grade under following conditions:

- Ambient temperatures consistently above 30° C (86° F).
- Frequent stop-and-go driving in hot weather.
- Repeated climbing of high grades in hot weather.

OUO6070,00000DF -19-15FEB01-1/1

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. Renewable diesel fuel produced by hydrotreating animal fats and vegetable oils is basically identical to petroleum diesel fuel. Renewable diesel that meets EN 590 or ASTM D975 is acceptable for use at all percentage mixture levels.

Required Fuel Properties

In all cases, the fuel shall meet the following properties:

Cetane number of 40 minimum. Cetane number greater than 47 is preferred, especially for temperatures below -20°C (-4°F) or elevations above 1675 m (5500 ft.).

Cold Filter Plugging Point (CFPP) should be at least 5°C (9°F) below the expected lowest temperature or **Cloud Point** below the expected lowest ambient temperature.

Fuel lubricity should pass a maximum scar diameter of 0.52 mm as measured by ASTM D6079 or ISO 12156-1. A maximum scar diameter of 0.45 mm is preferred.

Diesel fuel quality and sulfur content must comply with all existing emissions regulations for the area in which the engine operates. DO NOT use diesel fuel with sulfur content greater than 10 000 mg/kg (10 000 ppm).

Sulfur content for Interim Tier 4, Final Tier 4, Stage III B, and Stage IV Engines

- Use ONLY ultra low sulfur diesel (ULSD) fuel with a maximum of 15 mg/kg (15 ppm) sulfur content.

Sulfur Content for Tier 3 and Stage III A Engines

- Use of diesel fuel with sulfur content less than 1000 mg/kg (1000 ppm) is RECOMMENDED.
- Use of diesel fuel with sulfur content 1000—2000 mg/kg (1000—2000 ppm) REDUCES the oil and filter change interval.
- BEFORE using diesel fuel with sulfur content greater than 2000 mg/kg (2000 ppm), contact your John Deere dealer.

Sulfur Content for Tier 2 and Stage II Engines

- Use of diesel fuel with sulfur content less than 2000 mg/kg (2000 ppm) is RECOMMENDED.
- Use of diesel fuel with sulfur content 2000—5000 mg/kg (2000—5000 ppm) REDUCES the oil and filter change interval.
- BEFORE using diesel fuel with sulfur content greater than 5000 mg/kg (5000 ppm), contact your John Deere dealer.

Sulfur Content for Other Engines

- Use of diesel fuel with sulfur content less than 5000 mg/kg (5000 ppm) is RECOMMENDED.
- Use of diesel fuel with sulfur content greater than 5000 mg/kg (5000 ppm) REDUCES the oil and filter change interval.

IMPORTANT: Do not mix used diesel engine oil or any other type of lubricating oil with diesel fuel.

Improper fuel additive usage may cause damage on fuel injection equipment of diesel engines.

DX,FUEL1 -19-24OCT14-1/1

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 maximum scar diameter of 0.52 mm as measured by ASTM D6079 or ISO 12156-1. A maximum scar diameter of 0.45 mm is preferred.

If fuel of low or unknown lubricity is used, add John Deere Fuel-Protect Diesel Fuel Conditioner (or equivalent) at the specified concentration.

Lubricity of BioDiesel Fuel

Fuel lubricity can improve significantly with BioDiesel blends up to B20 (20% BioDiesel). Further increase in lubricity is limited for BioDiesel blends greater than B20.

DX,FUEL5 -19-07FEB14-1/1

Testing Diesel Fuel

A fuel analysis program can help to monitor the quality of diesel fuel. The fuel analysis can provide critical data such as cetane number, fuel type, sulfur content, water content, appearance, suitability for cold weather

operations, bacteria, cloud point, acid number, particulate contamination, and whether the fuel meets specification.

Contact your John Deere dealer for more information on diesel fuel analysis.

DX,FUEL6 -19-14APR11-1/1

Fill Fuel Tank

CAUTION: 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.

Fuel tank is filled through fill cap (A). Fill fuel tank at end of each day's operation. This prevents condensation in tank as moist air cools.

Specification

Fuel Tank—Capacity..... 40 L (10.56 gal.)

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.

A—Fuel Tank Filler Cap



TS202 —UN—23AUG88

PUC5050 —UN—06OCT10

AH98466,0001108 -19-06OCT10-1/1

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 lubricants.

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

DX,ALTER -19-11APR11-1/1

Lubricant Storage

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

Use clean containers to handle all lubricants.

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

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

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

DX,LUBST -19-11APR11-1/1

Diesel Engine Break-In Oil — Non-Emissions Certified and Certified Tier 1, Tier 2, Tier 3, Stage I, Stage II, and Stage III

New engines are filled at the factory with either John Deere Break-In™ or John Deere Break-In Plus™ Engine Oil. During the break-in period, add John Deere Break-In™ or Break-In Plus™ Engine Oil, respectively, as needed to maintain the specified oil level.

Operate the engine under various conditions, particularly heavy loads with minimal idling, to help seat engine components properly.

If John Deere Break-In™ Engine Oil is used during the initial operation of a new or rebuilt engine, change the oil and filter at a maximum of 100 hours.

If John Deere Break-In Plus™ Engine Oil is used, change the oil and filter at a minimum of 100 hours and a maximum equal to the interval specified for John Deere Plus-50™ II or Plus-50™ oil.

After engine overhaul, fill the engine with either John Deere Break-In™ or Break-In Plus™ Engine Oil.

If John Deere Break-In™ or Break-In Plus™ Engine Oil is not available, use an SAE 10W-30 viscosity grade diesel engine oil meeting one of the following and change the oil and filter at a maximum of 100 hours of operation:

- API Service Classification CE
- API Service Classification CD

*Break-In is a trademark of Deere & Company.
Break-In Plus is a trademark of Deere & Company
Plus-50 is a trademark of Deere & Company.*

- API Service Classification CC
- ACEA Oil Sequence E2
- ACEA Oil Sequence E1

IMPORTANT: Do not use Plus-50™ II, Plus-50™, or engine oils meeting any of the following for the initial break-in of a new or rebuilt engine:

API CJ-4	ACEA E9
API CI-4 PLUS	ACEA E7
API CI-4	ACEA E6
API CH-4	ACEA E5
API CG-4	ACEA E4
API CF-4	ACEA E3
API CF-2	
API CF	

These oils do not allow the engine to break in properly.

John Deere Break-In Plus™ Engine Oil can be used for all John Deere diesel engines at all emission certification levels.

After the break-in period, use John Deere Plus-50™ II, John Deere Plus-50™, or other diesel engine oil as recommended in this manual.

DX,ENOIL4 -19-15MAY13-1/1

Diesel Engine Oil — Tier 2 and Stage II

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

John Deere Plus-50™ II oil is preferred.

John Deere Plus-50™ is also recommended.

Other oils may be used if they meet one or more of the following:

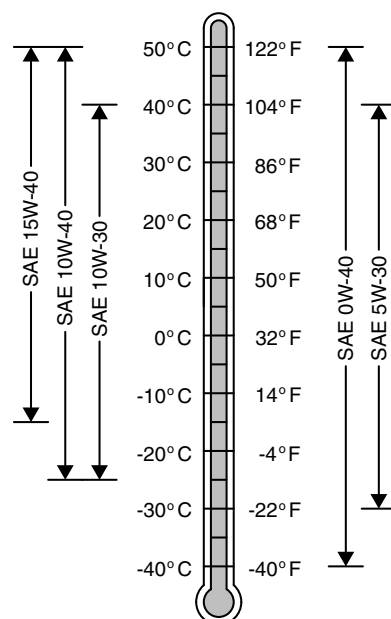
- John Deere Torq-Gard™
- API Service Category CJ-4
- API Service Category CI-4 PLUS
- API Service Category CI-4
- API Service Category CH-4
- ACEA Oil Sequence E9
- ACEA Oil Sequence E7
- ACEA Oil Sequence E6
- ACEA Oil Sequence E5
- ACEA Oil Sequence E4

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.

DO NOT use diesel fuel with sulfur content greater than 10000 mg/kg (10000 ppm).

*Plus-50 is a trademark of Deere & Company
Torq-Gard is a trademark of Deere & Company*



Oil Viscosities for Air Temperature Ranges

DX,ENOIL7 -19-17JUN13-1/1

TS1689 —UN—18JUL07

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 (engine with wet sleeve cylinder liners)

Preferred Coolants

The following pre-mix engine coolants are preferred:

- John Deere COOL-GARD™ II
- John Deere COOL-GARD II PG

COOL-GARD II pre-mix coolant is available in several concentrations with different freeze protection limits as shown in the following table.

COOL-GARD II pre-mix	Freeze Protection Limit
COOL-GARD II 20/80	-9 °C (16 °F)
COOL-GARD II 30/70	-16 °C (3 °F)
COOL-GARD II 50/50	-37 °C (-34 °F)
COOL-GARD II 55/45	-45 °C (-49 °F)
COOL-GARD II PG 60/40	-49 °C (-56 °F)
COOL-GARD II 60/40	-52 °C (-62 °F)

Not all COOL-GARD II pre-mix products are available in all countries.

Use COOL-GARD II PG when a non-toxic coolant formulation is required.

Additional Recommended Coolants

The following engine coolant is also recommended:

- John Deere COOL-GARD II Concentrate in a 40—60% mixture of concentrate with quality water.

IMPORTANT: When mixing coolant concentrate with water, do not use less than 40% or greater than 60% concentration of coolant. Less than 40% gives inadequate additives for corrosion protection. Greater than 60% can result in coolant gelation and cooling system problems.

Other Coolants

Other ethylene glycol or propylene glycol base coolants may be used if they meet the following specification:

- Pre-mix coolant meeting ASTM D6210 requirements

COOL-GARD is a trademark of Deere & Company

- Coolant concentrate meeting ASTM D6210 requirements in a 40—60% mixture of concentrate with quality water

If coolant meeting one of these specifications is unavailable, use a coolant concentrate or pre-mix coolant that has a minimum of the following chemical and physical properties:

- Provides cylinder liner cavitation protection according to either the John Deere Cavitation Test Method or a fleet study run at or above 60% load capacity
- Is formulated with a nitrite-free additive package
- Protects the cooling system metals (cast iron, aluminum alloys, and copper alloys such as brass) from corrosion

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.

Coolant Drain Intervals

Drain and flush the cooling system and refill with fresh coolant at the indicated interval, which varies with the coolant used.

When COOL-GARD II or COOL-GARD II PG is used, the drain interval is 6 years or 6000 hours of operation.

If a coolant other than COOL-GARD II or COOL-GARD II PG is used, reduce the drain interval to 2 years or 2000 hours of operation.

IMPORTANT: Do not use cooling system sealing additives or antifreeze that contains sealing additives.

Do not mix ethylene glycol and propylene glycol base coolants.

Do not use coolants that contain nitrites.

DX,COOL3 -19-15MAY13-1/1

Liquid Coolant Conditioner

John Deere Liquid Coolant Conditioner is recommended for wet-sleeve diesel engines not having a coolant filter option. See your John Deere dealer. Other conditioners may be used if they contain non-chromate inhibitors.

CAUTION: Coolant conditioner contains alkali. Avoid contact with eyes. Avoid prolonged or repeated contact with skin. Do not take internally. In case of contact, immediately wash skin with soap and water. For eyes, flush with large amounts of water for at least 15 minutes. Call physician. Keep out of reach of children.

CAUTION: DO NOT remove radiator cap or drain coolant until coolant is cold. Always loosen radiator cap slowly to relieve any excess pressure.

IMPORTANT: DO NOT use liquid conditioner if engine is equipped with a John Deere Coolant Filter Conditioner, since the correct inhibitors are already contained inside the filter. If both are used, a gel-type deposit is created which could inhibit heat transfer and block coolant flow. John Deere Liquid Coolant Conditioner does not protect against freezing.

Add 30 ml of John Deere Liquid Coolant Conditioner for every liter of coolant added (1 fluid ounce per quart).



RG4690 —UN—14DEC88

When servicing cooling system at 2000 hours, only 1/2 of the original charge is required.

Coolant Conditioner Required	
Model	Coolant Capacity
280	7.2 L (1.90 gal.)
284	8 L (2.11 gal.)
300	7.2 L (1.90 gal.)
304	8 L (2.11 gal.)
320	7.2 L (1.90 gal.)
324	8 L (2.11 gal.)
B350	7.2 L (1.90 gal.)
2C-354	8 L (2.11 gal.)

CP00834,00016DD -19-09JAN15-1/1

Transmission and Hydraulic Oil

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

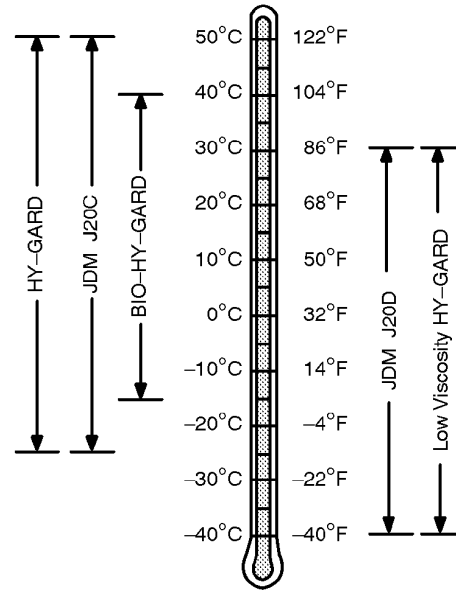
The following oils are preferred:

- John Deere HY-GARD™
- John Deere Low Viscosity HY-GARD™

Other oils may be used if they meet one of the following:

- John Deere Standard JDM J20C
- John Deere Standard JDM J20D

Use John Deere BIO-HY-GARD™ oil when a biodegradable fluid is required.¹



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.

DX,ANTI -19-07NOV03-1/1

Use Correct Transmission/Hydraulic Filter Element

To protect systems, replace transmission/hydraulic oil filter with a John Deere service filter element. Minimum and maximum performance specifications are printed on

John Deere filters. Other filters may be used if they meet these performance specifications.

See Lubrication and Maintenance section for recommended filter change intervals.

MX,FLIP,H -19-18MAR92-1/1

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.

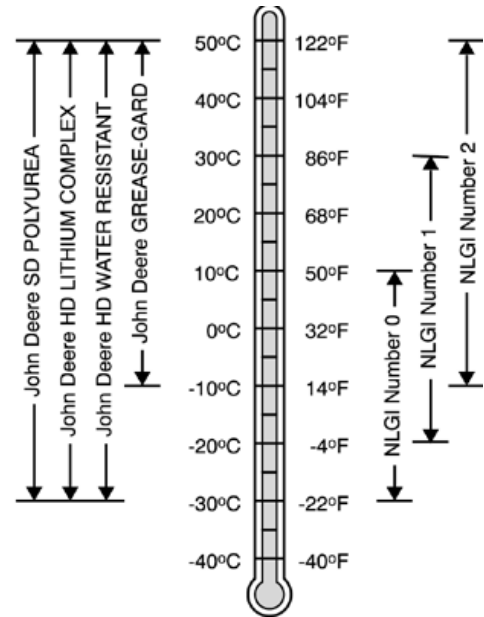
The following greases are also recommended:

- 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.



Greases for Air Temperature Ranges

GREASE-GARD is a trademark of Deere & Company

DX,GREAI -19-14APR11-1/1

TS1673 —UN—31OCT03

Maintenance and Service Intervals

Additional Service Information

This is not a detailed service manual. It contains only information needed for operation and routine maintenance.

If you want more detailed service information, order a Technical Manual through your John Deere dealer.

JB06590,00002E6 -19-03FEB09-1/1

Service Tractor Safely

Disengage power to attachments and stop engine before making any repairs or adjustments.

Do not over speed engine.

Keep the vehicle and attachments in good operating condition.

Keep safety devices in place and in working condition.

Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition.

Before you work on any part of the engine, stop the engine and let it cool. Hot engine parts can burn skin on contact.

Never start engine unless gear shift lever is in neutral position.

Be careful to prevent clothing, jewelry, or long hair from getting caught in the fan blades, drive belts, or any other moving engine parts.

Unauthorized modifications to the machine may impair performance and/or safety and affect machine life.



PUC5062—UN—06OCT10

AH98466,000110A -19-06OCT10-1/1

Service Interval Chart - Daily or 10 Hours - 50 Hours - 250 Hours

Item	Daily or 10 Hours	50 Hours	250 Hours
Check engine oil level	•		
Check cooling water level	•		
Drain water from fuel filter	•		
Check hydraulic system oil level	•		
Check transmission system oil level	•		
Inspect tractor for loose hardware	•		
Clean and check battery		•	
Inspect all tires and inflation pressure		•	
Lubricate front axle pivot pins ^a		•	
Lubricate steering spindles ^a		•	
Lubricate rear axle bearings ^a		•	
Service air cleaner			•
Replace engine oil and filter elements			•
Check oil level in MFWD axle and wheel hub			•
Adjust alternator/fan belt			•
Lubricate 3-point hitch lift links			•
Inspect and clean fuel tank vent filter			•
Drain water from fuel tank			•
Check neutral start system			•
Check and clean engine oil filters and filter elements			•
Check engine oil pump pressure and fogging quality			•
Adjust brake pedal free play			•
Adjust clutch pedal free play			•
Verify ROPS hardware torque			•

^aOnly necessary in extremely wet or muddy conditions

JB06590,00002E8 -19-01APR10-1/1

Service Interval Chart - 500 Hours - 1000 Hours - Annually - 2 Years or 2000 Hours

Item	500 Hours	1000 Hours	Annually	Two Years or 2000 Hours
Change engine oil and filter ^a	•			
Replace water separator and final fuel filter	•			
Replace transmission/hydraulic oil filter	•			
Clean engine crankcase vent tube	•			
Tighten all hose clamps	•			
Check cooling system for leaks	•			
Lubricate rear axle bearings	•			
Check engine idle speeds	•			
Drain hydraulic oil		•		
Change hydraulic oil filter/screen		•		
Fill hydraulic system oil		•		
Fill transmission system oil		•		
Fill steering system oil		•		
Adjust engine valve clearance		•		
Change MFWD axle oil		•		
Change MFWD wheel hub oil		•		
Change engine oil and filter			•	
Replace air cleaner wire elements			•	
Inspect seat belt			•	
Flush cooling system				•

^aWhen using any lubricant other than TorqGARD or PLUS 50, lower this service interval to 200 hours

JB06590,00002E9 -19-03FEB09-1/1

Service after First 100 Hours

For service after first 100 hours, see section 30 - Break-In Period.

JB06590,00002EA -19-03FEB09-1/1

Use Correct Lubricant

IMPORTANT: Use only lubricants meeting specifications outlined in Fuels, Lubricants,

and Coolants section when performing tractor service.

JB06590,00002EC -19-03FEB09-1/1

General Maintenance and Inspection

Service Air Cleaner

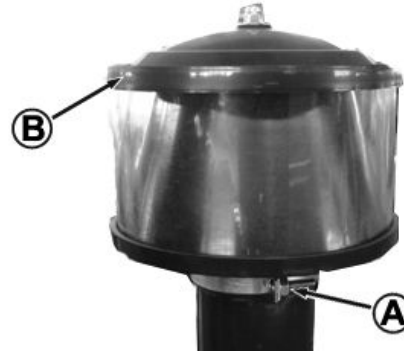
Air Precleaner

Service Interval - Daily More often in dusty conditions

1. Loosen clamp (A).
2. Remove precleaner (B) and clean.
3. Install precleaner (B) and tighten clamp (A).

A—Clamp

B—Precleaner



SP55916,0000B2E -19-10DEC10-1/2

PUC5193—UN—13/JAN11

Air Cleaner

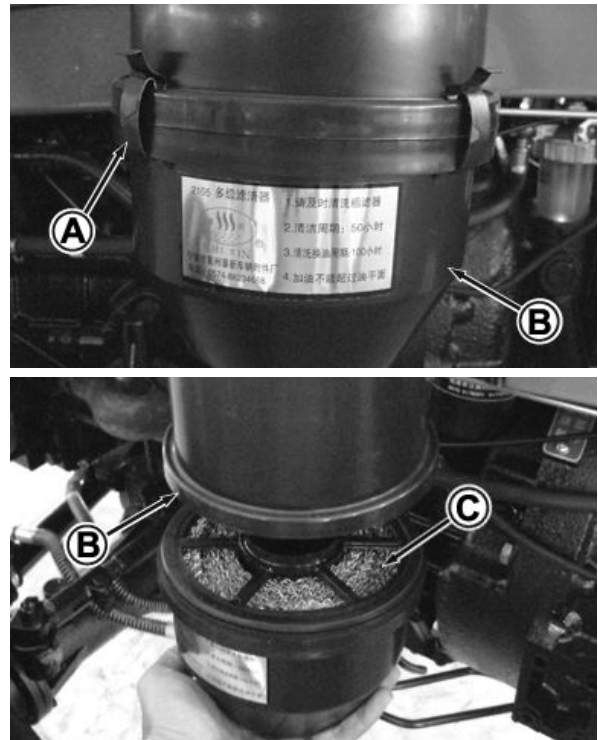
Service Interval - 50 Hours Interval can vary according to operating conditions

CAUTION: Stop the tractor for 1 hr. if the engine is warm. Service it after the oil returns to oil bowl.

1. Loosen the clamps (A) and remove the oil bowl (B).
2. Dump and clean out the oil bowl.
3. Remove the wire element (C) sustaining at the upper of oil bowl (B).
4. Rinse the oil bowl (B) and wire element (C) with the gasoline. (Element also can be cleaned in the diesel fuel.)
5. Add clean oil into the oil bowl (B) to the oil level mark.
6. Install wire element (C) and oil bowl (B).

