

# 5090E, 5090EL, and 5100E (FT4) Tractors Operator's Manual (North American, October 2021)(S.N. 070000 —)



JOHN DEERE

## OPERATOR'S MANUAL

5E and 5EL Series Tractors (North  
American, October 2021)

OMSU66036 ISSUE B2 (ENGLISH)

### CALIFORNIA

#### Proposition 65 Warning

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

If this product contains a gasoline engine:



## WARNING

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

The State of California requires the above two warnings.

Additional Proposition 65 Warnings can be found in this manual.

**John Deere Mexico**

North American Edition  
PRINTED IN U.S.A.

# Introduction

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## Foreword

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

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

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

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

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

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

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

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

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

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DX,IFC1-19-03APR09

with the instructions provided in this manual to maintain the emissions performance of the engine within the requirements applicable to the engine's category/certification.

## Tampering

No deliberate tampering with or misuse of the engine emissions control system shall take place; in particular with regard to deactivating or not maintaining an exhaust gas recirculation (EGR) or a DEF dosing system. Tampering with an engine's emissions control system will void the European Union (EU) type approval and applicable emissions-related warranties.

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DX,EMISSIONS,PERFORM-19-12JAN18

## Emissions Performance and Tampering

### Operation and Maintenance

The engine, including the emissions control system, shall be operated, used, and maintained in accordance

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*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.*

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# General Information

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## Product View



*Cab Tractor*

CPA0004171—UN—04AUG17



*Low-Profile Tractor*

RXA0161417—UN—30NOV17

OURX985,000317A-19-12JAN18



*OOS Tractor*

CPA0004172—UN—04AUG17

## Trademarks

AdBlue™	Trademark of VDA, the German Association of the Automotive Industry
Bio Hy-Gard™	Trademark of Deere & Company
Break-In Plus™	Trademark of Deere & Company
Cool-Gard™	Trademark of Deere & Company
CoolScan™	Trademark of Deere & Company
Field Office™	Trademark of Deere & Company
Grease-Gard™	Trademark of Deere & Company

## General Information

GreenStar™	Trademark of Deere & Company
Hy-Gard™	Trademark of Deere & Company
iTEC™	Trademark of Deere & Company
Oilscan™	Trademark of Deere & Company
Plus-50™	Trademark of Deere & Company
PowerTech™	Trademark of Deere & Company
PowrReverser™	Trademark of Deere & Company
PowrReverser Plus™	Trademark of Deere & Company
Quik-Tatch™	Trademark of Deere & Company
SeedStar™	Trademark of Deere & Company
Service ADVISOR™	Trademark of Deere & Company
SERVICEGARD™	Trademark of Deere & Company
Teflon®	Trademark of DuPont Co.

GS25068,0005A80-19-09OCT18

## Glossary of Terms

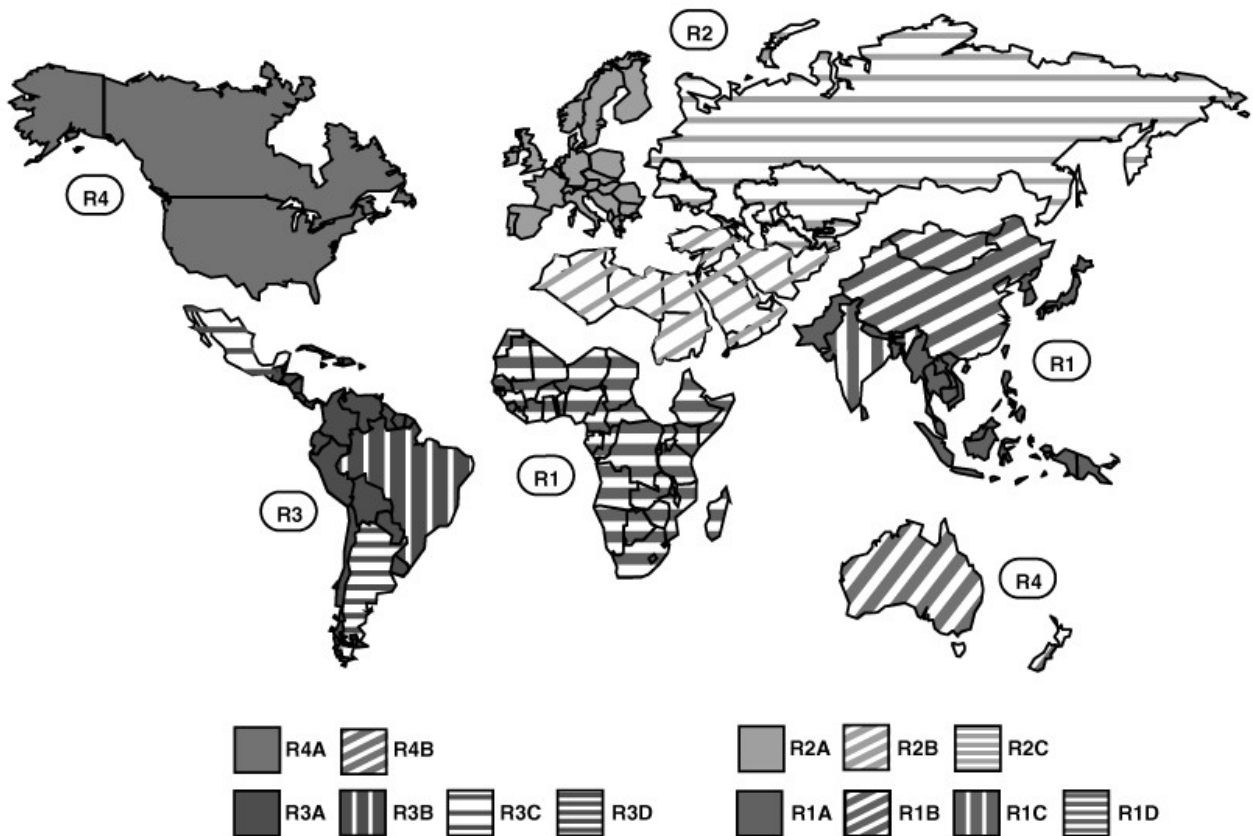
ITEM	ABBREVIATION	DESCRIPTION
Air Conditioning	A/C	System used for cooling the air in the cab
Alternating Current	AC	Electrical current that reverses its direction at regularly recurring intervals
Accessory	ACC	Secondary electrical system
Armrest Interface Control	AIC	Electronic Control Unit
Agricultural Management System	AMS	Used with machine automatic guidance system
Battery	Bat	A device used to furnish electrical current
Controller Area Network	CAN	A communication system linking on-board electronics
Cold Cranking Amperes	CCA	Measured capability of battery to perform during cold-weather operation
Chassis Control Unit	CCU	Electronic Control Unit
Counterclockwise	CCW	Direction opposite the rotation of the hands of a clock
Cab Load Center	CLC	Electronic Control Unit
Cab Switch Module	CSM	Electronic Control Unit
Clockwise	CW	Direction in which the hands of a clock rotate
Direct Current	DC	Electrical current flowing in one direction only
Diagnostic Receptacle	DR	A connection where hydraulic pressure can be measured
Engine Control Unit	ECU	Electronic Control Unit
Economic Commission for Europe	ECE	Abbreviation
Electrohydraulic	EH	Hydraulic valve function that is controlled electrically
Engine Interface Control	EIC	Electronic Control Unit
Electronic Components Relay	ELX	Relay powering most of the electronic components
Front Console Control	FCC	Electronic Control Unit
Forward/Neutral/Reverse	FNR	Abbreviation
Forward	FWD	Direction of movement
Gallons per Minute	gpm	Amount of fluid displaced over a period of one minute
GreenStar™ Display	GSD	Abbreviation
Heating, Ventilating, and Air Conditioning	HVAC	Abbreviation
Hitch Control Unit	HCC	Electronic Control Unit
Hitch Valve Control	HV1	Electronic Control Unit
Inside Diameter	ID	Abbreviation
Ignition	IGN	Control for starting and stopping the machine
International Standards Organization	ISO	Standards organization
Joint Industry Council Organization	JIC	Standards organization

## General Information

ITEM	ABBREVIATION	DESCRIPTION
Left-Hand	LH	Abbreviation
Liquid Crystal Display	LCD	A technology used for displaying information
Mechanical	Mech	Abbreviation
Mechanical Front-Wheel Drive	MFWD	A mechanically powered front axle
Multi-Function Control	MFC	Electronic Control Unit
Negative	Neg (-)	Electrical Ground Circuit
Number	No.	Abbreviation
Open Center Hydraulics	OC	Abbreviation
Outside Diameter	OD	Abbreviation
Original Equipment Manufacturer	OEM	Abbreviation
Operator Interface Control	OIC	Electronic Control Unit
Open Operator Station	OOS	Abbreviation
O-ring Face Seal	ORFS or ORS	A type of seal used in hydraulic connections
Primary Display Unit	PDU	Electronic Control Unit
Pressure Flow Compensated Hydraulics	PFC	Abbreviation
Product Identification Number	PIN	Serial number relating to machine identification
Positive	Pos (+)	Charged part of an electrical circuit
Partial Power Shift Transmission	PPST	Abbreviation
Front PTO Control	PTF	Electronic Control Unit
Power Take-Off	PTO	Abbreviation
PowerTech™ E	PTE	Electronically controlled fuel injection
Power Transmission Utility	PTU	Electronic Control Unit
Reverse	Rev	Direction of movement
Right-Hand	RH	Abbreviation
Roll-Over Protective Structure	ROPS	Abbreviation
Revolutions per Minute	rpm	Abbreviation
Rear PTO Control	RPT	Electronic Control Unit
Society of Automotive Engineers	SAE	Engineering Standards Organization
Selective Control Valve	SCV	Device used to control remote hydraulic functions
SCV Sequence Control	SMB	Electronic Control Unit
Slow Moving Vehicle	SMV	Warning sign on the rear of the machine
Specification	Spec	Abbreviation
Tachometer	Tach	Abbreviation
Temperature	Temp	Abbreviation
Transmission Interface Utility	TIU	Electronic Control Unit
Transmission	Trans	Abbreviation
Voltage (Volts)	V	Abbreviation
Vehicle Load Center	VLC	Electronic Control Unit
Virtual Terminal Vehicle	VTV	Electronic Control Unit
Without	W/O	Abbreviation
Wide-Open Throttle	WOT	Full throttle

GS25068,0005A81-19-09OCT18

## Regions and Country Versions



RXA0150915—UN—01FEB16

**R1—Asia and Sub-Saharan Africa**  
**R1A—Far East, Sri Lanka, and Pakistan**  
**R1B—China**  
**R1C—India**  
**R1D—Sub-Saharan Africa**  
**R2—Europe, North Africa, Mid East, CIS**  
**R2A—European Union (EU 28+)**  
**R2B—North Africa and North Middle East (NANME)**  
**R2C—Common Wealth of Independent States (CIS)**

**R3—Central and South America**  
**R3A—Latin America (JDLA)**  
**R3B—Brazil**  
**R3C—Mexico**  
**R3D—Argentina**  
**R4—North America**  
**R4A—USA and Canada**  
**R4B—Oceania (Australia and New Zealand)**

**Regions 1, 2, and 3 equipment is traditionally manufactured with Economic Commission for Europe (ECE) features or systems.**

**Region 4 equipment is traditionally manufactured with Society of Automotive Engineers (SAE) features or systems.**

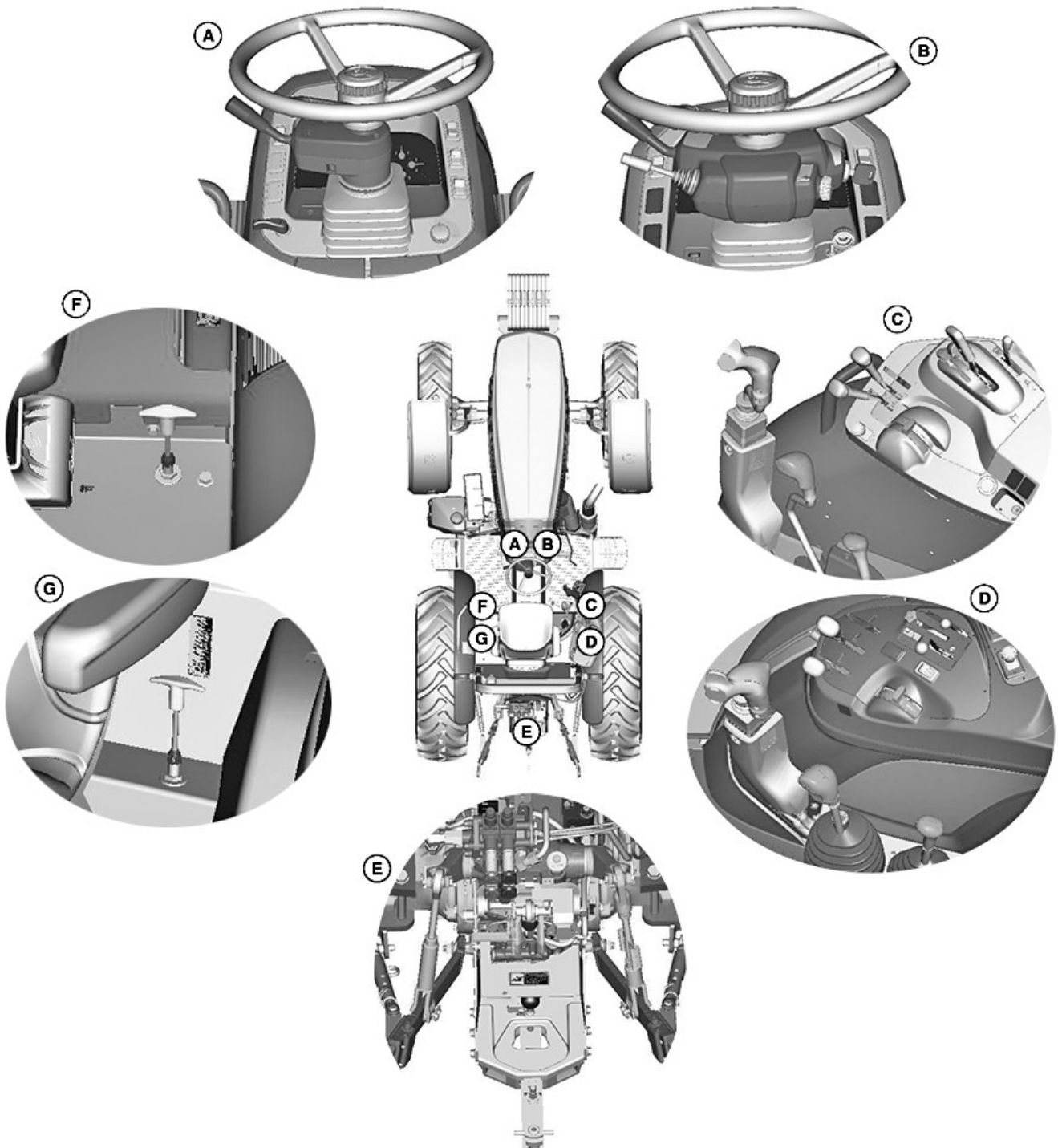
Drive and signal lighting, traffic signs, safety signs, and braking features are some of the systems that differ between ECE and SAE. For example, Text-Free (pictorial only) safety signs are used for ECE while Text-with-Picture safety signs are used on SAE.

Use information above, if equipment information is identified by regions, countries, trade federations, industry standards, or governmental regulations.

**NOTE:** Australia and New Zealand (R4B) are available as either region 4 and/or region 2 configurations, only using text-free safety signs.

GS25068,0005A82-19-09OCT18

## Machine Overview



CPA0003990—UN—08AUG17

A—Front Console Controls—OOS and Low-Profile  
B—Front Console Controls—Cab  
C—Right Side Controls—OOS and Low-Profile  
D—Right Side Controls—Cab

E—Rear Implement Interface  
F—Left Side Control—OOS and Low-Profile  
G—Left Side Control—Cab



**IMPORTANT: 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.)**

Review manual sections for Controls and Instruments identification, Steering and Brakes, Transmission, and Transportation before operation on the road or in the field.

#### Operating the Machine Introduction:

- Sit in the operator seat and fasten seat belt.
- Start engine. (See Engine Operation section.)
- Turn on lights or signals as required. (See Electrical and Lighting Operation section.)
- Operate transmission to move machine. (See Transmission Operation section.)
- Use steering and brakes as required. (See Steering and Brake Operation section.)
- Activate features and implements as required. (See Operational sections.)

#### Preliminary Overview

Use the following list as a reminder to inspect items before operation. Detailed operation and service information is available in the relevant Operational and Maintenance sections.

- Review manual and machine for safety information and safety signs.
- Review manual for proper operation, adjustment, and service.
- Review manual for engine and drivetrain operations. (Throttles, brakes, steering, transmission gears, MFWD, and differential lock.)
- Review manual for control devices (hitch, hydraulic, and electrical).
- Review manual for regular lubrication points and intervals.
- Check for visual signs of leaks, damage, failures, and flats.
- Prepare machine hardware, fuel, fluids, lubricants, air, and daily maintenance.
- Check and prepare implements or attachments according to implement or attachment Operator Manuals.

#### Using this Manual:

The information provided in this manual is divided into sections. The sections are organized by typical machine features or functional systems (Engine, Electrical, Hydraulic, Transmission, and so on). These sections

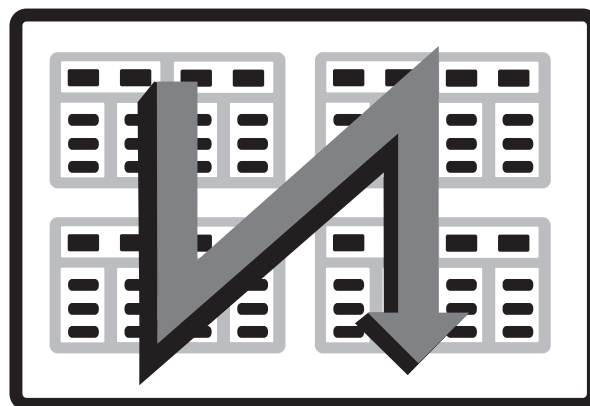
are identified at the top of each page. Specific information within each section is organized into modules. These modules are enclosed in boxes and the main modules are identified by a heading at the top left. Page numbers identify the section as well as the number of the page in the section.

By reviewing this manual frequently, you learn which section to turn to for specific information. For example:

- Safety information is covered at the beginning.
- Operation of all features and systems is covered in the first half of the manual.
- Maintenance intervals are in the middle of the manual.
- Maintenance of all the features and systems is covered in the second half of the manual.
- Specifications are covered at the end.

A detailed table of contents appears before Safety information and there is an alphabetical index at the very end of the manual.

The Operator's Manual content flows as sequential reading down one column of text and graphic then over to the top of the next column as shown.



W28329—UN—18OCT17

**CAUTION:** The tractor is not designed for use in flooded fields, as is the case with rice crops.

EKPQ1SQ.00035E0-19-01SEP21

# Safety Precautions

## Recognize Safety Information



T81389—UN—28JUN13

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

Follow recommended precautions and safe operating practices.

DX,ALERT-19-29SEP98

## Follow Safety Instructions



TS201—UN—15APR13

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

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

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

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

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

DX,READ-19-16JUN09

## Understand Signal Words



**▲ WARNING**

**▲ CAUTION**

TS187—19—30SEP88

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

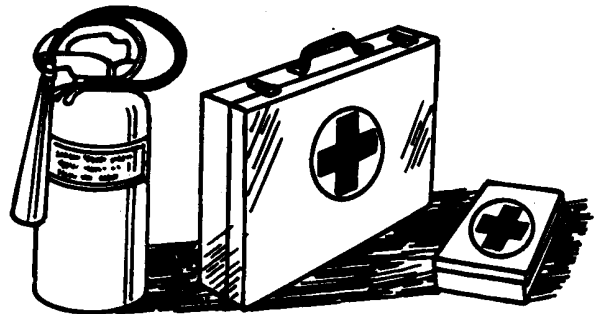
**WARNING;** The signal word WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

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

A signal word—DANGER, WARNING, or CAUTION—is used with the safety-alert symbol. DANGER identifies the most serious hazards. DANGER or WARNING safety signs are located near specific hazards. General precautions are listed on CAUTION safety signs. CAUTION also calls attention to safety messages in this manual.

DX,SIGNAL-19-05OCT16

## Prepare for Emergencies



TS291—UN—15APR13

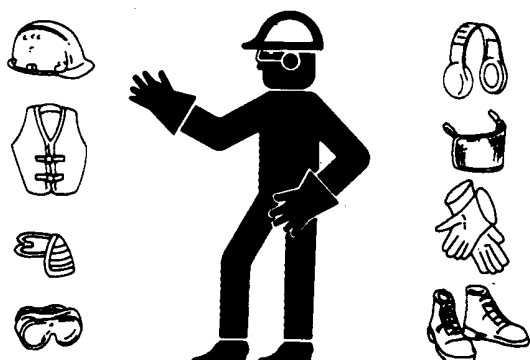
Be prepared if a fire starts.

Keep a first aid kit and fire extinguisher handy.

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

DX,FIRE2-19-03MAR93

## Wear Protective Clothing



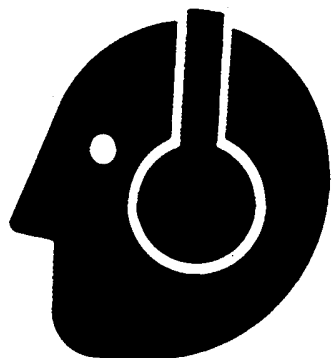
TS206—UN—15APR13

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

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

DX,WEAR2-19-03MAR93

## Protect Against Noise



TS207—UN—23AUG88

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

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

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

DX,NOISE-19-03OCT17

## Handle Fuel Safely—Avoid Fires



TS202—UN—23AUG88

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

## Handle Starting Fluid Safely



TS1356—UN—18MAR92

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

## Fire Prevention

To reduce the risk of fire, your tractor should be regularly inspected and cleaned.

- Birds and other animals may build nests or bring other flammable materials into the engine compartment or onto the exhaust system. The tractor should be inspected and cleaned prior to the first use each day.
- A build up of grass, crop material and other debris may occur during normal operation. This is especially true when operating in very dry conditions or conditions where airborne crop material or crop dust is present. Any such build up must be removed to ensure proper machine function and to reduce the risk of fire. The tractor must be inspected and cleaned periodically throughout the day.
- Regular and thorough cleaning of the tractor combined with other routine maintenance procedures listed in the Operator's Manual greatly reduce the risk of fire and the chance of costly downtime.
- Do not store fuel container where there is an open flame, spark, or pilot light such as within a water heater or other appliance.
- Check fuel lines, tank, cap, and fittings frequently for damage, cracks or leaks. Replace if necessary.

Follow all operational and safety procedures posted on the machine and the Operator's Manual. Be careful of hot engine and exhaust components during inspection and cleaning. Before carrying out any inspection or cleaning, always shut OFF the engine, place the transmission in PARK or set parking brake, and remove the key. Removal of the key will prevent others from starting the tractor during inspection and cleaning.

DX,WW,TRACTOR,FIRE,PREVENTION-19-12OCT11

## In Case of Fire



TS227—UN—15APR13

### **CAUTION: Avoid personal injury.**

Stop machine immediately at the first sign of fire. Fire may be identified by the smell of smoke or sight of flames. Because fire grows and spreads rapidly, get off the machine immediately and move safely away from the fire. Do not return to the machine! The number one priority is safety.

Call the fire department. A portable fire extinguisher can put out a small fire or contain it until the fire department arrives; but portable extinguishers have limitations. Always put the safety of the operator and bystanders first. If attempting to extinguish a fire, keep your back to the wind with an unobstructed escape path so you can move away quickly if the fire cannot be extinguished.

Read the fire extinguisher instructions and become familiar with their location, parts, and operation before a fire starts. Local fire departments or fire equipment distributors may offer fire extinguisher training and recommendations.

If your extinguisher does not have instructions, follow these general guidelines:

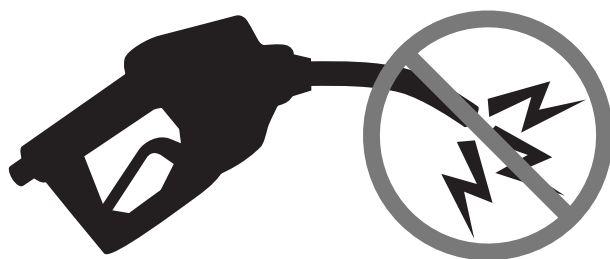
1. Pull the pin. Hold the extinguisher with the nozzle pointing away from you, and release the locking mechanism.
2. Aim low. Point the extinguisher at the base of the fire.
3. Squeeze the lever slowly and evenly.
4. Sweep the nozzle from side-to-side.

DX,FIRE4-19-22AUG13

## Avoid Static Electricity Risk When Refueling



RG22142—UN—17MAR14



RG21992—UN—21AUG13

The removal of sulfur and other compounds in Ultra-Low Sulfur Diesel (ULSD) fuel decreases its conductivity and increases its ability to store a static charge.

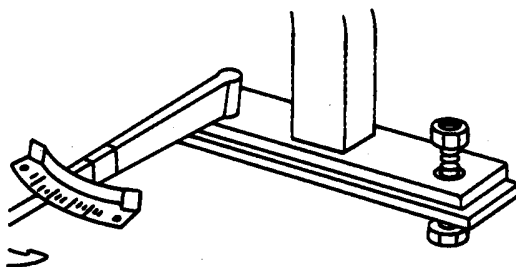
Refineries may have treated the fuel with a static dissipating additive. However, there are many factors that can reduce the effectiveness of the additive over time.

Static charges can build up in ULSD fuel while it is flowing through fuel delivery systems. Static electricity discharge when combustible vapors are present could result in a fire or explosion.

Therefore, it is important to ensure that the entire system used to refuel your machine (fuel supply tank, transfer pump, transfer hose, nozzle, and others) is properly grounded and bonded. Consult with your fuel or fuel system supplier to ensure that the delivery system is in compliance with fueling standards for proper grounding and bonding practices.

DX,FUEL,STATIC,ELEC-19-12JUL13

## Keep ROPS Installed Properly



TS212—UN—23AUG88

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.

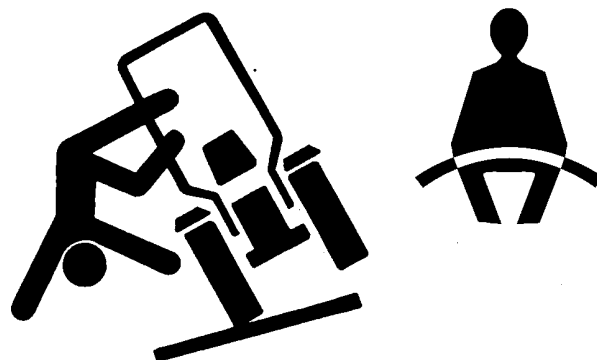
The protection offered by ROPS will be impaired if ROPS is subjected to structural damage, is involved in an overturn incident, or is in any way altered by welding, bending, drilling, or cutting. A damaged ROPS should be replaced, not reused.

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

## Use Foldable ROPS and Seat Belt Properly



TS1729—UN—24MAY13

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.

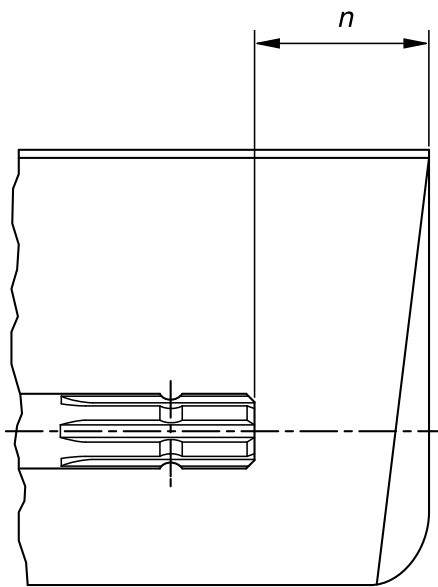
- Snug the seat belt across the hips.
- If this machine is operated with the ROPS folded (for example, to enter a low building), drive with extreme caution. DO NOT USE a seat belt with the ROPS folded.
- Return the ROPS to the raised, fully extended position as soon as the machine is operated under normal conditions.

DX,FOLDROPS-19-22AUG13

## Stay Clear of Rotating Drivelines



TS1644—UN—22AUG95



H96219—UN—29APR10

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.

Only use power take-off driveshafts with adequate guards and shields.

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 driveshaft 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.

The angle at which the primary implement PTO driveshaft can be inclined may be reduced depending on the shape and size of the tractor master shield and the shape and size of the guard of the primary implement PTO driveshaft.

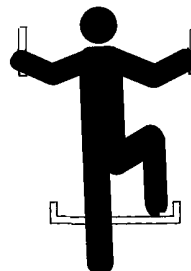
Do not raise implements high enough to damage the tractor master shield or guard of primary implement PTO driveshaft. Detach the PTO driveline shaft if it is necessary to increase implement height. (See Attching/ Detaching PTO Driveline)

When using Type 3/4 PTO, inclination and turning angles may be reduced depending on type of PTO master shield and coupling rails.

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.)
4	57.5 mm (2.264 in.)	22	100 mm (4.00 in.)

DX,PTO-19-28FEB17

## Use Steps and Handholds Correctly



T133468—UN—15APR13

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.

DX,WW,MOUNT-19-12OCT11

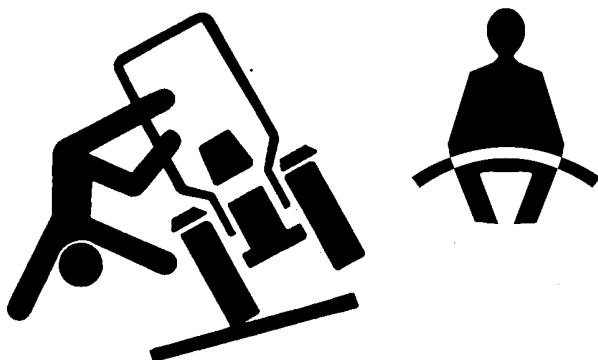
## Read Operator's Manuals for ISOBUS Controllers

In addition to GreenStar™ Applications, this display can be used as a display device for any ISOBUS Controller that meets ISO 11783 standard. This includes capability to control ISOBUS implements. When used in this manner, information and control functions placed on the display are provided by the ISOBUS Controller and are the responsibility of the ISOBUS Controller manufacturer. Some of these functions could pose a hazard to either the operator or a bystander. Read the Operator's Manual provided by the ISOBUS Controller manufacturer and observe all safety messages in manual and on ISOBUS Controller product prior to use.

*NOTE: ISOBUS refers to the ISO Standard 11783*

DX,WW,ISOBUS-19-15JUL15

## Use Seat Belt Properly



TS1729—UN—24MAY13

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,

*GreenStar is a trademark of Deere & Company*

such as cuts, fraying, extreme or unusual wear, discoloration, or abrasion. Replace only with replacement parts approved for your machine. See your John Deere dealer.

DX,ROPS1-19-22AUG13

## 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.
- Operators must be mentally and physically capable of accessing the operator's station and/or controls, and operating the machine properly and safely.
- Never operate machine when distracted, fatigued, or impaired. Proper machine operation requires the operator's full attention and awareness.
- 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.
- Follow the instructions outlined in the operator's manual of any mounted or trailed machinery or trailer. Do not operate a combination of tractor-machine or tractor-trailer unless all instructions have been followed.
- Make sure that everyone is clear of machine, attached equipment, and work area before starting engine or operation.
- Stay clear of the three-point linkage and pickup hitch (if equipped) when controlling them.
- Keep hands, feet, and clothing away from power-driven parts.

## Driving Concerns

- Never get on or off a moving tractor.
- Complete any required training prior to operating vehicle.
- 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 a 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.

- Stability degrades when attached implements are at high position.
- Couple brake pedals together for road travel.
- Pump brakes when stopping on slippery surfaces.
- Regularly clean fenders and fender valances (mud flaps) if installed. Remove dirt before driving on public roadways.

#### Heated and Ventilated Operator's Seat

- An overheated seat heater can cause a burn injury or damage to the seat. To reduce the risk of burns, use caution when using the seat heater for extended periods of time, especially if the operator cannot feel temperature change or pain to the skin. Do not place objects on the seat, such as a blanket, cushion, cover, or similar item, which can cause the seat heater to overheat.

#### 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, place implement/attachment control devices in neutral, and securely engage park mechanism, including the park pawl and park brake. In addition, if the 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 are:

- Tractor rollover
- Collisions with motor vehicles
- Improper starting procedures
- Entanglement in PTO shafts
- Falling from tractor

- Crushing and pinching during hitching

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DX,WW,TRACTOR-19-08MAY19

#### Avoid Backover Accidents



PC10857XW—UN—15APR13

Before moving machine, be sure that all persons are clear of machine path. Turn around and look directly for best visibility. Use a signal person when backing if view is obstructed or when in close quarters.

Do not rely on a camera to determine if personnel or obstacles are behind the machine. The system can be limited by many factors including maintenance practices, environmental conditions, and operating range.

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DX,AVOID,BACKOVER,ACCIDENTS-19-30AUG10

#### 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.

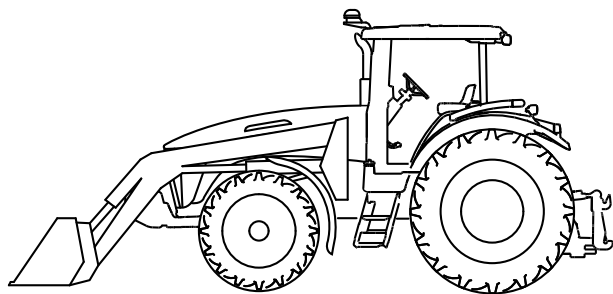
These are applications where normal operation does not present a risk of falling or penetrating objects. Any forestry applications beyond these applications, such as forwarding and loading, requires fitment of application-specific components including Falling Object Protective Structure (FOPS) and/or Operative Protective Structures (OPS). Contact John Deere dealer for special components.

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DX,WW,FORESTRY-19-12OCT11



## Operating the Loader Tractor Safely



TS1692—UN—09NOV09

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.

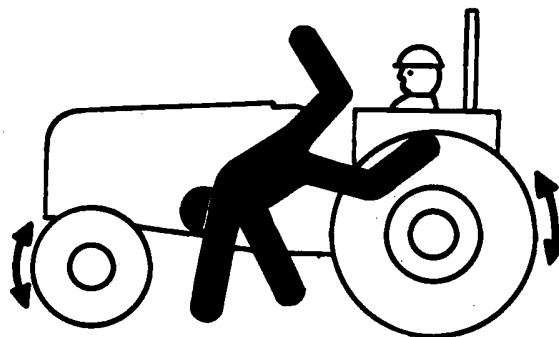
Lower loader to ground before leaving operators station.

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

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

DX,WW,LOADER-19-18SEP12

## Keep Riders Off Machine



TS290—UN—23AUG88

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

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

DX,RIDER-19-03MAR93

## Instructional Seat

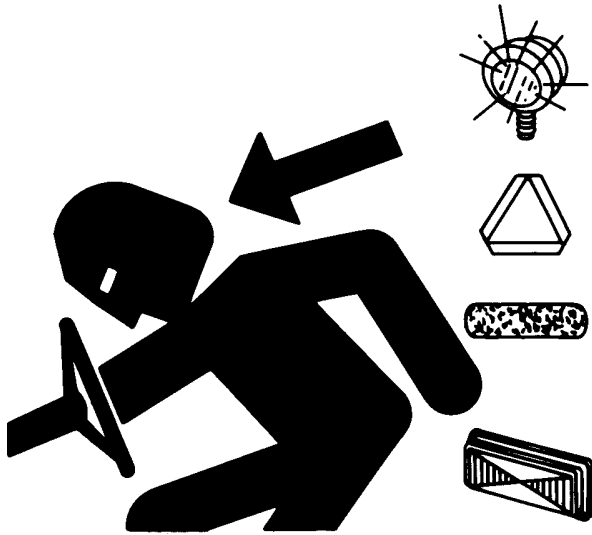


TS1730—UN—24MAY13

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

DX,SEAT,NA-19-22AUG13

## Use Safety Lights and Devices



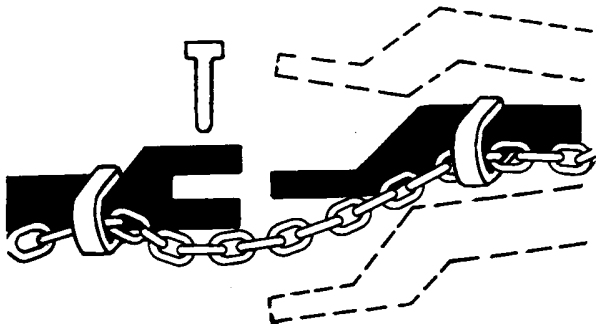
TS951—UN—12APR90

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

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

DX,FLASH-19-07JUL99

## Use a Safety Chain



TS217—UN—23AUG88

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

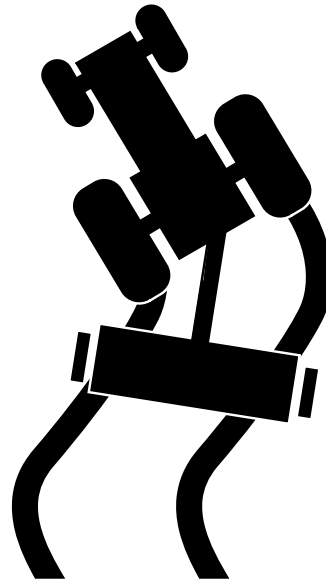
Using the appropriate adapter parts, attach the chain to the tractor drawbar support or other specified anchor location. Provide only enough slack in the chain to permit turning.

See your John Deere dealer for a chain with a strength

rating equal to or greater than the gross weight of the towed machine. Do not use safety chain for towing.

DX,CHAIN-19-03MAR93

## Transport Towed Equipment at Safe Speeds



TS1686—UN—27SEP06

Do not exceed the maximum transport speed. This towing unit may be capable of operating at transport speeds that exceed the maximum allowable transport speed for 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 towing unit/implement combination
- Reduced or no ability to stop during braking
- Implement tire failure
- Damage to the implement structure or its components

Implements shall be equipped with brakes if the maximum fully loaded weight is greater than 1500 kg (3307 lbs) and greater than 1.5 times the weight of the towing unit.

**Example: Implement mass is 1600 kg (3527 lbs) and towing unit mass is 1600 kg (3527 lbs), example implement is not required to have brakes.**

**Implements without brakes:** Do not transport at speeds greater than 32 km/h (20 mph).

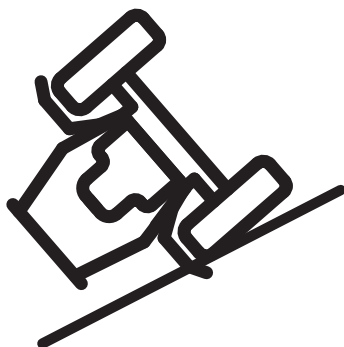
**Implements with brakes:**

- 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 towing unit 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 towing unit weight.

When towing a trailer, become familiar with the braking characteristics and ensure the compatibility of the tractor/trailer combination in regard to the deceleration rate.

DX,TOW1-19-28FEB17

### Use Caution on Slopes, Uneven Terrain, and Rough Ground



RXA0103437—UN—01JUL09

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 the 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.

Uneven terrain or rough ground can cause loss-of-control and tip-over accidents, which can result in severe injury or death. Operation on uneven terrain or rough ground 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

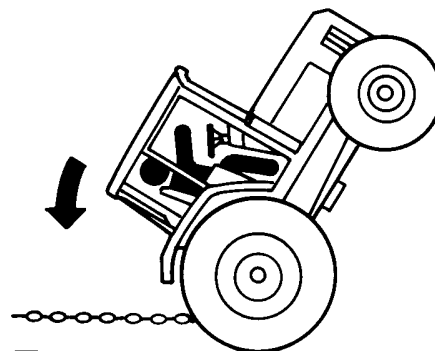
Choose a low ground speed so you will not have to stop or shift while on a slope.

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-19-28FEB17

### Freeing a Mired Machine



TS1645—UN—15SEP95



TS263—UN—23AUG88

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

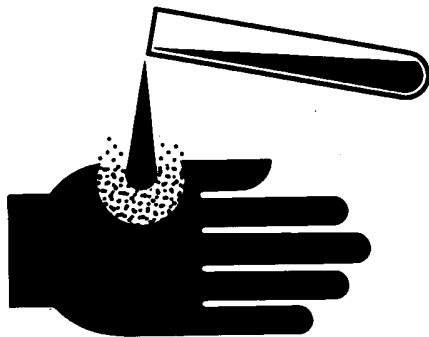
hitch to the front pushbar attachment point. Before moving, clear the area of people. Apply power smoothly to take up the slack: a sudden pull could snap any towing device causing it to whip or recoil dangerously.

DX,MIREd-19-07,JUL99

## Avoid Contact with Agricultural Chemicals



TS220—UN—15APR13



TS272—UN—23AUG88

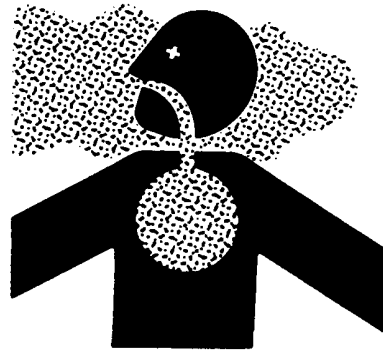
This enclosed cab does not protect against inhaling vapor, aerosol or dust. If pesticide use instructions require respiratory protection, wear an appropriate respirator inside the cab.

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

## Handle Agricultural Chemicals Safely



TS220—UN—15APR13



A34471

A34471—UN—11OCT88

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.

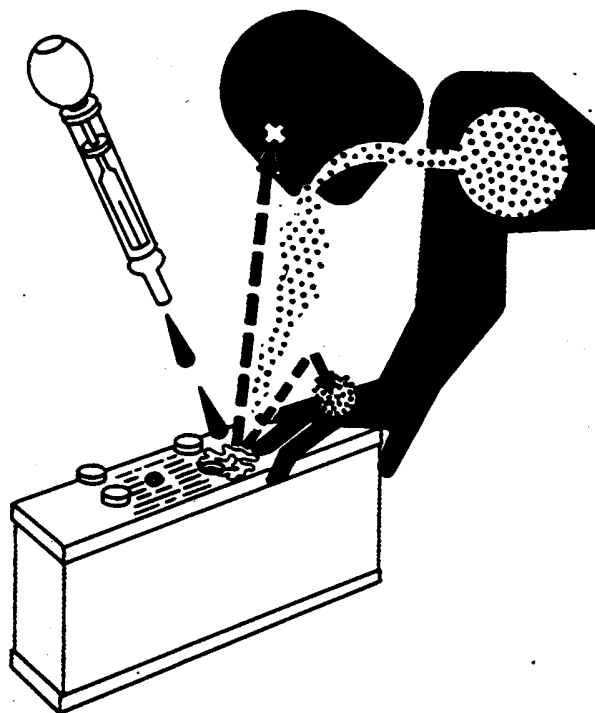
- Do not smoke or eat while applying chemicals.
- After handling chemicals, always bathe or shower and change clothes. Wash clothing before wearing again.
- Seek medical attention immediately if illness occurs during or shortly after use of chemicals.
- Keep chemicals in original containers. Do not transfer 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.

DX,WW,CHEM01-19-24AUG10

## Handling Batteries Safely



TS204—UN—15APR13



TS203—UN—23AUG88

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.**

DX,WW,BATTERIES-19-02DEC10

## Avoid Heating Near Pressurized Fluid Lines



TS953—UN—15MAY90

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

DX,TORCH-19-10DEC04

## Remove Paint Before Welding or Heating



TS220—UN—15APR13

Avoid potentially toxic fumes and dust.

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

Remove paint before heating:

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

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

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

Dispose of paint and solvent properly.

DX,PAINT-19-24JUL02

## Handle Electronic Components and Brackets Safely



TS249—UN—23AUG88

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

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

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

DX,WW,RECEIVER-19-24AUG10

## Practice Safe Maintenance



TS218—UN—23AUG88

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

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

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

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

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

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

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

DX,SERV-19-28FEB17

## Avoid Hot Exhaust



RG17488—UN—21AUG09

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.

DX,EXHAUST-19-20AUG09

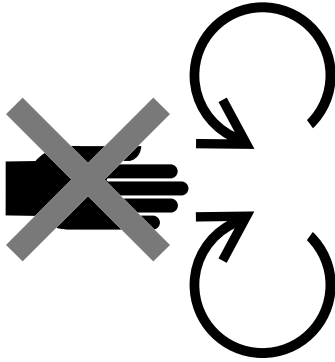
## Clean Exhaust Filter Safely



TS227—UN—15APR13



TS271—UN—23AUG88



TS1693—UN—09DEC09



TS1695—UN—07DEC09

During exhaust filter cleaning operations, the engine may run at elevated idle and hot temperatures for an extended period of time. Exhaust gases and exhaust filter components reach temperatures hot enough to burn people, or ignite or melt common materials.

Keep machine away from people, animals, or structures which may be susceptible to harm or damage from hot exhaust gases or components. Avoid potential fire or explosion hazards from flammable materials and vapors near the exhaust. Keep exhaust outlet away from people and anything that can melt, burn, or explode.

Closely monitor machine and surrounding area for smoldering debris during and after exhaust filter cleaning.

Adding fuel while an engine is running can create a fire or explosion hazard. Always stop engine before refueling machine and clean up any spilled fuel.

Always make sure that engine is stopped while hauling machine on a truck or trailer.

Contact with exhaust components while still hot can result in serious personal injury.

Avoid contact with these components until cooled to safe temperatures.

If service procedure requires engine to be running:

- Only engage power-driven parts required by service procedure
- Ensure that other people are clear of operator station and machine

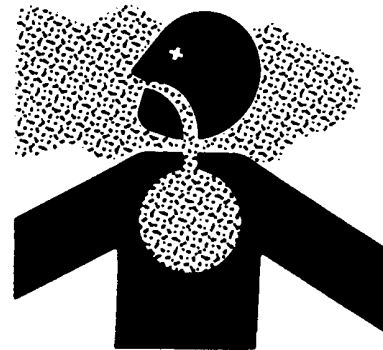
Keep hands, feet, and clothing away from power-driven parts.

Always disable movement (neutral), set the parking brake or mechanism and disconnect power to attachments or tools before leaving the operator's station.

Shut off engine and remove key (if equipped) before leaving the machine unattended.

DX,EXHAUST,FILTER-19-12JAN11

## Work In Ventilated Area



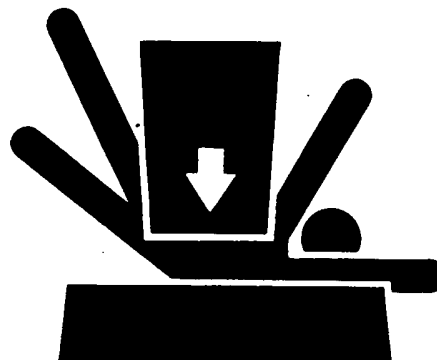
TS220—UN—15APR13

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

## Support Machine Properly



TS229—UN—23AUG88

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

Do not support the machine on cinder blocks, hollow tiles, or props that may crumble under continuous load.



Do not work under a machine that is supported solely by a jack. Follow recommended procedures in this manual.

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

DX,LOWER-19-24FEB00

## Prevent Machine Runaway



TS177—UN—11JAN89

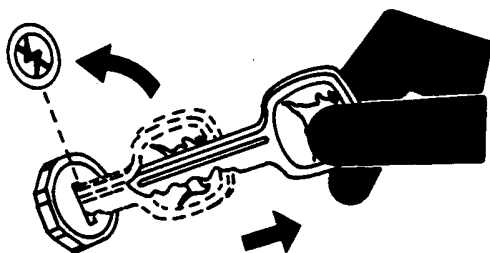
Avoid possible injury or death from machinery runaway.

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

## Park Machine Safely



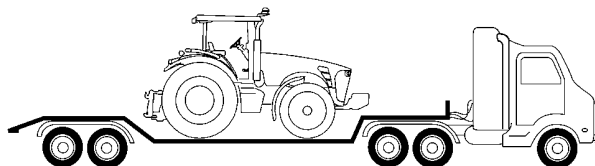
TS230—UN—24MAY89

Before working on the machine:

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

DX,PARK-19-04JUN90

## Transport Tractor Safely



RXA0103709—UN—01JUL09

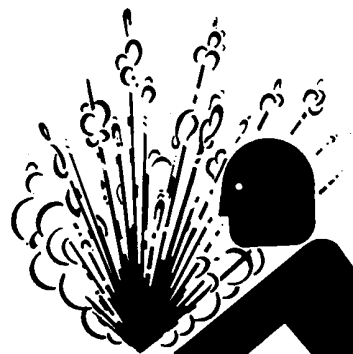
A disabled tractor is best transported on a flatbed carrier. Use chains to secure the tractor to the carrier. The axles and tractor frame are suitable attachment points.

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.

DX,WW,TRANSPORT-19-19AUG09

## Service Cooling System Safely



TS281—UN—15APR13

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.

DX,WW,COOLING-19-19AUG09

## Service Accumulator Systems Safely



TS281—UN—15APR13

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.

DX,WW,ACCLA2-19-22AUG03

## Service Tires Safely



RXA0103438—UN—11JUN09

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.

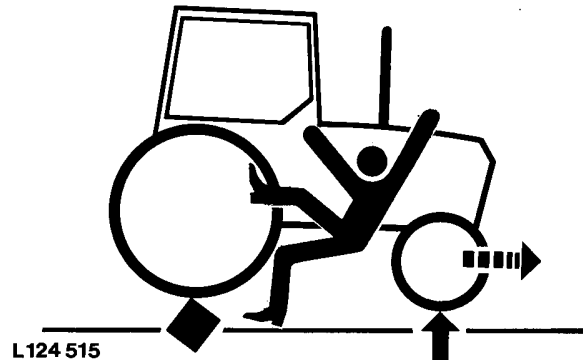
When inflating tires, use a clip-on chuck and extension hose long enough to allow you to stand to one side and NOT in front of or over the tire assembly. Use a safety cage if available.

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

Wheels and tires are heavy. When handling wheels and tires use a safe lifting device or get an assistant to help lift, install, or remove.

DX,WW,RIMS-19-28FEB17

## Service Front-Wheel Drive Tractor Safely



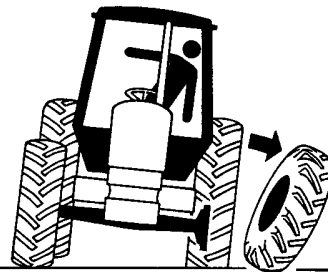
L124 515

L124515—UN—06AUG94

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.

DX,WW,MFWD-19-19AUG09

## Tightening Wheel Retaining Bolts/Nuts



L124 516

L124516—UN—03JAN95

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

DX,WW,WHEEL-19-12OCT11

## Avoid High-Pressure Fluids



X9811—UN—23AUG88

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

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

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

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

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

If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source. Such information is available in English from Deere & Company Medical Department in Moline, Illinois, U.S.A., by calling 1-800-822-8262 or +1 309-748-5636.

DX,FLUID-19-12OCT11

## Do Not Open High-Pressure Fuel System



TS1343—UN—18MAR92

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.)

DX,WW,HPCR1-19-07JAN03

## Store Attachments Safely



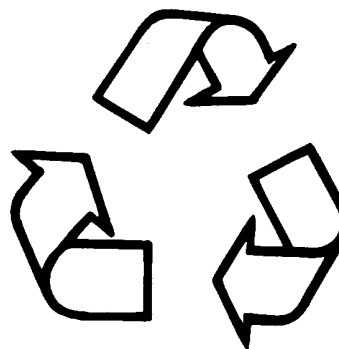
TS219—UN—23AUG88

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

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

DX,STORE-19-03MAR93

## Decommissioning — Proper Recycling and Disposal of Fluids and Components



TS1133—UN—15APR13

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

- Use appropriate tools and personal protective equipment such as clothing, gloves, face shields or glasses, during the removal or handling of objects and materials.
- Follow instructions for specialized components.

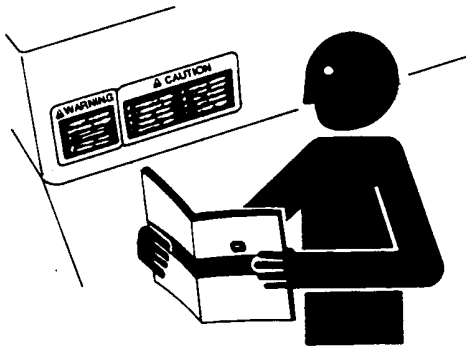
- Release stored energy by lowering suspended machine elements, relaxing springs, disconnecting the battery or other electrical power, and releasing pressure in hydraulic components, accumulators, and other similar systems.
- Minimize exposure to components which may have residue from agricultural chemicals,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

DX,DRAIN-19-01JUN15

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# Safety Signs

## Replace Safety Signs



TS201—UN—15APR13

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

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

DX,SIGNS-19-18AUG09



LV14479—UN—28JUL11

Left-Hand Door Post

## Operators Manual (Cab)



LV5411—19—17NOV00

## CAUTION

1. Read Operator's Manual before operating this tractor.
2. Keep all shields in place.
3. Hitch towed loads only to drawbar to avoid rearward upset.
4. Make certain everyone is clear of machine before starting engine or operation.
5. Keep all riders off tractor and equipment.
6. Keep hands, feet and clothing away from power-driven parts.
7. Reduce speed when turning or applying individual brakes or operating around hazards on rough ground or steep slopes.
8. Couple brake pedals together for road travel.
9. Use flashing warning lights on highway unless prohibited by law.
10. Stop engine, lower implement to ground and shift to "PARK" or set handbrake securely before dismounting.
11. Wait for all movement to stop before servicing machinery.
12. Remove key if leaving tractor unattended.

GS25068,0003F8D-19-14FEB18

## Operators Manual (OOS and Low-Profile)

### CAUTION

1. Read Operator's Manual before operating this tractor.
2. Keep all shields in place.
3. Hitch towed loads only to drawbar to avoid rearward upset.
4. Make certain everyone is clear of machine before starting engine or operation.
5. Keep all riders off tractor and equipment.
6. Keep hands, feet and clothing away from power-driven parts.
7. Reduce speed when turning or applying individual brakes or operating around hazards on rough ground or steep slopes.
8. Couple brake pedals together for road travel.
9. Use flashing warning lights on highway unless prohibited by law.
10. Stop engine, lower implement to ground and shift to "PARK" or set handbrake securely before dismounting.
11. Wait for all movement to stop before servicing machinery.
12. Remove key if leaving tractor unattended.

PULV000209—19—22FEB08



LV22011—UN—09JUN14  
Left-Hand Fender (OOS and Low-Profile)

### CAUTION

1. Read Operator's Manual before operating this tractor.
2. Keep all shields in place.
3. Hitch towed loads only to drawbar to avoid rearward upset.
4. Make certain everyone is clear of machine before starting engine or operation.
5. Keep all riders off tractor and equipment.
6. Keep hands, feet and clothing away from power-driven parts.
7. Reduce speed when turning or applying

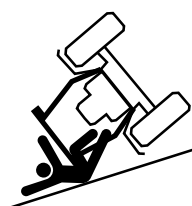
individual brakes or operating around hazards on rough ground or steep slopes.

8. Couple brake pedals together for road travel.
9. Use flashing warning lights on highway unless prohibited by law.
10. Stop engine, lower implement to ground and shift to "PARK" or set handbrake securely before dismounting.
11. Wait for all movement to stop before servicing machinery.
12. Remove key if leaving tractor unattended.

GS25068,0003F8C-19-14FEB18

## Use Seat Belt Properly (Cab)

### WARNING



#### AVOID CRUSHING:

- Do not jump if machine tips.



#### USE SEAT BELT

- Pull belt fully from retractors and adjust for best protection.

To maintain unimpaired operator protection and manufacturer's ROPS certification:

- Damaged ROPS structures must be replaced, not repaired or revised.
- Any alteration to the ROPS must be approved by the manufacturer.

LV15901—19—25JUL12



**WARNING**

**AVOID CRUSHING:**

- Do not jump if machine tips.

**USE SEAT BELT**

- Pull belt fully from retractors and adjust for best protection.

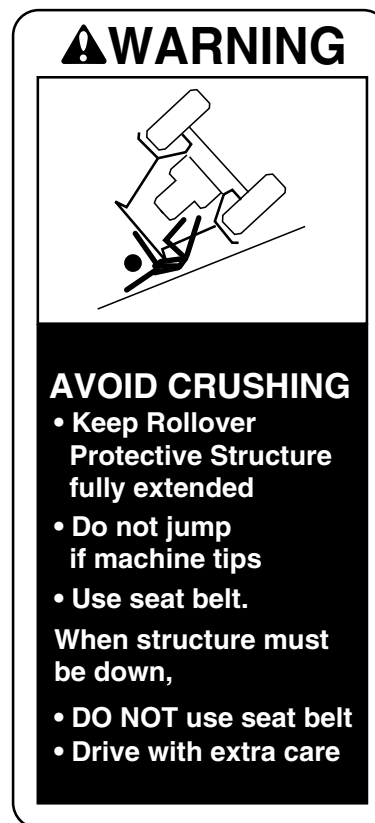
To maintain unimpaired operator protection and manufacturer's ROPS certification:

—Damaged ROPS structures must be replaced, not repaired or revised.

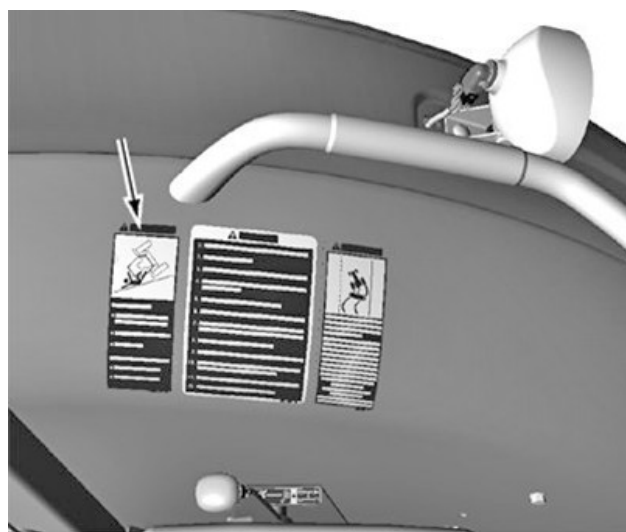
—Any alteration to the ROPS must be approved by the manufacturer.

CP00834,00024CB-19-04AUG17

**Use Seat Belt Properly (OOS and Low-Profile)**



LV6526—19—14MAR01



Left-Hand Fender (OOS and Low-Profile)

**WARNING**

**AVOID CRUSHING**

- Keep rollover protective structure fully extended.
- Do not jump if machine flips.
- Use seat belt.

When structure must be down,

- DO NOT use seat belt.
- Drive with extra care.

GS25068,0003F8E-19-14FEB18

## Instructional Seat



RXA0148587—19—07JUL15



Left Hand Front Post

CPA0004177—UN—04AUG17

## CAUTION

This instructional seat has been provided only for training operators or diagnosing machine problems.

Keep all other riders off the tractor and equipment.

Always wear your safety belt.

OURX985,00031AF-19-12JAN18

## Starter



RXA0161431—UN—05JAN18

Right Side of Engine

## DANGER

Start only from seat in park or neutral.

Starting in gear kills.

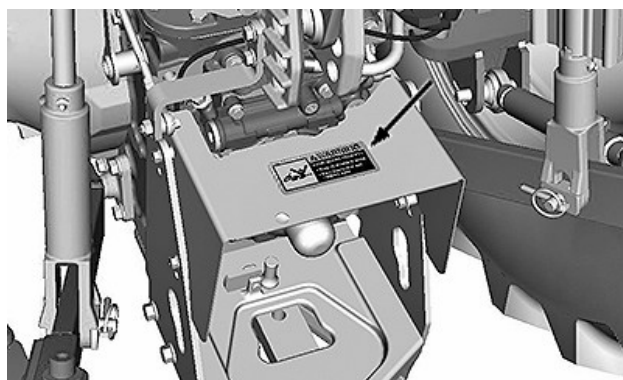
MP73369,000102E-19-27MAY21

## PTO Shield



RXA0148607—19—09JUL15





CPA0004052—UN—03AUG17

PTO Housing

## WARNING

### AVOID INJURY FROM PTO

- Keep all shields in place
- Keep hands, feet and clothing away

GS25068,0003F87-19-14FEB18



CPA0004179—UN—04AUG17

Left-Hand Door Post (Cab)

## Tow Implement Properly



LV15900—19—25JUL12



CPA0004180—UN—04AUG17

Left-Hand Fender (OOS and Low-Profile)

## WARNING

Avoid serious injury or death resulting from loss of control during transport or braking of a towed implement.

This tractor is capable of operating at transport speeds that may exceed the maximum allowable transport speed for towed implements. If implement manufacturer does not specify maximum transport speed, observe these transport speed limits:

—Implements without brakes: 32 km/h (20 mph)

—Implements with brakes: 40 km/h (25 mph)

Do not exceed the implement's maximum transport speed.

GS25068,0003F88-19-14FEB18

## Front End Loader



RXA0068062—19—29JUN05



CPA0004182—UN—04AUG17

Right-Hand Console (OOS and Low-Profile)

### WARNING

#### AVOID INJURY OR DEATH CAUSED BY FALLING LOADS

When using loader **ALWAYS** put SCV selector knobs in loader position.

*If you do not, loader will continue to move after controls are released.*

See operators manual for use of other knob positions.

GS25068,0003F89-19-14FEB18



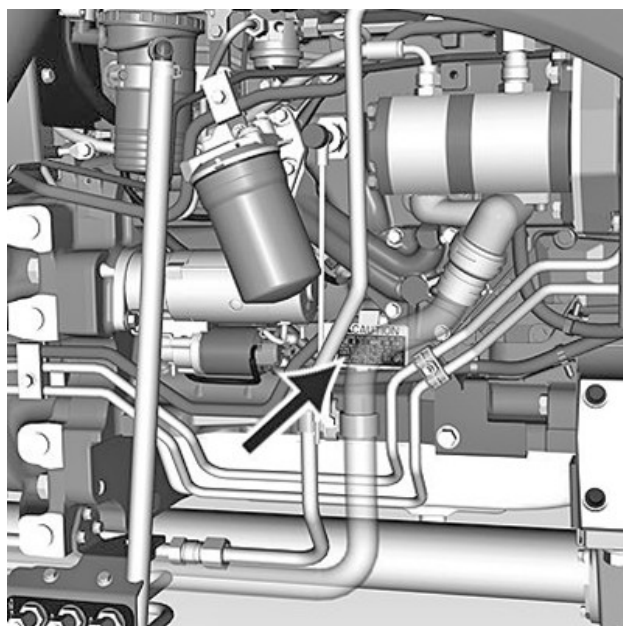
CPA0004181—UN—04AUG17

Right-Hand Post (Cab)

## Engine Coolant Heater



RXA0148588—19—09JUL15



CPA0004183—UN—04AUG17

*Right Side of Engine*

### CAUTION

**TO AVOID ELECTRICAL SHOCK OR FIRE USE A 3-WIRE 14 AWG HEAVY-DUTY ELECTRICAL CORD WITH 15 AMP RATING SUITABLE FOR OUTDOOR USE. ALWAYS PLUG ELECTRICAL CORD INTO 120 VOLT OUTLET PROTECTED BY GFI (GROUND FAULT INTERRUPTER.)**

GS25068,0003F8A-19-14FEB18



LV15825—UN—22JUN12

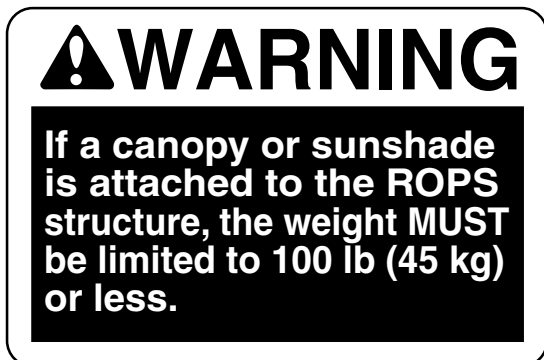
*Right-Hand ROPS Post (OOS and Low Profile)*

### WARNING

**If a canopy or sunshade is attached to the ROPS structure, the weight MUST be limited to 100 lb (45 kg) or less.**

GS25068,0003F8B-19-14FEB18

## ROPS

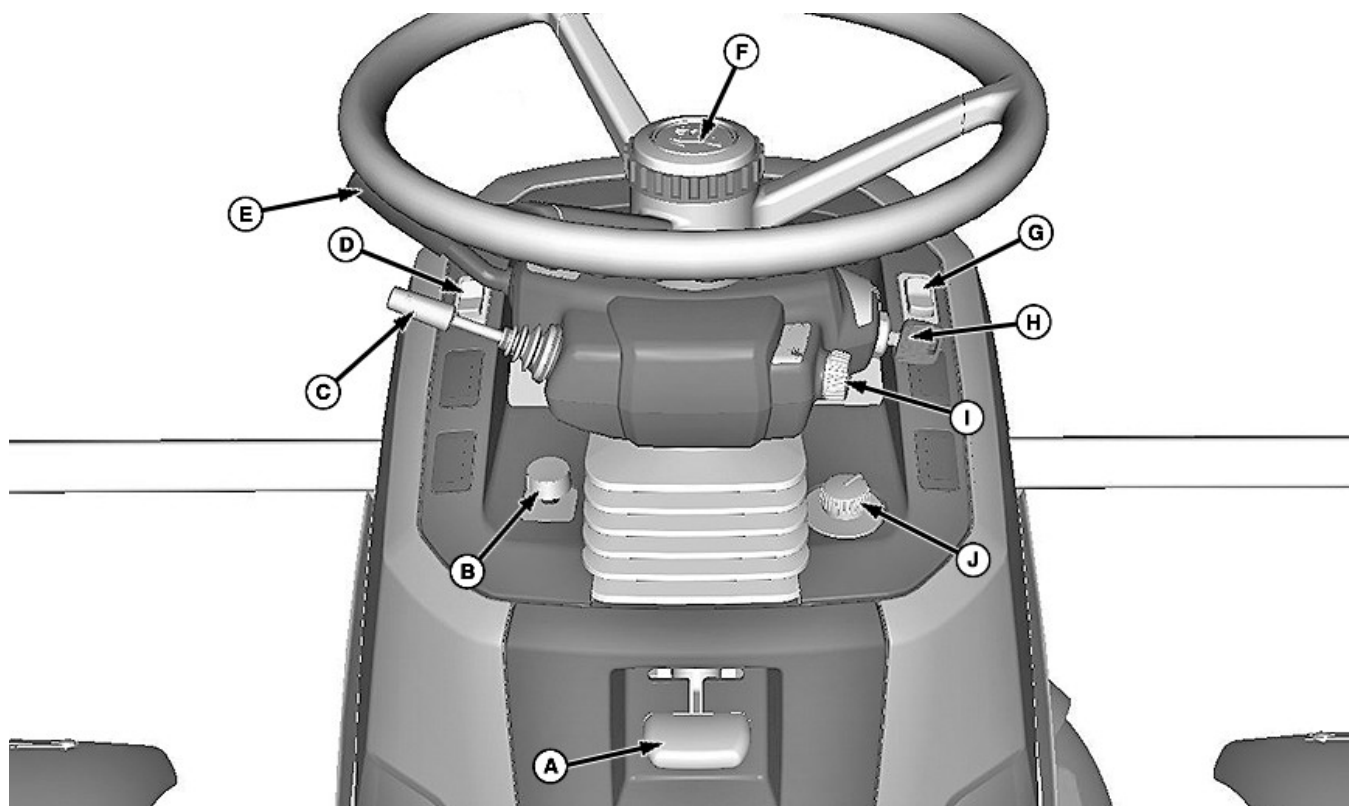


LV6525—19—14MAR01

# Controls and Instruments

## Front Console Controls

### Cab Front Console Controls

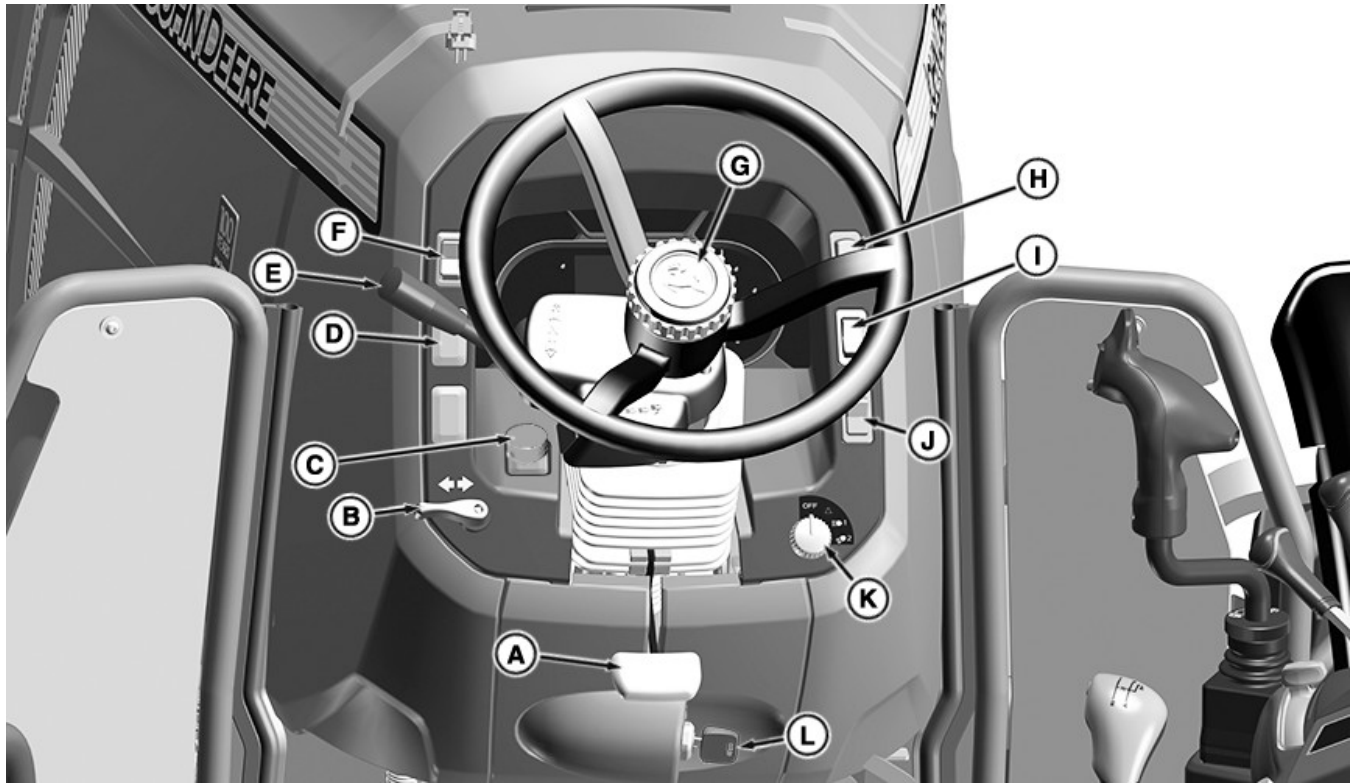


CPA0004222—UN—09AUG17

A—Steering Wheel Tilt Lever  
B—Reverse Modulation Knob  
C—Horn/Headlight Control/Turn Signal Lever  
D—Roll-Mode Switch  
E—Forward/Neutral/Reverse Lever

F—Steering Wheel Telescopic Knob  
G—Regeneration Switch  
H—Key Switch  
I—Light Switch  
J—Front Wiper/Washer Switch

## Open Operator Station and Low-Profile Console Controls



RXA0178241—UN—03JUN20

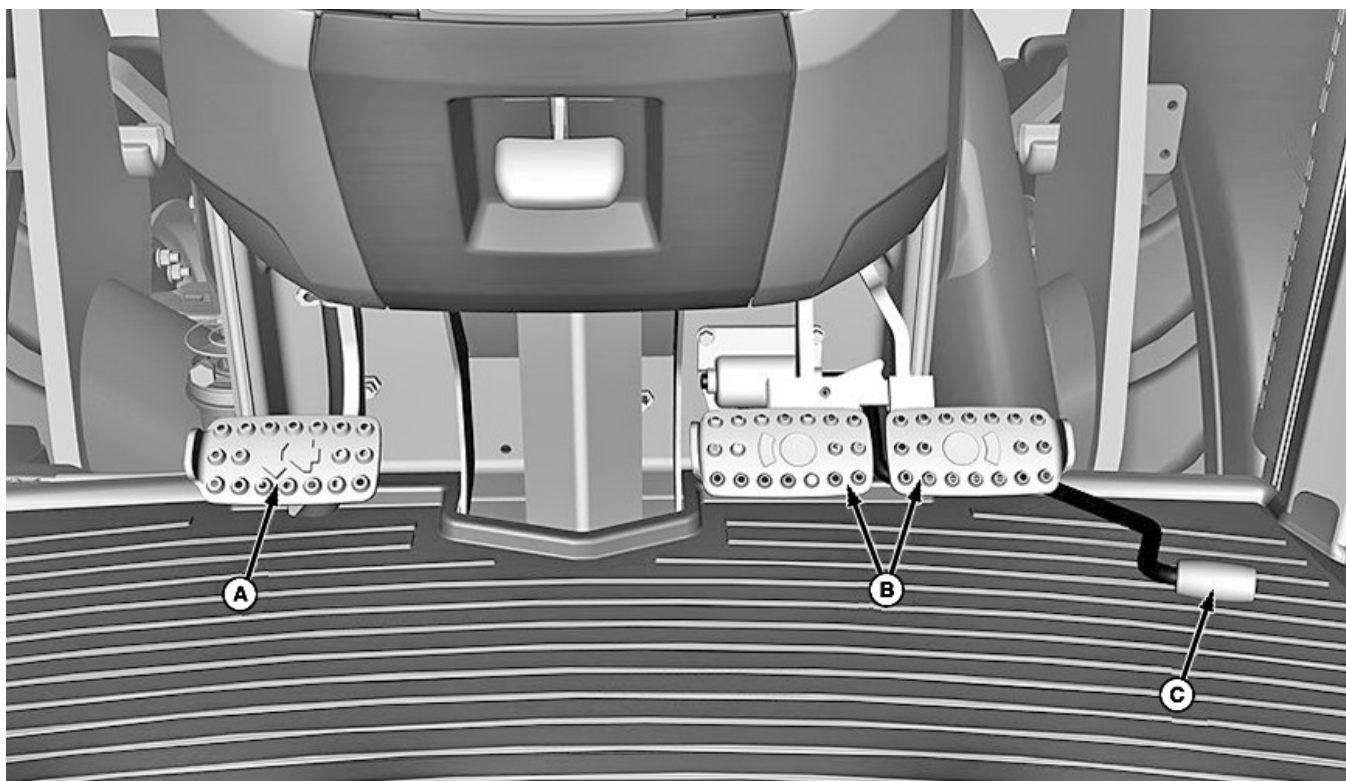
A—Steering Wheel Tilt Lever  
B—Turn Signal Lever  
C—Reverse Modulation Knob  
D—Roll-Mode Switch—Low-Profile Tractors  
E—Horn/Forward/Neutral/Reverse Lever  
F—Roll-Mode Switch—OOS Tractors

G—Steering Wheel Telescopic Knob  
H—Regeneration Switch  
I—MFWD Switch  
J—High/Low Beam Switch  
K—Light Switch  
L—Key Switch