A—Clamp (3 used)
B—Oil Bowl

C—Wire Element (2 used)



SP55916,0000B2E -19-10DEC10-2/2

PUC5194—UN—13/JAN11

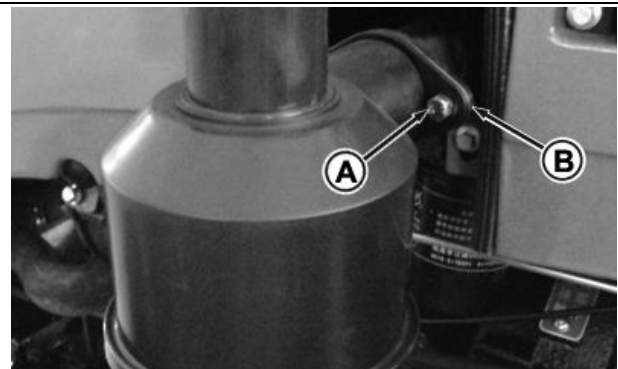
PUC5195—UN—13/JAN11

Check Air Intake System

Check air cleaner mounting screws (A) for tightness.
Check gasket (B) for damage. Replace if necessary.

A—Screw (2 used)

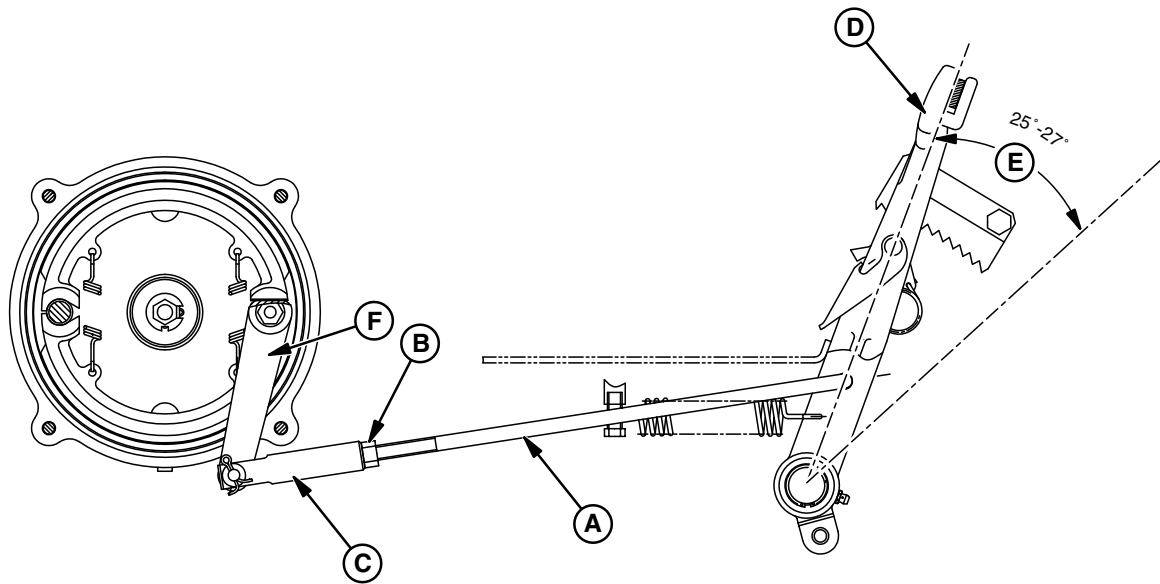
B—Gasket



SP55916,0000B52 -19-14DEC10-1/1

PUC5210—UN—13/JAN11

Adjust Brake Pedal Play



A—Pull Rod
B—Nut

C—Fork
D—Brake Pedal

E—Brake Pedal Play

F—Cam Arm

Service Interval - 250 Hours

NOTE: To ensure safety in running, the brake should be adjusted, the clearance between the friction band and brake hub will be enlarged due to the wearing of friction band over a long service.

1. Park on level surface. Chock wheels to prevent machine movement.
2. Unlock brake pedals.
3. Applying force on one of the brake pedal, measure angle (E) between the engaged pedal and the disengaged pedal.
4. Adjust brake linkage until angle (E) is to specification.

Specification

Brake Pedal
Play—Angle..... 25°-27°

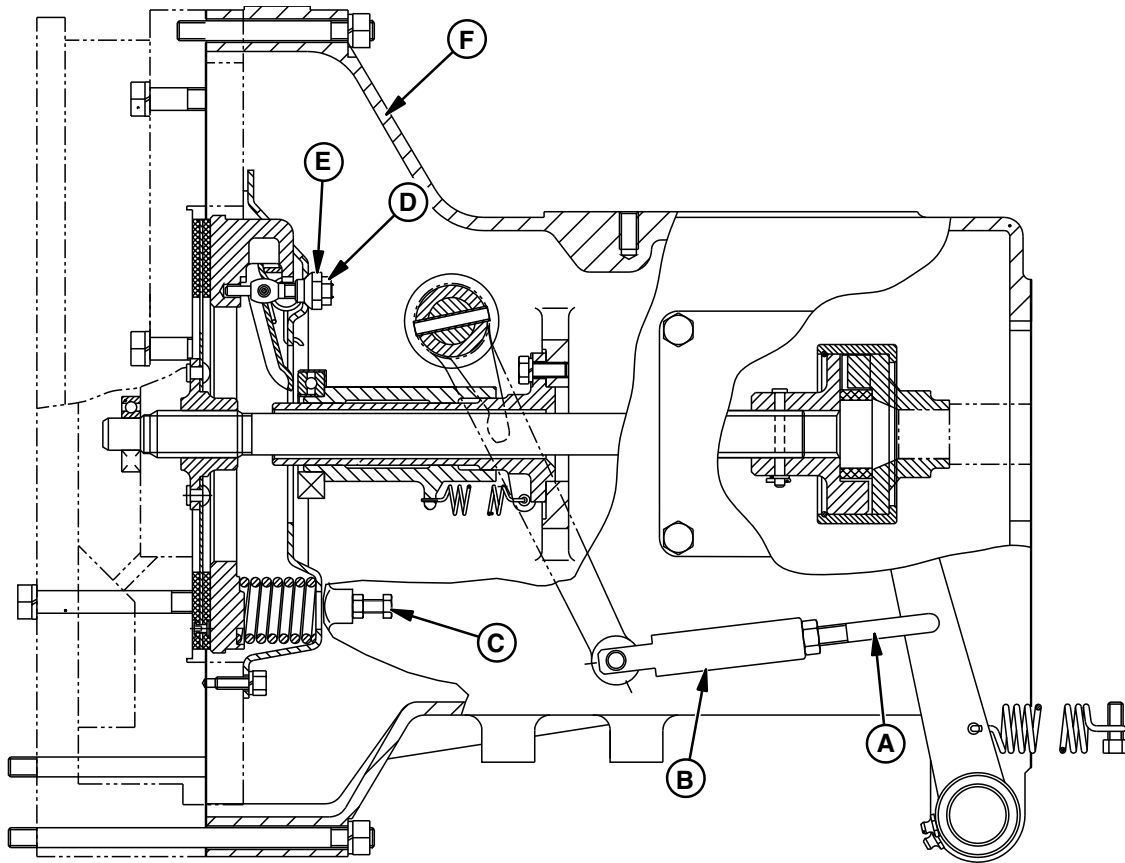
5. To adjust the brake linkage, loose lock nut (B) and adjust the fork (C) to change the length of pull road (A).
6. If the wearing of friction band is severe, the length of pull rod can be adjusted by inverting cam arm (F) of the brake.
7. Make sure that free play is same for both left and right-hand side pedals.

IMPORTANT: Adjust free play on both pedals to the same given specification, else sharp reflex on one side may cause accident on urgent braking.

PUC5183—JUN—07DEC10

SK35149,00004D3 -19-15MAY12-1/1

Adjust Clutch Pedal Free Play



A—Push Rod
B—Adjusting Fork

C—Limit Screw
D—Lock Nut

E—Clutch Release Lever
Adjusting Nut

F—Housing

Service Interval - 250 Hours

1. Turn adjusting fork (B) to shorten or extend the push rod (A) and to adjust free play to specification. Tighten lock nut on push rod (A) after adjustment.

Specification

Clutch Pedal Free
Play—Distance.....4—7 mm
(0.15—0.27 in.)

2. Adjust the limit screw (C) to adjust working travel to 26—36 mm (1.02—1.42 in.).

3. Turn limiting screw (C), to increase or decrease length of clutch control lever until desired free play is achieved. Tighten limit screw (C) after adjustment.
4. To adjust the working travel at a greatest distance, loose lock nut (D) and tight the three adjusting nuts (E) simultaneously, whose turning angle must be equal. check adjustment by operating releasing clutch. Tighten the lock nut (D) After adjustment and testing.

SK35149,00004D2 -19-15MAY12-1/1

PUC5184—UN—07DEC10

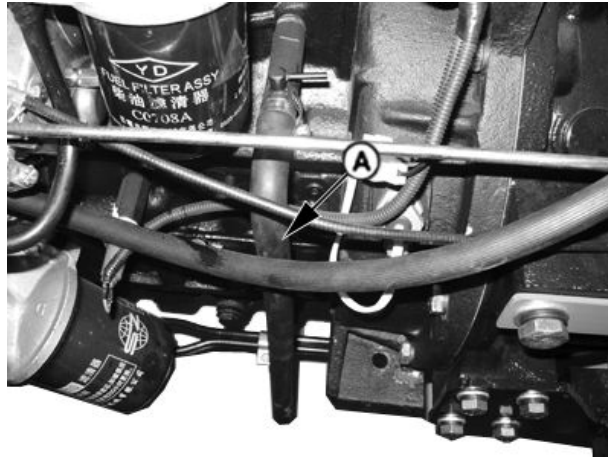
Clean Engine Crankcase Vent Tube

Service Interval - 500 Hours

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

Remove crankcase vent tube (A) from engine. Wash in solvent or blow clean with compressed air. Install vent tube breather cap to engine. Be sure that vent tube is not kinked or pinched.

A—Crankcase Vent Tube



PUC1720—UN—02JAN09

JB06590,00002F1 -19-03FEB09-1/1

Check Engine Idle Speed

Service Interval - 500 Hours

Slow idle speed is attained with hand throttle all the way forward.

Fast idle speed is attained with hand throttle all the way rearward.

If idle speeds are not correct, see your John Deere dealer.

Specification

Engine Speed—Slow

Idle..... 750±50 rpm

Engine Speed—Fast

Idle..... For 28 hp and 30 hp tractor 2376 rpm

For 32 hp tractor 2538 rpm

For 35 hp tractor 2592 rpm

SP55916,0000B51 -19-14DEC10-1/1

Adjust Engine Valve Clearance

Service Interval - 1000 Hours

Have your John Deere dealer check and adjust engine valve clearance.

JB06590,00002F3 -19-03FEB09-1/1

Check Hoses and Hose Clamps for Tightness

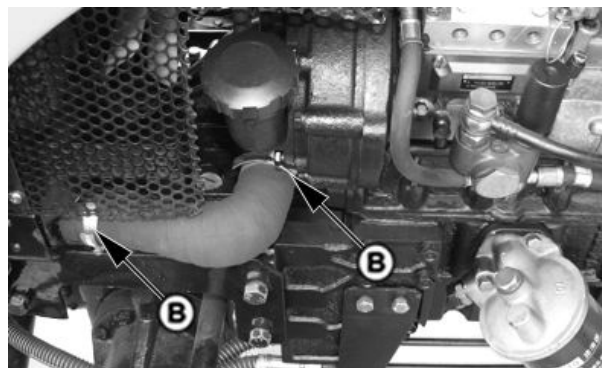
Service Interval - 500 Hours

Check the following system hose clamps for tightness:

- Engine Air Induction System
- Engine Cooling System
- Hydraulic System
- Fuel System

Check all hoses for cracks which could cause leaks or possible failure. Replace as necessary.

- A—Radiator Upper Hose Clamp (2 used) C—Steering Oil Reservoir Hose Clamp (4 used)
 B—Radiator Lower Hose Clamp (2 used)



PUC1880 —UN—13FEB09

PUC1881 —UN—13FEB09

PUC1882 —UN—13FEB09

JB06590,00002F4 -19-03FEB09-1/1

Loose Hardware Inspection

Service Interval - 50 Hours

Item	Measurement	Specification
Ballast Weight Retaining Bolts	Torque	230 N•m (170 lb.-ft)
Multi-Position Rear Wheels Rim-to-Wheel Disk Nuts	Torque	146—180 N•m (107—132 lb.-ft)
Multi-Position Rear Wheels Disk-to-Shaft Nuts	Torque	199—235 N•m (146—173 lb.-ft)
Wheels Disk-to-Shaft Nuts (Front Axle)	Torque	199—235 N•m (146—173 lb.-ft)
Sleeve-to-Front Axle Beam Nuts	Torque	100—120 N•m (73—88 lb.-ft)

CP00834,000164C -19-08DEC14-1/1

Check Neutral Start System

Service Interval - 250 Hours

Your John Deere tractor is equipped with interlocks to prevent inadvertent movement when the engine is started. Turning the key switch with the clutch pedal depressed should crank the engine if all of the following conditions exist:

- Range shift lever (B) is in neutral position
- PTO lever (A) is in disengaged position

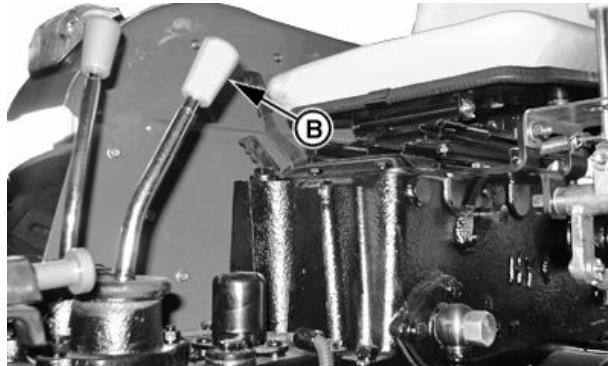
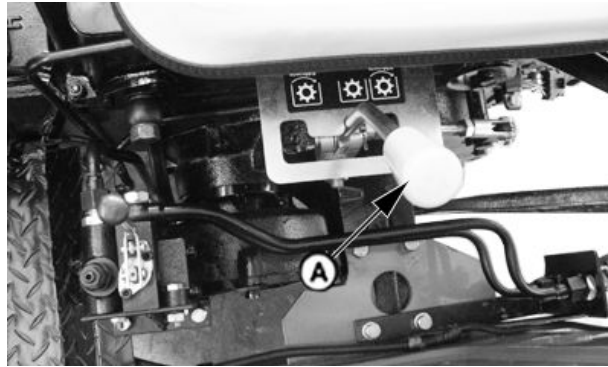
CAUTION: If starter turns engine in either of the following steps, have the neutral start system repaired by your John Deere dealer.

Turning the key switch to the start position should NOT start the engine, if either of the following conditions is present:

- Range shift lever is in gear (not in neutral)
- PTO lever is in engaged position

A—PTO Lever

B—Range Shift Lever



PUC0042—UN—03APR09

PUC5035—UN—05OCT10

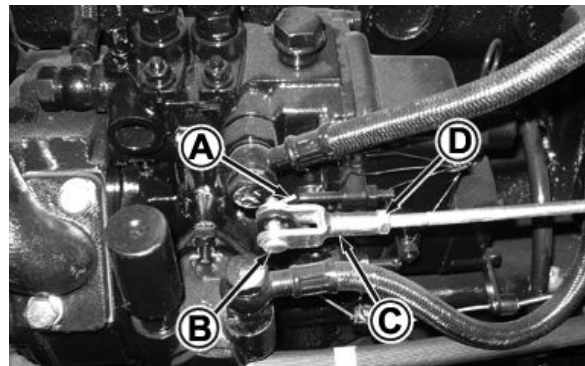
AH98466,000110C -19-06OCT10-1/1

Throttle Adjustment

1. Remove cotter pin (A) and pin (B).
2. Loosen lock nut (D).
3. Turn throttle lever on fuel pump at desired position.
4. Rotate and adjust yoke (C) so that it fits on throttle lever. Install pin (B) and cotter pin (A).
5. Tighten lock nut (D).

A—Cotter Pin
B—Pin

C—Yoke
D—Lock Nut



PUC5196—UN—13JAN11

SP55916,0000B30 -19-10DEC10-1/1

Inspect Tires

Service Interval - 50 Hours

1. Check tires daily for damage or noticeably low pressure.
2. Have any cuts or breaks repaired as soon as possible.
3. Protect tires from exposure to sunlight, petroleum products and chemicals.
4. Drive carefully. Try to avoid rocks and sharp objects.
5. Check tires with an accurate gauge having 10 kPa (0.1 bar) (1 psi) graduations. If tires contain liquid ballast, use a special air-water gauge and measure with valve stem positioned toward bottom.

no added weight. If you install ballast or mounted implements, or if you pull heavy loads, increase pressure.

Refer to Tire Inflation Pressure Chart in Wheels, Tires and Treads section.

IMPORTANT: Minimum pressures may be used only for light loads and only if tractor has

JB06590,00002F9 -19-03FEB09-1/1

Lubrication

Use Lubricant Correctly

IMPORTANT: Use only lubricants meeting specifications outlined in Fuels, Lubricants and Coolant section when performing tractor service.

JB06590,00002FA -19-03FEB09-1/1

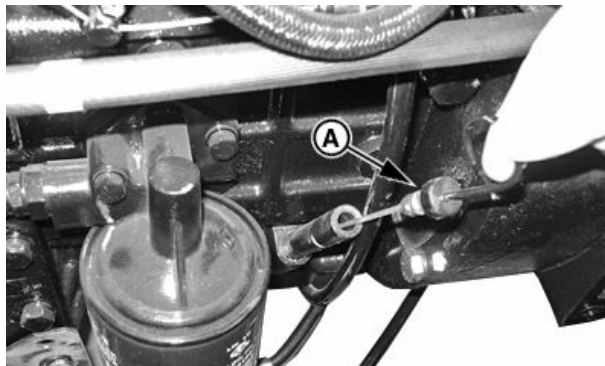
Check Engine Oil Level

Service Interval - Daily or 10 Hours

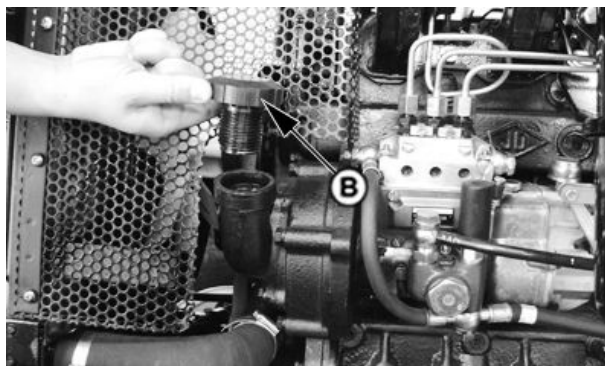
1. If engine has not been running, start engine and let it run at low idle for 2-3 min. Stop engine and wait 2-3 min. for oil to drain back into oil sump.
2. If engine has been running, turn speed down to low idle and let it run for 2-3 min. Stop engine and wait 2-3 min.
3. Check engine oil level. Remove and wipe off dipstick (A), and reinsert it fully. Remove and locate oil level.
4. Safe operating range is between low level mark (C) and high level mark (D) on dipstick. Do not operate engine when oil level is below low level mark (C). Add seasonal viscosity grade oil by removing filler cap (B). (See Fuels, Lubricants and Coolant section for oil specifications.)

A—Engine Oil Dipstick
B—Engine Oil Filler Cap

C—Low Level Mark
D—High Level Mark



PUC5063—UN—07OCT10



PUC1884—UN—13FEB09



PUC1885—UN—13FEB09

AH98466,000110D -19-08OCT10-1/1

Change Engine Oil and Filter

Service Interval - 500 Hours ¹ One Time, First 100 Hours

1. Run engine to heat oil. Turn engine off.
2. Remove drain plug and drain oil in suitable container.
3. Replace engine oil filter (A) when changing oil. Apply a film of oil on the new oil filter gasket and install filter. Hand tighten plus 1/2 turn.
4. Install and tighten drain plug (B).
5. Add seasonal viscosity grade oil. (See Fuels, Lubricants, and Coolant section.)

Specification

Engine Crankcase

Oil—Capacity.....6—6.5 L (1.58—1.71 gal.)

¹When using any lubricant other than TorqGARD or PLUS 50, lower this service interval to 200 hours



A—Engine Oil Filter

PUC5197 —UN—13JAN11

CP00834,000164D -19-08DEC14-1/1

Check Transmission/Hydraulic System Oil Level

Service Time - 50 Hours. Check Oil Level at Dipstick, Daily

IMPORTANT: Routine checks will help prevent downtime. The operator can aid in preventive maintenance by documenting all leak and malfunction problems. Since the transmission operates in oil and by means of oil, it is very important to keep oil clean and at correct level at all times.

1. Park on level ground. Put gear shift lever in neutral, lock brake pedals together and set parking brake.
2. Make sure that rockshaft is positioned all the way down. (See Rockshaft Controls in Rockshaft and 3-Point Hitch section.)
3. Push hand throttle all the way forward and allow engine to idle for 5 min. Turn engine off.
4. Wait a minimum of 5 min. for oil to settle.
5. Check hydraulic oil level at dipstick (A) and transmission oil level at dipstick (B).
6. Remove dipstick (A or B) and wipe it clean. Insert dipstick fully. Check if oil level is between full mark and low mark on the dipstick.
7. Add oil to fill port if level is low. (See Transmission and Hydraulic Oil in Fuels, Lubricants, and Coolant section.)