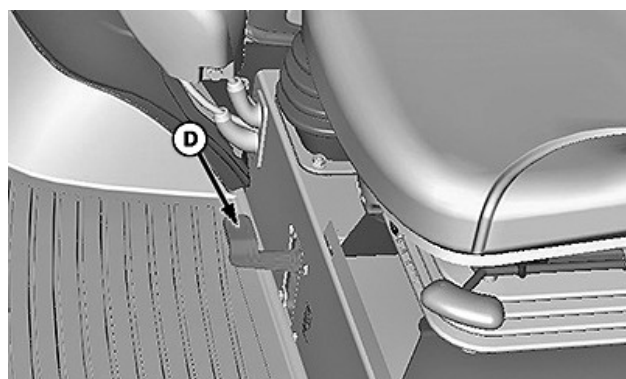
GS25068,0005A84-19-03JUN20

## Foot Operated Controls

### Cab Foot Operated Controls



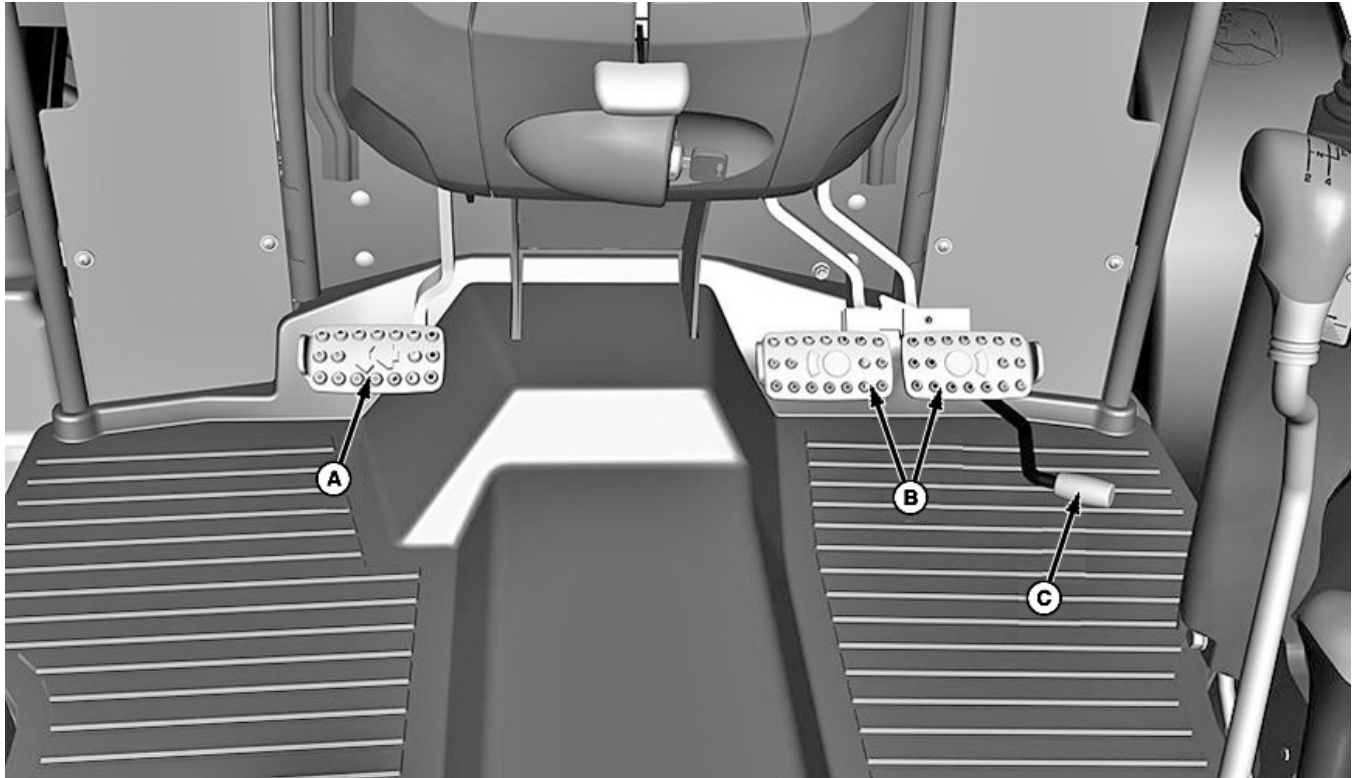
CPA0004158—UN—04AUG17



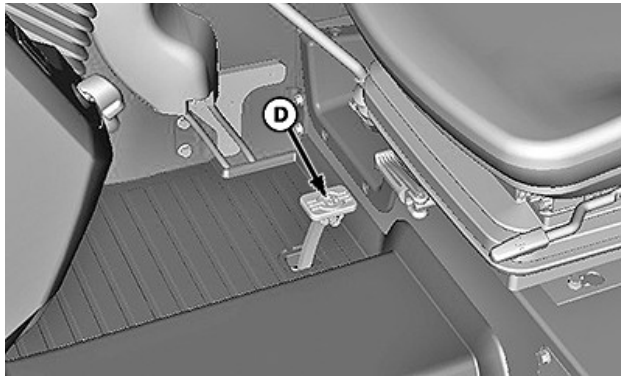
CPA0004159—UN—04AUG17

- A—Clutch Pedal
- B—Brake Pedals
- C—Foot Throttle
- D—Differential Lock Switch

## Open Operator Station and Low-Profile Foot Operated Controls



CPA0004160—UN—04AUG17



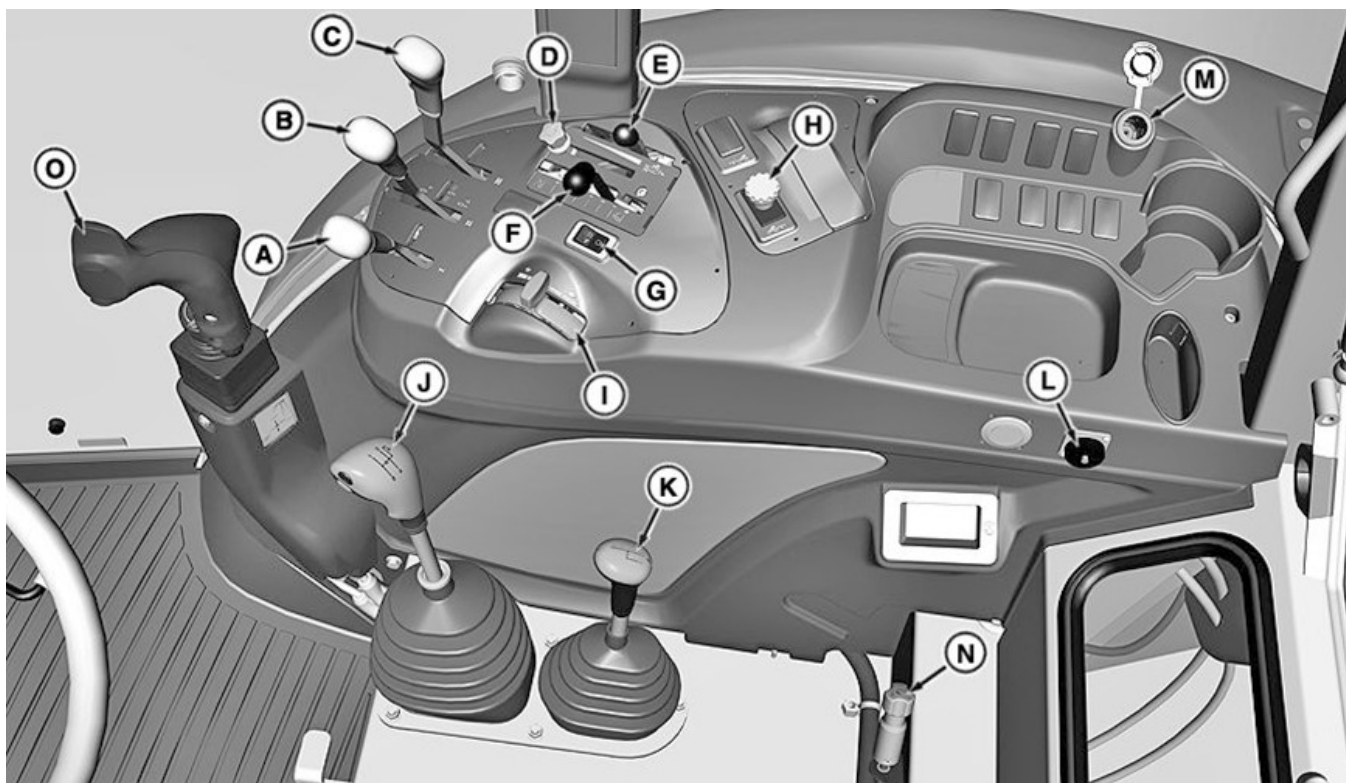
CPA0004161—UN—04AUG17

- A—Clutch Pedal
- B—Brake Pedals
- C—Foot Throttle
- D—Differential Lock Switch

OURX985,000317C-19-12JAN18

## Side Console Controls

### Cab Side Console Controls



CPA0004164—UN—04AUG17

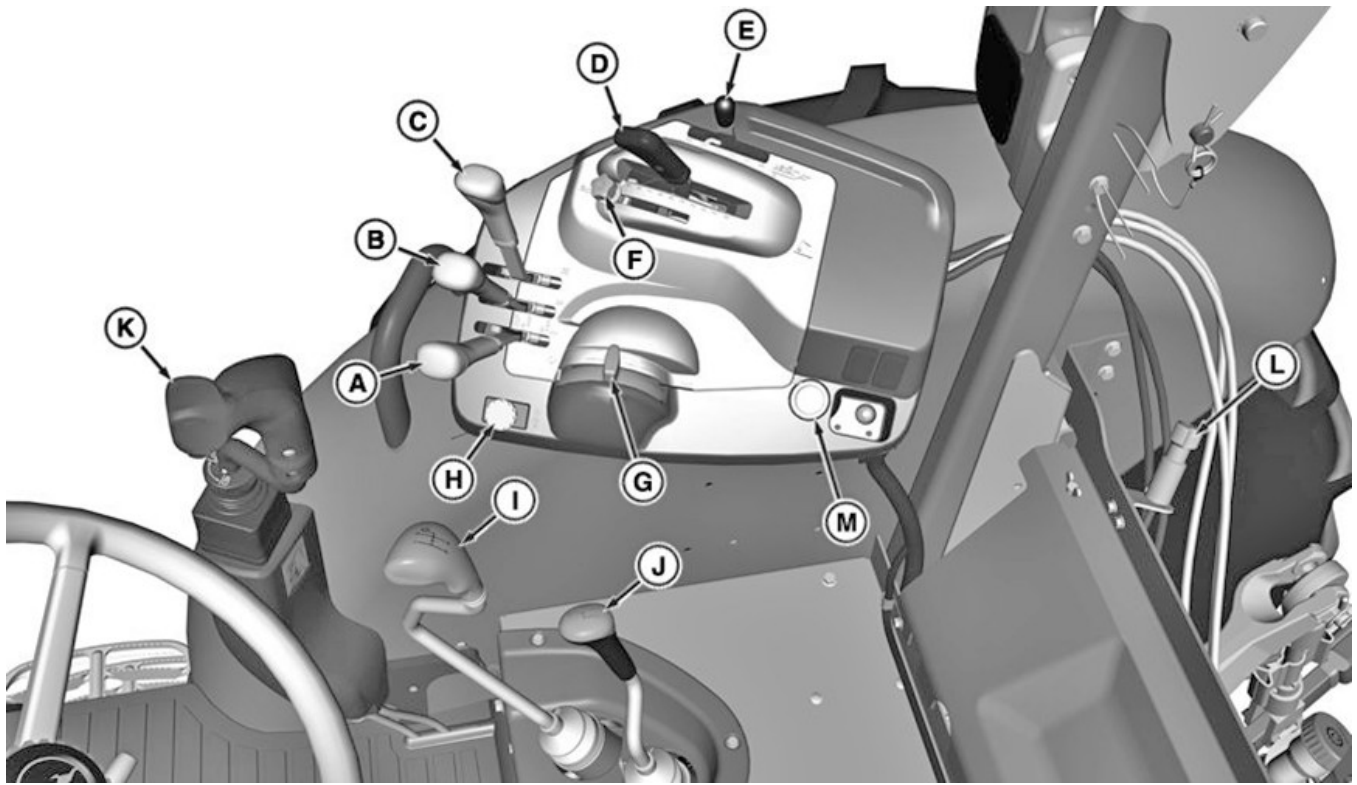


RXA0161764—UN—18JAN18

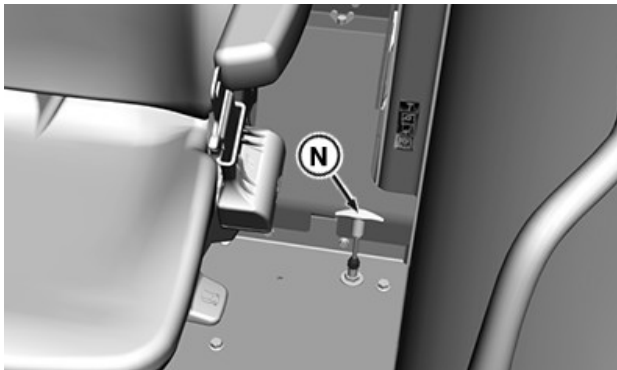
- A—SCV Lever I
- B—SCV Lever II
- C—SCV Lever III
- D—Position Control Stop Knob
- E—Draft Control Lever
- F—Hitch Position Lever
- G—MFWD Switch
- H—PTO Switch
- I—Hand Throttle
- J—Gearshift Lever
- K—Range Shift Lever
- L—Convenience Outlet
- M—Power Outlet
- N—Hitch Rate-of-Drop Knob
- O—Multi-Function Lever
- P—PTO Shift Lever



**Open Operator Station and Low-Profile Side Console Controls**



CPA0004162—UN—04AUG17



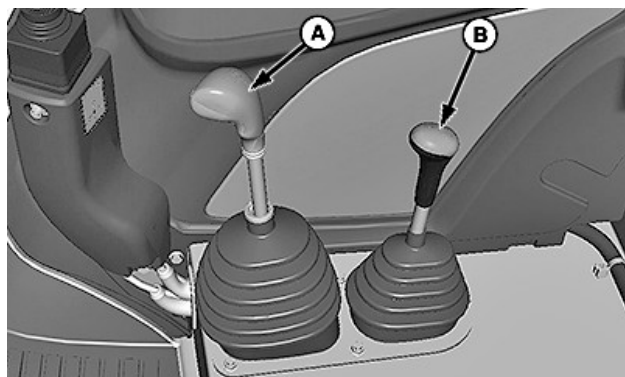
RXA0161765—UN—18JAN18

- A—SCV Lever I
- B—SCV Lever II
- C—SCV Lever III
- D—Hitch Position Lever
- E—Draft Control Lever
- F—Position Control Stop Knob
- G—Hand Throttle
- H—PTO Switch
- I—Gearshift Lever
- J—Range Shift Lever
- K—Multi-Function Lever
- L—Hitch Rate-of-Drop Knob
- M—Power Outlet
- N—PTO Shift Lever

GS25068,0005A85-19-09OCT18

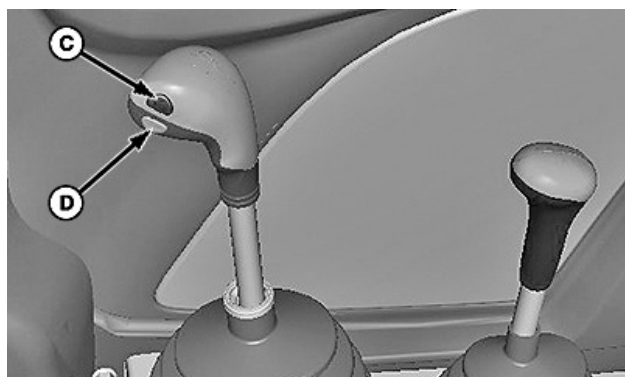
## Transmission Controls

### Range and Gear Shift Levers



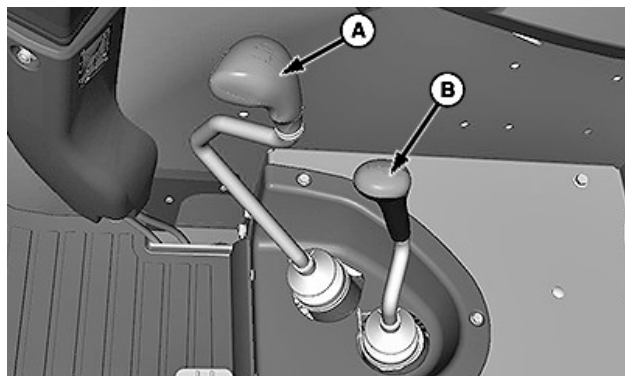
CPA0004055—UN—04AUG17

*Cab*



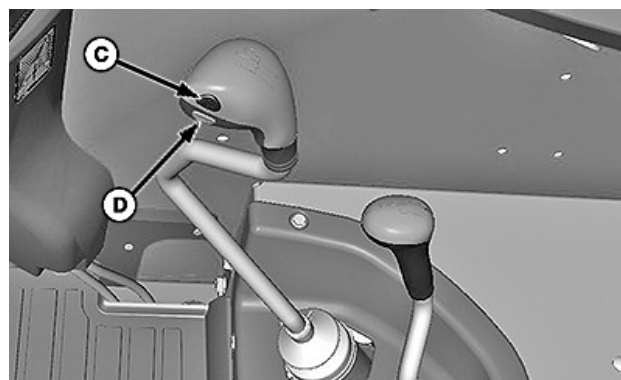
CPA0004056—UN—04AUG17

*Cab with Hi/Lo*



CPA0004053—UN—03AUG17

*OOS and Low-Profile*

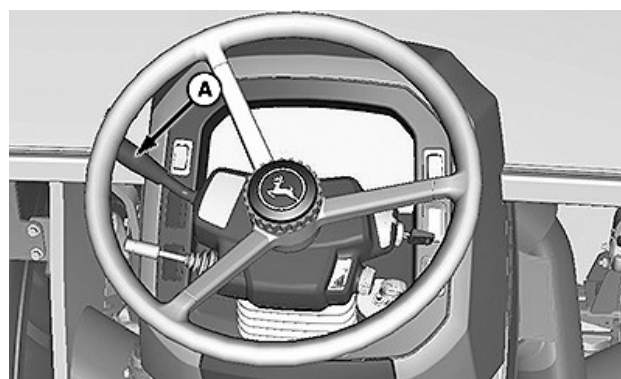


CPA0004054—UN—04AUG17

*OOS and Low-Profile with Hi/Lo*

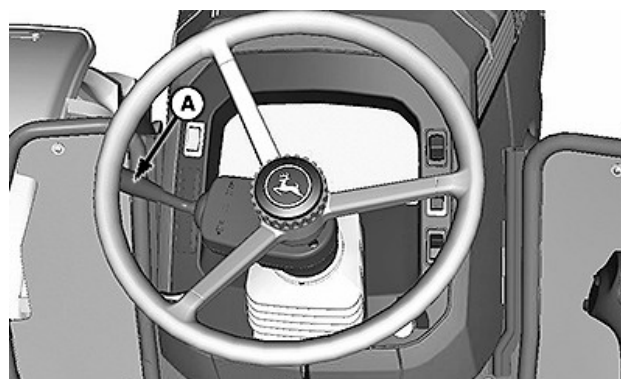
- A—Gearshift Lever
- B—Range Shift Lever
- C—High Range Select Button
- D—Low Range Select Button

### Left-Hand Reverser



CPA0004057—UN—04AUG17

*Cab*



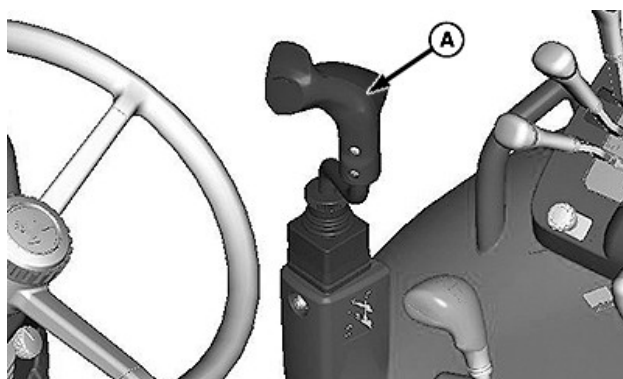
CPA0004058—UN—04AUG17

*OOS and Low-Profile*

- A—Left-Hand Reverser Lever

GS25068,0005A86-19-09OCT18

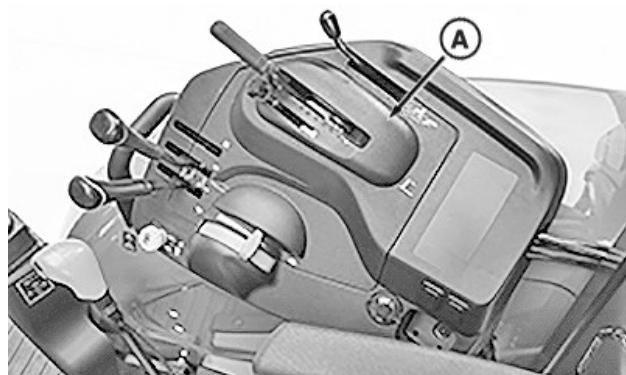
## Multi-Function Lever/Mid-SCV Controls



A—Multi-Function/Mid-SCV Lever

CPA0004059—UN—04AUG17

CP00834,0002435-19-12JAN18



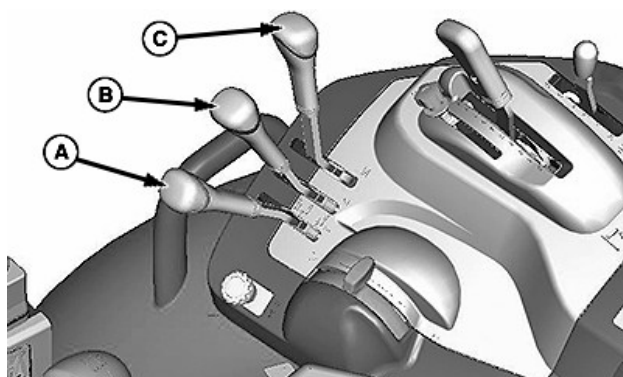
RXA0162100—UN—12FEB18

OOS and Low-Profile

A—Rear Hitch Controls

GS25068,0003F6A-19-12FEB18

## Rear SCV Controls



CPA0004060—UN—04AUG17

A—SCV Lever I  
B—SCV Lever II  
C—SCV Lever III

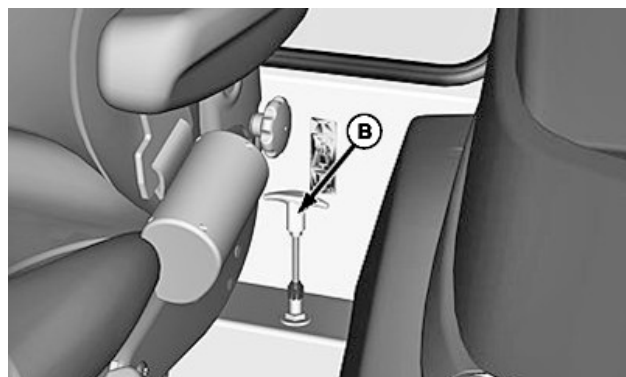
CP00834,0002436-19-12JAN18

## Rear PTO Controls



CPA0004063—UN—04AUG17

Cab



CPA0004242—UN—08AUG17

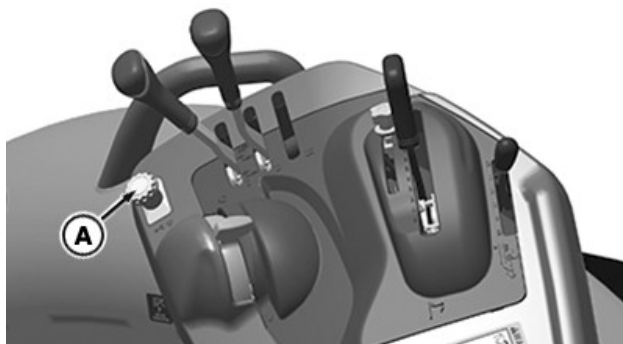
Cab

## Rear Hitch Controls



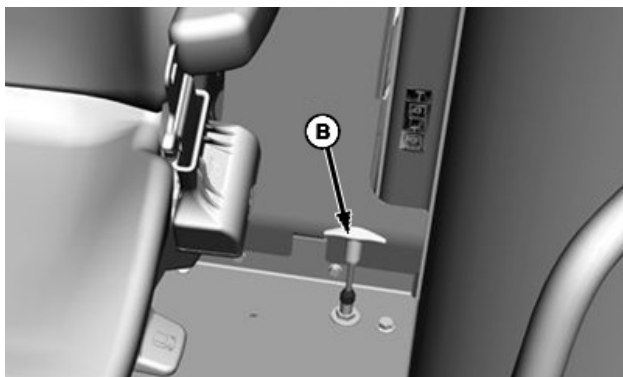
CPA0004061—UN—04AUG17

Cab



RXA0161425—UN—18DEC17

OOS and Low-Profile



CPA0004241—UN—08AUG17

OOS and Low-Profile

- A—Rear PTO Switch  
B—540/540E PTO Shift Lever

OURX985,0003180-19-12JAN18

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## Heat and Air Conditioning Controls



CPA0004166—UN—04AUG17

- A—Air Conditioning/Defrost Switch  
B—Air Conditioning Temperature Control  
C—Heater Temperature Control  
D—Blower Speed Switch

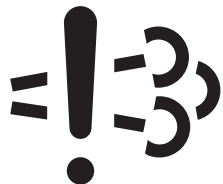
OURX985,00031B4-19-12JAN18

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# Engine Operation

## Required Machine Stop Warning

### Machine Stop Mandate Occurs



RG22491—UN—21AUG13

**IMPORTANT:** In some situations, machine engine power may be reduced as described. On notification, immediately place the machine in a safe state and or move it to a safe location. A mandated machine stop can only be removed by a service technician.

Engine Emissions System Malfunction Indicator illuminates when an emission-related fault occurs.



RG22492—UN—21AUG13

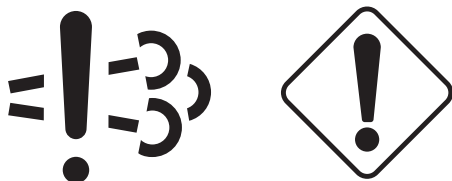
Warning Indicator illuminates when a condition exists which requires operator action.



RG22493—UN—21AUG13

Engine Stop Indicator illuminates when a condition exists which requires immediate operator action and service.

### Emission System Fault Has Occurred



RG26361—UN—04SEP14

30 minutes remaining, Engine Emissions System Malfunction and Warning Indicators are illuminated and alarm sounds to warn operator of emissions-related fault. "Less than 30 minutes to Power Restriction" displayed on machines with display.

- Engine power is normal.
- Machine operation is normal.

- Place machine in a safe state.
- Contact service provider.



RG26972—UN—26MAR15

20 minutes remaining, Engine Emissions System Malfunction and Engine Stop Indicators are illuminated and alarm sounds to warn operator of emissions-related fault. "Less than 20 minutes to Power Restriction" displayed on machines with displays.

- Engine power and torque are reduced.
- Key Off - Key On will temporarily provide full power.
- Place machine in a safe state.
- Contact service provider.



RG26972—UN—26MAR15

2 minutes or less remaining, Engine Emissions System Malfunction and Engine Stop Indicators are illuminated and alarm sounds to warn operator of emissions-related fault which has not been corrected. "Power Restriction" displayed on machines with displays.

- Engine power is idle only.
- Place machine in a safe state.
- Contact service provider.

DX,MACHSTOPWARN,AG-19-02OCT15

## Engine Fuel System and Power Rating

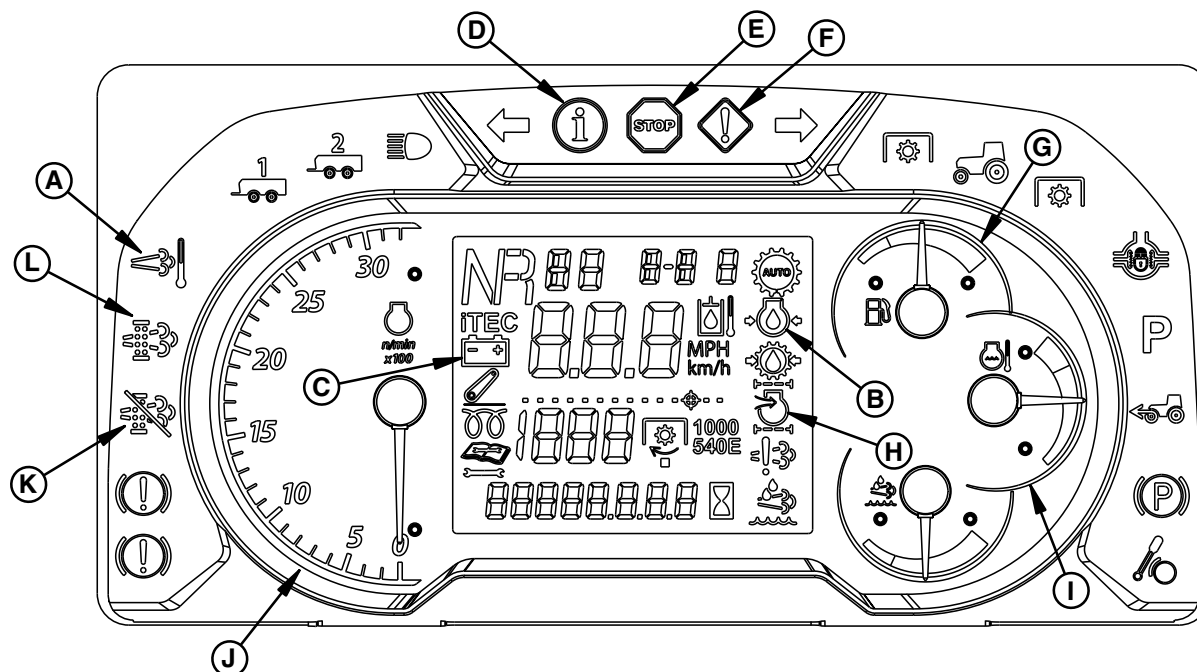
**IMPORTANT:** Modification or alteration of the injection system or emission control devices terminates warranty to purchaser.

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

**Engine Certification/Power Rating:** kW (hp) rating on the emission certification label specifies gross engine kW (hp), which is flywheel power without fan.

CP00834,00024E9-19-09AUG17

## Check Engine Indicators and Gauges



PY42056—UN—15MAY17

- A—Exhaust Emissions Temperature Indicator
- B—Engine Oil Filter Pressure Indicator
- C—Charging System Indicator
- D—Information Alert Indicator
- E—STOP Indicator
- F—Warning Indicator

**IMPORTANT:** If the engine coolant temperature gauge (I) indicates hot, stop engine, and determine the cause.

If the engine oil filter pressure indicator (B) or charging system indicator (C) fail to go out, stop engine, and determine the cause.

### Exhaust Emissions Temperature Indicator (A)

If the exhaust emissions temperature indicator remains illuminated, the presence of high temperatures inside the exhaust filter exist, which allow active filter cleaning to occur.

### Engine Oil Filter Pressure Indicator (B)

**IMPORTANT:** NEVER operate engine without sufficient oil pressure. If the engine oil filter pressure indicator stays illuminated for longer than 5 seconds, under the normal operating conditions, stop engine and check for cause.

The engine oil filter pressure indicator stays illuminated when abnormal oil pressure is present.

If the engine oil filter pressure indicator remains

- G—Fuel Level Indicator Gauge
- H—Engine Air Filter Indicator
- I—Engine Coolant Temperature Gauge
- J—Tachometer
- K—Auto Cleaning Disabled Indicator
- L—Exhaust Filter Indicator

illuminated after starting engine, stop engine immediately.

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

### Charging System Indicator (C)

If charging system indicator remains illuminated for longer than 5 seconds after engine is started, stop engine immediately.

Check battery connections. Check fan belt tension.

### Information Alert Indicator (D)

When a diagnostic trouble code (DTC) is present, information alert indicator illuminates. If necessary, have John Deere dealer diagnose vehicle.

### STOP Indicator (E)

*NOTE: Correct problems before restarting.*

STOP indicator flashes and alarm sounds continuously to alert operator that a serious malfunction has occurred. Immediate attention is required or damage to machine may occur.

Immediately stop operations, reduce engine to idle, then SHUT OFF engine.

### Warning Indicator (F)

**NOTE:** Correct problems before restarting.

Warning indicator illuminates when a malfunction occurs (review error message in information display). If necessary, have John Deere dealer diagnose vehicle.

### Fuel Level Indicator Gauge (G)

Fuel fill icon illuminates, amber, when fuel level is low.

Refuel before the fuel level indicator gauge needle reaches empty.

Check fuel lines and fuel filters. If machine is allowed to run until tank is empty, bleed air out of fuel system.

### Engine Air Filter Indicator (H)

If the engine air filter indicator illuminates while engine is running, stop engine immediately.

Clean out plugged air cleaner.

### Engine Coolant Temperature Gauge (I)

If the engine coolant temperature gauge needle reaches red zone, stop engine immediately.

Check level of coolant in recovery tank and radiator when engine cools. Also check grille, radiator, and radiator screen for debris. Check fan belt tension.

### Tachometer (J)

Engine revolutions per minute (rpm) are represented in hundreds.

### Auto Cleaning Disabled Indicator (K)

If auto cleaning disabled indicator remains illuminated, the exhaust filter cleaning switch has been disabled.

### Exhaust Filter Indicator (L)

If exhaust filter indicator remains illuminated, the exhaust filter needs cleaning.

GS25068,0005A87-19-09OCT18

## Operate Key Switch



LV14537—UN—02AUG11

**A—ACCESSORY Position**  
**B—STOP Position**  
**C—RUN Position**  
**D—START Position**

**NOTE:** If temperature is below 5°C (41°F), see *Cold Weather Start* procedure in this section.

**ACCESSORY (A):** Push in and turn key to ACCESSORY position to power electrical functions.

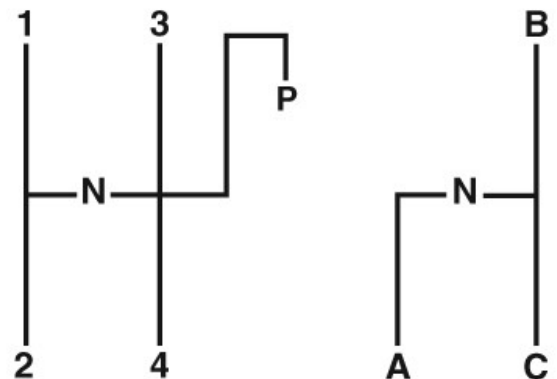
**STOP (B):** Turn key to STOP position to stop engine and turn off electrical functions.

**RUN (C):** Turn the key switch to RUN position. Check gauges and indicator lights before starting.

**START (D):** Turn key to START position to start engine. Key returns to run position when released.

GS25068,0005A88-19-09OCT18

## Start Engine



RXA0146126—UN—27OCT14

Gearshift Lever Positions



TS177—UN—11JAN89

**CAUTION:** Do not start engine by shorting across starter terminals. Machine starts in gear if the normal circuitry is bypassed. Start engine **ONLY** from the operator's seat.

Avoid possibility of personal injury or death. Engine starting with shift lever in gear indicates malfunction of the starting circuit. Repair immediately. See your John Deere dealer.

Avoid possibility of serious injury or death. Be sure that machine and attached equipment are clear of people and other objects.

**IMPORTANT:** Do not use starting fluid. Damage to engine can occur.

1. Check fuel, DEF, engine oil, and coolant levels before starting the engine. Fill as required.
2. Place left-hand reverser in Neutral position and gearshift lever in Park position.
3. Place hand throttle to idle position.
4. Disengage PTO.
5. Place SCV levers in neutral position.
6. Lower hitch completely if an implement is attached.
7. Turn the key switch to run position. Do not start engine.
8. Wait until light check sequence is complete.
9. Check for any indicator lights or diagnostic trouble codes that impair machine performance. If necessary, have your John Deere dealer diagnose the problem.
10. Depress clutch and brake pedals.
11. Sound horn.
12. Turn key switch to engage the starter. Release key when engine starts.

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

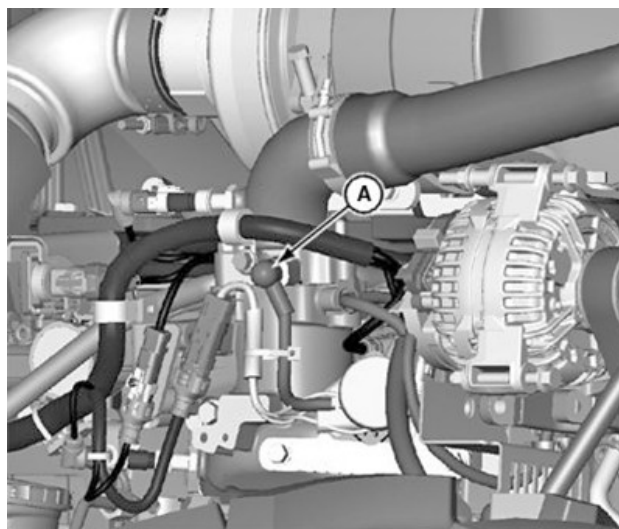
### If Engine Fails to Start:

- Place hand throttle lever at 1/4 to 1/3 of full throttle and attempt to start machine again.
- In cold weather (at or below 5°C [41°F]), refer to Cold Weather Start procedure in this section.
- Check for diagnostic trouble codes or electrical problems.
- If engine fails to start after three attempts, see your John Deere dealer.

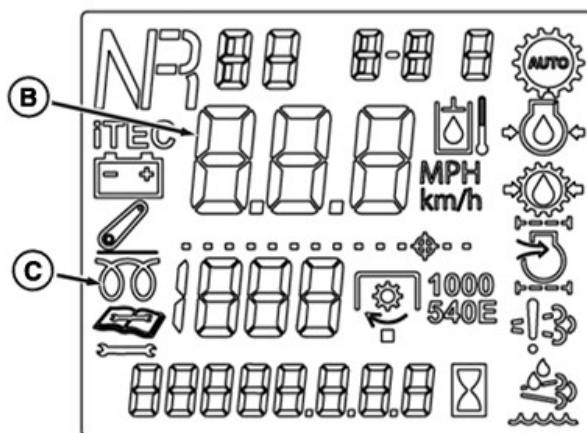
**NOTE:** In cold weather, engine speed is limited to 1440 rpm until transmission/hydraulic oil temperature is above -18°C (0°F).

GS25068,0005A89-19-09OCT18

### Cold Weather Start



CPA0004185—UN—04AUG17



RXA0161633—UN—05JAN18

- A—Air Intake Heater  
B—Machine Ground Speed Icon  
C—Cold Start Indicator Icon

**IMPORTANT:** Do not use starting fluid.



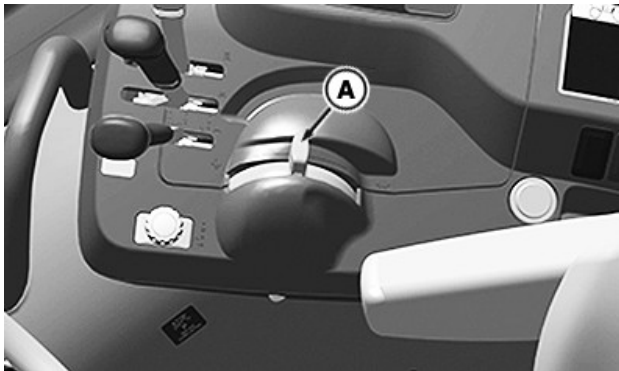
1. Turn key switch to RUN position, but do not start engine.
2. Observe display for the cold start indicator icon (C) to appear.
3. A cold start countdown begins, utilizing the machine ground speed icon (B) to indicate the air intake heater (A) is heating up.
4. When the cold start countdown reaches zero, icon turns off.
5. Start engine and allow to warm up. (See Run Engine in this section for procedure.)

GS25068,0005A8B-19-09OCT18

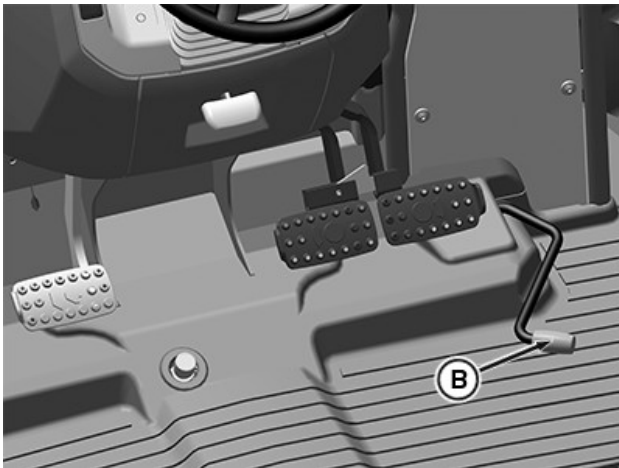
## Engine Speeds and Operational Procedures

GS25068,0005A8A-19-09OCT18

### Run Engine



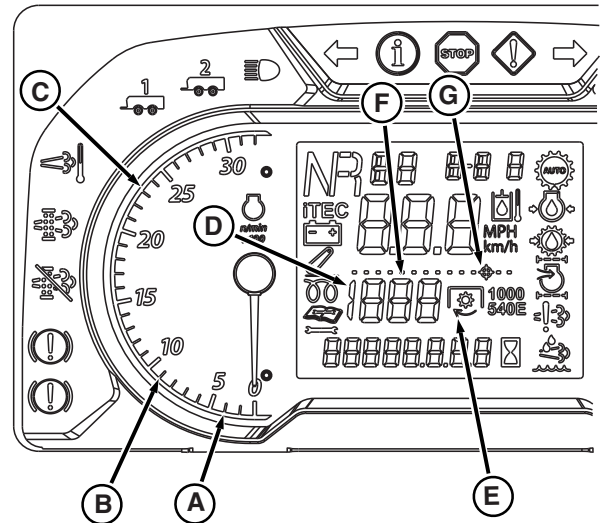
RXA0162101—UN—12FEB18



PY42143—UN—04AUG17

A—Hand Throttle  
B—Foot Throttle

1. Start engine.
2. Set hand throttle (A) to 1200 rpm.
3. Allow engine to run at 1200 rpm without load for 1-2 minutes if temperature is above 0°C (32°F). If temperature is below 0°C (32°F), run without load for 2-4 minutes. If temperature is extremely cold, it takes longer to get engine warm enough to operate.



RXA0161433—UN—05JAN18

A—Tachometer  
B—Low Idle Speed  
C—High Idle Speed  
D—PTO Speed  
E—PTO Status  
F—Bar Graph  
G—Target Indicator

### Warm Up Engine

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

1. Run engine with tachometer (A) reading 1200 rpm for several minutes.

**NOTE:** In cold weather, engine speed is limited to 1440 rpm until transmission/hydraulic oil temperature is above -18°C (0°F).

*If hydraulic functions operate slowly, warm the transmission/hydraulic system oil. (See Warm Transmission/Hydraulic System Oil in Hydraulics Operation section.)*

2. Run engine approximately 1900 rpm and under light load until engine reaches normal operating condition.

### Avoid Idling Engine

Prolonged idling causes engine coolant temperature to

fall below normal range. Prolonged idling causes crankcase oil dilution, due to incomplete fuel combustion, and permits formation of gummy deposits on valves, pistons, and piston rings. It promotes rapid accumulation of engine sludge and unburned fuel in the exhaust system.

If machine must be left with the engine running more than 3 or 4 minutes, minimum engine speed must be 1200 rpm.

### Engine Work Speeds

- Engine nominal full load speed is 1600—2400 rpm.
- Do not operate engine constantly below 1500 rpm during heavy draft usage or when machine is under full PTO load.

### PTO Speeds

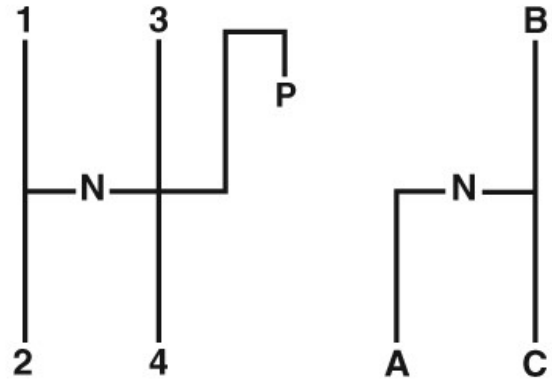
- PTO speed (D) and PTO status (E) are indicated along with bar graph progress when PTO is engaged.
- PTO status (E) is displayed according to PTO speed selected (540E, 540, or 1000).
- PTO speed progress is shown on bar graph (F). When target speed is reached, target indicator (G) illuminates.
- Recommended engine speed is 2400 rpm for 540 and 1000 PTO.
- Engine speed is limited to maximum of 1716 rpm for 540E PTO.

### Restart Stalled Engine

If engine stops running due to overload, immediately restart engine. A running engine causes oil and coolant to circulate, which prevents abnormal heat buildup. If engine stalls but does not stop running due to overload, run at low idle for 1 or 2 minutes in order to dissipate heat buildup.

GS25068,0005A8C-19-09OCT18

### Stop Engine



RXA0146126—UN—27OCT14

Gear Shift Lever Positions



RXA0157945—UN—24FEB17

A—Hand Throttle

**IMPORTANT:** Idle engine that has been operating at working load at least 1 or 2 minutes at 1000—1200 rpm to cool. If an exhaust filter cleaning has just been completed, increase engine idle time to 4 minutes.

1. Place left-hand reverser in Neutral position and gearshift lever in Park position.
2. Place hand throttle (A) to idle position.
3. Disengage PTO.
4. Lower any equipment to the ground.
5. Place SCV levers in neutral position.
6. Lower hitch completely if an implement is attached.
7. Turn key to STOP and remove.

OURX985,00031B9-19-15JAN18

## Restart Engine That Has Run Out of Fuel

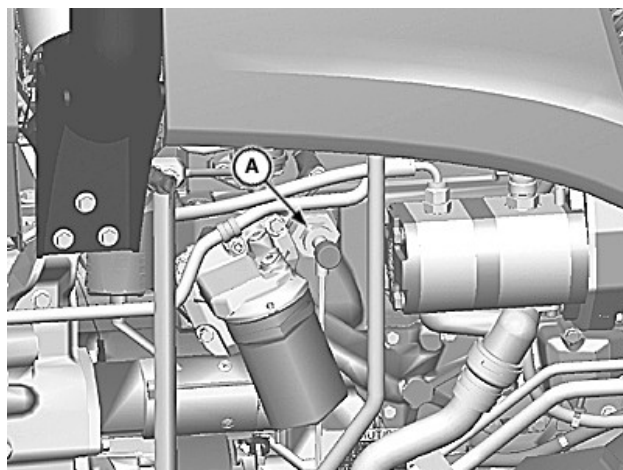
**IMPORTANT:** Do not attempt to start for longer than 20 seconds at a time and allowing 20-30 seconds between to avoid starter damage.

1. Fill fuel tank.
2. Bleed the fuel system to remove excess air. (See Bleed Fuel System in Air, Fuel, Coolant, and Exhaust Maintenance section.)
3. Attempt to start engine two or three times.
4. If engine does not start, bleed the fuel system again.
5. Attempt to start engine two or three times.
6. If engine does not start, contact your John Deere dealer.

GS25068,0005A8D-19-09OCT18

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## Engine Coolant Heater



LV16350—UN—29NOV12

A—Engine Block Coolant Heater

**CAUTION:** To avoid electrical shock or fire, use a heavy-duty electrical cord. Ensure that it is a 3-wire, 14 AWG (14 gauge), that is no longer than 7.6 m (25 ft), 15 amperes rated, and suitable for outdoor use. Before connecting heater to a power source, be sure that element is immersed in coolant. NEVER energize the heater in air. Doing so can cause the element sheath to burst, resulting in personal injury.

1. Locate engine block coolant heater (A) on the right-hand side of the engine.
2. Connect heater plug to a 120-volt outlet protected by ground fault interrupter.

GS25068,0005A8E-19-09OCT18

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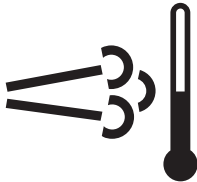
# Air Intake, Fuel, Coolant, and Exhaust Operation

## Aftertreatment Indicators Overview



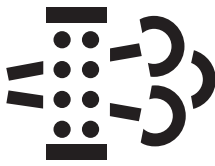
Diesel Exhaust Fluid Indicator

RG22487—UN—21AUG13



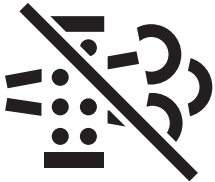
Engine Emissions Temperature Indicator

RG22488—UN—21AUG13



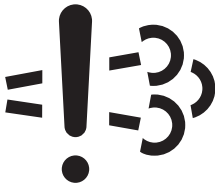
Exhaust Filter Indicator

RG22489—UN—21AUG13



Auto Cleaning Disabled Indicator

RG22490—UN—21AUG13



Engine Emissions System Malfunction Indicator

RG22491—UN—21AUG13



Warning Indicator

RG22492—UN—21AUG13



Engine Stop Indicator

RG22493—UN—21AUG13

**IMPORTANT:** The operator will be informed by the operator warning system when the emission control system does not function correctly and/or an engine malfunction is detected by the engine control unit. Ignoring the operator warning signals will lead to an emission related derate, resulting in an effective disablement of non-road mobile machinery operation.

It is essential to take prompt action to rectify any incorrect operation, use or maintenance of the emissions control system in accordance with the rectification measures indicated by the warnings referenced below.

The Diesel Exhaust Fluid (DEF) indicator illuminates when the DEF is low. Fill DEF tank.

When the DEF indicator is combined with the warning indicator or engine stop indicator engine performance is reduced by the Engine Control Unit (ECU) because the DEF is below a measurable level. Fill DEF tank.

When engine emissions temperature indicator illuminates exhaust gas temperature is high, elevated idle is active, or exhaust filter cleaning is in process. The machine can be operated as normal unless the operator determines the machine is not in a safe location for high exhaust temperatures and disables auto cleaning.

When engine emissions temperature indicator is combined with the warning indicator or engine stop indicator engine performance is reduced by the ECU because the exhaust gas temperature is higher than expected. Follow Diagnostic Trouble Code (DTC) procedure or see your authorized servicing dealer.

When the exhaust filter indicator illuminates the exhaust filter cleaning is in process, aftertreatment system has a fault, or the exhaust filter is in need of cleaning and the operator has disabled auto exhaust filter cleaning. If conditions are safe, the operator should enable the auto exhaust filter clean setting or perform manual service regeneration or follow DTC procedure.

When the exhaust filter indicator is combined with the warning indicator engine performance is reduced by the ECU because there is an aftertreatment system fault or the soot level of the exhaust filter is moderately high. If conditions are safe, the operator should enable the auto exhaust filter clean function. If conditions are not safe, the operator should move the machine to a safe location and engage the auto exhaust filter cleaning mode.

Perform manual service regeneration or follow DTC procedure.

When the exhaust filter indicator is combined with the engine stop indicator engine performance is further reduced by the ECU because there is an aftertreatment system fault or the soot level of the exhaust filter is extremely high. If this combination is present, see your authorized servicing dealer.

The auto cleaning disabled indicator illuminates when the operator has engaged the request to disable the auto exhaust filter cleaning function. This icon remains illuminated until the operator re-engages automatic exhaust filter cleaning from the diagnostic gauge. Disabling auto mode is not recommended for any situation unless it is safety-related or if the fuel tank

lacks the required fuel to complete the cleaning process.

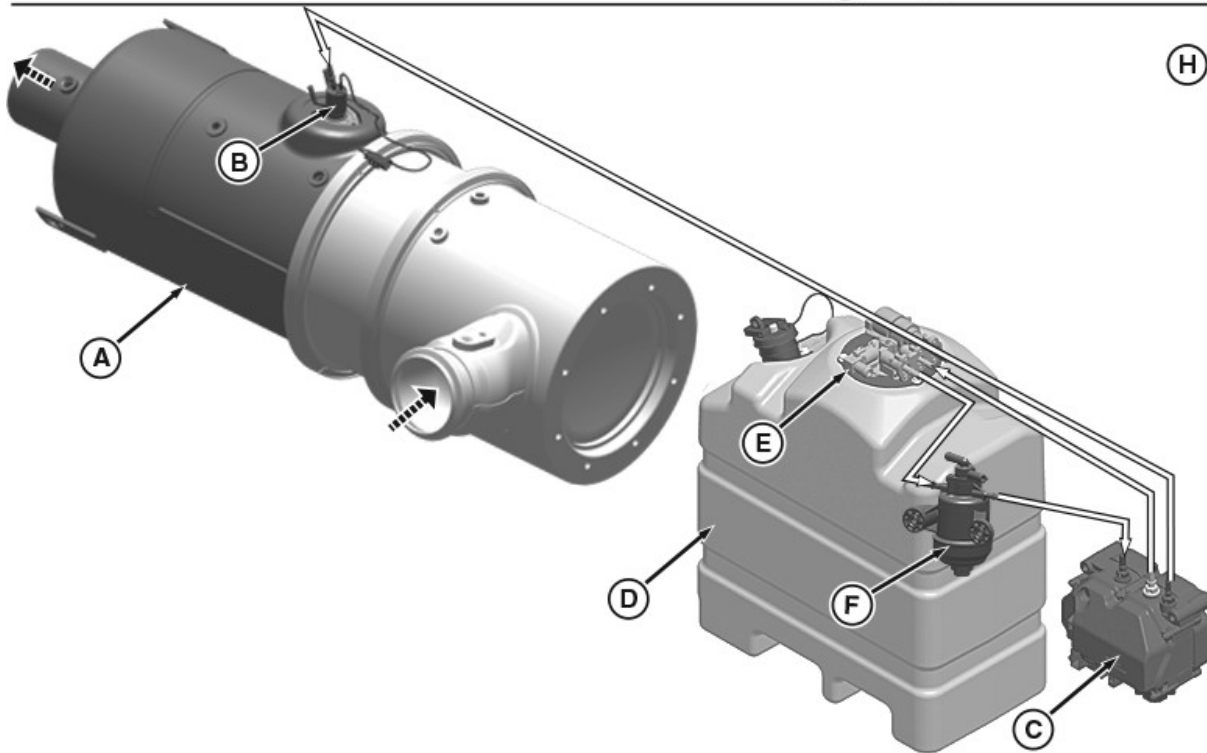
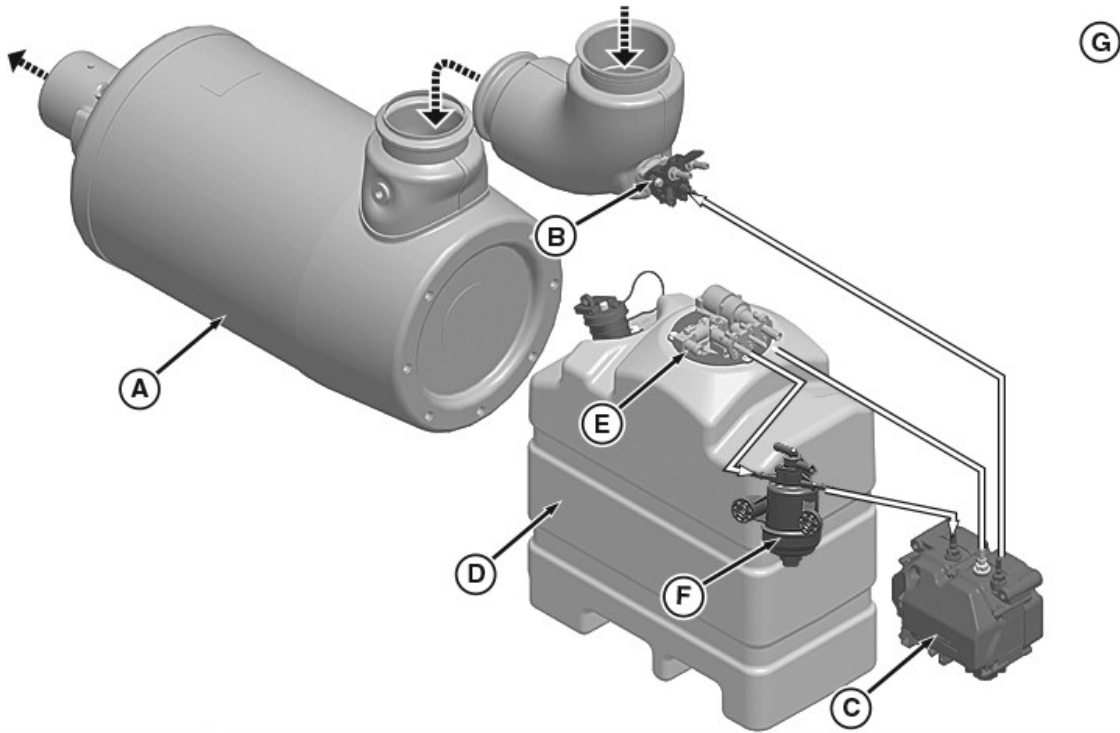
The engine emissions system malfunction indicator illuminates when engine emissions are outside of normal operating range or engine emissions system fault. Follow DTC procedure or see your authorized servicing dealer.

When the engine emissions system malfunction indicator is combined with the warning indicator engine performance is reduced by the ECU because the engine emissions are outside of normal operating range or engine emissions system fault. Follow DTC procedure or see your authorized servicing dealer.

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DX,AFTRTREAT,INDCATRS-19-12FEB18

## Selective Catalytic Reduction (SCR) System Overview



SCR System

RG22427A—UN—07JAN20

A—SCR Catalyst  
B—DEF Dosing Injector  
C—DEF Dosing Unit  
D—DEF Tank

E—DEF Tank Header Assembly  
F—Inline DEF Filter (If Equipped)  
G—Modular Canning Configuration  
H—Inline Canning Configuration

**IMPORTANT:** Do not remove battery leads for at least 4 minutes after engine stops. The SCR system automatically purges itself of Diesel Exhaust Fluid (DEF) immediately after the engine is stopped. If adequate time is not allowed for lines to be purged, residual DEF can freeze and possibly damage components of the SCR system during cold-weather exposure.

In order to comply with national and local emission requirements, this engine series contains a Selective Catalytic Reduction (SCR) system. The main components of the SCR system include the SCR catalyst (A), DEF dosing injector (B), DEF dosing unit (C), DEF tank (D), and DEF tank header assembly (E). The SCR system is effective at reducing the nitrogen oxides (NOx) emissions. NOx is a major component of smog and acid rain.

During combustion, NOx molecules are formed in the exhaust. DEF is injected into the exhaust stream before the SCR catalyst. Through a chemical reaction in the SCR, NOx is converted into nitrogen and water.

Water vapor is a normal by-product of combustion. During cold-weather operation at low exhaust temperatures, this water vapor can condense and resemble white smoke from the exhaust. This will dissipate as operating temperature increases and the water is further vaporized. This situation is considered normal.

A DEF solution begins to crystallize and freeze at -11 °C (12 °F). With climate temperatures that can range much colder than this, DEF is expected to freeze in the DEF tank. For this reason, the DEF tank contains a heating element that provides rapid thawing of DEF upon start-up. The heating element cycles to maintain fluidity during operation as needed. DEF is not dosed upon initial start-up, therefore it is not necessary to have liquid DEF at cold start-up.

If DEF quality deteriorates and it is no longer within specifications, the engine can derate. DEF should be crystal clear with a light ammonia smell. If DEF appears cloudy, has a colored tint, or has a profound ammonia smell, it is likely not within specification.

DX,SCR,OVERVIEW-19-30MAR20

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## US EPA Qualified Emergency Use — SCR Derate Override Option

*NOTE: This is a US EPA only option.*

**IMPORTANT:** Operating the engine without emissions related derates could damage the aftertreatment system.

## Description: US EPA Qualified Emergency Use – SCR Derate Override Option

Under the US EPA's regulations the Qualified Emergency SCR Derate Override Option (Emergency SCR Derate Override) is considered an Auxiliary Emission Control Device (AECD), which is only permitted during qualified emergency situations. To ensure compliance with US EPA regulations governing this type of AECD it is important that operators read the following information and comply with the requirements.

Emergency SCR Derate Override enables a Selective Catalyst Reduction (SCR) equipped application to operate without emissions-related derates for a specified period of time during qualified emergency situations. A qualified emergency situation is one in which the condition of an engine's emission controls poses a significant direct or indirect risk to human life. An example of a direct risk is an emission control condition that inhibits the performance of an engine being used to rescue a person from a life-threatening situation. An example of an indirect risk is an emission control condition that inhibits the performance of an engine being used to provide electrical power to a data center that routes "911" emergency response telecommunications.

## Emergency SCR Derate Override Activation / Reporting

The operator can activate the Emergency SCR Derate Override through the operator interface. Once activated, the engine can operate free of emissions-related derates for 120 hours. If the derate condition is corrected during the 120 hours, the Emergency SCR Derate Override can be paused in order to preserve the remainder of time for future use. The option expires along with any remaining time 240 hours after the Emergency SCR Derate Override is activated.

When the Emergency SCR Derate Override has expired, the engine informational Diagnostic Trouble Code (DTC) is displayed to the operator upon every engine start and every hour until acknowledged by the operator. To clear the DTC and reset the Emergency SCR Derate Override timer for future use, the operator (or other person responsible for the engine/equipment) must submit a report to the John Deere Dealer Technical Assistance Center, which must include the following:

- Contact name, mail and email addresses, and telephone number for responsible company or entity
- Description of the emergency situation, the location of the engine during the emergency, and the contact information for an official who can verify the emergency situation (such as a county sheriff, fire marshal, or hospital administrator)
- Reason for the Emergency SCR Derate Override activation during the emergency situation, such as the lack of diesel exhaust fluid, or the failure of an

emission-related sensor when the engine was needed to respond to an emergency situation

- Engine's serial number
- Description of the extent and duration of the engine operation while the Emergency SCR Derate Override was active, including a statement describing whether or not the Override was manually deactivated after the emergency situation ended

In no event may this report be submitted to John Deere or other qualified service provider later than 60 calendar days after the Emergency SCR Derate Override is activated.

### LEGAL Notification

The following actions by the operator are an improper use of the Emergency SCR Derate Override and are prohibited by the Clean Air Act and US EPA regulations:

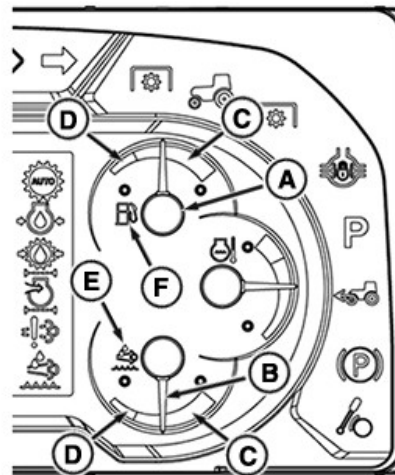
- Activating the Emergency SCR Derate Override for something other than a qualified emergency situation;
- Failing to disable the Emergency SCR Derate Override after a qualified emergency situation ends; and,
- Failing to notify John Deere and send it reports as required in this Operators Manual and federal regulations. Note: John Deere is required to report to the US EPA the operator's failure to report to it any Emergency SCR Derate Override event (to the extent it becomes aware of such event).

The maximum civil penalty the US EPA may assess under 40 CFR 1068.101 is \$4,454 for each day an engine or piece of equipment is operated in violation of the requirements associated with the Emergency SCR Derate Override.

US EPA regulations governing the Emergency SCR Derate Override can be found at 40 CFR §1039.665, as may be amended.

DX,SCR,EMRGNCY,OVERIDE,US-19-24JAN18

## Fuel and Diesel Exhaust Fluid (DEF) Level Gauge



RXA0157949—UN—03MAR17

- A—Fuel Level Gauge
- B—Diesel Exhaust Fluid (DEF) Gauge
- C—Normal Fuel and DEF Level
- D—Low Fuel and DEF Level
- E—DEF Indicator
- F—Fuel Indicator

Fuel level gauge (A) and DEF gauge (B) are a quick visual check for the operator. Fuel indicator (F) and DEF indicator (E) flash and an alarm sounds when either level is getting low. The information display shows an alarm or code for fuel or DEF level low as well.

### Normal Fuel and DEF Level (C):

When fuel and DEF levels are in the normal level range, indicators (E and F) illuminate white and machine operates normally. Always keep level within this range for uninterrupted performance.

### Low Fuel and DEF Level (D):

When fuel and DEF levels fall into the low level range, indicators flash amber, trouble codes are displayed, and an alarm sounds. Fuel and DEF must be filled to continue normal operation.

When fuel and DEF levels approach zero, indicators illuminate amber continuously, diagnostic trouble codes are displayed, and an alarm sounds. If the DEF tank is not refilled immediately, the engine power and speed derate. DEF must be refilled and machine restarted to return to normal operation.

### DEF at Low Temperatures:

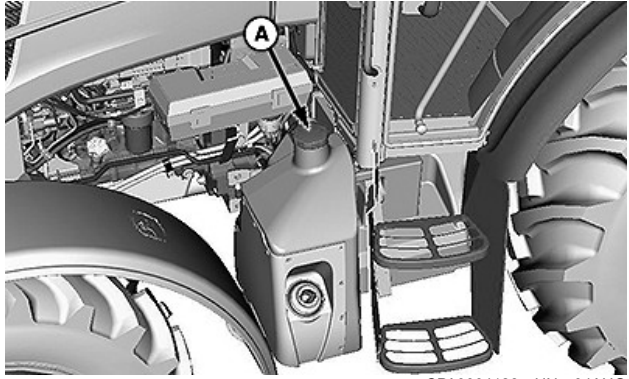
DEF freezes at -11°C (12°F) and flow to the SCR system stops. Machine senses low temperature and allows engine to start and run with no DEF flow. Engine coolant is used to thaw the DEF tank when engine is running. If DEF has thawed and SCR system is operating normally within 40 minutes, machine operation continues. If DEF flow is not sensed in 40 minutes, a diagnostic trouble code is displayed and a 4-



hour internal timer starts. After 4 hours, engine power and speed derate.

GS25068,0005A8F-19-09OCT18

## Fill Fuel Tank



A—Fuel Fill Cap

**CAUTION:** See Safety Precautions section at the beginning of this manual for information about handling fuel.

**IMPORTANT:** To avoid damage to the fuel system, never put Diesel Exhaust Fluid (DEF) into the fuel tank.

1. Watch fuel level gauge during operation.
2. Fill if necessary during daily operation. Fill fuel tank at end of each day to prevent moisture condensation in the tank.
3. Clean area around the fuel fill cap (A) before removing.

*NOTE: If the fill cap is locking, it must be unlocked before removing and relocked after reinstalling.*

4. Rotate fuel fill cap counterclockwise and remove.
5. Fill tank with ultra low sulfur diesel fuel.
6. Reinstall fuel fill cap and rotate clockwise until secure.

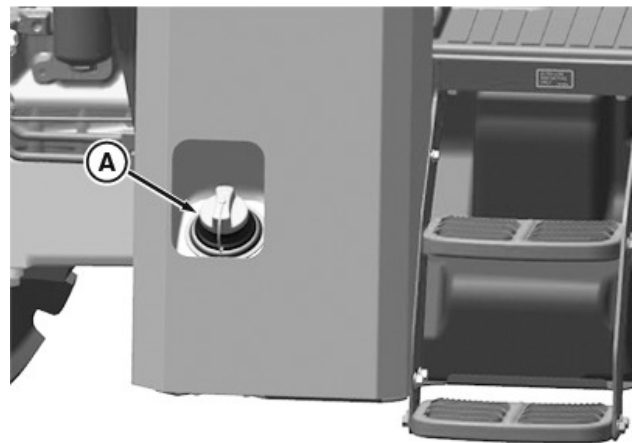
GS25068,0005A90-19-09OCT18

## Fill Diesel Exhaust Fluid (DEF) Tank



Cab/OOS

RXA0157950—UN—03MAR17



Low-Profile

PY30852—UN—04AUG17

A—DEF Fill Cap

**CAUTION:** Diesel Exhaust Fluid (DEF) contains urea. Do not get the substance in eyes. Immediately flush eyes with large amounts of water for a minimum of 15 minutes if contact occurs. Do not take internally. In the event DEF is ingested, contact a physician immediately. Reference the Materials Safety Data Sheet (MSDS) for additional information.

**IMPORTANT:** Only use DEF at full concentration to fill the tank. If DEF is diluted or another fluid is used, the engine detects an abnormal condition. The engine is derated and performance is reduced.

Clean up spilled DEF from machine surfaces immediately with water. DEF is corrosive to metal and distorts some plastic and rubber components.

1. Watch Diesel Exhaust Fluid (DEF) gauge during operation.
2. Fill DEF when fuel is filled or if level runs low during operation.

3. Clean area around the DEF fill cap (A) before removing.
4. Lift DEF cap latch lever, then rotate 1/4 turn counterclockwise.
5. Remove DEF fill cap from the tank.
6. Consider the air temperature before filling the DEF tank.

**IMPORTANT: Avoid overfilling the DEF tank in cold weather. DEF freezes at temperatures below -11°C (12°F). The DEF tank has a heater which cannot thaw the fill neck out if overfilled.**

7. Fill tank using a clean funnel.
8. Reinstall DEF tank cap. Rotate cap latch lever 1/4 turn clockwise or until secure. The DEF tank cap can be locked with a padlock.
9. Clean up any spilled DEF fluid with clean water (distilled if possible).

GS25068,0005A91-19-09OCT18

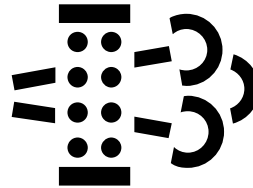
## Reduce Fuel Consumption

### Fuel consumption reduction guidelines:

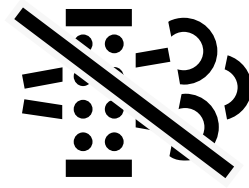
- Replace air cleaner, fuel, engine oil, and transmission/hydraulic filter elements at specified service intervals, see Maintenance Intervals section. More frequent maintenance is necessary in extreme operating conditions. If display indicates a service required condition, correct as soon as possible to improve performance.
- Use recommended oils and lubricants only. (See Fuel, Lubricants, and Coolants section.)
- Adjust hitch function for most efficient operation. (See Hitch and Drawbar Operation section.)
- Check tires for correct pressure weekly. (See Wheels and Tires Maintenance section.)
- Ballast machine for conditions. (See Ballasting section.)
- Select correct gear. Always drive in the highest possible gear with reduced engine speed. For normal or heavy work, choose gear so engine speed drops 150-250 rpm when machine is operating and engine is under load. For light work, reduce engine speed below 2000 rpm. Select gear so that engine speed drops 200—300 rpm when operating.

GS25068,0005A92-19-09OCT18

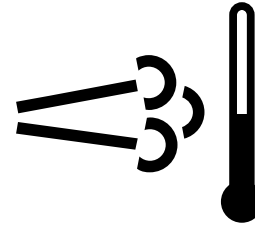
## Exhaust Filter Cleaning



H94828—UN—13OCT09  
Exhaust Filter Cleaning  
is Needed or in Progress



LV14784—UN—16SEP11  
Exhaust Filter Cleaning  
has been Disabled



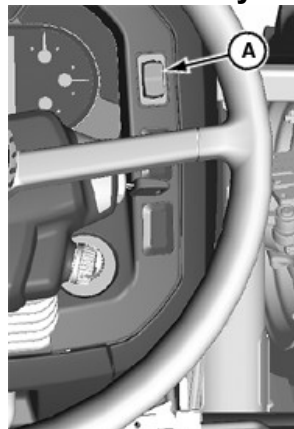
H94829—UN—13OCT09  
Emission System Temperature is High or Exhaust Filter  
Cleaning is Underway

**IMPORTANT: The area over, and surrounding the engine during a manual exhaust filter cleaning must be free of any flammable objects. Exhaust reaches temperatures as high as 550°C (1022° F).**

The exhaust filter requires maintenance periodically. Some of the maintenance is transparent to the operator. During continuous heavy loads and other conditions, the engine creates enough heat to remove accumulated soot in the exhaust filter naturally. When the exhaust filter has accumulated higher levels of soot, the display panel requests (depending on predefined user settings) an exhaust filter cleaning. During this request, the equipment is required to be located or moved to a suitable location with adequate ventilation.

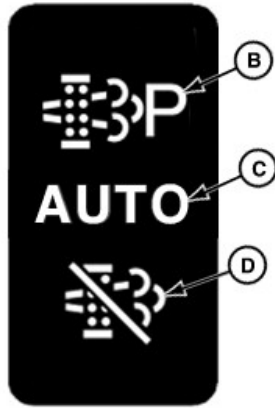
OURX985,00031C2-19-15JAN18

## Exhaust Filter System Overview



LV21995—UN—09JUN14

LV23057—UN—12SEP14



- A—Exhaust Filter Cleaning Mode Switch  
 B—Parked Cleaning Mode  
 C—Automatic (AUTO) Cleaning Mode  
 D—Auto Cleaning Disabled Mode

**IMPORTANT:** Use auto cleaning disabled mode (D) when temporarily connected to an indoor duct exhaust system for diagnostic and repair activities. Avoid disabled mode unless necessary. Repeated disabling or ignoring prompts to perform manual – parked cleaning procedure causes additional engine power limitation and eventually leads to required dealer service.

Exhaust filter cleaning automatically resets back to AUTO mode when machine is turned off and restarted.

Your machine is equipped with an emission-compliant engine, which cleans and filters the engine exhaust. Under normal machine operation and with system in Automatic (AUTO) mode, the system requires minimal operator interaction. To understand when and where operator interaction is required, read the Exhaust Filter Cleaning sections.

To ensure that exhaust filter system operates as intended:

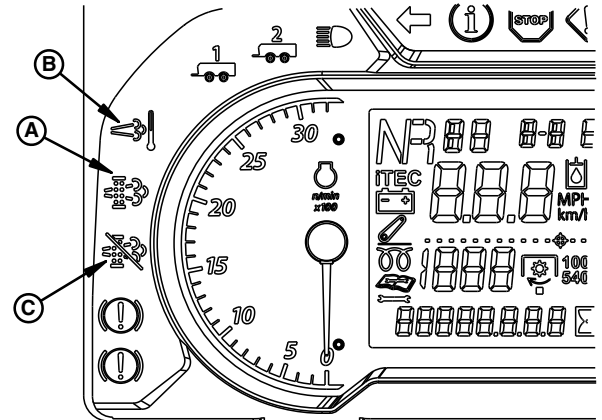
- Utilize AUTO exhaust filter cleaning mode.
- Avoid unnecessary idling.
- Use proper engine oil. (See Fuels, Lubricants, and Coolants section for recommendations.)
- Use only ultra low sulfur fuel. (See Fuels, Lubricants, and Coolants section for recommendations.)

**NOTE:** Exhaust filter cleaning mode switch (A) is a momentary contact switch. Normal (default) position is AUTO.

Use three position exhaust filter cleaning mode switch (A) to select exhaust filter cleaning modes; Parked Cleaning Mode (B), Automatic (AUTO) Cleaning Mode

(C), and Auto Cleaning Disabled Mode (D). To disable auto cleaning, exhaust filter cleaning mode switch is depressed for 5 seconds.

### Exhaust Filter Indicators



PY42055—UN—15MAY17

- A—Exhaust Filter Indicator  
 B—Engine Emissions Temperature Indicator  
 C—Auto Cleaning Disabled Indicator

### Exhaust Filter Indicator (A)

Indicates that one of the following has occurred:

- Exhaust filter cleaning is in process.
- Aftertreatment system has a fault.
- Exhaust filter is in need of cleaning and operator has disabled auto exhaust filter cleaning.

### Engine Emissions Temperature Indicator (B)

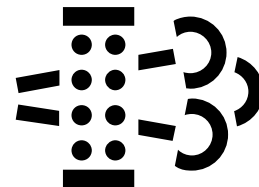
Indicates that exhaust gas temperature is high, elevated idle is active, or exhaust filter cleaning is in process.

### Auto Cleaning Disabled Indicator (C)

Indicates that operator has engaged the auto cleaning disabled function.

### Operator Information

#### 1. Exhaust Filter Indicator



H94828—UN—13OCT09

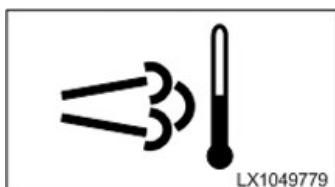
Description	Recommended Procedure
Exhaust filter cleaning is in process. Aftertreatment system has a fault. Exhaust filter is in need of cleaning and the operator has disabled auto exhaust filter cleaning.  <i>NOTE: If no cleaning is carried out, engine power is reduced</i>	Activate automatic filter cleaning; see <b>Automatic Exhaust Filter Cleaning</b> . Alternatively, perform exhaust filter cleaning with the machine parked; see <b>Parked Exhaust Filter Cleaning</b> .

Description	Recommended Procedure
System reduced engine performance because there is an aftertreatment system fault or exhaust filter is in need of cleaning.	Contact your John Deere dealer. Have dealer perform service on the exhaust filter. See <b>Service Exhaust Filter Cleaning</b> .

GS25068,0005A93-19-09OCT18

## Automatic (AUTO) Exhaust Filter Cleaning

### 2. Engine Emissions Temperature Indicator



LX1049779—UN—22JUL10

Description	Recommended Procedure
Exhaust gas temperature is high, elevated idle is active, or exhaust filter cleaning is in process.	Do not interrupt automatic exhaust filter cleaning unless necessary; see <b>Automatic Exhaust Filter Cleaning</b> .

### 3. Parked Exhaust Filter Cleaning Required



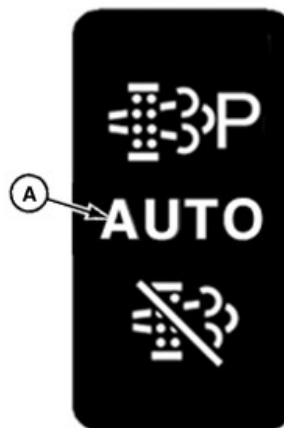
LX1049777—UN—22JUL10

Description	Recommended Procedure
System reduced engine performance because: —There is an aftertreatment system fault. —Sulfur deposits, or urea deposits in the exhaust filter are moderately high.	Perform <b>Parked Exhaust Filter Cleaning</b> .

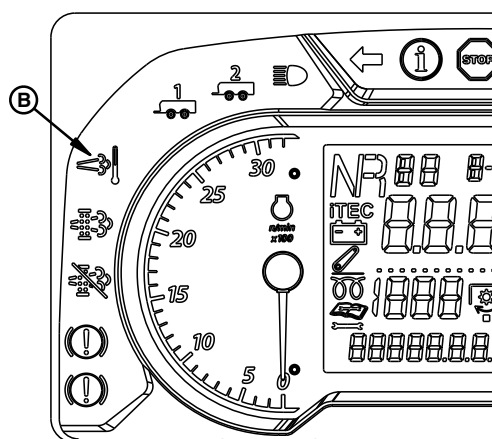
### 4. Service Exhaust Filter Cleaning Required



LX1049776—UN—22JUL10



LV23058—UN—12SEP14



PY42057—UN—15MAY17

A—Exhaust Filter Cleaning Mode Switch  
B—Engine Emissions Temperature Indicator

**IMPORTANT:** Do not disable automatic exhaust filter cleaning unless it is necessary. If disabled mode is used frequently, system, eventually, reduces engine performance requiring a stationary parked exhaust filter cleaning.

**CAUTION:** To prevent fires, be sure to, routinely, clear combustible materials (crop debris, animal nests, and others) away from the area of the engine and exhaust filter. Exhaust filter cleaning uses extremely high temperature.