A—Hydraulic Oil Level Dipstick B—Transmission Oil Level Dipstick



PUC1834 —UN—08FEB09

PUC1835 —UN—08FEB09

JB06590,00002FD -19-02NOV10-1/1

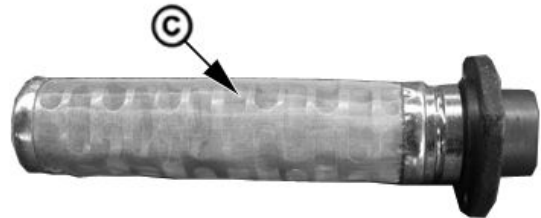
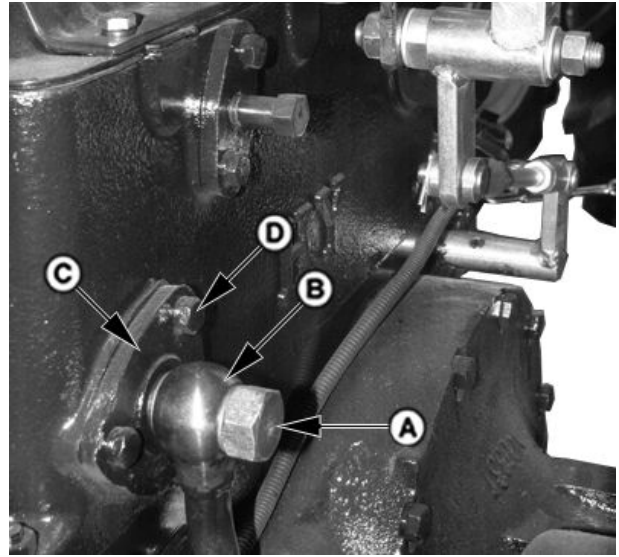
Service Transmission/Hydraulic Oil Filter

Service Interval - 500 Hours One Time, First 100 Hours

1. Remove screw (A).
2. Disconnect hydraulic line (B). Close the openings with caps or plugs.
3. Remove cap screws (D) and filter (C). Service or replace as necessary.
4. Install filter (C) and cap screws (D). Tighten screws (D).
5. Connect hydraulic line (B) and install screw (A).
6. Add enough transmission and hydraulic oil to bring oil level up to the mark. (See Fuels, Lubricants and Coolant section.)
7. Run engine for 30 sec. and check oil level again.
8. Check oil level again after operating for 5 min. Add oil if necessary.

A—Screw
B—Hydraulic Line

C—Filter
D—Cap Screw (3 used)



PUC0045 —UN—03APR09

PUC1796 —UN—16JAN09

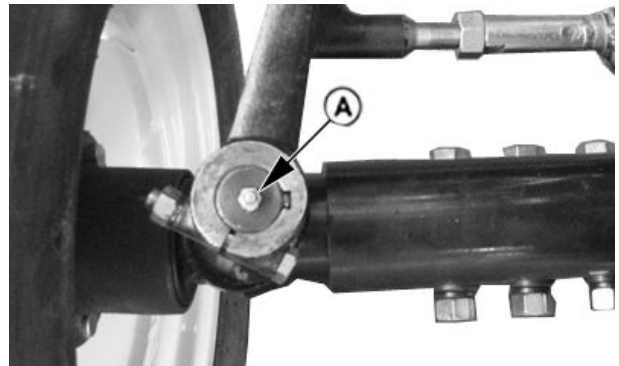
JB06590,00002FE -19-03FEB09-1/1

Lubricate Steering Spindles (2WD)

Service Interval - 50 Hours Extremely Wet or Muddy Conditions - 10 Hours

Apply several pumps of grease to all steering spindle lube fittings (A), on both left and right sides.

A—Steering Spindle Lube Fitting



PUC0022 —UN—24MAR09

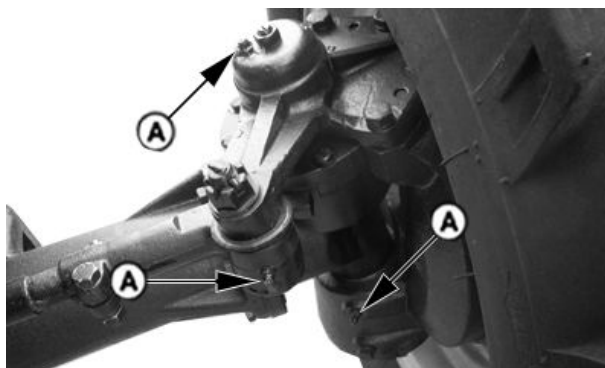
JB06590,0000418 -19-24MAR09-1/1

Lubricate Steering Spindles (MFWD)

Service Interval - 50 Hours Extremely Wet or Muddy Conditions -
10 Hours

Apply several pumps of grease to all steering spindle lube fittings (A), on both left and right sides.

A—Steering Spindle Lube Fitting



PUC1887—UN—13FEB09

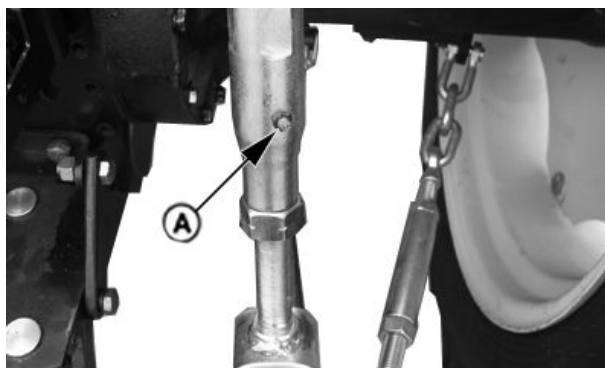
JB06590,00002FF -19-24MAR09-1/1

Lubricate 3-Point Hitch Lift Links

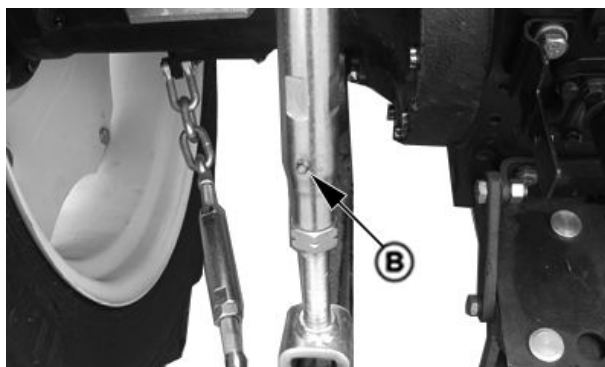
Service Interval - 250 Hours

Lubricate lift links at lube fittings (A) and (B) with several pumps of grease. (See Fuels, Lubricants, and Coolant section.)

A—Right-Hand Lift Link Fitting B—Left-Hand Lift Link Fitting



PUC1888—UN—13FEB09



PUC1889—UN—13FEB09

JB06590,0000300 -19-03FEB09-1/1

Lubricate Rear Axle Bearings

Service Interval - 500 Hours Extremely Wet or Muddy Conditions -
50 Hours

Lubricate rear axle fittings (A), both sides, with several shots of grease. (See Fuels, Lubricants and Coolant section.)

A—Rear Axle Fitting (2 used)



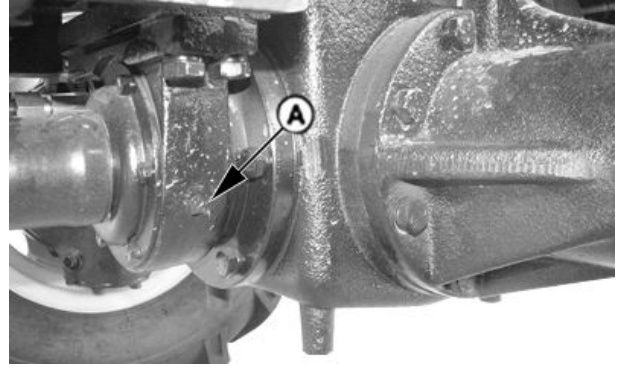
PUC5054—UN—06OCT10

AH98466,000110E -19-06OCT10-1/1

Lubricate MFWD Front Axle Pivot Pins

MFWD front axle has two separate pivot pins. Use appropriate grease on each pivot pin grease fitting (A). (See Fuels, Lubricants, and Coolant section.)

A—Pivot Pin Grease Fitting



PUC1891 —UN—13FEB09

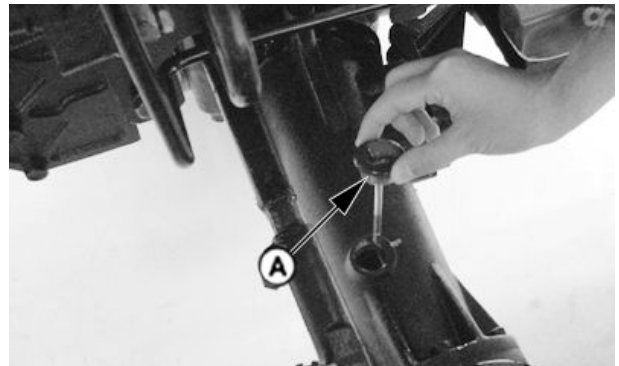
CP00834,0001681 -19-18DEC14-1/1

Check MFWD Axle Housing Oil Level

Service Interval — 250 Hours

1. Park tractor on level surface.
2. Remove dipstick (A) to check oil level in axle housing. Make sure that oil level is even with bottom of hole.
3. If oil level is low, add oil. (See Fuels, Lubricants, and Coolant section.)

A—Dipstick



PUC1892 —UN—13FEB09

CP00834,0001682 -19-18DEC14-1/1

Change Transmission/Hydraulic System Oil

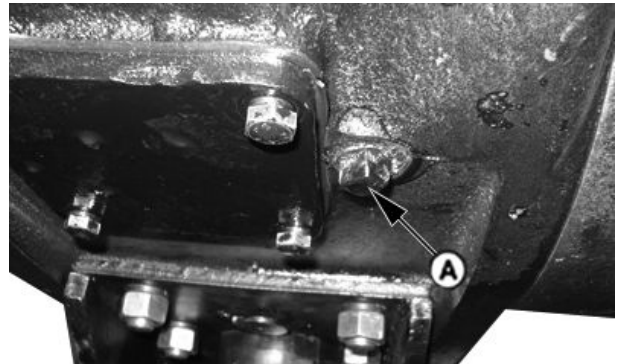
Service Interval - 1000 Hours

1. Lower rockshaft to remove trapped oil.

NOTE: Always dispose off used oil in accordance with applicable laws and regulations.

2. Remove drain plug (A) from transmission case and drain out oil. Dispose off waste oil properly.

**A—Transmission Main Case
Drain Plug**



PUC1893 —UN—13FEB09

Continued on next page

CP00834,000164E -19-08DEC14-1/4

3. Remove drain plug (A) from MFWD drop gear box and drain oil.

A—Drain Plug



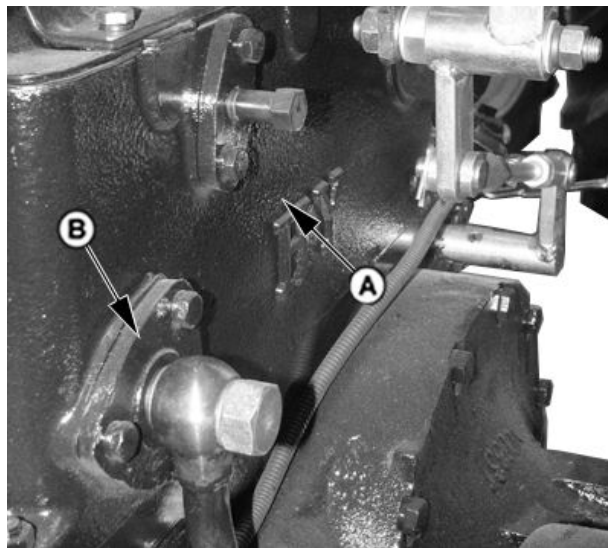
PUC1931—UN—16FEB09

CP00834,000164E -19-08DEC14-2/4

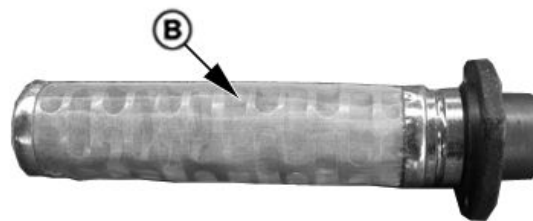
4. Remove filter and drain oil. Replace filter (B) while changing oil.
5. Filter is located inside the hydraulic oil reservoir (A). After changing the filter tighten the hardware correctly.

A—Hydraulic Oil Reservoir

B—Oil Filter



PUC0039—UN—03APR09



PUC1933—UN—16FEB09

Continued on next page

CP00834,000164E -19-08DEC14-3/4

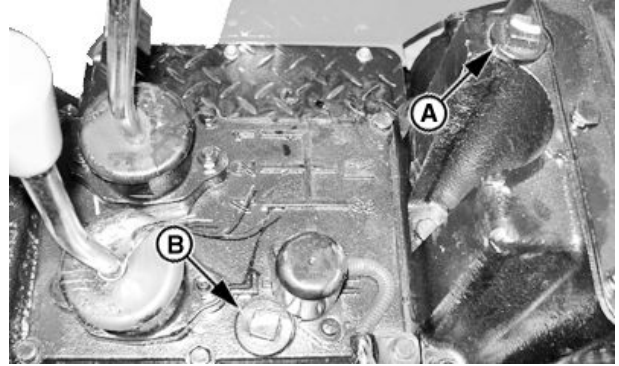
- Remove dipsticks (A and B). Fill system with transmission and hydraulic oil. (See Fuels, Lubricants, and Coolant section.)

Specification

Transmission Oil
(MFWD)—Capacity..... 16.5—17.5 L (4.35—4.62 gal.)
Transmission Oil
(2WD)—Capacity..... 15—16 L (3.96—4.22 gal.)
Hydraulic Oil—Capacity..... 7—8 L (1.84—2.11 gal.)

- Check oil level at dipstick (A or B) after filling, and again after operating for 5 min.

A—Hydraulic Oil Level Dipstick B—Transmission Oil Level Dipstick



PUC5055 —UN—06OCT10

CP00834,000164E -19-08DEC14-4/4

Fill Transmission/Hydraulic Oil

Service Interval - 1000 Hours

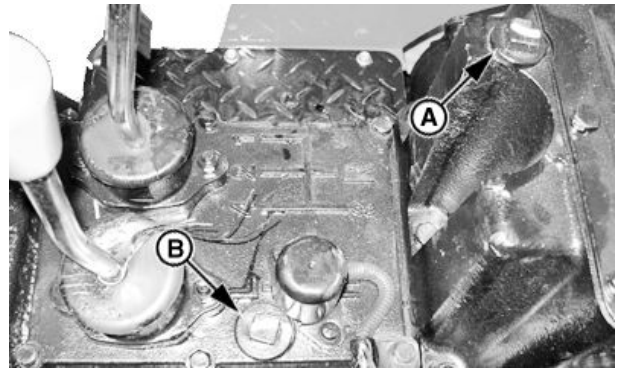
IMPORTANT: DO NOT overfill transmission.
This will cause overheating and result in transmission damage.

- Remove dipsticks (A and B). Fill system with transmission/hydraulic oil. (See Fuels, Lubricants, and Coolant section.)

Specification

Transmission Oil
(MFWD)—Capacity..... 16.5—17.5 L (4.35—4.62 gal.)
Transmission Oil
(2WD)—Capacity..... 15—16 L (3.96—4.22 gal.)
Hydraulic Oil—Capacity..... 7—8 L (1.84—2.11 gal.)

- Check oil level at dipstick (A or B) after filling. Make sure that level is up to full mark. Check again after operating for 5 min. Add oil if necessary.



A—Hydraulic Oil Level Dipstick B—Transmission Oil Level Dipstick

PUC5055 —UN—06OCT10

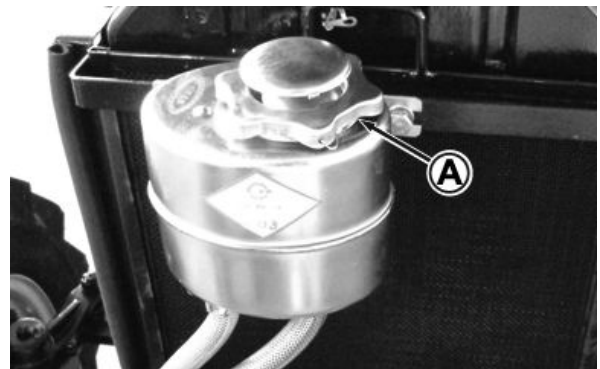
CP00834,000164F -19-08DEC14-1/1

Check and Fill Steering System Oil

- Remove filler cap (A).
- Check oil level in the reservoir.
- Add oil if necessary.

Specification

Steering System
Oil—For 284, 304, 324 and 2C-354
Tractors—Capacity..... 1.8 L (1.90 qt.)
Steering System Oil—For
280, 300, 320 and B350
Tractors—Capacity..... 0.9 L (0.95 qt.)



A—Filler Cap

PUC5198 —UN—13JAN11

CP00834,00016DE -19-09JAN15-1/1

Change MFWD Front Axle Housing Oil

Service Interval — 1000 Hours One Time, First 100 Hours

1. Position tractor on level ground to assure correct oil levels when filling.
2. Remove drain plugs (B) and (C). Drain oil.
3. Install drain plugs (B) and (C).
4. Remove dipstick (A). Fill differential housing with John Deere Hy-Gard™ Gear Lubricant. (See Fuels, Lubricants, and Coolant section.)

Specification

MFWD Axle Oil (1200	
mm tread)—Capacity.....	5.5 L (1.45 gal.)
MFWD Axle Oil (1300	
mm tread)—Capacity.....	6 L (1.58 gal.)

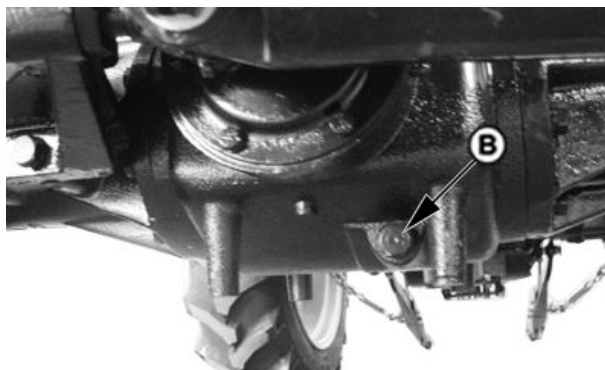
IMPORTANT: Check oil level after 30 min. Oil flows slowly through bearings and axle housings. Add oil as needed.

A—Dipstick
B—Drain Plug

C—Drain Plug



PUC1892 —UN—13FEB09



PUC1983 —UN—27FEB09



PUC1987 —UN—02MAR09

Hy-Gard is a trademark of Deere & Company

CP00834,0001651 -19-08DEC14-1/1

Maintenance—Cooling System

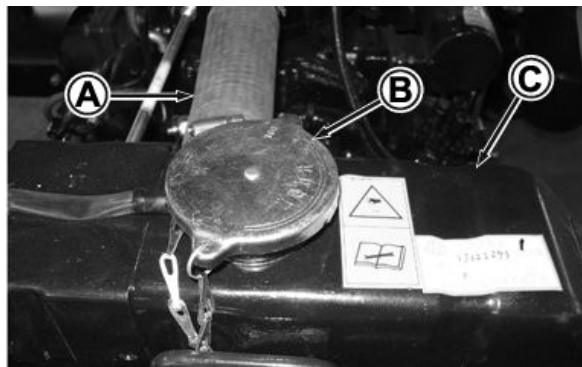
Engine Cooling System Components

IMPORTANT: Never pour cold water into the cooling system of a hot engine, as it might crack cylinder block or head. **DO NOT** operate engine without coolant for even a few minutes.

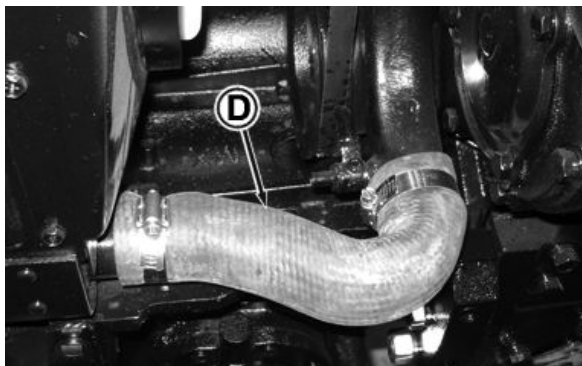
If additional coolant is needed, add oil to radiator reservoir (C). (See Check Coolant Level, in this section.)

A—Upper Radiator Hose
B—Radiator Cap
C—Radiator Reservoir

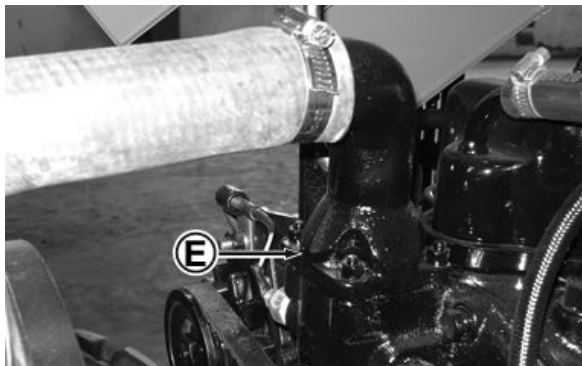
D—Lower Radiator Hose
E—Thermostat Housing
F—Radiator Drain Plug



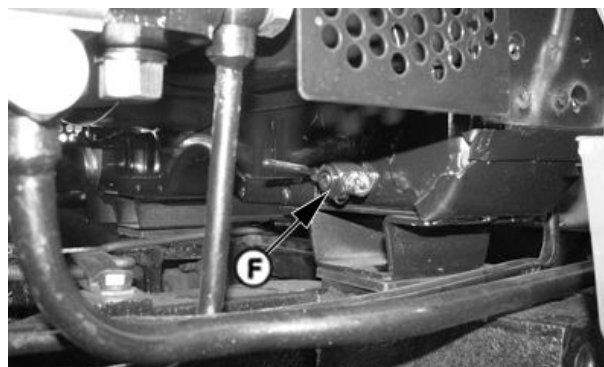
PUC5199 —UN—13JAN11



PUC5200 —UN—13JAN11



PUC5201 —UN—13JAN11



PUC1787 —UN—16JAN09

SP55916,0000B33 -19-10DEC10-1/1

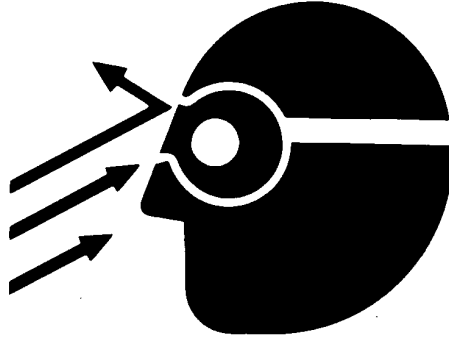
Clean Front Grille and Radiator

1. Whenever trash builds up on front grille (A), stop engine and brush clean.

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

2. Lift up the hood and see if trash has built up on radiator. If so, carefully remove it using a brush or compressed air.
3. If a more thorough cleaning is necessary, clean radiator from behind with compressed air or water. Straighten any bent fins.