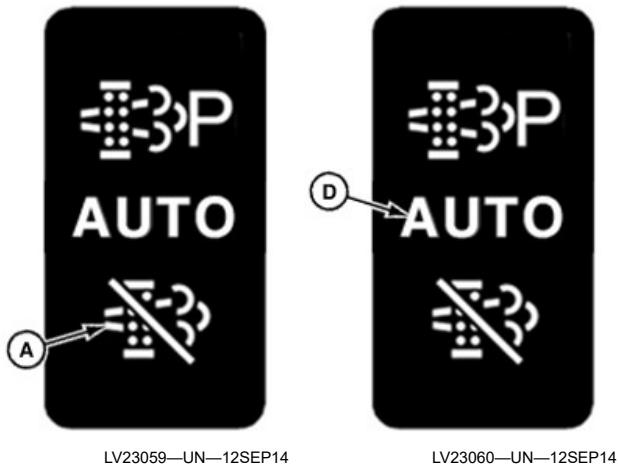
Automatic exhaust filter cleaning is started when sulfur or urea deposits in the exhaust filter reach a certain level. Automatic exhaust filter cleaning is initiated and performed without any intervention on the part of the operator.

Exhaust filter cleaning mode switch (A) is a momentary contact switch. Default position is Automatic (AUTO) Exhaust Filter Cleaning mode.

If the system determines that sulfur or urea deposit buildup in the exhaust filter requires cleaning and engine speed is above 1200 rpm, an automatic cleaning is initiated and performed. Engine emissions temperature indicator (B) remains illuminated during the exhaust filter cleaning.

GS25068,0005A94-19-09OCT18

## Disabled Exhaust Filter Cleaning



LV23059—UN—12SEP14

LV23060—UN—12SEP14

**IMPORTANT: Exhaust filter cleaning switch is a momentary contact switch. The default mode of operation is automatic (AUTO) exhaust filter cleaning. Recommended operation of vehicle is in the automatic (AUTO) exhaust filter cleaning mode.**

If your vehicle must be used in a situation not suited for higher temperatures created during an exhaust filter cleaning, temporarily disabling the system is possible. Be sure to reset to automatic (AUTO) mode as soon as possible.

To engage exhaust filter (AUTO) cleaning disabled mode (A), press and hold bottom of the exhaust filter cleaning switch until AUTO cleaning disabled indicator (B) on display illuminates.

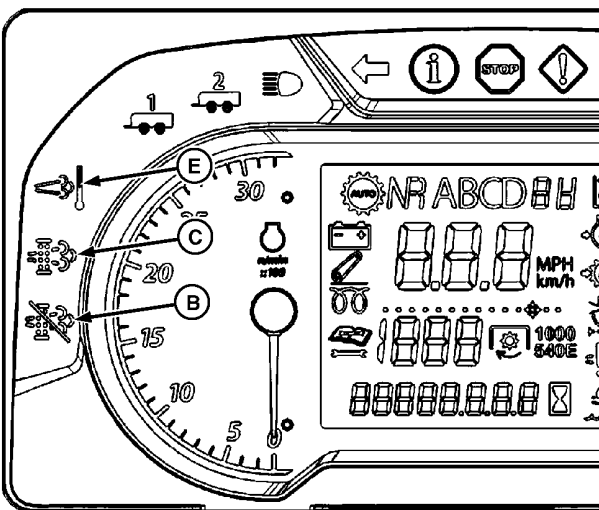
While in disabled mode, if system determines that exhaust filter requires cleaning, exhaust filter indicator (C) illuminates. Exhaust filter cleaning must be reset to automatic (AUTO) exhaust filter cleaning mode. To reset exhaust filter cleaning to exhaust filter (AUTO) cleaning mode (D), press and hold bottom of the exhaust filter cleaning switch. When AUTO cleaning disabled indicator (B) on display turns off, system is in automatic (AUTO) exhaust filter cleaning mode.

Anytime machine is shut off and restarted, system is reset to automatic (AUTO) exhaust filter cleaning mode.

Emissions temperature indicator (E) remains illuminated during an exhaust filter cleaning.

Do not disable automatic exhaust filter cleaning unless it is necessary. If disabled mode is used frequently, system, eventually, reduces engine performance requiring a stationary parked exhaust filter cleaning.

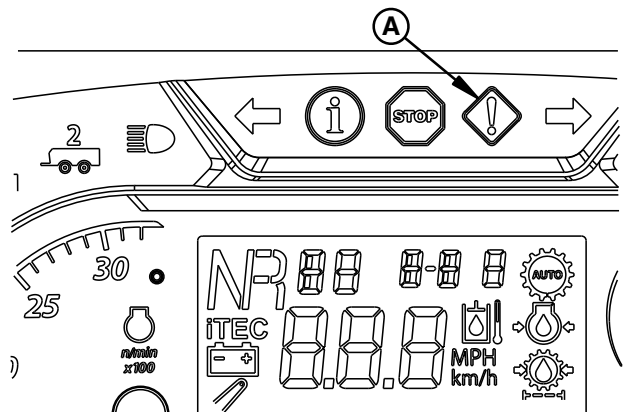
GS25068,0005A95-19-09OCT18



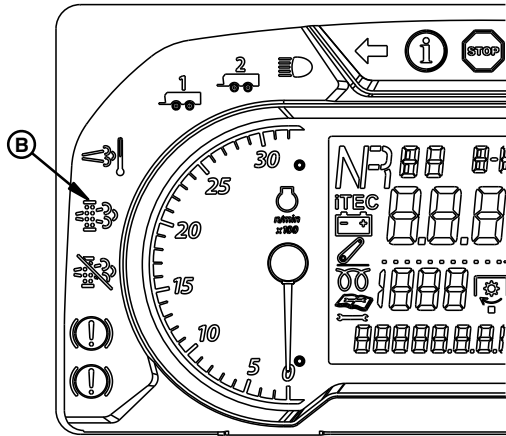
LV21988—UN—03JUN14

- A—Exhaust Filter (AUTO) Cleaning Disabled Mode
- B—AUTO Cleaning Disabled Indicator
- C—Exhaust Filter Indicator
- D—Exhaust Filter (AUTO) Cleaning Mode
- E—Engine Emissions Temperature Indicator

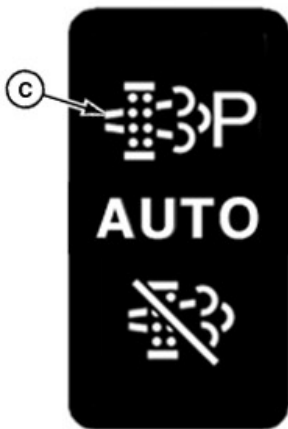
## Parked Exhaust Filter Cleaning



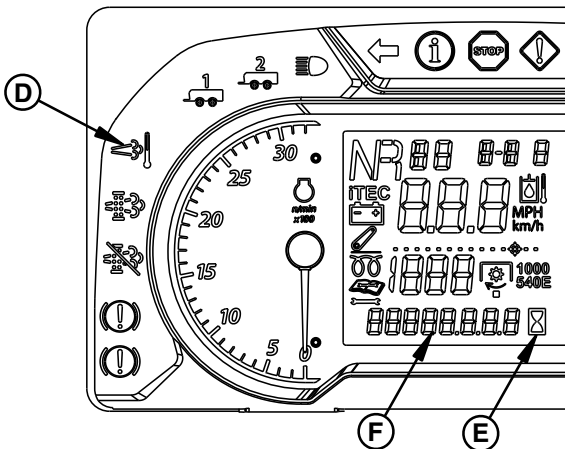
PY42061—UN—15MAY17



PY42059—UN—15MAY17



LV23061—UN—12SEP14



PY42060—UN—15MAY17

- A—Warning Indicator  
 B—Exhaust Filter Indicator  
 C—Parked Cleaning Position  
 D—Engine Emissions Temperature Indicator  
 E—Vehicle Information Display  
 F—Engine Hours Indicator

**IMPORTANT:** If operator disregards indicators and continues to operate vehicle without allowing an automatic cleaning, engine performance is reduced. A parked exhaust filter cleaning procedure must be performed.

Park the vehicle in a suitable space and lower any implements all the way to the ground.

If necessary, it is possible to cancel a parked exhaust filter cleaning process by manually advancing throttle, engaging transmission, or stopping engine.

Use NO other vehicle functions while exhaust filter cleaning is taking place with the vehicle parked. Excluded are functions that are required for an emergency shutdown of the vehicle.

If operator disregards indicators and continues to operate vehicle without allowing a parked cleaning, engine performance is reduced. Have a John Deere dealer perform a service exhaust cleaning procedure.

Exhaust filter is restricted when:

- Warning indicator (A) is illuminated.
- Exhaust filter indicator (B) is illuminated.
- Engine power is reduced.

The system requires a parked cleaning. Five consecutive tones warn operator that a parked cleaning is required.

**NOTE:** Do not start exhaust filter cleaning if the fuel gauge has been showing a low fuel level for a long time.

1. Stop machine, place transmission in park position, disengage PTO, and set engine idle to low 900 RPM.
2. Press and hold exhaust filter cleaning switch in parked cleaning position (C) for 3 seconds then release.
3. The engine speed increases to 1800 rpm.
4. During the parked cleaning process, the engine emissions temperature indicator (D) illuminates.

**NOTE:** The parked exhaust filter cleaning process takes 30—45 minutes to complete.

5. Engine hours indicator (F) turns off and a percent numeric value of parked cleaning process is shown in vehicle information display (E). First; a preparation stage value increases from 1—100. During preparation stage, the exhaust filter cleaning system increases engine speed to increase exhaust temperature. Second; an exhaust filter cleaning value increases from 1—100. During cleaning stage, sulfur or urea deposits are cleaned from the exhaust filter.
6. When the parked cleaning process is complete exhaust filter indicator and warning indicator turns

off. Emissions temperature indicator remains on for 30 seconds and engine speed returns to 900 rpm.

7. After emissions temperature indicator turns off and engine hours indicator turns on, continue vehicle operations as normal

**NOTE:** The system defaults to Automatic (AUTO) exhaust filter cleaning mode.

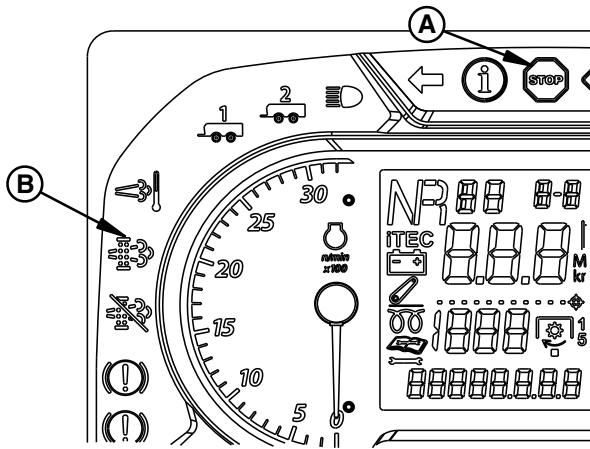
*If not returning vehicle to operation, allow engine time to return to normal operating temperature before stopping engine.*

- Do not interrupt cleaning process unless it is necessary.
- If possible, do not shut off the engine while the exhaust filter indicator light is on.
- Take note of information displayed for the operator, and act accordingly.

GS25068,0005A97-19-09OCT18

GS25068,0005A96-19-09OCT18

## Service Exhaust Filter Cleaning



PY42062—UN—15MAY17

A—STOP Indicator  
B—Exhaust Filter Indicator

**IMPORTANT:** Repeated cancelation or ignoring indicators to perform a parked exhaust filter cleaning causes more engine power limitations which eventually lead to a dealer required service.

**When STOP indicator (A) and exhaust filter indicator (B) are illuminated at the same time; contact your John Deere dealer.**

If level of sulfur or urea at the exhaust filter is extreme, STOP indicator (A) and exhaust filter indicator (B) illuminate together and engine power is reduced. Automatic exhaust filter cleaning and filter cleaning with machine parked are no longer possible.

To service or clean the exhaust filter, contact your John Deere dealer.

Tips for avoiding service cleaning:

- Do not disable exhaust filter cleaning unless it is necessary.
- Avoid unnecessary idling.

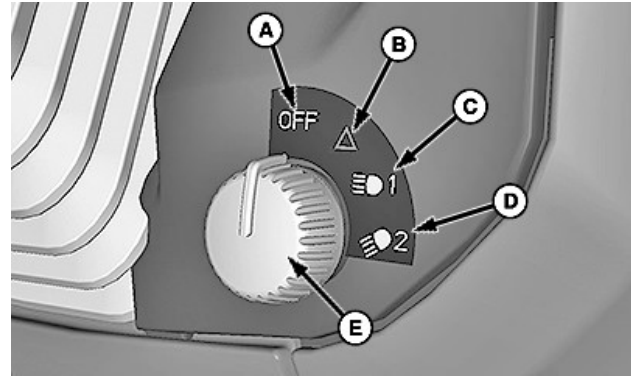
# Electrical and Lighting Operation

## Light Switch



Cab

RXA0157952—UN—03MAR17



CPA0004102—UN—04AUG17

OOS and Low-Profile

- A—Off Position
- B—Warning Lights Position
- C—Road Lights Position
- D—Field Lights Position
- E—Light Switch

**CAUTION:** Use lights in road position while operating on public roadways as required by local traffic laws or regulations.

Do not operate the machine on public roadways with the light switch in field position or work lights on. Other machine operators can be blinded or confused, impairing their driving ability.

Rotate light switch (E) to warning lights position (B) or road lights position (C) if operating on the road. When operating in the field, rotate the switch to field lights position (D) and turn on additional work lights with the work light switch.

Switch Position	Use	Warning Lights Amber	Tail Lights Red	Work Lights	Headlights Front Grille
A—Off	Field, Day Time	Off	Off	Off	Off
B—Warning Light	Road, Day Time	On Flashing	Off	Off	Off
C—Road Light	Road, Night Time	On Flashing	On	Off	On
D—Field Light	Field, Night Time	Off	Off	On	On

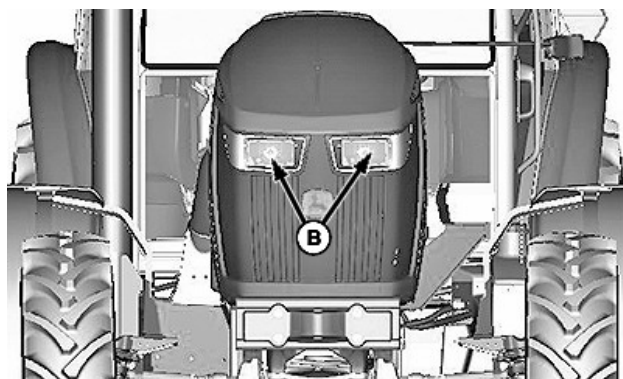
OURX985,0003182-19-15JAN18



## Headlights (Cab)



CPA0004169—UN—04AUG17



CPA0004104—UN—04AUG17

A—Horn/Headlight Control/Turn Signal Lever  
B—Headlights

**CAUTION:** Dim headlights to low beam for oncoming vehicles. Other machine operators can be blinded or confused, impairing their driving ability.

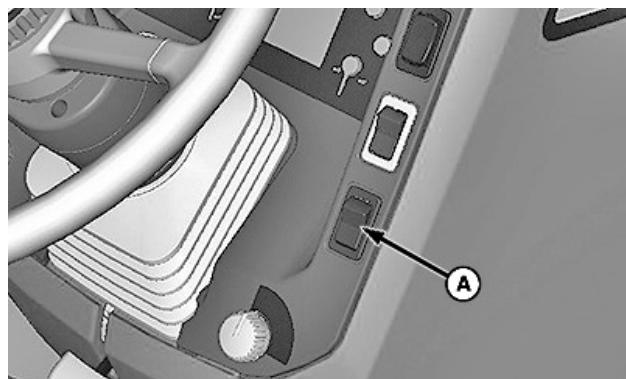
Push lever (A) forward to illuminate high beam headlights. High beam indicator illuminates on the primary display. Pull lever into center position to switch to low beam lights.

Operate flash-to-pass function by pulling lever rearward and releasing momentarily to activate high beams.

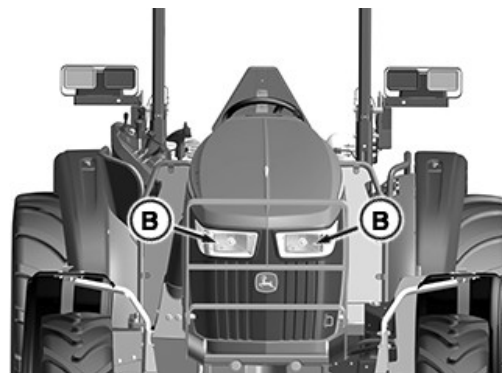
Lever Position	High Beam	Low Beam
Normal (Center)	Off	On
Forward	On	Off
Rear (Flash-to-Pass)	On	On

GS25068,0005A98-19-09OCT18

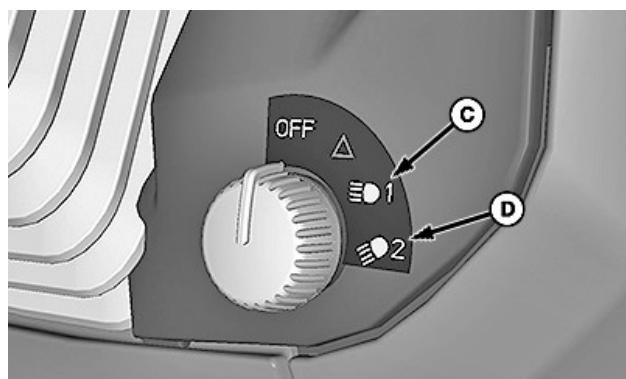
## Headlights (OOS and Low-Profile)



CPA0004122—UN—04AUG17



RXA0161421—UN—08JAN18



CPA0004121—UN—04AUG17

A—High/Low Beam Switch  
B—Headlights  
C—Road Lights Position  
D—Field Lights Position

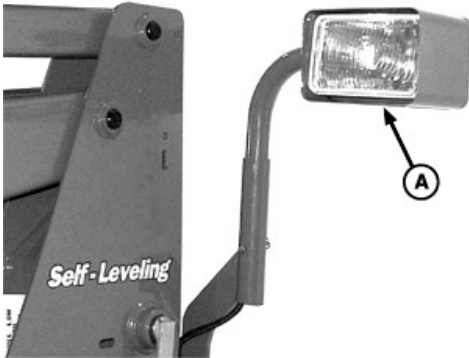
**CAUTION:** Dim headlights to low beam for oncoming vehicles. Other machine operators can be blinded or confused, impairing their driving ability.

Dual-beam headlights (B) are used for highway driving, day, or night. They are turned on in road lights position (C) or field lights position (D) with the light switch.

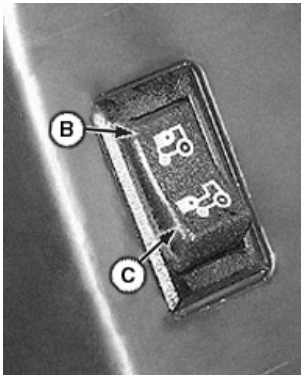
Always dim headlights by moving high/low beam switch (A) to low beam position when meeting another vehicle.

OURX985,00031C8-19-08JAN18

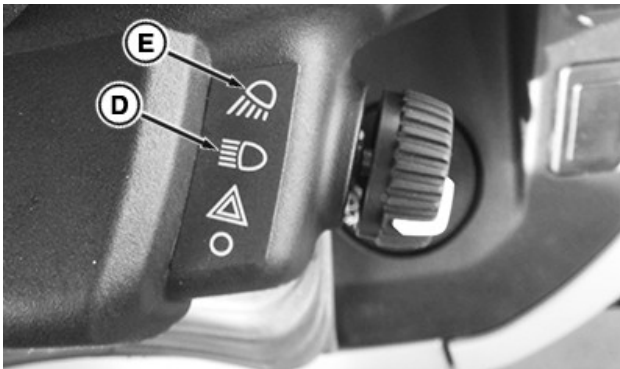
## Loader Lights



LV9465—UN—03SEP04

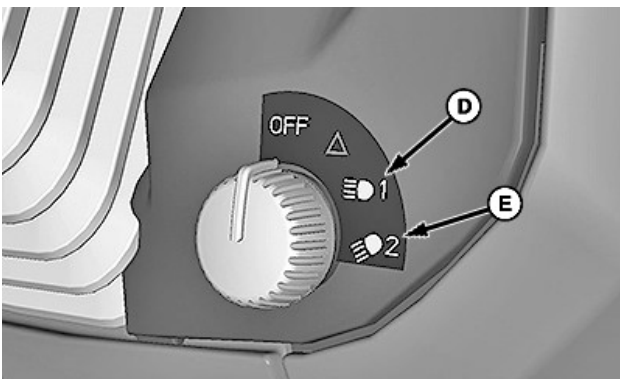


LV14361—UN—20MAY11



RXA0157954—UN—03MAR17

Cab



CPA0004105—UN—04AUG17

OOS and Low-Profile

- B—Auxiliary Driving Lights On Position
- C—Auxiliary Driving Lights Off Position
- D—Road Lights Position
- E—Field Lights Position

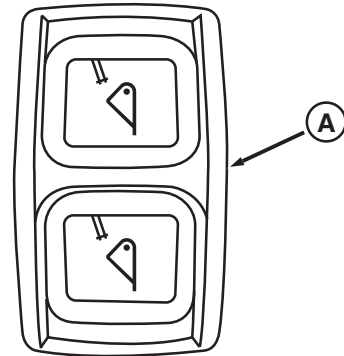
Auxiliary driving lights can be used as an alternative for obscured driving headlights mounted in front grille.

*NOTE: Auxiliary light arms swing toward loader frame for storage. Auxiliary driving lights are only available with loader.*

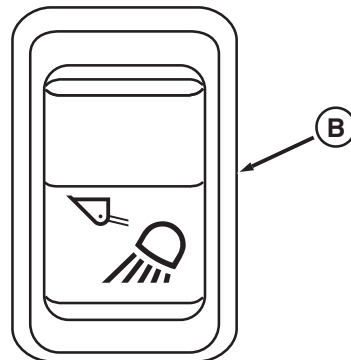
Auxiliary Light Switch	Main Light Switch	Auxiliary Driving Lights	Grille Headlights
<b>B—On</b>	D—Road	On	Off
	E—Field	On	Off
<b>C—Off</b>	D—Road	Off	On
	E—Field	Off	On

GS25068,0005A99-19-09OCT18

## Bucket Lights

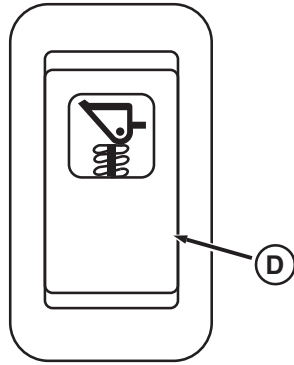


RXA0161635—UN—05JAN18



RXA0161636—UN—05JAN18

A—Auxiliary Driving Light Assembly



RXA0161638—UN—05JAN18



RXA0158262—UN—14MAR17

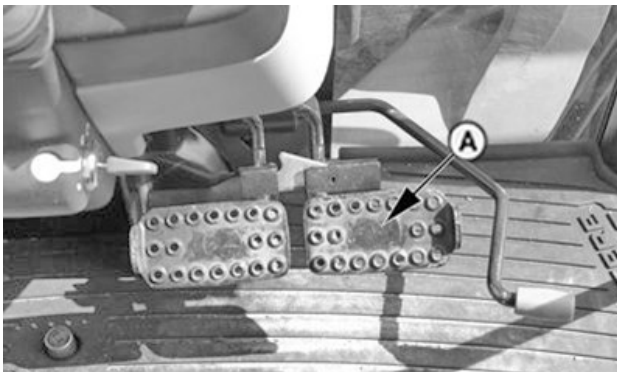
- A—Bucket Attach/Detach Switch
- B—Bucket Light Switch
- C—Bucket Lights
- D—Loader Suspension Switch

Bucket lights (C) are on the loader mast and illuminate the bucket and contents no matter how the loader is positioned.

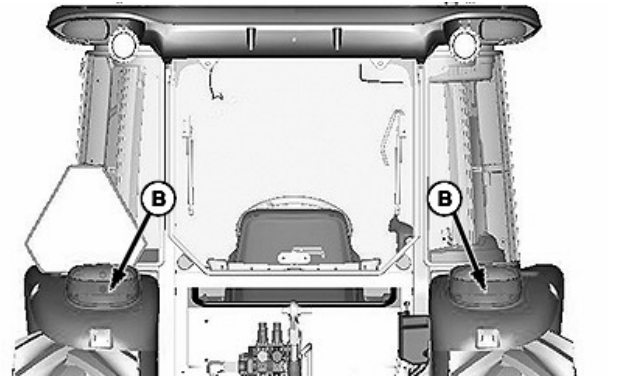
See relevant loader operator's manual for bucket attach/detach switch (A), bucket light switch (B), and loader suspension switch (D).

GS25068,0005A9A-19-09OCT18

## Tail and Brake Lights (Cab)



CPA0004170—UN—04AUG17



Cab

CPA0004070—UN—04AUG17

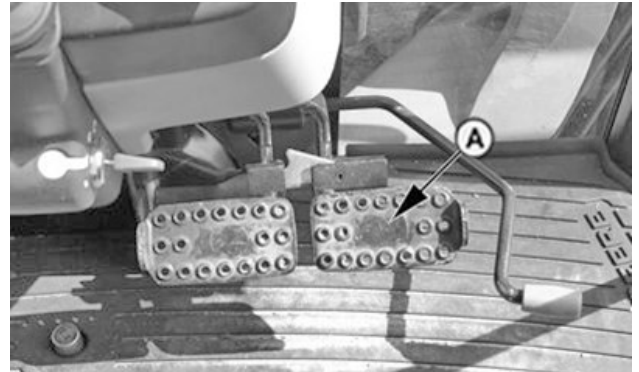
- A—Brake Pedals
- B—Tail and Brake Lights

Tail and brake lights (B) both illuminate the same dual intensity bulb. When the light switch is in road position only, the tail light portion illuminates.

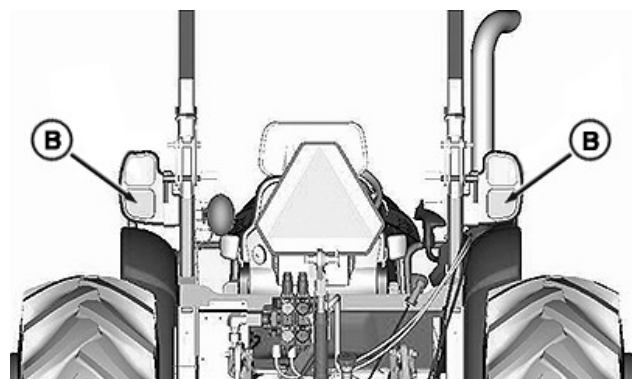
If one or both brake pedals (A) are depressed, the intensity of the light increases since both filaments are illuminated.

GS25068,0003F82-19-13FEB18

## Brake Lights (OOS)

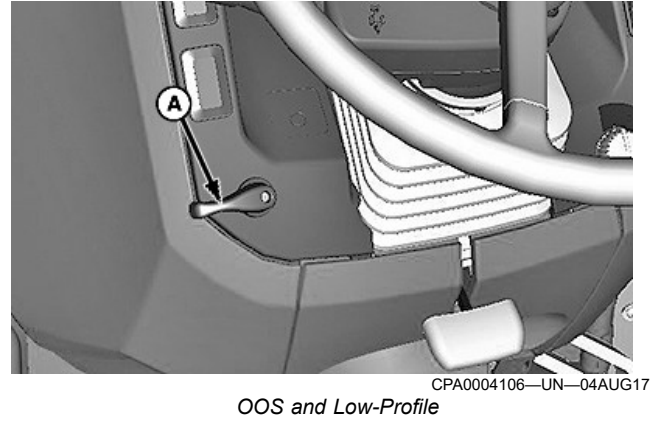
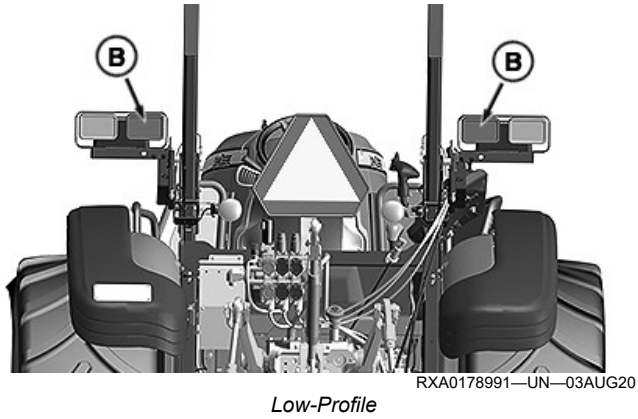


CPA0004170—UN—04AUG17



OOS

RXA0178990—UN—03AUG20

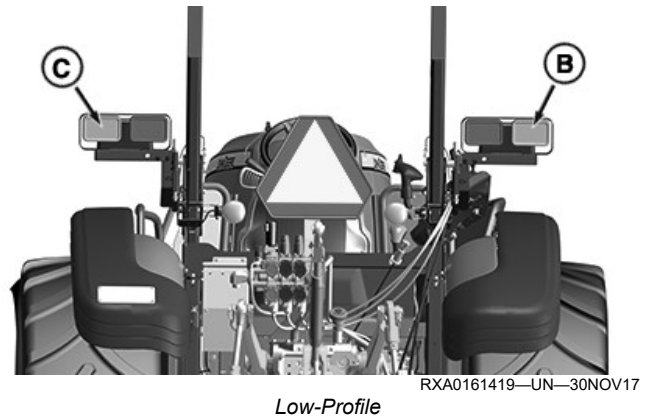
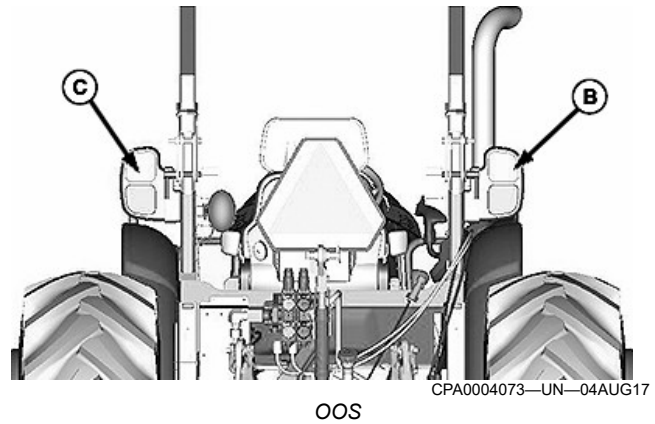


A—Brake Pedals  
B—Tail and Brake Lights

If one or both brake pedals (A) are depressed, brake lights (B) illuminate.

GS25068,0003F90-19-03AUG20

## Turn Signals



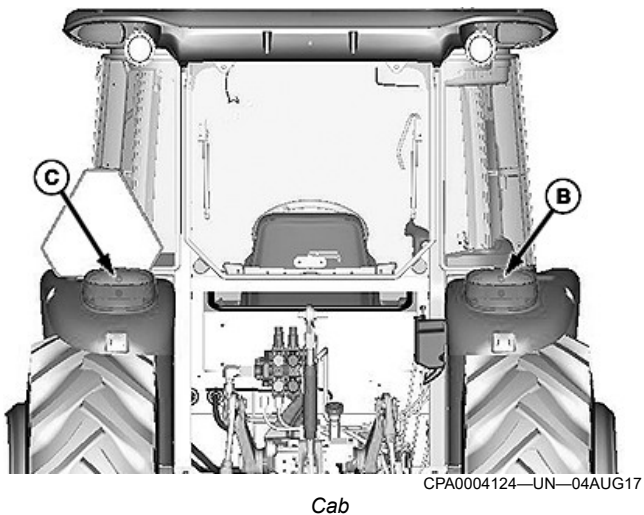
A—Turn Signal Lever  
B—Right Fender Turn Signal  
C—Left Fender Turn Signal

**CAUTION:** Always use turn signals when making a turn on public roadways as required by local traffic laws or regulations.

Push lever (A) up for right turn, or pull down for left turn. Audible chirping sound starts. Turn signal icon on primary display flashes to indicate turn signal lever and lights are on.

Return lever to center position after completing turn.

When operating on the road, warning lights must be



used in conjunction with turn signals. The table below describes turn signal function based upon those conditions.

Turn Signal Lever Position	Right Turn Signal (B)	Left Turn Signal (C)	Right Warning Lights (E)	Left Warning Lights (D)
Off	Off	Off	On Flashing	On Flashing
Up	On Flashing	On Steady	On Flashing	On Steady
Down	On Steady	On Flashing	On Steady	On Flashing

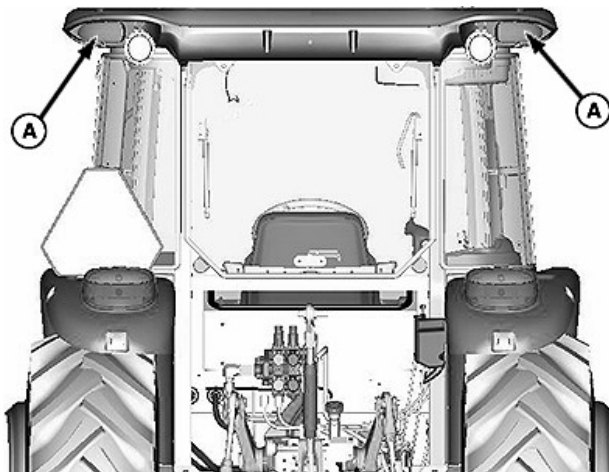
When operating in the field, warning lights do not have to be used. The table below describes turn signal function without the warning lights.

Turn Signal Lever Position	Right Turn Signal (B)	Left Turn Signal (C)
Off	Off	Off
Up	On Flashing	On Steady
Down	On Steady	On Flashing

OURX985,0003186-19-17JAN18

## Warning Lights

### Cab



CPA0004075—UN—04AUG17



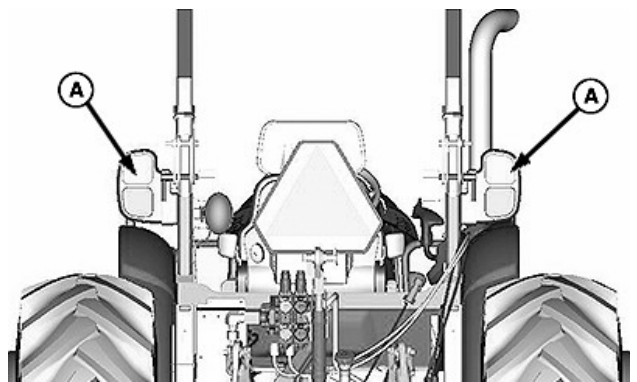
CPA0004076—UN—04AUG17



RXA0158191—UN—08MAR17

A—Rear Warning Lights  
B—Front Warning Lights  
C—Warning Lights Position

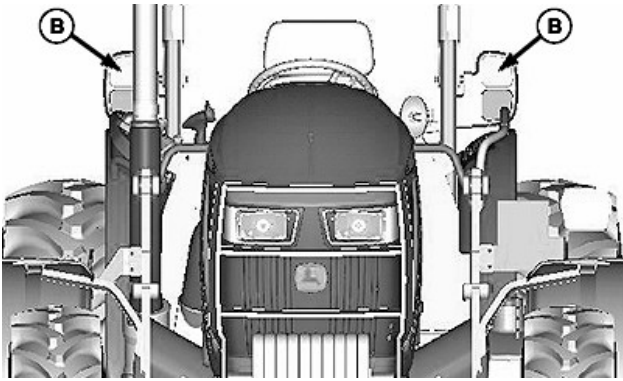
### OOS and Low-Profile



CPA0004077—UN—04AUG17

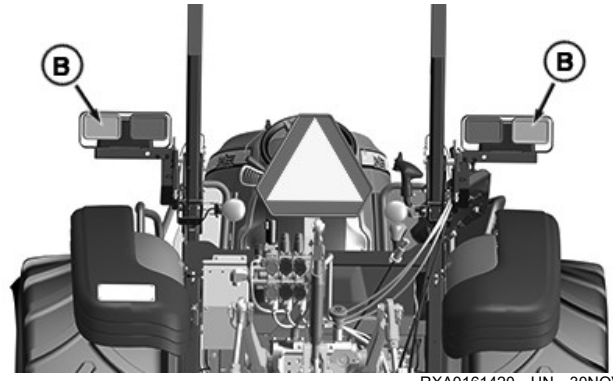
OOS Rear Lights





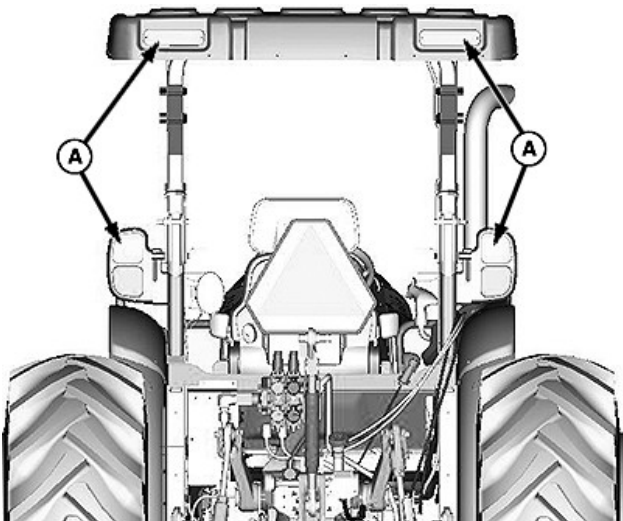
CPA0004078—UN—04AUG17

OOS Front Lights



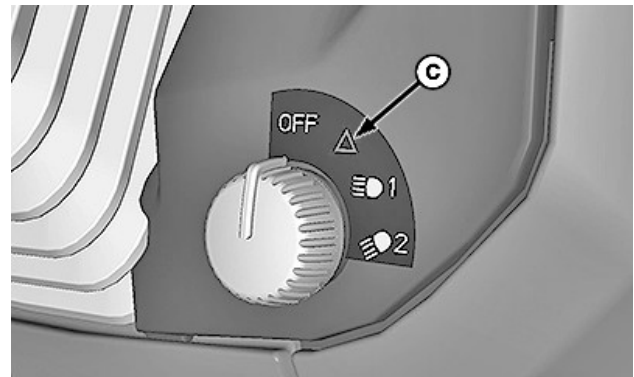
RXA0161420—UN—30NOV17

Low-Profile - Front and Rear



CPA0004261—UN—09AUG17

OOS Rear Lights with Deluxe Canopy



CPA0004107—UN—04AUG17

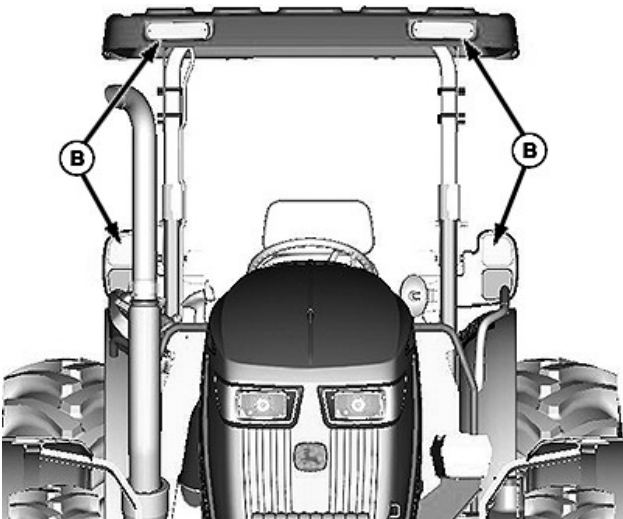
- A—Rear Warning Lights
- B—Front Warning Lights
- C—Warning Lights Position

**CAUTION:** Use warning lights on public roadway as required by local traffic laws or regulations.

**NOTE:** Warning lights operate anytime light switch is in the warning position (C), regardless of key position.

Rotate light switch to warning lights position (C) to illuminate front warning lights (B) and rear warning lights (A). Rotate light switch to the off position to turn off warning lights.

OURX985,0003187-19-15JAN18



CPA0004262—UN—09AUG17

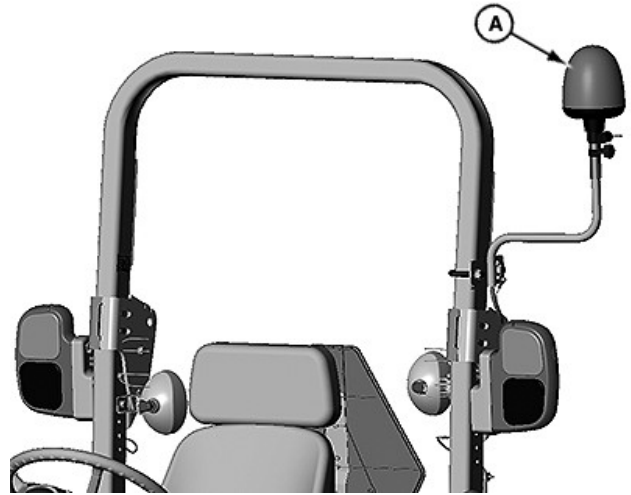
OOS Front Lights with Deluxe Canopy

## Beacon Light



Cab

CPA0004188—UN—04AUG17



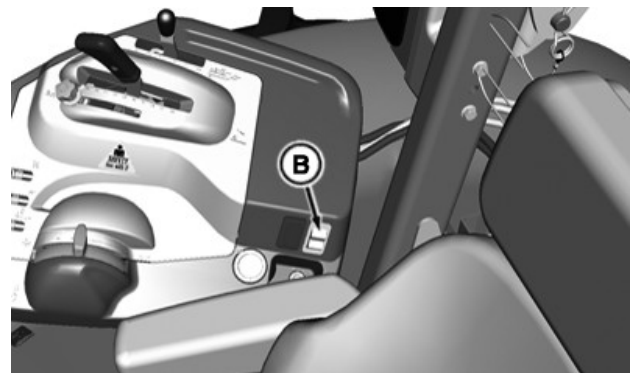
OOS/Low-Profile

LV22747—UN—19AUG14



Cab

RXA0158194—UN—08MAR17



RXA0178242—UN—03JUN20

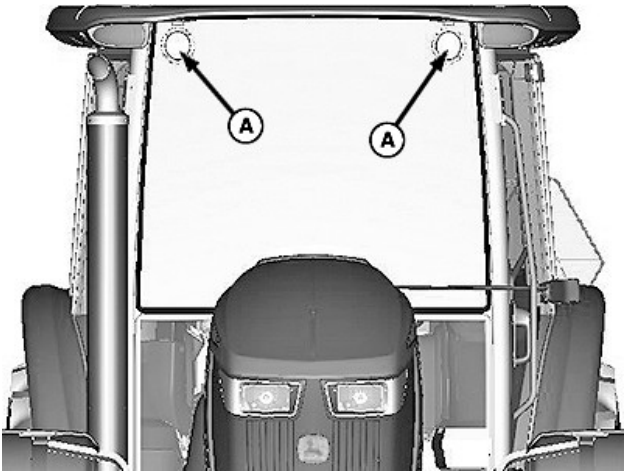
A—Beacon Light  
B—Beacon Light Switch

**CAUTION:** Use beacon lights on public roadways as required by local traffic laws or regulations.

1. Depress beacon light switch (B) to activate beacon light (A).
2. Beacon light assembly can be removed if desired to prevent damage.
  - a. Loosen wing nut and lift light from tube.
  - b. To protect the light socket, install cap on tube end.

GS25068,0005A9B-19-03JUN20

## Front Work Lights



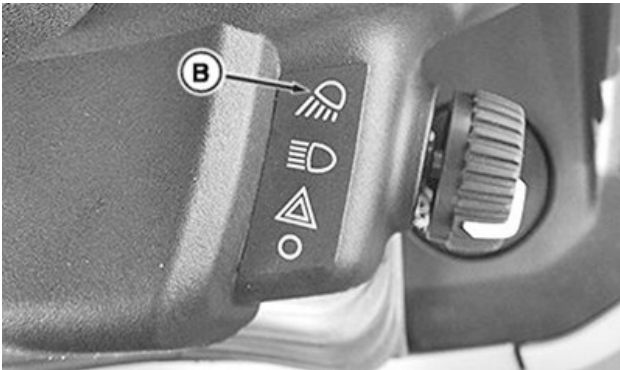
Cab

CPA0004091—UN—04AUG17



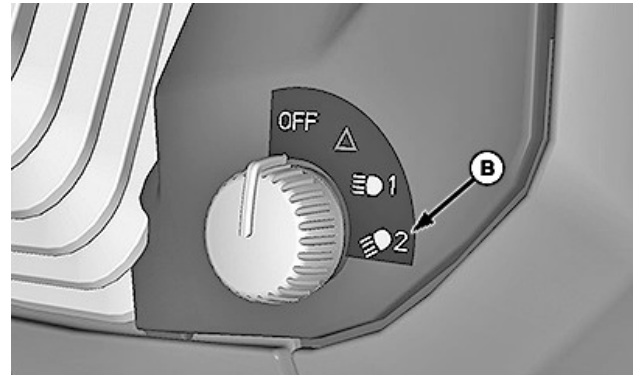
Low-Profile

RXA0161377—UN—20NOV17



Cab

CPA0004189—UN—04AUG17



OOS and Low-Profile

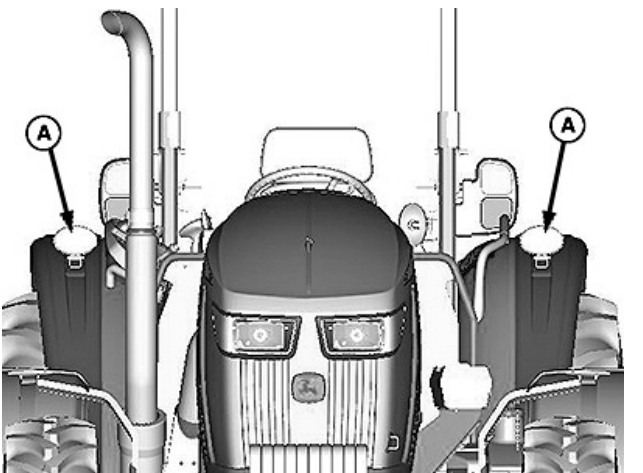
CPA0004108—UN—04AUG17

- A—Front Work Lights
- B—Field Lights Position

**CAUTION:** Do not use work lights on public roadways unless allowed by local traffic laws or regulations.

Rotate light switch to field lights position (B) to illuminate front work lights (A).

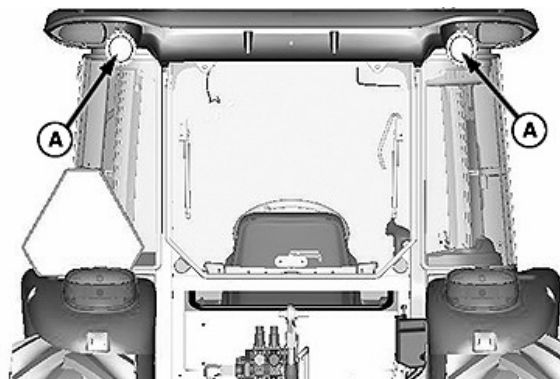
OURX985.0003188-19-15JAN18



OOS

CPA0004273—UN—09AUG17

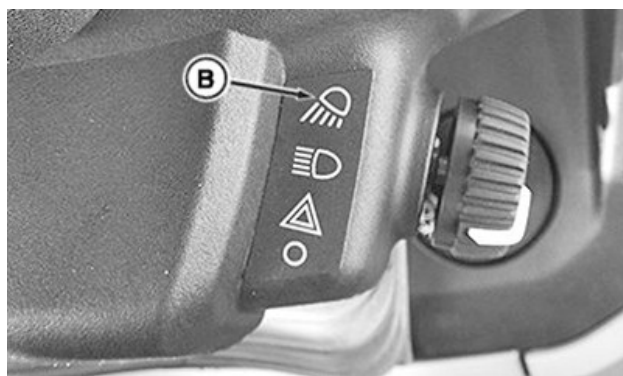
## Rear Work Lights



Cab

CPA0004092—UN—04AUG17





Cab

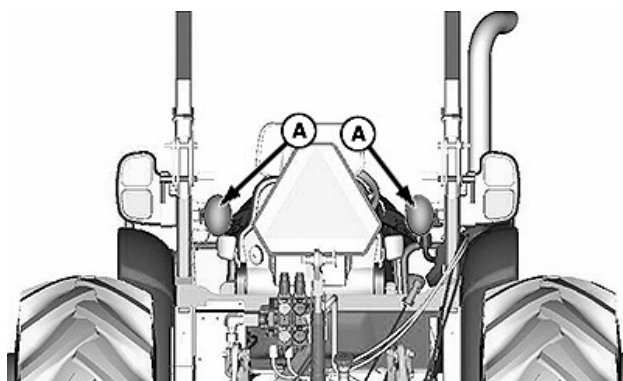
CPA0004189—UN—04AUG17

A—Rear Work Lights  
B—Field Lights Position

**CAUTION:** Do not use work lights on public roadways unless allowed by local traffic laws or regulations.

Rotate light switch to field lights position (B) to illuminate rear work lights (A).

OURX985.0003189-19-15JAN18



OOS

CPA0004266—UN—09AUG17



LV8418—UN—14JUL03

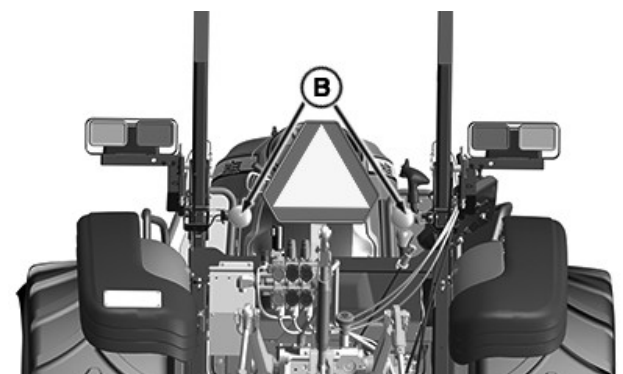
A—Dome Light Switch

**IMPORTANT:** Before exiting cab, turn dome light to OFF or DOOR position to avoid causing battery to lose its charge.

Dome light switch (A) has three positions:

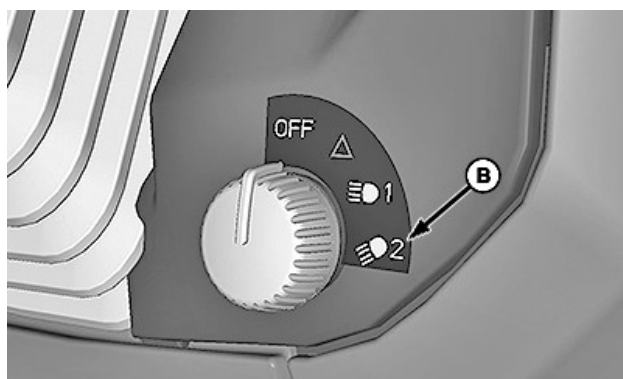
- Left Position: Light on with door opened or closed.
- Right Position: Light on with door opened or light off with door closed.
- Center Position: Light off with door opened or closed

OURX985.00031CA-19-08JAN18



Low-Profile

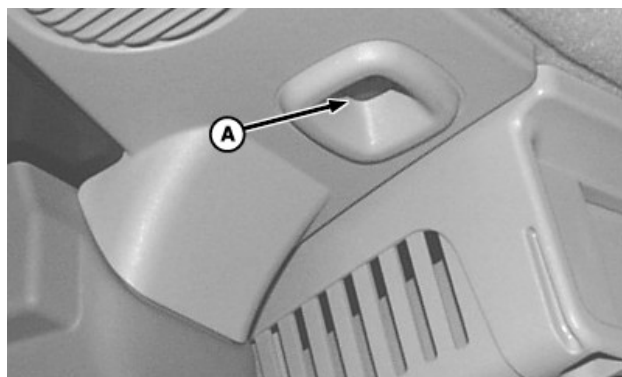
RXA0161422—UN—30NOV17



OOS and Low-Profile

CPA0004108—UN—04AUG17

## Right-Hand Console Light



LV09217—UN—22JUL04

A—Right-Hand Console Light

The right-hand console light (A) is only on when the light switch is in road or field lights positions.

CP00834,0002509-19-09AUG17

## Horn



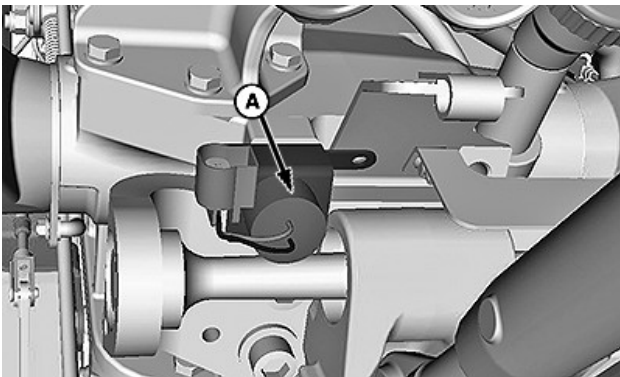
CPA0004169—UN—04AUG17

**A—Horn/Headlight Control/Turn Signal Lever**

Push in on end of lever (A) to sound horn.

OURX985,000318B-19-08JAN18

## Backup Alarm



CPA0004098—UN—04AUG17

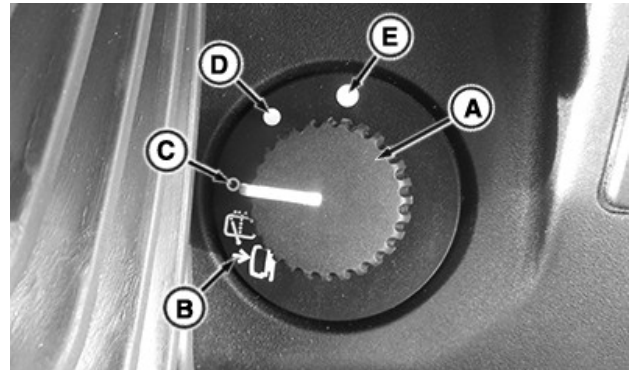
**A—Backup Alarm**

Backup alarm (A) sounds when the key switch is in the on position and the left-hand reverser lever or range shift lever is in reverse position.

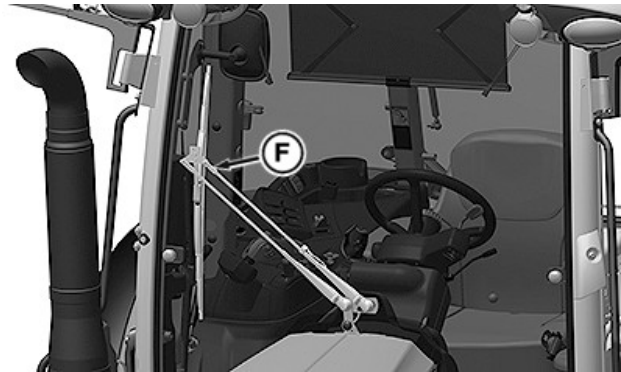
Backup alarm beeps to alert anyone near that machine is traveling in reverse.

CP00834,000250B-19-09AUG17

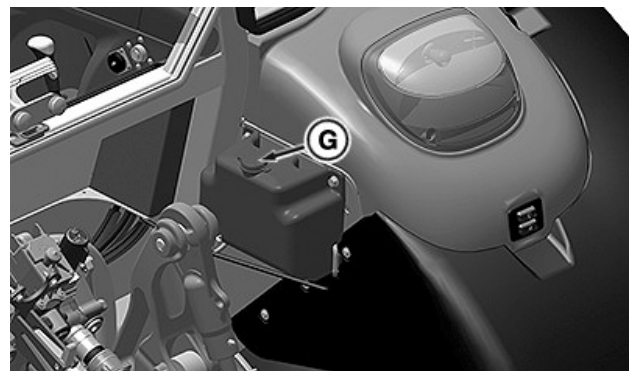
## Front Wiper and Washer



RXA0158253—UN—14MAR17



RXA0158254—UN—14MAR17



RXA0158255—UN—14MAR17

**A—Front Wiper/Washer Knob**

**B—Washer**

**C—Off**

**D—Slow**

**E—Fast**

**F—Front Wiper**

**G—Washer Fluid Reservoir**

Wiper/washer knob (A) has three positions:

- OFF (C)
- Slow (D)
- Fast (E)

Rotate knob forward (clockwise) to increase speed of front wiper (F). Rotate rearward (counterclockwise) to slow or shut off. Push knob inward (B) to operate front washer.

Washer fluid reservoir (G) is located behind the right-

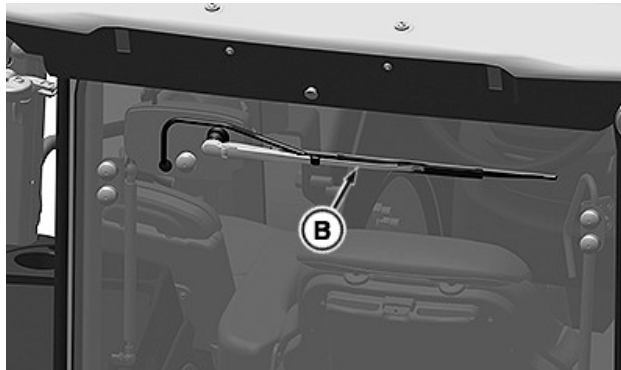
hand cab corner. Fill reservoir with windshield washer fluid as required. In cold climates, fill with non-freezing windshield washer fluid. Reservoir supplies both the front and rear wipers.

GS25068,0005A9C-19-09OCT18

## Rear Wiper and Washer



LV14518—UN—02AUG11



RXA0153610—UN—30AUG16

**A—Rear Wiper/Washer Switch**  
**B—Rear Wiper**

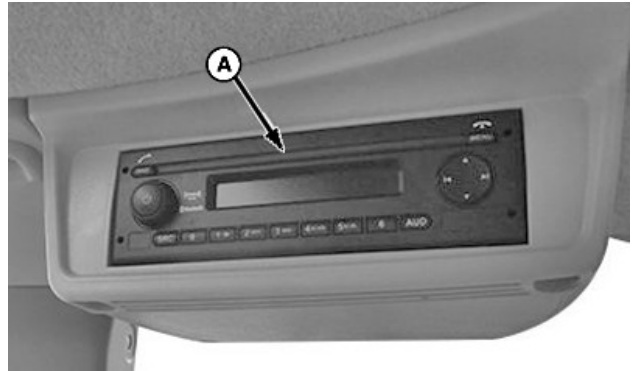
Rear wiper/washer switch (A) has three positions:

- Top - washer and wiper on.
- Center - wiper on.
- Bottom - all off.

Place the switch in center position to operate the rear wiper (B). Place in top position to operate the washer and wiper at the same time.

OURX985,00031CB-19-08JAN18

## Radio



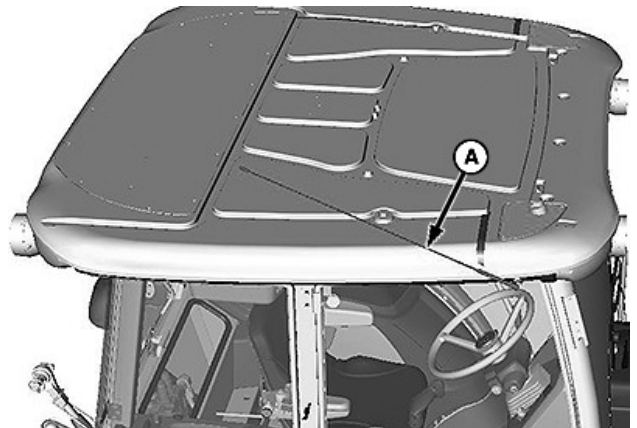
CPA0004127—UN—04AUG17

**A—Radio**

Refer to your specific radio reference manuals for more information about operation.

CP00834,000250E-19-09AUG17

## Radio Antenna



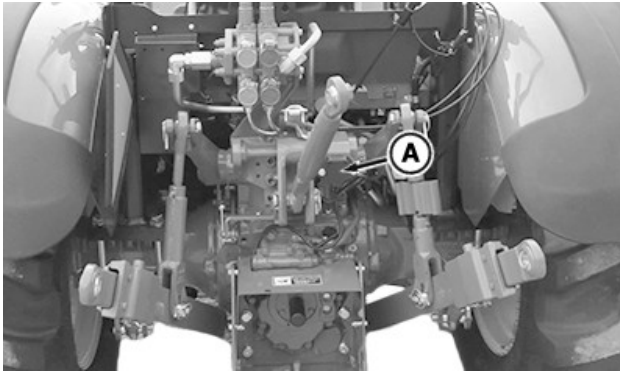
CPA0004097—UN—04AUG17

**A—Radio Antenna**

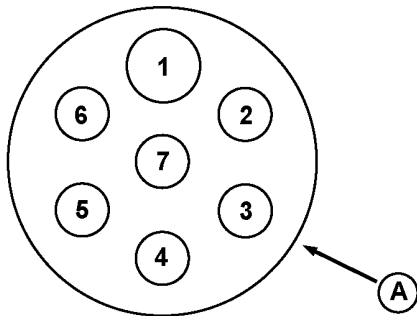
Adjust radio antenna (A) as required to improve radio reception.

CP00834,000250F-19-09AUG17

## Implement Connector



RXA0161884—UN—31JAN18



RW21249A—UN—29APR99

Connector Terminals

### A—Implement Connector

**NOTE:** Matching 7-pin plug is available through your John Deere dealer.

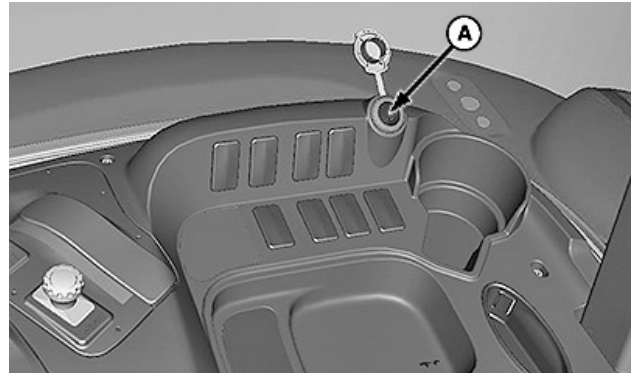
Rear-mounted implement connector (A) is used to connect lights, turn signals and other remote trailer or implement electrical equipment to the machine electrical system.

Terminal Number	Function
1	Ground
2	Implement Work Lights
3	Left Turn Signal
4	Brake Lights
5	Right Turn Signal
6	Tail Lights
7	Accessory Power

Always use auxiliary light on towed implement when machine rear signals and other lights are obscured.

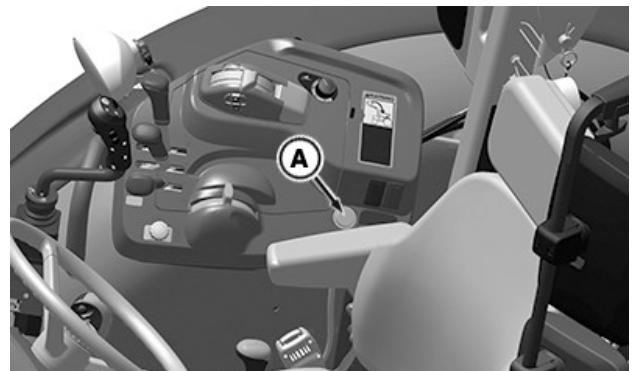
GS25068,0005A9D-19-09OCT18

## Power Outlet



CPA0004079—UN—04AUG17

Cab



RXA0158264—UN—14MAR17

OOS and Low-Profile

### A—Power Outlet

Power outlet (A) is an accessory 12 V electrical outlet for connecting auxiliary equipment. Outlet is protected by a 30 A fuse.

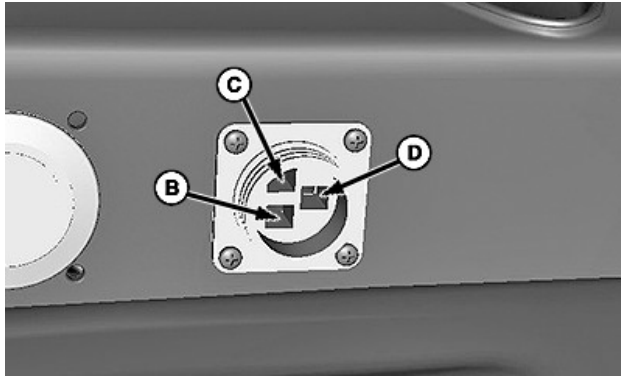
An optional cigarette lighter can be installed in place of the power outlet.

GS25068,0005C2D-19-17OCT18

## Convenience Outlet



CPA0004100—UN—04AUG17



CPA0004101—UN—04AUG17

- A—12-Volt Electrical Convenience Outlet
- B—Battery Power (Unswitched)
- C—Battery Power (Switched)
- D—Ground

12-volt electrical convenience outlet (A) is on the right-hand console and is used when connecting auxiliary equipment.

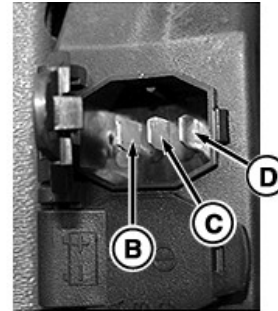
For additional information on connections, see auxiliary equipment installation instructions or your John Deere dealer.

GS25068,0005A9F-19-09OCT18

## Auxiliary Power Strip



RXA0153603—UN—29AUG16



CPA0004190—UN—04AUG17

- A—Auxiliary Power Strip
- B—Battery Power (Unswitched)
- C—Ground
- D—Battery Power (Switched)

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

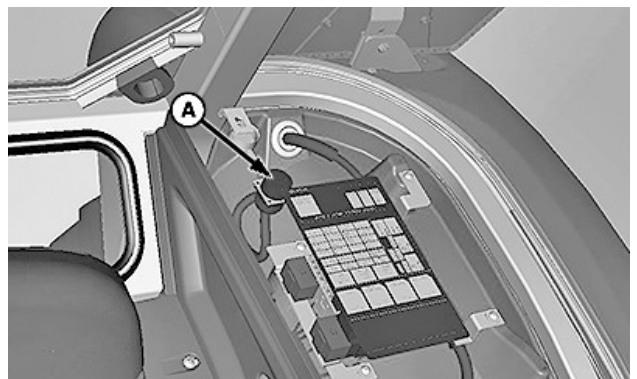
Auxiliary power strip (A) provides six 12-volt grounded power outlets for use connecting auxiliary equipment.

Positive symbol (+) on the cover indicates that circuit is unswitched (B). Negative symbol (-) on the cover indicates the circuit ground (C). Circle symbol (O) on the cover indicates that circuit is switched (D). Outlets are protected by a 30 A fuse.

Various adapters are available from your John Deere dealer. Adapters plug directly into the power strip. To change to switched power on adapter, remove the small tab at end of the slot on plug and rotate plug 180°.

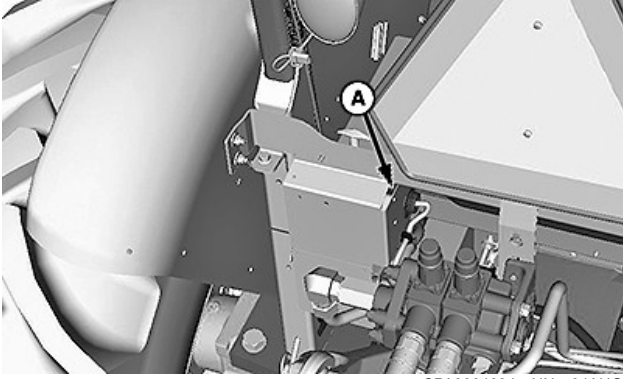
GS25068,0005C2E-19-17OCT18

## Service ADVISOR™ Connector



CPA0004095—UN—04AUG17

Cab



CPA0004094—UN—04AUG17

OOS/Low-Profile

A—Service ADVISOR™ Connector

**IMPORTANT:** Connector is to be used only for Service ADVISOR™ equipment, or machine damage occurs.

The Service ADVISOR™ connector (A) is used by your John Deere dealer to diagnose and repair the machine.

OURX985,000320F-19-15JAN18

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## Operator Presence

**CAUTION:** When the operator leaves the seat, the PTO and/or SCVs do not automatically disengage. The machine can move if operator leaves the seat and the transmission is not in Park.

Do not tamper with or disable the operator presence switch to ensure that machine operates correctly.

All operator seats have a switch to detect that the operator is present during operation.

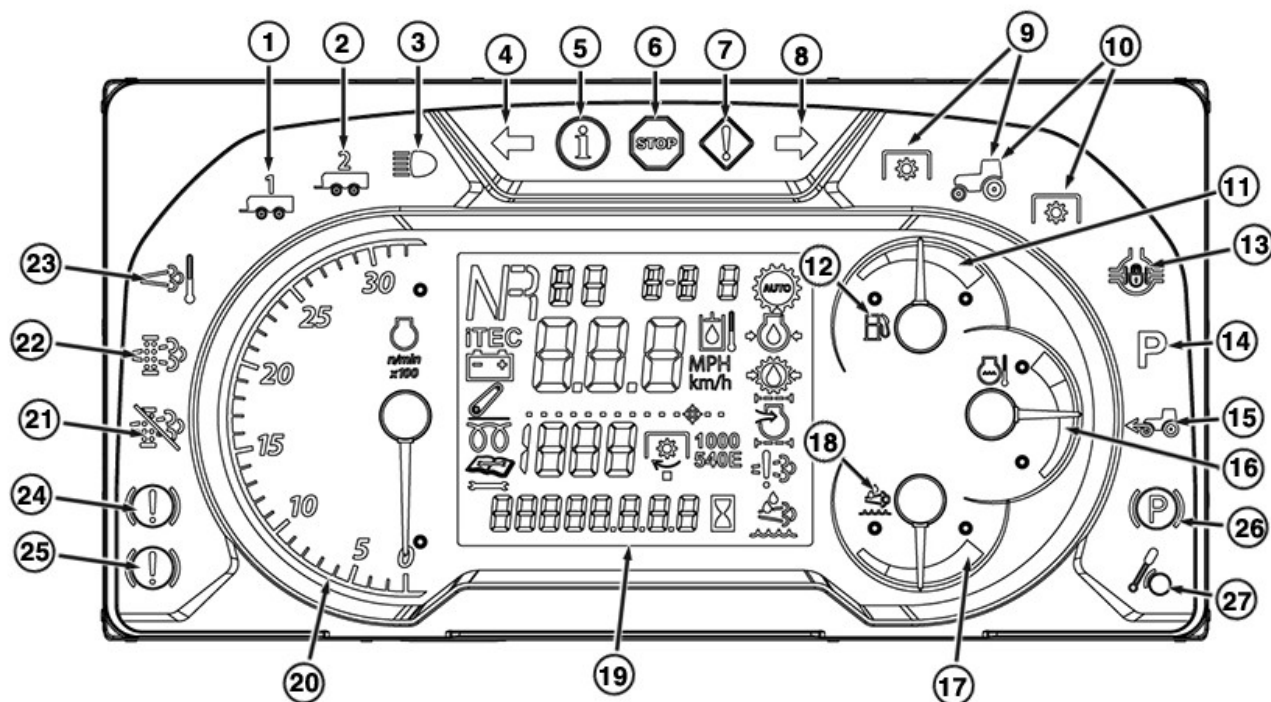
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# Displays, Software, and Electronics Operation

## Primary Display

**NOTE:** Moisture may cause fogging on the inside of the primary display. An anti-fogging agent is used to prevent fogging and may not have been applied correctly. It is normal for the primary display glass to have some moisture inside it on open station machines in certain environments. The primary display is not sealed fully, temperature swings and air moisture content naturally cause condensation. The anti-fog coating disperses the moisture into water droplets so that the operator can see through it. The water droplets should not be any smaller than a pencil lead. If the primary display builds moisture that does not bead up after 20 minutes, it is recommended to replace the primary display.

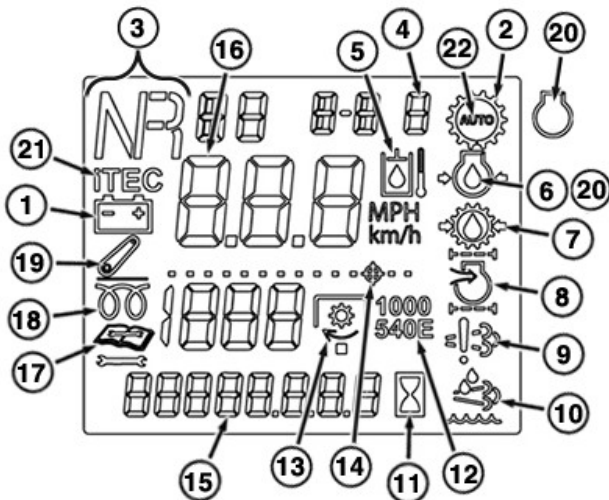


RXA0157951—UN—16MAR17

Display Icon	Icon Name	Icon Description
1	<b>Trailer 1 Indicator</b>	Flashes when one or two trailers are connected and indicator lights are working.
2	<b>Trailer 2 Indicator</b>	Flashes when two trailers are connected and indicator lights are working.
3	<b>High Beam Indicator</b>	Illuminates when the headlights are switched to high beam.
4	<b>Left Turn Indicator</b>	Flashes when turn signal switch is switched to the left-hand side.
5	<b>Information Alert Indicator</b>	Illuminates when a Diagnostic Trouble Code (DTC) is present. If necessary, have your John Deere dealer diagnose vehicle.
6	<b>STOP Indicator</b>	Illuminates when a serious malfunction occurs. SHUT OFF engine IMMEDIATELY and determine cause (review error message in Information Display). If necessary, have your John Deere dealer diagnose vehicle.
7	<b>Warning Indicator</b>	Illuminates when a malfunction occurs (review error message in Information Display). If necessary, have your John Deere dealer diagnose vehicle.
8	<b>Right Turn Indicator</b>	Flashes when turn signal switch is switched to the right-hand side.
9	<b>Front PTO Indicator</b>	Not Used.

Display Icon	Icon Name	Icon Description
10	Rear PTO Indicator	Illuminates when rear PTO is activated.
11	Fuel Level Indicator Gauge	Indicates amount of fuel remaining in tank.
12	Low Fuel Indicator	Illuminates when fuel level indicator moves into the red zone.
13	Differential Lock Indicator	Illuminates when differential lock is engaged.
14	Park Indicator	Illuminates when transmission has been placed in park.
15	MFWD Engaged Indicator	Illuminates when mechanical front-wheel drive is engaged.
16	Engine Coolant Temperature Gauge	Indicates engine coolant temperature. Red area indicates overheat (coolant level too low, dirty radiator, or clogged screen). SHUT OFF engine IMMEDIATELY to prevent damage. If necessary, have your John Deere dealer diagnose vehicle.
17	Diesel Exhaust Fluid (DEF) Level Indicator Gauge	Indicates amount of diesel exhaust fluid (DEF) remaining in tank.
18	Low Diesel Exhaust Fluid (DEF) Indicator	Illuminates when DEF level indicator moves into the red zone. Icon flashes if DEF level falls below "low" indicating level.
19	Information Display	Displays various vehicle information outputs.
20	Tachometer	Indicates engine speed, revolutions per minute (rpm).
21	Auto Cleaning Disabled Indicator	Illuminates when operator has engaged the disable auto exhaust filter cleaning function.
22	Exhaust Filter Indicator	Illuminates when exhaust filter cleaning is in progress, aftertreatment system has a fault, or exhaust filter is in need of cleaning.
23	Engine Emissions Temperature Indicator	Illuminates when exhaust gas temperature is high, elevated idle is active, or exhaust filter cleaning is in progress.
24	Brake System Warning Indicator	Illuminates when a brake system malfunction occurs. Brake system does not perform as expected. Have John Deere dealer diagnose machine.
25	Brake System Stop Indicator	Illuminates when a serious brake system malfunction occurs. Brake system does not perform as expected. Have John Deere dealer diagnose machine immediately.
26	Park Warning	Not Used.
27	Secondary Brake Indicator	Not Used.

### Information Display



RXA0158298—UN—16MAR17

Display Icon	Icon Name	Icon Description
1	Charging System Indicator	Illuminates when charging system malfunction occurs. If necessary, have your John Deere dealer diagnose vehicle.
2	Transmission Indicator	Illuminates when transmission DTC is active. If necessary, have your John Deere dealer diagnose vehicle.
3	F/N/R Indicator	Illuminates to indicate transmission position. <b>F = Forward</b>



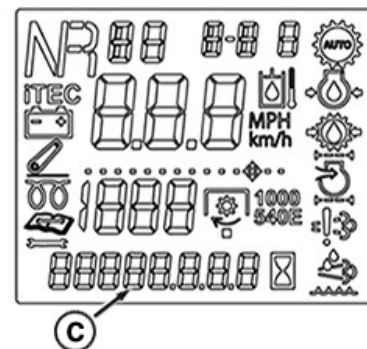
Display Icon	Icon Name	Icon Description
		<b>N = Neutral</b> <b>R = Reverse</b>
4	<b>High/Low Indicator</b>	Indicates <b>H</b> (high) or <b>L</b> (low).
5	<b>Hydraulic Oil Temperature</b>	Illuminates when hydraulic oil overheats. If necessary, have your John Deere dealer diagnose vehicle.
6	<b>Engine Oil Filter Pressure</b>	Entire icon illuminates to indicate abnormal oil filter pressure. If necessary, have your John Deere dealer diagnose vehicle.
7	<b>Transmission Oil Pressure Indicator</b>	Illuminates to indicate abnormal transmission oil pressure. If necessary, have your John Deere dealer diagnose vehicle.
8	<b>Engine Intake-Combustion Air Filter Indicator</b>	Illuminates when air cleaner element is clogged (clean or replace element). If necessary, have your John Deere dealer diagnose vehicle.
9	<b>Engine Emission Systems Malfunction Indicator</b>	Illuminates when there is a malfunction or failure to the emissions system. If necessary, have your John Deere dealer diagnose vehicle.
10	<b>Diesel Exhaust Fluid (DEF) Indicator</b>	Illuminates when DEF is low.
11	<b>Engine Hours Indicator</b>	Illuminates when display is indicating engine hours.
12	<b>PTO rpm Indicator</b>	Indicates what mode PTO is in (540, 540E, or 1000 rpm).
13	<b>PTO Engaged Indicator</b>	Illuminates when rear PTO is engaged.
14	<b>PTO Target Speed Indicator</b>	Illuminates when set PTO target speed has been achieved.
15	<b>Vehicle Information Display</b>	Displays engine hours, diagnostic trouble codes, and regeneration status.
16	<b>Vehicle Speed Display</b>	Displays current vehicle speed.
17	<b>Diagnostic Code Display</b>	Illuminates when active diagnostic trouble codes are being displayed.
18	<b>Cold Start Status</b>	Illuminates when air intake heater is energized. When illuminated, remaining starting aid time shows at vehicle speed display.
19	<b>Rear Hitch Indicator</b>	Illuminates when rear hitch malfunction occurs. If necessary, have your John Deere dealer diagnose vehicle.
20	<b>Engine Malfunction Indicator</b>	Only engine portion of icon (6) illuminates to indicate engine malfunction. To prevent damage, SHUT OFF engine IMMEDIATELY. If necessary, have your John Deere dealer diagnose vehicle.
21	<b>ITEC™ Indicator</b>	Not Used.
22	<b>AUTO Mode Indicator</b>	Not Used.

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## Information Display (Roll-Mode Switch)



RXA0161885—UN—08FEB18



RXA0161888—UN—08FEB18

- A— Roll Mode Switch (cab and OOS machines)
- B— Roll Mode Switch (low-profile machines)
- C— Information Display

Roll-mode switch (A) is used to gain access to diagnostic mode of information display (B).

The diagnostic mode has two levels of access;  
**Customer** and **Technician**.

- **Customer access**— Press and hold roll-mode switch for 5 seconds to begin diagnostic session.

This action allows access to see diagnostic trouble codes and a limited number of diagnostic addresses at the information display (B).

- **Technician access— Only for John Deere dealer use.** Accesses everything in customer mode plus vehicle setup, configuration, and calibration.

**Customer access; recall, record, and clear diagnostic trouble codes:**

- Press and hold the roll-mode switch for 5 seconds to begin diagnostic session.
- Upon entering diagnostics, any active or previously active codes automatically appear in a scrolling fashion. Each one shows the control unit (three letter abbreviations) and the code number (XXXXXX.XX).
- To view or clear diagnostic trouble codes for any given control unit, do the following:
  1. Use the right turn signal switch to scroll to the desired control unit.
  2. Press and release the roll-mode switch to enter the diagnostic addresses for that desired control unit.
  3. Use the right turn signal switch to scroll to diagnostic address 001 for that desired control unit.
  4. If codes are present the word "codes" appears. If not, the word "none" appears.
  5. Press and release the roll-mode switch to view all code details for this control unit.
  6. Any codes present in that control unit appears there in scrolling fashion for multiple codes.
  7. To access the option for clearing codes for this selected control unit, press and release the right turn signal switch.
  8. The question "CLR ?" appears.
  9. To clear the codes, press and release the roll-mode switch.
  10. To go back to the entire control unit list, press and release the left turn signal switch.
  11. Proceed to the next desired control unit by repeating steps 1—10.

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GS25068,0005AA2-19-09OCT18

# Drivetrain Operation

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## Drivetrain Information

The drivetrain information is broken up into different functional systems for operation and maintenance. See the following sections within this manual for detailed information:

### Operational Sections

- Transmission Operation
- MFWD and Front Axle Operation
- Differential and Rear Axle Operation
- Power Take-Off (PTO) Operation

### Maintenance Sections

- Transmission Maintenance
- MFWD and Front Axle Maintenance
- Differential and Rear Axle Maintenance
- Power Take-Off (PTO) Maintenance

GS25068,0005AA3-19-09OCT18

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## Off Level Operation

**IMPORTANT:** For any off level operation, engine and hydraulic oil levels must be maintained at the FULL mark to avoid machine damage.

For information on checking oil levels, see Engine Maintenance and Hydraulics Maintenance sections.

**IMPORTANT:** Machine performance decreases and damage occurs with continuous off level operation in excess of the following recommendations.

### Stationary Operation (at full power)

- Continuous operation up to + / - 25° angle.

### Mobile Operation (transmitting any combination of, or full transmission, hydraulic, or PTO power)

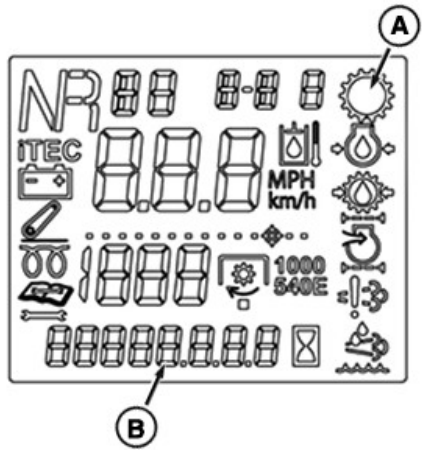
- Continuous operation up to + / - 20° angle.
- Intermittent operation for 15 minute periods up to +/- 25° angle, but not to exceed 50% of total operating time.
- Intermittent operation for 30 second periods up to +/- 30° angle.

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# Transmission Operation

## Electrohydraulic Transmission System Indicator



A—Transmission Indicator  
B—Information Display

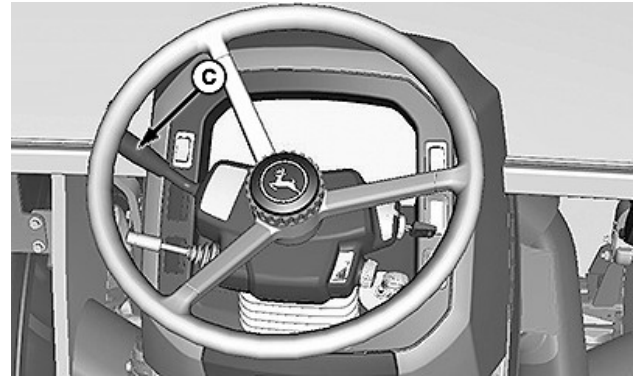
RXA0158295—UN—03MAY17

**IMPORTANT:** Under certain circumstances, cycling reverser lever to neutral and back into a direction restores transmission operation.

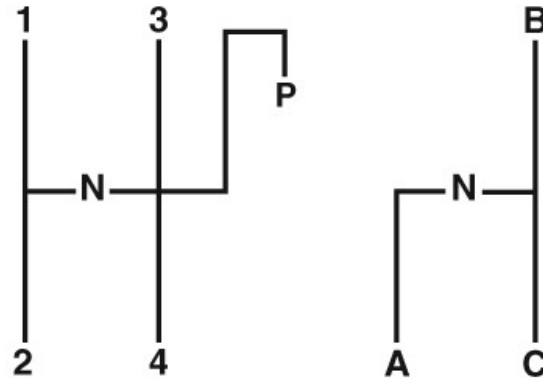
Some fault conditions allow operator to drive the machine long enough to get it to a location for service or to load it on a carrier. Machine performance is reduced to help prevent additional damage.

Transmission indicator (A) warns of a malfunction in the electrohydraulic transmission control system. A diagnostic trouble code is displayed at information display (B). See your John Deere dealer.

OURX985,00031D2-19-17JAN18



CPA0004125—UN—04AUG17



RXA0146126—UN—27OCT14

*Gearshift and Range Shift Patterns*

A—Gearshift Lever  
B—Range Shift Lever  
C—EH Directional Reverser Lever

**CAUTION:** Avoid unintended machine movement. Put gearshift lever (A) in Park, left-hand reverser (C) in Neutral and shut machine off before dismounting.

**IMPORTANT:** To prevent unnecessary wear, never “ride” the clutch by resting a foot on the pedal.

Gearshift lever (A) provides four forward travel speeds (1, 2, 3, and 4) and reverse.

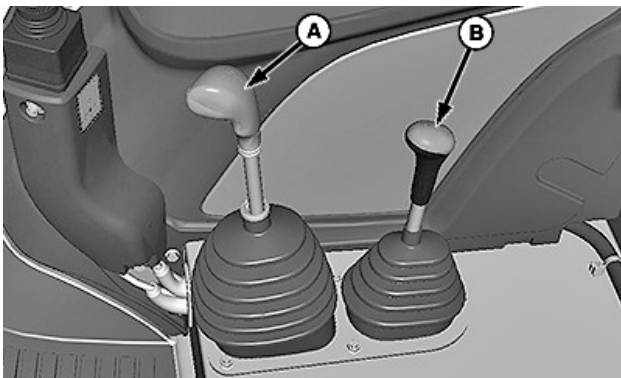
Range shift lever (B) provides three speed ranges (A, B, and C).

Electrohydraulic (EH) directional reverser lever (C) provides travel direction (forward or reverse).

When using range and gear shift levers in different combinations, 12 forward and reverse speeds are available.

1. When starting machine, put EH directional reverser lever in neutral and cycle clutch pedal one time to disengage the engagement override valve.
2. Depress clutch pedal and stop machine before shifting range shift lever.

## 12/12 Transmission



CPA0004055—UN—04AUG17

3. Use EH directional reverser lever to select travel direction. You can change travel direction without depressing the clutch pedal.
4. Depress clutch pedal when shifting gears. Gear shifts (1, 2, 3, and 4) can be made on-the-go, without stopping. Release clutch pedal gradually to take up load smoothly.

GS25068,0005AA5-19-10OCT18

High speed and low speed split-shift feature doubles forward speeds to 24 forward and 12 reverse.

Use the high speed and low speed switches to up-shift and down-shift within the selected range and gear.

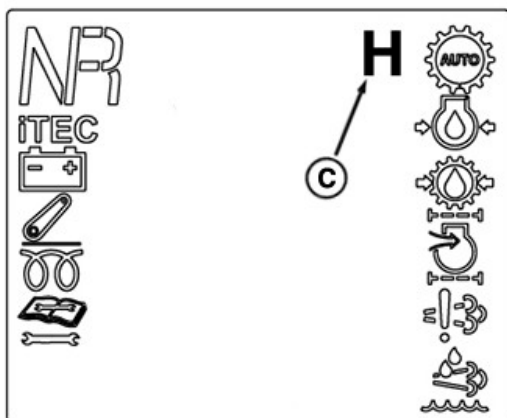
"H" appears on the information display as the speed indicator (C) when high speed is selected and "L" appears when low speed is selected.

GS25068,0005AA6-19-10OCT18

## 24/12 Transmission



LV9564—UN—13AUG04



RXA0158296—UN—05APR17

A—High Speed  
B—Low Speed  
C—Speed Indicator

**NOTE:** 24/12 transmission shift pattern and operation are similar to the 12/12 transmission with an added option of high/low speed switches on the range shift lever.

PowrReverser Plus™ transmission is available with push-button high speed (A) and low speed (B) split-shift feature. Each range and gear combination is split for more exact speed control.

## Reverser Modulation



CPA0004126—UN—04AUG17

A—Reverser Modulation Knob

**IMPORTANT:** Premature tire wear occurs when operating in full right (clockwise) position on concrete or paved surfaces.

Reverser modulation knob (A) adjusts load take-up and acceleration when making directional changes with the left-hand reverser lever during repetitive cycle work; such as loader operation.

- In full left (counterclockwise) position, load take-up, and acceleration ramp-up are slow to respond.
- When operating with high load and ballast, turn control knob (clockwise) to increase acceleration ramp-up and load take-up response.

CP00834,0002519-19-09AUG17

## Downhill Operation in Slippery Conditions

**CAUTION:** Avoid possible injury from losing control of machine while operating on a downhill slope. Wheels can lock and skid on slippery downhill slopes. Observe the following precautions:

- Reduce machine speed.

## Transmission Operation

- Select and appropriate gear and range to reduce skidding.
- Set MFWD to Manual.

2400 rpm engine speed. To calculate ground speeds for machines equipped with rear tires other than 460/85R30 tires, see Correction Factors for Other Tire Sizes in this section.

DP51502,0002FFF-19-18JAN18

*NOTE: Ground speeds are electronically limited to 35 km/h (21.7 mph).*

### 12/12 Transmission Ground Speed Chart

Speeds are calculated using 460/85R30 rear tires at

Range-Gear	Forward		Reverse	
	km/h	mph	km/h	mph
A-1	1.7	1.1	1.8	1.1
A-2	2.3	1.4	2.5	1.6
A-3	3.1	1.9	3.4	2.1
A-4	4.2	2.6	4.6	2.9
B-1	4.9	3.0	5.3	3.3
B-2	6.6	4.1	7.2	4.5
B-3	9.1	5.7	9.9	6.2
B-4	12.2	7.6	13.3	8.3
C-1	14.1	8.8	15.4	9.6
C-2	19.2	11.9	21.0	13.0
C-3	26.2	16.3	28.6	17.8
C-4	35.1	21.8	38.3	23.8

GS25068,0005AA8-19-10OCT18

### 24/12 Transmission Ground Speed Chart

Speeds are calculated using 460/85R30 rear tires at 2400 rpm engine speed. To calculate ground speeds for machines equipped with rear tires other than 460/85R30

tires, see Correction Factors for Other Tire Sizes in this section.

*NOTE: Ground speeds are electronically limited to 40 km/h (24.9 mph).*

Range-Gear	Forward Lo		Forward Hi		Reverse	
	km/h	mph	km/h	mph	km/h	mph
A-1	1.7	1.1	2.0	1.2	1.9	1.2
A-2	2.3	1.4	2.7	1.7	2.5	1.6
A-3	3.1	1.9	3.8	2.4	3.4	2.1
A-4	4.2	2.6	5.0	3.1	4.6	2.9
B-1	4.9	3.0	5.8	3.6	5.3	3.3
B-2	6.6	4.1	7.9	4.9	7.3	4.5
B-3	9.1	5.7	10.8	6.7	9.9	6.2
B-4	12.2	7.6	14.5	9.0	13.3	8.3
C-1	14.1	8.8	16.8	10.4	15.5	9.6
C-2	19.2	11.9	22.9	14.2	21.0	13.0
C-3	26.2	16.3	31.3	19.4	28.7	17.8
C-4	35.1	21.8	41.9	26.0	38.5	23.9

GS25068,0005AA9-19-10OCT18

## Correction Factors for Other Tire Sizes

**NOTE:** Actual speed varies due to a number of factors. Factors, such as, but not limited to, rolling circumference, load, tire pressure, make of tire, and wheel slip. If the precise speed is required for specific applications, then measurement is necessary.

The following table is used to calculate ground speeds for machines equipped with rear tires other than 460/85R30 tires. Multiply speeds shown in Ground Speed Charts in this section by the correction factor for the appropriate tire size found in the table. Be sure to use correct ground speed estimate for your transmission type (12/12, or 24/12 Transmission).

Tire Size	Correction Factor
480/65R24	0.81
19.5L-24	0.84
16.9-30	0.96
420/85R30	0.95
18.4-30	0.98
460/85R30	1.00

Example: Forward B-2 (12/12 PowrReverser™ Transmission) at 2400 engine rpm with 19.5L-24 R4 tires.

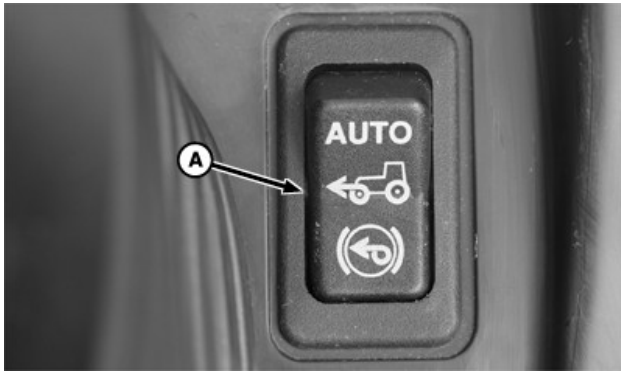
6.6 km/h (4.1 mph) x 0.84 = 5.5 km/h (3.4 mph)

GS25068,0000AE0-19-18NOV19

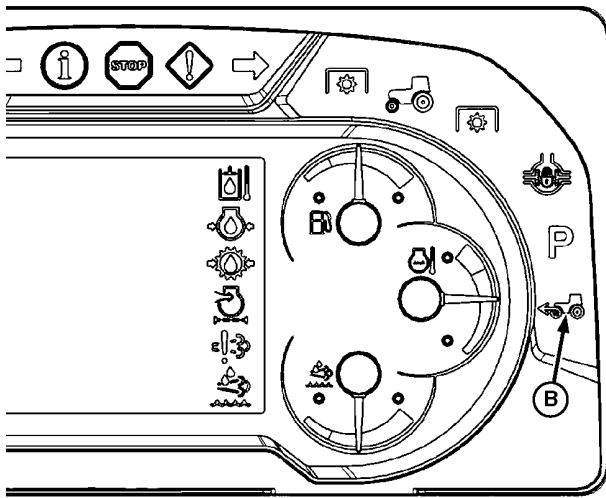
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# MFWD and Front Axle Operation

## Mechanical Front-Wheel Drive (MFWD On/ Auto/Brake Assist)



LV9489—UN—13AUG04



LV22015—UN—19AUG14

A—MFWD Switch with Auto Engage and Brake Assist  
B—MFWD Indicator

**CAUTION:** MFWD greatly increases traction, but it does not increase the stability of the machine. Use extra caution on slopes.

**IMPORTANT:** If the machine is under full load and mired down, engaging MFWD while tires are spinning has the potential to cause damage. Reducing the load and slowing wheel speed before engaging MFWD is highly recommended.

MFWD can be engaged and disengaged in all gears (forward and reverse) during operation and under full load. MFWD switch with auto engage and brake assist (A) has three operating positions.

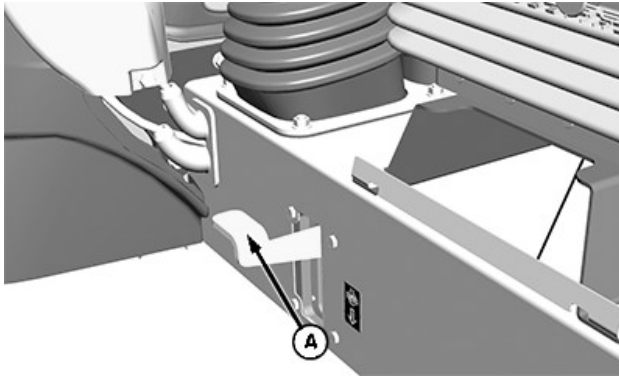
MFWD Selection	MFWD Switch Position	MFWD On	MFWD Off	MFWD Indicator	Recommended for:
Auto	Top half of switch pressed down.	<ul style="list-style-type: none"> <li>Both brake pedals are depressed at any speed.</li> <li>Speed is below 19 km/h (11.8 mph).</li> <li>Neither brake pedal is individually depressed.</li> </ul>	<ul style="list-style-type: none"> <li>Either brake pedal is individually depressed.</li> <li>Speed is above 23 km/h (14 mph).</li> </ul>	Illuminates when engagement conditions are met.	Transport where MFWD is needed.
On	Switch in center position.	Always.	Never.	Always illuminated.	Field uses only at speeds below 23 km/h (14.3 mph).
Brake Assist	Bottom half of switch pressed down.	Speed above 5 km/h (3.1 mph) and both brake pedals are depressed.	Always, unless both brake pedals are depressed above 5 km/h (3.1 mph).	Illuminates when engagement conditions are met.	Normal transport where MFWD is not needed.

GS25068,0005AAC-19-10OCT18



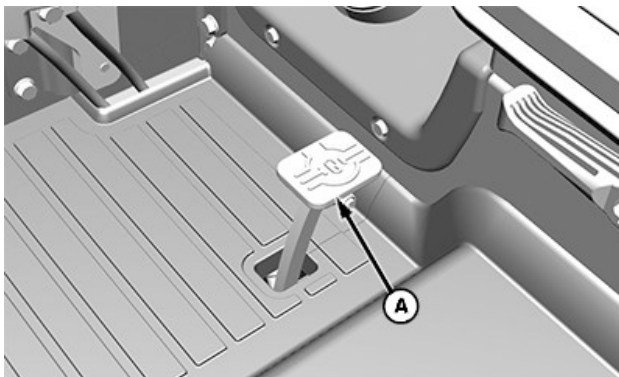
# Differential and Rear Axle Operation

## Differential Lock



*Cab*

CPA0004194—UN—08AUG17



*OOS/Low-Profile*

CPA0004154—UN—08AUG17

### A—Differential Lock Pedal

**CAUTION:** DO NOT operate machine at high speed or attempt to turn with the differential lock engaged.

**IMPORTANT:** To prevent damage to drivetrain, DO NOT engage differential lock when one wheel is spinning and the other is stopped.

When one wheel starts to lose traction, stop the machine and depress differential lock pedal (A) to engage differential lock. Wheels must be stopped or turning at the same speed before engaging differential lock. If possible, engage differential lock before entering conditions where tires may slip.

Unequal traction keeps the lock engaged. When traction equalizes, lock disengages itself by spring action. If lock does not disengage, depress one brake pedal and then the other.

If tires repeatedly slip, then get traction, then slip again, hold pedal down in the engaged position.

DP51502.0000E97-19-26FEB21

# Power Take-Off (PTO) Operation

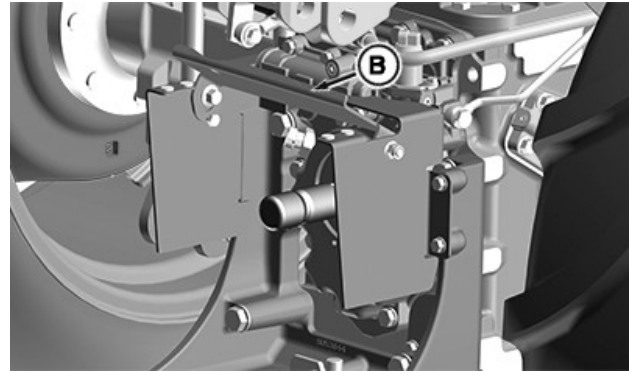
## Match Machine Power to Implement

**IMPORTANT:** Matching machine and implement ensures that damage to either does not occur.

Overpowering an implement causes damage. Attaching an implement that requires more horsepower than the machine can produce causes damage to the machine.

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

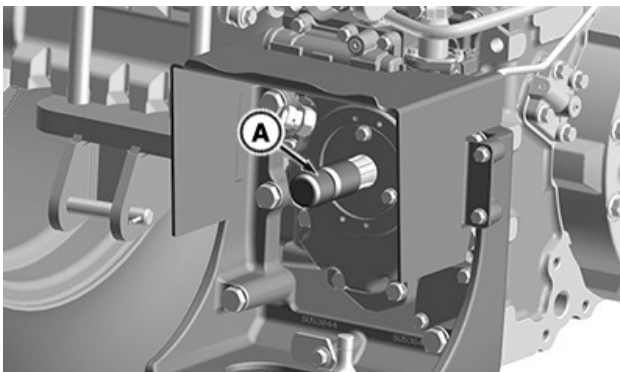
CO00263,000046F-19-08AUG17



RXA0161440—UN—18JAN18

A—Fixed PTO Shield  
B—Flip-Up PTO Shield

## PTO Guard



RXA0161441—UN—18JAN18

A—PTO Guard

**CAUTION:** Keep PTO guard in place when a PTO implement is not attached.

Ensure that PTO is OFF and has come to a complete stop before attaching or detaching implements.

Remove guard when attaching a PTO driven implement. After PTO driven implement is unattached, reinstall PTO guard.

OURX985,00031D8-19-18JAN18

**CAUTION:** Avoid injury, do not remove the PTO shield or use as a step.

Two types of PTO shields are available, fixed (A) and flip-up (B).

The fixed version does not open up.

The flip-up version allows the top to be moved up to allow more room to connect implements. Once the implement is connected, the top must be pushed down parallel to PTO shaft before engaging PTO to provide proper protection

GS25068,0005AAD-19-10OCT18

## PTO Drive Shaft Shield



TS1644—UN—22AUG95

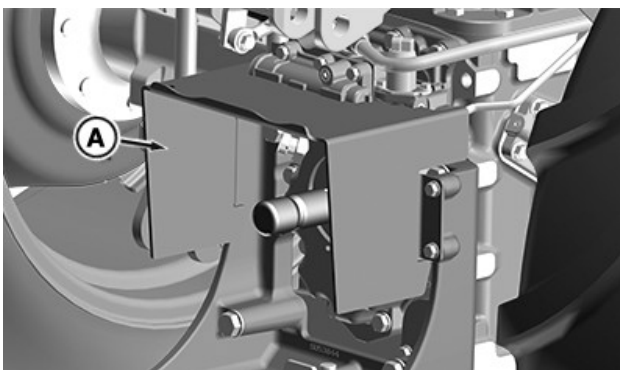
**CAUTION:** Entanglement in the PTO driveshaft causes serious injury or death. Use proper shield and guards in good working order, at all times when operating PTO driven implements.

PTO driveshaft shields must be in good working order and completely cover the PTO shaft when installed and during use. PTO driveshaft shield must not rotate with the shaft.

Before connecting, cleaning, or adjusting PTO or PTO driven equipment, do the following:

1. Turn the PTO OFF.

## PTO Shield



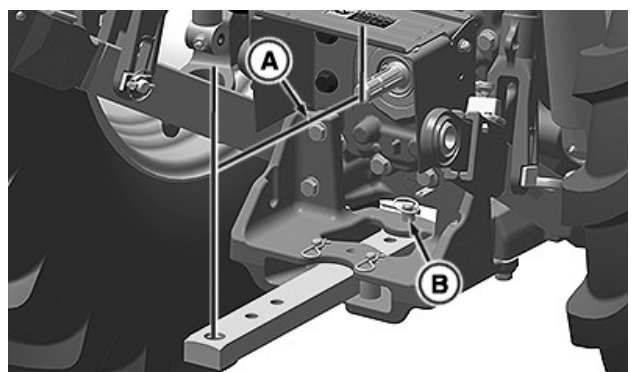
RXA0161439—UN—18JAN18

## Power Take-Off (PTO) Operation

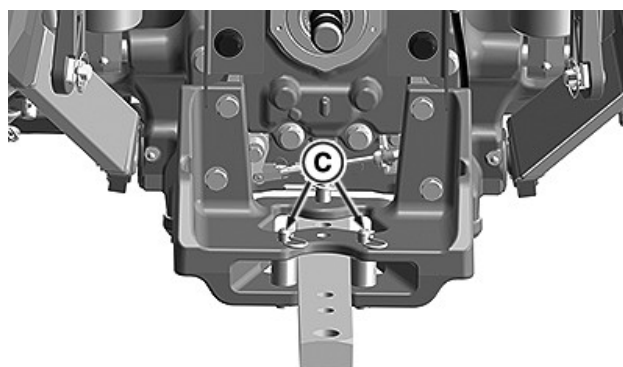
- Wait for PTO shaft and PTO driven equipment to come to a complete stop.
- Turn the engine OFF.
- Remove key.

OURX985,0003206-19-10JAN18

### Select PTO Drawbar Position



RXA0153739—UN—06SEP16



RXA0153744—UN—07SEP16

A—PTO Shaft End to Hitch Pin Hole  
B—Drawbar Adjustment Pin  
C—Drawbar Alignment Pins

**CAUTION:** Ensure that PTO is OFF, has come to a complete stop, and allowed too cool before attaching or detaching implements.

- Measure PTO shaft end to the hitch pin hole (A) and adjust for the application as required.
- Remove drawbar adjustment pin (B), set drawbar length, and replace pin.
- Set drawbar to center position (no offset) and install alignment pins (C) to prevent drawbar movement.

PTO Type	PTO Shaft End to Hitch Pin Hole
540 and 540E (6-spline) or 1000 (21-spline)	250 mm (9.84 in)
Not Used with 3-Point Hitch-Mounted PTO- Driven Implements	350 mm (13.78 in) or 400 mm (15.75 in)

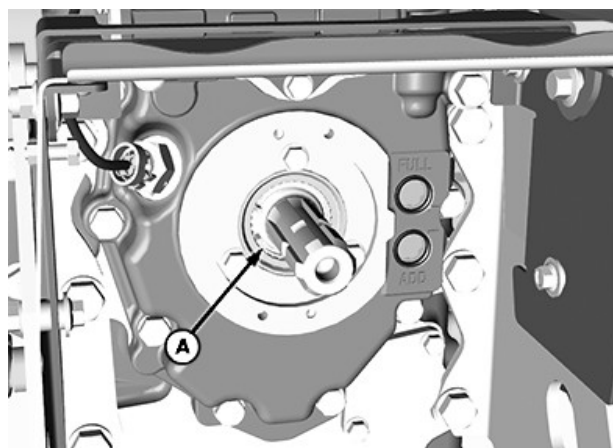
3-Point Hitch-Mounted PTO-Driven Implement Drawbar Position

PTO Type	PTO Shaft End to Hitch Pin Hole
Not Used with Pull-Type PTO-Driven Implements	250 mm (9.84 in)
540 and 540E (6-spline)	350 mm (13.78 in)
1000 (21-spline)	400 mm (15.75 in)

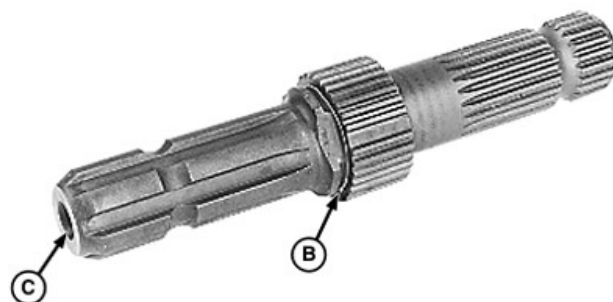
Pull-Type PTO-Driven Implement Drawbar Position

EKPQ1SQ,00034EA-19-27AUG21

### Exchangeable 540/1000 rpm PTO Shaft



CPA0004195—UN—08AUG17



A—Snap Ring  
B—PTO Shaft  
C—Bore

LV12604—UN—26APR05

**CAUTION:** CAUTION: Ensure that PTO is OFF, has come to a complete stop, and allowed too cool before attaching or detaching implements.

**IMPORTANT:** Make sure to select either 540 rpm or 1000 rpm mode after changing PTO shaft. PTO disengages if speed does not match shaft size. (See Select Correct PTO Speeds in this section.)

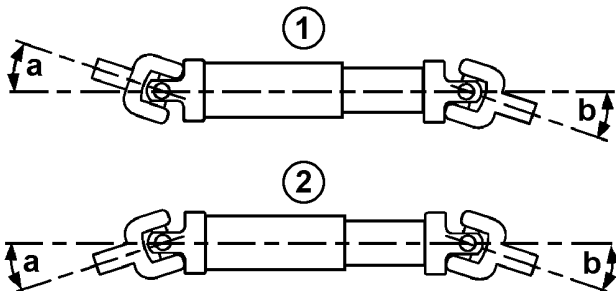
**NOTE:** When exchanging the PTO shaft, hydraulic oil does not leak out due to a dry socket design.

PTO stub shaft has six splines for operating 540 rpm implements and 21 splines for 1000 rpm implements.

1. Locate flattened area on the stub shaft which facilitates snap ring removal and installation.
2. Align snap ring ends with flattened area. Remove snap ring (A) and pull out PTO shaft (B).
3. Clean PTO shaft thoroughly and lightly coat with grease. Be sure the end bore (C) is clean if installing shaft for 1000 rpm operation.
4. Turn PTO shaft end-for-end and insert in the PTO housing until snap ring groove is visible.
  - a. **540 rpm shaft**—Rotate the shaft back and forth while installing. Ensure that the shaft is properly seated in housing; continue to push shaft in when installing snap ring.
  - b. **1000 rpm shaft**—Rotate the shaft back and forth while installing until engagement is felt.
5. Install snap ring in the groove to retain PTO stub shaft. Align ends of the snap ring with flat surface of shaft.

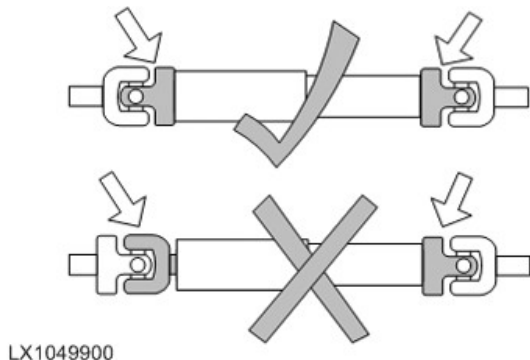
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## Attach PTO Driven Implement



LX1049749

LX1049749—UN—21MAY10



LX1049900

LX1049900—UN—22FEB11

1—Z-Shaped Layout  
2—W-Shaped Layout

**CAUTION:** Ensure that PTO is OFF, has come to a complete stop, and allowed too cool before attaching or detaching implements.

The drawings do not show guards on the driveshaft for illustration purposes. A guard is mandatory when using driveshafts.

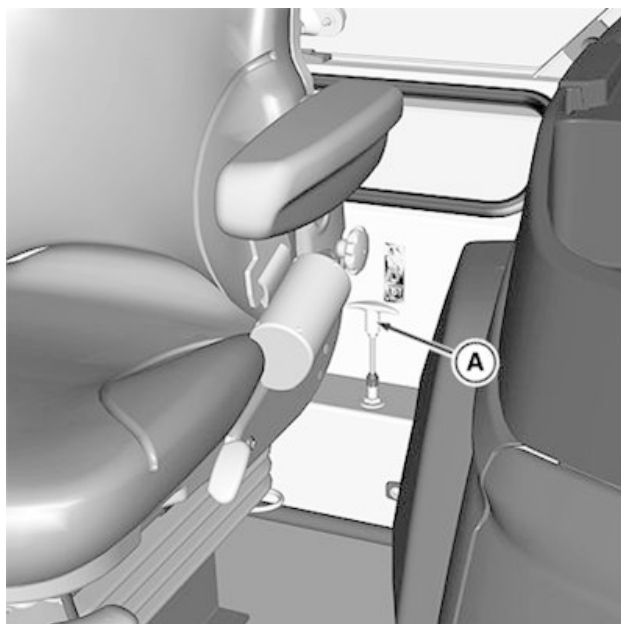
**IMPORTANT:** On telescopic driveshafts, the yokes at each end must be aligned as shown. The yokes at each end must not be at 90° to one another.

Angles (a) and (b) at the universal joints must be nearly the same at both ends of the driveshaft. In applications where it is not possible (sharp turns with PTO engaged), it is recommended to use a continuous-velocity driveshaft.

1. Turn the PTO OFF.
2. Turn the engine OFF and remove key.
3. Set drawbar for the application. (See Select PTO Drawbar Position in this section.)
4. Raise PTO shield (if equipped with flip-up style) and remove PTO guard.
5. Attach implement to the machine (drawbar or 3-point hitch) before connecting PTO. Raise hitch to full height (transport) position if it is not to be used.
6. With engine off, turn PTO driveshaft by hand to line up splines. Connect implement driveshaft to PTO shaft until driveshaft lock engages. Pull implement driveshaft to be sure that it is locked to PTO shaft.
7. Lower PTO shield. Check that all shields are in place and in good condition. Check implement driveshaft shields to ensure that they rotate freely on shaft. Lubricate or repair as necessary.

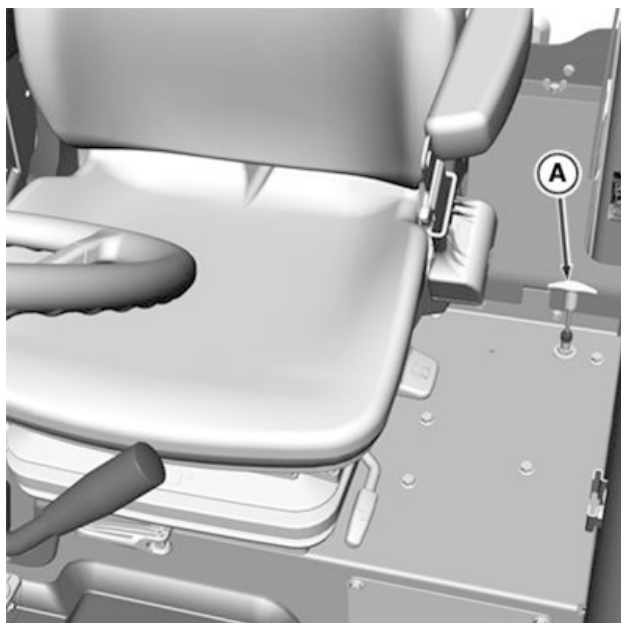
GS25068,0005AB0-19-10OCT18

## Select Correct PTO Speed



Cab

CPA0004289—UN—09AUG17



OOS/Low-Profile

CPA0004290—UN—09AUG17

A—PTO Shift Lever

**IMPORTANT:** Disengage PTO and allow to come to a complete stop before changing PTO speed with lever (A). NEVER use PTO shift lever (A) to engage or disengage PTO, or damage occurs.

Refer to the implement operator's manual for correct PTO speed and shaft to use for best performance.

1. Adjust drawbar for PTO selection.
2. Change PTO shaft to 540 or 1000 rpm as needed.

3. Attach implement.
4. Pull PTO shift lever (A) upward for 540 or 1000 rpm standard operation.
5. Push PTO shift lever downward for 540E operation. Economy mode is designed for lighter PTO loads where power requirements do not require higher engine rpm levels. It helps to conserve fuel and lowers noise levels.

PTO Speed	Recommended Applications
540	Normal to heavy loads requiring full engine power.
1000	Normal to heavy loads requiring full engine power.
540E <sup>a</sup>	Light loads not requiring full engine power.

<sup>a</sup>Engine speed is limited to maximum 1716 rpm.

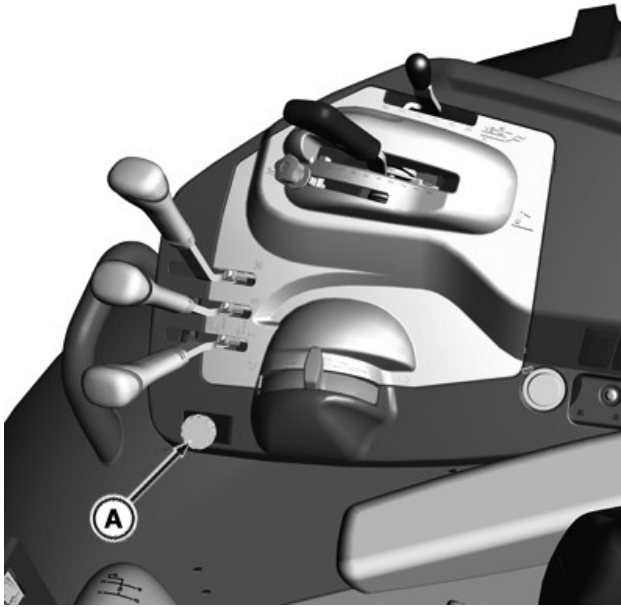
GS25068,0005AB1-19-10OCT18

## Operate Rear PTO



Cab

CPA0004197—UN—09AUG17



RXA0146172—UN—03NOV14

OOS/Low-Profile

A—Rear PTO Switch

**CAUTION:** If PTO engages at engine start-up, contact your John Deere dealer for service.

**NOTE:** Engine starts with PTO switch engaged, but PTO switch must be cycled off and on again before PTO engages.

1. Start engine and set to correct rated speed for PTO application. Observe tachometer (B) for engine speed.

Rear PTO	Engine Speed (rpm)
540/1000	2400
540E	1716

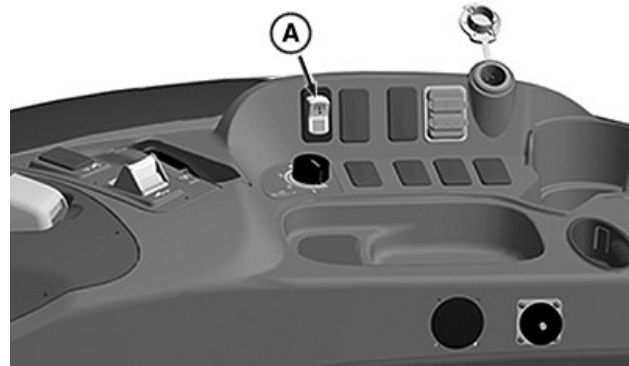
**NOTE:** Operator must be seated when the PTO is engaged. PTO does not engage if the operator is absent.

2. Pull up on rear PTO switch (A) to engage rear PTO.
3. Rear PTO indicators (C) and PTO mode illuminate on the primary display.
4. Push down on rear PTO switch (A) to disengage rear PTO.

DP51502,0000A9C-19-18JUN20

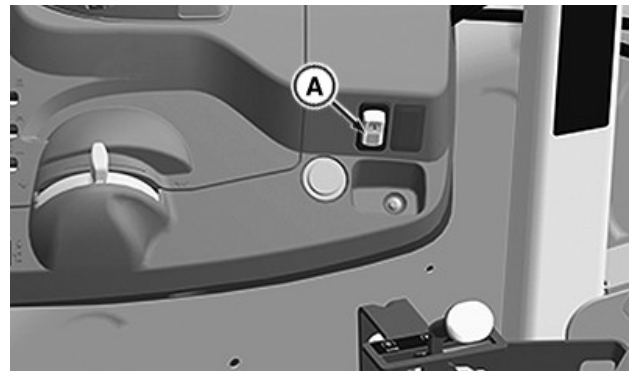
## PTO Automatic Disengage

**NOTE:** The PTO will disengage automatically after 7 seconds if the operator leaves the seat with the PTO engaged.



RXA0178446—UN—18JUN20

Cab



RXA0178447—UN—18JUN20

OOS

A—Remote PTO Enable Switch

If continuous PTO operation is required and the operator must exit the seat, perform the following procedure:

1. With PTO running, Park the machine.
2. Depress the remote PTO enable switch (A).
3. Exit the seat as needed.
4. Return to seat, continue operation.

**NOTE:** Each time the operator leaves the seat, the remote PTO enable switch must be activated.

DP51502,0000A98-19-18JUN20

## PTO Alarm

### Alarm Events

An alarm sounds to alert the operator that the PTO is running. See the following scenarios:

### Power Take-Off (PTO) Operation

Scenario	1	2
Machine Movement	Parked or Stationary	Moving Above 0.5 km/h (0.31 mph)
Remote PTO Enable Switch	Off	Off
Rear PTO Switch	Engaged	Engaged
Operator	Leaves seat	Leaves seat
Alarm	7 seconds	10 seconds
Rear PTO	Shuts Off after 7 seconds	Stays On
To Keep PTO Enabled	Return to seat or depress the remote PTO enable switch within 7 seconds	No action required

### No Alarm Events

There will not be an alarm in the following scenarios:

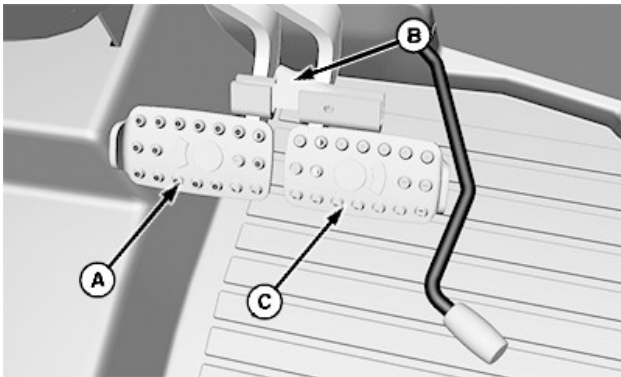
Scenario	1	2	3
Machine Movement	Parked, Stationary, or Moving	Parked or Stationary	Parked, Stationary, or Moving
Remote PTO Enable Switch	Off	Engaged after the PTO switch	Off
PTO Switch	Engaged	Engaged	Engaged
Operator	Remains in seat	Leaves the seat	Not in seat when the PTO switch was engaged
Alarm	None	None	None
Rear PTO	Stays On	Stays On	Remains Off
To Keep PTO Enabled	No action required	No action required	Return to seat and restart PTO

DP51502,0000A99-19-19JUN20

# Steering and Brake Operation

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## Service Brakes



CPA0004153—UN—09AUG17

A—Left Brake Pedal  
B—Brake Pedal Lock  
C—Right Brake Pedal

**IMPORTANT:** To prevent unnecessary wear, never operate with a foot resting on the brake pedals.

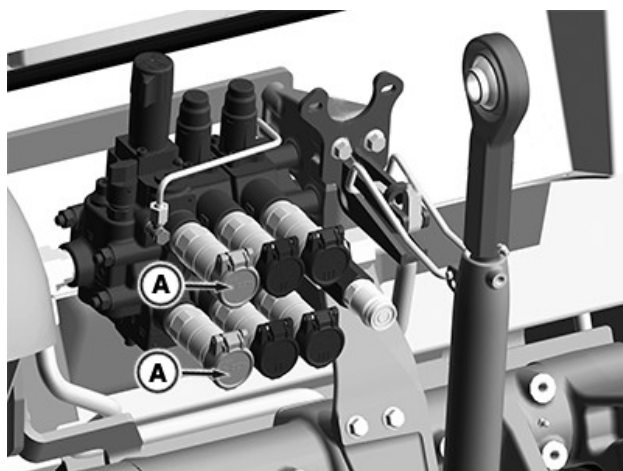
- For field work, unlock brake pedals. Apply right brake pedal (C) lightly to assist in making sharp right-hand turns and left brake pedal (A) for left-hand turns.
- Before operating machine on a road or transporting, use brake pedal lock (B) to hold brake pedals together.
- Use brakes lightly and cautiously at transport speeds.
- Reduce speed if towed load is not equipped with brakes and weighs more than the machine.
- 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.

CO00263,000048E-19-09AUG17

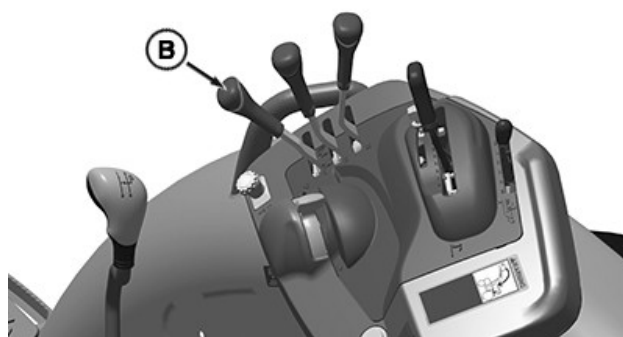


# Hydraulics Operation

## Warm Transmission/Hydraulic Oil



RXA0161474—UN—01DEC17



RXA0161435—UN—09JAN18

A—SCV I Couplers  
B—SCV I Lever

Steering, transmission, and hydraulic systems are slow to function when machine is started in cold weather. To warm oil up quicker for improved cold weather operation, follow procedure as required.

1. Connect jumper hose to SCV I couplers (A).
2. If SCV is equipped with flow control, open flow control knob fully to allow maximum flow.
3. Start engine and set idle to 1200 rpm.
4. Hold SCV I lever (B) forward or rearward until hydraulic oil warms to operating temperature.
5. To check warm-up progress, turn steering wheel side-to-side. When the wheel turns smoothly without hesitation, oil has warmed to operating temperature.
6. Return SCV levers to neutral.
7. Adjust flow control knobs to original setting.
8. Remove jumper hose.

GS25068,0005AB3-19-10OCT18

constant flow hydraulic system. The machine incorporates a tandem hydraulic pump design. The hydraulic and steering/transmission lubrication systems are functionally separate. Both systems and the transmission utilize a common reservoir. The priority of the hydraulic circuit is the hitch, then mid-SCVs, and finally the rear SCVs, which are supplied by the implement pump. Steering and brakes are supplied by the steering pump and are given priority over other functions.

For additional information on operating the hydraulic system functions, see the following sections:

- Hitch and Drawbar Operation
- Selective Control Valve Operation

GS25068,0005AB4-19-10OCT18

## Open Center Hydraulics

The open center hydraulic system is a gear driven,

# Hitch and Drawbar Operation

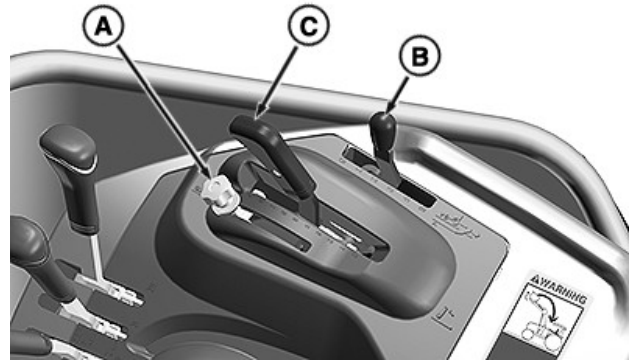
## Match Machine Power to Implement

**IMPORTANT:** Matching machine and implement ensures that neither becomes damaged.

Overpowering an implement causes damage. Attaching an implement that requires more horsepower than the machine can produce damages the machine.

See your implement operator's manual for minimum and maximum power requirements before attaching implement to machine

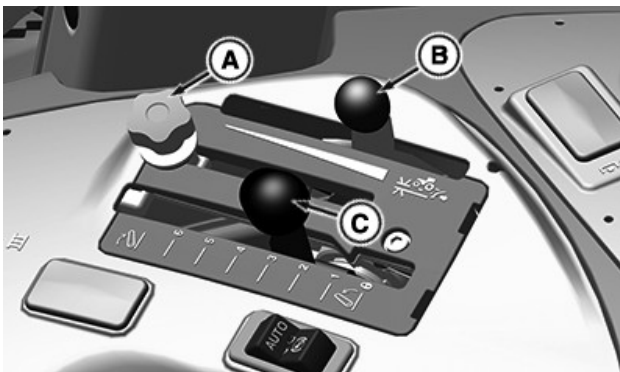
CO00263,000044C-19-07AUG17



RXA0161886—UN—06FEB18

OOS and Low-Profile

## Rear Hitch Controls



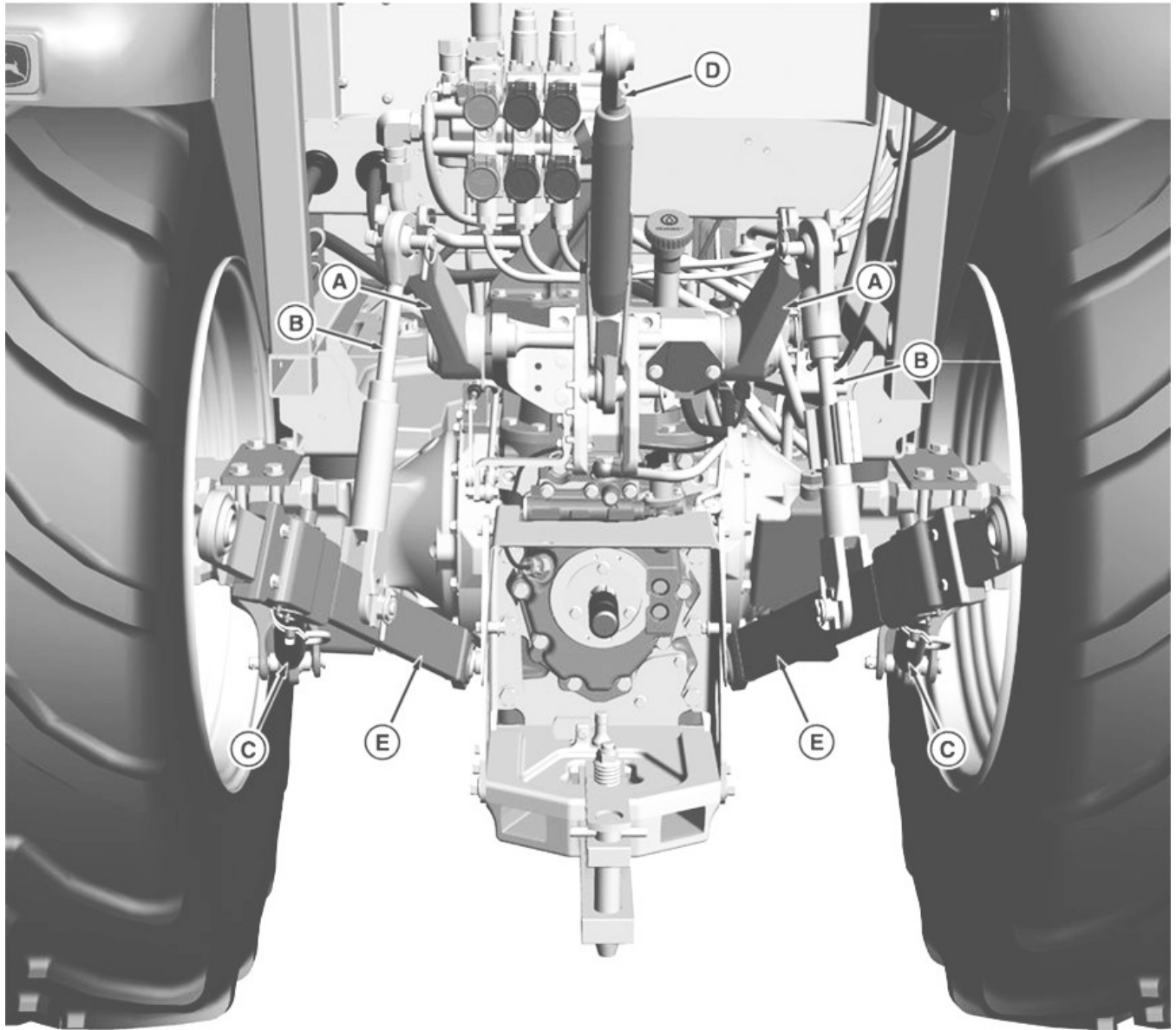
RXA0158452—UN—24MAR17

Cab

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

OURX985,00031A1-19-06FEB18

## Rear Hitch Components



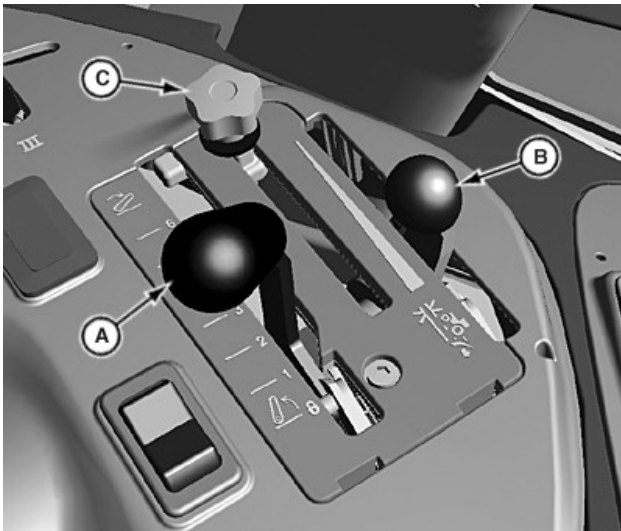
CPA0004274—UN—09AUG17

A—Lift Arms  
B—Lift Links  
C—Stabilizers

D—Center Link  
E—Draft Links

OURX985,00031A2-19-12DEC17

## Operate Mechanical Position Control



Cab

LV18049—UN—13JUN13



OOS/Low-Profile

RXA0161889—UN—09FEB18

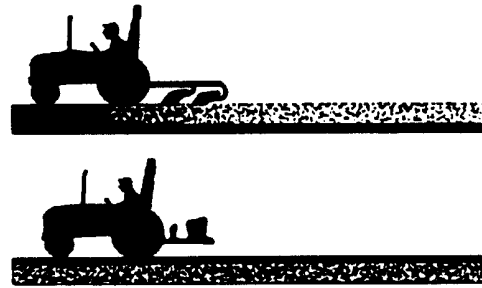
A—Position Lever  
B—Draft Lever  
C—Position Lever Stop

**CAUTION:** To prevent unexpected movement, put draft lever (B) in full forward position before attaching implement.

**IMPORTANT:** Draft setting automatically influences actual hitch position. For independent position control, move draft lever (B) to full forward position.

Rear hitch position lever (A) controls 3-point hitch-mounted implement raise or lower movement and ground depth penetration.

**Depth Control (level, in-ground, on-ground, and non-ground engaged situations):**



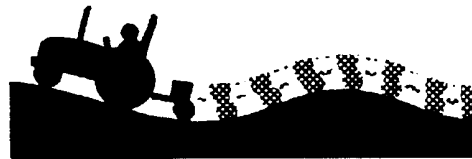
Depth Control

LV09233—UN—26JUL04

- Position lever (A) at desired depth.

*NOTE:* A few minutes of implement operation are required to determine the best depth. Set desired depth with position lever stop (C). Hitch returns implement to previous above or below ground depth.

**Float Control (uneven, ride on-ground contour situations):**



Float Control

LV9457—UN—26JUL04

- Position lever (A) and draft lever (B) fully forward.

*NOTE:* Ensure that implement skids or height gauge wheels are set correctly to carry full implement weight. Ensure that hitch draft link arms are adjusted for any required lateral float.

**Height at Turn (end of field turn around situations):**

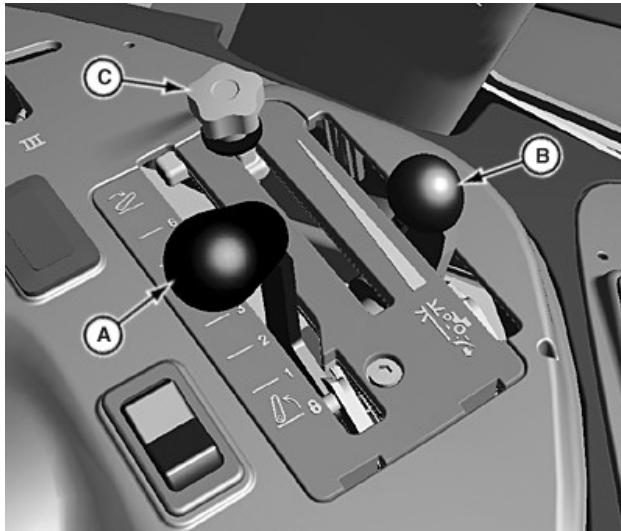
- Position lever (A) rearward until implement is out of ground.

**Implement Transport (load and non-load sense usage):**

- Position lever (A) fully rearward.

GS25068,0005AB5-19-10OCT18

## Operate Mechanical Draft Control



Cab

LV18049—UN—13JUN13



OOS/Low-Profile

RXA0161889—UN—09FEB18

- A—Position Lever  
B—Draft Lever  
C—Position Lever Stop

Rear hitch draft lever (B) controls 3-point hitch-mounted implement ground penetration response to varying soil conditions.

### Mechanical Draft Control:

- Draft lever fully forward = No draft sensing.
- Draft lever fully rearward = Reduces the amount of draft load required to override depth setting (position preset by position lever (A)).

### Draft Load Sensing Operation:

1. Place position lever (A) to fully rearward position and

draft lever in fully forward (least draft response) position.

2. With machine moving, push position lever forward to set implement operating depth.
3. Set position lever stop (C) so position lever can be returned to the same spot.

*NOTE: Operating depth setup prevents the 3-point hitch from lowering all the way when the machine begins to slip.*

4. Pull draft lever rearward until desired draft sensing sensitivity is obtained.

*NOTE: Position lever (A) can also be raised slightly to override the draft control setting to help get through slippery spots without getting stuck. Position lever (A) can be moved fully rearward to raise the hitch at the end of the field.*

### Terrain Contour (irregular ground levels situations):



PULV000236—UN—08MAR08

Terrain Contour

Implement rises and lowers to follow the ground contours while maintaining a nearly constant depth.

### Variable Soil (ground hardness situations):



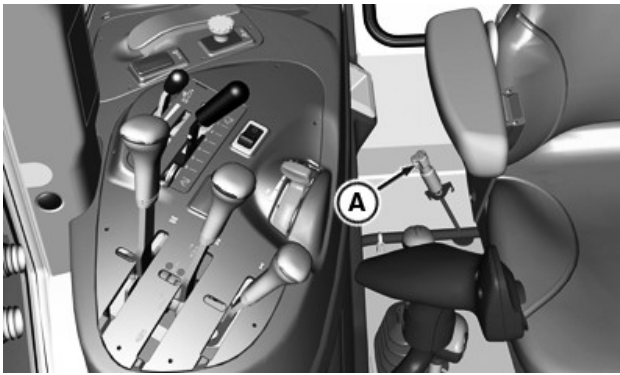
PULV000237—UN—08MAR08

Variable Soil

Implement rises slightly to get through tough spots and operator does not need to shift to lower gear.

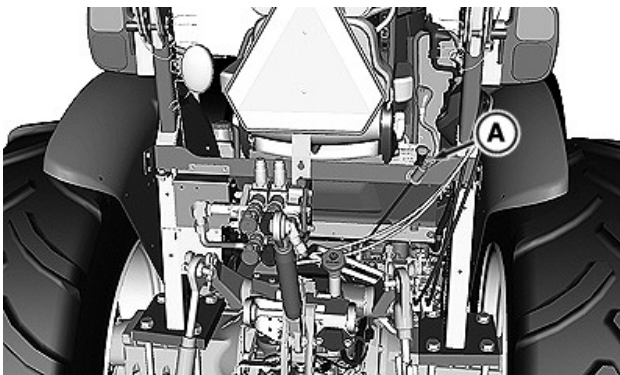
GS25068,0005AB6-19-10OCT18

## Operate Mechanical Rate-of-Drop Control



Cab

RXA0146137—UN—30OCT14



OOS/Low-Profile

RXA0146136—UN—30OCT14

### A—Rate-of-Drop Control Knob

**CAUTION:** To avoid injury from hitch movement, only adjust rate-of-drop from operator's station.

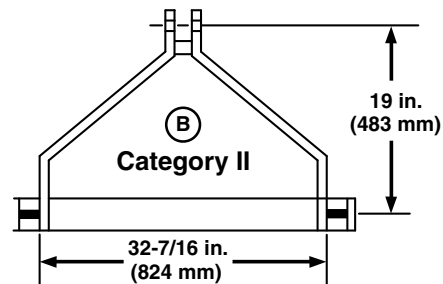
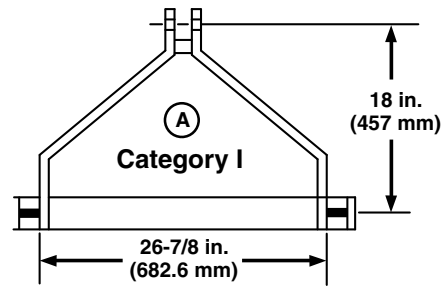
**IMPORTANT:** Fully lowering implement should take at least 2 seconds. Rate-of-drop is directly related to implement weight; therefore select a rate slow enough to prevent damage.

Turn rate-of-drop control knob (A), located behind right rear of seat:

- For faster rate-of-drop, rotate rate-of-drop control knob (A) to left (counterclockwise).
- For slower rate-of-drop, rotate rate-of-drop control knob (A) to right (clockwise).

GS25068,0005AB7-19-10OCT18

## Prepare Implement



LV9639—UN—11AUG04

A—Category I  
B—Category II

**NOTE:** See the implement operator's manual to identify implement category.

When attaching Category I implements to the machine, sway bars need adjustment to prevent binding and limiting full raise of the hitch. (See Adjust Hitch Side Sway in this section.)

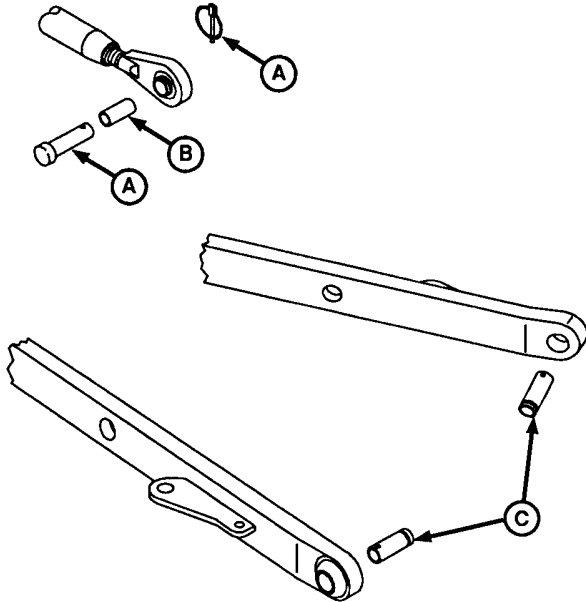
Category I implements (A); hitch is narrower and shorter for smaller implements than Category II (B) implements.

Category II implements (B); hitch is wider and taller for implements larger than Category I (A) implements.

Category	Mast Height	Width Between Lower Pins	Pin Size	
			Lower	Upper
I (A)	457 mm (18 in)	682.6 mm (26-7/8 in.)	22 mm (7/8 in)	19 mm (3/4 in)
II (B)	483 mm (19 in)	824 mm (32-7/16 in.)	28 mm (1-1/8 in.)	25.4 mm (1 in)

GS25068,0005AB8-19-10OCT18

## Hitch Conversion - Category II to I



M47171A—UN—22APR94

- A—Implement Pin**  
**B—Center Link Reducing Bushing**  
**C—Draft Link Reducing Bushing**

Center link end and draft link ends are sized for Category II implement attaching pins.

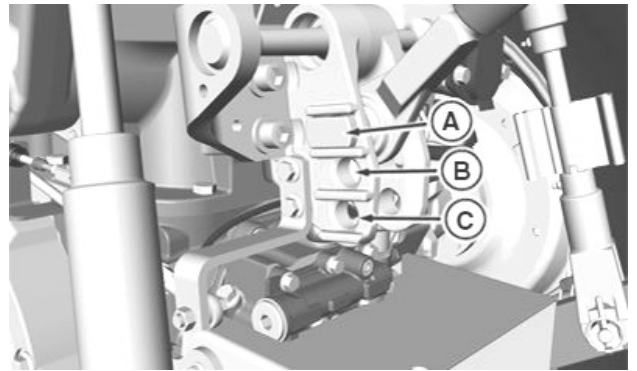
To use Category I implements, convert the Category II hitch:

- Insert center link reducing bushing (B) in the center link end.
- Use smaller implement pin (A) through the implement mast.
- Add draft link reducing bushing (C) to end of draft links.

See your John Deere dealer for parts.

GS25068,0005AB9-19-10OCT18

## Position Center Link



CPA0004275—UN—09AUG17

- A—Upper Hole (category II)**  
**B—Middle Hole (category II)**  
**C—Lower Hole (category I)**

The center link attaching bracket has holes which allow four different positions for attaching the center link.

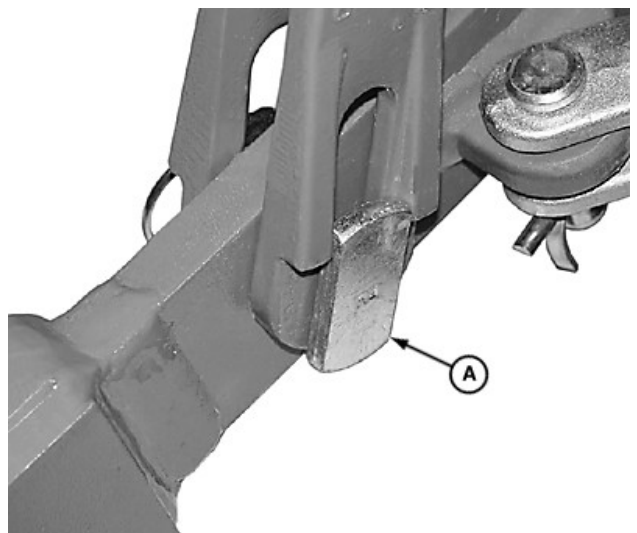
If the following conditions occur, move center link to indicated holes to correct.

Condition	Use Hole
Rear of implement rises too much when lifted.	A or B
Rear of implement drags the ground.	B or C

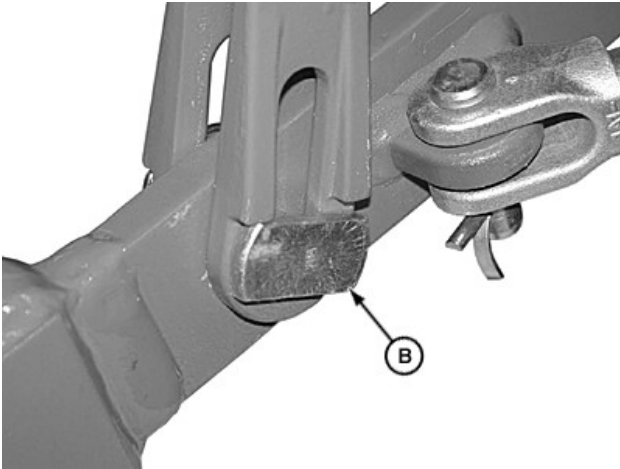
**NOTE:** The implement weight which can be lifted is reduced slightly with center link attachment in lower holes.

GS25068,0005ABA-19-10OCT18

## Adjust Lateral Float

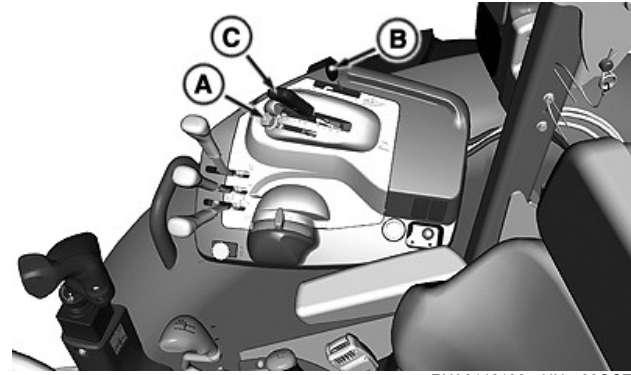


LV14581—UN—05AUG11



A—Float Position (vertical)  
B—Rigid Position (horizontal)

LV14583—UN—10AUG11



RXA0146138—UN—30OCT14

OOS/Low-Profile

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

**CAUTION:** Hitch movement can cause injury or death.

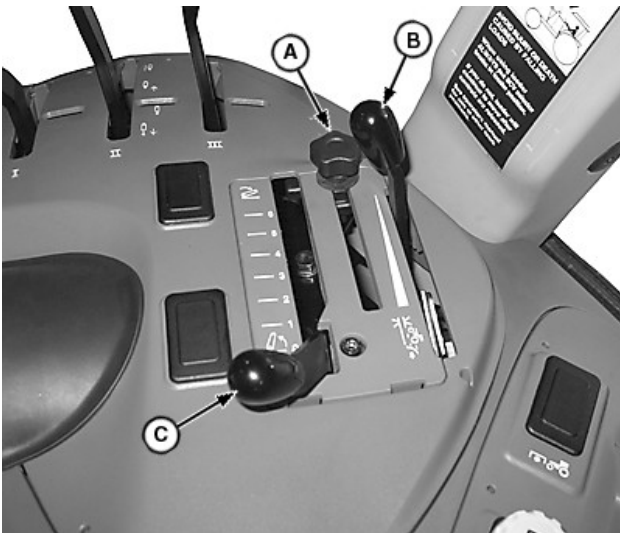
**CAUTION:** To prevent unexpected movement of rear hitch, push draft sensing control in lowest position before attaching implement to hitch.

**IMPORTANT:** Ensure center link and lift link adjustments **DO NOT** cause implement contact with fenders.

**NOTE:** Engine must be running for 3-point hitch control to work.

1. Before attaching or detaching implement, push draft control lever (B) into lowest setting.
2. Use position control lever (C) to raise or lower implement.
3. Be sure that drawbar does not interfere. If necessary, move the drawbar to fully retracted position or remove it. Check for any other potential interference.

## Attach Implement to Rear Hitch

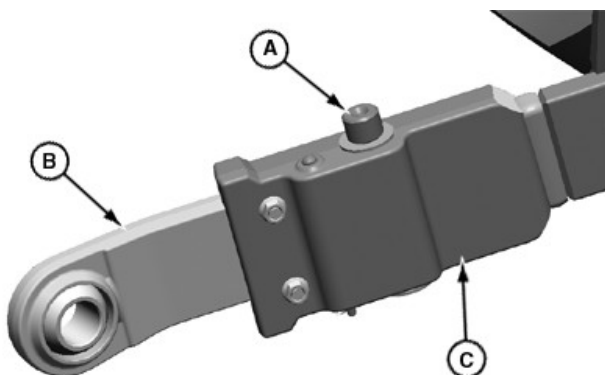


LV14194—UN—27APR11

Cab



## Telescopic Draft Links

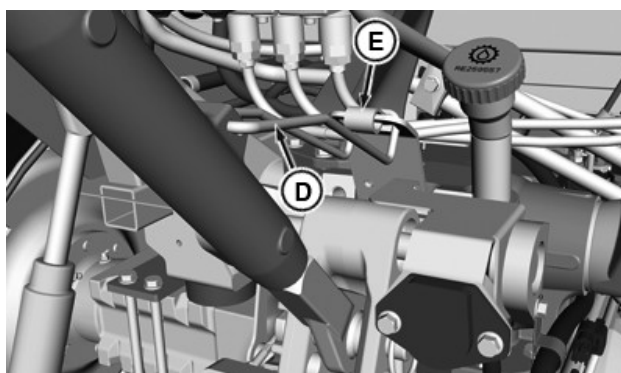


LV22035—UN—09JUN14

A—Button or Lock Pin  
B—Draft Link End  
C—Draft Arm

1. Move button or lock pin (A) toward center of machine and pull out draft link end (B). Slip draft link end over the implement hitch pin. Retain with the quick-lock pin. Repeat on the other side.
2. Raise or lower draft arms (C) to align draft link ends (B) with implement, slowly back up machine to lock ends in place.
3. Back machine up to implement so hitch points align. Place transmission in PARK and stop engine.
4. Slip draft link ends (B) over the implement hitch pins and retain with quick-lock pins.

## Center Link

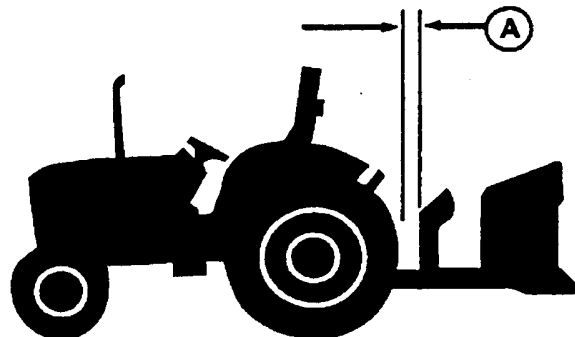


RXA0146140—UN—30OCT14

D—Center Link Locking Clip  
E—Tab

1. Push tab (E) back and lift center link locking clip (D) to release center link from the transport hook.
2. Attach center link to implement top mast.

## Adjust and Check Clearance



M47177—UN—31JAN92

A—Clearance

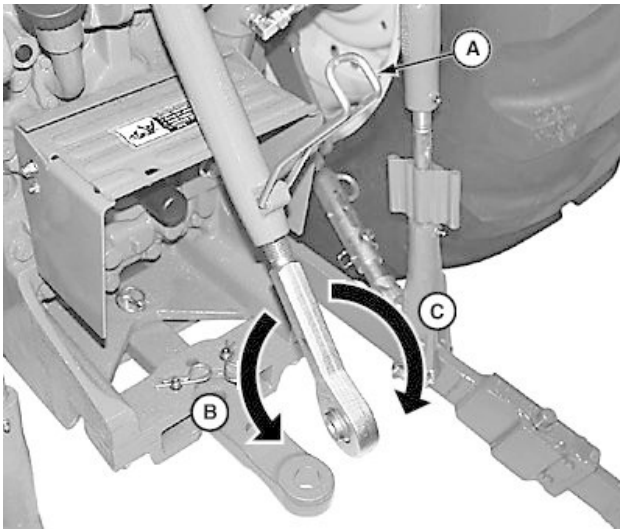
**IMPORTANT:** Whenever an implement, quick coupler, or attachment is connected to the hitch, check full range of operation for interference, binding, or PTO separation.

**When large diameter rear tires are installed, a quick coupler or similar device is required to provide adequate implement-to-tire clearance.**

1. Adjust center link and lift links as necessary. (See Level Hitch in this section.)
2. Adjust sway as necessary. (See Adjust Hitch Side Sway in this section.)
3. Start engine.
4. Slowly raise and lower implement with the position control lever.
5. Watch for interference points and adjust hitch setting as required.
6. Check for adequate clearance (A) between outside diameter of the tire and implement with hitch in raised position.

GS25068,0005ABC-19-10OCT18

## Level Hitch



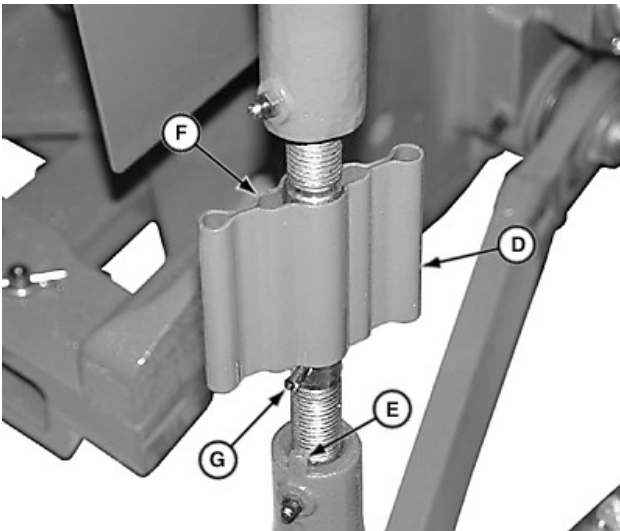
CPA0004276—UN—09AUG17

2. Unlatch locking clip (A). Rotate link body:
  - a. Clockwise (C) to lengthen.
  - b. Counterclockwise (B) to shorten.
3. Latch locking clip.

### Lift Link Adjustment:

1. Adjust lift link to level implement side-to-side. Lift locking handle (D) to clear locking tab (E). Keep slot (F) engaged on roll pin (G) and turn locking handle (D):
  - a. Clockwise to raise the draft link.
  - b. Counterclockwise to lower the draft link.
2. When adjustment is complete, align slot (F) with locking tab (E), and lower to lock in place and prevent change of adjustment during operation.