A—Front Grille



TS286 —UN—23AUG88

PUC5056 —UN—06OCT10

AH98466,0001114 -19-06OCT10-1/1

Check Coolant Level

Service Interval - 10 Hours

CAUTION: DO NOT remove reservoir cap until coolant is cold. Always remove reservoir cap slowly to relieve any excess pressure.

Check that coolant is up to full level in radiator. If not, add coolant in radiator. (See Fuels, Lubricants, and Coolant section.)

JB06590,0000307 -19-03FEB09-1/1

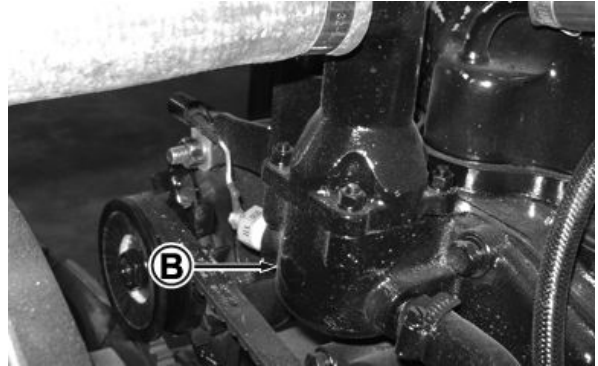
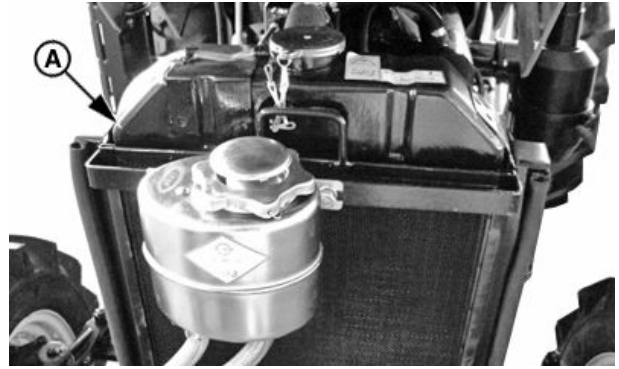
Check Cooling System for Leaks

Service Interval—500 Hours

1. Check all around base of radiator reservoir (A) for pinholes or any area where coolant might be leaking.
2. Inspect area around thermostat housing gasket (B) for any sign of coolant leakage.

A—Radiator Reservoir

B—Thermostat Housing Gasket



PUC5057 —UN—06OCT10

PUC5202 —UN—13JAN11

SP55916,0000B34 -19-10DEC10-1/1

Flush Cooling System

Service Interval—Every 2 Years or 2000 Hours

For efficient operation, drain old coolant, flush the entire system, and fill with clean antifreeze solution at least once every 2 years.

CAUTION: DO NOT remove radiator cap or drain coolant until coolant is cold. Always loosen radiator cap slowly to relieve any excess pressure.

1. Drain coolant - Remove radiator cap (A). Open drain cock (B) on radiator and attach a drain hose. Route hose to container and drain coolant from radiator. Drain coolant from engine block by opening drain cock (C).

IMPORTANT: Thermostat must be removed to ensure a thorough flush.

2. Remove thermostat housing (D), remove thermostat and install cover (without thermostat). Tighten cover bolt to specification.

Specification

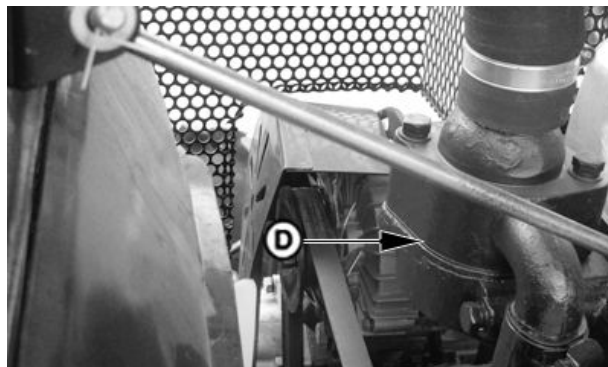
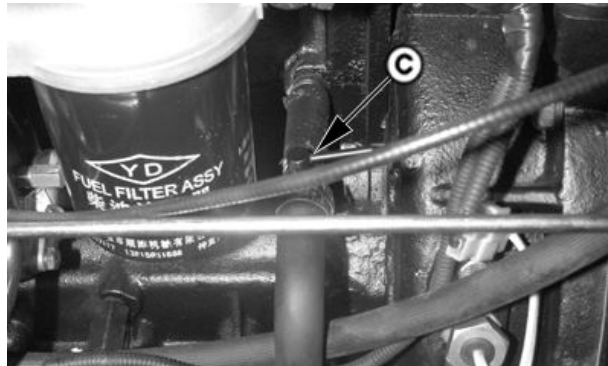
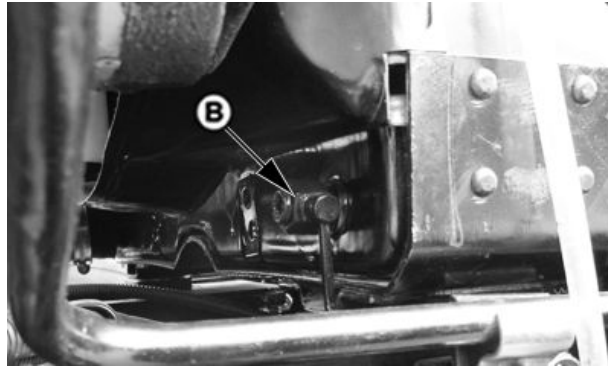
Thermostat Housing
Cover Bolt—Torque..... 70 N·m (52 lb.-ft)

3. Flush system with water - Close all drain valves/plugs and fill system with clean water. Run engine about 10 min. to stir up possible rust or sediment. Stop engine and drain water from system before rust and sediment settle.
4. Flush system with radiator cleaner - Close all drain valve/plugs and fill the cooling system with a good commercial radiator cleaner and water. Follow instructions provided with cleaner. Stop engine and immediately drain system.
5. Flush system with water - Close all drain valves/plugs and fill with clean water to flush the system. Run the engine about 10 min., then drain out flushing water.
6. Remove thermostat cover and clean off the gasket material. Apply gasket sealant to new gasket and install thermostat and cover. Tighten cover bolt to specification.

Specification

Thermostat Housing
Cover Bolt—Torque..... 70 N·m (52 lb.-ft)

7. Fill with fresh coolant - Close all drain valves/plugs and fill with a mixture of antifreeze, soft water, and coolant conditioner as specified in Fuels, Lubricants and Coolant section.
8. Check coolant level - Fill radiator to the top of the filler neck. Run the engine until operating temperature is reached. Let the engine cool (preferably overnight) and recheck the coolant level. Coolant level with a cold engine should be at the bottom of the filler neck.



A—Radiator Cap
B—Radiator Drain Cock

C—Engine Block Drain Cock
D—Thermostat Cover

Continued on next page

AH98466,0001116 -19-06OCT10-1/2

9. When filling the cooling system, it may require several operating/cooling periods to stabilize the coolant level

in the system. Add additional coolant to the radiator as needed to bring coolant to the correct level.

AH98466,0001116 -19-06OCT10-2/2

Maintenance in Winter

1. Use winter lubricating oil and fuel.
2. During storage, add antifreeze liquid in cooling water. Drain out the cooling water without antifreeze liquid.

3. Follow winter start up procedure.
4. Park tractor in windproof and warm shed.

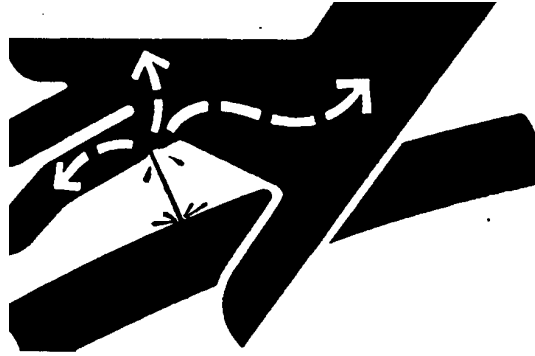
JB06590,000030A -19-03FEB09-1/1

Maintenance—Fuel System

Bleed Fuel System

⚠ CAUTION: Escaping fluid under pressure can penetrate the skin, causing serious injury. Avoid the hazard by relieving system pressure before disconnecting pressurized lines. 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

Any time the fuel system has been opened up for service (lines disconnected or filters removed), it will be necessary to bleed air from the system.

AH98466,0001117 -19-08OCT10-1/3

To bleed the system at the final filter, perform the following steps:

1. Open bleed vent screw (A) in final filter two full turns by hand.
2. Pump hand primer on fuel supply pump until a noticeable amount of fuel comes out of vent opening. Continue pumping and close vent screw when fuel starts to flow.
3. Pump the hand primer several times until resistance is felt. Continue pumping and open bleed vent screw again.
4. Close bleed screw while still pumping hand primer. Continue pumping hand primer until resistance is felt again.



A—Bleed Vent Screw

PUC5059—UN—07OCT10

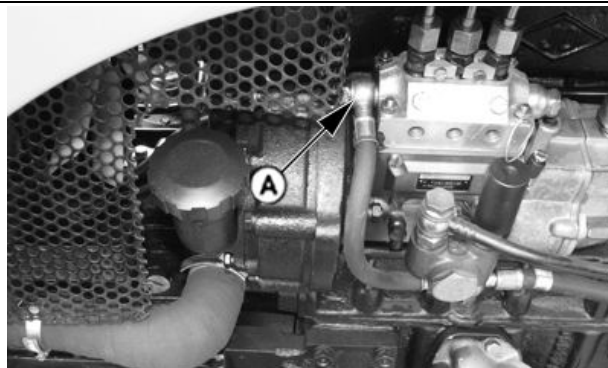
AH98466,0001117 -19-08OCT10-2/3

To bleed fuel system at fuel injection pump, perform the following steps:

1. Loosen fuel inlet line (A) at fuel injection pump.
2. Loosen hand primer cap on fuel supply pump.
3. Operate hand primer on fuel supply pump.
4. As soon as fuel flow is free from air bubbles, tighten fuel return line to specification. Primer lever is spring loaded and will return to normal position automatically.

Specification

Fuel Inlet Line—Torque..... 27 N·m (20 lb-ft)



A—Fuel Inlet Line

PUC1905—UN—13FEB09

AH98466,0001117 -19-08OCT10-3/3

Drain Water and Sediment from Fuel Tank

Service Interval — 250 Hours

Locate drain plug (A) on right side of fuel tank, at the bottom. Place suitable container under drain plug and loosen plug. When fuel starts to run clear, tighten drain plug.

A—Drain Plug



JB06590,000030C -19-03FEB09-1/1

PUC1906 —UN—13FEB09

Replace Fuel Filter

Service Interval— 500 Hours¹

1. Thoroughly clean fuel filter assembly and surrounding area.
2. Remove the fuel filter (B).
3. Inspect filter mounting base for cleanliness. Clean as required.
4. Thoroughly inspect filter base (A) seal ring. Replace as required.
5. While replacing a new fuel filter (B), fill clean fuel into the fuel filter and add some lubricants on the seal ring of the fuel filter. Make sure to install the fuel filter within 15 minutes after adding lubricants.
6. Install new filter element onto mounting base and then tighten about 1/2 - 3/4 turn. DO NOT over tighten retaining ring to avoid damage to the threads and the seal ring.

¹Interval can vary according to operating conditions.



A—Filter Base

B—Fuel Filter

7. Bleed fuel system. (See Bleed Fuel System in this section.)

AH98466,0001118 -19-08OCT10-1/1

PUC5060 —UN—07OCT10

Do Not Modify Fuel System

IMPORTANT: Modification or alteration of the injection pump, the injection pump timing, or the fuel injectors in ways not recommended by the manufacturer will terminate the warranty obligation to the purchaser. (See warranty information inside front cover.)

DO NOT attempt to service injection pump or fuel injectors yourself. Special training and special tools are required. (See your John Deere dealer.)

JB06590,000030E -19-03FEB09-1/1

Maintenance—Electrical System

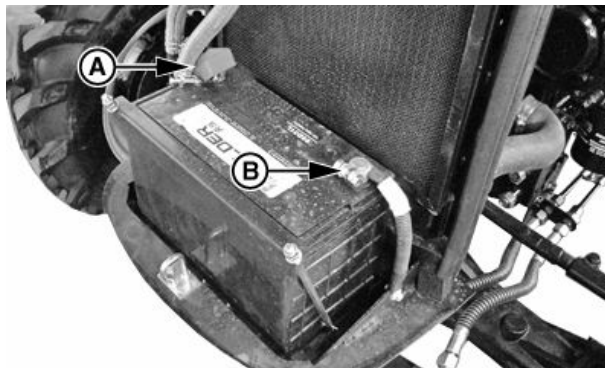
Observe Electrical Service Precautions

⚠ CAUTION: Keep all sparks and flames away from batteries, as gas given off by electrolyte is explosive. When using a booster battery, follow instructions in Operating the Engine section.

To avoid shocks and burns, disconnect negative (–) cable (B) before servicing any part of the electrical system, then remove positive (+) cable (A) if removing battery.

Keep all electrical shields in place.

A—Positive (+) Battery Cable B—Negative (–) Battery Cable



TS204—UN—15APR13

PUC5061—UN—07OCT10

AH98466,0001119 -19-06OCT10-1/1

Alternator/Fan Belt Adjustment

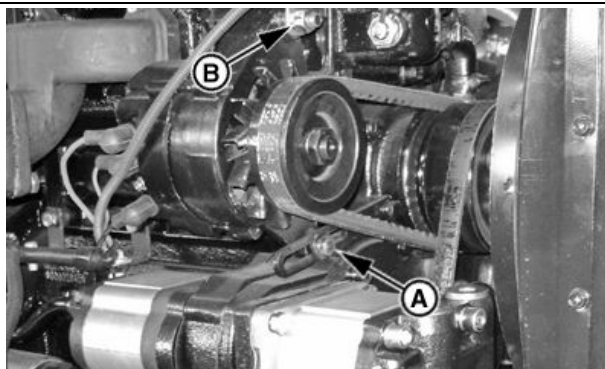
Service Interval—250 Hours

Replace belt if worn or damaged. (See Alternator/Fan Belt Replacement in this section.)

NOTE: Run engine for 5 min. to warm a cold belt. Let a hot belt cool for 15 min. before adjustment.

Check tension by pressing belt midway between pulleys. Belt should deflect about 10—15 mm.

Adjust tension by loosening mounting nut (B) first, then adjusting cap screw (B). Apply force on alternator frame until tension is correct. Tighten adjusting cap screw (A) first, then alternator mounting nut (B).



A—Tension Adjusting Cap Screw

B—Alternator Mounting Nut

PUC5170—UN—08NOV10

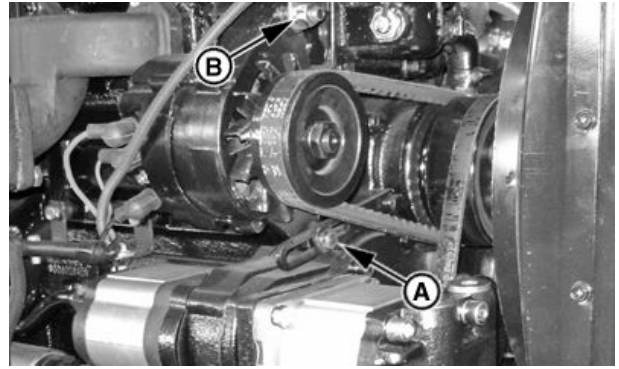
AH98466,0001197 -19-08NOV10-1/1

Alternator/Fan Belt Replacement

1. Loosen tension adjusting cap screw (A) and alternator mounting nut (B). Rotate alternator to free the belt.
2. Remove belt from drive pulley.
3. Belt can be pulled around fan to remove.
4. Install new belt in reverse order of removal.
5. Adjust belt tension. (See Alternator/Fan Belt Adjustment in this section.)

A—Tension Adjusting Cap
Screw

B—Alternator Mounting Nut



PUC5170 —UN—08NOV10

AH98466,0001198 -19-08NOV10-1/1

Battery Access

Battery is located in front of the radiator.
To gain access to the battery, lift up the hood.



PUC5062 —UN—07OCT10

AH98466,000111A -19-06OCT10-1/1

Charge Battery

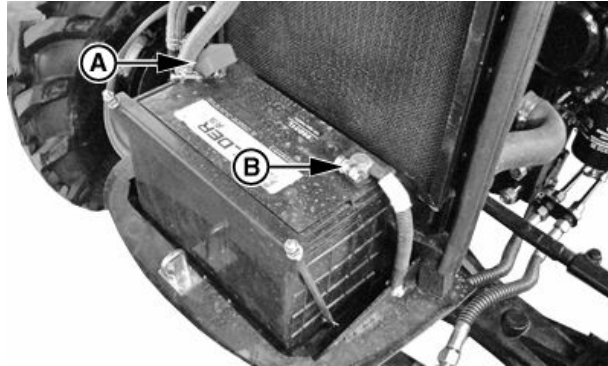
Keep battery fully charged, especially during cold weather.

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

1. With charger OFF, attach positive battery charger lead to positive (+) battery terminal (A). Attach negative charger lead to tractor frame, away from the battery.
2. Turn charger ON and recharge the battery, following battery manufacturer's instructions for using charger. Check battery condition as described below.
3. To disconnect battery charger, turn charger OFF. Remove negative charger lead first, then positive lead.

A—Positive (+) Battery Terminal

B—Negative (–) Battery Terminal



TS204—UN—15APR13

PUC5061—UN—07OCT10

AH98466,000111B -19-06OCT10-1/1

Clean Battery

Service Interval - 50 Hours

To access battery, see procedure in this section.

Put gear shift lever in neutral, lock brake pedals together, and set parking brake.

Push hand throttle all the way forward and allow engine to idle for 1 to 2 min. Turn off the engine.

Wipe battery with a damp cloth. Clean and tighten connections, if needed.



PUC5062—UN—07OCT10

AH98466,000111C -19-06OCT10-1/1

Check Battery Condition

Service Interval - 50 Hours

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.

1. Use a battery hydrometer to check specific gravity of electrolyte in each cell. Charge battery if reading is below 1.215. Replace battery if difference between cells is more than 0.050 or if battery will not charge above 1.225.
2. Always correct specific gravity reading for electrolyte temperature variation. Add 0.004 to the reading obtained in step one for every 10 °F above 80 °F

(add 0.007 to the reading for every 10° above 27 °C). Subtract at same rate if electrolyte temperature is below 80 °F (27 °C). Correct specific gravity of a fully charged battery is 1.265 to 1.280.

3. A battery is considered fully charged when three consecutive hydrometer readings taken at hourly intervals show no rise in specific gravity.



TSS04 —UN—15APR13

JB06590,0000315 -19-03FEB09-1/1

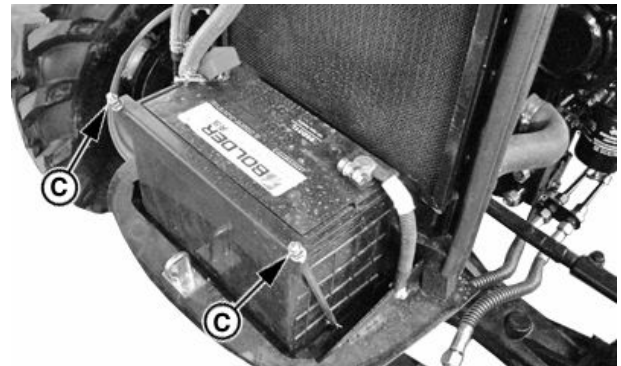
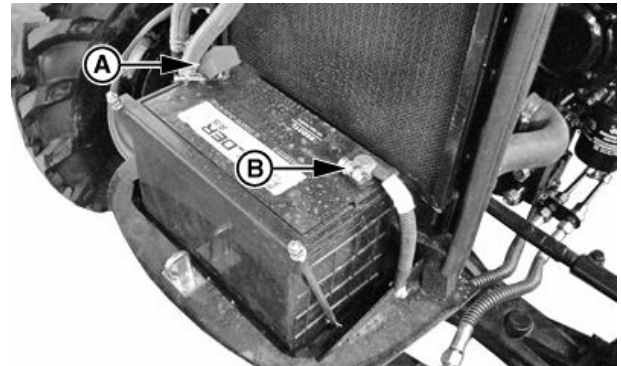
Remove Battery

1. Lift up the hood.

CAUTION: To avoid sparks, disconnect negative (ground) cable first and connect it last.

2. Disconnect negative (—) battery cable, then positive (+) cable.
3. Remove nuts (C) and remove hold-down bracket.
4. Remove battery from machine.

A—Battery Positive (+) Cable C—battery Mounting Nut (2 used)
B—Battery Negative (—) Cable



PUC5061 —UN—07OCT10

PUC5063 —UN—07OCT10

AH98466,000111D -19-06OCT10-1/1

Battery Replacement Specifications

When replacing battery, use John Deere battery or equivalent. See your John Deere dealer.

Specification	
Battery—Volts.....	12 V
Cold Cranking Amps at –18 °C (0 °F)	320 A

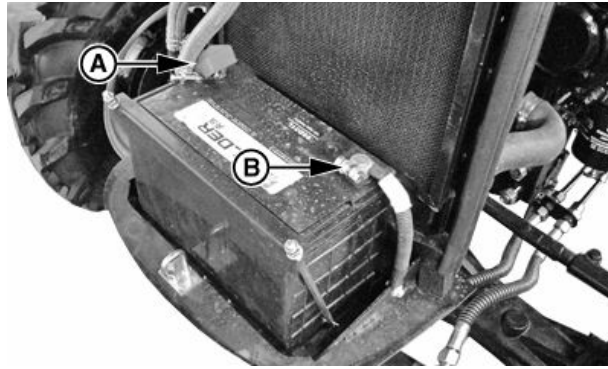
AH98466,0001196 -19-08NOV10-1/1

Service Battery

1. Keep battery clean by wiping with a damp cloth. Keep terminals (A and B) clean and tight. To remove any corrosion, wash terminals with a solution of four parts water to one part baking soda.