GS25068,0005ABD-19-10OCT18



LV14579—UN—05AUG11

- A—Locking Clip  
B—Center Link Counterclockwise Rotation  
C—Center Link Clockwise Rotation  
D—Locking Handle  
E—Locking Tab  
F—Slot  
G—Roll Pin

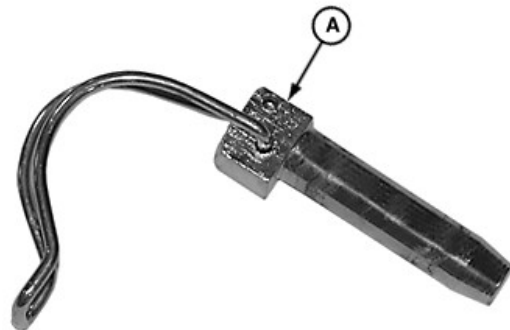
**IMPORTANT:** Do not attempt to overextend the center link beyond limits of locking clip or lift links past the stop indicators (missing thread). Link body threads could be damaged.

### Manual Center Link Adjustment:

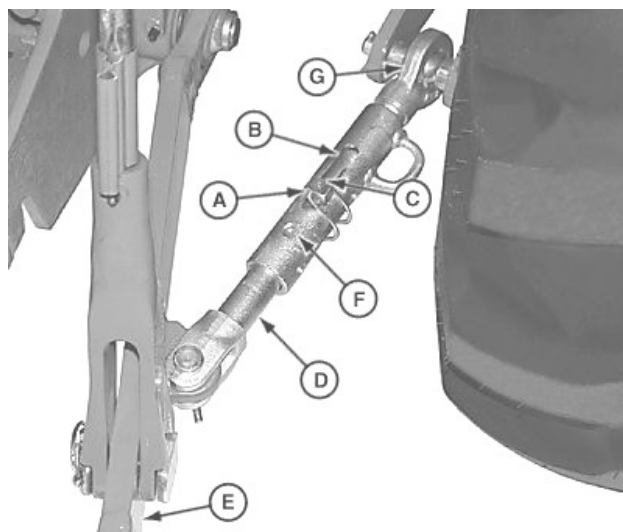
1. Lower implement to ground and adjust center link to level implement front-to-rear.

**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.

## Adjust Hitch Side Sway



LV14576—UN—05AUG11



CPA0004277—UN—09AUG17

Stabilizer Bar Pin in Sway Position

- A—Pin
- B—Sway Position Outer Slot
- C—Sway Position Inner Slot
- D—Inner Sliding Member
- E—Draft Link
- F—Fixed Position Holes
- G—Stabilizer

**NOTE:** Check implement operator's manual for instruction on whether to allow side sway.

If sway is desired, install pin (A) in the sway position outer slot (B), ensuring it goes through the sway position inner slot (C).

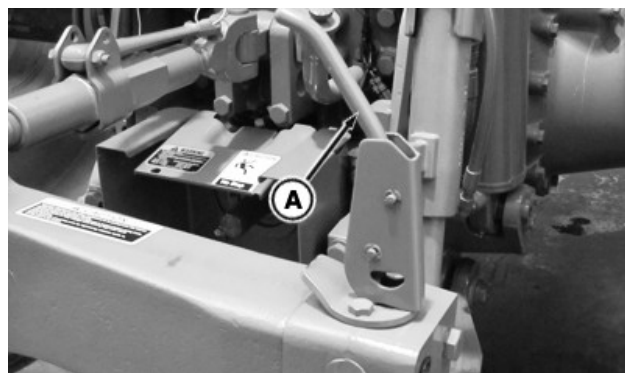
If sway is not desired, move draft link (E) to desired position. Install pin (A) in a fixed position hole (F) that lines up with one of the holes (not slot) of the inner sliding member (D).

Adjust opposite side sway bar to same position.

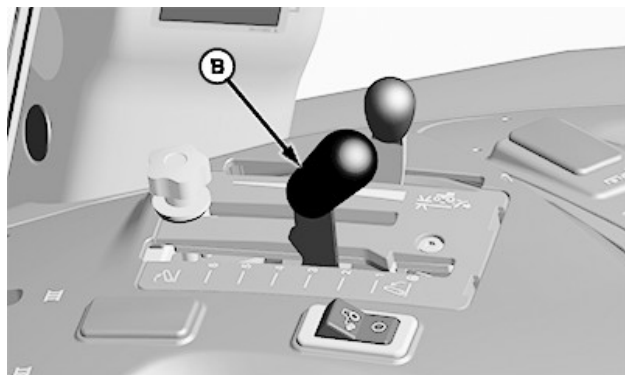
**NOTE:** Additional fixed positions are obtained by adjusting threaded end of stabilizer (G). Remove pin (A) and rotate the stabilizer to desired position. Insert pin in a fixed position hole. Missing thread on stabilizer also acts as a stop indicator.

GS25068,0005ABE-19-10OCT18

## Quick Coupler



RXA0129477—UN—20NOV12



CPA0004150—UN—09AUG17

- A—Coupler Latch Handle
- B—Rear Hitch Position Lever

**CAUTION:** Avoid bodily injury or machine damage:

- Put transmission in **PARK** position and check the full range of hitch for interference, binding, or PTO separation whenever an implement is attached.
- Make sure that implement is correctly attached. Incorrect attachment can allow implement to be pulled over the machine wheel and onto the operator's station.
- Do not stand between machine and implement.

### Connect Implement:

1. Pull coupler latch handles (A) up.
2. Lower hitch until quick coupler hooks are lower than implement hitch pins.
3. Back up the machine to implement.
4. Raise hitch enough to engage implement pins in hooks.
5. Push coupler latch handles down to lock implement to quick coupler.
6. Connect hydraulic hoses and electrical connections.

**IMPORTANT: Check for implement interference.  
Drawbar removal may be necessary.**

7. Slowly pull rear hitch position lever (B) to raise implement. Lower implement to ground and adjust upper height limit control if necessary.

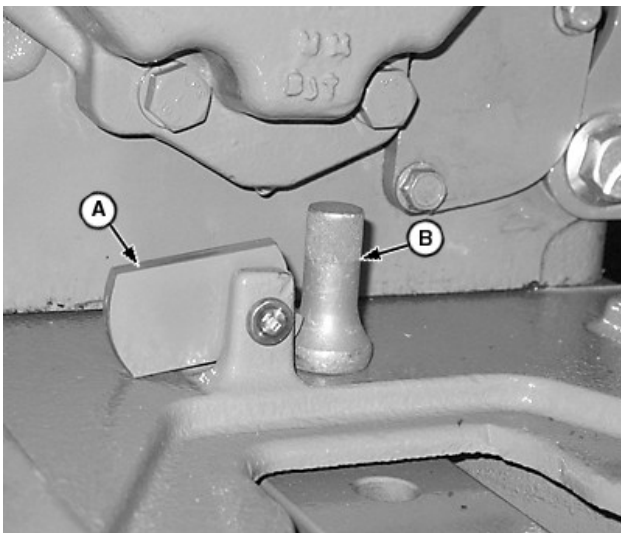
**Disconnect Implement:**

1. Pull coupler latch handles (A) up with implement raised.
2. Disconnect hydraulic hoses and electrical connections.
3. Lower implement to ground and continue lowering quick coupler until hooks clear implement hitch pins.
4. Carefully drive the machine away from implement.

GS25068,0005ABF-19-10OCT18

**Drawbar Settings**

**Adjust Drawbar Length**

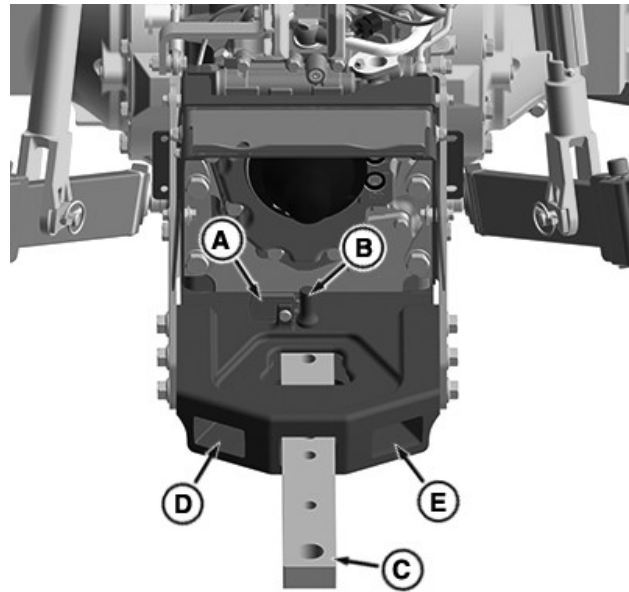


LV14210—UN—02MAY11

A—Retaining Latch  
B—Drawbar Pin

1. Lift retaining latch (A).
2. Remove drawbar pin (B).
3. Slide drawbar to desired position.
4. Install drawbar pin (A) and rotate retaining latch (B) to retain in-place.

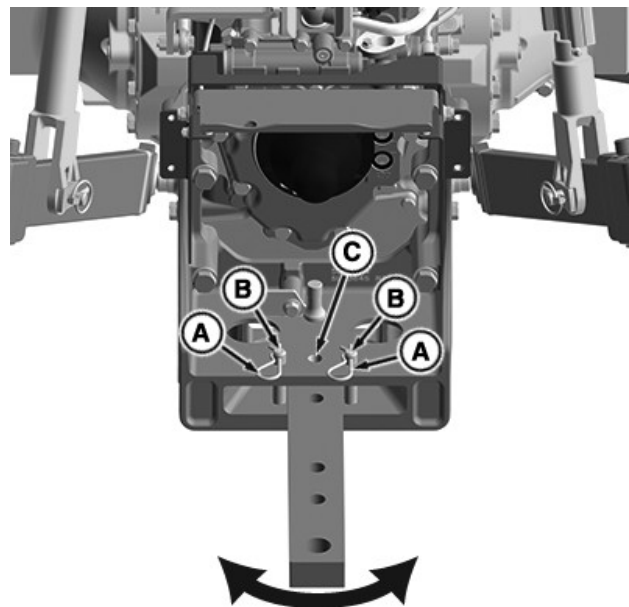
**Adjust Drawbar Offset**



RXA0171639—UN—18NOV19

A—Retaining Latch  
B—Drawbar Pin  
C—Drawbar  
D—Offset Slot  
E—Offset Slot

1. Lift retaining latch (A).
2. Remove drawbar pin (B) and drawbar (C).
3. Insert drawbar into offset slot (D or E).
4. Install drawbar pin (B) and rotate retaining latch (A) to retain in-place.



RXA0171640—UN—19NOV19

A—Retaining Pin  
B—Drawbar Pin  
C—Hole

1. Remove the left or right retaining pin (A) and drawbar pin (B).
2. Offset drawbar toward left or right.
3. Install pin (B) into hole (C) to hold drawbar in place.
4. Install retaining pin (A) in pin (B).

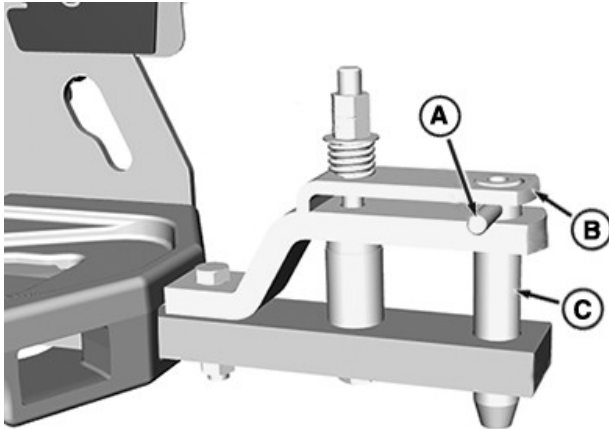
GS25068,0000AE2-19-19NOV19

pulling upward on the handle. Implement pin (C) releases when a notch in retaining pin aligns.

3. Implement pin can be removed during connection or placed in the upper position. There are two detents on the implement pin shaft, one at the top and bottom. If the bottom detent of the implement pin is aligned with the retaining pin and locked, the pin is held up, allowing connection to the implement.

GS25068,0000AE1-19-18NOV19

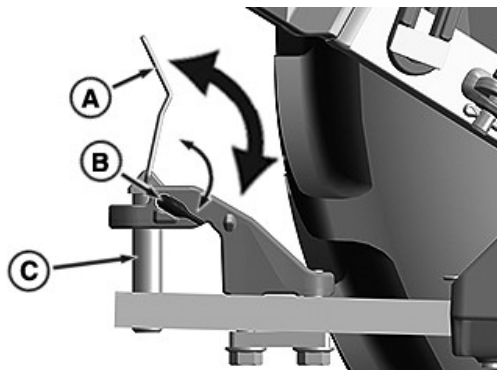
## Clevis Drawbar



RXA0161436—UN—09JAN18

A—Pin  
B—Retainer  
C—Implement Pin

1. Pull up and rotate retainer (B) to side.
2. Pull up on pin (A) to remove implement pin (C).
3. Align hook center of attaching rear implements in hitch opening.
4. Install implement pin (C).
5. Reinstall retainer (B) over implement pin.

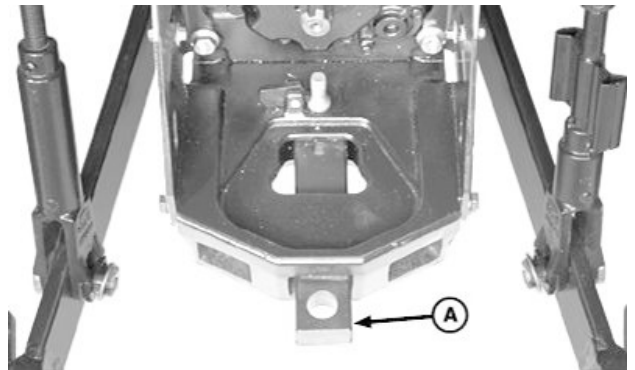


RXA0154069—UN—23SEP16

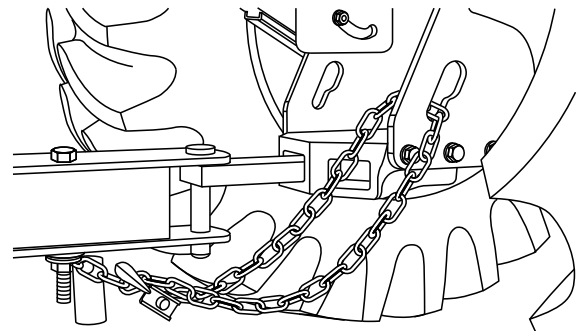
A—Handle  
B—Retaining Pin  
C—Implement Pin

1. Flip handle (A) to the vertical position as indicated.
2. Rotate retaining pin (B) counterclockwise while

## Drawn Implement Connection

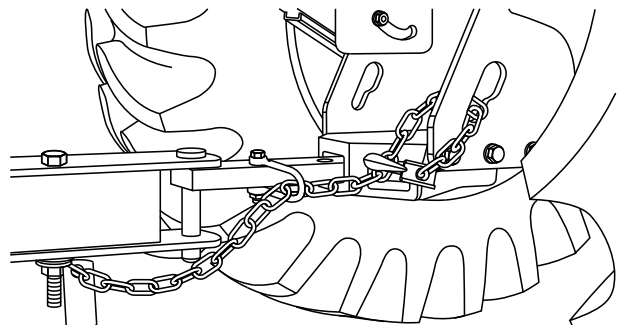


CPA0004278—UN—09AUG17



LV12791—UN—08MAR06


Safety Chain with Drawbar Retracted




LV12795—UN—20SEP06

Safety Chain with Drawbar Extended

A—Drawbar

 **CAUTION:** Using smaller diameter pins reduces implement control, increases potential for pin failure, and causes excessive drawbar wear.

 **CAUTION:** A safety chain helps control drawn equipment in case it accidentally separates from the drawbar.

Using the appropriate adapter parts, attach the chain to the drawbar support. Provide only enough slack in the chain to permit turning.

See your John Deere dealer for a chain with a strength rating equal to or greater than the gross weight of the towed machine.

**IMPORTANT:** Some heavy implements, such as a loaded single-axle trailer, can put excessive strain on drawbar. Speed and rough terrain increase drawbar strain. Reduce speed with heavy loads. Do not exceed maximum static vertical load on drawbar. (See the Specifications section for maximum vertical drawbar load.)

1. Back machine up to implement.
2. Align drawbar (A) with the implement connection point as close as possible.
3. Use a drawbar pin that is matched for the machine and implement holes with as little free play as possible.
4. Install a retaining clip in the drawbar pin.
5. Install a safety chain from the implement to the machine.

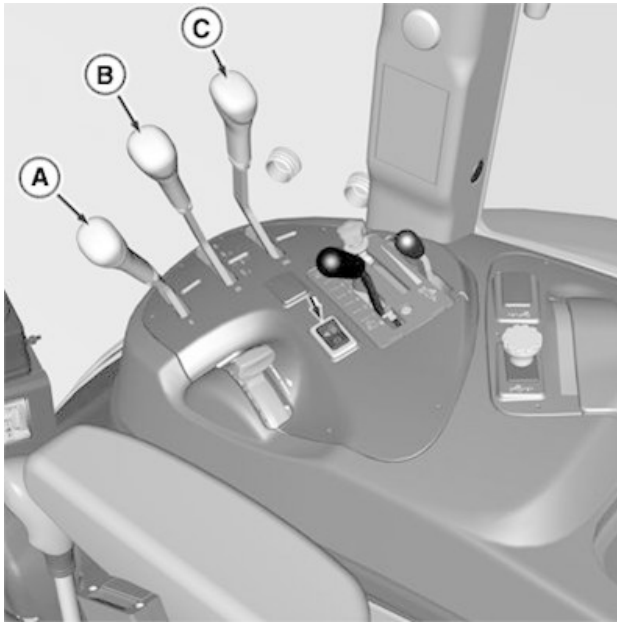
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GS25068,0005AC0-19-10OCT18

# Selective Control Valve Operation

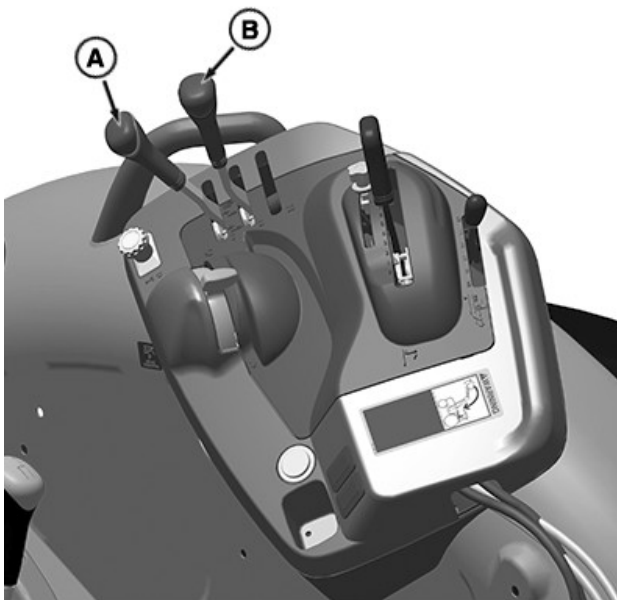
## Rear SCV Controls and Components

### Rear SCV Control



CPA0004291—UN—09AUG17

*Three Lever Control*

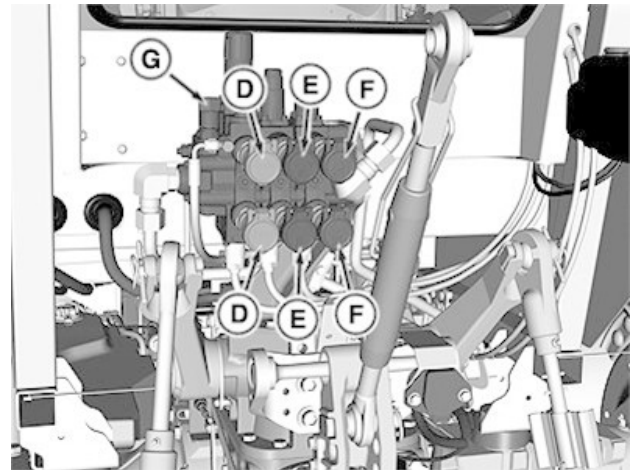


RXA0161424—UN—18DEC17

*Two Lever Control*

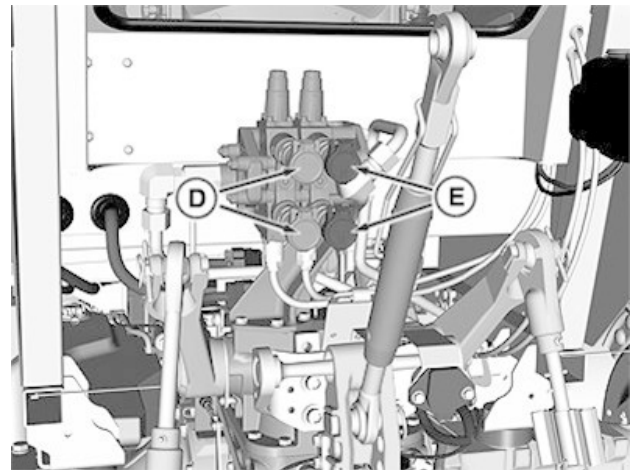
- A—SCV I Lever
- B—SCV II Lever
- C—SCV III Lever

### Rear SCV Components



CPA0004293—UN—09AUG17

*Deluxe SCV*

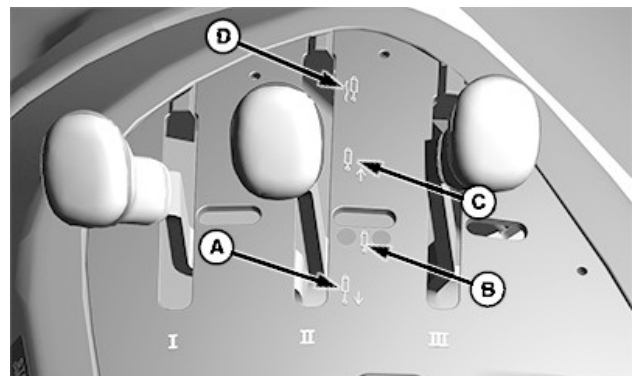


CPA0004294—UN—09AUG17

*Dual SCV*

- D—SCV I
- E—SCV II
- F—SCV III
- G—Adjustable Flow Control

### Rear SCV Operation



CPA0004152—UN—09AUG17

- A—Extend Position
- B—Neutral Position
- C—Retract Position
- D—Float Position

## SCV Levers

Rear SCV levers have four positions:

- Extend - pull and hold lever rearward as required.
- Retract - push and hold lever forward as required.
- Neutral - release lever unless in the float detent. If in float, lever must be pulled rearward to return to neutral.
- Float - push lever forward past retract position into the float detent.

## Rear SCV Identification

SCV levers and couplers are color coded for easier identification. The SCV control matches the corresponding cap on the SCV.

Rear SCV Numbers and Corresponding Colors	
SCV Number	Color
SCV I	Green
SCV II	Blue
SCV III	Brown

GS25068,0005AC1-19-10OCT18

## Mid-SCV Controls and Components

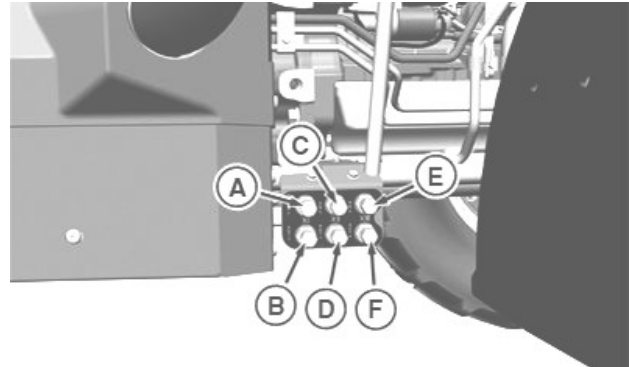
### Mid-SCV Controls



RXA0161437—UN—09JAN18

- A—Multi-Function Lever  
B—Third-Function Switch  
C—Loader Lock

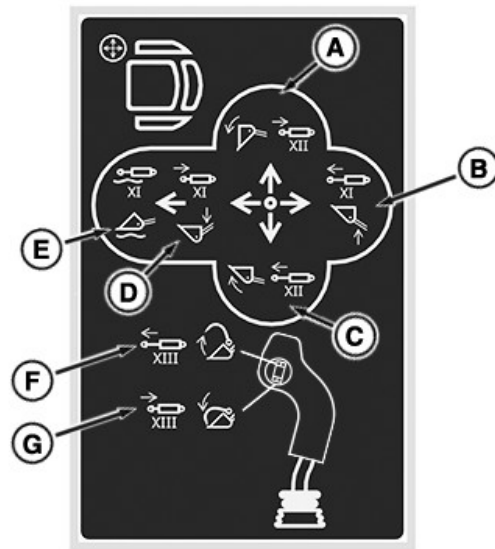
## Mid-SCV Components



CPA0004296—UN—09AUG17

- A—SCV XI—Retract  
B—SCV XI—Extend  
C—SCV XII—Retract  
D—SCV XII—Extend  
E—SCV XIII—Retract  
F—SCV XIII—Extend

## Mid-SCV Operation



RXA0158461—UN—30MAR17

### Mid-SCV Functions

**CAUTION:** The multi-function lever must be locked when the loader is not in use, transporting, or when operator dismounts the machine. Turn locking ring to locked position. Check that the loader does not respond after locking. If not done, the front loader may be actuated unintentionally, which could lead to serious accidents.



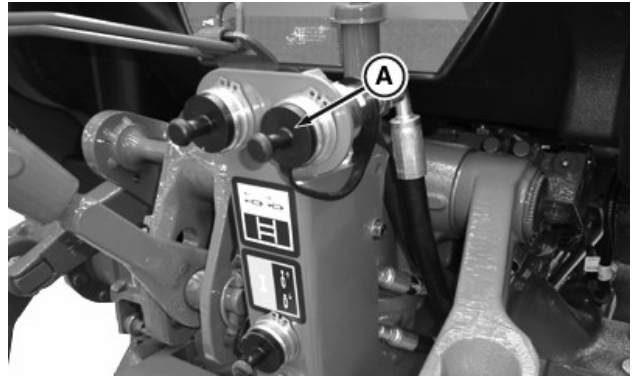
Position	Direction	Loader Function	SCV Function
A	Right	Bucket Tilt (Dump)	SCV XII Retract
B	Rearward	Boom Raise	SCV XI Extend
C	Left	Bucket Rollback (Curl)	SCV XII Extend
D	Forward	Boom Lower	SCV XI Retract
E	Forward Detent	Boom Float	SCV XI Float
F	Top Button	Grapple Open	SCV XIII Extend
G	Bottom Button	Grapple Close	SCV XIII Retract

### Mid-SCV Identification

Mid-SCV Numbers and Corresponding Colors	
SCV Number	Color
SCV XI	Green
SCV XII	Blue
SCV XIII	Brown

SCV Color Codes

GS25068,0005AC2-19-10OCT18

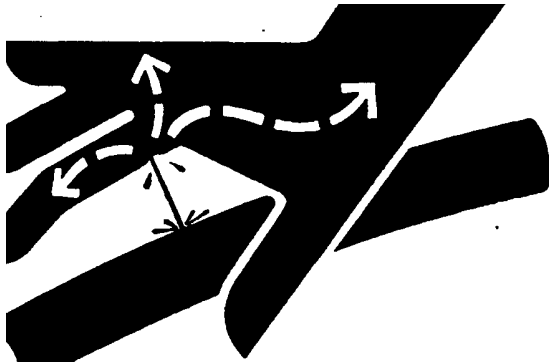


PY17158—UN—22OCT12

1. Remove dust caps from hose end.
2. Pull dust plug (A) from couplers.
3. Make sure that hose end and coupler receptacles are clean.
4. In case of dirt or dust in the coupler receptacles or hose end, they must be clean prior to connection.

**NOTE:** By not assuring previous steps, premature damage could happen in the couplings, causing leaks.

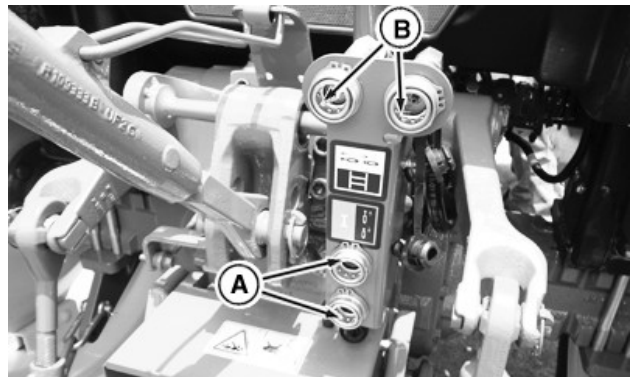
### Connecting Cylinder Hoses



X9811—UN—23AUG88

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

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



APY00534—UN—17JAN18

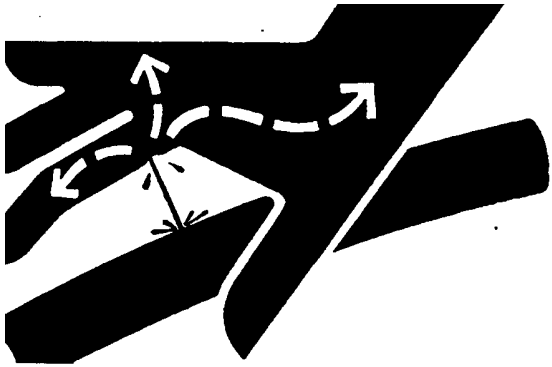
5. Check hoses to see which is used for extending cylinder. This hose must be connected to a coupler receptacle (A) or (B) in order for cylinder to extend when SCV levers are moved rearward or inward.

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

6. To connect each hose, push hose tip firmly into the coupler receptacle. Pull lightly on hose to make sure that positive connection was made.

AG32641,00004A8-19-17DEC21

## Disconnecting Cylinder Hoses



X9811—UN—23AUG88

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

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

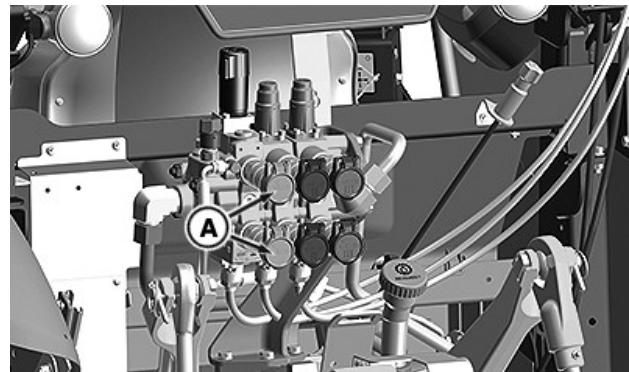
1. If possible, retract the remote cylinder as much as possible to protect the cylinder rod from damage.
2. Release pressure from hydraulic system, to achieve this it is necessary to move CVS lever while tractor is off.
3. With as much hydraulic pressure relieved as possible from hoses, pull hoses from couplers.
4. Make sure dust plugs for receptacles and dust caps for hoses are clean, then reinstall.
5. Make sure that couplers are clean before installing dust cover.
6. Verify dust cover plugs are installed after each use.
7. Lubricate the seals and perform a connection and disconnection operation in order to check the perfect functioning of the coupling

**CAUTION:** When a disconnection is performed, there could be a residual pressure that depending on temperature and position, could reach high values especially using couplers equipped with the breakaway function. This prevents the opening of the valve in the male part and as a consequence, the connection is not possible. This residual pressure can cause residual oil coming from the center of the coupler. Avoid forcing the coupling male valve to decrease residual pressure. Use female part suitable for connection under pressure. Do not use any sharpened or improper tools which could damage the seals when opening the valves.

*NOTE: By not assuring previous steps, premature damage could happen in the couplings, causing leaks.*

UG42841,0000054-19-17DEC17

## Connect Hydraulic Hoses



RXA0161426—UN—14DEC17

**A—Coupler Dust Cover**

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

*NOTE: Selective control valve (SCV) couplers accept a standard hose tip as recommended by ISO<sup>1</sup> and SAE<sup>2</sup>. Adapters are available to update older hose tips to the ISO couplers on this machine.*

*NOTE: When making connections, it is helpful to relieve hydraulic pressure from the couplers. For mechanical SCVs, turn the key switch off and cycle the SCV levers to the float position.*

Installing hydraulic hoses in SCVs:

1. Clean area around where connection is made and

<sup>1</sup> International Standards Organization (ISO) 7241-1

<sup>2</sup> Society of Automotive Engineers

end of implement hydraulic hoses to prevent hydraulic system contamination.

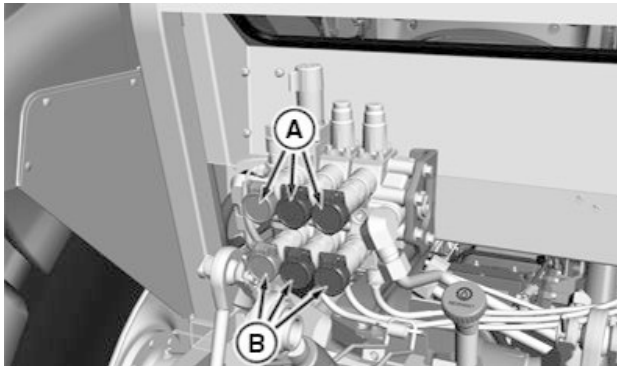
2. Open SCV coupler dust covers (A) as required.
3. Determine extend and retract hoses.
4. Firmly push hoses into couplers. Lightly tug on the hoses to ensure that connection is made. If connections are difficult, relieve pressure at couplers.

Removing hydraulic hoses from SCVs:

1. Lower implement to ground before disconnecting hydraulic hoses. If possible, retract remote cylinders as much as possible when stored to protect the rod from damage.
2. Shut off engine.
3. Relieve pressure at the couplers.
4. Pull hoses straight out from couplers.
5. Close SCV coupler dust cover.

GS25068,0005AC3-19-10OCT18

## Connect to Rear SCVs



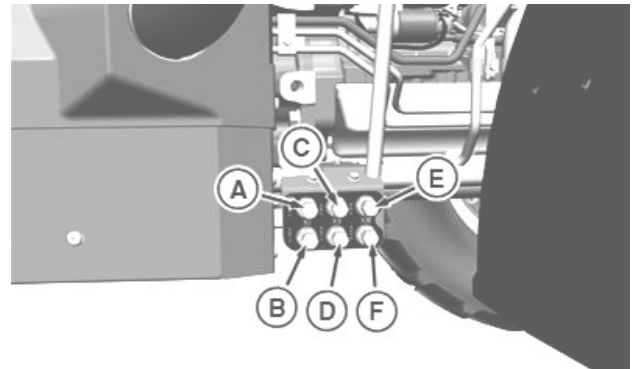
CPA0004300—UN—10AUG17

**A—Retract Coupler**  
**B—Extend Coupler**

1. Identify extend and retract hoses.
2. Remove dust caps from hose end.
3. Open coupler covers.
4. Making sure that hose end and coupler are clean, push hose tip firmly into the selective control valve (SCV) coupler. Pull on hose to make sure that positive connection was made.
5. Connect retract hoses to top retract couplers (A) and extend hoses to bottom extend couplers (B).

GS25068,0005AC4-19-10OCT18

## Connect to Mid-SCVs



CPA0004296—UN—09AUG17

**A—Boom Cylinder—Retract**  
**B—Boom Cylinder—Extend**  
**C—Bucket Cylinder—Retract**  
**D—Bucket Cylinder—Extend**  
**E—Third-Function Cylinder—Retract**  
**F—Third-Function Cylinder—Extend**

**NOTE:** Connections are capped and require couplers to be installed if using hose with ISO ends. Direct connection to the fittings can be made for permanent applications.

1. Match hoses to corresponding couplers.
2. Remove dust caps from hose ends.
3. Remove cap assembly from selective control valve (SCV) couplers.
4. Ensure that hose end and couplers are clean, slide sleeve back, push hose tip firmly into coupler and release sleeve.
5. Make sure that positive connection was made by pulling on hose.

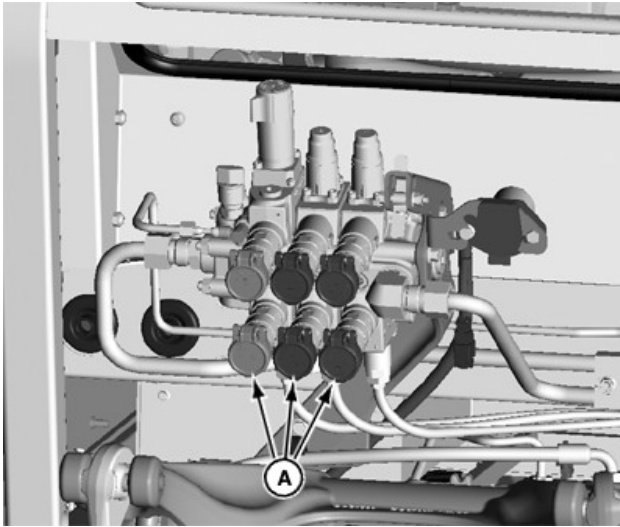
OURX985,0003209-19-15JAN18

## Correct Reversed Cylinder Response

**CAUTION:** If cylinder response is opposite of the SCV lever, extending when it should retract, reverse hose connections at couplers.

OURX985,00031ED-19-09JAN18

## Single-Acting Cylinders



A—Extend Couplers

LV22083—UN—15AUG14

**IMPORTANT:** Volume of oil required to extend a cylinder lowers the transmission/hydraulic oil level. With cylinder fully extended, check oil level and fill to the proper level. (See Check Transmission/Hydraulic System Oil Level in the Hydraulics Maintenance section.)

Single-acting cylinder should only be connected to the selective control valve (SCV) extend coupler (A).

Pull selective control valve (SCV) control lever back to pressurize and extend the single-acting cylinder.

Push SCV control lever fully forward to “float” position to retract the cylinder.

GS25068,0005AC5-19-10OCT18

## Implements Requiring Large Volumes of Oil

**IMPORTANT:** Removing too much oil can result in malfunction when raising hitch or using extend function of SCVs.

**Do not add oil to hydraulic system with engine running.**

To determine if sufficient oil is available for implement being used:

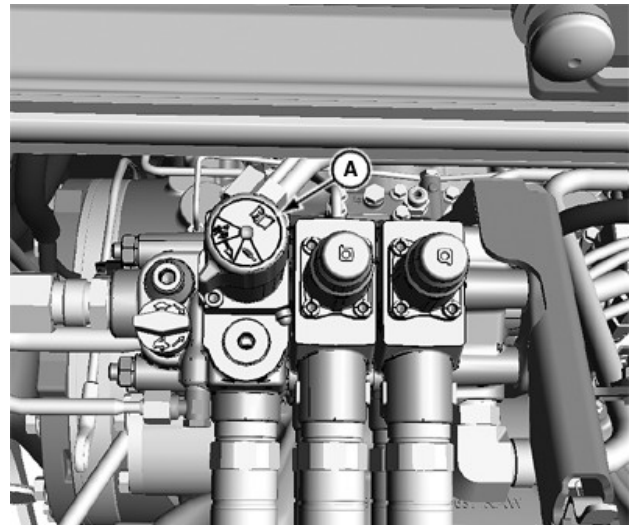
1. Cycle all implement cylinders after starting machine.
2. Check transmission/hydraulic oil level.
3. Add oil if necessary.
4. Lower implement to return oil to reservoir.
5. Recheck oil level when implement is removed.

6. Drain excess oil if necessary.

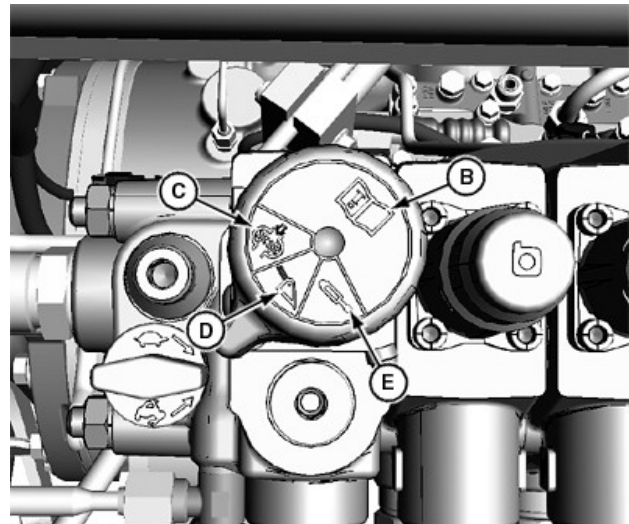
GS25068,0005AC6-19-10OCT18

## Set SCV Detents

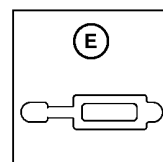
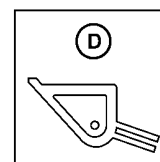
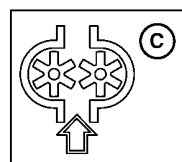
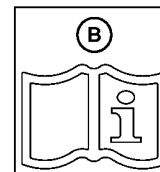
### Setting SCV Lever Detents



LV22089—UN—12JUN14



LV22090—UN—12JUN14



LV22102—UN—12JUN14

A—SCV Knob  
B—Read Operator Manual

C—Continuous Detent (Motor)  
D—No Detent (Loader)  
E—Automatic Detent (Cylinder)

**IMPORTANT:** To avoid overheating hydraulic oil and damage to machine, use SCV I when long duration “continuous” (motor) operation is required. Section I of deluxe SCV has a flow control valve. When properly adjusted, valve provides flow to operate an implement at required speed while maintaining oil temperature within normal operating range.

Section 1 of the deluxe SCV has selectable detents, used to change multi-function lever operations to meet operating requirements of different implements. Detent settings affect only extend and retract lever positions, not “float.”

**NOTE:** Read operator manual (B) is for reference only and is not a selectable setting.

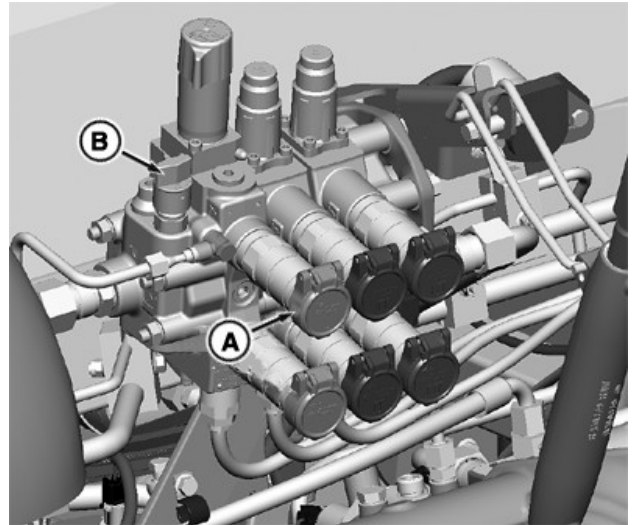
SCV Knob Position	SCV Lever Detent
Continuous Detent (Motor) (C) for motor operation	Holds lever in operating position until manually returned to neutral.
No Detent (Loader) (D) for loader operation	Lever returns to neutral when released.
Automatic Detent (Cylinder) (E) for cylinder operation	Lever automatically returns to neutral when a cylinder reaches the end of stroke.

OURX985.00031F0-19-07JUN19

## Operate Hydraulic Motor with Rear SCV

**IMPORTANT:** Avoid damage to hydraulic motors. Use only SCVs equipped with flow control or power beyond to operate hydraulic motors.

**NOTE:** To understand motor requirements, refer to implement operator’s manual.



RXA0149443—UN—22JUL15

A—SCV I Retract Coupler  
B—Adjustable Flow Control Valve

Use SCV I retract coupler (A) with adjustable flow control for most hydraulic motor operations.

To regulate oil flow when operating a hydraulic motor with any standard valve without adjustable flow control, use an external flow control valve.

**IMPORTANT:** Never regulate oil flow from an SCV with a flow control valve using an external flow control valve. Having two flow control valves in the same hydraulic circuit overheats oil, causing component malfunctions and damage.

Do not use deluxe rear SCV for any low-flow, high-pressure applications such as the SeeStar™ variable rate drive planter motor or active downforce circuits. PTO driven hydraulic motor is recommended for low-flow, high-pressure applications.

## Recommendations to Avoid Hydraulic Motor Damage

Use hydraulic motor return coupler for implements having:

- Single directional hydraulic motor.
- Hydraulic motor with a low-pressure shaft seal.
- Hydraulic motor with an internal case drain.

**IMPORTANT:** If implement motor is not equipped with return coupler, use “float” position to stop hydraulic motor.

## Hydraulic Motor Hose Connections and SCV Lever Operations

**IMPORTANT:** Use only SCVs with adjustable flow control for “continuous” (motor) applications.

1. Shut off engine.

2. Move SCV lever to be connected to motor full forward, into "float" detent.
3. Connect hydraulic motor supply hose to the SCV retract coupler and return hose to the SCV extend, or case drain as required by application.
4. Set SCV lever detent for continuous "motor" operation.
5. Start engine.
6. Do not return hydraulic motor directly to sump via a port on differential case, except intermittent high-pressure applications, such as a post pounder.

To activate hydraulic motor, move SCV lever to "retract" position.

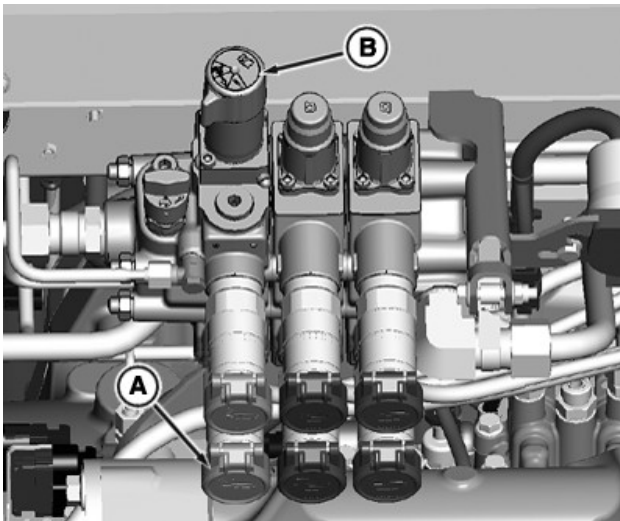
7. To stop hydraulic motor, move SCV lever fully forward into "float" detent.

**IMPORTANT: To stop hydraulic motor, do not use neutral lever position.**

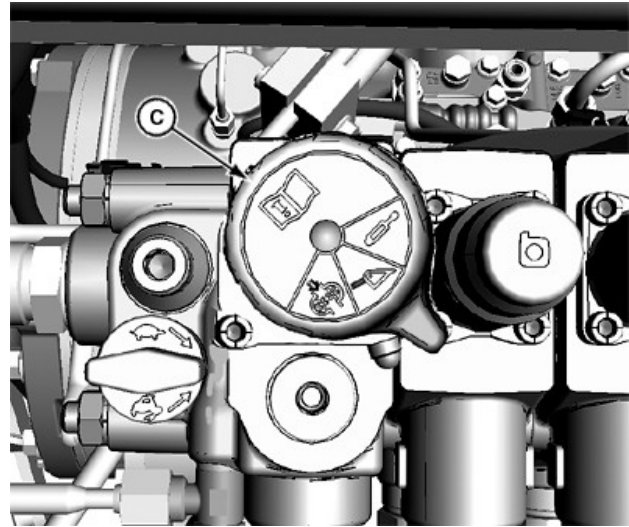
8. Shut off engine and disconnect hoses from couplers.

GS25068,0005AC7-19-10OCT18

## Operate Power Beyond with Rear SCV



RXA0149424—UN—22JUL15



LV22103—UN—17JUN14

A—SCV I Extend Coupler  
B—SCV I Detent  
C—Continuous Detent Position

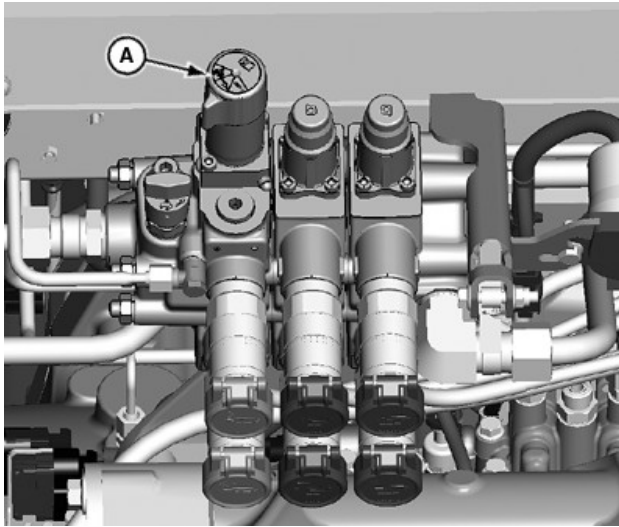
**IMPORTANT: Power beyond connections must be used when operating any external hydraulic orbital motor with this machine. Failure to comply with power beyond connections overheats and possibly damages the hydraulic system.**

*NOTE: Oil can be supplied to power beyond equipment using SCV 1 on the deluxe SCV (in continuous mode) or by using a power beyond kit with the standard dual rear SCV.*

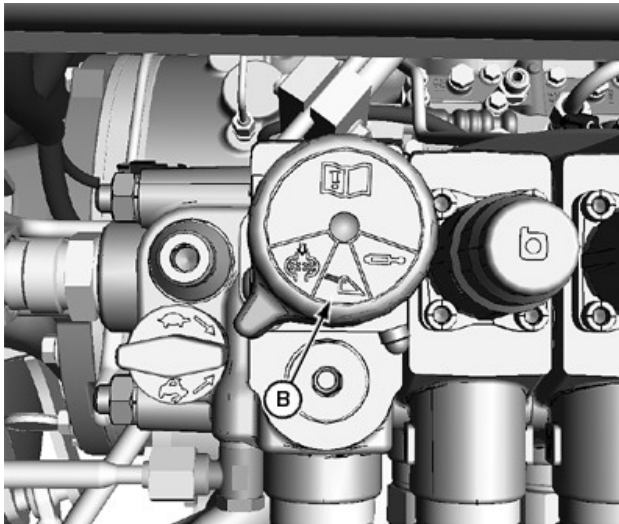
1. Shut off engine.
2. Connect power beyond hose to SCV I extend coupler (A).
3. Set rear SCV I detent (B) to continuous (C).
4. Start engine.
5. Move SCV I lever into extend.
6. Oil is now supplied to power beyond device.
7. To stop, de-activate power beyond device, then return SCV I lever to neutral.
8. Shut off engine and disconnect hoses.

OURX985,00031F1-19-15JAN18

## Operate Loader with Rear SCV



LV22106—UN—17JUN14



LV22107—UN—17JUN14

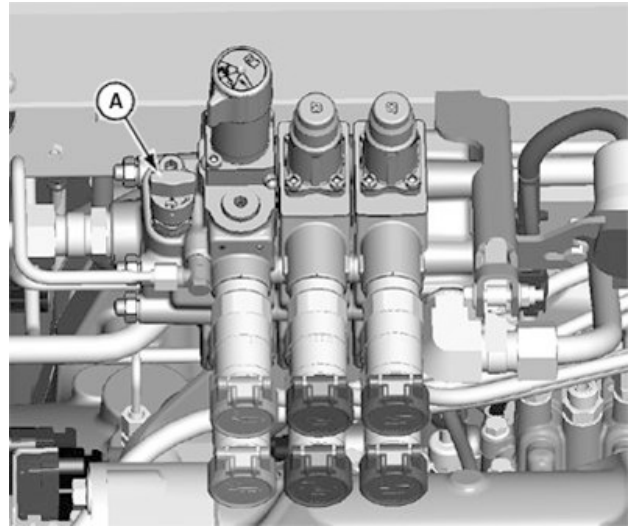
A—SCV Detent Selector Knob  
B—No Detent (Loader) Position

**CAUTION:** Avoid injury or death caused by falling loads. When using selective control valve (SCV) to operate loader, detent must be set in no detent position (B), for loader movement to stop when SCV lever is released. Moving SCV lever to any other position would cause the loader to perform unexpectedly and potentially cause injury.

When using loader with rear SCVs, **ALWAYS** put the SCV detent selector knob (A) in no detent (loader) position (B) to prevent unexpected movement.

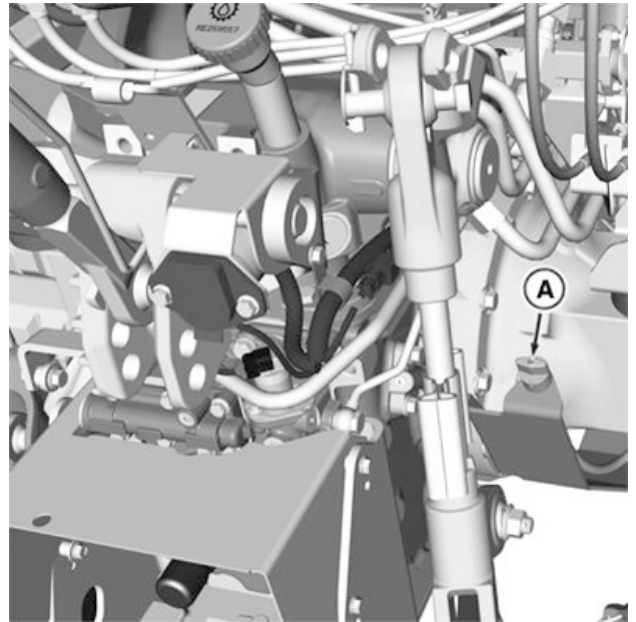
GS25068,0005AC8-19-10OCT18

## Adjust Flow Control



CPA0004302—UN—10AUG17

Rear SCV



CPA0004301—UN—10AUG17

Mid-SCV

A—Flow Control Adjustment

**CAUTION:** Excessive operating speed may cause injury or machine damage.

**Decrease flow rate if hydraulic oil overheats, remote cylinder moves too quickly, or if hydraulic motor turns too fast.**

Flow control adjustment (A) only affects section I of rear selective control valve (SCV) and the electrohydraulic (grapple) section of the three-function mid-SCV. Other valve sections are not affected by this adjustment.

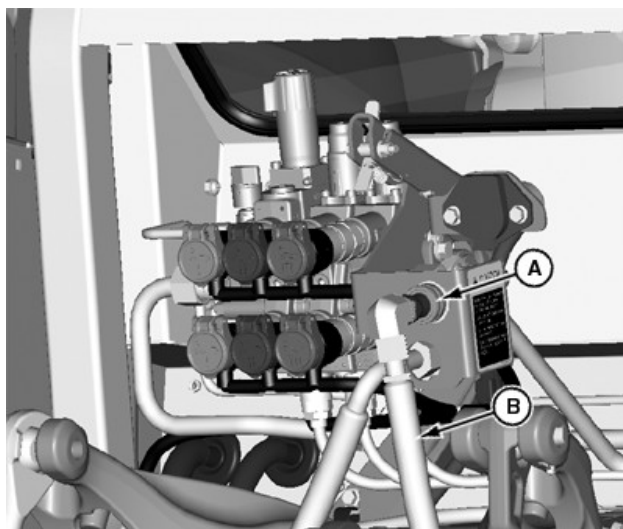
To increase flow, rotate flow control adjustment (A) left (counterclockwise).

To decrease flow, rotate flow control adjustment (A) right (clockwise).

GS25068,0005AC9-19-10OCT18

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## Power Beyond



LV22141—UN—18JUN14

**A—Hose Coupler**  
**B—Power Beyond Hose**

Power beyond is designed for applications where continuous high volume hydraulic oil flow is needed.

1. To use power beyond feature, remove power beyond hose (B) from hose coupler (A) and attach to implement “return” port.
2. To complete the hydraulic circuit, attach implement “pressure” hose to open hose coupler (A).
3. When not in use, plug hose end into coupler for storage (as shown).

Parts for this attachment are available from your John Deere dealer.

GS25068,0005ACA-19-10OCT18

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# Wheels and Tires Operation

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## Wheels and Tires Information

Refer to the Wheels and Tires Maintenance section of this manual for information.

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GS25068,0005ACB-19-10OCT18

# Ballasting

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## Ballasting Information

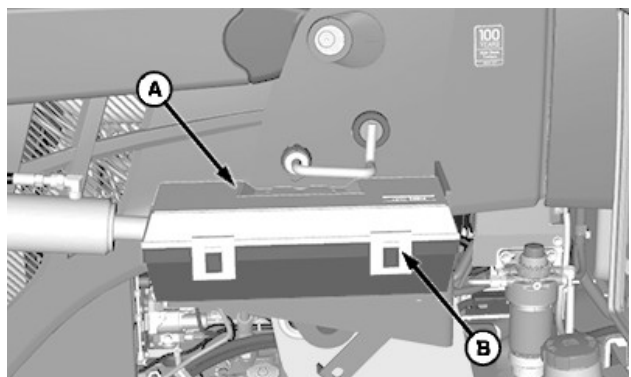
Refer to the Ballasting Maintenance section of this manual for information.

GS25068,0005ACC-19-10OCT18

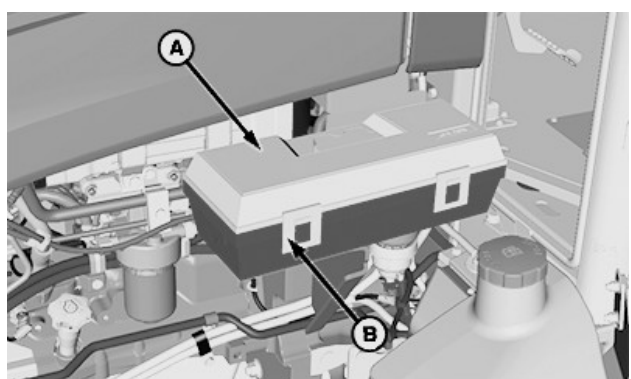
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# Additional Equipment

## Tool Box



CPA0004134—UN—09AUG17  
*Tool Box With Loader*



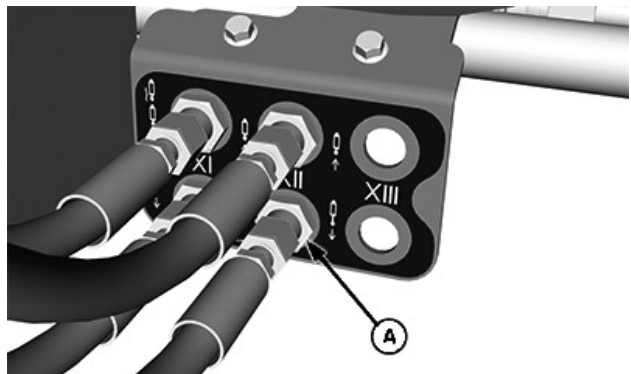
CPA0004135—UN—09AUG17  
*Tool Box Without Loader*

**A—Tool Box**  
**B—Snap Fastener**

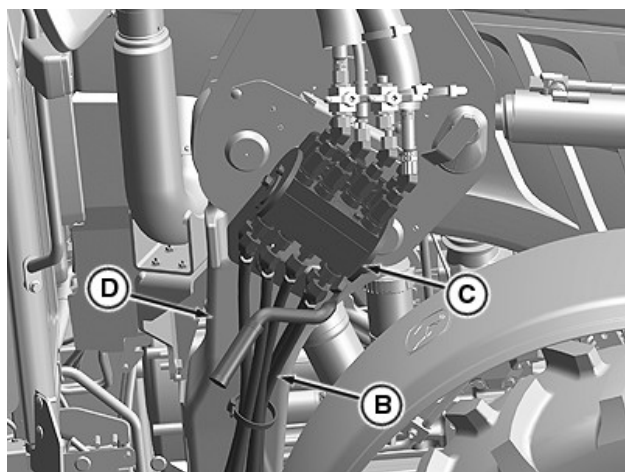
To open tool box (A), lift bottom of snap fasteners (B) and lift lid. To close tool box, lower lid and press on snap fasteners.

OURX985,00031F4-19-10JAN18

## Front Loader



CPA0004137—UN—02AUG17



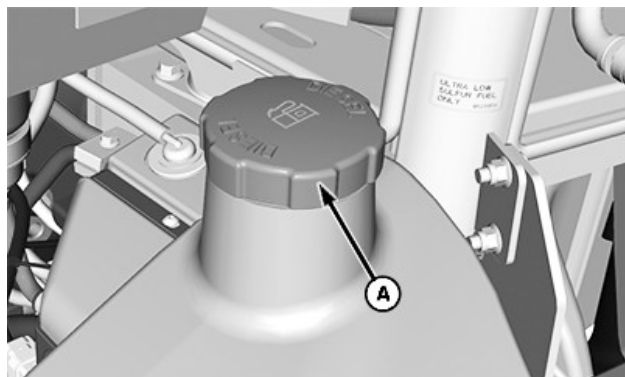
PY39988—UN—09MAY17

**A—Mid-SCV Couplers**  
**B—Loader Extension Hoses**  
**C—Loader Multicoupler**  
**D—Loader Mounting Frame**

- For information on installing the loader brackets. (See Additional Equipment Maintenance section.)
- For information on how to attach the loader to the machine and basic functionality, refer to the specific Loader Operator's Manual.
- For information on how to use the controls to operate the loader. (See Selective Control Valve Operation section.)
- For information on how to use loader lighting. (See Electrical and Lighting Operation section.)

GS25068,0005ACD-19-11OCT18

## Lockable Fuel Fill Cap



CPA0004136—UN—09AUG17

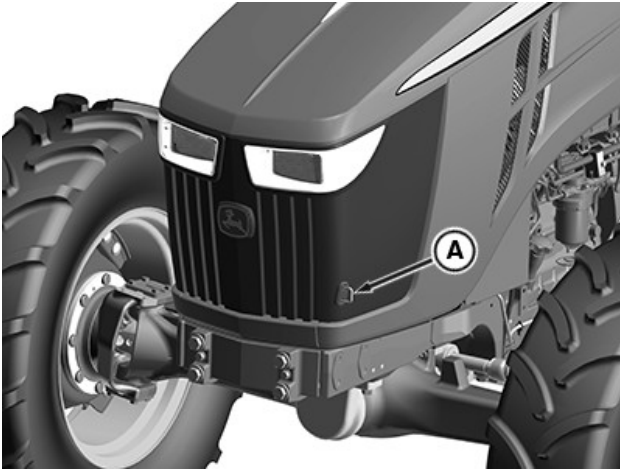
**A—Lockable Full Fill Cap**

**NOTE:** It is recommended to use a vented locking fuel cap for all machines.

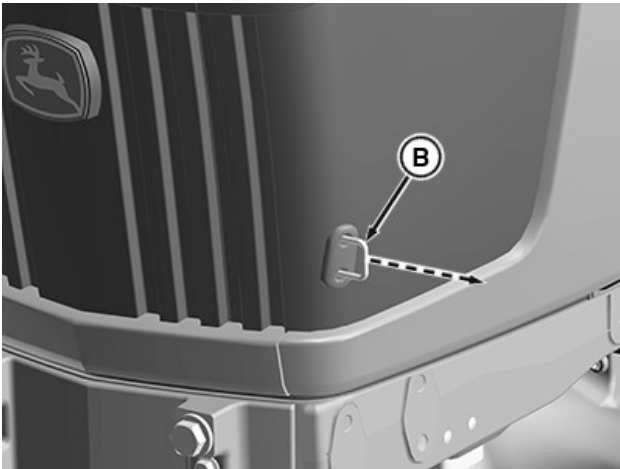
Machine can be equipped with a lockable fuel fill cap (A).

CO00263,0000437-19-03AUG17

## Hood Latch



PY42165—UN—24AUG17



PY42166—UN—24AUG17

**A—Hood Latch**

**B—Hood Latch Release Rod**

1. Shut off engine and remove ignition key.
2. Hood latch (A) is located below left headlight on the left side of the hood.
3. Pull the hood latch release rod (B) outward to release the latch.
4. Lift the hood to open the engine compartment.

OURX985,00031F6-19-15JAN18

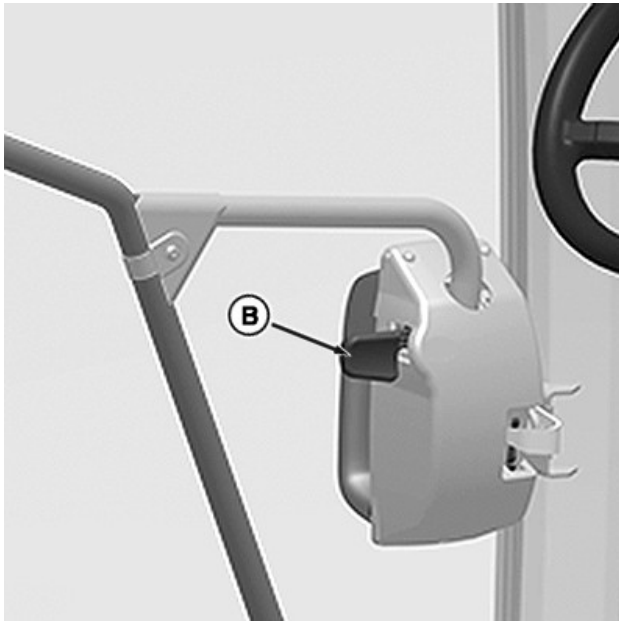
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# Operator's Station Operation

## Doors



RXA0153901—UN—22SEP16



RXA0158465—UN—07APR17

**A—Exterior Door Latch**  
**B—Interior Door Latch**

Depress the button on the exterior door latch (A) to release and pull to open door. An optional exterior locking latch is available.

Pull interior door latch (B) to release and push to open door.

CO00263,00004A2-19-09AUG17

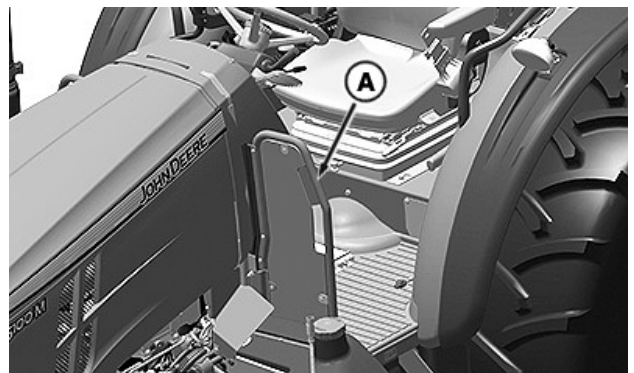
## Grab Handles

### Exterior Handles



RXA0158466—UN—07APR17

*Cab*



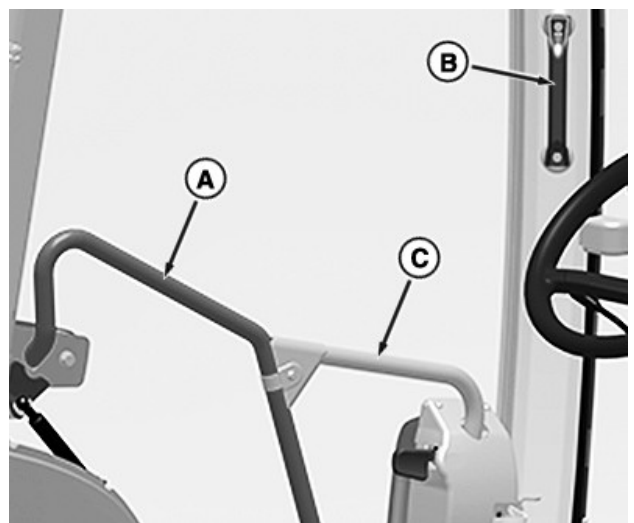
RXA0158467—UN—07APR17

*OOS and Low-Profile*

### A—Exterior Grab Handle

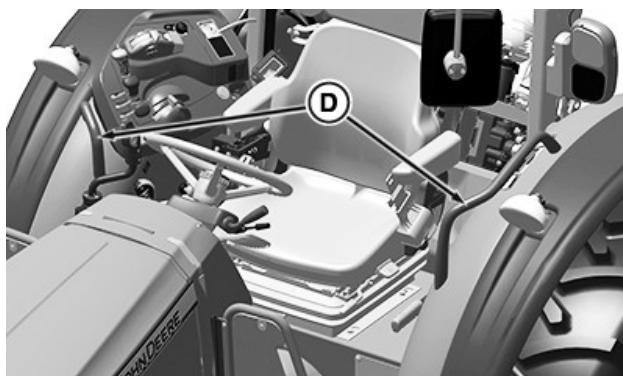
Front corners are equipped with exterior grab handles (A) to assist the operator with entering and exiting the operator station.

### Interior Handles



RXA0158468—UN—07APR17

*Cab*



OOS

RXA0162102—UN—12FEB18



Low-Profile

PY30857—UN—09AUG17

- A—Door Grab Handle
- B—Corner Post Grab Handle
- C—Instructional Seat Grab Handle
- D—Fender Grab Handles

Both doors are equipped with door grab handles (A) to assist operator with entering and exiting the cab. The handles are also used to assist opening and closing the doors.

Both fenders are equipped with fender grab handles (D) to assist operator with entering and exiting the operator station.

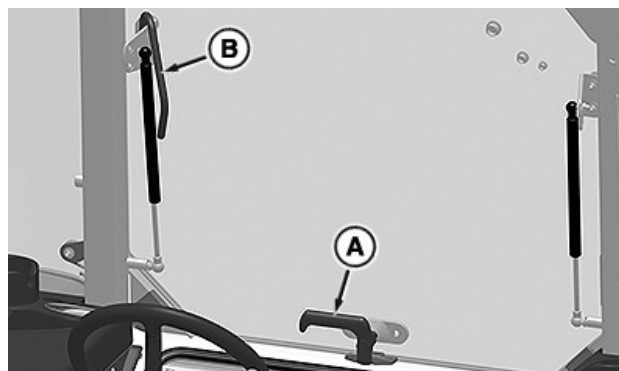
The corner post grab handle (B) is used to assist the operator when getting into and out of the seat.

The instructional seat grab handle (C) is used by the person in the instructional seat to hold during operation and to open and close the door.

GS25068,0005ACE-19-10OCT18

## Windows

### Rear Window



RXA0153908—UN—22SEP16

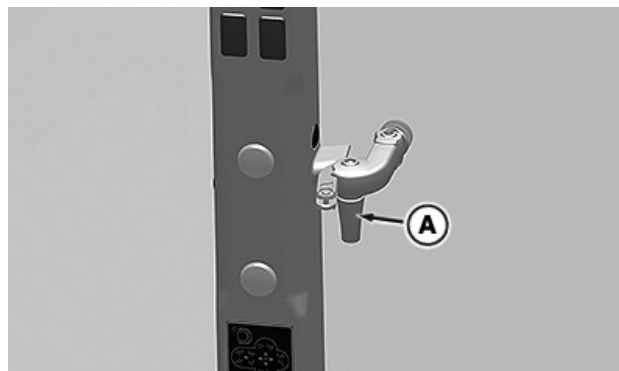
- A—Rear Window Latch
- B—Window Handle

**CAUTION:** In an emergency situation, rear window provides an exit path if cab doors are blocked.

Rotate rear window latch (A) clockwise and push window open.

Pull on window handle (B) to close window and rotate rear window latch (A) counterclockwise to secure.

### Side Window



RXA0153909—UN—22SEP16

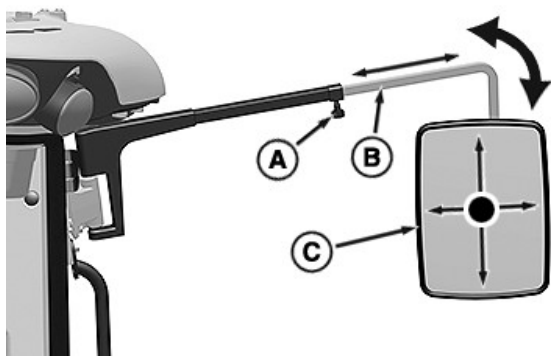
- A—Side Window Latch

Pull side window latch (A) rearward and push side window outward to open.

OURX985,00031F7-19-15JAN18

## Mirrors

### Exterior Telescoping Mirrors

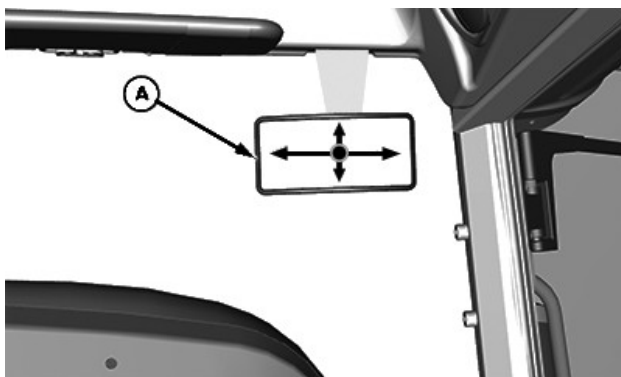


RXA0153903—UN—22SEP16

A—Mirror Arm Adjustment Screw  
B—Mirror Arm  
C—Mirror

Loosen mirror arm adjustment screw (A) and slide mirror arm (B) inward or outward to desired position. Securely tighten locking knob when adjustment is complete. Push mirror arm forward or pull rearward to desired position. Push mirror (C) up, down, left, or right to move into desired position.

### Interior Rearview Mirror



CPA0004142—UN—03AUG17

A—Mirror

Push mirror (A) up, down, left, or right to move into desired position.

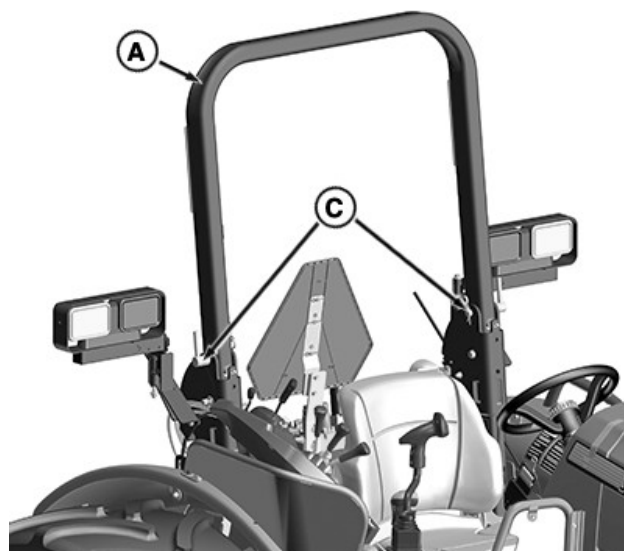
OURX985,0003212-19-15JAN18

## Foldable Roll-Over Protective Structure (ROPS)



LV14501—UN—28JUL11

OOS ROPS—Vertical Operating Position



RXA0161427—UN—14DEC17

Low-Profile ROPS—Vertical Operating Position



LV14502—UN—29JUL11

Always keep upper part of ROPS pinned in vertical position (as pictured) when operating machine. If machine is operated with ROPS folded (for example, to enter a low building) drive with extreme caution and Do not use seat belt.

Lift the ROPS up again and pin in vertical position as soon as the machine is operated under normal conditions.

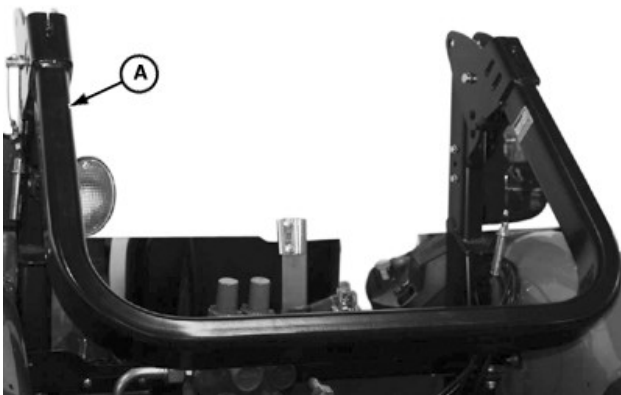
#### Lower ROPS Crossbar (A):

1. Remove quick-lock pins (B) and headed pins (C).
2. Lower ROPS crossbar (A) onto stops.
3. Install pins (C and B) into holes in ROPS to lock down crossbar.

#### Raise ROPS Crossbar (A):

1. Remove headed pins (C) and quick-lock pins (B).
2. Lift ROPS crossbar (A) to vertical position.
3. Install pins (C) and (B) into holes in ROPS to lock in position.

GS25068,0005ACF-19-10OCT18



LV14503—UN—29JUL11

ROPS-Folded Position

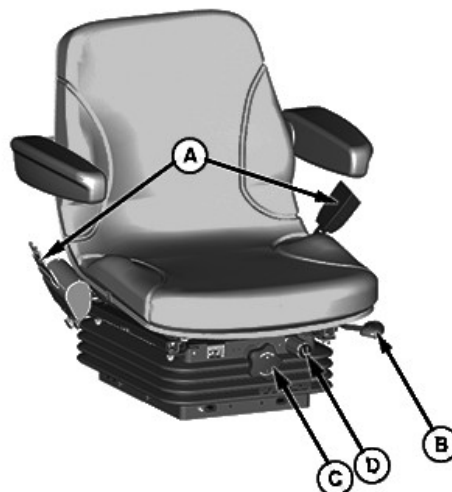
- A—ROPS Crossbar  
B—Quick-Lock Pin (2 used)  
C—Headed Pin (2 used)

**CAUTION:** Make certain all parts are installed correctly if roll-over protective structure (ROPS) is loosened or removed for any reason. Replace and tighten mounting cap screws to proper torque.

The protection offered by ROPS is impaired if ROPS is subjected to structural damage, as in an overturn incident, or is in any way altered by welding, bending, drilling, or cutting. A damaged ROPS must be replaced, not reused. Any alteration to the ROPS must be manufacturer approved.

## Cab Seats

### Mechanical Seat



CPA0004143—UN—04AUG17

- A—Seat Belt  
B—Forward/Backward Adjustment Lever  
C—Weight Adjustment Knob  
D—Height Adjustment Knob

**CAUTION:** To avoid accidents, adjust the seat before driving.

**IMPORTANT:** While adjusting seat, make sure that all controls can be easily accessed.



**Adjust the following to operator preference:**

**Seat Belt**

1. Pull tab end of the seat belt (A) to extend.
2. Push tab into latch end until an audible click is heard.
3. Tug on the seat belt to ensure that it is latched.
4. Upon exiting, depress the button on the latch to release.

**Forward/Backward Adjustment**

1. Lift forward/backward adjustment lever (B).
2. Slide seat to desired position.
3. Release forward/backward lever (B) to lock seat in position.

**Weight Adjustment**

1. Turn weight adjustment knob clockwise (increase load) or counterclockwise (decrease load) to reach desired suspension travel for operator's weight.
2. Adjustable weight range is 35—130 kg (77—286 lb). Suspension should not bottom out when properly adjusted.
3. Return weight adjustment knob (C) to lock seat in position.

**Height Adjustment**

Turn the height adjustment knob (D) clockwise (seat upward) or counterclockwise (seat downward) to the desired position.

**Air Suspension Seat**

*NOTE: Adjust with the operator in the seat for best results*



CPA0004144—UN—06AUG17

- A—Seat Belt  
B—Forward/Backward Adjustment Lever  
C—Height Adjustment Knob  
D—Weight Indicator

**E—Backrest Adjustment Handle**

**Seat Belt**

1. Pull tab end of the seat belt (A) to extend.
2. Push tab into latch end until an audible click is heard.
3. Tug on the seat belt to ensure that it is latched.
4. Upon exiting, depress the button on the latch to release.

**Forward/Backward Adjustment**

1. Lift forward/backward adjustment lever (B).
2. Slide seat to desired position.
3. Release forward/backward lever (B) to lock seat in position.

**Height Adjustment**

Pull the height adjustment knob (C) out (raise seat) or push the height adjustment knob (C) in (lower seat) to the desired position.

**Weight Indicator**

Weight indicator (D) shows operator's weight when seated. The weight range is 40—140 kg (88—309 lb).

**Backrest Adjustment**

1. Lift on the backrest adjustment handle (E).
2. Rotate seat to desired position.
3. Release handle to lock backrest into the position.

GS25068,0005AD0-19-10OCT18

**OOS and Low Profile Seats**

**Premium Seat**



RXA0158473—UN—04APR17

Front View



Rear View

RXA0158474—UN—04APR17

- A—Seat Belt
- B—Forward/Backward Adjustment Lever
- C—Weight Adjustment Lever
- D—Swivel Handle
- E—Backrest Adjustment Handle
- F—Lumbar Support Adjustment Knob
- G—Back Rest Extension

**CAUTION:** To avoid accidents, adjust the seat before driving.

*NOTE:* While adjusting seat, make sure that all controls can be easily accessed.

#### Adjust the following to operator preference:

##### Seat Belt

1. Pull tab end of the seat belt (A) to extend.
2. Push tab into latch end until an audible click is heard.
3. Tug on the seat belt to ensure that it is latched.
4. Upon exiting, depress the button on latch to release.

##### Forward/Backward Adjustment

1. Lift forward/backward adjustment lever (B).
2. Slide seat to desired position.
3. Release forward/backward lever (B) to lock seat in position.

##### Weight Adjustment

1. Flip out weight adjustment lever (C).
2. Turn lever clockwise (increase load) or counterclockwise (decrease load) to reach desired suspension travel for operator weight.

**IMPORTANT:** Stop turning weight adjustment lever (C) counterclockwise (decreasing load) when seat reaches minimum weight position and lever resistance increases. Seat mechanism could be damaged.

*NOTE:* Suspension should not bottom out when properly adjusted.

3. Return weight adjustment lever (C) to lock seat in position.

##### Swivel Adjustment

1. Lift on swivel handle (D).
2. Rotate seat left or right to the desired position.
3. Push swivel handle down to lock in position.

##### Backrest Adjustment

1. Lift on backrest adjustment handle (E).
2. Rotate seat to desired position. The seat turns 15° to the left and right. The seat locks at 7.5° intervals.
3. Release handle to lock backrest into the position.

##### Lumbar Support

Turn lumbar support adjustment knob (F) clockwise or counterclockwise until desired lumbar support is reached.

##### Back Rest Extension

Back rest extension (G) is available for extended back rest support.

##### Standard Seat

*NOTE:* Adjust with the operator in the seat for best results



RXA0161428—UN—14DEC17

- A—Seat Belt  
B—Forward/Backward Adjustment Lever  
C—Weight Adjustment Lever  
D—Weight Indicator  
E—Backrest Adjustment Handle

### Seat Belt

1. Pull tab end of the seat belt (A) to extend.
2. Push tab into latch end until an audible click is heard.
3. Tug on the seat belt to ensure that it is latched.
4. Upon exiting, depress the button on the latch to release.

### Forward/Backward Adjustment

1. Lift forward/backward adjustment lever (B).
2. Slide seat to desired position.
3. Release forward/backward lever (B) to lock seat in position.

### Weight Adjustment

1. Flip out weight adjustment lever (C).
2. Turn lever clockwise (increase load) or counterclockwise (decrease load) to reach desired suspension travel for operator's weight.

**IMPORTANT: Stop turning weight adjustment lever (C) counterclockwise (decreasing load) when seat reaches minimum weight position and lever resistance increases. Seat mechanism could be damaged.**

*NOTE: Suspension should not bottom out when properly adjusted.*

3. Return weight adjustment lever (C) to lock seat in position.

### Weight Indicator

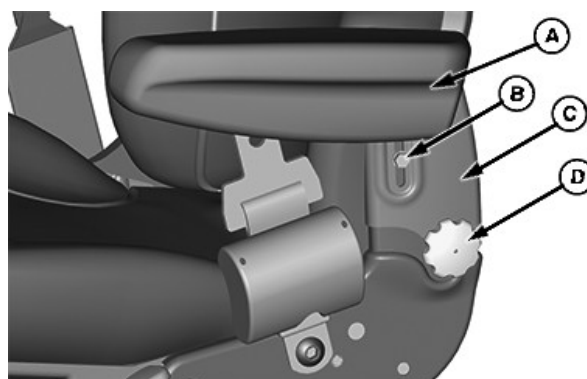
Weight indicator (D) shows operator's weight when seated. The weight range is 40—140 kg (88—309 lb).

### Backrest Adjustment

1. Lift on the backrest adjustment handle (E).
2. Rotate seat to desired position.
3. Release handle to lock backrest into the position.

GS25068,0005AD1-19-10OCT18

### Adjust Seat Armrests



CPA0004145—UN—06AUG17

- A—Armrest  
B—Screw  
C—Armrest Support  
D—Knob Screw

1. Loosen screws (B) and knob screws (D).
2. Slide armrests (A) and armrest support (C) up or down to the desired position, and tighten hardware.

OURX985,00031F9-19-10JAN18

### Instructional Seat



CPA0004282—UN—09AUG17

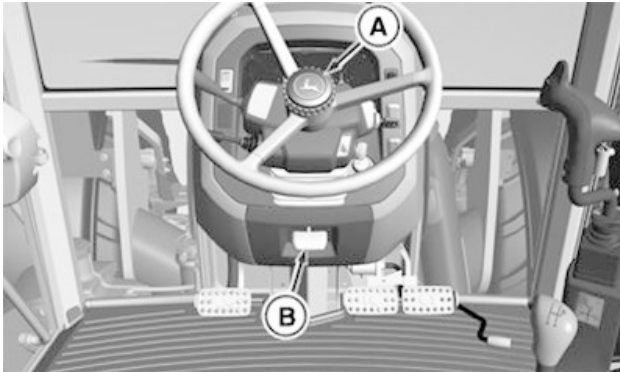
- A—Lock Lever

**CAUTION: CAUTION: Instructional seat is provided only for training operators or diagnosing machine problems. Keep all other riders off machine and equipment. Always wear seat belt.**

Release lock lever (A) and fold down seat bottom.

OURX985,00031FA-19-10JAN18

## Steering Wheel



CPA0004283—UN—09AUG17

**A—Steering Wheel Telescope Release Ring**  
**B—Steering Wheel Tilt Lever**

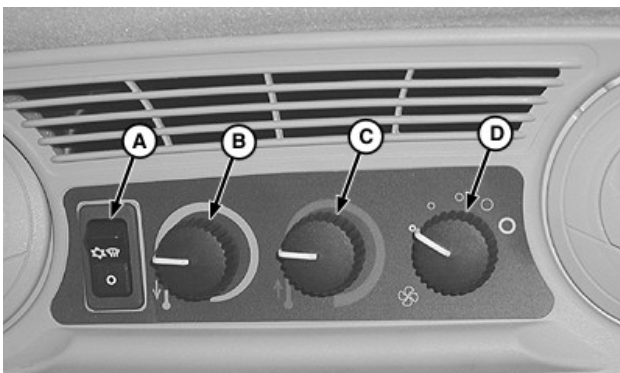
**Telescope:** Rotate steering wheel telescope release ring (A) counterclockwise. Extend or retract the steering wheel to desired position. Rotate knob clockwise to lock.

**Wheel Tilt:** Pull up on steering wheel tilt lever (B) and move steering wheel to desired position. Release lever to lock.

OURX985,000319B-19-15JAN18

## Heat, Defrost, and Air Conditioning

### Temperature Controls

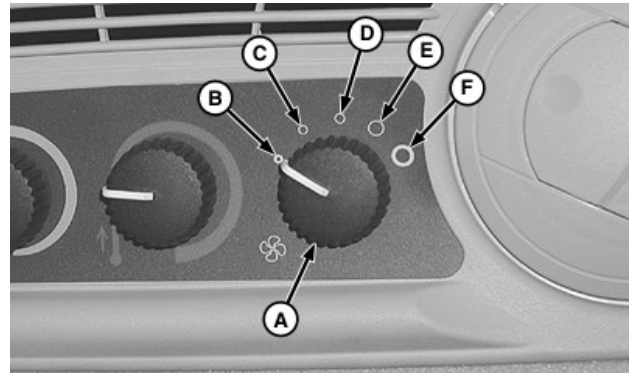


LV8415—UN—14JUL03

**A—Air Conditioner and Defrost Switch**  
**B—Air Conditioner Temperature Control Knob**  
**C—Heater Temperature Control Knob**  
**D—Fan Speed Control Knob**

- Push top half of the air conditioner and defrost switch (A) to turn on air conditioner/defog.
- Turn air conditioner temperature control knob (B) to adjust air conditioner temperature.
- Turn heater temperature control knob (C) to adjust heater temperature.

### Fan Speed Control



LV8414—UN—14JUL03

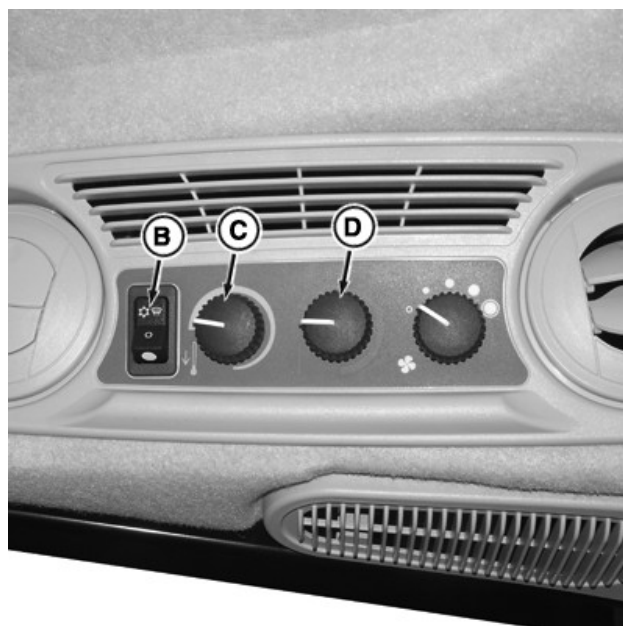
**A—Fan Speed Control Knob**  
**B—Off**  
**C—Low**  
**D—Medium**  
**E—High**  
**F—Purge**

Turn fan speed control knob (A) to desired heater, ventilation, or air conditioner setting. For a rapid cab cool down, use the purge (F) setting.

### Defrost



LV8596—UN—14AUG03



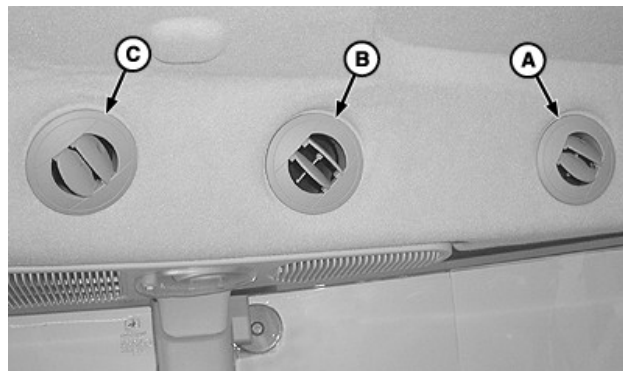
RXA0146348—UN—25NOV14

- A—Front Vents
- B—Defrost Switch
- C—Air Conditioner Temperature Control Knob
- D—Heater Temperature Control Knob

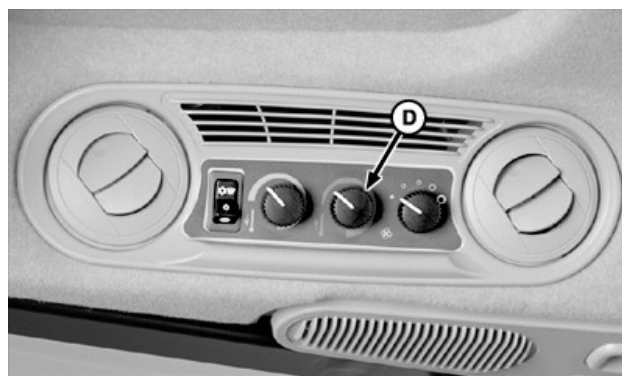
**NOTE:** Closing middle and rear vents helps clear windshield faster.

1. Aim front vents (A) toward windshield.
2. Press top half of defrost switch (B) and turn air conditioner temperature control knob (C) to full counterclockwise position.
3. Turn heater temperature control knob (D) clockwise to obtain desired temperature.

#### Heat and Air Vent Control



LV10325—UN—21SEP04



LV10326—UN—21SEP04

- A—Front Vent
- B—Middle Vent
- C—Rear Vent
- D—Heater Temperature Control Knob

Adjust individual vents to target heating or cooling:

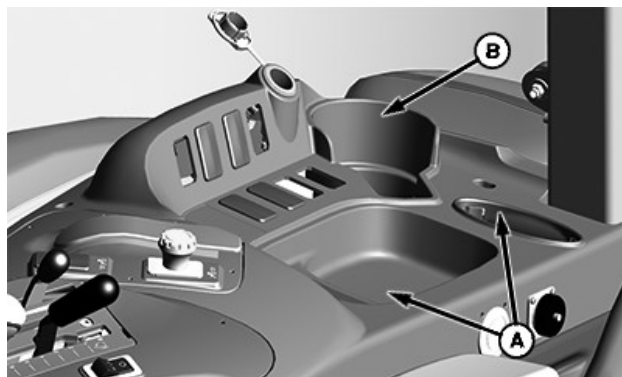
- Aim front vents (A) toward legs and mid-body.
- Aim middle vents (B) toward your head.
- Aim rear vents (C) toward your back.
- Aim all vents (A, B, and C) down to heat the floor and feet.

**NOTE:** For maximum cooling effect, turn heater temperature control knob (D) to full counterclockwise position.

OURX985,00031FB-19-10JAN18

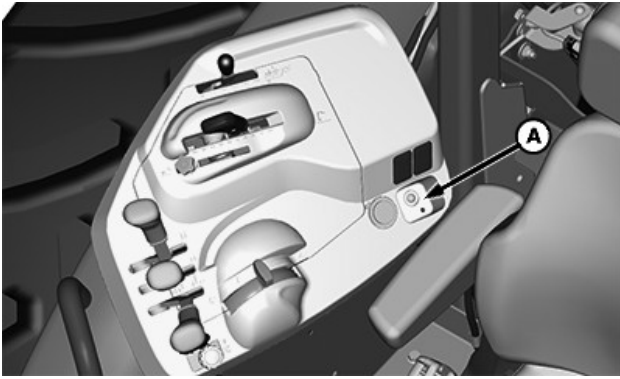
## General Storage

### Right-Hand Storage



CPA0004147—UN—06AUG17

Cab

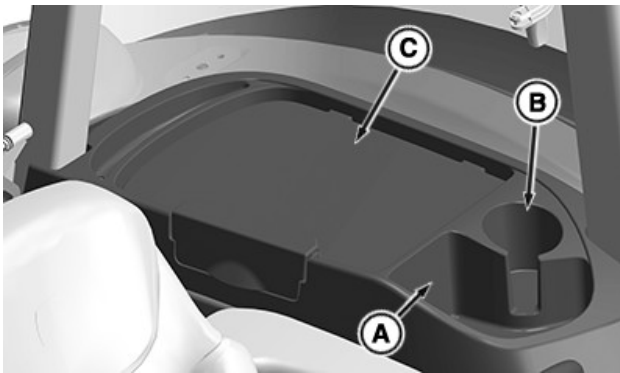


CPA0004146—UN—06AUG17

OOS and Low-Profile

- A—Storage
- B—Beverage Holder

### Left-Hand Storage



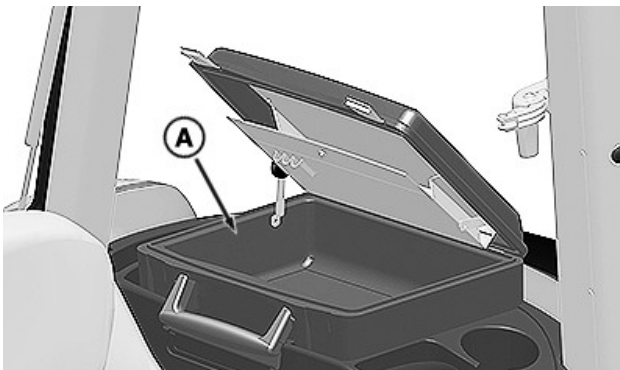
RXA0154067—UN—23SEP16

Cab

- A—Storage
- B—Beverage Holder
- C—Writing/Computer Surface

OURX985,00031A6-19-30JAN18

### Field Office™



RXA0153920—UN—23SEP16

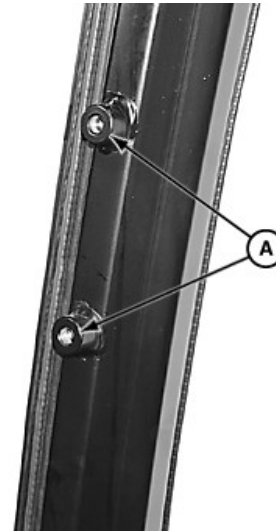
- A—Field Office™

Field Office™ (A) is a removable box to store documents and other items while working in the field.

Close lid, grasp handle, and pull up to remove. Align and depress to snap into place. Open lid as required, keep closed at all other times.

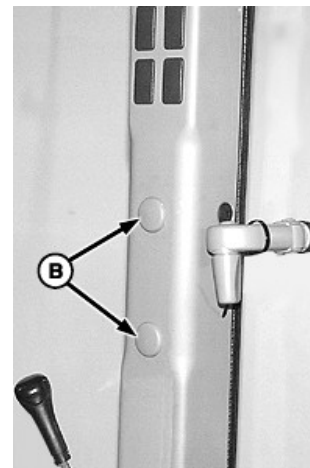
GS25068,0005AD2-19-10OCT18

### Monitor Mounts



Front Post

LV14520—UN—02AUG11



Side Post

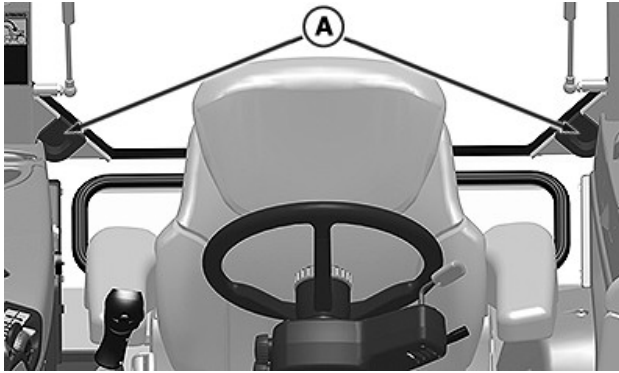
PULV004553—UN—15JUN09

- A—Front Right Corner Post Mounting Location
- B—Right Side Post Mounting Location

Install monitor at front right corner post (A) or right side post (B).

GS25068,0005AD3-19-10OCT18

## Rear Window Cable Routing



RXA0154076—UN—23SEP16

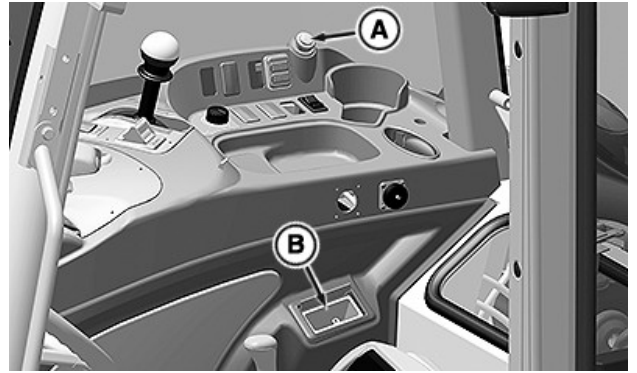
### A—Cable Routing Locations

The rear window of the cab is provided with two openings, allowing the cables to be routed.

1. Open the window and take out the rubber stoppers.
2. Cut the rubber stoppers at the incisions provided to enable the cables to be routed.
3. Route cables and make connections as required.
4. Insert the rubber stoppers and close the window.

OURX985,00031FD-19-10JAN18

## Ash Tray and Cigarette Lighter



RXA0158630—UN—04APR17

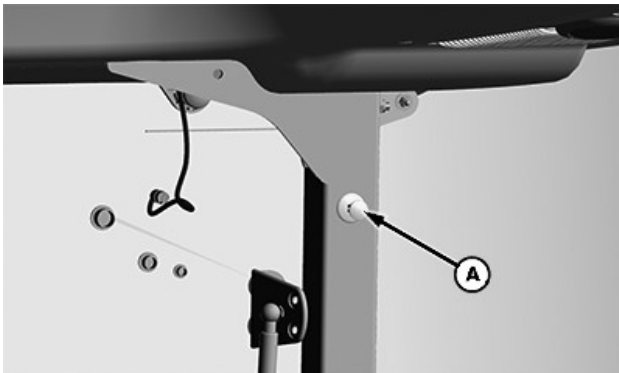
### A—Cigarette Lighter

### B—Ash Tray

Depress cigarette lighter (A) to heat. Open the ash tray (B) lid to use.

OURX985,00031FE-19-10JAN18

## Coat Hook



CPA0004148—UN—06AUG17

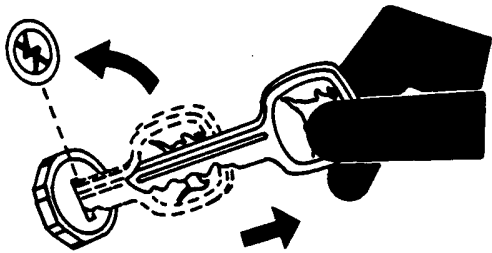
### A—Coat Hook

Coat hook (A) is supplied for operator's convenience.

GS25068,0005AD4-19-10OCT18

# Transport and Storage

## Keep Machines Secure

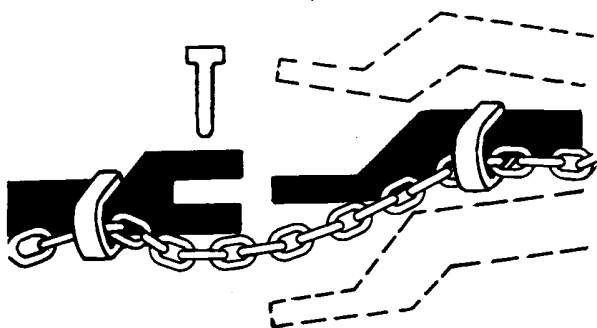


TS230—UN—24MAY89

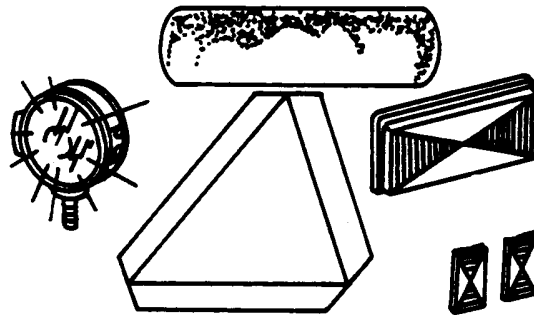
1. Install vandal-proof devices.
2. When machine is in storage:
  - Lower equipment to the ground
  - Set wheels to widest position to make loading more difficult
  - Remove any keys and batteries
3. When parking indoors, put large equipment in front of exits and lock your storage buildings.
4. When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

DX, SECURE2-19-18NOV03

## Deliver Safely



TS217—UN—23AUG88



TS949—UN—22MAR90

The best method for delivering tractors, self-propelled equipment, and most implements or attachments is on a flatbed truck or trailer. Secure loads with tie down chains, straps, and binders.

Be aware of height and width restrictions to avoid collision with overpasses, bridge abutments, or other road users. Check with local authorities regarding oversized load transport restrictions and requirements.

When towing, remember that towed loads can swerve, upset or cause loss of control when towed with an undersized towing unit.

Never tow an implement behind a truck or other motor vehicle. The ability to maintain control and brake the implement and vehicle mass is compromised. The ability to properly attach the implement hitch and safety chain to the motor vehicle may be marginal. With most motor vehicles it is not possible to properly operate the warning, tail and turn signal lights on the implement, and in most cases the implement tires are not rated for highway speeds.

Tow drawn implements only with a properly sized and weighted tractor equipped with a stationary drawbar. (See tractor operator's manual for ballast requirements.)

Integral and semi-integral implements should be attached to a tractor with a three-point hitch as specified in the implement operator's manual. The tractor should have the proper size rear tires and the sway blocks should be in the down position. Do not transport unless the tractor front end is ballasted to the weight levels specified in the tractor operator's manual for the correct implement code.

Before transporting, attach a properly sized safety tow chain between the implement and tractor.

Stopping distance increases with speed and weight of towed loads, and when transporting on slopes. Observe these recommended maximum road speeds, or local speed limits that may be lower:

- If towed equipment does not have brakes, do not transport at speeds above 32 km/h (20 mph) and do not tow loads that weigh more than 1.5 times the weight of the tractor.
- If the towed equipment has brakes, do not transport



at speeds above 40 km/h (25 mph) and do not tow loads more than 4.5 times the weight of the tractor.

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

Attach the implement lighting harness to the tractor and make sure that the warning and taillights on both the tractor and implement are on and functioning properly.

Make sure that the SMV and other markings on the implement are clean and visible.

DX, DELIVER-19-26JUL19

## Road Transportation

**⚠ CAUTION:** Before operating machine on public roadways, familiarize yourself with the machine and the controls. Read this manual thoroughly, familiarize yourself with the machine, and understand how to use all of the controls. Consider weather, type of towed implement, roadway surface, lighting conditions, and traffic when operating on public roadways.

When transporting, use adequate accessory lights and devices to warn operators of other machines. Frequently check for traffic from the rear, especially in turns. Use your turn signals. 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.

The following items must be considered before transporting on public roads:

1. Always wear your seat belt.
2. Correct driving lights for road use and using implement connector to power implement lights. Turn signal and warning light usage. (See Electrical and Lighting Operation section.)
3. Lock brake pedals together. (See Steering and Brake Operation section.)
4. Transmission operation. (See Transmission Operation section.)
5. Correct MFWD setting for road use. (See MFWD and Front Axle Operation section.)
6. Disengage differential lock. (See Differential and Rear Axle Operation section.)
7. Lock rear hitch in transport position. (See Hitch and Drawbar Operation section.)
8. Lock loader cylinders, see loader operator's manual for more info.
9. Lock SCVs or lock implement cylinders to prevent

accidental engagement. (See Selective Control Valve Operation section or implement operator's manual.)

10. Clean windows, slow moving machine sign, and lights. Adjust steering wheel, seat, and mirrors. (See Operator Station Operation section.)
11. Ballast machine correctly. (See Ballasting section.)
12. Use the foot throttle instead of the hand throttle. (See Engine Operation section.)

GS25068,0005AD5-19-10OCT18

## Towing Loads

**⚠ CAUTION:** Avoid possible injury from losing control while towing a load. Stopping distance increases with speed and weight of towed loads, and on slopes.

Never operate with transmission in neutral position or with clutch disengaged.

Never exceed implement maximum transport speed. Before transporting a towed implement, refer to the implement operator's manual and implement decals to determine the maximum transport speed. Use implement code in the implement operator's manual to determine minimum number of the front weights required.

Failure to adhere to implement maximum transport speed or to have correct ballast can result in:

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

Drive slowly enough to maintain safe control. Be alert for skids. Shift to a lower gear for hillsides, rough ground, and sharp turns, especially when transporting heavy equipment.

The machine must be heavy and powerful enough with adequate braking power for the towed load. Add ballast to the machine or lighten implement load.

### Guidelines for Towing Equipment without Brakes:

- Do not transport at speeds greater than 32 km/h (20 mph).
- Equipment must weigh less than 1.5 times the ballasted machine weight.

### Guidelines for Towing Equipment with Brakes:

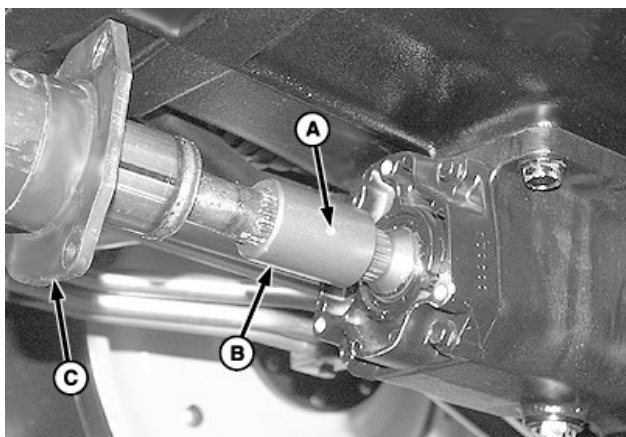
- If the implement manufacturer does not specify a

maximum transport speed, avoid transport at speeds above 40 km/h (24.8 mph).

- When transporting at speeds up to 40 km/h (24.8 mph), the fully loaded implement must weigh less than 4.5 times machine weight.

GS25068,0005AD6-19-10OCT18

## Tow Machine



LV9702—UN—24AUG04



LV14193—UN—27APR11

- A—Spring Pin  
B—Coupler  
C—Driveshaft Shield  
D—Sight Glass

**CAUTION:** Disconnect MFWD drive shaft if towing machine with front wheels on a carrier. Loss of transmission/hydraulic system pressure will engage the MFWD and pull machine off the carrier, even with lever in the DISENGAGED position.

**IMPORTANT:** To avoid transmission and drivetrain component damage, NEVER attempt to start machine by towing; engine will not start.

1. When towing machine with front wheels on a carrier, remove driveshaft:
  - a. Remove three cap screws and slide driveshaft shield (C) away from the MFWD gearbox. Repeat on the opposite end.
  - b. Remove spring pin (A) using a punch and hammer.
  - c. Support driveshaft and slide coupler (B) toward the drop housing.
2. Check transmission/hydraulic oil level, it must be visible in the top sight glass (D). Add 1 L (1 qt) for each 90 mm (3-1/2 in) front wheels raised off the ground. DO NOT raise wheels more than 305 mm (12 in). Drain excess oil after transporting
3. To make sure that differential lock is not engaged, tap brake pedals.
4. Disengage PTO and move range and speed shift levers to Neutral.
5. For PowrReverser™ transmission, put EH directional reverser lever in NEUTRAL.
6. If possible, operate engine above 1250 rpm to provide lubrication, power steering, and power brakes. Have an operator steer and brake machine.
7. Do not tow the machine faster than 8 km/h (5 mph). Do not exceed 3 km/h (2 mph) for the first 10 minutes in below freezing temperatures.

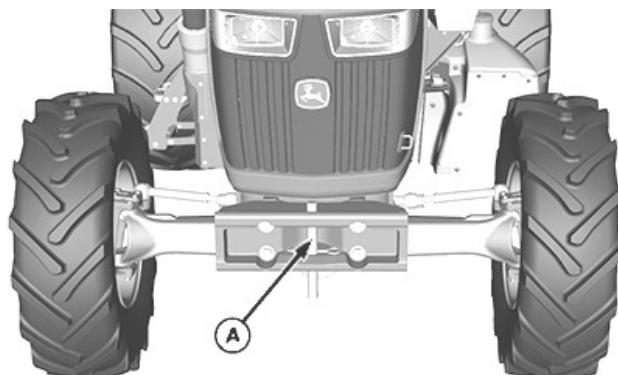
## After Towing

If equipped with MFWD, apply multipurpose grease to couplers and shaft splines, and reinstall driveshaft assembly.

Drain excess transmission-hydraulic oil to the bottom of the FULL sight glass. (See Check Transmission/Hydraulic System Oil Level in the Hydraulics Maintenance section.)

GS25068,0005AD7-19-10OCT18

## Front Tow Points



CPA0004131—UN—09AUG17

Front Tow Pin (Weight Bracket Without Weights)

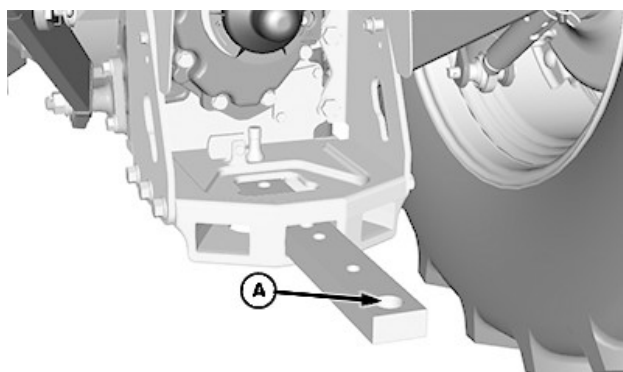
#### A—Front Tow Pin

**CAUTION:** Using improper towing devices can result in device failure and personal injury. If towing or freeing a mired machine is required, use pins, clevises, tow straps, or chains which are rated higher than the machine and implement weight. See your John Deere dealer.

Connect towing device to the front tow pin (A) as necessary.

OURX985,0003202-19-10JAN18

#### Rear Tow Points



CPA0004132—UN—09AUG17

#### A—Rear Drawbar Tow Point

**CAUTION:** Using improper towing devices can result in device failure and personal injury. If towing or freeing a mired machine is required, use pins, clevises, tow straps, or chains which are rated higher than the machine and implement weight. See your John Deere dealer.

Connect towing device to the rear drawbar tow point (A) as necessary.

GS25068,0005AD8-19-10OCT18

#### Machine Storage

**IMPORTANT:** Anytime machine is not used for several months, use this procedure to minimize corrosion and deterioration. Use an engine storage kit and an extra 0.95 L (1 pt) of the corrosion inhibitor. See your John Deere dealer.

Long-term storage of Diesel Exhaust Fluid in the DEF tank (over 12 months) is not recommended. If long-term storage is necessary, test DEF before operating engine. (See Fuel, Lubricants, and Coolants section.)

*NOTE: Whenever possible, store machine in a building or under a roof to avoid damage resulting from prolonged exposure to the elements.*

#### Perform the following steps to place the machine into storage:

1. Service air cleaner. (See Air, Fuel, Coolant, and Exhaust Maintenance section.)
2. Change engine oil and filter. (See Engine Maintenance section.)
3. If coolant has not been changed within the last 2 years, flush cooling system. See your John Deere dealer. Add 50% antifreeze/water mixture. Test coolant for adequate cold-weather protection.
4. Add 0.5 L (16 oz) of the corrosion inhibitor to engine at the oil fill cap.
5. Add 0.25 L (9 oz) of the corrosion inhibitor to the transmission/hydraulic reservoir at the oil fill cap.
6. Drain fuel and add back 4 L (1 gal) of fuel. Then add 0.5 L (16 oz) of the corrosion inhibitor to fuel tank.
7. Depress clutch and start engine. Run engine until it reaches operating temperature. Also raise and lower rear hitches several times. When done, fully lower rear hitch to retract cylinders.
8. Shut off engine.
9. Remove air intake hose at the manifold. Pour 0.1 L (3 oz) inhibitor into manifold and replace hose.
10. Disconnect crankshaft position sensor wiring connector. (Preventing engine from starting while engaging the starter.)
11. Pull hand throttle back to low idle position. Crank engine only a few revolutions.
12. Release tension on auxiliary drive belts. Remove belt from the air conditioner pulley and fan pulley.
13. Remove and clean battery. Store in a cool, dry place. Keep battery charged. Disconnect battery ground cable for short-term storage periods (30 to 90 days). (See Electrical and Lighting Maintenance section.)
14. Coat exposed metal surfaces, such as steering cylinder rods, if extended, with grease or a corrosion inhibitor.
15. Seal air inlets, exhaust, crankcase fill cap, fuel tank cap, radiator overflow hose, and transmission and hydraulic system fill cap using plastic bags and tape.
16. Protect tires from heat and sunlight:
  - Raise tires off the ground (move machine once a month if tires are not raised off the ground).
  - Cover wheels with waterproof tarpaulin.

- Avoid storing at temperatures greater than 29°C (85°F).
  - Avoid direct sunlight.
17. Thoroughly clean machine. Touch up any painted surfaces that are scratched or chipped.
  18. Wax machine.
  19. If machine is stored outside, follow additional precaution: Cover instrument panel, control levers, and seat with sheets of material or cardboard, or cover entire machine with waterproof material to protect against the sunlight.

GS25068,0005AD9-19-10OCT18

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**a time, and wait at least 2 minutes for starter to cool before trying again.**

13. Start the engine.
14. Operate engine at the low idle for some time.
15. Check air conditioning system.
16. Operate air conditioning system at low idle for 2 minutes.
17. Check all other system functions.

EKPQ1SQ,00034E9-19-27AUG21

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## Remove Machine from Storage

**IMPORTANT: If the tractor is in storage for more than 30 days, air conditioner must be turned on for 2-3 minutes at the engine idle (800-900 rpm). This avoids damage on the air conditioner compressor.**

**IMPORTANT: If machine has been stored over 12 months, test DEF before operating engine. (See Fuel, Lubricants, and Coolants section.)**

**To remove machine from storage, perform the following steps:**

1. Remove all coverings placed in or on machine while storing it.
2. Inspect tires and check tire inflation pressure. (See Wheels and Tires Maintenance section.)
3. Unseal all openings sealed before storing.
4. Charge and install battery.
5. Check that air conditioner compressor pulley moves freely and is not seized.
6. Install auxiliary drive belts which had been loosed or removed during storage.
7. Check levels of engine oil, transmission/hydraulic oil, engine coolant, and diesel exhaust fluid (DEF). Add if necessary.
8. To purge any moisture condensation that has collected, drain a small amount of fuel from the fuel tank.
9. Fill fuel tank.
10. Check all instruments and indicators by turning ignition switch to ON position.
11. Connect crankshaft position sensor connector.
12. Crank engine for a few revolutions.

**DO NOT operate starter more than 20 seconds at**

# Maintenance Intervals

## Important Considerations

The specified service intervals in this manual considered the use of the tractor in normal operation.

When operating in severe or adverse conditions, such as those mentioned, perform the services in the reduced intervals, or more often.

### Examples of operation under severe or adverse conditions:

- Work in wet or muddy conditions require most frequent lubrication at the grease fittings.
- High concentration of dust: Engine air cleaner obstructs with more frequency, as well as dry matter accumulates in different parts of the tractor.

EKPQ1SQ,00034DB-19-27AUG21

## Practice Safe Maintenance



TS218—UN—23AUG88

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

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

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

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

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

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

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

EKPQ1SQ,00034DC-19-27AUG21

## Maintain Daily Before Start-Up

**IMPORTANT:** Do not operate when oil level is below lower mark on dipstick.

**For any off level operation, engine oil must be maintained at the FULL mark to avoid engine damage.**

1. Check engine oil level. (See Engine Maintenance section for procedure.)
2. Raise hood. Clean dust unloading valve. (See Air, Fuel, Coolant, and Exhaust Maintenance section for procedure.)
3. Check transmission/hydraulic oil. (See Hydraulics Maintenance for procedure.)
4. Inspect machine for damage. Repair as needed before operation.
  - Debris around cooling package
  - Exhaust and engine areas
  - Mud and field debris buildup
  - Low tire pressure
  - Loose hardware
5. If operating in wet or muddy conditions, lubricate the following at the 10-hour maintenance interval with multipurpose grease:
  - Front axle pivot pin
  - Rear axle bearings
  - Front and rear hitch

GS25068,0005ADB-19-11OCT18

## Maintenance Interval Chart

Item	Daily or 10 Hours	Weekly or 50 Hours	First 100 Hours	Every 250 Hours	Every 300 Hours	Every 500 Hours	Every 600 Hours
Check Engine Oil Level	•						
Clean Air Filter Dust Unloading Valve	•						
Drain Water and Sediment from Fuel Filter	•						
Check Coolant Level		•					
Check Transmission/Hydraulic System Oil Level		•					
Inspect Tires and Check Tire Inflation Pressure		•					
Lubricate MFWD Axle Trunnion		•					
Lubricate Rear Hitch		•					
Tighten Air Intake System and Coolant System Hose Clamps			•				•
Change Transmission/Hydraulic Filter			•				•
Check MFWD Axle Housing and Wheel Hub Oil Level					•		
Inspect Hitch and Drawbar for Excessive Wear					•		
Change Engine Oil And Filter (4.5 Liter 4 Cylinder Engine)				• <sup>a</sup>		• <sup>b</sup>	
Replace Fuel Filters (4.5 Liter 4 Cylinder Engine)						•	
Activated carbon filters				•			
Clean Cab Air Filters							•
Check Neutral Start System							•
Change MFWD Axle Wheel Hub and Housing Oil							•
Clean Open Crankcase Vent (OCV)							•
Lubricate Rear Axle Bearings							•
Check Axle Pivot Pin End Play							•

Maintenance Chart — Daily (10 Hours) to 600 Hours

<sup>a</sup>Use this interval when using oils such as John Deere Torq-Gard™ oil, or engine oils from other manufacturers that met conditions specified in the Fuels, Lubricants and Coolant section.

<sup>b</sup>If Plus-50™ oil and a John Deere filter are not used, lower this service interval to 250 hours.

## Maintenance Intervals

Item	Every 1200 Hours	Annually	Every 3000 Hours	Every 4500 Hours
Clean Fuel Tank Vent Filter	•			
Change Hi-Crop Rear Axle Oil	•			
Replace Fan Belts and Check Fan Belt Tensioners	•			
Service Air Cleaner Elements	•			
Change Transmission/Hydraulic Oil and Filter	•			
Adjust Engine Valve Clearance (2.9 Liter 3 Cylinder Engine) <sup>a</sup>	•			
Lubricate PTO Stub Shaft		•		
Inspect Seat Belts		•		
Change Open Crankcase Ventilation Filter (OCV)		•		
Service Battery and Connections		•		
Adjust Engine Valve Clearance (4.5 Liter 4 Cylinder Engine) <sup>a</sup>			•	
Test or Replace Thermostat			•	
Change DEF Dosing Unit Filter				•
Drain and Replace Coolant				•

*Maintenance Chart — 1200 Hours to 4500 Hours*

<sup>a</sup>See your John Deere dealer for service

EKPQ1SQ,00034DD-19-19FEB22

# Fuels, Lubricants, and Coolants

## Alternative and Synthetic Lubricants

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

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

Consult your John Deere dealer to obtain information and recommendations.

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

The temperature limits and service intervals shown in this manual apply to John Deere branded fluids or fluids that have been tested and/or approved for use in John Deere equipment.

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

DX,ALTER-19-13JAN18

## Diesel Engine Coolant (engine with wet sleeve cylinder liners)

Failure to follow applicable coolant standards and drain intervals can result in severe engine damage that may not be covered under warranty. Warranties, including the emissions warranty, are not conditioned on the use of John Deere coolants, parts, or service.

### 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
- Is formulated with a 2-ethylhexanoic acid (2-EHA) free additive package
- 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
- Is formulated with a 2-ethylhexanoic acid (2-EHA) 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. 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

COOL-GARD is a trademark of Deere & Company



If PG is used, reduce the drain interval to 2 years or 2000 hours of operation.<sup>1</sup>

**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,COOL3-19-25AUG20

## Operating in Warm Temperature Climates

John Deere engines are designed to operate using recommended engine coolants.

Always use a recommended engine coolant, even when operating in geographical areas where freeze protection is not required.

**IMPORTANT: Water may be used as coolant in emergency situations only.**

**Foaming, hot surface aluminum and iron corrosion, scaling, and cavitation occur when water is used as the coolant, even when coolant conditioners are added.**

**Drain cooling system and refill with recommended engine coolant as soon as possible.**

DX,COOL6-19-17FEB20

## John Deere COOL-GARD™ II Coolant Extender

Some coolant additives gradually deplete during engine operation. For COOL-GARD™ II pre-mix and COOL-GARD II Concentrate, replenish coolant additives between drain intervals by adding COOL-GARD II Coolant Extender.

COOL-GARD II Coolant Extender should not be added unless indicated by COOL-GARD II Test Strips. These test strips provide a simple, effective method to check the freeze point, additive levels, and pH of your engine coolant.

Test the coolant solution at intervals of 12 months and whenever excessive coolant is lost through leaks or overheating.

*COOL-GARD is a trademark of Deere & Company*

<sup>1</sup> Coolant analysis may extend the service interval of other "Coolants" to a maximum not to exceed the interval of Cool-Gard II coolants. Coolant analysis means taking a series of coolant samples at 1000 hour increments beyond the normal service interval until either the data indicate the end of useful coolant life or the maximum service interval of Cool-Gard II is reached.

**IMPORTANT: Do not use COOL-GARD II Test Strips with COOL-GARD II PG.**

COOL-GARD II Coolant Extender is a chemically matched additive system for use with all COOL-GARD II coolants. COOL-GARD II Coolant Extender is not intended for use with nitrite-containing coolants.

**IMPORTANT: Do not add a supplemental coolant additive when the cooling system is drained and refilled with any of the following:**

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

The use of non-recommended supplemental coolant additives can result in additive drop-out, gelation of the coolant, or corrosion of cooling system components.

Add the recommended concentration of COOL-GARD II Coolant Extender. DO NOT add more than the recommended amount.

DX,COOL16-19-15MAY13

## Water Quality for Mixing with Coolant Concentrate

Engine coolants are a combination of three chemical components: ethylene glycol (EG) or propylene glycol (PG) antifreeze, inhibiting coolant additives, and quality water.

Water quality is important to the performance of the cooling system. Deionized or demineralized water is recommended for mixing with ethylene glycol and propylene glycol base engine coolant concentrate.

All water used in the cooling system should meet the following minimum specifications for quality:

Chlorides	<40 mg/L
Sulfates	<100 mg/L
Total solids	<340 mg/L
Total dissolved hardness	<170 mg/L
pH	5.5—9.0

**IMPORTANT: Do not use bottled drinking water because it often contains higher concentrations of total dissolved solids.**

## Freeze Protection

The relative concentrations of glycol and water in the engine coolant determine its freeze protection limit.

Ethylene Glycol	Freeze Protection Limit
40%	-24°C (-12°F)
50%	-37°C (-34°F)
60%	-52°C (-62°F)

Ethylene Glycol	Freeze Protection Limit
Propylene Glycol	Freeze Protection Limit
40%	-21°C (-6°F)
50%	-33°C (-27°F)
60%	-49°C (-56°F)

DO NOT use a coolant-water mixture greater than 60% ethylene glycol or 60% propylene glycol.

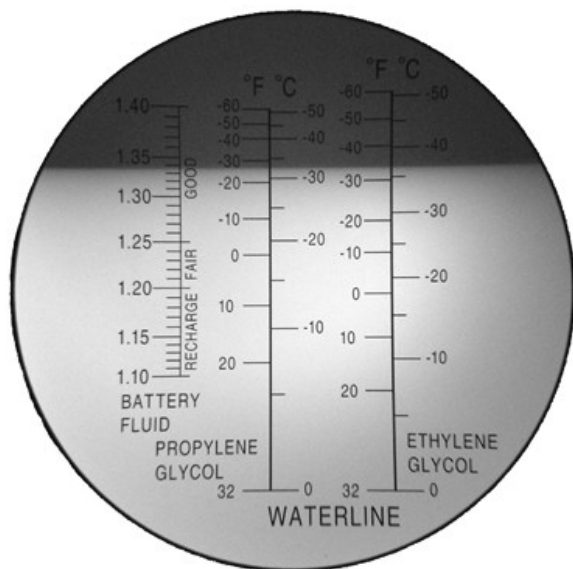
DX.COOL19-19-13JAN18

## Testing Coolant Freeze Point



TS1732—UN—04SEP13

SERVICEGARD™ Part Number 75240



TS1733—UN—04SEP13

Image with a Drop of 50/50 Coolant Placed on the Refractometer Window

The use of a handheld coolant refractometer is the quickest, easiest, and most accurate method to determine coolant freeze point. This method is more accurate than a test strip or a float-type hydrometer which can produce poor results.

A coolant refractometer is available through your

John Deere dealer under the SERVICEGARD™ tool program. Part number 75240 provides an economical solution to accurate freeze point determination in the field.

To use this tool:

1. Allow cooling system to cool to ambient temperatures.
2. Open radiator cap to expose coolant.
3. With the included dropper, collect a small coolant sample.
4. Open the lid of the refractometer, place one drop of coolant on the window and close the lid.
5. Look through the eyepiece and focus as necessary.
6. Record the listed freeze point for the type of coolant (ethylene glycol coolant or propylene glycol) being tested.

DX.COOL.TEST-19-13JUN13

## Diesel Exhaust Fluid (DEF) — Use in Selective Catalytic Reduction (SCR) Equipped Engines

In order to maintain the emissions performance of the engine, it is essential to use and refill DEF in accordance with the specification.

Diesel exhaust fluid (DEF) is a high purity liquid that is injected into the exhaust system of engines equipped with selective catalytic reduction (SCR) systems. Maintaining the purity of DEF is important to avoid malfunctions in the SCR system. Engines requiring DEF shall use a product that meets the requirements for aqueous urea solution 32 (AUS 32) according to ISO 22241-1.

The use of John Deere Diesel Exhaust Fluid is recommended. John Deere Diesel Exhaust Fluid is available at your John Deere dealer in a variety of package sizes to suit your operational needs.

If John Deere Diesel Exhaust Fluid is not available, use DEF that is certified by the American Petroleum Institute (API) Diesel Exhaust Fluid Certification Program or by the AdBlue™ Diesel Exhaust Fluid Certification Program. Look for the API certification symbol or the AdBlue™ name on the container.



RG30211—UN—08MAR18

SERVICEGARD is a trademark of Deere & Company  
AdBlue is a trademark of VDA, the German Association of the Automotive Industry.

In some cases, DEF is referred to by one or more of these names:

- Urea
- Aqueous Urea Solution 32
- AUS 32
- AdBlue™
- NOx Reduction Agent
- Catalyst Solution

DX,DEF-19-13JAN18

## Disposal of Diesel Exhaust Fluid (DEF)

Although there is little issue with minor spillage of DEF on the ground, large amounts of DEF should be contained. If large spills occur, contact local environmental authorities for assistance with clean-up.

If a substantial quantity of DEF is not within specification, contact the DEF supplier for assistance with disposal. Do not dump substantial quantities of DEF onto the ground or send DEF to wastewater treatment facilities.

DX,DEF,DISPOSE-19-13JUN13

## Refilling Diesel Exhaust Fluid (DEF) Tank



TS1731—UN—23AUG13

**CAUTION:** Avoid contact with eyes. In case of contact, immediately flush eyes with large amounts of water for a minimum of 15 minutes. Reference the Materials Safety Data Sheet (MSDS) for additional information.

Do not ingest DEF. In the event DEF is ingested, contact a physician immediately. Reference the Materials Safety Data Sheet (MSDS) for additional information.

**IMPORTANT:** Use only distilled water to rinse components that are used to deliver DEF. Tap water can contaminate DEF. If distilled water is not available, rinse with clean tap water, then thoroughly rinse with ample amounts of DEF.

**If DEF is spilled or contacts any surface other than the storage tank, immediately clean the surface with clear water. DEF is corrosive to painted and unpainted metallic surfaces and can distort some plastic and rubber components.**

**If DEF is filled into engine fuel tank or other fluid compartment, do not operate engine until system is properly purged of DEF. Contact your John Deere dealer immediately to determine how to clean and purge the system.**

Reasonable care should be taken when refilling the DEF tank. Ensure that the DEF tank cap area is free of debris before removing the cap. Seal containers of DEF between use to prevent contamination and evaporation.

Avoid splashing DEF and do not allow DEF to come into contact with skin, eyes, or mouth.

DEF is not harmful to handle, but DEF can be corrosive to materials such as steel, iron, zinc, nickel, copper, aluminum, and magnesium. Use suitable containers to transport and store DEF. Containers made of polyethylene, polypropylene, or stainless steel are recommended.

Avoid prolonged contact with skin. In case of accidental contact, wash skin immediately with soap and water.

Keep anything used to store or dispense DEF clean of dirt and dust. Wash and rinse containers or funnels thoroughly with distilled water to remove contaminants.

If an unapproved fluid, such as diesel fuel or coolant is added to the DEF tank, contact your John Deere dealer immediately to determine how to clean and purge the system.

If water has been added to the DEF tank, a tank cleaning is necessary. See Cleaning DEF Tank in this manual. After refilling the tank, check the DEF concentration. See Testing Diesel Exhaust Fluid (DEF).

The operator must maintain appropriate DEF levels at all times. Check the DEF level daily and refill the tank as needed. The filling port is identified by a blue colored cap embossed with the following DEF symbol.

DX,DEF,REFILL-19-15JUL20

## Storing Diesel Exhaust Fluid (DEF)

**CAUTION:** Avoid contact with eyes. In case of contact, immediately flush eyes with large amounts of water for a minimum of 15 minutes. Reference the Materials Safety Data Sheet (MSDS) for additional information.

Do not ingest DEF. In the event DEF is ingested, contact a physician immediately. Reference the Materials Safety Data Sheet (MSDS) for additional information.

**IMPORTANT:** It is unlawful to tamper with or remove any component of the aftertreatment system. Do not use DEF that does not meet the required specifications or operate the engine with no DEF.

Never attempt to create DEF by mixing agricultural grade urea with water. Agricultural grade urea does not meet the necessary specifications and can damage the aftertreatment system.

Do not add any chemicals or additives to DEF in an effort to prevent freezing. Any chemicals or additives added to DEF can damage the aftertreatment system.

Never add water or any other fluid in place of, or in addition to DEF. Operating with a modified DEF or using an unapproved DEF can damage the aftertreatment system.

Storage information provided below is for reference and is to be used as a guideline only.

It is preferred to store DEF out of extreme ambient temperatures. DEF freezes at  $-11^{\circ}\text{C}$  ( $12^{\circ}\text{F}$ ). Exposure to temperatures greater than  $30^{\circ}\text{C}$  ( $86^{\circ}\text{F}$ ) can degrade DEF over time. Do not store DEF in direct sunlight.

Dedicated DEF storage containers must be sealed between uses to prevent evaporation and contamination. Containers made of polyethylene, polypropylene, or stainless steel are recommended to transport and store DEF.

Ideal conditions for storage of DEF are:

- Store at temperatures between  $-5^{\circ}\text{C}$  and  $30^{\circ}\text{C}$  ( $23^{\circ}\text{F}$  and  $86^{\circ}\text{F}$ )
- Store in dedicated containers sealed to avoid contamination and evaporation

Under these conditions, DEF is expected to remain useable for a minimum of 18 months. Storing DEF at higher temperatures can reduce its useful life by approximately 6 months for every  $5^{\circ}\text{C}$  ( $9^{\circ}\text{F}$ ) temperature above  $30^{\circ}\text{C}$  ( $86^{\circ}\text{F}$ ).

If unsure how long or under what conditions DEF has been stored, test DEF. See Testing Diesel Exhaust Fluid (DEF).

Long-term storage in the DEF tank (over 12 months) is not recommended. If long-term storage is necessary, test DEF prior to operating engine. See Testing Diesel Exhaust Fluid (DEF).

It is recommended to purchase DEF in quantities that will be consumed within 12 months.

DX,DEF,STORE-19-15JUL20

## Testing Diesel Exhaust Fluid (DEF)

**IMPORTANT:** Using DEF with the correct concentration is critical to engine and aftertreatment system performance. Extended storage and other conditions can adversely alter the DEF concentration.

If DEF quality is questionable, draw a sample out of the DEF tank or storage tank into a clear container. DEF must be crystal clear with a light ammonia smell. If DEF appears cloudy, has a colored tint, or has a profound ammonia smell, it is likely not within specification. DEF in this condition should not be used. Drain tank, flush with distilled water and refill with new or good DEF. After refilling the tank, check the DEF concentration.

If the DEF passes the visual and smell test, check the DEF concentration with a handheld refractometer calibrated to measure DEF.

DEF concentration should be checked when the engine has been stored for extended periods, or if there is suspicion the engine or packaged DEF fluid has been contaminated with water.

Two approved tools are available through your John Deere dealer:

- JDG11594 Digital DEF Refractometer—A digital tool providing an easy to read concentration measurement
- JDG11684 DEF Refractometer—Low-cost alternative tool providing an analog reading

Follow instructions included with either tool to obtain the measurement.

The correct DEF concentration is 31.8—33.2% urea. If the DEF concentration is not within specification, drain the DEF tank, flush with distilled water and fill with new or good DEF. If packaged DEF is not within specification, dispose of DEF packages and replace with new or good DEF.

DX,DEF,TEST-19-13JUN13

## Diesel Engine Oil Service Interval for Operation at High Altitude

To avoid excessive oil degradation and potential engine damage, reduce oil and filter service intervals to 50% of the original recommended values when operating engines at altitudes above **1675 m (5500 ft)**.

Oil analysis may allow longer service intervals.

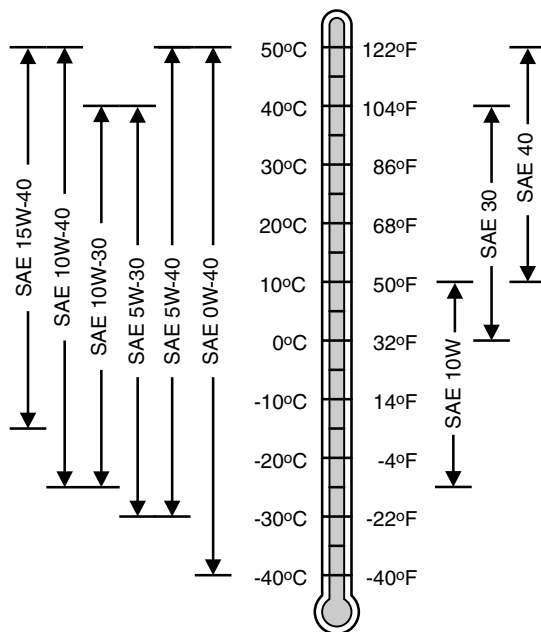
Use only approved oil types.

Example of Original Hours	Corresponding High Altitude Hours
125	60
150	75

Example of Original Hours	Corresponding High Altitude Hours
175	85
200	100
250	125
275	135
300	150
350	175
375	185
400	200
500	250

DX,ENOIL,SERV,HIALT-19-11NOV14

### Diesel Engine Oil — Interim Tier 4, Final Tier 4, Stage IIIB, Stage IV, and Stage V



TS1743—UN—25APR19

Oil Viscosities for Air Temperature Ranges

Failure to follow applicable oil standards and drain intervals can result in severe engine damage that might not be covered under warranty. Warranties, including the emissions warranty, are not conditioned on the use of John Deere oils, parts, or service.

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

#### John Deere Plus-50™ II is the recommended engine oil.

Extended service intervals may apply when John Deere Plus-50™ II engine oil is used. Refer to the engine oil drain interval table and consult your John Deere dealer for more information.

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

If John Deere Plus-50™ II engine oil is not available, engine oil meeting one or more of the following may be used:

- API Service Category CK-4
- API Service Category CJ-4
- ACEA Oil Sequence E9
- ACEA Oil Sequence E6

DO NOT use engine oil containing more than 1.0% sulfated ash, 0.12% phosphorus, or 0.4% sulfur.

#### 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.

**IMPORTANT: Use only ultra low sulfur diesel (ULSD) fuel with a maximum sulfur content of 15 mg/kg (15 ppm).**

DX,ENOIL14-19-23APR19

### Engine Oil and Filter Service Intervals — Interim Tier 4, Final Tier 4, Stage IIIB, Stage IV, and Stage V Engines

Failure to follow applicable oil standards and drain intervals can result in severe engine damage that might not be covered under warranty. Warranties, including the emissions warranty, are not conditioned on the use of John Deere oils, parts, or service.

Recommended oil and filter service intervals are based on a combination of oil pan capacity, type of engine oil and filter used, and sulfur content of the diesel fuel. Actual service intervals also depend on operation and maintenance practices.

#### Approved Oil Types:

- John Deere Plus-50™ II
- “Other Oils” include API CK-4, API CJ-4, ACEA E9, and ACEA E6

Use oil analysis to evaluate the condition of the oil and to aid in selection of the proper oil and filter service interval. Contact your John Deere dealer or other qualified service provider for more information on engine oil analysis.

Change the oil and oil filter at least once every 12 months even if the hours of operation are fewer than the otherwise recommended service interval.

**Diesel fuel sulfur content** affects engine oil and filter service intervals. Higher fuel sulfur levels reduce oil and filter service intervals.

Use of diesel fuel with sulfur content less than 15 mg/kg (15 ppm) is **REQUIRED**.

**Engine operation at high altitude** decreases oil change intervals. See Diesel Engine Oil Service Interval for Operation at High Altitude for additional information.

**NOTE:** The 500 hour extended oil and filter change interval is only allowed if all of the following conditions are met:

- Use of diesel fuel with sulfur content less than 15 mg/kg (15 ppm)
- Use of John Deere Plus-50™ II oil
- Use of an approved John Deere oil filter

Engine Oil and Filter Service Intervals	
John Deere Plus-50™ II	500 hours
Other Oils	250 hours
Oil analysis may extend the service interval of "Other Oils" to a maximum not to exceed the interval of Plus-50™ II oils. Oil analysis means taking a series of oil samples at 50-hour increments beyond the normal service interval until either the data indicates the end of useful oil life or the maximum service interval of John Deere Plus-50 II oils is reached.	

**IMPORTANT:** To avoid engine damage:

- **Reduce oil and filter service intervals by 50% when using biodiesel blends greater than B20. Oil analysis may allow longer service intervals.**
- **Use only approved oil types.**

DX,ENOIL15,IT4,120toMAX-19-13JAN18

## John Deere Break-In Plus™ Engine Oil — Interim Tier 4, Final Tier 4, Stage IIIB, Stage IV, and Stage V

New engines are filled at the factory with John Deere Break-In Plus™ Engine Oil. During the break-in period, add John Deere Break-In Plus™ Engine Oil, 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.

During the initial operation of a new or rebuilt engine, change the oil and filter between a minimum of 100 hours and maximum equal to the interval specified for John Deere Plus-50™ II oil.

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

If John Deere Break-In Plus™ Engine Oil is not available, use an SAE 10W-30 viscosity grade diesel engine oil meeting one of the following:

- API Service Category CK-4
- API Service Category CJ-4

- ACEA Oil Sequence E9
- ACEA Oil Sequence E6

If one of these oils is used during the initial operation of a new or rebuilt engine, change the oil and filter between a minimum of 100 hours and a maximum of 250 hours.

**IMPORTANT:** Do not use any other engine oils during the initial break-in of a new or rebuilt engine.

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 or other diesel engine oil as recommended in this manual.

DX,ENOIL16-19-13JAN18

## Oil Filters

Filtration of oils is critically important for proper operation and lubrication. John Deere brand oil filters have been designed and produced specifically for John Deere applications.

John Deere filters adhere to engineering specifications for quality of the filter media, filter efficiency rating, strength of the bond between the filter media and the element end cap, fatigue life of the canister (if applicable), and pressure capability of the filter seal. Non-John Deere branded oil filters might not meet these key John Deere specifications.

Always change oil filters regularly as specified in this manual.

DX,FILT1-19-11APR11

## Fuel Filters

The importance of fuel filtration cannot be overemphasized with modern fuel systems. The combination of increasingly restrictive emission regulations and more efficient engines requires fuel system to operate at much higher pressures. Higher pressures can only be achieved using fuel injection components with very close tolerances. These close manufacturing tolerances have significantly reduced capacities for debris and water.

John Deere brand fuel filters have been designed and produced specifically for John Deere engines.

To protect the engine from debris and water, always change engine fuel filters as specified in this manual.

DX,FILT2-19-14APR11

Break-In Plus is a trademark of Deere & Company

Plus-50 is a trademark of Deere & Company.

## Fuel Cleanliness

*NOTE: Use clean fuel to fill the tank in order to prevent damage in the overall fuel system performance and protect the lifetime of the components from the reservoir to the engine. The use of contaminated fuel may lead to clogged up filters, valves and starting engine problems.*

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## 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, ASTM D975, or EN 15940 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  $-20^{\circ}\text{C}$  ( $-4^{\circ}\text{F}$ ) or elevations above 1675 m (5500 ft.).

**Cloud Point** should be below the expected lowest ambient temperature or **Cold Filter Plugging Point** (CFPP) should be a maximum  $10^{\circ}\text{C}$  ( $18^{\circ}\text{F}$ ) below the fuel cloud point.

**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).

**Materials** such as copper, lead, zinc, tin, brass and bronze should be avoided in fuel handling, distribution and storage equipment as these metals can catalyze fuel oxidation reactions which can lead to fuel system deposits and plugged fuel filters.

### E-Diesel fuel

DO NOT use E-Diesel (Diesel fuel and ethanol blend). Use of E-Diesel fuel in any John Deere machine may void the machine warranty.

 **CAUTION:** Avoid severe injury or death due to the fire and explosion risk from using E-Diesel fuel.

### Sulfur Content for Interim Tier 4, Final Tier 4, Stage III A and B, Stage IV, and Stage V Engines Above 560 kW

- Use ONLY diesel fuel with a maximum of 500 mg/kg (500 ppm) sulfur content.

### Sulfur Content for Interim Tier 4, Final Tier 4, Stage III B, Stage IV Engines, and Stage V 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.<sup>2</sup>
- 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,FUEL1-19-13JUL20

## 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.

<sup>2</sup> See DX,ENOIL12,OEM, DX,ENOIL12,T2,STD, or DX,ENOIL12,T2,EXT for more information on Engine Oil and Filter Service Intervals.

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 practical 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. Keeping the free water drained and treating the bulk fuel storage tank quarterly with a maintenance dose of a biocide will prevent microbial growth. Contact your fuel supplier or John Deere dealer for recommendations.

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DX,FUEL4-19-13JAN18

## 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.

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DX,FUEL5-19-07FEB14

## 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 calculated cetane index, fuel type, sulfur content, water content, appearance, suitability for cold weather operations, bacteria, cloud point, acid number, particulate contamination, and whether the fuel meets ASTM D975 or equivalent specification.

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

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DX,FUEL6-19-13JAN18

## Biodiesel Fuel

Biodiesel fuel is comprised of monoalkyl esters of long chain fatty acids derived from vegetable oils or animal fats. Biodiesel blends are biodiesel mixed with petroleum diesel fuel on a volume basis.

Before using fuel containing biodiesel, review the Biodiesel Use Requirements and Recommendations in this Operator's Manual.

Environmental laws and regulations can encourage or prohibit the use of biofuels. Operators should consult with appropriate governmental authorities prior to using biofuels.

## John Deere Stage V Engines Operating in the European Union

Where the engine is to be operated within the Union on diesel or non-road gas-oil, a fuel with a FAME content not greater than 8% volume/volume (B8) shall be used.

## John Deere Engines with Exhaust Filter Except Stage V Engines Operating in the European Union

Biodiesel blends up to B20 can be used ONLY if the biodiesel (100% biodiesel or B100) meets ASTM D6751, EN 14214, or equivalent specification. Expect a 2% reduction in power and a 3% reduction in fuel economy when using B20.

Biodiesel concentrations above B20 can harm the engine's emission control systems and should not be used. Risks include, but are not limited to, more frequent stationary regeneration, soot accumulation, and increased intervals for ash removal.

John Deere Fuel conditioners or equivalent, which contain detergent and dispersant additives, are required when using biodiesel blends from B10 to B20, and are recommended when using lower biodiesel blends.

## John Deere Engines Without Exhaust Filter

Biodiesel blends up to B20 can be used ONLY if the biodiesel (100% biodiesel or B100) meets ASTM D6751, EN 14214, or equivalent specification. Expect a 2% reduction in power and a 3% reduction in fuel economy when using B20.

These John Deere engines can operate on biodiesel



blends above B20 (up to 100% biodiesel). Operate at levels above B20 ONLY if the biodiesel is permitted by law and meets the EN 14214 specification (primarily available in Europe). Engines operating on biodiesel blends above B20 might not fully comply with or be permitted by all applicable emissions regulations. Expect up to a 12% reduction in power and an 18% reduction in fuel economy when using 100% biodiesel.

John Deere fuel conditioners or equivalent, which contain detergent and dispersant additives, are required when using biodiesel blends from B10 to B100, and are recommended when using lower biodiesel blends.

### **Biodiesel Use Requirements and Recommendations**

The petroleum diesel portion of all biodiesel blends must meet the requirements of ASTM D975 (US) or EN 590 (EU) commercial standard.

Biodiesel users in the U.S. are strongly encouraged to purchase biodiesel blends from a BQ-9000 Certified Marketer and sourced from a BQ-9000 Accredited Producer (as certified by the National biodiesel Board). Certified Marketers and Accredited Producers can be found at the following website: <http://www.bq9000.org>.

Biodiesel contains residual ash. Ash levels exceeding the maximums allowed in either ASTM D6751 or EN14214 can result in more rapid ash loading and require more frequent cleaning of the Exhaust Filter (if present).

The fuel filter can require more frequent replacement when using biodiesel fuel, particularly if switching from diesel. Check engine oil level daily prior to starting engine. A rising oil level can indicate fuel dilution of the engine oil. Biodiesel blends up to B20 must be used within 90 days of the date of biodiesel manufacture. Biodiesel blends above B20 must be used within 45 days from the date of biodiesel manufacture.

When using biodiesel blends up to B20, the following must be considered:

- Cold-weather flow degradation
- Stability and storage issues (moisture absorption, microbial growth)
- Possible filter restriction and plugging (usually a problem when first switching to biodiesel on used engines)
- Possible fuel leakage through seals and hoses (primarily an issue with older engines)
- Possible reduction of service life of engine components

Request a certificate of analysis from your fuel distributor to ensure that the fuel is compliant with the specifications provided in this Operator's Manual.

Consult your John Deere dealer for John Deere fuel products to improve storage and performance with biodiesel fuels.

The following must also be considered if using biodiesel blends above B20:

- Possible coking or blocked injector nozzles, resulting in power loss and engine misfire if John Deere fuel additives and conditioners or equivalent containing detergent/dispersants are not used
- Possible crankcase oil dilution (requiring more frequent oil changes)
- Possible lacquering or seizure of internal components
- Possible formation of sludge and sediments
- Possible thermal oxidation of fuel at elevated temperatures
- Possible compatibility issues with other materials (including copper, lead, zinc, tin, brass, and bronze) used in fuel handling, distribution, and storage equipment
- Possible reduction in water separator efficiency
- Possible damage to paint if exposed to biodiesel
- Possible corrosion of fuel injection equipment
- Possible elastomeric seal and gasket material degradation (primarily an issue with older engines)
- Possible high acid levels within fuel system
- Because biodiesel blends above B20 contain more ash, using blends above B20 can result in more rapid ash loading and require more frequent cleaning of the Exhaust Filter (if present)

**IMPORTANT: Raw pressed vegetable oils are NOT acceptable for use as fuel in any concentration in John Deere engines. Their use could cause engine failure.**

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DX,FUEL7-19-13JAN18

### **Minimizing the Effect of Cold Weather on Diesel Engines**

John Deere diesel engines are designed to operate effectively in cold weather.

However, for effective starting and cold-weather operation, a little extra care is necessary. The following information outlines steps that can minimize the effect that cold weather may have on starting and operation of your engine. See your John Deere dealer for additional information and local availability of cold-weather aids.

#### **Use Winter Grade Fuel**

When temperatures fall below 0°C (32°F), winter grade fuel (No. 1-D in North America) is best suited for cold-weather operation. Winter grade fuel has a lower cloud point and a lower pour point.

**Cloud point** is the temperature at which wax begins to form in the fuel. This wax causes fuel filters to plug.

**Pour point** is the lowest temperature at which movement of the fuel is observed.


*NOTE: On average, winter grade diesel fuel has a lower Btu (heat content) rating. Using winter grade fuel may reduce power and fuel efficiency, but should not cause any other engine performance effects. Check the grade of fuel being used before troubleshooting for low-power complaints in cold-weather operation.*

### Air Intake Heater

An air intake heater is an available option for some engines to aid cold weather starting.

### Ether

An ether port on the intake is available to aid cold weather starting.

 **CAUTION: Ether is highly flammable. Do not use ether when starting an engine equipped with glow plugs or an air intake heater.**

### Coolant Heater

An engine block heater (coolant heater) is an available option to aid cold weather starting.

### Seasonal Viscosity Oil and Proper Coolant Concentration

Use seasonal grade viscosity engine oil based on the expected air temperature range between oil changes and a proper concentration of low silicate antifreeze as recommended. (See DIESEL ENGINE OIL and ENGINE COOLANT requirements in this section.)

### Diesel Fuel Cold Flow Additive

Use John Deere Fuel-Protect Diesel Fuel Conditioner (winter formula), which contains anti-gel chemistry, or equivalent fuel conditioner to treat non-winter grade fuel (No. 2-D in North America) during the cold-weather season. This generally extends operability to about 10° C (18°F) below the fuel cloud point. For operability at even lower temperatures, use winter grade fuel.

**IMPORTANT: Treat fuel when outside temperature drops below 0°C (32°F). For best results, use with untreated fuel. Follow all recommended instructions on label.**

### Biodiesel

When operating with biodiesel blends, wax formation can occur at warmer temperatures. Begin using John Deere Fuel-Protect Diesel Fuel Conditioner (winter formula) or equivalent at 5°C (41°F) to treat biodiesel fuels during the cold-weather season. Use B5 or lower blends at temperatures below 0°C (32°F). Use only winter grade petroleum diesel fuel at temperatures below -10°C (14°F).

### Winterfronts

Use of fabric, cardboard, or solid winterfronts is not recommended with any John Deere engine. Their use can result in excessive engine coolant, oil, and charge air temperatures. This can lead to reduced engine life, loss of power and poor fuel economy. Winterfronts may also put abnormal stress on fan and fan drive components potentially causing premature failures.

If winterfronts are used, they should never totally close off the grill frontal area. Approximately 25% area in the center of the grill should remain open at all times. At no time should the air blockage device be applied directly to the radiator core.

### Radiator Shutters

If equipped with a thermostatically controlled radiator shutter system, this system should be regulated in such a way that the shutters are completely open by the time the coolant reaches 93°C (200°F) to prevent excessive intake manifold temperatures. Manually controlled systems are not recommended.

If air-to-air aftercooling is used, the shutters must be completely open by the time the intake manifold air temperature reaches the maximum allowable temperature out of the charge air cooler.

For more information, see your John Deere dealer.

DX,FUEL10-19-13JAN18

### Supplemental Diesel Fuel Additives

Diesel fuel can be the source of performance or other operational problems for many reasons. Some causes include poor lubricity, contaminants, low cetane number, and a variety of properties that cause fuel system deposits. These and others are referenced in other sections of this Operator's Manual.

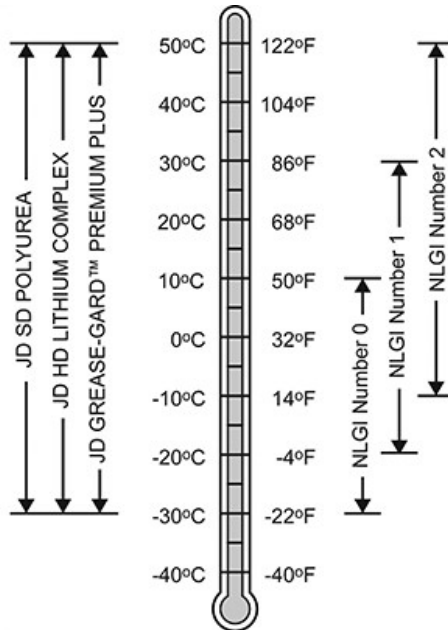
To optimize engine performance and reliability, closely follow recommendations on fuel quality, storage, and handling, which are found elsewhere in this Operator's Manual.

To further aid in maintaining performance and reliability of the engine's fuel system, John Deere has developed a family of fuel additive products for most global markets. The primary products include Fuel-Protect Diesel Fuel Conditioner (full feature conditioner in winter and summer formulas) and Fuel-Protect Keep Clean (fuel injector deposit removal and prevention). Availability of these and other products varies by market. See your local John Deere dealer for availability and additional information about fuel additives that might be right for your needs.

DX,FUEL13-19-07FEB14

## Multipurpose Extreme Pressure (EP) Grease

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



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*Greases for Air Temperature Ranges*

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

**John Deere SD Polyurea Grease is preferred.**

The following greases are also recommended:

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

Other greases may be used if they meet the following:

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

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

DX,GREA1-19-13JAN18

## Mixing of Lubricants

In general, avoid mixing different brands or types of oil.

*Grease-Gard is a trademark of Deere & Company*

Oil manufacturers blend additives in their oils to meet certain specifications and performance requirements.

Mixing different oils can interfere with the proper functioning of these additives and degrade lubricant performance.