CAUTION: To avoid sparks, disconnect negative (ground) cable first and connect it last.

2. Keep battery fully charged, especially during cold weather. If a battery charger is connected, attach positive cable to the positive (+) battery terminal (A). Connect the negative (-) battery charger cable to a good ground on tractor frame.
3. Coat terminals with a small amount of grease.



A—Positive (+) Battery Terminal

B—Negative (−) Battery Terminal

AH98466,000111E -19-06OCT10-1/1

PUC5061—UN—07OCT10

Adjust Headlights

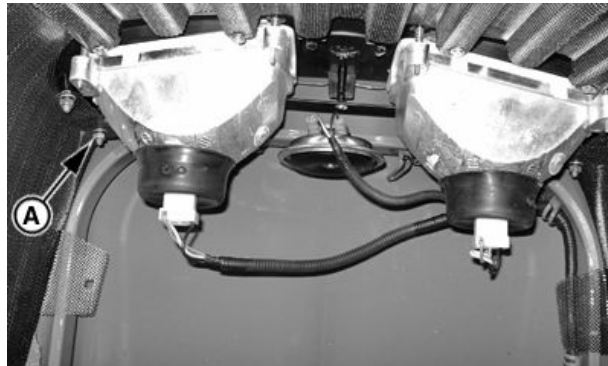
IMPORTANT: Use proper tooling to loosen and fasten the headlight adjusting screw.

1. Lift up the hood.

NOTE: Headlight angle can be set either by loosening or tightening the screw (A). Care should be taken about the number of turns given for loosening or tightening the screws (A).

NOTE: Loose or tight only 1 screw out of 3 screws at a time for left headlight or 1 screw out of 3 screws for right headlight adjustment.

2. Loosen or tighten the headlight adjusting screw (A) and set the headlight angle as required.
3. This method is applicable for both left and right side headlights.



A—Headlight Adjusting Screw (6 used)

AH98466,00011A7 -19-15NOV10-1/1

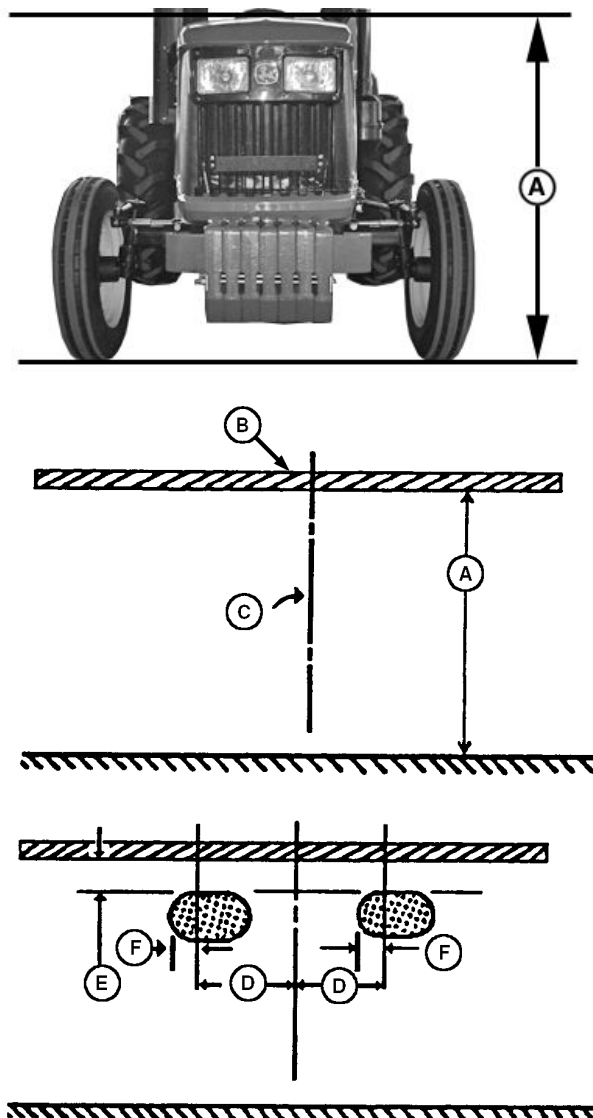
PUC5174—UN—15NOV10

Aiming Headlights

1. Park tractor on level ground, with lights 8 m (25 ft) from a wall.
2. Measure from top of hood to the ground (A). Place a strip of masking tape (B) on the wall at the same height.
3. Place a piece of tape, folded in the middle to make a point, on the top front center of the hood.
4. Using the hood tape as a guide, sight across steering wheel and hood to locate tractor centerline. Mark tractor centerline (C) on wall.
5. From tractor centerline (C), mark a point 130 mm (5 in.) out in each direction (D). This mark locates a point directly in front of each headlight center.
6. Turn light switch to road lights position, then set headlight dimmer switch to low beam.
7. Locate small zone of bright light projected by each lamp. Cover other lamps if necessary. Top of zone (E) should be 130 mm (5 in.) below the tape. Left edge of zone (F) should be 130 mm (5 in.) left of lamp location marked (D).
8. To adjust headlights, see Adjust Headlights, in this section.

A—Hood-to-Ground Distance
B—Masking Tape
C—Tractor Centerline

D—Center of Headlight
E—Top of Zone
F—Left Edge of Zone



PUC5171—UN—08NOV10

LV3020—UN—10JUN99

AH98466,0001199 -19-08NOV10-1/1

Replace Headlight Bulbs

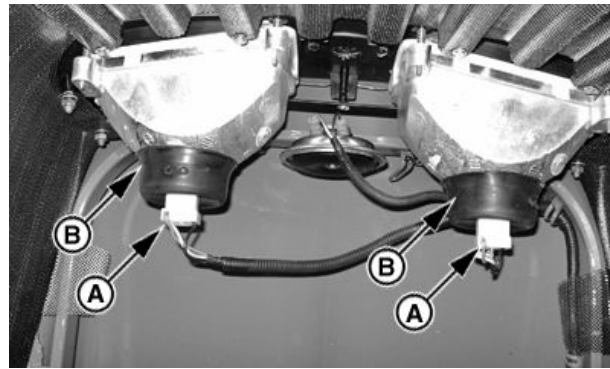
CAUTION: A halogen bulb is pressurized and may shatter. Protect bulb against abrasions and scratches.

To guard against personal injury, wear protective eyeglasses and clothing when handling bulb. Turn power off when installing and before removing bulb. Dispose of bulb with care.

Allow bulb to cool before removing.

Read and follow all bulb manufacturer's installation instructions.

1. Lift up the hood.
2. Disconnect Connectors (A).
3. Remove covers (B) and light assembly.
4. Replace bulb. Install light assembly and covers (B).



A—Connector (2 used)

B—Cover (2 used)

5. Connect connectors (A).

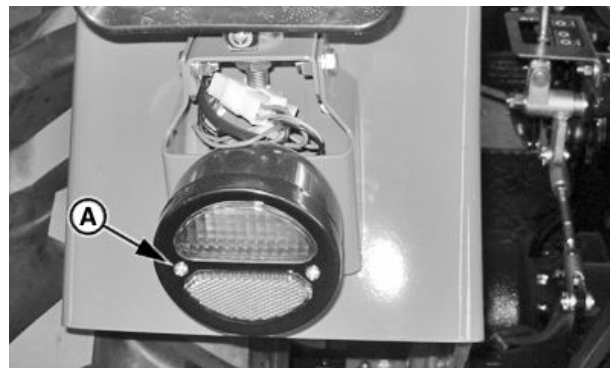
AH98466,0001195 -19-08NOV10-1/1

PUC5168 —UN—08NOV10

Replace Tail Light/Rear Turn Signal/Brake Light Bulbs

1. Remove screws (A) and lens.
2. Remove warning light retainer.
3. Remove tail light retainer.
4. Install new bulbs.
5. Install lens and screws (A).

A—Screw (2 used)



AH98466,000119A -19-08NOV10-1/1

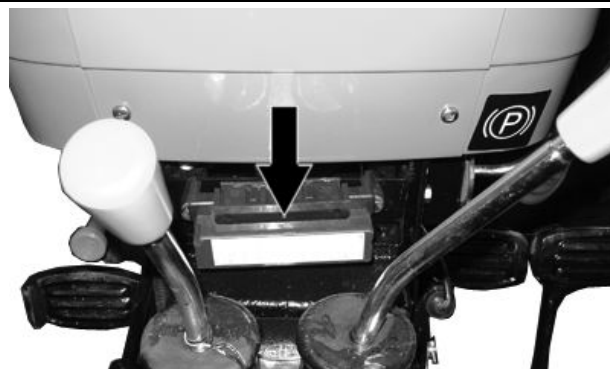
PUC5172 —UN—08NOV10

Locate Fuses

All electrical circuits are protected by fuses. Amperage rating is marked on each fuse, and fuses are color coded to make correct replacement easier.

Fuse Rating	Color
10 A	Yellow/Red
20 A	Red
30 A	Red/Blue

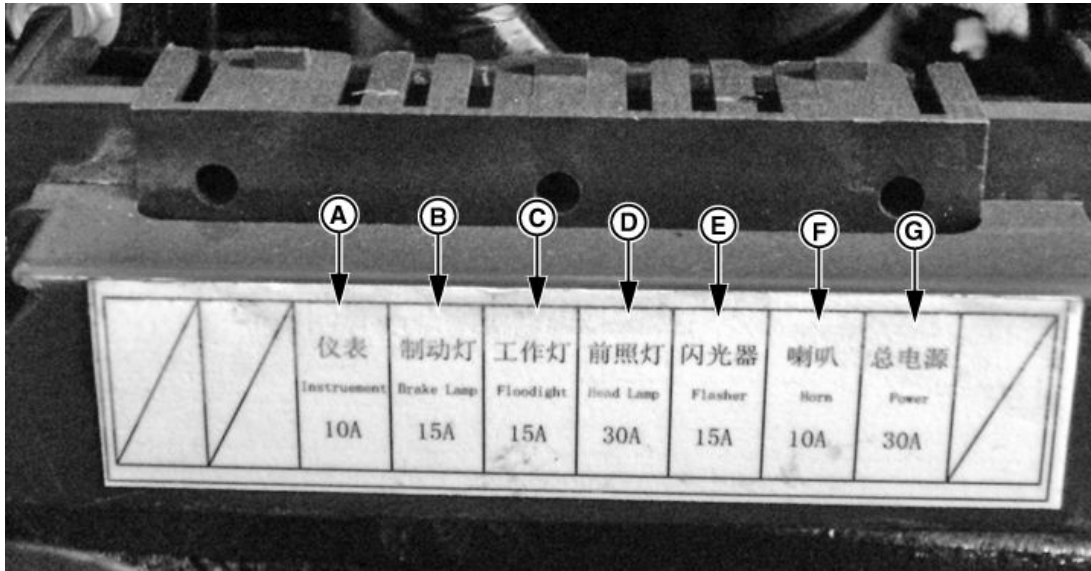
IMPORTANT: DO NOT replace original fuse with higher rated fuse or machine damage may occur. If original size fuse will not carry electrical load and continues to blow, have the electrical system checked by your John Deere dealer.



AH98466,000111F -19-06OCT10-1/1

PUC5064 —UN—07OCT10

Fuse Size and Function



A—10 A—Instrument Fuse
B—15 A—Brake Lamp Fuse

C—15 A—Flood Light Fuse
D—30 A—Head Lamp Fuse

E—15 A—Flasher Fuse
F—10 A—Horn Fuse

G—30 A—Power Fuse

AH98466,0001190 -19-04NOV10-1/1

PUC5167 —UN—04NOV10

Troubleshooting

Transmission Troubleshooting

Symptom	Problem	Solution
Transmission oil overheats	Low oil supply	Fill system with correct oil
	Clogged transmission oil filter	Replace filter
	Internal hydraulic leak	See your John Deere dealer
	Dirty or clogged oil cooler	Clean or flush oil cooler
Low transmission oil pressure	Low oil supply	Fill system with correct oil
	Clogged transmission oil filter	Replace filter
	Failed pressure relief valve	Check valve, replace if necessary
Transmission stuck in neutral or it is hard to shift any gear	Shifter fork distorted	Change shifter fork
	Shifter fork shaft locking spring weak	Change spring
	Wear of gear or spline	Change parts
Clutch slipping	Weak compression spring	Change spring
	Clutch pedal free play is short	Adjust free play
	Clutch fingers not at same level	Adjust clutch fingers
Clutch with vibrating noise	Damaged front clutch bearing	Change bearing
	Worn Parts	Replace worn parts
PTO shaft stops running when main clutch is detached	Clearance between main clutch pressure plate and adjusting nut is too small	Adjust clearance to 1.5±0.05 cm
Oil leakage on clutch housing	Damaged oil seal at engine flywheel end	Change oil seal
Abnormal noise in gearbox	Worn or damaged gearbox bearing or roller bearing	Inspect and change bearings
	Insufficient lubricating oil	Add oil
	Gears not meshing properly	Check module and clearance, See John Deere dealer

JB06590,000031F -19-03FEB09-1/1

Hydraulic System Troubleshooting

Symptom	Problem	Solution
Entire hydraulic system fails to function	Low oil supply	Fill system with correct oil
	Clogged hydraulic filter	Replace filter
	High-pressure internal leak	See your John Deere dealer
	Hydraulic pump not plumbed correctly	See your John Deere dealer
Hydraulic oil overheats	Low oil supply	Fill system with correct oil
	Clogged transmission/hydraulic oil filter	Replace filter
	Internal hydraulic leak	See your John Deere dealer
	Hitch feedback linkage improperly adjusted	Reset linkage. See your John Deere dealer
	Dirty or clogged oil cooler	Clean or flush oil cooler
Can not lower implement	Clogged rate-of-drop valve	Clean valve
Implement vibrates while lifting	Loose oil hose connection	Tighten hoses
	Air in the hydraulic system	Bleed air from the hydraulic system

JB06590,0000320 -19-03FEB09-1/1

Brakes Troubleshooting

Symptom	Problem	Solution
Brake failure	Brake plates or friction disks contaminated	Clean plates and disks
	Brake plates or friction disks worn out	Replace worn parts
	Too large free play	Adjust free play
Tractor deflects while braking	Uneven free play on both pedals	Adjust free play
Can not release brake completely	Brake assembly on one side is contaminated with oil	Clean brake assembly
	Weak return spring	Change spring
	Improper clearance between brake plates and friction disks	Adjust clearance
	Too small free play	Adjust free play
Pedal settles	Rear brake piston seal leaking	See your John Deere dealer
Excessive pedal travel	Pedals adjusted incorrectly	See your John Deere dealer
Brakes drag during transport	Brakes out of adjustment	See your John Deere dealer

JB06590,0000321 -19-03FEB09-1/1

Rockshaft and 3-Point 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 properly adjusted	See implement operator's manual
	Front of center link in upper holes	Move center link to lower holes
	Sway chains adjusted too short	Lengthen sway chains
Hitch drops slowly	Rockshaft rate-of-drop control not properly set	Adjust rate-of-drop control knob
Hitch fails to lift or lifts slowly	Excessive load on hitch	Reduce load
	Low oil level	Fill system with proper oil
	Hydraulic oil too cold	Allow oil to warm
	Transmission/hydraulic oil filter clogged	Replace filter
Implement will not operate at desired depth	Lift links too short	Adjust lift links
	Lack of penetration	See implement operator's manual
	Improper setting of limit stop	Reset limit stop
	Improper setting of draft control lever	See Rockshaft and 3-Point Hitch section
Insufficient or no hitch response to draft load	Front attachment of center link in upper holes	Move center link attachment to lower bracket holes
	Draft control knob in "Min" position	Pull knob upward
	Lift links too short	Adjust lift links
	Lack of penetration	See implement operator's manual
	Rate-of-drop too slow	Adjust rate-of-drop control knob
Hitch too responsive	Front attachment on center link in lower bracket holes	Move center link attachment to upper bracket holes
	Improper draft sensing adjustment	Push knob down

Continued on next page

JB06590,0000322 -19-03FEB09-1/2

Troubleshooting

Symptom	Problem	Solution
Hitch drops too fast	Rate-of-drop set too fast	Adjust rate-of-drop control knob
Rockshaft control levers “drift” Levers too loose	Friction disks are loose	Adjust rockshaft control lever friction. See procedures in “Rockshaft and 3-Point Hitch” section or see your John Deere dealer

JB06590,0000322 -19-03FEB09-2/2

Electrical System Troubleshooting

Symptom	Problem	Solution
Battery will not charge	Loose or corroded connections	Clean and tighten connections
	Sulfated or worn-out battery	Check electrolyte level and specific gravity
	Loose or defective alternator/fan belt	Adjust belt tension or replace belt
Charging system indicator glows with engine running	Low engine speed	Increase speed
	Defective battery	Check electrolyte level and specific gravity
	Defective alternator	See your John Deere dealer
	Slipping alternator/fan belt	Adjust belt tension
Starter inoperative	Shift lever in gear	Move shift lever to neutral
	PTO lever in engaged position	Move PTO lever to neutral position
	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 proper viscosity oil
	Loose or corroded connections	Clean and tighten battery connection
Light system does not function; rest of electrical system functions Entire electrical system does not function	Blown fuse	Replace fuse
	Fusible link blown	See your John Deere dealer
	Faulty battery connections	Clean and tighten connections
	Sulfated or worn-out battery	Check electrolyte level and specific gravity
	Blown fuse	Replace fuse
Relays sticking or nonfunctional; repeated failures	Failed diodes	See your John Deere dealer
High temperature of battery	Short circuit between pole-piece of battery	Remove deposits, change clamps
	Charging current too large	Inspect and adjust alternator, adjust electrolyte level
Alternator output current is not stable	Weak spring pressure/contact of carbon brush	Repair or change alternator

Continued on next page

JB06590,0000323 -19-03FEB09-1/2

Troubleshooting

Symptom	Problem	Solution
Abnormal noise in alternator	Loose terminals	Tighten the terminals
	Alternator bearing damaged	Change the bearing
	Rotor touched with stator or other material	Adjust to correct positions

JB06590,0000323 -19-03FEB09-2/2

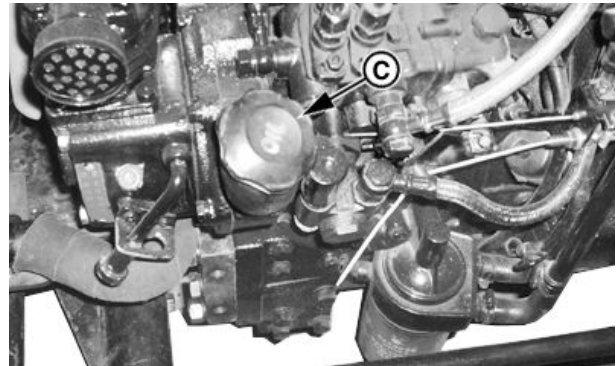
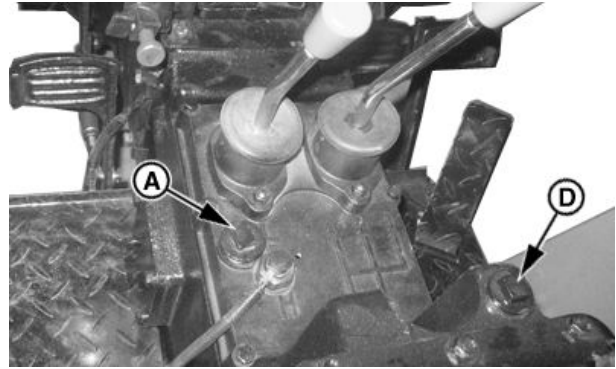
Storage

Tractor Storage

IMPORTANT: Any time tractor will not be used for several months, use this procedure to minimize corrosion and deterioration.

1. Service air cleaner. (See Service Air Cleaner, in General Maintenance and Inspection section.)
2. If coolant has been in tractor for 2 years, flush cooling system. (See Flush Cooling System, in Maintenance - Cooling System section.) Add 50 percent antifreeze water mixture. Test coolant for adequate cold weather protection.
3. Change engine oil and filter. (See Change Engine Oil and Filter, in Lubrication section.)
4. Drain fuel and add back 4 L (1 gal.) of fuel. Then add 0.4 L (12 oz.) of corrosion inhibitor.
5. Remove transmission oil dipstick (A) and hydraulic oil dipstick (D). Add 0.25 L (8.45 oz.) of corrosion inhibitor through the hole to transmission and hydraulic system.
6. Depress clutch and start engine. Run engine until it reaches operating temperature. Also raise and lower rockshaft several times. Shut off engine.
7. Remove filler cap (B) and add 0.5 L (16 oz.) inhibitor to fuel tank.
8. Remove filler cap (C) and add 0.5 L (16 oz.) inhibitor to engine crankcase.
9. Remove air intake hose at manifold. Pour 0.1 L (3 oz.) inhibitor into manifold and replace hose. Push hand throttle forward to slow idle position. Crank engine only a few revolutions.
10. Loosen alternator/fan belt after it has cooled.
11. Remove and clean battery. Store in a cool, dry place. Keep it charged.¹
12. Tie or block clutch pedal in the disengaged position.
13. Coat exposed metal surfaces such as adjustable front axles, if they are extended, with grease or a corrosion inhibitor.
14. Use tape to seal exhaust pipe, crankcase filler/aspirator, fuel cap, and transmission/hydraulic system filler/cap.
15. Cover dash panel with opaque material to prevent gauges from fading.
16. Raise tires off ground. Protect them from heat and sunlight.

¹Disconnect battery ground cable for short-term storage periods (20 to 90 days).