Consult your John Deere dealer to obtain specific information and recommendations.

DX,LUBMIX-19-18MAR96

## Lubricant Storage

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

Use clean containers to handle all lubricants.

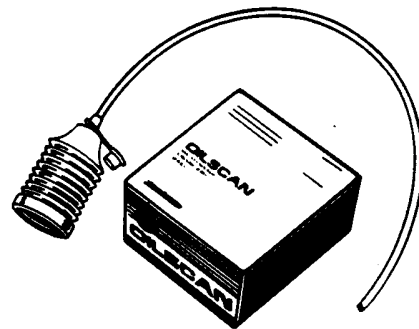
Store lubricants and containers in an area protected from dust, moisture, and other contamination. Store containers on their side to avoid water and dirt accumulation.

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

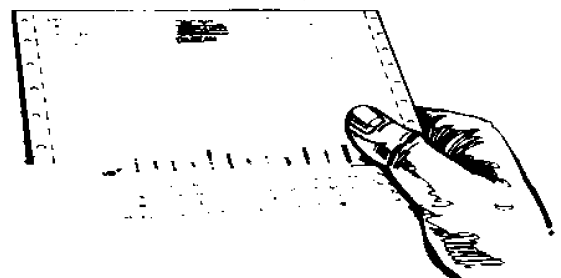
Properly dispose of all old containers and any residual lubricant they may contain.

DX,LUBST-19-11APR11

## Oilscan™ and CoolScan™



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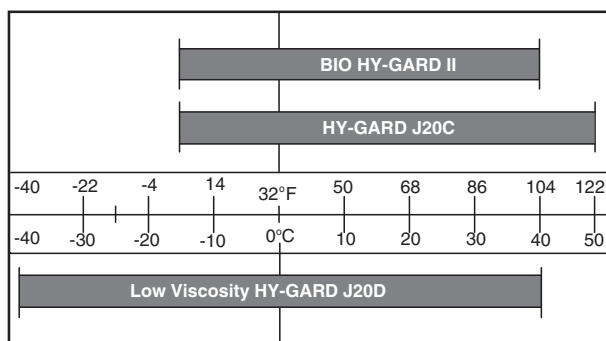
Oilscan™ and CoolScan™ are John Deere sampling programs to help you monitor machine performance and identify potential problems before they cause serious damage.

Oil and coolant samples should be taken from each system before its recommended change interval.

Check with your John Deere dealer for the availability of Oilscan™ and CoolScan™ kits.

DX,OILSCAN-19-13SEP11

## Transmission, Steering, Brake, Hydraulic, and Gear Case Oil



RXA0171623—UN—21OCT19

*Oils for Air Temperature Ranges*

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™ II oil when a biodegradable fluid is required.<sup>3</sup>

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Oilscan is a trademark of Deere & Company  
CoolScan is a trademark of Deere & Company  
Hy-Gard is a trademark of Deere & Company  
Bio Hy-Gard is a trademark of Deere & Company

<sup>3</sup> Bio Hy-Gard II meets or exceeds the minimum biodegradability of 80% within 21 days according to CEC-L-33-T-82 test method. Bio Hy-Gard II should not be mixed with mineral oils, because this reduces the biodegradability and makes proper oil recycling impossible.

# As Required Maintenance

## Maintain as Required

*NOTE: Maintain machine as required, and as often as necessary. For maintenance items, see the relevant maintenance sections.*

Maintenance Item	Maintenance Section
Paint and Finish Care	As Required Maintenance
General Controls and Instruments Maintenance	Controls and Instruments Maintenance
Adjust Hand Throttle Friction	Controls and Instruments Maintenance
Break-In Checks	Engine Maintenance
Check Engine and Exhaust Compartments for Debris	Air, Fuel, Coolant, and Exhaust Maintenance
Bleed Fuel System	Air, Fuel, Coolant, and Exhaust Maintenance
Clean Diesel Particulate Filter (DPF)	Air, Fuel, Coolant, and Exhaust Maintenance
Clean Grille Screens and Cooling Package	Air, Fuel, Coolant, and Exhaust Maintenance
Cleaning Diesel Exhaust Fluid (DEF) Tank	Air, Fuel, Coolant, and Exhaust Maintenance
Drain Diesel Exhaust Fluid (DEF) Tank	Air, Fuel, Coolant, and Exhaust Maintenance
Clean and Check Battery Condition	Electrical and Lighting Maintenance
Fuse and Repay Size and Function	Electrical and Lighting Maintenance
Locate Fuses	Electrical and Lighting Maintenance
Replace Battery	Electrical and Lighting Maintenance
Replace Cab LED Work light	Electrical and Lighting Maintenance
Replace Canopy Warning Light Bulb	Electrical and Lighting Maintenance
Replace Controls Illumination Light Bulb	Electrical and Lighting Maintenance
Replace Dome Light Bulb	Electrical and Lighting Maintenance
Replace Fusible Link	Electrical and Lighting Maintenance
Replace Halogen Headlight Bulb	Electrical and Lighting Maintenance
Replace Loader Light Bulb	Electrical and Lighting Maintenance
Replace OOS Fender Light Bulb	Electrical and Lighting Maintenance
Replace Rotary Beacon Light Bulb	Electrical and Lighting Maintenance
Replace Tail Light and/or Warning Light Bulb—Open Operator Station	Electrical and Lighting Maintenance
Replace Taillight Bulb—Cab	Electrical and Lighting Maintenance
Replace Warning Light Bulb—Cab	Electrical and Lighting Maintenance
Replace Halogen Work Light Bulb—Cab	Electrical and Lighting Maintenance
Replace Work Light Bulb—Open Operator Station	Electrical and Lighting Maintenance
Check Transmission Park System	Transmission Maintenance
Adjust PTO Speed Shift Lever	Power Take-Off (PTO) Maintenance
Check Manual Brakes	Steering and Brakes Maintenance
Adjust Mechanical SCV Cables	Selective Control Valve Maintenance
Tighten Wheel Bolts—MFWD Axle	Wheels and Tires Maintenance
Tighten Wheel Bolts—Rear Axle	Wheels and Tires Maintenance
Check Toe-In—MFWD Axle	Wheels and Tires Maintenance
Adjust Toe-In—MFWD Axle	Wheels and Tires Maintenance
Set MFWD Steering Stops Turn Radius	Wheels and Tires Maintenance
Set Pivoting Fender Brackets	Additional Equipment Maintenance
Set Fender Position	Additional Equipment Maintenance
Adjust Rear Fender—Open Operator Station	Operator Station Maintenance
Keep Cab Protection System Installed Properly	Operator Station Maintenance
Keep ROPS Installed Properly	Operator Station Maintenance
Service Air Conditioner	Operator Station Maintenance
Replace Wiper Blade	Operator Station Maintenance

## Paint and Finish Care

**IMPORTANT: Do not use strong soaps, chemical detergents, or cleaning agents containing acids, caustics, or abrasives. It is best to use commercially available car wash (non-detergent) products which do not remove protective wax applied to the paint finish.**

- Wash machine regularly, particularly if it has been exposed to herbicides, pesticides, road salt, or other chemical agents.
- Do not wash machine in direct sunlight.
- Rinse all cleaning agents away promptly and do not allow to dry on painted surface.
- Waxing machine occasionally is recommended to remove residue from and further protect paint finish. Do not use waxes containing abrasive compounds.
- Inspect paint surface during washing or waxing for chips and scratches. Repaint any areas where paint has been damaged.

Your John Deere dealer has a full line of cleaners, waxes, and touch-up paints compatible with your equipment to help enhance the paint finishes.

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## Wash Machine

**IMPORTANT: Cab seals are designed to be rain proof and are not able to withstand high water pressure during washing. Using a pressure washer or high pressure hose causes water ingress into the cab.**

- Avoid using high-pressure water around roof seals, door seals, and vents.
- Directing pressurized water at electronic/electrical components or connectors, bearings and hydraulic seals, fuel injection pumps, exhaust outlet or other sensitive parts and components can cause product malfunctions.
- Reduce pressure and wash at a 45 to 90 degree angle.
- Do not use water at temperatures over 50°C (122°F).
- When washing do not direct any water towards electrical connectors, control units, the exhaust or any fill tank openings.
- Do not spray or wash components (for example, the engine) with cold water when hot.

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# Controls and Instruments Maintenance

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## General Controls and Instruments Maintenance

- Ensure that controls and instruments are clean and no bindings are present. See your John Deere dealer for recommended cleaners to prolong life of products.
- Adjust mechanical SCV cables. See your John Deere dealer for proper adjustments.
- Adjust PTO Speed Shift Lever. See your John Deere dealer for proper adjustments.

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## Clutch Pedal Considerations

**IMPORTANT: We can extend the clutch lifecycle by the following actions:**

- a)—Do no ride the clutch: Avoid leaving your foot on the pedal when not in use.
- b)—Push the clutch pedal all the way down: When you need to apply the clutch, push your foot all the way down, to ensure complete activation.
- c)—Keep the calibration within spec: Refer to the operator manual for proper measurement and procedure.
- d)—Do not over modulate with the clutch: Use your brakes to slow down.

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# Engine Maintenance

## Break-In Maintenance

After a minimum of 100 hours and a maximum of 500 hours of operation:

- ☐ Replace Break-In™ Plus Engine Oil.

**IMPORTANT:** If make-up oil is required during the break-in period, John Deere Break-In™ Plus oil must be used whenever possible. New engines are filled at the factory with Break-In Plus engine oil.

Do not add make-up oil until the oil level is **BELOW** the ADD mark on dipstick. (See Fuel, Lubricant, and Coolants section.)

If any of the following occur during the first 100-hour period, it is advised to extend the break-in to 500 hours before changing the oil.

- Too much operating time at idle.
- Too much operating time at a constant speed.
- Too much light load usage.
- Make-up oil is required in the first 100 hours.

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## Break-In Checks

**IMPORTANT:** Initial break-in maintenance interval of a new or rebuilt wet sleeve engine must last at least 100 hours with John Deere Break-In™ Plus oil. The surface mating of rings and liners usually occurs during the first 100 hours.

Maximum maintenance interval is the same as the maintenance interval recommended for your engine. (See Engine Oil and Filter Service Intervals in Fuels, Lubricants, and Coolants section.)

**IMPORTANT:** If engine oil must be added before first normal oil change, use John Deere Break-In Plus™ engine oil.

The engine is ready for normal operation. During first 100 hours of operation:

- Operate engine at heavy loads without reaching sustained maximum load.
- Avoid idling engine longer than 5 minutes. If engine idles longer than 5 minutes, stop engine.
- Closely observe coolant temperature during operation.
- Check air intake hoses and clamps. (See Air, Fuel, Coolant, and Exhaust Maintenance section.)
- Check for fluid leaks.
- Tighten wheel, wheel weight, and axle bolts after 3

**HOURS**, after **10 HOURS**, and **DAILY** for the first week of operation. (See Wheels and Tires Maintenance section.)

## Daily or Every 10 Hours

Perform normal daily maintenance:

- Check engine oil. (See Engine Maintenance section.)
- Clean dust unloading valve. (See Air, Fuel, Coolant, and Exhaust Maintenance section.)

For first 100 hours of machine operation, perform these additional maintenance daily or every 10 hours:

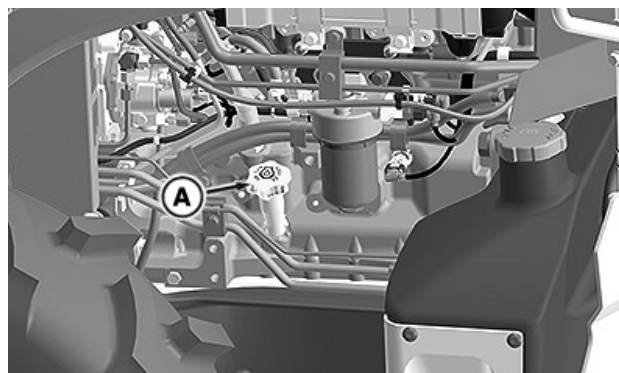
- Drain water separator. (See Air, Fuel, Coolant, and Exhaust Maintenance section.)
- Check coolant level. (See Air, Fuel, Coolant, and Exhaust Maintenance section.)
- Lubricate hitch components. (See Hitch and Drawbar Maintenance section.)
- Inspect tires for cuts or punctures. (See Wheels and Tires Maintenance section.)

GS25068,0005AE0-19-10OCT18

## Check Engine Oil Level

### MAINTENANCE INTERVAL

Daily or 10 Hours



RXA0154377—UN—22FEB17

Left Side of Engine

A—Engine Oil Fill Cap/Dipstick

**IMPORTANT:** Engine comes from the factory, filled with John Deere Break-In™ Plus oil. (See Break-In Maintenance in this section.)

### IMPORTANT:

- Do not operate engine with the oil level below the lower mark on dipstick.
- Avoid damage by maintaining full oil level.



- Use seasonal viscosity grade oil. (See Fuels, Lubricants, and Coolants” section.)

1. Park machine on level ground and shut off engine.
2. Remove key.
3. Allow engine to cool.
4. Remove engine oil fill cap/dipstick (A). Wipe off, then fully reinsert the dipstick. Oil level must be between two marks on dipstick.
5. If level is low, add oil through oil fill hole until even with the top mark on dipstick. Do not overfill.
6. Replace oil fill cap before operating engine.

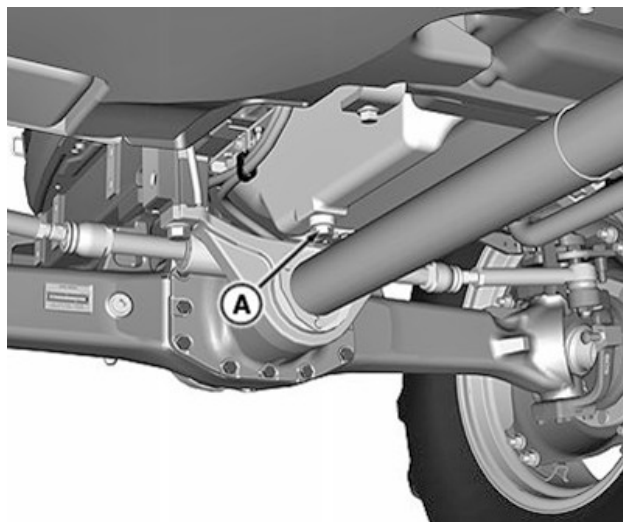
GS25068,0005AE1-19-10OCT18

## Change Engine Oil and Filter

### MAINTENANCE INTERVAL

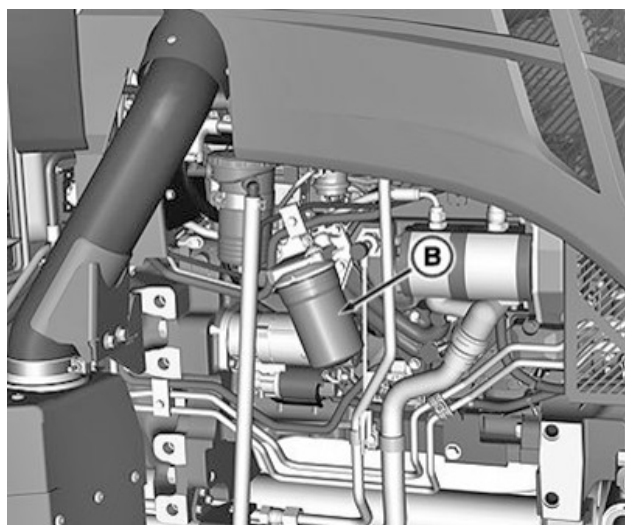
**INITIAL — 100 to 500 Hours**

**REGULAR — 500 HOURS** If John Deere Plus™ II oil and John Deere filter are used. Maintenance interval is 250 hours for all other brands of oil or filters.



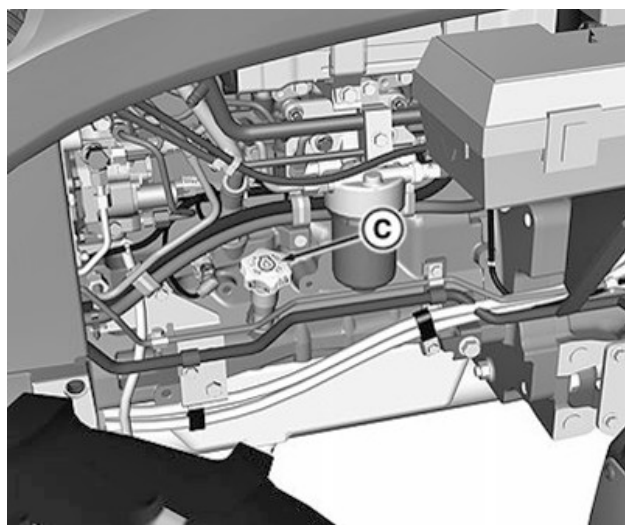
CPA0004202—UN—08AUG17

Bottom Left Side of Engine



CPA0004203—UN—08AUG17

Right Side of Engine



CPA0004204—UN—08AUG17

Left Side of Engine

- A—Engine Oil Drain Plug**  
**B—Engine Oil Filter**  
**C—Engine Oil Filler Port**

1. Operate engine to warm oil.
2. Park machine on level ground and shut off engine.
3. Remove key.
4. Place a container under the drain port, capture waste oil and dispose of properly.
5. Remove drain plug (A) and allow oil to drain.
6. Open hood.
7. Remove engine oil filter (B). Make sure that old filter gasket is removed from housing before installing new filter.
8. Apply a film of oil on the new oil filter gasket and install new filter. Hand-tighten plus 1/2 turn.
9. Install drain plug.

10. Add oil to fill (C). (See Fuel, Lubricants, And Coolants section for oil grades and specifications.)

**Specification**

Engine Oil—Capacity. . . . . 12.1 L  
(3.2 gal)

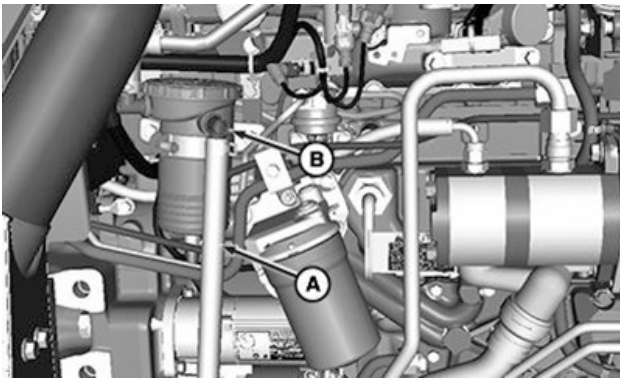
11. Replace fill cap and/or dipstick.
12. Start engine and inspect drain plug and filter for leaks.
13. Stop engine and remove key.
14. Recheck oil level on dipstick, add if necessary.
15. Lower hood.

GS25068,0005AE2-19-10OCT18

## Clean Open Crankcase Vent (OCV) Tube

**MAINTENANCE INTERVAL**

Every 600 Hours



CPA0004205—UN—08AUG17

Right Side of Engine

A—Open Crankcase Vent (OCV) Tube  
B—OCV Filter Housing

**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.

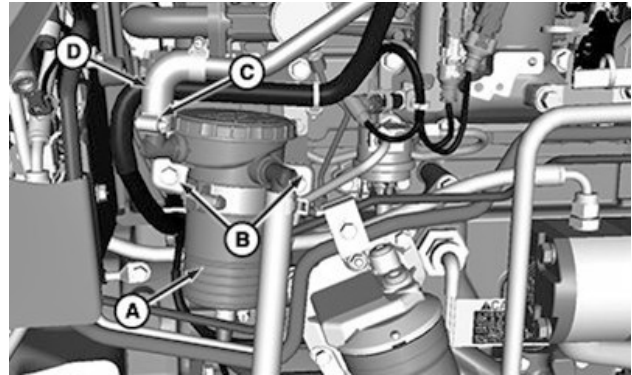
1. Remove open crankcase vent tube (A) from the OCV filter housing (B).
2. Wash in solvent or blow clean with compressed air.
3. Install OCV tube to the OCV filter housing. Be sure that the vent tube is not kinked or pinched.

GS25068,0005AE3-19-10OCT18

## Change Open Crankcase Vent (OCV) Filter

**MAINTENANCE INTERVAL**

Annually



CPA0004206—UN—08AUG17

Right Side of Engine

A—OCV Filter Housing  
B—Cap Screw (2 used)  
C—Hose Clamp  
D—Hose

1. Remove cap screws (B).
2. Loosen hose clamp (C) and remove OCV filter housing from hose (D).
3. Unscrew filter housing and remove filter.
4. Clean filter housing.
5. Install new filter and reassemble filter housing.
6. Reinstall hose (D) to the filter housing and tighten clamps.
7. Reinstall filter housing and tighten cap screws to specification.

**Specification**

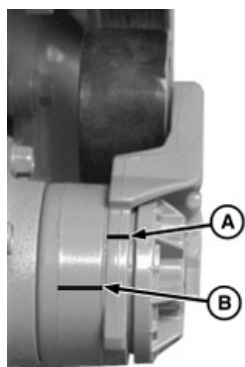
OCV Filter Cap Screw—Torque. . . . . 70 N·m  
(52 lb·ft)

GS25068,0005AE4-19-10OCT18

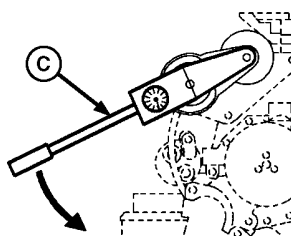
## Check Fan Belt Tensioner

**MAINTENANCE INTERVAL**

Every 1200 Hours



LV12526—UN—13APR05



LV12528—UN—12APR05

A—Mark on Swing Arm  
B—Mark on Tensioner Mounting Base  
C—Torque Wrench

**NOTE:** A belt tension gauge does not provide an accurate measurement of the belt tension. Measure tensioner spring tension using a torque wrench.

1. Place machine in park and shut off engine. Remove key.
2. Remove fan belt.
3. Put a mark on swing arm (A) of the tensioner as shown.
4. Measure 21 mm (0.83 in) from mark on swing arm (A) and put a mark on tensioner mounting base (B).
5. Rotate the swing arm using a torque wrench until marks (A and B) are aligned.

Pull tensioner with torque wrench away from engine.

6. Record torque wrench measurement and compare with specification. If recorded measurement is below specifications, have your John Deere dealer replace tensioner assembly.

#### Specification

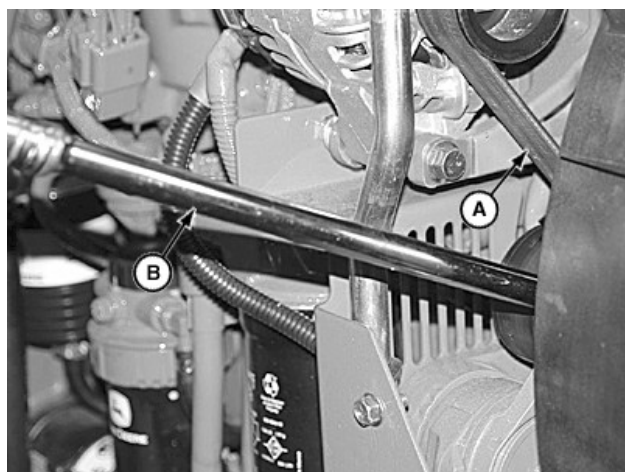
Belt Tensioner—Torque. . . . . 18—22 N·m  
(159—195 lb·in)

7. Install fan belt. (See Replace Fan Belt in this section.)

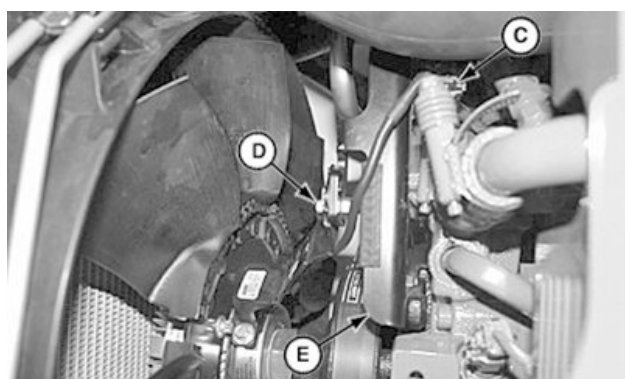
GS25068,0005AE5-19-10OCT18

## Replace Fan Belt

<b>MAINTENANCE INTERVAL</b> <b>Every 1200 Hours</b>
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LV14667—UN—18AUG11

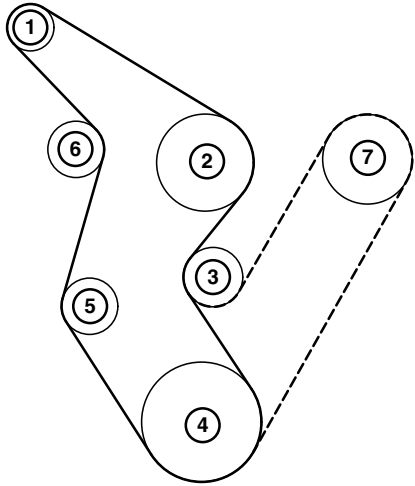


CPA0004208—UN—08AUG17

A—Belt  
B—Breaker Bar  
C—Fan Clutch Connector  
D—Lock Nut and Screw  
E—Wiring Harness Support

**NOTE:** Fan drive belt is equipped with an automatic tensioner which does not require adjustment.

1. Place machine in park and shut off engine. Remove key.
2. Release tension on belt using a long-handle 1/2-in drive breaker bar (B) to pull the tensioner away from engine.  
Remove belt (A) from alternator pulley.
3. Release tension on tensioner and remove breaker bar.
4. Unplug fan clutch connector (C).
5. Remove lock nut and screw (D) from wiring harness support (E).
6. Remove belt by bring it over the wire harness support and cooling fan. Slip it between the fan blades and fan shroud.
7. Install new belt in reverse order of removal.



LV22215—UN—24JUN14

Fan Belt Routing

Belt Routing	
1	Alternator
2	Fan Drive
3	Idler
4	Crankshaft Pulley
5	Coolant Pump
6	Tensioner
7	Air Conditioner Compressor

8. Install wire harness support (E) with lock nut and screw.

#### Specification

Wire Harness Support Locknut  
and Screw—Torque. . . . . 14 N·m (124 lb·in)

9. Tighten to specification.
10. Use breaker bar to push the tensioner into position for belt installation.

GS25068,0005AE6-19-10OCT18

## Adjust Engine Valve Clearance

**MAINTENANCE INTERVAL**  
Every 3000 Hours

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

GS25068,0005AE7-19-10OCT18

# Air, Fuel, Coolant, and Exhaust Maintenance

## Required Emission-Related Information

### Service Provider

A qualified repair shop or person of the owner's choosing may maintain, replace, or repair emission control devices and systems with original or equivalent replacement parts. However, warranty, recall, and all other services paid for by John Deere must be performed at an authorized John Deere service center.

DX,EMISSIONS,REQINFO-19-12JUN15

## Recommended Dealer Performed Service

### Check Engine Coolant Properties

#### MAINTENANCE INTERVAL

Annually

Ask your John Deere dealer to check engine coolant properties. Use Cool-Gard™ II only if additional coolant is required.

### Flush Cooling System and Replace Thermostat

#### MAINTENANCE INTERVAL

**Every 4500 Hours** If Cool-Gard™ II is used, machine must be initially filled and only serviced with properly diluted Cool-Gard™ II coolant.

**Every 2000 Hours** If Cool-Gard™ II is not used.

Have your John Deere dealer flush the cooling system, replace thermostat and fill the system with Cool-Gard™ II.

### Drain and Flush Fuel Tank

#### MAINTENANCE INTERVAL

Every 300 Hours

If excessive amounts of water or dirt are found in the fuel filter and water separator, ask your John Deere dealer to drain and flush fuel tank.

GS25068,0005AE8-19-10OCT18

## Check Engine and Exhaust Compartments for Debris

**IMPORTANT:** Directing pressurized water at electronic/electrical components, connectors, bearings and hydraulic seals, fuel injection pump or other sensitive components can cause product malfunctions. Reduce pressure and spray at a 45 to 90 degree angle.

Directing pressurized air at electronic/electrical components or connectors can cause buildup of static electricity and product malfunctions.

**Never steam clean or pour cold water on an injection pump that is operating or hot. Pump could seize.**

1. Shut off engine and allow to cool.
2. Open and raise engine hood.
3. Remove any crop or debris within engine and exhaust compartments, especially around turbocharger, exhaust manifold, and exhaust aftertreatment system.
4. Reinstall all shields. Close and securely latch hood.

CO00266,000027A-19-31JUL17

## Clean Diesel Particulate Filter (DPF)

1. When exhaust filter and warning light indicators are illuminated, ensure that exhaust filter cleaning is set to "Auto".
2. Operate machine above 1200 rpm to allow an automatic exhaust filter cleaning to occur.
3. If indicators remain illuminated after an automatic cleaning has occurred, additional cleaning is required. Perform parked exhaust filter cleaning (if system allows). (See Air, Fuel, Coolant, and Exhaust Operation section for procedure.)
4. If a parked exhaust filter cleaning has been performed and exhaust filter and warning light indicators are still illuminated, contact your John Deere dealer.

GS25068,0005AEA-19-10OCT18

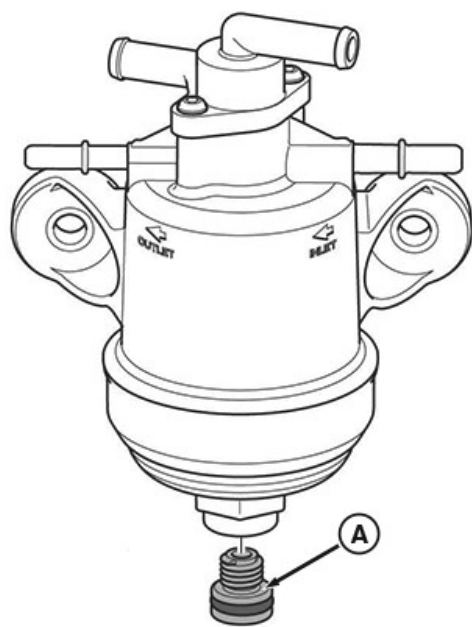
## Change Diesel Exhaust Fluid (DEF) In-Line Filter

**CAUTION:** Avoid possible personal injury. In case of DEF contact, immediately flush eyes with large amounts of water for a minimum of 15 minutes. Reference the Materials Safety Data Sheet (MSDS) for additional information. Do not ingest DEF. In the event DEF is ingested, contact a physician immediately. Reference the Materials Safety Data Sheet (MSDS) for additional information.

**IMPORTANT:** Avoid corrosion of vehicle parts or surfaces. If DEF is spilled or contacts any surface other than the storage tank, immediately clean the surface with clear water. DEF is corrosive to painted and unpainted metallic surfaces and can distort some plastic and rubber components. Spilled DEF, if left to dry or if only wiped away with a cloth, will leave a white residue. Improperly cleaned DEF spill may interfere with diagnosis of Selective Catalytic Reduction (SCR) system leakage problems.

**NOTE:** See your John Deere equipment technical manual or OEM manufacturer's technical manual for in-line DEF filter location.

**IMPORTANT:** Avoid system and filter damage. Ensure that DEF system is not frozen before changing filter. If system is frozen, operate engine until system has thawed completely.



DEF Fluid Removal

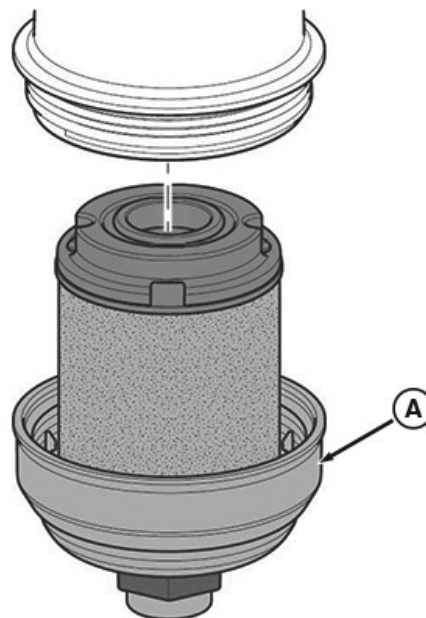
RG30728—UN—08AUG18

A—Drain Plug with O-Ring

1. Remove drain plug with O-ring (A) and discard.

**NOTE:** Container must be DEF compatible and hold at least 300 mL (0.32 qt).

2. Drain DEF into a proper container.



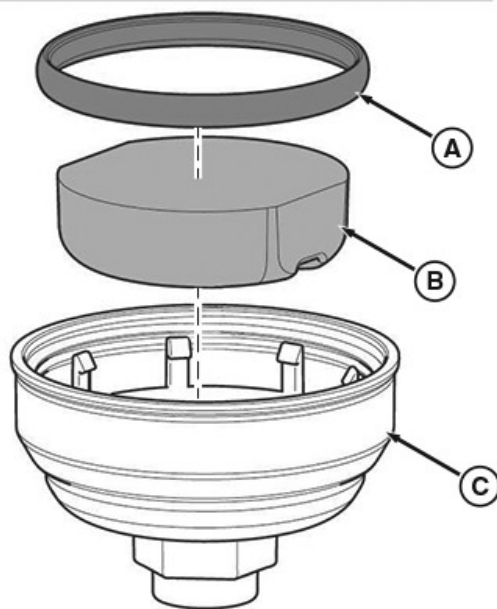
Filter Removal

RG30727—UN—08AUG18

A—Filter Housing

3. Rotate filter housing (A) counterclockwise and pull down.
4. Remove and discard filter from housing (A).

**NOTE:** If necessary, tap filter to loosen from filter housing (A).



RG30726—UN—08AUG18

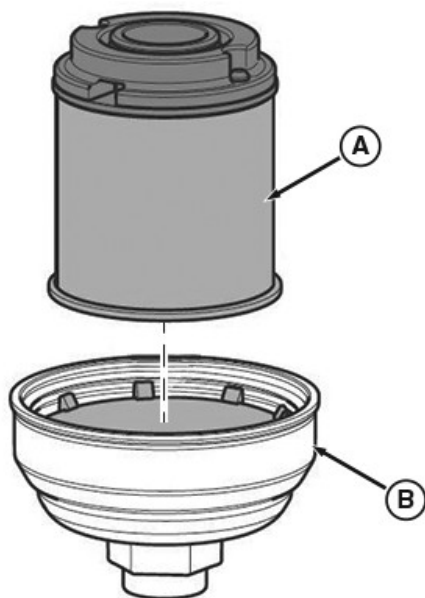
Filter Housing Components

- A—O-Ring  
B—Foam Compensation Element  
C—Filter Housing

5. Remove and discard O-ring (A) and foam compensation element (B).

**NOTE:** Filter housing should be cleaned with clean DEF before installing new components to remove any sediment debris or contamination.

6. Install new O-ring (A) and foam compensation element (B) into filter housing (C).

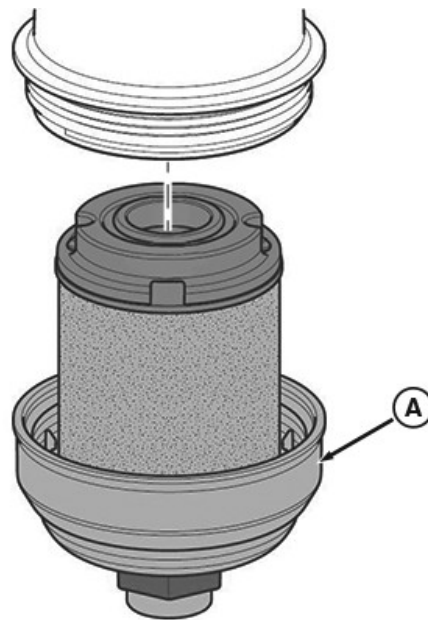


RG30725—UN—08AUG18

Filter Housing and Components Installation

- A—Filter  
B—Filter Housing

7. Install new filter (A) into filter housing (B).



RG30727—UN—08AUG18

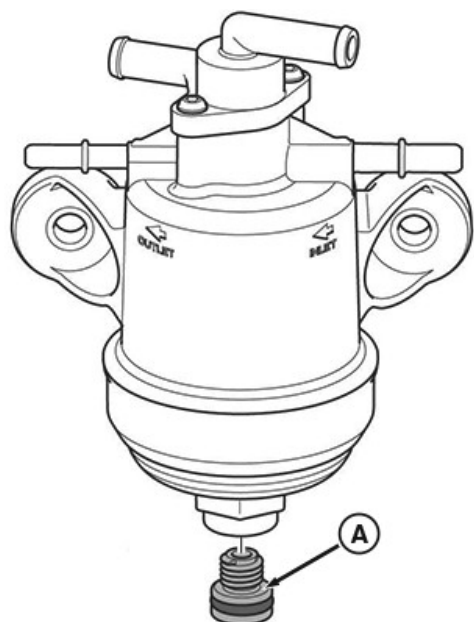
In-Line DEF Filter Housing Installation

- A—Filter Housing

8. Install filter housing (A) with O-ring, foam compensation element, and filter element.  
9. Rotate filter housing (A) clockwise and tighten to specification.

#### Specification

In-Line DEF Filter	
Housing—Torque. . . . .	25 N·m (221 lb·in)



RG30728—UN—08AUG18  
In-Line DEF Filter Drain Plug

**A—Drain Plug with O-Ring**

10. Install new drain plug with O-ring (A). Tighten to specification.

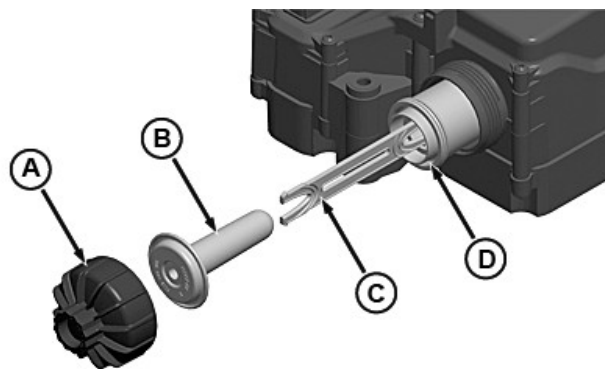
**Specification**

In-Line DEF Filter Drain Plug—Torque. . . . . 4 N·m  
(35 lb·in)

DX,DEF,CHANGE,INLINE,FILT-19-15APR20

## Change Diesel Exhaust Fluid (DEF) Dosing Unit Filter

**MAINTENANCE INTERVAL**  
Every 4500 Hours



RG22534—UN—21MAR13  
DEF Dosing Unit Filter

- A—DEF Dosing Unit Filter Cover**  
**B—DEF Dosing Unit Filter Equalizing Element**  
**C—DEF Dosing Unit Filter Tool (supplied with new filter)**

**D—DEF Dosing Unit Filter**

**CAUTION:** Avoid contact with eyes. In case of contact, immediately flush eyes with large amounts of water for a minimum of 15 minutes. Reference the Materials Safety Data Sheet (MSDS) for additional information.

**IMPORTANT:** If DEF is spilled or contacts any surface other than the storage tank, immediately clean the surface with clear water. DEF is corrosive to painted and unpainted metallic surfaces and can distort some plastic and rubber components.

Spilled DEF, if left to dry or if only wiped away with a cloth, leaves a white residue. Improperly cleaned DEF spill can interfere with diagnosis of Selective Catalytic Reduction (SCR) system leakage problems.

**NOTE:** See your John Deere equipment technical manual or OEM manufacturer's technical manual for DEF dosing unit filter location.

**IMPORTANT:** Avoid system and filter damage. Ensure that DEF system is not frozen before changing filter. If system is frozen, operate engine until system has thawed completely.

**NOTE:** Servicing DEF dosing unit filter may require removing additional covers or components.

1. Remove DEF dosing unit filter cover (A).
2. Remove and discard DEF dosing unit filter equalizing element (B).

**NOTE:** DEF dosing unit filter tool (C) is supplied with replacement filter.

3. Insert "Black" end of DEF dosing unit filter tool (C) into DEF dosing unit filter (D) until CLICK is felt or heard indicating DEF dosing unit filter tool is fully engaged.

**NOTE:** A tool such as a screwdriver can be inserted into DEF dosing unit filter tool slot to assist removal.

4. Pull DEF dosing unit filter tool and DEF dosing unit filter from DEF dosing unit. Discard DEF dosing unit filter and DEF dosing unit filter tool.
5. Clean DEF dosing unit threads and mating surfaces with distilled water.
6. Lubricate DEF filter O-rings with clean DEF. Carefully insert DEF dosing unit filter into DEF dosing unit.
7. Install new DEF dosing unit filter equalizing element into DEF dosing unit filter.



8. Install DEF dosing unit filter cover and tighten to specification.

**Specification**

DEF Dosing Unit Filter  
Cover—Torque. . . . . 23 N·m  
(204 lb·in)

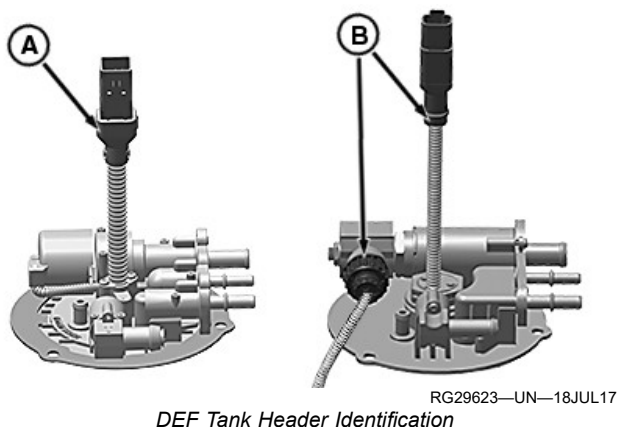
GS25068,0000D4E-19-10FEB20

## Replace Diesel Exhaust Fluid (DEF) Tank Header Suction Screen

**MAINTENANCE INTERVAL**

Every 4500 Hours

### DEF Tank Header Identification



A—Type A DEF Tank Header (one electrical connection)  
B—Type B DEF Tank Header (two electrical connections)

**NOTE:** Accessing DEF tank header may require removing additional covers or components.

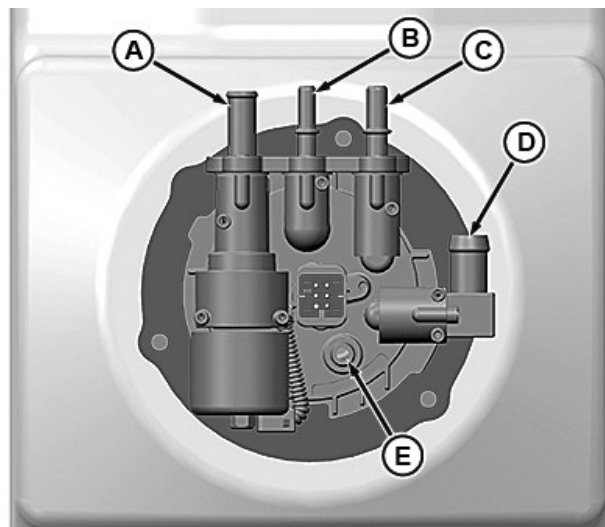
Type A DEF tank header has one wiring harness connection (A). Type B DEF tank header has two wiring harness connections (B). Refer to the procedure that is applicable to your DEF tank header.

### Replace Type A DEF Tank Header Suction Screen

**CAUTION:** Avoid contact with eyes. In case of contact, immediately flush eyes with large amounts of water for a minimum of 15 minutes. Reference the Materials Safety Data Sheet (MSDS) for additional information.

**IMPORTANT:** If DEF is spilled or contacts any surface other than the storage tank, immediately clean the surface with clear water. DEF is corrosive to painted and unpainted metallic surfaces and can distort some plastic and rubber components.

Spilled DEF, if left to dry or if only wiped away with a cloth, leaves a white residue. Improperly cleaned DEF spill can interfere with diagnosis of Selective Catalytic Reduction (SCR) system leakage problems.



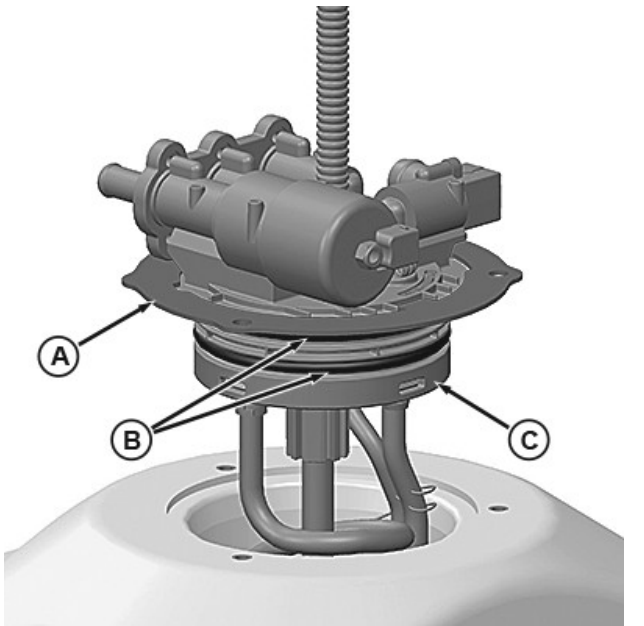
A—Coolant Outlet Fitting  
B—DEF Return Line Fitting  
C—DEF Supply Line Fitting  
D—Coolant Inlet Fitting  
E—Vent Line Fitting

1. Clear all debris from area around DEF tank header.

**CAUTION:** Explosive release of fluids from pressurized cooling system can cause serious burns. Before disconnecting coolant hoses, wait until engine coolant is cool enough to touch the surge tank cap with bare hands. Slowly loosen the surge tank cap to first stop to relieve pressure.

**IMPORTANT:** Cap and plug all lines and fittings to prevent contamination. Coolant in DEF causes Selective Catalytic Reduction (SCR) system performance issues.

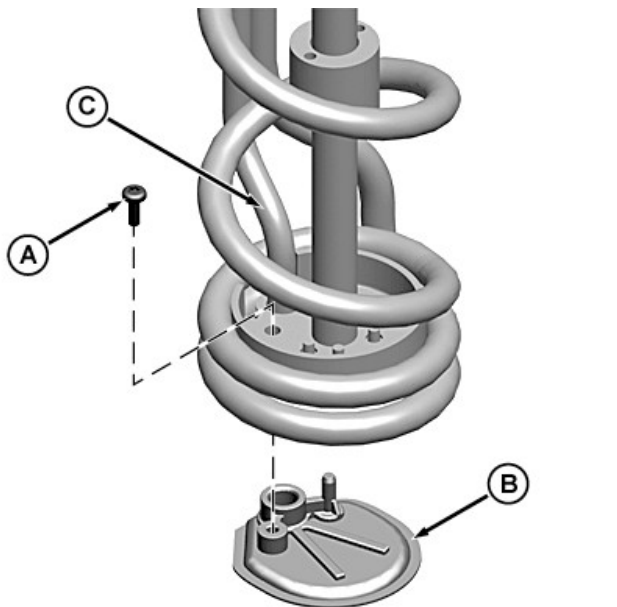
2. Disconnect coolant hoses from fittings (A and D).
3. Disconnect DEF return and supply lines from fittings (B and C).
4. Disconnect DEF tank header electrical connector.
5. Remove vent hose from fitting (E).



DEF Tank Header

A—DEF Tank Header Locking Ring  
B—O-Ring (2 used)  
C—DEF Tank Header

6. Remove cap screws from DEF tank header locking ring (A).
7. Remove DEF tank header (C) from tank.
8. Remove O-rings (B) and inspect for damage.
9. Replace O-rings (B) if necessary.



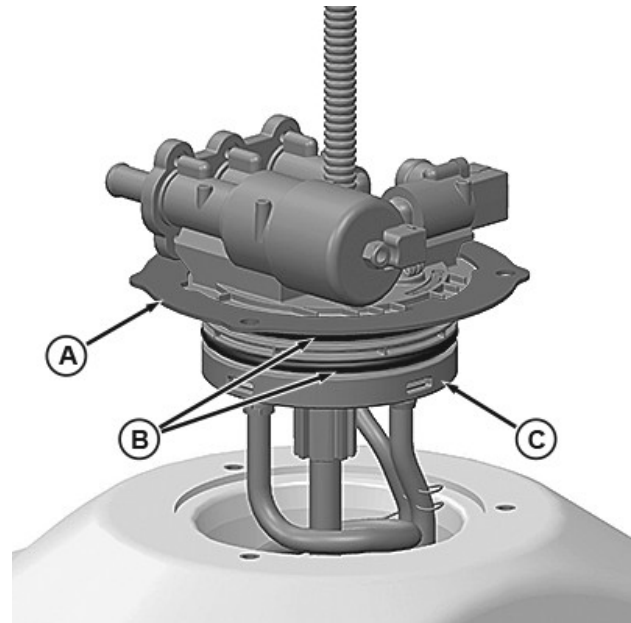
DEF Suction Screen

A—Screw  
B—Suction Screen  
C—Suction Tube

10. Remove screw (A) that secures suction screen (B) to suction tube (C).
11. Remove suction screen (B).
12. Install suction screen (B) to suction tube (C).
13. Install screw (A) and tighten to specification.

**Specification**

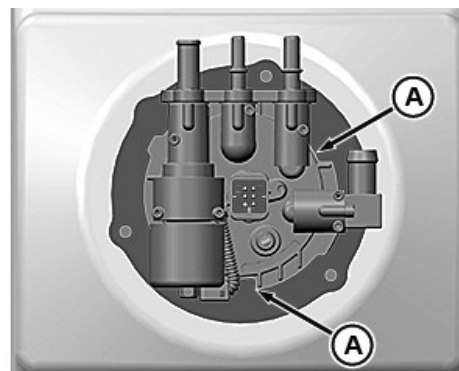
DEF Suction Screen  
Screw—Torque. . . . . 1 N·m  
(11 lb·in)



DEF Tank Header

A—DEF Tank Header Locking Ring  
B—O-Ring (2 used)  
C—DEF Tank Header

14. Lubricate O-rings (B) with clean DEF.
15. Insert DEF header into tank and align holes on locking ring (A) with holes in tank.



Alignment Notches

A—Alignment Notch (2 used)

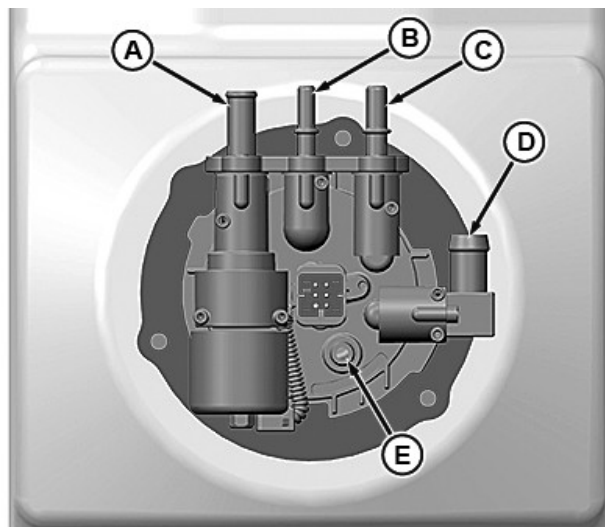
**IMPORTANT:** Prevent DEF leak, header, and lock ring damage. Ensure that alignment notches on the locking ring are properly aligned with plastic tabs on the header.

16. Install stainless steel cap screws into mounting holes and tighten to specification.

**Specification**

DEF Tank Header M6 Cap

Screw—Torque. . . . . 9 N·m  
(80 lb·in)



RG29624—UN—19JUL17

DEF Tank Header Fittings

- A—Coolant Outlet Fitting
- B—DEF Return Line Fitting
- C—DEF Supply Line Fitting
- D—Coolant Inlet Fitting
- E—Vent Line Fitting

17. Connect 9.5-mm (3/8-in) vent hose to fitting (E).
18. Connect 16-mm (5/8-in) coolant hose to coolant inlet fitting (D).
19. Connect 13-mm (1/2-in) coolant hose to coolant outlet fitting (A).

**IMPORTANT:** Push DEF line onto fitting until you hear a “click”, then lightly pull back to ensure that it is connected and locked in place.

*NOTE:* DEF supply and return lines have unique sized fittings.

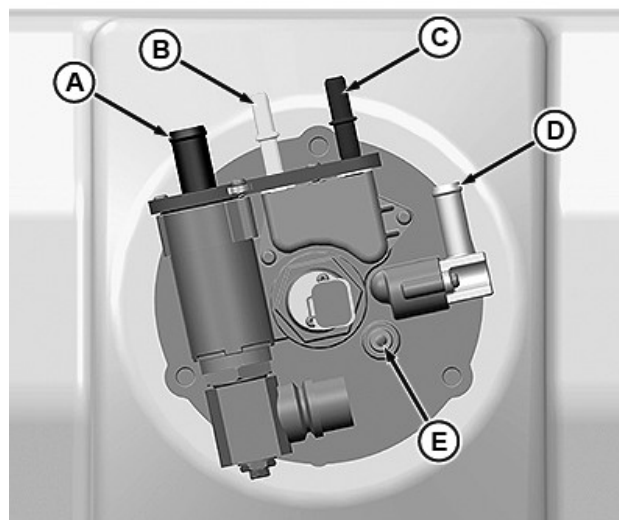
20. Connect DEF return and supply lines to fittings (B and C).
21. Connect DEF tank header electrical connector.

**Replace Type B DEF Tank Header Suction Screen**

**CAUTION:** Avoid contact with eyes. In case of contact, immediately flush eyes with large amounts of water for a minimum of 15 minutes. Reference the Materials Safety Data Sheet (MSDS) for additional information.

**IMPORTANT:** If DEF is spilled or contacts any surface other than the storage tank, immediately clean the surface with clear water. DEF is corrosive to painted and unpainted metallic surfaces and can distort some plastic and rubber components.

Spilled DEF, if left to dry or if only wiped away with a cloth, leaves a white residue. Improperly cleaned DEF spill can interfere with diagnosis of Selective Catalytic Reduction (SCR) system leakage problems.



RG29626—UN—19JUL17

DEF Tank Header Fittings

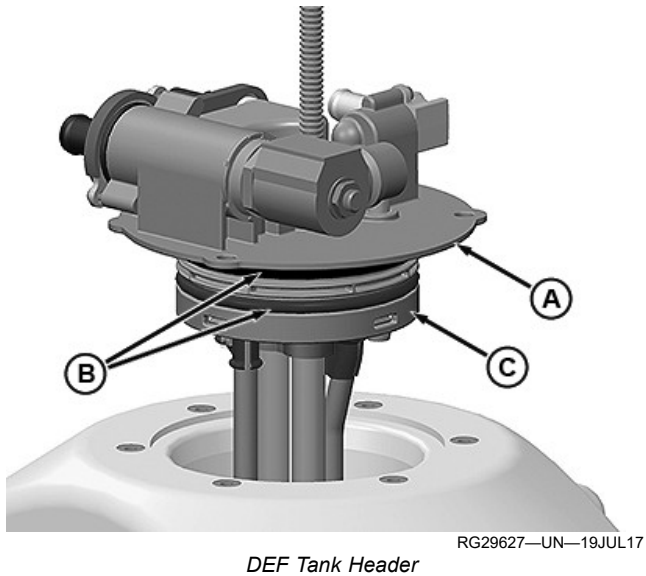
- A—Coolant Inlet Fitting
- B—DEF Return Line Fitting
- C—DEF Supply Line Fitting
- D—Coolant Outlet Fitting
- E—Vent Line Fitting

1. Clear all debris from area around DEF tank header.

**CAUTION:** Explosive release of fluids from pressurized cooling system can cause serious burns. Before disconnecting coolant hoses, wait until engine coolant is cool enough to touch the surge tank cap with bare hands. Slowly loosen surge tank cap to first stop to relieve pressure.

**IMPORTANT:** Cap and plug all lines and fittings to prevent contamination. Coolant in DEF causes Selective Catalytic Reduction (SCR) system performance issues.

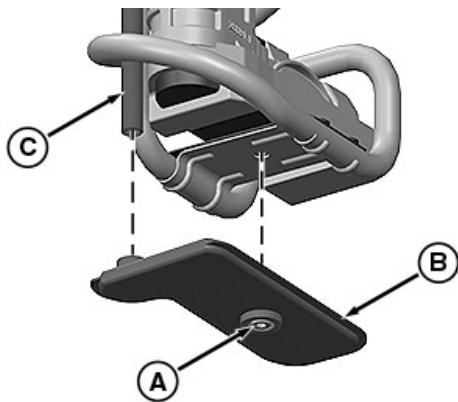
2. Disconnect coolant hoses from fittings (A and D).
3. Disconnect DEF return and supply lines from fittings (B and C).
4. Disconnect DEF tank header electrical connectors.
5. Remove vent hose from fitting (E).



DEF Tank Header

A—DEF Tank Header Mounting Flange  
B—O-Ring (2 used)  
C—DEF Tank Header

6. Remove cap screws from DEF tank header mounting flange (A).
7. Remove DEF tank header (C) from tank.
8. Remove O-rings (B) and inspect for damage.
9. Replace O-rings (B) if necessary.



DEF Suction Screen

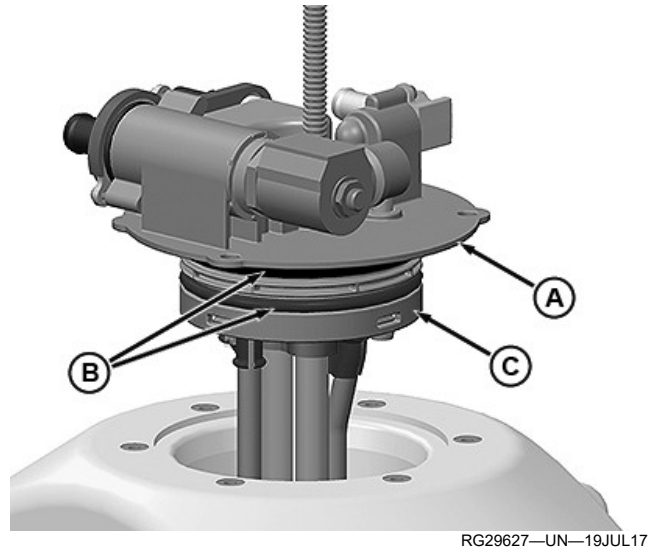
A—Screw  
B—Suction Screen  
C—Suction Tube

10. Remove screw (A) that secures suction screen (B) to suction tube (C).

11. Remove suction screen (B).
12. Install suction screen (B) to suction tube (C).
13. Install screw (A) and tighten to specification.

#### Specification

DEF Suction Screen  
Screw—Torque. . . . . 1 N·m  
(11 lb·in)



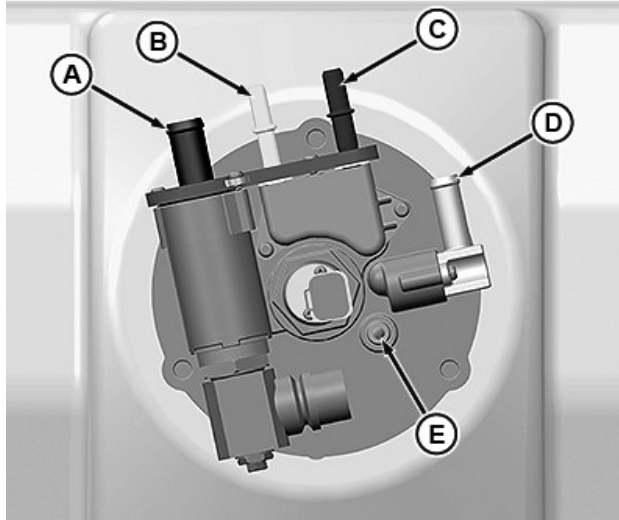
DEF Tank Header

A—DEF Tank Header Mounting Flange  
B—O-Ring (2 used)  
C—DEF Tank Header

14. Lubricate O-rings (B) with clean DEF.
15. Insert DEF header (C) into tank and align mounting holes on mounting flange (A) with holes in tank.
16. Install stainless steel M6 cap screws into mounting holes and tighten to specification.

#### Specification

DEF Tank Header Cap  
Screw—Torque. . . . . 9 N·m  
(80 lb·in)



RG29626—UN—19JUL17

DEF Tank Header Fittings

- A—Coolant Inlet Fitting  
 B—DEF Return Line Fitting  
 C—DEF Supply Line Fitting  
 D—Coolant Outlet Fitting  
 E—Vent Line Fitting

17. Connect 9.5-mm (3/8-in) vent hose to fitting (E).
18. Connect 16-mm (5/8-in) coolant hose to coolant inlet fitting (A).
19. Connect 13-mm (1/2-in) coolant hose to coolant outlet fitting (D).

**IMPORTANT:** Push DEF line onto fitting until you hear a “click”, then lightly pull back to ensure that it is connected and locked in place.

*NOTE:* DEF supply and return lines have unique sized fittings.

20. Connect DEF return and supply lines to fittings (B and C).
21. Connect DEF tank header electrical connectors.

GS25068,0005AEC-19-10OCT18

## Clean Diesel Exhaust Fluid (DEF) Tank

**CAUTION:** Avoid contact with eyes. In case of contact, immediately flush eyes with large amounts of water for a minimum of 15 minutes. Reference the Materials Safety Data Sheet (MSDS) for additional information.

**IMPORTANT:** If DEF is spilled or contacts any surface other than the storage tank, immediately clean the surface with clear water. DEF is corrosive to painted and unpainted metallic surfaces and can distort some plastic and rubber components.

Spilled DEF, if left to dry or if only wiped away with a cloth, leaves a white residue. Improperly cleaned DEF spill can interfere with diagnosis of Selective Catalytic Reduction (SCR) system leakage problems.

If foreign material or fluid has been added to the DEF tank, drain the DEF tank, flush, and fill with new DEF.

If DEF quality is in question, pull a sample out of the DEF tank and place into a clear container. DEF should be crystal clear with a light ammonia smell. If DEF appears cloudy, has a colored tint, or has a profound ammonia smell, it is likely not within specification. DEF in this condition should not be used.

1. Remove drain plug (if equipped), and drain or siphon bad DEF from DEF tank.

*NOTE:* Cleaning can take place with DEF tank installed or removed.

2. Clean DEF tank with new DEF.

DEF must pass visual, smell, and concentration checks before running the engine. See Diesel Exhaust Fluid (DEF) – For Use In Selective Catalytic Reduction (SCR) Equipped Engines in the Fuels, Lubricants, and Coolants Section for more information.

3. Drain or siphon DEF tank.

*NOTE:* Repeat steps 2—3 until DEF tank has been cleaned.

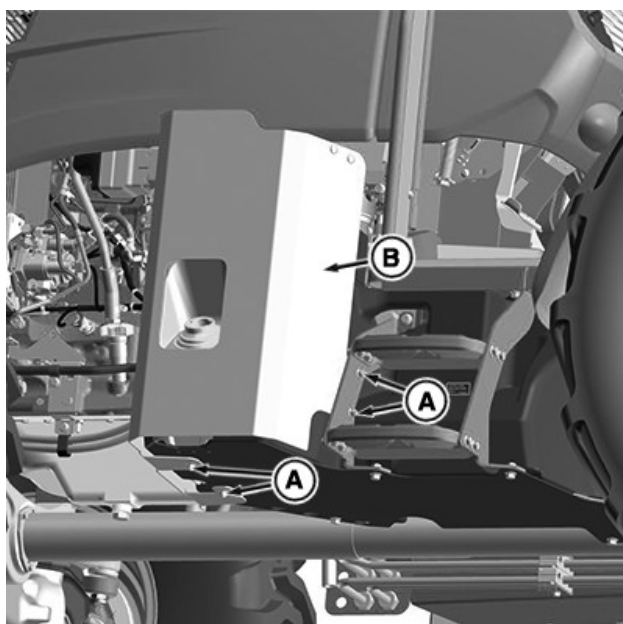
4. **Early version:** Change DEF dosing unit filter and DEF tank header suction screen.

**Later version:** Change DEF dosing unit filter and DEF inline filter.

5. If removed, install DEF tank drain plug.
6. If removed, install DEF tank.
7. Fill DEF tank with new DEF.
8. Check DEF concentration with DEF refractometer, such as JDG11594 or JDG11684. The correct DEF concentration is 31.8% — 33.2%. See your authorized dealer for more information.
9. If DEF is not within specification, does not appear clear, or does not have a slight ammonia smell, contact your authorized dealer.

GS25068,0000D4F-19-10FEB20

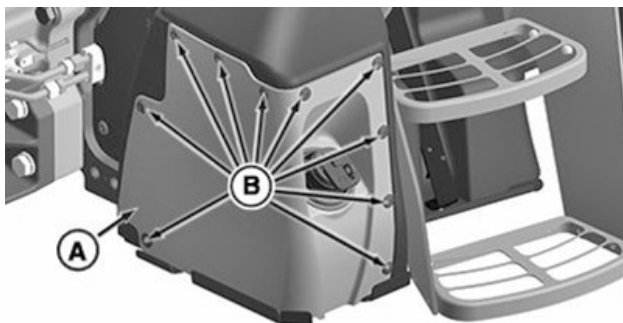
## Drain Diesel Exhaust Fluid (DEF) Tank



Low-Profile Fuel Tank Shield

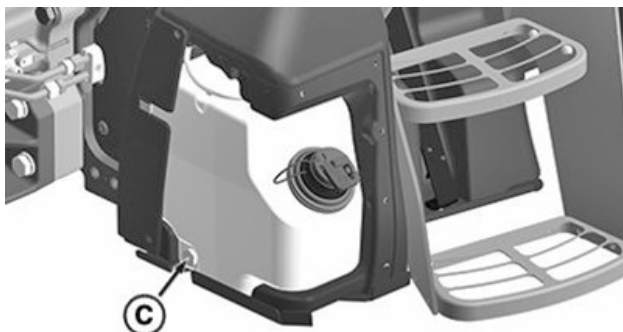
A—Nuts  
B—Shield

**For low-profile machines:** Remove nuts (A) and fuel tank shield (B).



All Tractors

CPA0004209—UN—08AUG17



All Tractors

CPA0004210—UN—08AUG17

A—DEF Tank Cover  
B—Screws  
C—DEF Tank Drain Plug

**IMPORTANT: Do not overtorque the drain plug.**

1. Remove screws (B) and DEF tank cover (A).  
Remove DEF tank cap if necessary to remove cover.
2. Place a container below the drain and capture waste.  
Dispose of waste properly.
3. Remove DEF tank drain plug (C) and drain DEF from tank.
4. Check o-ring for defects. Replace if needed.
5. Clean DEF tank. (See Clean Diesel Exhaust Fluid (DEF) Tank in this section.)
6. Clean out any DEF crystallization in threads.
7. Install drain plug and tighten to specification.

### Specification

DEF Tank Drain Plug—Torque. . . . . 25 N·m (18 lb·ft)

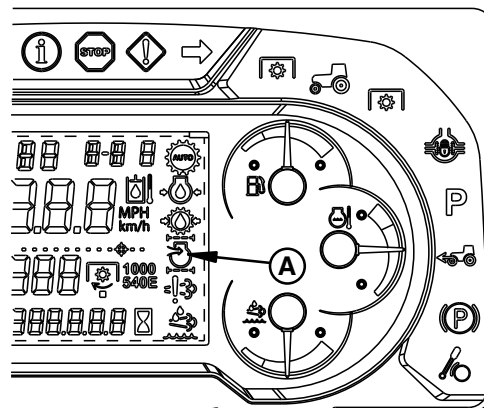
8. Clean all DEF from machine surfaces with clean water.

GS25068,0005AED-19-10OCT18

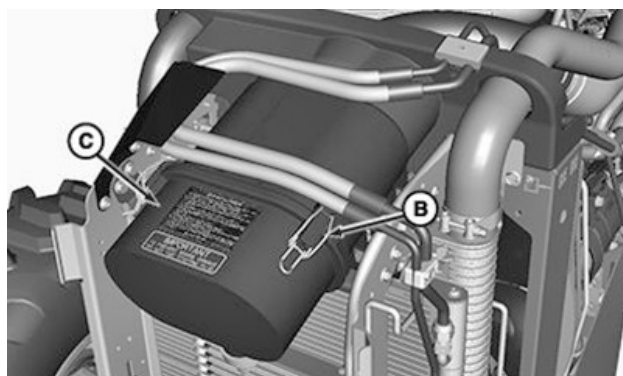
## Service Air Cleaner Elements

### MAINTENANCE INTERVAL

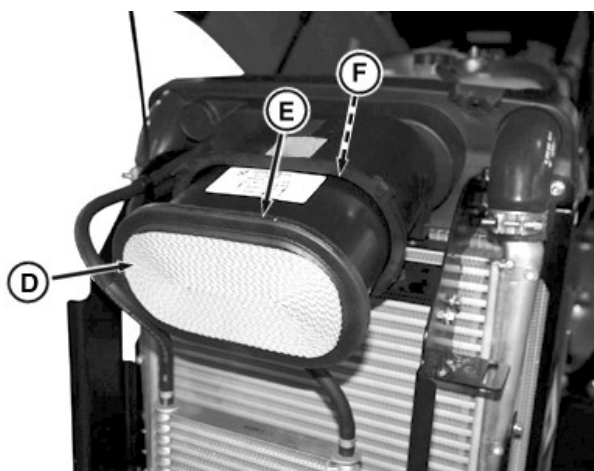
**Every 1200 Hours** Maintenance air cleaner more often in extremely dusty condition



PY42071—UN—17MAY17



CPA0004211—UN—09AUG17



RXA0156171—UN—14DEC16

- A—Air Filter Restriction Indicator  
B—Latch  
C—Cover  
D—Primary Air Cleaner Element  
E—Guide Ring  
F—Secondary Air Cleaner Element

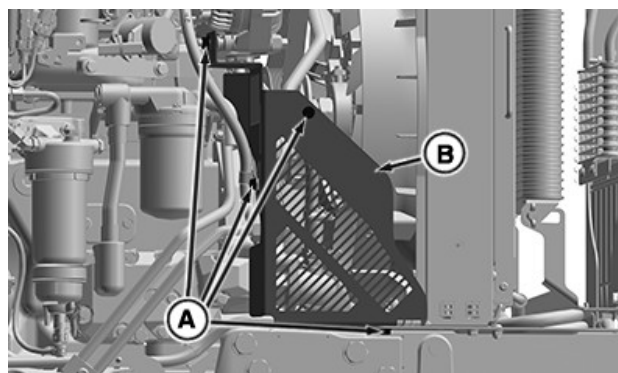
**IMPORTANT: Dirty air cleaner element is indicated when air filter restriction indicator (A) appears on the information display.**

1. Open hood.
2. Remove latch (B) and cover (C).
3. Remove air cleaner element (D). If primary element does not pull out with ease, move side-to-side.
4. When air cleaner element must be serviced in field, tap it on the palm of your hand. Do not use compressed air or filter damage occurs.
5. Inspect guide ring (E) for damage.
6. Replace elements if core material or seals (both ends) are damaged, or if indicator remains illuminated.
7. Install elements and reinstall latch cover.
8. Lower hood.

GS25068,0005AEE-19-10OCT18

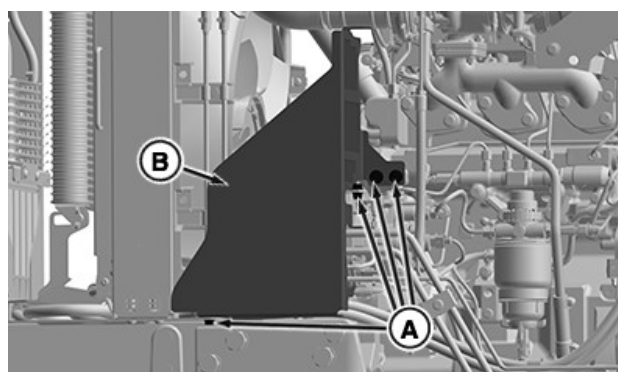
## Tighten Air Intake and Engine Cooling Hose Clamps

**MAINTENANCE INTERVAL**  
**INITIAL — 100 Hours**  
**REGULAR — Every 600 Hours**



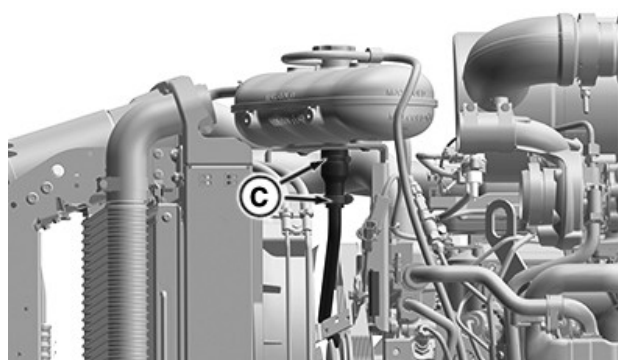
RXA0154388—UN—23FEB17

*Right Side of Engine*



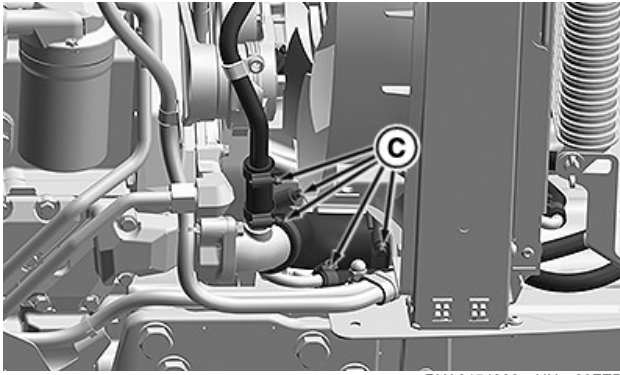
RXA0154385—UN—23FEB17

*Left Side of Engine*



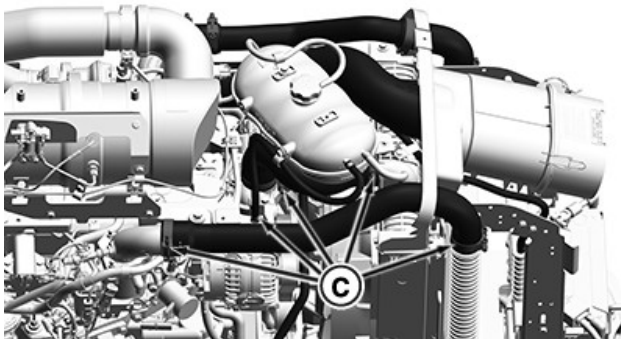
RXA0154392—UN—23FEB17

*Under Coolant Tank*



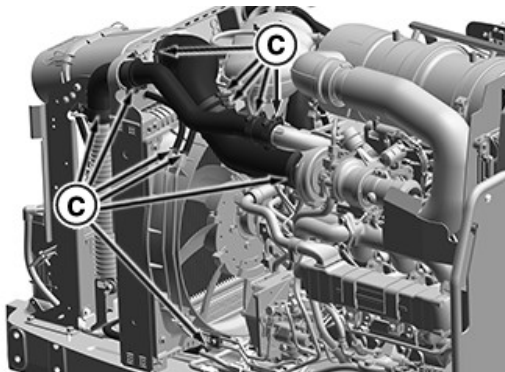
Right Side of Engine

RXA0154389—UN—23FEB17



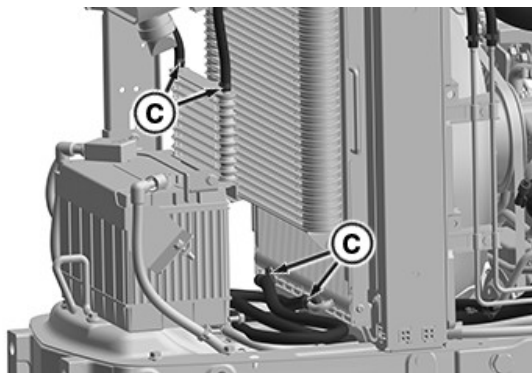
Right Side of Engine

RXA0154390—UN—23FEB17



Left Side of Engine

RXA0154391—UN—23FEB17



Behind Battery

RXA0154387—UN—23FEB17

B—Fan Shields  
C—Clamps

**CAUTION:** Do not operate engine without the fan shields installed.

1. Park machine, shut off engine, and remove key.
2. Raise hood.

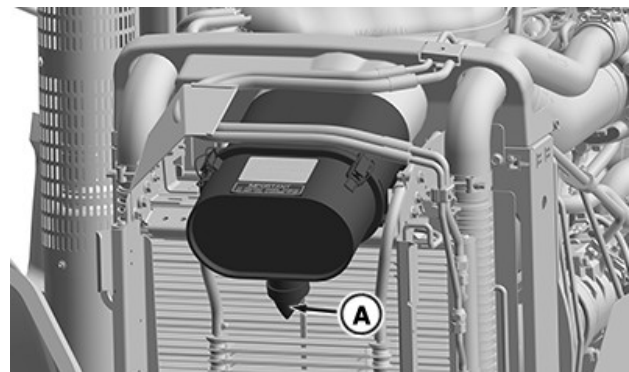
*NOTE: Fan shields and mounting hardware vary from the picture depending on machine configuration.*

3. Remove cap screws and bolts (A) from fan shields (B) as required to remove.
4. Inspect hose clamps (C) of the fuel, air intake, hydraulic cooling, and engine cooling systems. Tighten any loose hose clamps. See the following illustrations for hose locations.
5. Reinstall shields and lower hood before operating machine.

GS25068,0005AEF-19-10OCT18

## Clean Air Filter Dust Unloading Valve

**MAINTENANCE INTERVAL**  
Daily or 10 Hours



RXA0154394—UN—24FEB17

A—Dust Unloading Valve

**IMPORTANT:** Do not operate the engine without air cleaner elements or dust unloading valve installed.

1. Park machine on level ground and shut off engine.
2. Raise hood.
3. Squeeze the end of the dust unloading valve (A) open and remove any excessive buildup of dust and dirt. Replace if damaged.
4. Lower hood.