A—Transmission Oil Level Dipstick
B—Fuel Tank Filler Cap

C—Engine Oil Filler Cap
D—Hydraulic Oil Level Dipstick

17. Thoroughly clean tractor. Touch up any painted surfaces that are scratched or chipped.
18. If tractor must be stored outside, cover it with a waterproof material.

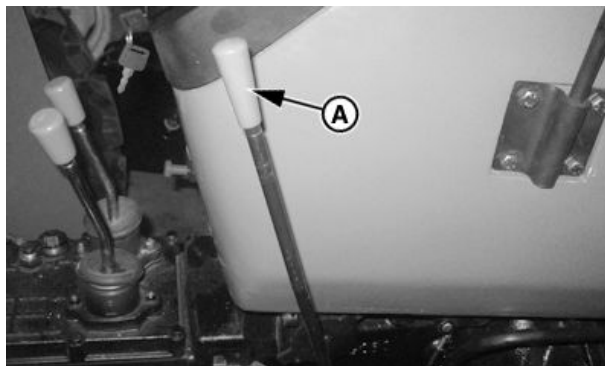
AH98466,0001120 -19-08OCT10-1/1

Remove Tractor From Storage

1. Check tire inflation pressure. (See Wheels, Tires and Treads section.) Lower tires to ground.
2. Unseal all openings sealed in Tractor Storage. (See Tractor Storage in this section.)
3. Install battery.
4. Remove ties or block which secured clutch pedal down.
5. Check levels of engine oil, transmission/hydraulic oil, and engine coolant. Add fluids as needed.
6. Drain a small amount of fuel from fuel tank to purge any moisture condensation that has collected.
7. Fill fuel tank.
8. Perform all appropriate services listed in Maintenance and Service Intervals section, as dictated by elapsed storage period.
9. Check instruments and indicators by turning key switch to RUN position.

IMPORTANT: DO NOT operate starter more than 20 sec. at a time, and wait at least 2 min. for starter to cool before trying again.

10. Push hand throttle (A) forward, depress clutch pedal, make sure that gear shift lever is in neutral position, and PTO control lever is in disengaged position.



A—Hand Throttle

11. Start engine. Operate engine at slow idle for several minutes. Wait until engine reaches operating temperature and check all systems before placing tractor under load.

PUC2880 —UN—02MAR10

JB06590,0000876 -19-03MAR10-1/1

Specifications

2wd Tractor Specifications

NOTE: Specifications and design subject to change without notice.

General Specifications								
Tractor Model		280		300		320		B350
Type		2wd						
Overall Dimension	Length (with hitch)	2870 (mm) 109.45 (in.)						3510 (mm) 138.19 (in.)
	Width (to outer edge of rear wheel)	1460 (mm) (with 3 ballasts) 57.48 (in.) (with 3 ballasts)		1500 (mm) 59.06 (in.)				
	Height (top of exhaust pipe)	1950 (mm) 76.77 (in.)		2030 (mm) 79.92 (in.)				
	Height (top of steering wheel)	1375 (mm) 54.13 (in.)		1405 (mm) 55.31 (in.)				
Tread	Front Wheel (factory state)	1150—1450 (1150) (mm) 45.28—57.09 (45.28) (in.)		1190—1490 (1190) (mm) 46.85—58.66 (46.85) (in.)				
	Rear Drive Wheel (factory state)	1200—1400 (1200) (mm) 47.24—55.12 (47.24) (in.)		1230—1430 (1230) (mm) 48.43—56.30 (48.43) (in.)				
Wheelbase		1570 (mm) 61.81 (in.)						
Min Ground Clearance		315 (mm) 12.40 (in.)		345 (mm) 13.58 (in.)				
Weight	Structure	1175 (kg) 2590 (lb.)		1215 (kg) 2679 (lb.)		1225 (kg) 2701 (lb.)		
	Min usage	1320 (kg) 2910 (lb.)		1360 (kg) 2998 (lb.)		1370 (kg) 3020 (lb.)		
Weight Distribution (%)	Front Wheel	40						
	Rear Drive Wheel	60						
Ballast Weight	Front Ballast	Optional: 91 or 104 (kg) Optional: 201 or 229 (lb.)						104 (kg) 229 (lb.)
	Rear Ballast	Standard: 80 (kg) Standard: 176 (lb.) Optional: 0 or 160 or 240 (kg) Optional: 0 or 353 or 529 (lb.)						Standard: 160 (kg) Standard: 353 (lb.) Optional: 0 or 80 or 240 (kg) Optional: 0 or 176 or 529 (lb.)
Theoretical Ground Speed								
Rear Tire Model		9.5—24		11.2—24				
		Signal Clutch	Dual Clutch	Signal Clutch	Dual Clutch	Signal Clutch	Dual Clutch	Signal Clutch (not acceleration)
L1		1.56 (km/h) 0.97 (mph)	1.86 (km/h) 1.56 (mph)	1.64 (km/h) 1.02 (mph)	1.92 (km/h) 1.19 (mph)	1.64 (km/h) 1.02 (mph)	1.92 (km/h) 1.19 (mph)	1.67 (1.94) (km/h) 1.04 (1.21) (mph)
L2		1.96 (km/h) 1.22 (mph)	2.49 (km/h) 1.55 (mph)	2.07 (km/h) 1.29 (mph)	2.58 (km/h) 1.60 (mph)	2.07 (km/h) 1.29 (mph)	2.58 (km/h) 1.60 (mph)	2.11 (2.45) (km/h) 1.30 (1.52) (mph)
L3		3.20 (km/h) 1.99 (mph)	3.49 (km/h) 2.17 (mph)	3.37 (km/h) 2.09 (mph)	3.62 (km/h) 2.25 (mph)	3.36 (km/h) 2.09 (mph)	3.62 (km/h) 2.25 (mph)	3.44 (3.99) (km/h) 2.14 (2.48) (mph)
L4		6.21 (km/h) 3.86 (mph)	5.17 (km/h) 3.21 (mph)	6.53 (km/h) 4.06 (mph)	5.37 (km/h) 3.34 (mph)	6.53 (km/h) 4.06 (mph)	5.37 (km/h) 3.34 (mph)	6.67 (6.30) (km/h) 4.14 (3.91) (mph)
H1		7.18 (km/h) 4.46 (mph)	8.56 (km/h) 5.32 (mph)	7.55 (km/h) 4.69 (mph)	8.89 (km/h) 5.52 (mph)	7.55 (km/h) 4.69 (mph)	8.89 (km/h) 5.52 (mph)	7.71 (7.76) (km/h) 4.79 (4.82) (mph)

Continued on next page

CP00834.0001692 -19-19DEC14-1/4

Specifications

H2	9.06 (km/h) 5.63 (mph)	11.44 (km/h) 7.11 (mph)	9.54 (km/h) 5.93 (mph)	11.89 (km/h) 7.39 (mph)	9.53 (km/h) 5.92 (mph)	11.89 (km/h) 7.39 (mph)	9.74 (9.78) (km/h) 6.05 (6.08) (mph)
H3	14.75 (km/h) 9.17 (mph)	16.05 (km/h) 9.97 (mph)	15.53 (km/h) 9.65 (mph)	16.67 (km/h) 10.36 (mph)	15.52 (km/h) 9.64 (mph)	16.67 (km/h) 10.36 (mph)	15.85 (15.93) (km/h) 9.85 (9.90) (mph)
H4	28.64 (km/h) 17.80 (mph)	23.84 (km/h) 14.81 (mph)	30.14 (km/h) 18.73 (mph)	24.76 (km/h) 15.39 (mph)	30.13 (km/h) 18.72 (mph)	24.76 (km/h) 15.39 (mph)	30.77 (25.25) (km/h) 19.12 (15.69) (mph)
RL	1.45 (km/h) 0.90 (mph)	1.76 (km/h) 1.09 (mph)	1.53 (km/h) 0.95 (mph)	1.82 (km/h) 1.13 (mph)	1.53 (km/h) 0.95 (mph)	1.82 (km/h) 1.13 (mph)	1.56 (1.81) (km/h) 0.97 (1.12) (mph)
RH	6.7 (km/h) 4.16 (mph)	8.10 (km/h) 5.03 (mph)	7.05 (km/h) 4.38 (mph)	8.40 (km/h) 5.22 (mph)	7.05 (km/h) 4.38 (mph)	8.40 (km/h) 5.22 (mph)	7.20 (7.23) (km/h) 4.47 (4.49) (mph)

NOTE: Structure weight—oil, water, ballast and 75 kg (165 lb.) operator are not included.

Front ballast weight—13 kg (29 lb.) each.

Min usage weight—structure+oil, water and 75 kg (165 lb.) operator.

Rear ballast weight—40 kg (88 lb.) each.

Engine				
Tractor Model	280	300	320	B350
Engine Model	SL2105ABT-27	SL2108ABT-2	SL2108ABT-21	SL2110ABT-2
Type	Vertical, water cooled, four stroke, direct injection			
Aspiration	Natural			
Cylinders*Bore*Stroke (mm)	2*105*117	2*108*117		2*110*117
Displacement (L)	2.026	2.114		2.224
12h Engine Power at rated rpm kw (hp)	20.6 (28.02)	22.1 (30.06)	23.5 (31.96)	25.7 (34.95)
Rated Speed (rpm)	2200		2350	2400
Max Torque (N•m)	≥104.6	≥112.2	≥111.7	≥119.6
Speed at Max Torque (rpm)	1500—1725	1500—1680		1600—1800
Slow Idle (rpm)	750±30			
High Idle (rpm)	≤2376		≤2538	≤2592
Rated Fuel Consumption	≤258 (GB 20891-2007)			
Emission	Stage II (GB 20891-2007)			

Transmission				
Tractor Model	280	300	320	B350
Connection Type	Direct transmission			
Clutch	Standard: dry type, often jointing, single plate, non independent, single clutch Option: dry type often jointing, single plate, semi independent, dual clutch			
Coupling Type	Standard (single clutch): Nylon tooth type Optional (dual clutch): Ball type			
Transmission Type	Complex (4+1)*2, 8 gears forward, 2 gears reverse, spur gear, sliding gear shift			
Middle Drive	Spiral bevel gear pair, Ratio: 4.3	Spiral bevel gear pair, Ratio: 5.375		
Differential	Closed, 2 planet spur bevel gears type			
Final Drive	Built-in single external spur gear type, Ratio: 4.077		Built-in single external spur gear type, Ratio: 4.357	

Walking System, Steering, Brake				
Tractor Model	280	300	320	B350
Walking system				
Bracket	Without bracket			
Front Axle	Adjustable tread, U type, Telescopic pipe type			

Continued on next page

CP00834,0001692 -19-19DEC14-2/4

Specifications

Tire Specification	Front Wheel	4.00—16 (optional 5.00—15)	5.00—15
	Rear Drive Wheel	9.5—24 (optional 11.2—24) (optional 9.5—24 Paddy field tire)	11.2—24 (optional 9.5—24 Paddy field tire)
Tire Pressure (kpa)	Front Wheel	275—330	165—220
	Rear Drive Wheel	80—120	
Front Wheel Alignment	Toe-In (mm)	3—11	
	Camber angle	2°	
	Steering knuckle shaft inclination angle	8°	
	Steering knuckle shaft caster	0°	
Steering			
Steering Gear Type		Mechanical, Globoid worm, Roller type	
Steering trapezoid type		Prefix	
Steering Wheel Diameter (mm)		406	
Steering Column Angle		60°	
Front Wheel Max Steering Lock		45°	
Brake			
Service Brake		Dry type, Shoe type, Automatic compensation wear gap, Mechanical actuated	
Parking Brake		Locking pedal type	

Working Device				
Tractor Model	280	300	320	B350
Hydraulic Hitch				
Type	Open, Semi independent			
Tilling Depth Control	Draft Control, Position Control, Float Control			
Hydraulic Pump	CBN-L310 or CBN-E310BLB			
Pump Flow (Engine Speed) (L/min)	18 (2200 r/min)		19.2 (2350 r/min)	19.6 (2400 r/min)
Cylinder Diameter*Stroke (mm)	80*101			
Rated Pressure (Mpa)	16			
Max Pressure (Mpa)	17—18			
Max Output Power (kw)	5.1		5.44	5.55
Hitch	Postfix, Class one			
PTO				
Type	Single Clutch: Postfix, Non Independent, Sliding Gear Shift Double Clutch: Postfix, Semi Independent, Sliding Gear Shift			
Speed (r/min) (ratio)	Standard: 540 (13/48), 720 (16/45) Optional: 540, 1000 (21/42)			
Shaft Diameter (mm)	Standard: 38, 8 teeth Rectangle Spline Shaft Optional: 35, 6 teeth Rectangle Spline Shaft			
Rotation Direction	Clockwise (from back)			
Draw Device				
Type	Pendulum			
Drawbar Pin Diameter (mm)	33			
Hitch Device				
Type	U-Type Hook			
Hook Pin Diameter (mm)	33			

Electrical System				
Tractor Model	280	300	320	B350
Type	12V, Negative Gtound			
Battery	95D31L, 12V, 85Ah			

Continued on next page

CP00834,0001692 -19-19DEC14-3/4

Specifications

Starter	QDJ1308L, 12V, 3kw
Alternator	JFWZ13, 14V, 350W
Headlight	12V, 55W/60W, Two Pieces
Front Turn Light	12V, 21W, Two Pieces
Front Signal Light	12V, 10W, Two Pieces
Rear turn light	12V, 21W, Two Pieces
Rear Signal Light	12W, 5W, Two Pieces
Brake Lamp	12V, 21W, Two Pieces
Reflector	Red, Two Pieces
Flood Light	12V, 35W, One Piece
Horn	DL124B, 12V, 3.5A, 105dB (A)
Instrument	Coolant Temperature Gauge, Indicator Gauge (Turn, Engine Oil Pressure Low Pressure Warning, Headlight, Charge Indicator Light, Air Brake Low Pressure Warning)

Option Attachment				
Tractor Model	280	300	320	B350
ROPS	Two Column Folding			
Canopy ROPS				
Trailer Brake Device				
Type	Air Brake, Air Charging Brake			
Gas Tank Capacity (L)	18			
Brake Valve Working Pressure (kpa)	≥400			
Relief Valve Opening Pressure (kpa)	700—800			

CP00834,0001692 -19-19DEC14-4/4

MFWD Tractor Specifications

NOTE: Specifications and design subject to change without notice.

General Specifications									
Tractor Model		284		304		324		2C-354	
Type		MFWD							
Overall Dimension	Length (with hitch)	2870 (mm) 109.45 (in.)							
	Width (to outer edge of rear wheel)	1460 (mm) (with 3 ballasts) 57.48 (in.) (with 3 ballasts)		1500 (mm) 59.06 (in.)					
	Height (top of exhaust pipe)	2010 (mm) 79.13 (in.)		2050 (mm) 80.71 (in.)					
	Height (top of steering wheel)	1375 (mm) 54.13 (in.)		1405 (mm) 55.31 (in.)					
Tread	Front Wheel	1200 (Optional 1300) (mm) 47.24 (Optional 51.18) (in.)							
	Rear Drive Wheel (factory state)	1200—1400 (1200) (mm) 47.24—55.12 (47.24) (in.)		1230—1430 (1230) (mm) 48.43—56.30 (48.43) (in.)					
Wheelbase		1627 (mm) 64.06 (in.)							
Min Ground Clearance		260 (mm) 10.24 (in.)		250 (mm) 9.84 (in.)					
Weight	Structure	1345 (kg) 2965 (lb.)		1385 (kg) 3053 (lb.)					
	Min usage	1500 (kg) 3307 (lb.)		1540 (kg) 3395 (lb.)					
Weight Distribution (%)	Front Wheel	45							
	Rear Drive Wheel	55							
Ballast Weight	Front Ballast	Optional: 91 or 104 (kg) Optional: 201 or 229 (lb.)							
	Rear Ballast	Standard: 80 (kg) Standard: 176 (lb.) Optional: 0 or 160 or 240 (kg) Optional: 0 or 353 or 529 (lb.)							
Theoretical Ground Speed (km/h) (Dual Clutch)									
Rear Tire Model		9.5—24		11.2—24					
		Signal Clutch	Dual Clutch	Signal Clutch	Dual Clutch	Signal Clutch	Dual Clutch	Signal Clutch	Dual Clutch
L1		1.56 (km/h) 0.97 (mph)	1.86 (km/h) 1.56 (mph)	1.64 (km/h) 1.02 (mph)	1.92 (km/h) 1.19 (mph)	1.64 (km/h) 1.02 (mph)	1.92 (km/h) 1.19 (mph)	1.67 (km/h) 1.04 (mph)	1.92 (km/h) 1.19 (mph)
L2		1.96 (km/h) 1.22 (mph)	2.49 (km/h) 1.55 (mph)	2.07 (km/h) 1.29 (mph)	2.58 (km/h) 1.60 (mph)	2.07 (km/h) 1.29 (mph)	2.58 (km/h) 1.60 (mph)	2.11 (km/h) 1.31 (mph)	2.58 (km/h) 1.60 (mph)
L3		3.20 (km/h) 1.99 (mph)	3.49 (km/h) 2.17 (mph)	3.37 (km/h) 2.09 (mph)	3.62 (km/h) 2.25 (mph)	3.36 (km/h) 2.09 (mph)	3.62 (km/h) 2.25 (mph)	3.44 (km/h) 2.14 (mph)	3.62 (km/h) 2.25 (mph)
L4		6.21 (km/h) 3.86 (mph)	5.17 (km/h) 3.21 (mph)	6.53 (km/h) 4.06 (mph)	5.37 (km/h) 3.34 (mph)	6.53 (km/h) 4.06 (mph)	5.37 (km/h) 3.34 (mph)	6.67 (km/h) 4.14 (mph)	5.37 (km/h) 3.34 (mph)
H1		7.18 (km/h) 4.46 (mph)	8.56 (km/h) 5.32 (mph)	7.55 (km/h) 4.69 (mph)	8.89 (km/h) 5.52 (mph)	7.55 (km/h) 4.69 (mph)	8.89 (km/h) 5.52 (mph)	7.71 (km/h) 4.79 (mph)	8.89 (km/h) 5.52 (mph)
H2		9.06 (km/h) 5.63 (mph)	11.44 (km/h) 7.11 (mph)	9.54 (km/h) 5.93 (mph)	11.89 (km/h) 7.39 (mph)	9.53 (km/h) 5.92 (mph)	11.89 (km/h) 7.39 (mph)	9.74 (km/h) 6.05 (mph)	11.89 (km/h) 7.39 (mph)

Continued on next page

CP00834.00016E1 -19-13JAN15-1/4

Specifications

H3	14.75 (km/h) 9.17 (mph)	16.05 (km/h) 9.97 (mph)	15.53 (km/h) 9.65 (mph)	16.67 (km/h) 10.36 (mph)	15.52 (km/h) 9.64 (mph)	16.67 (km/h) 10.36 (mph)	15.85 (km/h) 9.85 (mph)	16.67 (km/h) 10.36 (mph)
H4	28.64 (km/h) 17.80 (mph)	23.84 (km/h) 14.81 (mph)	30.14 (km/h) 18.73 (mph)	24.76 (km/h) 15.39 (mph)	30.13 (km/h) 18.72 (mph)	24.76 (km/h) 15.39 (mph)	30.77 (km/h) 19.12 (mph)	24.76 (km/h) 15.39 (mph)
RL	1.45 (km/h) 0.90 (mph)	1.76 (km/h) 1.09 (mph)	1.53 (km/h) 0.95 (mph)	1.82 (km/h) 1.13 (mph)	1.53 (km/h) 0.95 (mph)	1.82 (km/h) 1.13 (mph)	1.56 (km/h) 0.97 (mph)	1.82 (km/h) 1.13 (mph)
RH	6.7 (km/h) 4.16 (mph)	8.10 (km/h) 5.03 (mph)	7.05 (km/h) 4.38 (mph)	8.40 (km/h) 5.22 (mph)	7.05 (km/h) 4.38 (mph)	8.40 (km/h) 5.22 (mph)	7.20 (km/h) 4.47 (mph)	8.40 (km/h) 5.22 (mph)

NOTE: Structure weight—oil, water, ballast and 75 kg (165 lb.) operator are not included.

Front ballast weight—13 kg (29 lb.) each.

Min usage weight—structure+oil, water and 75 kg (165 lb.) operator.

Rear ballast weight—40 kg (88 lb.) each.

Engine				
Tractor Model	284	304	324	2C-354
Engine Model	SL2105ABT-27	SL2108ABT-2	SL2108ABT-21	SL2110ABT-2
Type	Vertical, water cooled, four stroke, direct injection			
Aspiration	Natural			
Cylinders*Bore*Stroke (mm)	2*105*117	2*108*117		2*110*117
Displacement (L)	2.026	2.114		2.224
12h Engine Power at rated rpm kw (hp)	20.6 (28.01)	22.1 (30.05)	23.5 (31.95)	25.7 (34.94)
Rated Speed (rpm)	2200		2350	2400
Max Torque (N•m)	≥104.6	≥112.2	≥111.7	≥119.6
Speed at Max Torque (rpm)	1500—1725	1500—1680		1600—1800
Slow Idle (rpm)	750±30			
High Idle (rpm)	≤2376		≤2538	≤2592
Rated Fuel Consumption	≤258 (GB 20891-2007)			
Emission	Stage II (GB 20891-2007)			

Transmission				
Tractor Model	284	304	324	2C-354
Connection Type	Direct Transmission			
Clutch	Standard: dry type, often jointing, single plate, non independent, single clutch Option: dry type often jointing, single plate, semi independent, dual clutch			
Coupling Type	Standard (single clutch): Nylon tooth type Optional (dual clutch): Ball type			
Transmission Type	Complex (4+1)*2, 8 gears forward, 2 gears reverse, spur gear, sliding gear shift			
Main Drive	Spiral bevel gear pair, Ratio: 5.375			
Differential	Closed, 2 planet spur bevel gears			
Final Drive	Built-in single external spur gear, Ratio: 4.077		Built-in single external spur gear, Ratio: 4.357	
Front Drive Axle				
Front Drive Transmission Shaft	Central-positioned			
Front Middle Drive	Spiral bevel gear pair, Ratio: 3.875			
Front Differential	Closed, 2 planet spur bevel gears type			
Front Final Drive	Double spiral bevel gear type, Ratio: 4.2			
MFWD	Spur Gear Type with combine and separation, Ratio: 0.926			

Walking System, Steering, Brake				
Tractor Model	284	304	324	2C-354
Walking system				

Continued on next page

CP00834,00016E1 -19-13JAN15-2/4

Specifications

Bracket		Without bracket		
Front Axle		Fixed		
Tire Specification	Front Wheel	6.0—16 (optional 6.5—16 Paddy field tire)		
	Rear Drive Wheel	9.5—24 (optional 11.2—24 Paddy field tire) (optional 9.5—24 Paddy field tire)	11.2—24 (optional 9.5—24 Paddy field tire) (optional 11.2—24 Paddy field tire)	
Tire Pressure (kpa)	Front Wheel	120—160		
	Rear Drive Wheel	80—120		
Front Wheel Alignment	Toe-In (mm)	3—11		
	Camber angle	3°		
	Steering knuckle shaft inclination angle	8°		
	Steering knuckle shaft caster	0°		
Steering				
Steering Gear Type		Hydraulic Steering, Open, Spool Valve, Cycloid, No Reaction		
Steering trapezoid type		Postfix		
Steering Wheel Diameter (mm)		406		
Steering Column Angle		73.5°		
Front Wheel Max Steering Lock		45°		
Hydraulic Steering	Model	BZZ1-E80C Hydraulic Steering		
	Rated Displacement (ml)	80		
Steering Pump	Model	CBT-E306HL062BR		
	Rated Displacement (ml)	6		
	Constant Flow (L/min)	6		
	Rated Pressure (Mpa)	10		
	Relief Valve Set Pressure (Mpa)	12.5±0.5		
Steering Cylinder Diameter (mm)		40		
Steering Cylinder Stroke (mm)		146		
Brake				
Service Brake		Dry type, Shoe type, Automatic compensation wear gap, Mechanical actuated		
Parking Brake		Locking pedal type		
Working Device				
Tractor Model	284	304	324	2C-354
Hydraulic Hitch				
Type	Open, Semi independent			
Tilling Depth Control	Draft Control, Position Control, Float Control			
Hydraulic Pump	CBN-L310 or CBN-E310BLB			
Pump Flow (Engine Speed) (L/min)	18 (2200 r/min)		19.2 (2350 r/min)	19.6 (2400 r/min)
Cylinder Diameter*Stroke (mm)	80*101			
Rated Pressure (Mpa)	16			
Max Pressure (Mpa)	17—18			
Max Output Power (kw)	5.1		5.44	5.55
Hitch	Postfix, Class one			
PTO				
Type	Single Clutch: Postfix, Non Independent, Sliding Gear Shift Double Clutch: Postfix, Semi Independent, Sliding Gear Shift			
Speed (r/min) (ratio)	Standard: 540 (13/48), 720 (16/45) Optional: 540, 1000 (21/42)			

Continued on next page

CP00834,00016E1-19-13JAN15-3/4

Continued on next page

CP00834;00016E1-19-13JAN15-3/4

Specifications

Shaft Diameter (mm)	Standard: 38, 8 teeth Rectangle Spline Shaft Optional: 35, 6 teeth Rectangle Spline Shaft
Rotation Direction	Clockwise (from back)
Draw Device	
Type	Pendulum
Drawbar Pin Diameter (mm)	33
Hitch Device	
Type	U-Type Hook
Hook Pin Diameter (mm)	33

Electrical System				
Tractor Model	284	304	324	2C-354
Type	12V, Negative Ground			
Battery	95D31L, 12V, 85Ah			
Starter	QDJ1308L, 12V, 3kw			
Alternator	JFWZ13, 14V, 350W			
Headlight	12V, 55W/60W, Two Pieces			
Front Turn Light	12V, 21W, Two Pieces			
Front Signal Light	12V, 10W, Two Pieces			
Rear turn light	12V, 21W, Two Pieces			
Rear Signal Light	12W, 5W, Two Pieces			
Brake Lamp	12V, 21W, Two Pieces			
Reflector	Red, Two Pieces			
Flood Light	12V, 35W, One Piece			
Horn	DL124B, 12V, 3.5A, 105dB (A)			
Instrument	Coolant Temperature Gauge, Indicator Gauge (Turn, Engine Oil Pressure Low Pressure Warning, Headlight, Charge Indicator Light, Air Brake Low Pressure Warning)			

Option Attachment				
Tractor Model	284	304	324	2C-354
ROPS	Two Column Folding			
Canopy ROPS				
Trailer Brake Device				
Type	Air Brake, Air Charging Brake			
Gas Tank Capacity (L)	18			
Brake Valve Working Pressure (kpa)	≥400			
Relief Valve Opening Pressure (kpa)	700—800			

CP00834,00016E1 -19-13JAN15-4/4

Max Force

Operation Device		Max Force (N)
Brake	Pedal	≤600
Single Clutch		≤350
Dual Clutch		≤400
Mechanical Steering	Steering Wheel	≤250
Hydraulic Steering		≤30
Hydraulic Steering Failure		≤400
Hydraulic Rockshaft	Handle	≤70

CP00834,00016E5 -19-11DEC14-1/1

Specifications

Min Turning Radius

Model	Item	
	Not use unilateral braking (m)	Use unilateral braking (m)
280	3.0	2.7
284	3.8	2.8
300	3.5	3.0
304	4.0	3.3
320	3.5	3.0
324	4.0	3.3
B350	3.5	3.0
2C-354	4.0	3.3

CP00834,00016D7 -19-09JAN15-1/1

PTO Performance

Item	Model			
	280/284	300/304	320/324	B350/2C-354
Max Output Power (Rated Engine Speed) kw	≥17.7	≥18.9	≥20.2	≥22.1
Average Fuel Consumption Ration in Different Load (g/kw•h)	≤350			
Torque Reserve Ratio (%)	≥15			
Speed (Max Torque) / Rated Speed (%)	≤75			

CP00834,00016D8 -19-09JAN15-1/1

Draw Performance

Model	Item			
	Max Draw Force (kN)	Max Draw Power (kw)	Draw Fuel Consumption (Max Draw Power) (g/kw·h)	Front / Rear Ballast (kg)
280	≥8.25	≥15.5	≤340	0 / 240
284	≥9.75			0 / 240
300	≥9	≥16.5		0 / 240
304	≥11.25			0 / 240
320	≥9.5	≥17.3		0 / 240
324	≥12			0 / 240
B350	≥9.75	≥19.3		104 / 240
2C-354	≥12	≥17.3		0 / 240

NOTE: Max draw force is obtained in the listed front and rear ballast.

CP00834,00016D9 -19-09JAN15-1/1

Specifications

Hydraulic Hitch Performance

Model	Item		
	Max Lift Force (Down Suspension Point 610 mm) (kN)	Lift Stroke (Down Suspension Point) (mm)	Static sedimentation value in 30 min (mm)
280	≥5.79	≥610	≤4% of lift stroke at load point
284			
300			
304			
320			
324			
B350			
2C-354			

CP00834,00016DA -19-09JAN15-1/1

Drain and Refill Capacities

Number	Position	Season	Name and Specifications	Capacity
1	Fuel Tank	Summer	0# Ordinary Diesel GB 252-2011	40 (L) 10.57 (gal.)
		Winter	-10# or 0# Ordinary Diesel GB 252-2011	
2	Cooling System	Four Seasons	Clean Soft Water	7.2 (L) 1.90 (gal.)
3	Engine	Four Seasons	CD 15W-40 Diesel Engine Oil GB 11122-2006	6—6.5 (L) 1.59—1.72 (gal.)
4	Air Pump			0.12 (L) 0.03 (gal.)
5	Oil Bath Air Cleaner			0.25 (L) 0.07 (gal.)
6	Mechanical Steering	Four Seasons	26# or 80W/90 Gear Oil SH/T 0350-1992	0.9 (L) 0.24 (gal.)
7	Transmission Case	Four Seasons	Dual-purpose Oil for Transmission and Hydraulic System	15—16 (L) 3.96—4.23 (gal.)
8	Lifter			7—8 (L) 1.85—2.11 (gal.)
9	Grease Fitting	Four Seasons	2# Calcium base grease GB/T 491-2008	Appropriate

2wd Tractor Drain and Refill Capacities

NOTE: The main specifications of dual-purpose oil for transmission and hydraulic system is in the table below.

Number	Position	Season	Name and Specifications	Capacity
1	Fuel Tank	Summer	0# Ordinary Diesel GB 252-2011	40 (L) 10.57 (gal.)
		Winter	-10# or 0# Ordinary Diesel GB 252-2011	
2	Cooling System	Four Seasons	Clean Soft Water	8 (L) 2.11 (gal.)
3	Engine	Four Seasons	CD 15W-40 Diesel Engine Oil GB 11122-2006	6—6.5 (L) 1.59—1.72 (gal.)
4	Air Pump			0.12 (L) 0.03 (gal.)
5	Oil Bath Air Cleaner			0.25 (L) 0.07 (gal.)
6	Hydraulic Steering	Four Seasons	Hydraulic Oil L-HM 32 (class 1) GB 11118.1	1.8 (L) 0.48 (gal.)
7	Front Drive Axle (1200 tread)	Four Seasons	Dual-purpose Oil for Transmission and Hydraulic System	5.5 (L) 1.45 (gal.)
	Front Drive Axle (1300 tread)			6 (L) 1.59 (gal.)
8	Transmission Case			16.5—17.5 (L) 4.36—4.62 (gal.)
9	Lifter			7—8 (L) 1.85—2.11 (gal.)
10	Grease Fitting	Four Seasons	2# Calcium base grease GB/T 491-2008	Appropriate

MFWD Tractor Drain and Refill Capacities

NOTE: The main specifications of dual-purpose oil for transmission and hydraulic system is in the table below.

CP00834,0001696 -19-19DEC14-1/1

Specifications

Tractor Dual-purpose Oil for Transmission and Hydraulic System Specifications

Item	Quality Specifications
Kinematic Viscosity (mm ² /s) 40°C 100°C	90—110
	Measured Value
Viscosity Index	≥90
Open Flash Point (°C)	≥200
Cloud Point (°C)	≤-33
Copper Corrosion, Pole	≤1
Antirust Performance Test (Distilled Water)	Rustless
Water% (m)	≤0.03 (Trace)
Mechanical impurities % (m)	≤0.01
Test on Four Ball Tester (PB) kg	≥834 (85)
Four-ball wear for a long time (30 kg, 50 min) mm	≤0.5
Foaming (93±0.5°C) ml/ml	75/0
Load Capacity, Failure, Class	≥10

CP00834,000166B -19-11DEC14-1/1

Important Torque

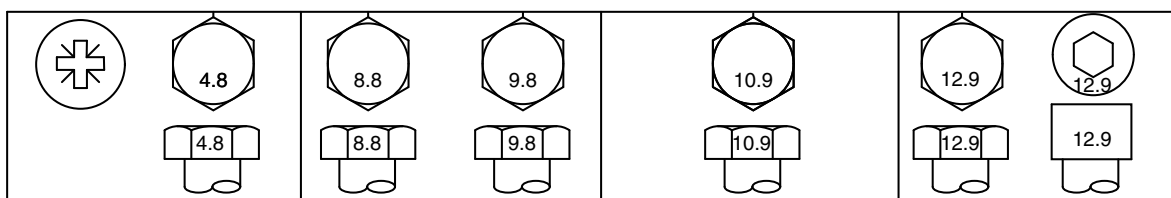
Number	Name and Position	Specifications	Torque	
			N•m	Kgf•m
1	Engine to Clutch Housing Bolts	M12*1.75	73—89	7.4—9.1
2	Engine to Front Axle Support Bolts	M16*2	144—160	14.7—16.3
3	Clutch Housing to Transmission Housing Nuts	M14*1.5	100—120	10.2—12.2
4	Front Axle Sleeve to Sleeve Fitting Nuts	M14*1.5	100—120	10.2—12.2
5	Half Shaft Housing to Front Swing Shaft Housing, Front End Transmission Housing Bolts	M10*1.5	37—59	3.8—6
6	Drive Wheel Center to Hub Nuts	M14*1.5	146—180	14.9—18.3
7	Drive Wheel Center to Drive Shaft Nuts	M14*1.5	199—235	20.3—24
8	Transmission Housing to Final Drive Housing Bolts	M10*1.5	37—59	3.8—6
9	Transmission Housing to Rockshaft Housing Bolts	M10*1.5	37—59	3.8—6
10	Steering Housing to Clutch Housing Bolts	M10*1.5	14.3—24.7	1.5—2.5
11	Front Wheel Center to Hub Nuts	M14*1.5	199—235	20.3—24

NOTE: The fasteners of engine have been qualified before in the factory.

CP00834,000166C -19-12DEC14-1/1

Metric Bolt and Screw Torque Values

TS1670 —UN—01MAY03



Bolt or Screw Size	Class 4.8				Class 8.8 or 9.8				Class 10.9				Class 12.9			
	Lubricated ^a		Dry ^b		Lubricated ^a		Dry ^b		Lubricated ^a		Dry ^b		Lubricated ^a		Dry ^b	
	Nm	lb.-in.	Nm	lb.-in.	Nm	lb.-in.	Nm	lb.-in.	Nm	lb.-in.	Nm	lb.-in.	Nm	lb.-in.	Nm	lb.-in.
M6	4.7	42	6	53	8.9	79	11.3	100	13	115	16.5	146	15.5	137	19.5	172
									Nm	lb.-ft.	Nm	lb.-ft.	Nm	lb.-ft.	Nm	lb.-ft.
M8	11.5	102	14.5	128	22	194	27.5	243	32	23.5	40	29.5	37	27.5	47	35
			Nm	lb.-ft.	Nm	lb.-ft.	Nm	lb.-ft.								
M10	23	204	29	21	43	32	55	40	63	46	80	59	75	55	95	70
	Nm	lb.-ft.														
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

Torque values listed are for general use only, based on the strength of the bolt or screw. DO NOT use these values if a different torque value or tightening procedure is given for a specific application. For stainless steel fasteners or for nuts on U-bolts, see the tightening instructions for the specific application. Tighten plastic insert or crimped steel type lock nuts by turning the nut to the dry torque shown in the chart, unless different instructions are given for the specific application.

Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical property class. Replace fasteners with the same or higher property class. If higher property class fasteners are used, tighten these to the strength of the original. Make sure fastener threads are clean and that you properly start thread engagement. When possible, lubricate plain or zinc plated fasteners other than lock nuts, wheel bolts or wheel nuts, unless different instructions are given for the specific application.

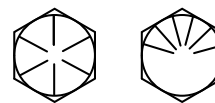
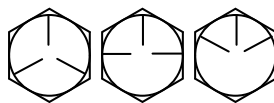
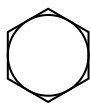
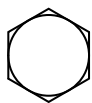
^a"Lubricated" means coated with a lubricant such as engine oil, fasteners with phosphate and oil coatings, or M20 and larger fasteners with JDM F13C, F13F or F13J zinc flake coating.

^b"Dry" means plain or zinc plated without any lubrication, or M6 to M18 fasteners with JDM F13B, F13E or F13H zinc flake coating.

DX,TORQ2 -19-12JAN11-1/1

Unified Inch Bolt and Screw Torque Values

TS1671 —UN—01MAY03



Bolt or Screw Size	SAE Grade 1				SAE Grade 2 ^a				SAE Grade 5, 5.1 or 5.2				SAE Grade 8 or 8.2			
	Lubricated ^b		Dry ^c		Lubricated ^b		Dry ^c		Lubricated ^b		Dry ^c		Lubricated ^b		Dry ^c	
	Nm	lb.-in.	Nm	lb.-in.	Nm	lb.-in.	Nm	lb.-in.	Nm	lb.-in.	Nm	lb.-in.	Nm	lb.-in.	Nm	lb.-in.
1/4	3.7	33	4.7	42	6	53	7.5	66	9.5	84	12	106	13.5	120	17	150
													Nm	lb.-ft.	Nm	lb.-ft.
5/16	7.7	68	9.8	86	12	106	15.5	137	19.5	172	25	221	28	20.5	35	26
									Nm	lb.-ft.	Nm	lb.-ft.				
3/8	13.5	120	17.5	155	22	194	27	240	35	26	44	32.5	49	36	63	46
			Nm	lb.-ft.	Nm	lb.-ft.	Nm	lb.-ft.								
7/16	22	194	28	20.5	35	26	44	32.5	56	41	70	52	80	59	100	74
	Nm	lb.-ft.														
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

Torque values listed are for general use only, based on the strength of the bolt or screw. DO NOT use these values if a different torque value or tightening procedure is given for a specific application. For plastic insert or crimped steel type lock nuts, for stainless steel fasteners, or for nuts on U-bolts, see the tightening instructions for the specific application. Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical grade.

Replace fasteners with the same or higher grade. If higher grade fasteners are used, tighten these to the strength of the original. Make sure fastener threads are clean and that you properly start thread engagement. When possible, lubricate plain or zinc plated fasteners other than lock nuts, wheel bolts or wheel nuts, unless different instructions are given for the specific application.

^aGrade 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, fasteners with phosphate and oil coatings, or 7/8 in. and larger fasteners with JDM F13C, F13F or F13J zinc flake coating.

^c"Dry" means plain or zinc plated without any lubrication, or 1/4 to 3/4 in. fasteners with JDM F13B, F13E or F13H zinc flake coating.

DX,TORQ1 -19-12JAN11-1/1

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. They are also needed for law enforcement to trace your tractor if it is ever stolen. ACCURATELY record these characters in the spaces provided next to each of the following photographs.

JB06590,0000332 -19-03FEB09-1/1

Record Tractor Serial Number

Serial number plate is located on the right side of transmission housing of the tractor.

Tractor Serial Number _____



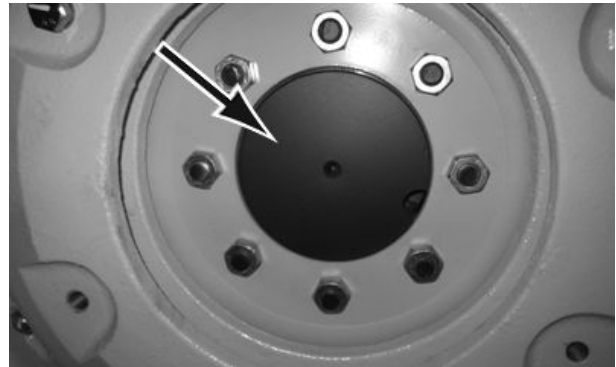
PUC0017 —UN—24MAR09

JB06590,0000411 -19-24MAR09-1/1

Record Drive Train Serial Number

The serial number is located on the right surface of drive shaft of the tractor.

Drive Train Serial Number _____



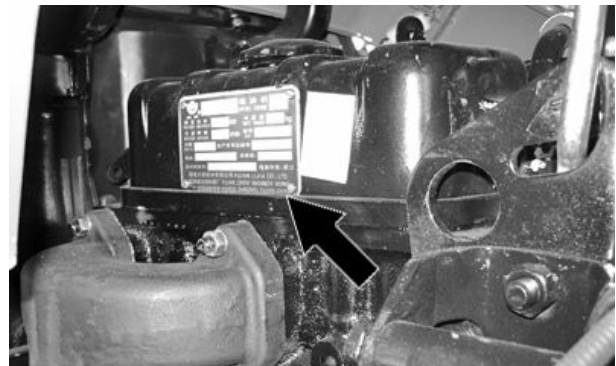
N4A0003671 —UN—28JUL14

CP00834,0001660 -19-10DEC14-1/1

Record Engine Serial Number

The serial number plate is located on rocker arm cover, near exhaust manifold.

Engine Serial Number _____



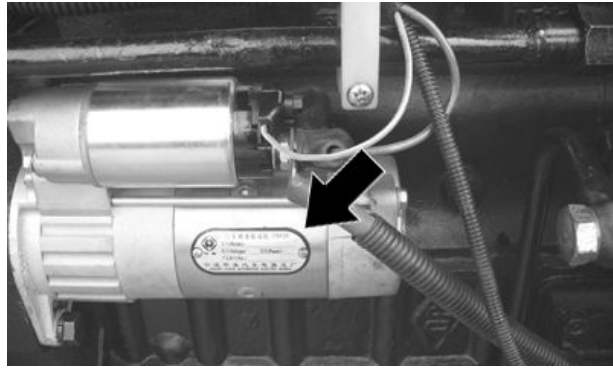
PUC5066 —UN—07OCT10

AH98466,0001121 -19-06OCT10-1/1

Record Starter Serial Number

Starter serial number plate is located starter body.

Starter Serial Number _____



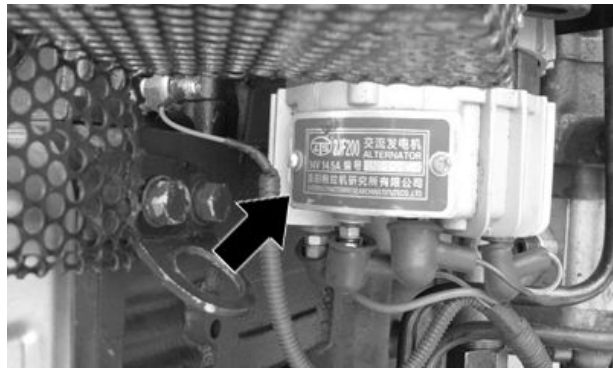
PUC1929 —UN—16FEB09

JB06590,0000335 -19-03FEB09-1/1

Record Alternator Serial Number

Alternator serial number plate is located on alternator frame.

Alternator Serial Number _____



PUC1930 —UN—16FEB09

JB06590,0000350 -19-16FEB09-1/1

Lubrication and Maintenance Record Charts

50, 250, 500 Hour Service Chart

Every 50 Hours

- Check transmission and hydraulic system oil level
- Clean and check battery
- Inspect all tires
- Lubricate steering linkage
- Lubricate rear axle bearings
- Lubricate MFWD front axle pivot pins
- Inspect tractor for loose hardware

Every 250 Hours

- Service air cleaner
- Inspect and adjust alternator/fan belt
- Check MFWD axle and wheel hub oil level
- Lubricate 3-point hitch lift links
- Drain water from fuel tank

- Inspect and clean fuel tank vent filter
- Check neutral start system
- Check and adjust clutch pedal free travel
- Check and adjust brake pedal free travel
- Verify ROPS hardware torque

Every 500 Hours

- Check engine idle speeds
- Change engine oil and filter ¹
- Replace fuel filter
- Replace transmission/hydraulic oil filter
- Clean engine crankcase vent tube
- Check and tighten all hoses and hose clamps
- Check cooling system for leaks
- Lubricate rear axle bearings

Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				

¹When using any lubricant other than TorqGARD or PLUS 50, lower this service interval to 200 hours

JB06590,0000336 -19-15MAY12-1/1

1000 Hour Service Chart

Every 1000 Hours

- Drain transmission, replace transmission/hydraulic oil

- Change MFWD axle oil
- Change MFWD wheel hub oil
- Replace transmission and hydraulic oil filter/screen
- Adjust engine valve clearance

Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				

JB06590,0000337 -19-03FEB09-1/1

Annual Service Chart

Annually

- Change engine oil and filter

- Replace air cleaner elements
- Inspect seat belt

Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				

JB06590,0000338 -19-03FEB09-1/1

2000 Hour Service Chart

Every 2 Years or 2000 Hours (Whichever Comes First) • Have John Deere dealer check engine valve clearance

- Flush cooling system

Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				

JB06590,0000339 -19-03FEB09-1/1

As Required Service Chart

Service as Required

- Adjust throttle friction plates
- Service air cleaner
- Check air intake system
- Clean front grille and radiator
- Bleed fuel system

- Charge battery
- Service/Clean battery
- Replace bulb: Floodlights; Headlights; Tail/Warning lights
- Adjust headlights

Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				

JB06590,000033A -19-03FEB09-1/1

Attachment and Wearing Part

tools

Number	Part Number	Name	Specification	Quantity
1	SU33913	Double end wrench 8*10, GB/T4388-1995	8*10	1
2	SU33914	Double end wrench 13*16, GB/T4388-1995	13*16	1
3	SU33915	Double end wrench 16*18, GB/T4388-1995	16*18	1
4	SU33916	Double end wrench 21*24, GB/T4388-1995	21*24	1
5	SU33921	Screwdrivers 1 100P, QB/T2564.5-2002	1 100P	1
6	SU33917	Spanner for hexagonal socket head screw S=6, GB/T5356-1998	S=6	1
7	SU33918	Spanner for hexagonal socket head screw S=8, GB/T5356-1998	S=8	1
8	SU328286	SLEEVE, S27		1
9	SU33919	Press bar type grease gun, GB1164-89		1
10	SU33920	Combination pliers(8"), QB/T2442.4-2007	8"	1
11	SU31833	Internal straight circlip plier		1
12	SU31836	External bending circlip plier		1

CP00834,0001658 -19-09DEC14-1/1

Spare parts

Number	Part Number	Outer Diameter*Inner Diameter*Thickness	Material	Quantity	Installation Position
1	SU328704	26*20.2*2	Red Copper	2	Rockshaft Outlet Oil Tube
2	SU321901	23*17.2*2	Red Copper	1	Rockshaft Inlet Oil Tube
3	SU321900	22.5*16.5*2	Red Copper	1	Rockshaft Inlet Oil Tube
4	SU318083	23.9*18.2*2	Red Copper	2	Gear Pump Outlet Oil Tube

Copper Washer

Number	Part Number	Outer Diameter*Inner Diameter*Thickness	Quantity	Installation Position	Remark
1	SU318582	PD60*85*12	4	Drive Shaft	For All Tractors
2	SU328695	SD46*65*10	2	PTO Shaft	
3	SU320045	32*44*10	1	Steering Valve	For Manual Steering Tractors
4	SU328694	SG35*56*12	1	Primary Shaft Bearing Cap	For 2WD Tractors
	SU328690	PG35*56*12	1		
5	SU318574	SD45*70*10	1	Front Central Drive Shaft Seat	For MFWD Tractors
6	SU328871	SG30*50*8	2	Release Bearing Return Holder	
7	SU318564	PG30*50*8	2	MFWD Seal Seat	
8	SU328173	SD65*90*12	2	Front Drive Cover	
9	SU315211	Oil Seal (φ105)	2	Front Drive Cover	
10	SU314820	Dustproof Ring	2	Front Final Drive Housing	

Oil Seal

Number	Part Number	Outer Diameter*Surface Diameter	Quantity	Installation Position	Remark
1	SU317898	20*2.4	2	Oil Pump and High-Pressure Fitting	For All Tractors
				Oil Tube Fitting	
2	SU317900	22*2.4	2	Brake Camshaft	
3	SU317911	40*3.1	4	Final Drive Gear	For 2WD Tractors
4	SU317907	31*3.5	1	Transmission Case coupling	
5	SU317967	90*5.7	1	Transmission Case 2nd Shaft Front Bearing Housing	For MFWD Tractors
6	SU317893	16*2.4	2	Front Axle Drain Plug	
7	SU317897	19*2.4	1	MFWD Central Shaft	
8	SU317898	20*2.4	1	Front Drive Shaft Fork	
9	SU317901	25*2.4	1	MFWD Central Shaft	
10	SU317906	30*3.1	1	Front Axle Oil Meter	
11	SU317959	54*3.5	2	Front Drive Shaft	
12	SU317961	56*3.5	1	Front Central Transmission Dustproof Tube Holder	
13	SU317965	68*3.1	1	MFWD Seal Seat	
14	SU317968	95*3.1	2	Front Drive Shaft End Cover	
15	SU317970	95*5.7	2	King Pin Holder	
16	SU317849	100*3.1	1	Front Axle Drive Gear Assy	
17	SU317851	110*5.7	2	Left (Right) King Pin Housing	
18	SU317891	135*3.1	1	MFWD Housing	
19	SU317902	270*5.7	2	Front Drive Shaft Cover	
20	SU317682	90*3.5	2	Drive Gear Shaft Holder	
21	SU319627	38*3.1	2	Front Axle Drive Gear	
22	SU317838	65*5.3	2	Front Drive Shaft Support Sleeve	
23	SU317987	75*5.3	1	Front Axle Shaft Holder	

O-Ring

CP00834,0001659 -19-09DEC14-1/1

Attachment (Tractor parts, In the spare part case)

Number	Part Number	Name	Quantity	Remark
1	SU310461	Center Link	1	Three-Point Hitch For Implement
2	SU326236	Hitch Pin	1	Fix Hitch For Trailer
3	SJ310464	Lock Pin	1	
4	SJ310464	Lock Pin	1	Drawbar For Implement
5	SU314455	Pin	1	
6	SU315697	Pin	1	Adjustable Drawbar For Trailer
7	SJ310464	Lock Pin	1	
8	SU326236	Hitch Pin	1	Wagon Hitch For Trailer
9	SJ310464	Lock Pin	2	
10	SU314365	Hitch Plate	1	

CP00834,000166F -19-12DEC14-1/1

Part (Optional)

Number	Part Number	Name	Specification	Quantity	Remark
1	SJ19399	Bolt	M14*1.5*75	12	For Tire Installation Without Rear Ballast (Cancel This Part Without Rear Ballast)

CP00834,0001670 -19-12DEC14-1/1

Wearing Part

Other wearing parts are included besides the parts in the packing list:

1. All kinds of filter, oil and coolant.
2. Dry clutch parts.
3. Straps, hoses.
4. Lamps, glass, fuses, plastic lamp bodies.
5. Decorating parts.

CP00834,000165F -19-10DEC14-1/1

Index

	Page		Page
A			
Acid burns, battery		Brake pedal play	
Treatment.....	110-5	Check and adjust	90-2
Add ballast.....	65-3	Brakes	
Adjust Clutch Pedal Free Play		Troubleshooting	115-3
Clutch Pedal Free Play, Adjust	90-3	Brakes, Use	45-4
Adjust Front Wheel Tread.....	70-5	Braking	45-4
Adjust PTO Clutch Operating Rod		Break-in engine oil	
PTO Clutch Operating Rod, Adjustment	60-3	Non-Emissions certified and certified tier	
Adjust Toe-In (2WD).....	70-6	1, tier 2, tier 3, stage I, stage II, and stage III.....	80-5
Adjust Toe-In (MFWD).....	70-7	Break-in service	30-1
Air cleaner		Bulb replacement	
Service.....	90-1	Tail lights and warning lights	110-7
Air induction system		C	
Check hoses and clamps.....	90-5	Cast iron weights	65-4
Air intake system		Cast iron weights, rear	
Check.....	90-1	Install.....	65-5
Air restriction indicator	40-4	Charging system	
Alternator serial number	130-2	Indicator	40-4
Alternator/fan belt		Check and Fill	
Inspect and adjust.....	110-1	Steering System Oil	95-8
Replacement.....	110-2	Check MFWD Axle Housing	
B		Oil Level.....	95-6
Ballast		Cold weather operation	
Front end for transport	65-3	Transmission.....	80-2
Limitations.....	65-3	Controls	
Matching to work load	65-1	Instrument panel	15-2
Select.....	65-1	Tractor.....	15-1
Ballast, maximum front		Coolant	
Determine	65-4	Diesel engine	
Ballast, maximum rear		Engine with wet sleeve cylinder liners.....	80-7
Determine	65-4	Coolant conditioner.....	80-8
Ballasting.....	65-1	Coolant level	
Battery		Check.....	100-2
Access	110-2	Cooling system	
Acid burn treatment.....	110-5	Check hoses and clamps.....	90-5
Charge	110-3	Components.....	100-1
Checking condition		Leaks	100-3
Explosion danger.....	110-4	Scheduled flushing.....	100-4
Clean and check	110-3	Crankcase vent tube	
Removal.....	110-4	Clean.....	90-4
Replacement specifications	110-4	D	
Service.....	110-5	Daily service	35-1
Battery condition check	110-4	Diesel engine oil	
Battery Handling, Safety		Tier 2 and stage II	80-6
Safety, Battery Handling	05-12	Diesel fuel.....	80-3
Battery specifications.....	110-4	Diesel fuel, testing	
Bearings, rear axle		Testing Diesel Fuel.....	80-4
Lubricate	95-5	Draft control	
Before starting engine	40-1	Use.....	50-3
Bleed fuel system	105-1	Drawbar	
Bolt and screw torque values		Load limitations	60-1
Metric	125-13	Drive Train Serial Number	130-1
Unified inch	125-14		

Continued on next page

	Page		Page
Driving on public roads	45-1, 75-1	Fuel filter, primary	
E		Replace	105-2
Electrical service precautions	110-1	Fuel filter, secondary	
Electrical system		Replace	105-2
Troubleshooting	115-6	Fuel handling safety	80-1
Engine		Fuel system	
Avoid low speed idling	40-5	Bleeding	105-1
Before starting	40-1	Fuel tank	
Change oil and filter	95-2	Drain water and sediment	105-2
Change speed	40-5	Filling	80-4
Check idle speeds	90-4	Fuels	
Clean crankcase vent tube	90-4	Safe handling	80-1
Cooling system components	100-1	Fuse panel	110-7
Stalled	40-5	Fuses	
Start	40-2	Locate	110-7
Stop	40-6	Size and function	110-8
Warming up	40-5	G	
Work and idle speeds	40-6	Gauges	
Engine idle speeds		Water temperature	40-5
Check	90-4	Gear selection	45-3
Engine oil		Grease	80-10
Break-In		Grille	
Non-Emissions certified and certified		Clean	100-2
tier 1, tier 2, tier 3, stage I, stage II,		H	
and stage III	80-5	Hardware torque values	
Change interval	95-2	Metric	125-13
Check level	95-1	Unified inch	125-14
Diesel		Hardware, loose	
Tier 2 and stage II	80-6	Inspect and tighten	90-5
Engine Operation, Observe	30-1	Headlights	
Engine serial number	130-1	Adjust	110-5
Engine speed		Aiming	110-6
Change	40-5	Replace bulb	110-7
Engine starting system		High Beam Indicator	20-3
Check neutral start	90-6	Hitch	
Engine valves		Adjust side sway	50-5
Check clearance	90-4	Components	50-1
F		Leveling	50-5
Fan/alternator belt		Hitch lift links	
Inspect and adjust	110-1	Lubricate	95-5
Replacement	110-2	Hitch side sway	
First 100 hours		Adjustment	50-5
Service	85-3	Hitch, 3-point	
Floodlights, Use	20-2	Attach implements to	50-4
Flushing cooling system	100-4	Hose clamps	
Front ballast, maximum	65-4	Check for tightness	90-5
Front end		Hot weather operation	
Ballast for transport	65-3	Transmission	80-2
Fuel		Hydraulic oil	
Diesel	80-3	Check level	95-3
Handling and storing	80-1	Drain	95-6
Lubricity	80-3	Refill	95-8
		Hydraulic oil filter	80-9

Continued on next page

	Page		Page
Replacement.....	95-4	Lubricity of diesel fuel	80-3
Hydraulic system			
Check hoses and clamps.....	90-5		
Hydraulic system troubleshooting.....	115-2		
		M	
I		Maintenance	
Identification numbers	130-1	Winter.....	100-5
Implement		Mechanical front-wheel drive	
Attachment to hitch	50-4	Operate	45-5
Match tractor power	50-1	Metric bolt and screw torque values	125-13
Implement preparation.....	50-4	MFWD axle	
Implement, PTO-driven		Change oil.....	95-9
Attachment.....	60-2	Tighten nuts	70-3
Implement-to-tire clearance.....	70-1	Multi-position rear wheels	
Indicator		Tread settings	70-4
Air restriction.....	40-4		
Charging system	40-4	N	
Oil pressure.....	40-4	Neutral start system	
Indicators		Check.....	90-6
High Beam	20-3		
Instrument check		O	
After starting.....	40-3	Oil	
Instrument panel.....	15-2	Engine	
		Tier 2 and stage II	80-6
K		Oil filters.....	80-6
Key Switch		Oil pressure indicator.....	40-4
Key Switch, Positions.....	40-2	Operator training.....	45-1
L		P	
Leakage, cooling system	100-3	Position control lever	
Light bulb replacement		Use.....	50-2
Tail lights	110-7	Prestart checks.....	35-1, 95-1
Warning lights	110-7	Proper Use of Drawbar	
Light Switch Positions.....	20-1	Drawbar, Use	60-1
Lightbulb replacement		PTO	
Headlights	110-7	Attach driven implement	60-2
Lights		Operate	60-2
Headlights, Use.....	20-2	PTO-driven implement	
High Beam Indicator	20-3	Attach.....	60-2
Switch Positions.....	20-1	Public roads	
Tail Lights, Use.....	20-3	Driving.....	75-1
Turn Signal Lights, Use.....	20-4	Driving precautions	45-1
Warning Lights, Use.....	20-3	Transport.....	75-1
Low speed idling			
Discouraged.....	40-5	R	
Lubricant Storage		Radiator cleaning.....	100-2
Storage, Lubricant.....	80-5	Range, select.....	45-3
Lubricants		Range, shift	45-3
Correct use	95-1	Rear axle bearings	
Lubricants, Safety		Lubricate	95-5
Safety, Lubricants	80-4	Rear axle nuts	
Lubricate		Tighten	70-3
MFWD Front Axle Pivot Pins	95-6	Torque values.....	70-3
Lubrication and maintenance record charts	135-1	Rear ballast, maximum.....	65-4

Continued on next page

	Page		Page
Restarting engine	40-5	Max force	125-8
Rockshaft		MFWD tractor.....	125-5
Rate-of-drop adjustment	50-3	Min turning Radius	125-9
Rockshaft and 3-point hitch		Stalled engine	
troubleshooting	115-4	Restart	40-5
Rockshaft controls		Start the engine	40-2
Position control		Starter serial number	130-2
Draft control.....	50-1	Starting	
		Check instruments after	40-3
S		Steering linkage	
Safety, Avoid High-Pressure Fluids		Lubricate	95-4, 95-5
Avoid High-Pressure Fluids	05-18	Steering spindles (2WD)	
Safety, Forestry Operations		Lubricate	95-4
Limited Use in Forestry Operation	05-7	Steering spindles (MFWD)	
Safety, Handle Fuel Safely, Avoid Fires		Lubricate	95-5
Avoid Fires, Handle Fuel Safely.....	05-3	Stop engine	40-6
Safety, ROPS		Stopping tractor	45-6
ROPS, Keep Installed Properly.....	05-3	Storage	
Safety, Steps and Handholds		Removal from.....	120-2
Use Steps and Handholds Correctly.....	05-5	Storage, Tractor.....	120-1
Safety, Tightening Wheel Retaining		Storing fuel	80-1
Bolts/Nuts		Supplemental information.....	-4
Tightening Wheel Retaining Bolts/Nuts	05-18	Switches	
Safety, Transport at Safe Speeds		Light Switch, Positions.....	20-1
Transport Towed Equipment at Safe Speeds	05-9		
Safety, Use Caution on Slopes and Uneven		T	
Terrain		Tail lights	
Use Caution on Slopes and Uneven Terrain.....	05-9	Bulb replacement.....	110-7
Service intervals		Tail Lights	
First 10 hours	30-1	Light bulb replacement.....	110-7
First 100 hours	30-1, 85-3	Tail Lights Use	20-3
First 50 hours	30-1	Three-point hitch	
Service Intervals Chart		Lubricate lift links	95-5
10, 50, 250 hours	85-2	Throttle	
1000 hours	85-3	Adjustment.....	90-6
500 hours	85-3	Throttle lever adjustment.....	90-6
Annually	85-3	Tire checks	90-7
Two years/2000 hours.....	85-3	Tire-to-implement clearance	70-1
Service record charts		Tires	
1000 hours	135-2	Inflation pressure	70-2
2000 hours/2 Years	135-4	Inflation pressure chart	70-2
50,250,500 hours	135-1	Inspect	90-7
Annual.....	135-3	Toe-In	
As required.....	135-5	Check.....	70-6
Service safety.....	85-1	Toe-In adjustment.....	70-6, 70-7
Service, daily	35-1	Torque charts	
Seven Pin Outlet.....	20-5	Metric	125-13
Specification		Unified inch	125-14
Drain and refill capacities.....	125-11	Towed equipment, transport at safe speeds.....	05-9
Draw performance	125-9	Tractor	
Hydraulic hitch performance	125-10	Inspect loose hardware.....	90-5
PTO performance	125-9	Remove from storage	120-2
Specifications		Tractor Controls.....	15-1
2wd tractor	125-1	Tractor power	
Dual-purpose Oil for Transmission and		Match to implement.....	50-1
Hydraulic System	125-12	Tractor PTO	
Important torque.....	125-12	Operate	60-2

Continued on next page

	Page		Page
Tractor serial number	130-1		
Tractor service		W	
Safety.....	85-1		
Tractor storage	120-1	Warning lights	
Tractor transport		Bulb replacement.....	110-7
On carrier.....	75-4	Warning Lights Use	20-3
Tractor, stopping.....	45-6	Water and sediment	
Training requirements		Drain from fuel tank.....	105-2
Operator.....	45-1	Water temperature gauge.....	40-5
Transmission		Weights	
Cold weather operation.....	80-2	Cast iron.....	65-4
Hot weather operation.....	80-2	Weights, rear, cast iron	
Operate.....	45-3	Install.....	65-5
Transmission oil		Wheel nuts, tighten	
Check level	95-3	2WD	70-3
Transmission troubleshooting.....	115-1	MFWD	70-3
Transmission, Shifting		Wheel slip	
Shifting Transmission.....	45-3	Measure manually.....	65-2
Transmission/Hydraulic filter element.....	80-9	Wheel/axle hardware	
Transmission/Hydraulic oil		Tighten.....	70-3
Refill.....	95-8	Wheels/axles	
Transmission/hydraulic system		Torque values.....	70-3
Replace oil filter	95-4	Work and idle engine speeds	40-6
Transmission/Hydraulic system			
Check oil level.....	95-3		
Drain oil.....	95-6		
System drain plugs	95-6		
Transport			
Ballast front end.....	65-3		
Transporting on carrier	75-4		
Tread settings			
Multi-position rear wheels	70-4		
Troubleshooting			
3-point hitch	115-4		
Brakes.....	115-3		
Electrical system	115-6		
Hydraulic system.....	115-2		
Rockshaft.....	115-4		
Transmission.....	115-1		
Turn Signal Lights Use	20-4		
U			
Unified inch bolt and screw torque values	125-14		
Use			
Swinging Drawbar.....	60-1		
Use Headlights and Floodlights.....	20-2		
Use Tail Lights	20-3		
Use Turn Signal Lights	20-4		
Use Warning Lights	20-3		
V			
Valve clearance			
Check.....	90-4		

Technical Information

Technical information can be purchased from John Deere. Some of this information is available in electronic media, such as CD-ROM disks, and in printed form. There are many ways to order. Contact your John Deere dealer. Call **1-800-522-7448** to order using a credit card. Search online from <http://www.JohnDeere.com>. Please have available the model number, serial number, and name of the product.

Available information includes:

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



TS189 —UN—17JAN89



TS191 —UN—02DEC88



TS224 —UN—17JAN89



TS1663 —UN—10OCT97

DX,SERVLIT -19-31JUL03-1/1

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

John Deere Is At Your Service

CUSTOMER SATISFACTION is important to John Deere.

Our dealers strive to provide you with prompt, efficient parts and service:

- Maintenance and service parts to support your equipment.
- Trained service technicians and the necessary diagnostic and repair tools to service your equipment.

CUSTOMER SATISFACTION PROBLEM RESOLUTION PROCESS

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

1. When contacting your dealer, be prepared with the following information:

- Machine model and product identification number
- Date of purchase
- Nature of problem

2. Discuss problem with dealer service manager.

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

4. If you have a persistent problem your dealership is unable to resolve, ask your dealer to contact John Deere for assistance. Or contact the Ag Customer Assistance Center at 1-866-99DEERE (866-993-3373) or e-mail us at www.deere.com/en_US/ag/contactus/.



TS201 —UN—15APR13

DX,IBC,2 -19-02APR02-1/1