GS25068,0005AF0-19-10OCT18

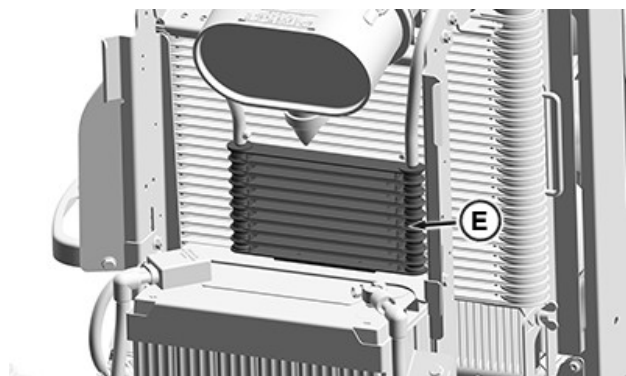
A—Cap Screw and Bolt



## Clean Grille Screens and Cooling Package



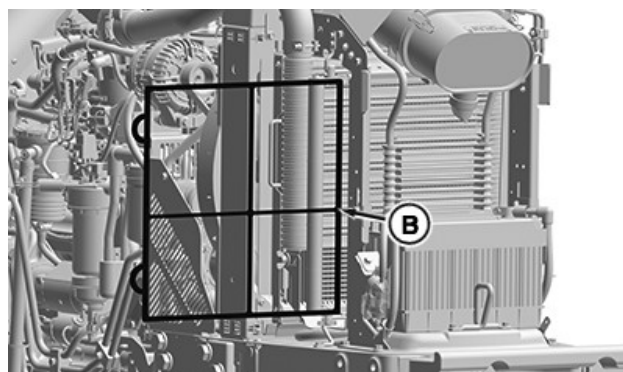
CPA0004213—UN—08AUG17



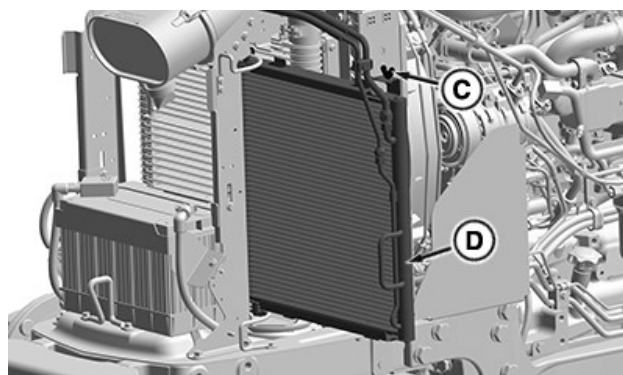
RXA0154397—UN—24FEB17

- A—Grille
- B—Air Conditioner Condenser Screen
- C—Wing Nut
- D—Air Conditioner Condenser
- E—Fuel Cooler

**⚠ 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.

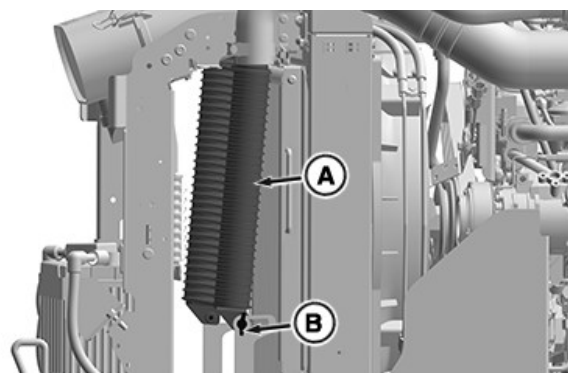


RXA0154395—UN—24FEB17

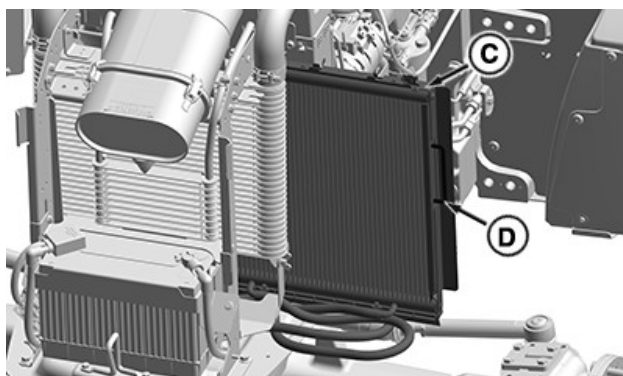


RXA0154396—UN—24FEB17

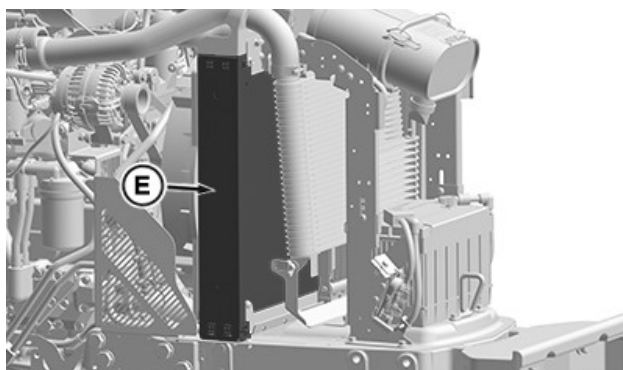
1. Park machine and shut off engine. Remove key.
2. Remove trash buildup on the front grille (A) as required.
3. Raise hood.
4. Slide the air conditioner condenser screen (B) out toward the right side of the machine to remove.
5. Loosen wing nut (C) and slide the air conditioner condenser toward the left side of the machine until it hits the stop.
6. Clean air conditioner condenser, screen, and fuel cooler (E) with compressed air.
7. If a more thorough cleaning is required perform the following.



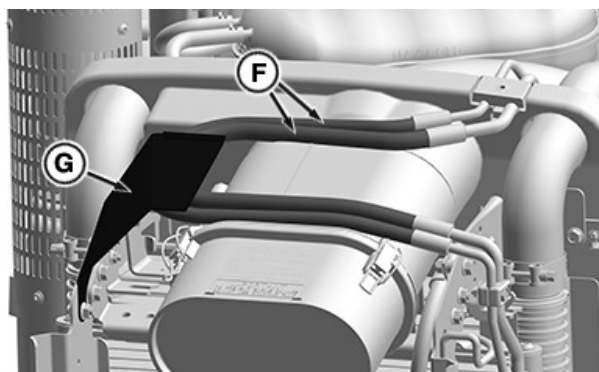
RXA0154398—UN—24FEB17



RXA0154399—UN—24FEB17



RXA0154400—UN—24FEB17



RXA0154401—UN—24FEB17

- A—Charge Air Cooler
- B—Wing Nut
- C—Hydraulic Oil Cooler
- D—Handle
- E—Radiator
- F—Hydraulic Oil Hoses
- G—Shield

1. Loosen wing nuts (B) on each side of the charge air cooler (A) and pivot forward to the position shown. Tighten wing nuts to retain position.
2. Pull handle (D) of the hydraulic oil cooler (C) toward to left side of the machine until it hits the stop.
3. Clean charge air cooler, hydraulic oil cooler, and radiator (E) with compressed air.
4. Straighten any bent fins.
5. Return coolers, condenser, and screen back to original position and tighten wing nuts to secure in place.

6. Verify that hydraulic oil cooler hoses (F) are under the protective shield (G).
7. Verify that all lines are not pinched or kinked when coolers are repositioned.
8. Lower hood.

DP51502,0002F9F-19-09JAN18

## Do Not Modify Fuel System

**IMPORTANT:** Increasing horsepower or altering fuel and air delivery beyond the factory rating causes emissions to exceed United States Environmental Protection Agency (EPA) approved levels. Violations of EPA regulations can result in substantial fines to persons or companies committing such violations.

Machine warranty is void if power level is changed from factory specifications.

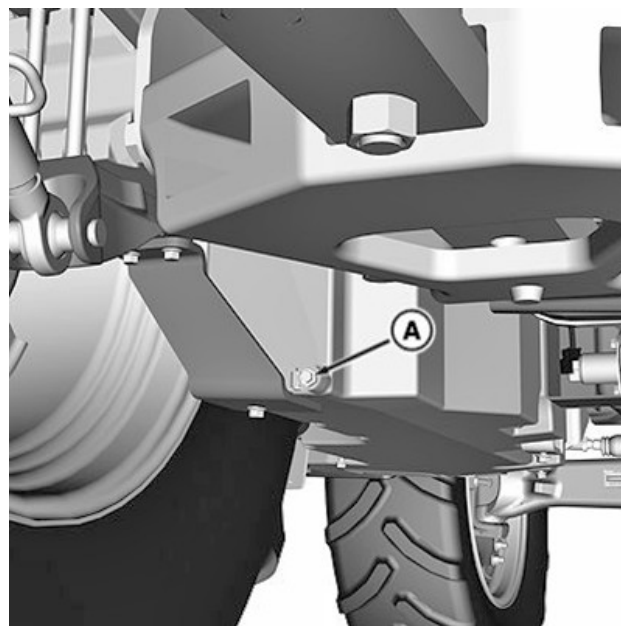
Do not attempt to service injection pump or fuel injectors yourself. Special training and special tools are required. See your John Deere dealer.

CO00266,0000283-19-01AUG17

## Drain Water and Sediment from Fuel Tank and Fuel Filter

### MAINTENANCE INTERVAL

Daily or 10 Hours



CPA0004214—UN—08AUG17



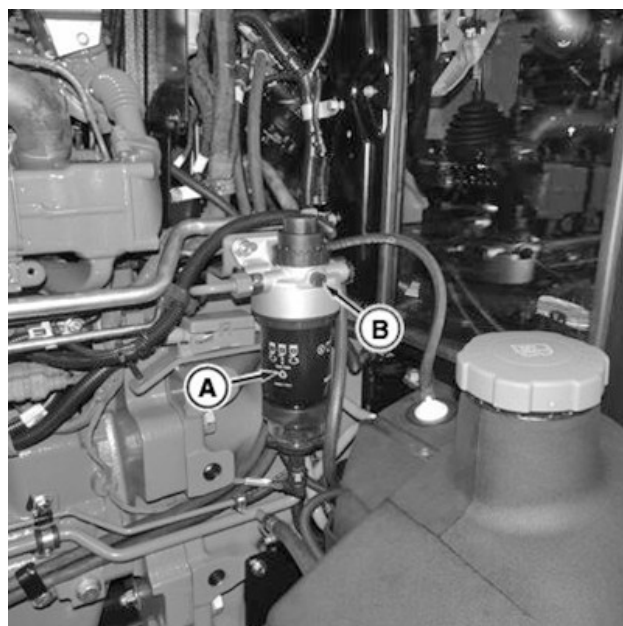
CPA0004215—UN—08AUG17

- A—Fuel Tank Drain Plug  
B—Fuel Filter/Water Separator Drain

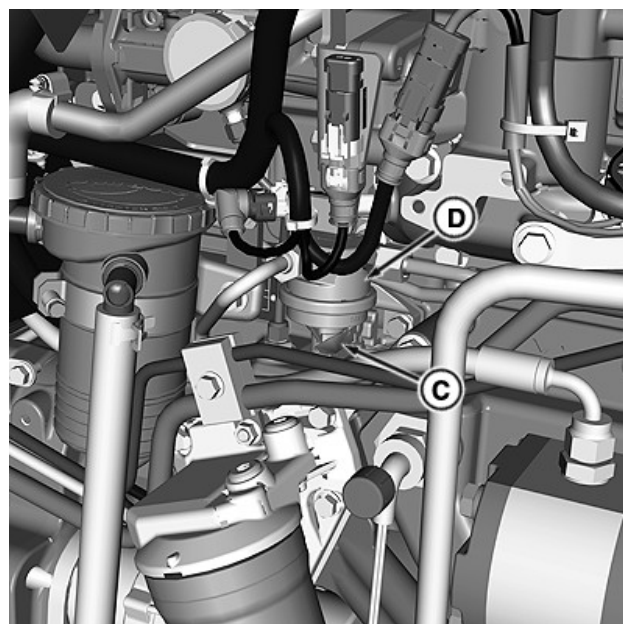
**NOTE:** Place a suitable container under the drain fitting to catch draining fuel. Dispose of waste properly.

1. Park machine on level ground and shut off engine. Remove key.
2. Open fuel tank drain plug (A) to bleed accumulated moisture and sediment from the fuel tank. Tighten plug when clear fuel runs from fitting.
3. Open fuel filter/water separator drain (B) to bleed accumulated moisture and sediment from filter. Tighten drain when clear fuel runs from drain.
4. Run engine for minimum of 20 seconds and check water separator drain valve again for water and sediment.
5. If moisture or sediment is present, drain fuel tank.

GS25068,0005AF1-19-10OCT18



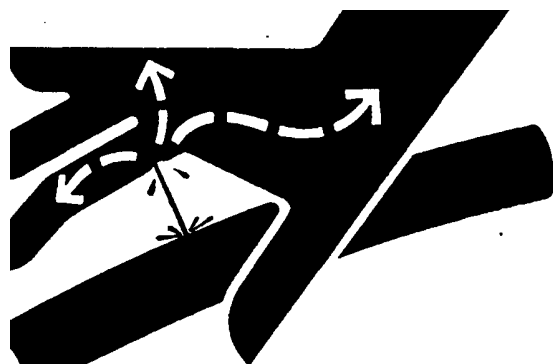
CPA0004216—UN—08AUG17



RXA0146344—UN—13NOV14

- A—Primary Fuel Filter  
B—Filter Housing Bleed Screw  
C—Priming Mechanism  
D—Transfer Pump

## Bleed Fuel System



X9811—UN—23AUG88

**CAUTION:** Escaping fluid under pressure has the potential to 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 can result. Doctors unfamiliar with this type of injury must reference a knowledgeable medical source. Such information is available from Deere & Company Medical Department in Moline, Illinois, U.S.A.

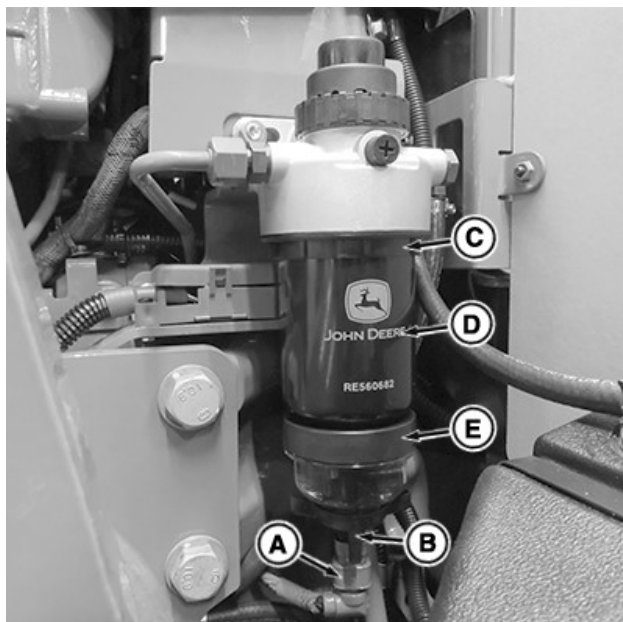
**IMPORTANT:** To avoid injection pump damage, do not attempt to start the engine while bleeding the fuel system.

1. Park machine on level ground and remove key.
2. Check fuel level. Add if necessary.
3. Raise hood and locate primary fuel filter (A) on the left-hand side of machine.
4. Loosen filter housing bleed screw (B). Capture the discharge waste and dispose of properly.
5. Push priming mechanism (C) at the transfer pump (D) on the right-hand side of machine until fuel runs out smoothly from bleed screw without spitting. Tighten bleed screw.
6. Lower hood.

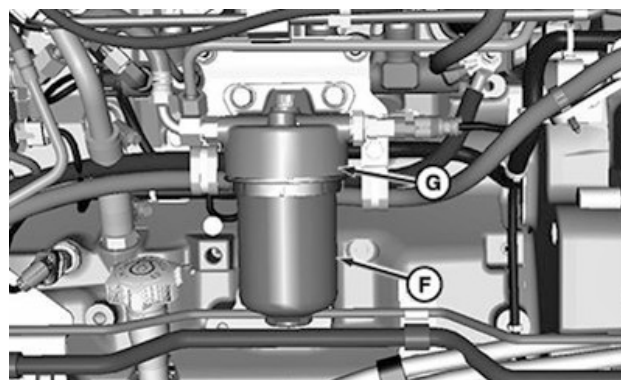
GS25068,0005AF2-19-10OCT18

## Replace Fuel Filters

**MAINTENANCE INTERVAL**  
Every 500 Hours



RXA0161837—UN—26JAN18



CPA0004218—UN—08AUG17

- A—Water Sensor Connector
- B—Drain Valve
- C—Retaining Ring
- D—Primary Fuel Filter
- E—Water Separator
- F—Secondary Fuel Filter
- G—Secondary Fuel Filter Housing

**IMPORTANT:** Be sure characteristics of the new filter match the original filter.

The fuel filters (D and F) are different, do not interchange. See your John Deere dealer for correct replacement parts. Replace one after another to avoid interchange.

**IMPORTANT:** Do not use a wrench when tightening filter. Hand tighten filter only.

1. Place machine in park, turn off engine, and remove key. Allow engine to cool.
2. Raise hood.
3. Disconnect water-in-fuel sensor connector (A) on bottom of the primary fuel filter on right-hand side of engine.
4. Open drain valve (B) and drain fuel. Capture the discharge fuel and dispose of properly.
5. Lift and rotate retaining ring (C) counterclockwise. Remove ring with the primary fuel filter (D).
6. Remove water separator (E) from filter.
7. Drain and clean separator. Dry with compressed air.
8. Install new seals (supplied with the new filter) on the water separator and drain valve.
9. Install water separator on the primary fuel filter.
10. Fill filters with clean diesel fuel before installing on engine.
11. Apply a small amount of clean oil on the primary fuel filter gasket.
12. Install new primary filter assembly. Tighten retaining ring hand-tight.
13. Connect water-in-fuel sensor connector (A).
14. Remove secondary fuel filter (F) on the left-hand

side of the engine from the secondary fuel filter housing (G) by turning counterclockwise.

15. Apply a small amount of clean oil on the new secondary fuel filter gasket.
16. Install new secondary fuel filter.
17. Bleed the fuel system. (See Bleeding Fuel System in this section.)
18. Start engine and run until warm.
19. Turn off engine and remove key.
20. Inspect drain valve and filters for leaks.
21. Lower hood.

GS25068,0005AF3-19-10OCT18

## Clean Fuel Tank Vent Filter

**MAINTENANCE INTERVAL**  
Every 1200 Hours



CPA0004219—UN—08AUG17

Left-Hand Side Behind Engine

A—Fuel Tank Vent Filter

**⚠ 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.

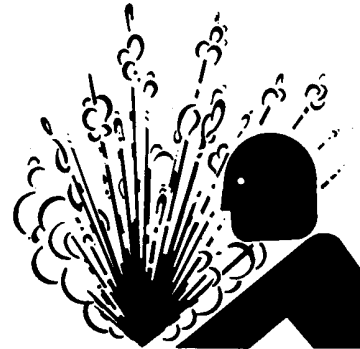
1. Raise hood and locate fuel tank vent filter (A) on the left-hand side of machine.
2. Remove and clean fuel tank vent filter with a soapy solution.
3. Blow dry with compressed air and install.

4. If fuel tank vent filter is damaged, replace.

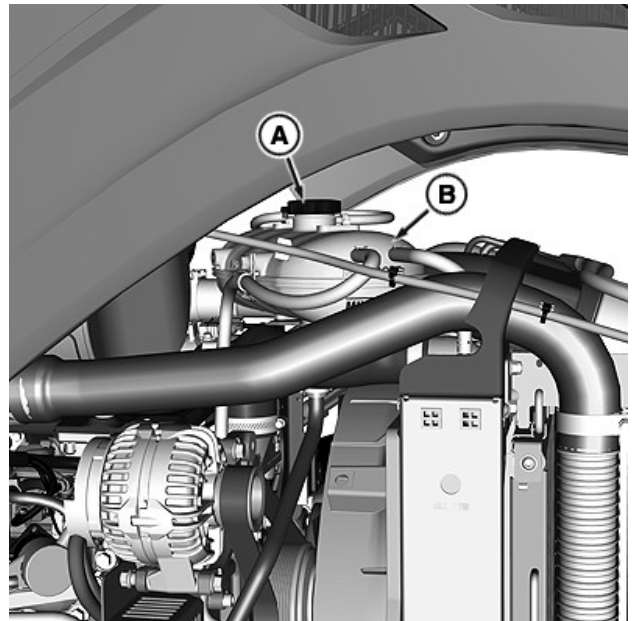
GS25068,0005AF4-19-10OCT18

## Check Coolant Level

**MAINTENANCE INTERVAL**  
Weekly or 50 Hours



TS281—UN—15APR13



RXA0146333—UN—12NOV14

A—Cap  
B—Coolant Recovery Tank

**⚠ CAUTION:** Avoid injury from hot, spraying fluid. Add make-up coolant through the coolant recovery tank, not directly to the radiator. If cap must be removed, do not remove when engine is hot. Shut off engine and wait until cap is cool enough to touch with bare hands. Slowly loosen cap to relieve pressure before removing completely.

1. Park machine on level ground and shut off engine. Remove key.

2. Allow engine to cool completely.
3. Raise hood and check level in the coolant recovery tank (B).
4. If coolant level is below the **MIN COLD** mark, remove cap (A) and add coolant to recovery tank. Fill tank level between **MIN COLD** and **MAX COLD** marks with Cool-Gard™ II pre-diluted coolant. (See Fuel, Lubricants, and Coolants section.)
5. Replace cap.
6. Lower hood.

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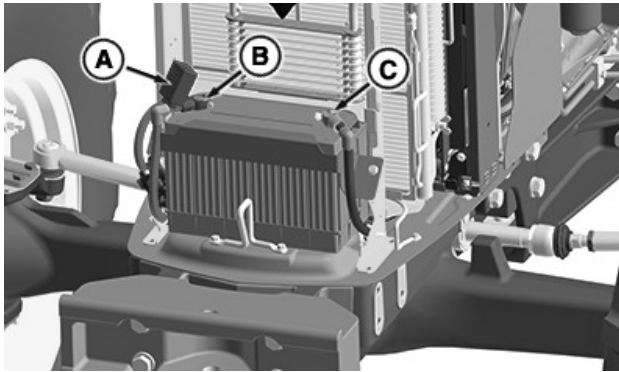
GS25068,0005AF5-19-10OCT18

# Electrical and Lighting Maintenance

## Use Booster Battery or Charger



TS204—UN—15APR13



RXA0158321—UN—22MAR17

In Front of Engine

- A—Cover
- B—Positive Terminal
- C—Negative Terminal

**CAUTION:** Battery gas is explosive. Keep sparks and flames away from battery. Make last connection and first disconnection at a point away from battery.

### Booster Battery

1. Remove protective cover (A) from the positive terminal (B).
2. Attach positive jumper cable to the machine battery positive terminal (B).
3. Attach positive jumper cable to the booster battery positive terminal.
4. Attach negative jumper cable to the machine battery negative terminal (C).
5. Attach negative jumper cable to the booster battery negative terminal.
6. Turn key to Start.
7. When engine starts, remove negative jumper cables first, then the positive cables.
8. Replace the protective cover on the positive terminal.

### Battery Charger

1. Remove protective cover (A) from the positive terminal.
2. Turn charger OFF.
3. Attach positive charger lead to the battery positive terminal (B).
4. Attach negative charger lead to the battery negative terminal (C).
5. Charge battery according to charger manufacturer instructions.
6. Turn charger OFF.
7. Disconnect negative charger lead first, then positive lead.
8. Replace the protective cover on the positive terminal.

DP51502,0002FA6-19-09JAN18

## Battery Maintenance

### MAINTENANCE INTERVAL

Annually

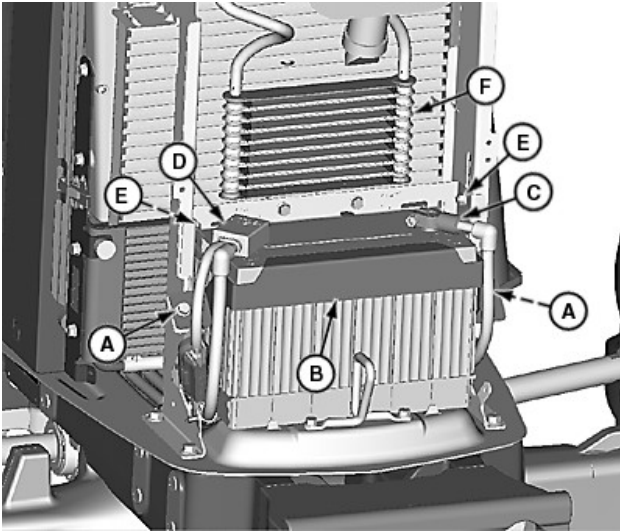
**IMPORTANT:** Do not add water in freezing weather unless machine is run at least 30 minutes to assure thorough mixing.

*NOTE: Although this battery is a maintenance-free battery, conditions such as long periods of operation at high ambient temperatures and excessive starting could require adding water. See label on the battery.*

1. Clean battery and remove debris buildup from top of battery case as needed.
2. Check level of the electrolyte in each cell as needed. Ensure that every cell has fluid level above the top of plates. Only use clean, soft water to fill up electrolyte level.
3. Wipe battery with a damp cloth.
4. Remove, clean, and tighten connections if needed.
5. Coat terminals with a small amount of grease.
6. If battery is not performing as desired, charge as needed or see your John Deere dealer.

GS25068,0005AF6-19-10OCT18

## Replace Battery



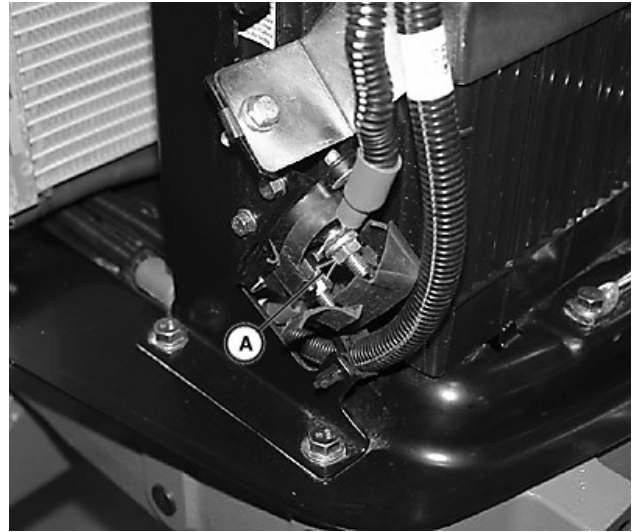
LV14822—UN—27SEP11

- A—Cap Screws
- B—Battery Hold-Down
- C—Negative Battery Cable
- D—Positive Battery Cable
- E—Fuel Cooler Support Cap Screws
- F—Fuel Cooler

1. Raise hood.
2. Remove nut and disconnect negative battery cable (C) first.
3. Remove nut and disconnect positive battery cable (D).
4. Remove cap screws (A) and battery hold-down (B).
5. Loosen fuel cooler support cap screws (E).
6. Slide fuel cooler (F) up and tighten cap screws, securing the fuel cooler in the upper slot position.
7. Remove battery.
8. Replace battery in opposite order.
9. Lower hood.

DP51502,0002FA7-19-09JAN18

## Replace Fusible Link



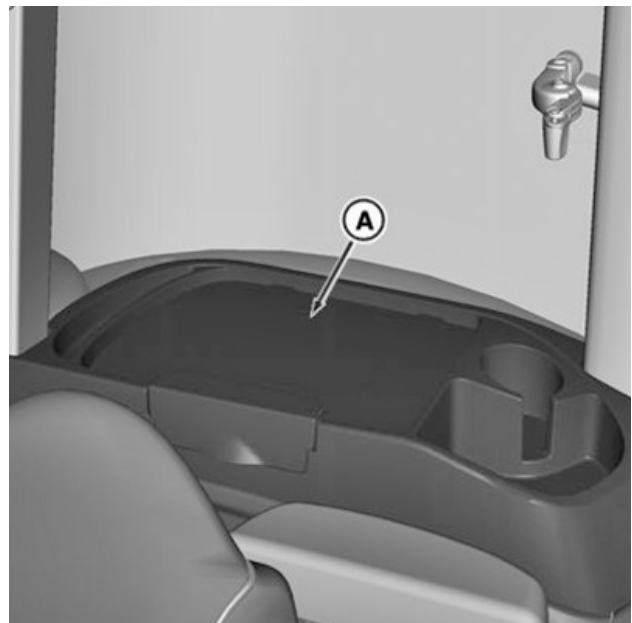
LV14690—UN—07SEP11

### A—Fusible Link

1. Raise hood.
2. Disconnect the battery.
3. Locate the fusible link (A) next to the battery.
4. Open the cover.
5. Replace the fusible link with the correct part from your John Deere dealer.
6. Close cover, reconnect the battery, and lower hood.

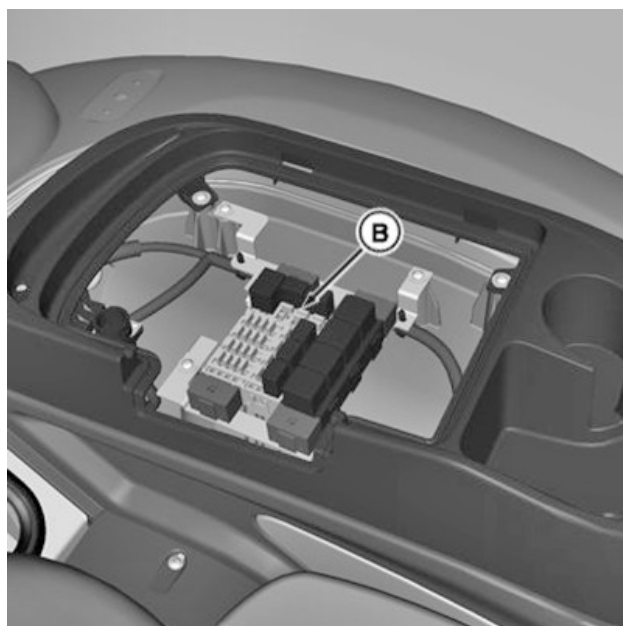
GS25068,0005AF7-19-10OCT18

## Replace Cab Fuses



CPA0004223—UN—08AUG17





CPA0004224—UN—08AUG17

A—Left Console Cover  
B—Fuse and Relay Load Center

**IMPORTANT:** Do not replace the original fuse with a higher rated fuse or machine damage occurs. If the original size fuse does not carry electrical load and continues to blow, have the electrical system checked by your John Deere dealer.

*NOTE:* A fuse and relay reference label is provided under cover.

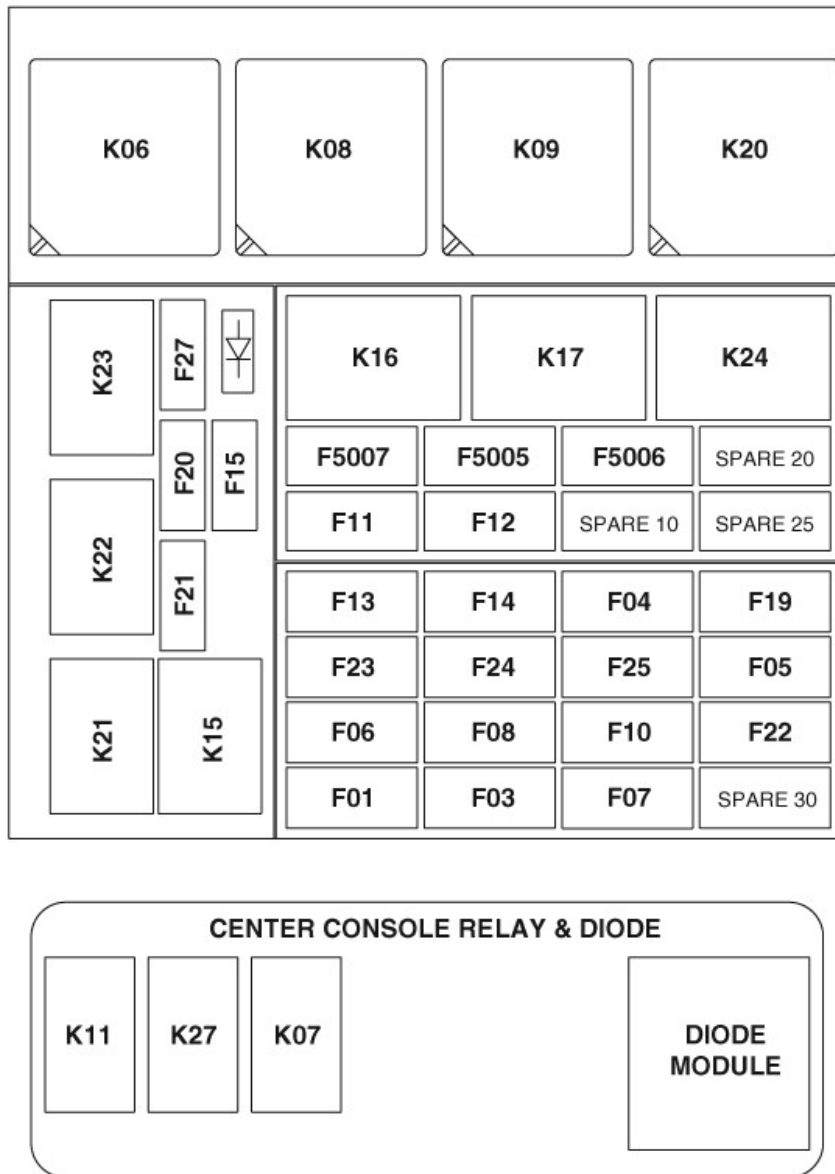
Remove left console cover (A) to access fuse and relay load center (B).

All electrical circuits are protected by fuses. Amperage rating is marked on each fuse, plus fuses are color coded to ensure proper replacement.

Fuse Rating in Amperes	Color
5	Tan
10	Red
15	Blue
20	Yellow
25	Clear
30	Green

*NOTE:* Most fuses and relays are located in the main load center as shown. Additional relays and a diode block are located inside the front console.

Fuses use a "F" designator and relays use a "K" designator as an identifier.



RXA0146184—UN—11NOV14

F01—Key Switch  
 F03—Dome Light  
 F04—Light Switch  
 F05—Head Lights  
 F06—Junction Block Unswitched Power  
 F07—Instrument Cluster  
 F08—Instrument Cluster  
 F10—Implement Power  
 F11—Junction Block Switched Power  
 F12—Radio  
 F13—Rear Work Lights  
 F14—Front Work Lights  
 F15—Tail Lights  
 F18—ELX Power  
 F19—Transmission Control Unit  
 F20—Cab Control Unit Sensors  
 F21—Transmission Control Unit  
 F23—Heating, Ventilation, and Cooling/Right Blower  
 F24—Wiper  
 F25—Left Blower  
 F27—Backup Alarm  
 F32—Subwoofer

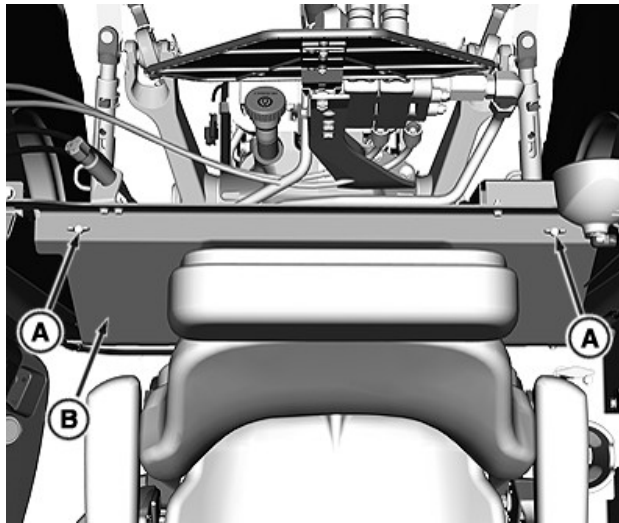
F35—Backup Alarm and Air Seat  
 F36—Monitor and Position Receiver  
 F37—Monitor and Position Receiver  
 F38—ATU  
 F5005—Engine Control Unit Power  
 F5006—Engine Control Unit Power  
 F5007—Engine Control Unit Power  
 K06—Implement Power  
 K07—Accessory Power  
 K08—Rear Work Lights  
 K09—Front Work Lights  
 K10—Accessory Power 2  
 K11—Neutral  
 K15—Electrohydraulic System  
 K16—Not Neutral  
 K17—Transmission Enable  
 K20—Heating, Ventilation, and Cooling  
 K21—Wiper  
 K22—Left Blower  
 K23—Right Blower  
 K24—Forward High  
 K25—Mid-SCV Retract

K26—Mid-SCV Extend  
K27—Head Lights  
Diode Module—Block of Diodes

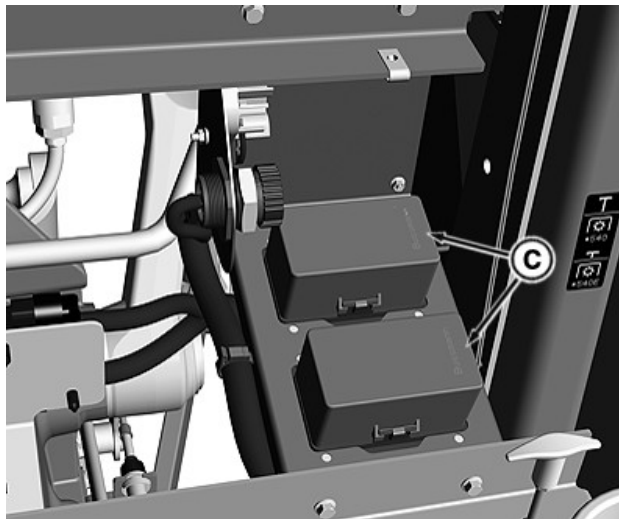
Diode Symbol—Single Diode  
Spare—Extra Fuses

DP51502,0000BD6-19-01DEC20

## Replace OOS and Low Profile Fuses



RXA0146181—UN—13NOV14



RXA0146182—UN—13NOV14

A—Wing Nuts  
B—Access Panel  
C—Covers

**IMPORTANT:** Do not replace the original fuse with a higher rated fuse or machine damage occurs. If the original size fuse does not carry electrical load and continues to blow, have the electrical system checked by your John Deere dealer.

**NOTE:** A fuse and relay reference label is provided under cover.

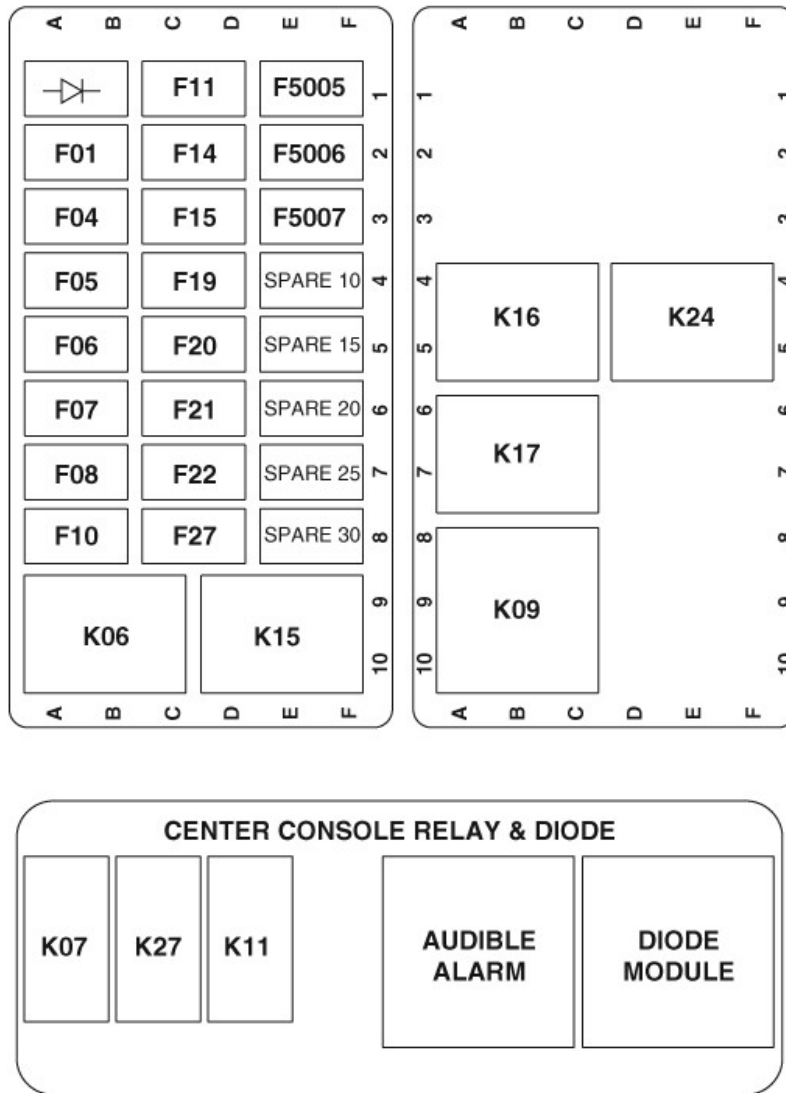
Remove wing nuts (A) and access panel (B). Remove cover (C) to access main fuse and relay load center.

All electrical circuits are protected by fuses. Amperage rating is marked on each fuse, plus fuses are color coded to ensure proper replacement.

Fuse Rating in Amperes	Color
5	Tan
10	Red
15	Blue
20	Yellow
25	Clear
30	Green

**NOTE:** Most fuses and relays are located in the main load center as shown. Additional relays and a diode block are located inside the front console.

Fuses use a "F" designator and relays use a "K" designator as an identifier.



OOS and Low Profile Load Center

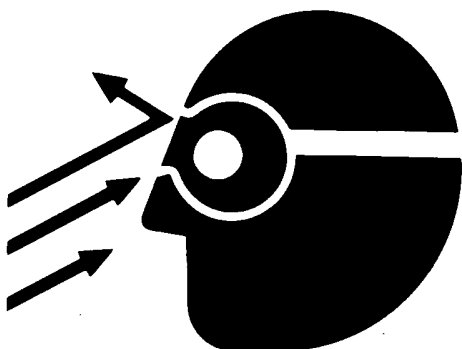
RXA0146330—UN—11NOV14

F01—Key Switch  
 F04—Light Switch  
 F05—Head Lights  
 F06—Junction Block Unswitched Power  
 F07—Instrument Cluster  
 F08—Instrument Cluster  
 F10—Implement Power  
 F11—Junction Block Switched Power  
 F14—Front Work Lights  
 F15—Tail Lights  
 F18—ELX Power  
 F19—Transmission Control Unit  
 F20—Cab Control Unit Sensors  
 F21—Transmission Control Unit  
 F22—Horn  
 F27—Backup Alarm  
 F5005—Engine Control Unit Power

F5006—Engine Control Unit Power  
 F5007—Engine Control Unit Power  
 K06—Implement Power  
 K07—Accessory Power  
 K09—Front Work Lights  
 K11—Neutral  
 K15—Electrohydraulic System  
 K16—Not Neutral  
 K17—Transmission Enable  
 K24—Forward High  
 K25—Mid-SCV Retract  
 K26—Mid-SCV Extend  
 K27—Head Lights  
 Diode Module—Block of Diodes  
 Diode Symbol—Single Diode  
 Spare—Extra Fuses

DP51502,0000BD7-19-01DEC20

## Handle Halogen Light Bulbs Safely



TS266—UN—23AUG88



H39474—UN—30JUN00

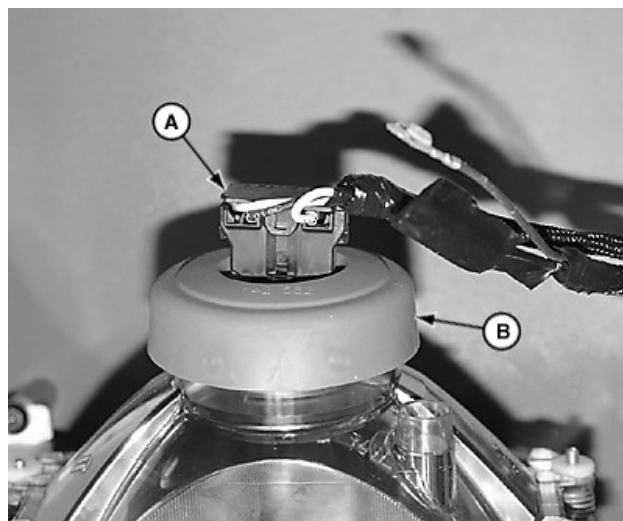
A—Halogen Bulb

**⚠ CAUTION:** Halogen bulbs (A) contain gas under pressure. Handling a bulb improperly could cause it to shatter into flying fragments. To avoid possible injury:

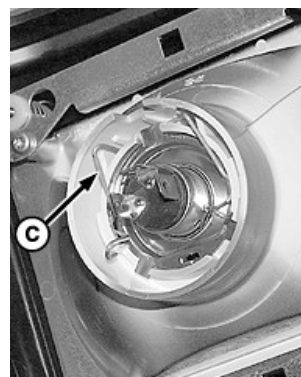
- Handle bulb by its base. Keep bulb oil free; wear gloves to avoid touching glass.
- Turn light switch off and allow bulbs to cool before changing. Leave switch off until bulb change is done.
- Wear eye protection.
- Do not drop or scratch bulb. Keep moisture away from bulb.
- Place used bulb in the new bulb carton and dispose of properly. Keep out of the reach of children.

DP51502,0002FAD-19-10JAN18

## Replace Halogen Headlight Bulb



LV14699—UN—25AUG11



LV9511—UN—01AUG04

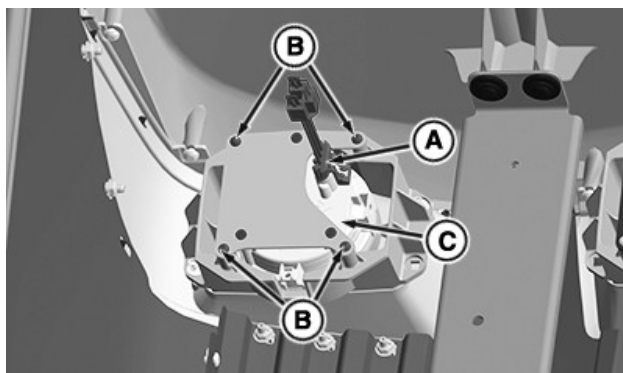
A—Wiring Harness Plug  
B—Dust Boot  
C—Retaining Spring

**⚠ CAUTION:** See Handle Halogen Light Bulbs Safely in this section.

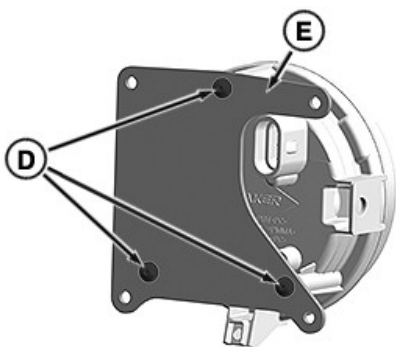
1. Raise hood.
2. Disconnect wiring harness plug (A).
3. Remove dust boot (B).
4. Unlatch retaining spring (C) and remove light bulb.
5. Install new bulb in reverse order of removal.
6. Adjust headlights, if necessary.

GS25068,0000D3B-19-10FEB20

## Replace LED Headlight



RXA0154413—UN—01NOV16



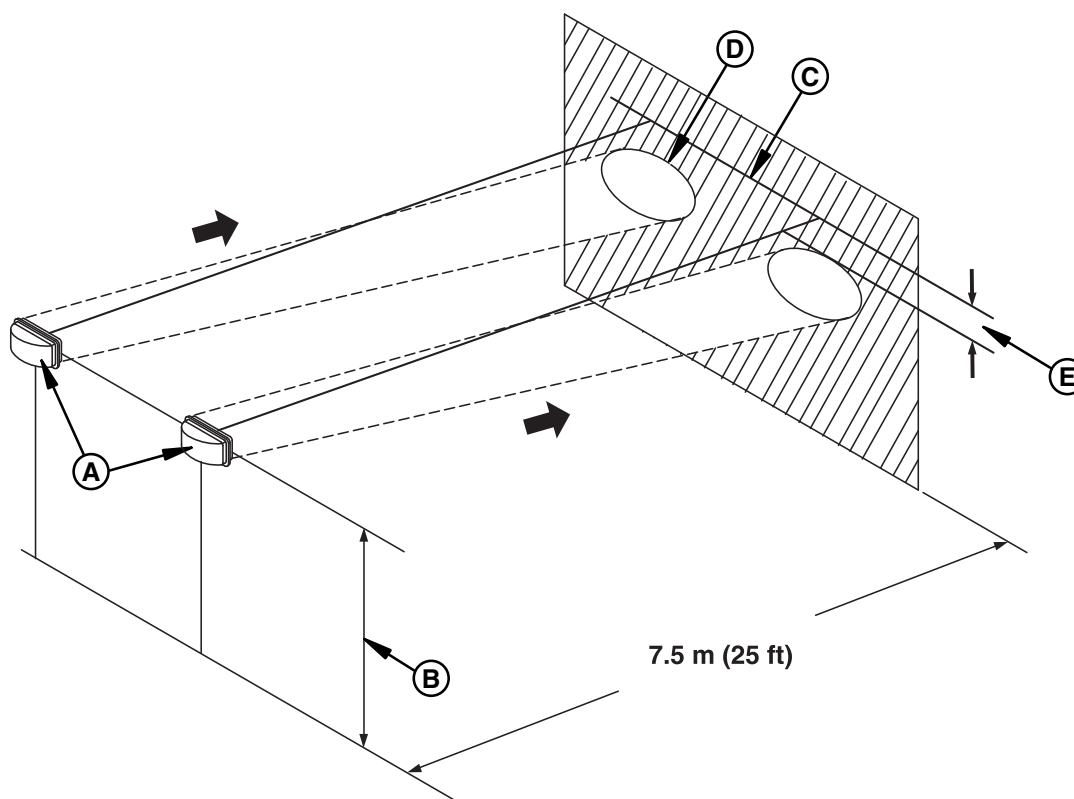
RXA0154414—UN—01NOV16

A—Harness Connector  
B—Light Retaining Screws  
C—LED Headlight Bulb  
D—Backing Plate Screw  
E—Backing Plate

1. Raise hood.
2. Disconnect wiring harness connector (A).
3. Remove light retaining screws (B).
4. Remove LED headlight bulb (C).
5. Remove screws (D) from backing plate (E).
6. Replace headlight bulb with a new part and reassemble in reverse order.

DP51502,0003001-19-18JAN18

## Headlight Adjustment



Headlight Aiming Diagram

PULV000659—UN—05MAY08

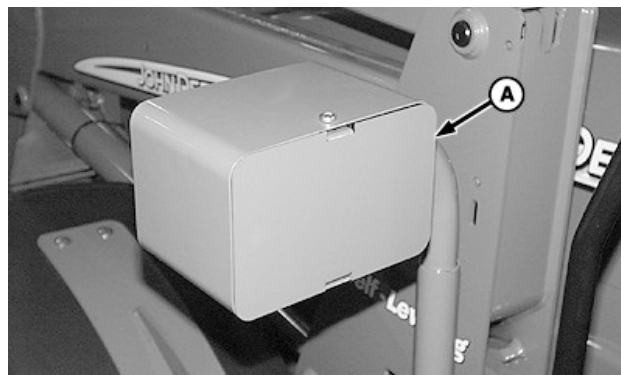
A—Headlights  
B—Distance from Center of Headlight to Ground  
C—Horizontal Line on Wall

D—Border of Bright Area  
E—10% of Distance (B)

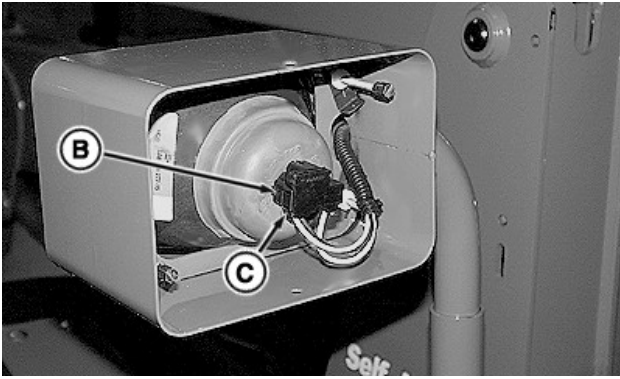
1. Park machine on a level surface with headlights (A) 7.5 meters (25 ft) from a vertical wall.
2. Measure the distance (B) from the center of a headlight to the ground.
3. Mark a horizontal line (C) on the wall, the same distance from the ground as (B).
4. Turn headlight switch to low beam and observe bright areas on the wall.
5. Use screws at the back of lights for adjustment.

GS25068,0000D3A-19-10FEB20

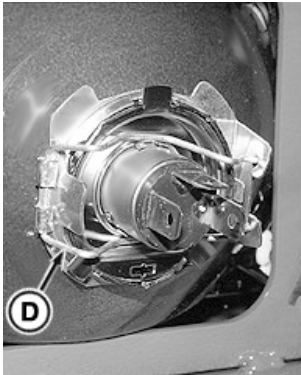
## Replace Loader Light Bulb



LV9548—UN—03AUG04



RXA0162297—UN—22FEB18



RXA0162298—UN—22FEB18

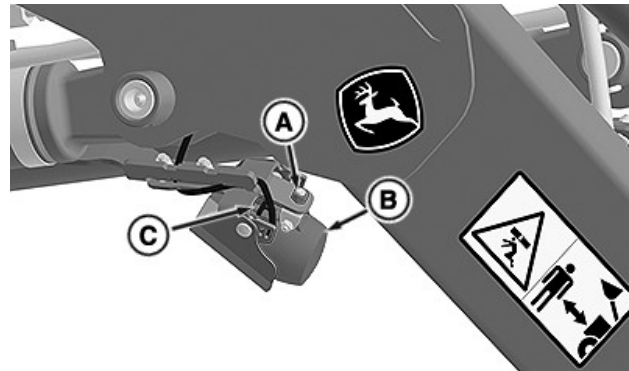
- A—Cover
- B—Dust Boot
- C—Wiring Harness Plug
- D—Retaining Spring

**CAUTION:** See Handle Halogen Light Bulbs Safely in this section.

1. Remove two screws and cover (A).
2. Disconnect wiring harness plug (B).
3. Remove dust boot (A).
4. Unlatch retaining spring (C) and remove light bulb.
5. Install new bulb in reverse order of removal.
6. Adjust, if necessary.

GS25068,0005AFB-19-10OCT18

## Replace Bucket Light



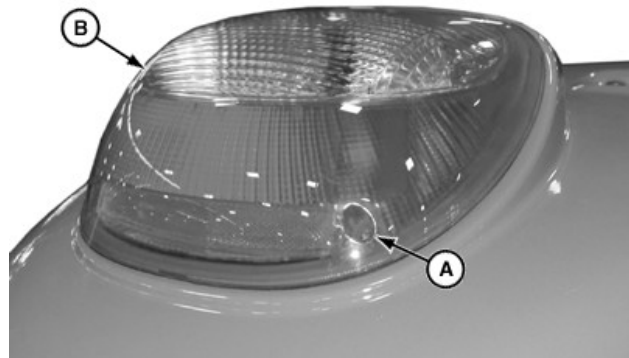
RXA0158319—UN—22MAR17

- A—Nut
- B—Light Fixture
- C—Wire Harness

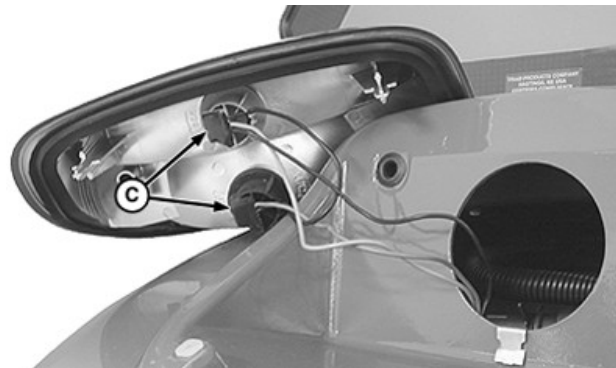
1. Remove nut (A).
2. Remove light fixture (B).
3. Disconnect wiring harness (C).
4. Install new light fixture in reverse order.
5. Adjust, if necessary.

DP51502,0002FB0-19-10JAN18

## Replace Cab Tail/Turn/Brake Light Bulb



LV14850—UN—04OCT11



LV12532—UN—13APR05

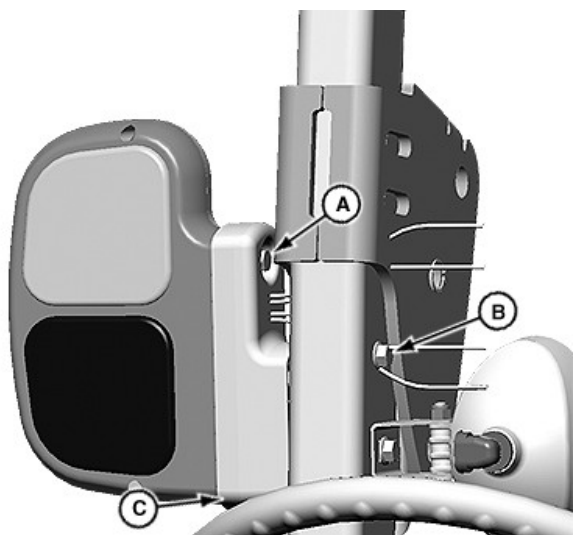
- A—Screws (2 used)
- B—Housing
- C—Sockets



1. Remove screws (A).
2. Pull housing (B) away from fender.
3. Rotate socket (C) and remove from housing.
4. Pull bulb to remove from socket.
5. Install new bulb in socket.
6. Reinstall in reverse order.

DP51502,0002FB1-19-10JAN18

## Replace OOS Tail/Turn/Warning Light Bulb



LV22993—UN—09SEP14



LV22998—UN—09SEP14



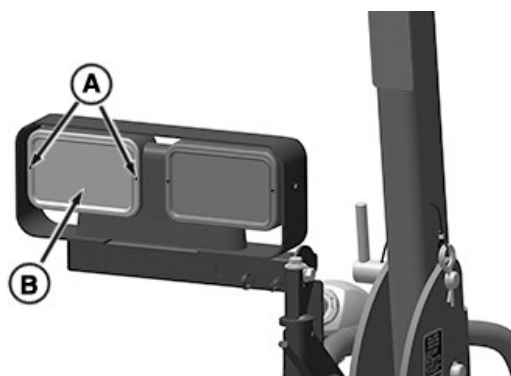
LV22999—UN—09SEP14

- A—Upper Bolt
- B—Lower Bolt
- C—Offset Bracket
- D—Screws
- E—Wiring Channel

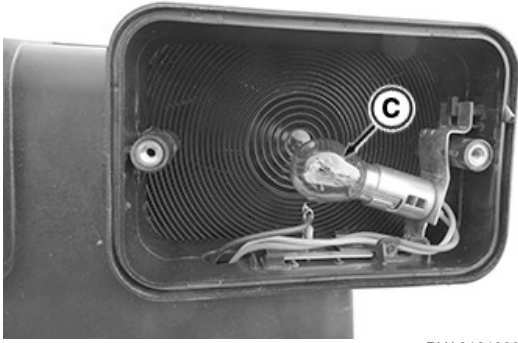
1. Remove upper bolt (A) and lower bolt (B) securing tail light housing to offset bracket (C).
2. To access light bulbs and sockets, remove four screws (D) securing lens housing.
3. Push and twist bulb to remove from socket.
4. Install new bulb, lens housing, and screws.
5. Install tail light to bracket ensuring that wires are routed in the wiring channel (E).
6. Install upper bolt and lower bolt.

GS25068,0003F80-19-13FEB18

## Replace Low-Profile Tail/Turn/Warning Light Bulb



RXA0161455—UN—19DEC17



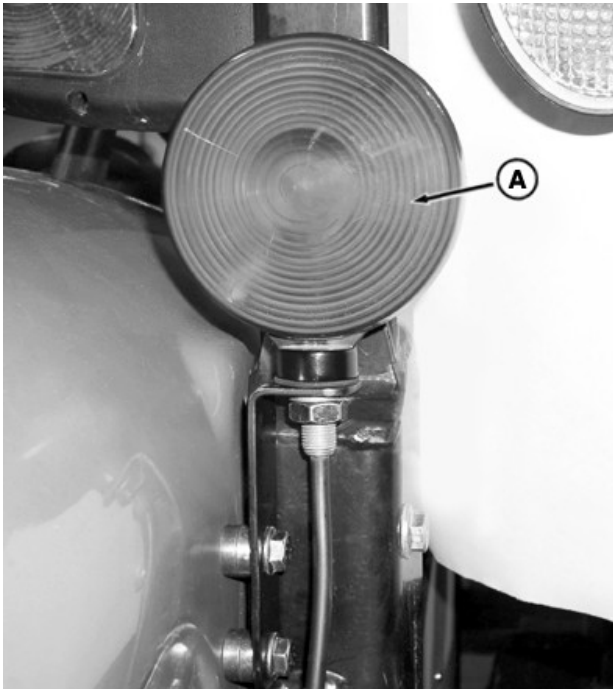
RXA0161838—UN—29JAN18

A—Screws  
B—Lens  
C—Bulb

1. Remove screws (A) and lens (B).
2. Turn and pull out on bulb (C) to remove. Push and turn to install new bulb.
3. Install lens (B) and screws (A).

GS25068,0003F85-19-13FEB18

## Replace OOS Brake Light Bulb

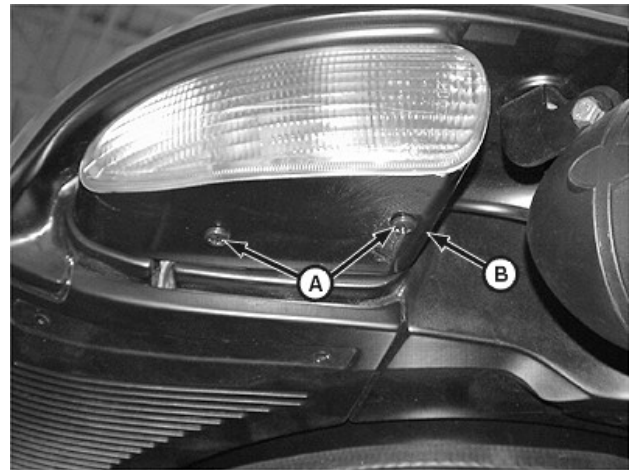


RXA0162107—UN—14FEB18

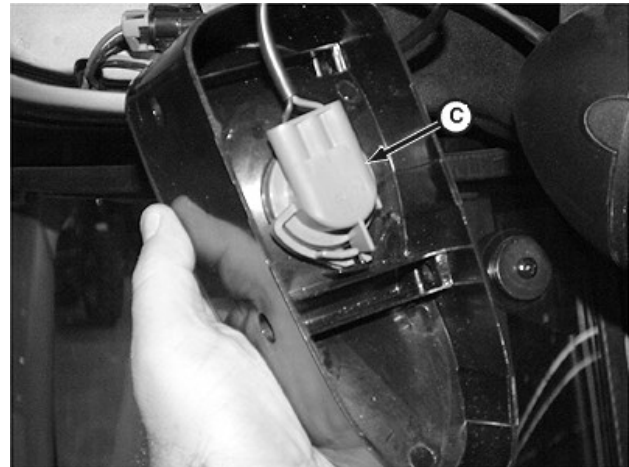
1. Pry off lens (A) to remove.
2. Turn and pull out on bulb to remove. Push and turn to install new bulb.
3. Install lens (A).

GS25068,0003F84-19-05MAR18

## Replace Cab Warning Light Bulb



LV5559—UN—29NOV00



LV5560—UN—29NOV00

A—Mounting Screws  
B—Housing  
C—Bulb and Socket

*NOTE: Bulb replacement procedures for front and rear warning lights are the same.*

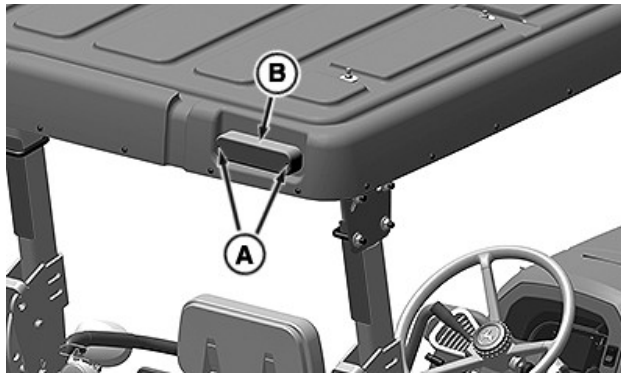
1. Remove mounting screws (A) securing housing (B) to cab roof.
2. Remove bulb and socket (C) from housing.
3. Pull bulb from socket.
4. Install new bulb and socket into housing.

*NOTE: Apply thread lock and sealer (medium strength) to mounting screws (A) if equipped with auxiliary work lights.*

5. Install housing and screws to cab roof.

DP51502,0002FB4-19-16JAN18

## Replace Canopy Warning Light Bulb

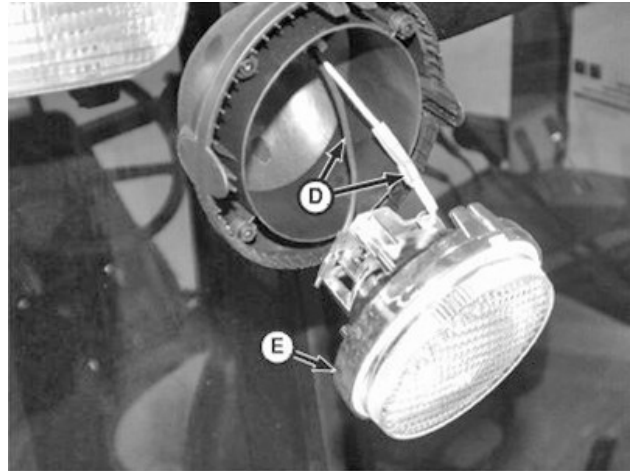


RXA0158323—UN—22MAR17

A—Screws  
B—Lens

1. Remove screws (A) from the light housing.
2. Remove lens (B).
3. Remove and replace the bulb.
4. Reinstall lens in reverse order.

DP51502,0002FB5-19-10JAN18



CPA0004234—UN—09AUG17

A—Screw Cover Slot  
B—Retaining Ring Screw (4 used)  
C—Retaining Ring  
D—Wiring Connectors  
E—Bulb

**CAUTION:** See Handle Halogen Light Bulbs Safely in this section.

*NOTE:* Bulb replacement procedures for front, rear, and optional auxiliary work lights are the same.

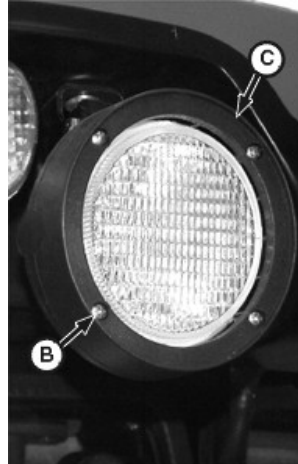
1. Remove screw cover by prying in the screw cover slot (A) with a screwdriver.
2. Remove retaining ring screws (B), retaining ring (C), and bulb (E).
3. Disconnect wiring connectors (D).
4. Install new bulb and connect wiring connectors.
5. Install lens, retaining ring, and screws.
6. Install cover.

GS25068,0005AFC-19-10OCT18

## Replace Cab Halogen Work Light Bulb

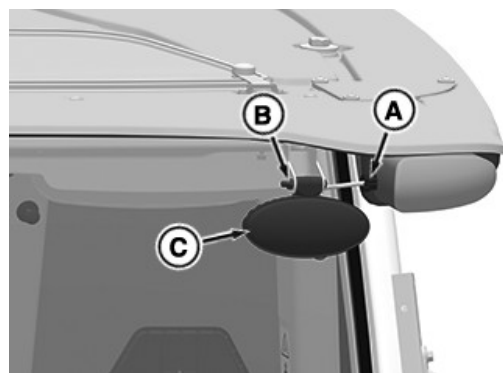


LV5569—UN—07DEC00



LV5570—UN—07DEC00

## Replace Cab LED Work Light



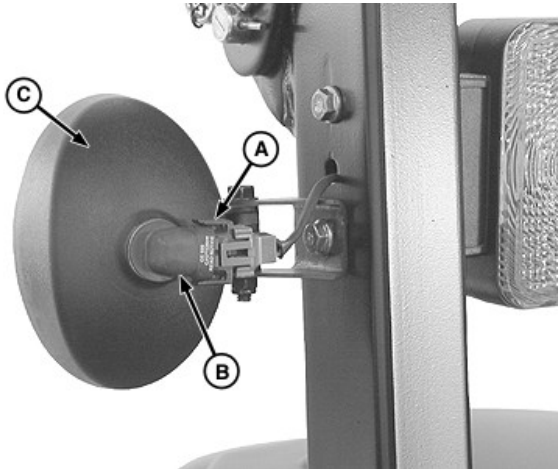
RXA0158320—UN—22MAR17

A—Wiring Harness Connector  
B—Retaining Bolt  
C—LED Work Light

1. Disconnect wiring harness connector (A).
2. Remove retaining bolt (B).
3. Replace LED work light (C).
4. Reinstall in reverse order.

OURX985,0003216-19-16JAN18

## Replace OOS and Low Profile Rear Work Light Bulb



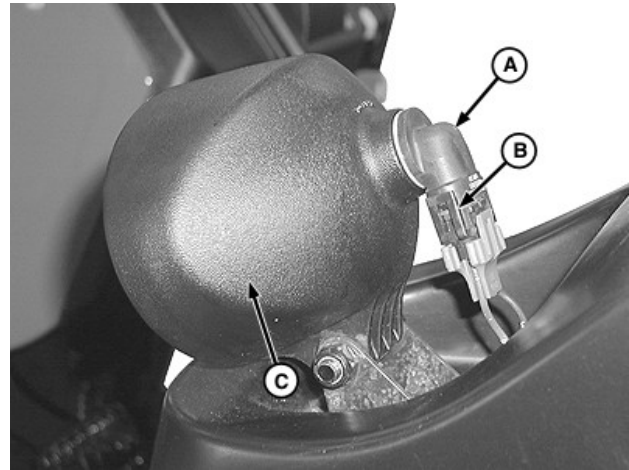
LV8585—UN—14AUG03

A—Wiring Harness Connector  
B—Bulb  
C—Housing

1. Disconnect wiring harness connector (A).
2. Rotate bulb (B) counterclockwise and remove from housing (C).
3. Install new bulb into the housing and rotate clockwise.
4. Connect wiring harness connector.

DP51502,0002FB7-19-16JAN18

## Replace OOS and Low Profile Fender Light Bulb



LV8586—UN—14AUG03

A—Bulb  
B—Wiring Harness Connector  
C—Housing

1. Disconnect wiring harness connector (B) from bulb (A).
2. Rotate bulb counterclockwise and remove from housing (C).
3. Install new bulb into the housing and rotate clockwise.
4. Connect wiring harness connector.

DP51502,0002FB8-19-10JAN18

## Replace Beacon Light Bulb Remove Assembly



LV12523—UN—13APR05



LV12524—UN—13APR05

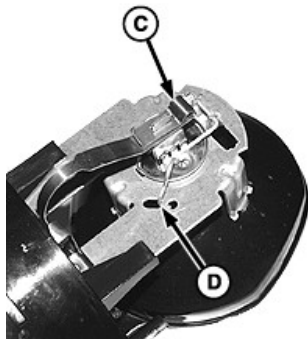
A—Wing Nut  
B—Rubber Cap

1. Loosen wing nut (A) and remove beacon light assembly.
2. Install rubber cap (B).
3. Install new bulb in reverse order of removal.

## Change Bulb



LV9695—UN—19AUG04



LV9696—UN—19AUG04

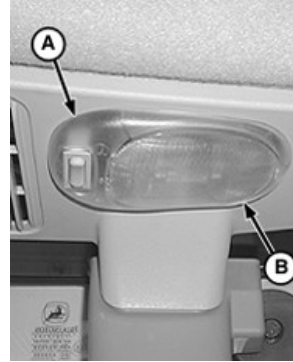
A—Tab  
B—Lens  
C—Tab  
D—Retaining Spring

**⚠ CAUTION: See Handle Halogen Light Bulbs Safely in this section.**

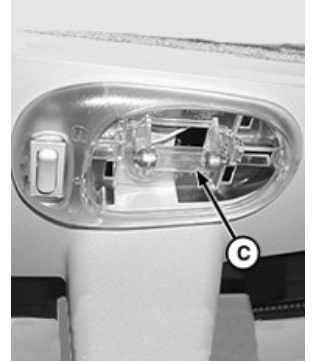
1. Depress tab (A) and rotate the lens (B) counterclockwise to remove.
2. Pull tab (C) away from bulb.
3. Unlatch retaining spring (D) and remove the light bulb.
4. Install new bulb in reverse order of removal.

GS25068,0005AFD-19-10OCT18

## Replace Dome Light Bulb



LV12533—UN—13APR05



LV12534—UN—13APR05

A—Housing  
B—Cover  
C—Bulb

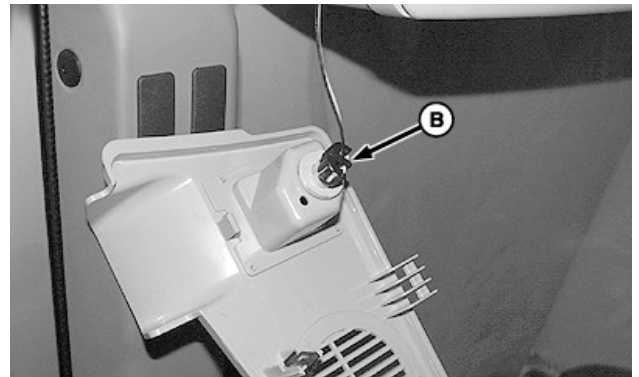
1. Remove cover (B) from housing (A).
2. Pull bulb (C) from socket.
3. Install new bulb and cover.

DP51502,0002FBA-19-10JAN18

## Replace Right-Hand Console Light Bulb



LV9515—UN—07AUG04



LV9598—UN—07AUG04

A—Panel  
B—Light Socket

1. Pry off panel (A).

2. Rotate light socket (B) counterclockwise 1/4 turn and remove.
3. Pull light bulb from socket.
4. Install new bulb in reverse order of removal.

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DP51502,0002FBB-19-10JAN18

# Drivetrain Maintenance

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## Drivetrain Information

The drivetrain information is broken up into different functional systems for operation and maintenance. See the following sections within this manual for detailed information:

### Operational Sections

- Transmission Operation
- MFWD and Front Axle Operation
- Differential and Rear Axle Operation
- Power Take-Off (PTO) Operation

### Maintenance Sections

- Transmission Maintenance
- MFWD and Front Axle Maintenance
- Differential and Rear Axle Maintenance
- Power Take-Off (PTO) Maintenance

GS25068,0005AFE-19-10OCT18

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# Transmission Maintenance

## Change Transmission/Hydraulic Oil and Filter

See Hydraulics Maintenance section for procedure.

GS25068,0005AFF-19-10OCT18

## Check Neutral Start System

### MAINTENANCE INTERVAL

Every 600 Hours

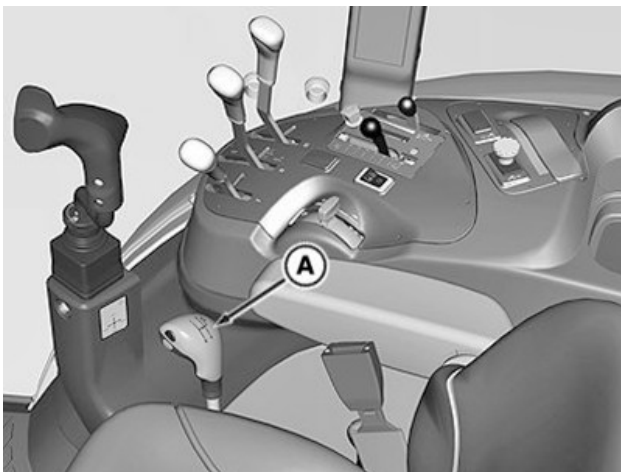
**CAUTION:** If engine starts when transmission controls are not in neutral or park position, repair neutral start system immediately. See your John Deere dealer.

**CAUTION:** If PTO rotates in any position when starting engine, repair neutral start system immediately. See your John Deere dealer.

**Do not leave seat with the engine running and PTO engaged.**

*NOTE: Machine is designed to prevent inadvertent movement or PTO engagement when engine is started.*

## Transmission Check



CPA0004235—UN—09AUG17

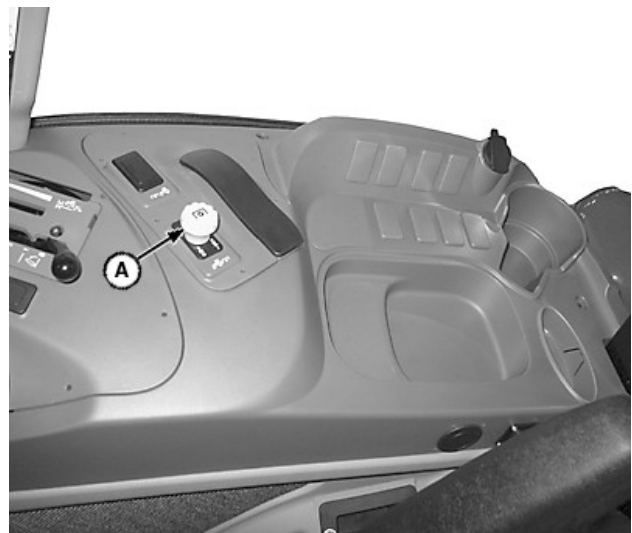


LV14425—UN—17AUG11

A—Gear Shift Lever  
B—Reverser Lever

1. Shut off engine.
2. Depress clutch pedal and brake pedals.
3. Place gearshift lever (A) in any gear. Lever must not be in neutral or park.
4. Place reverser lever (B) into forward or reverse direction position.
5. Attempt to start engine.

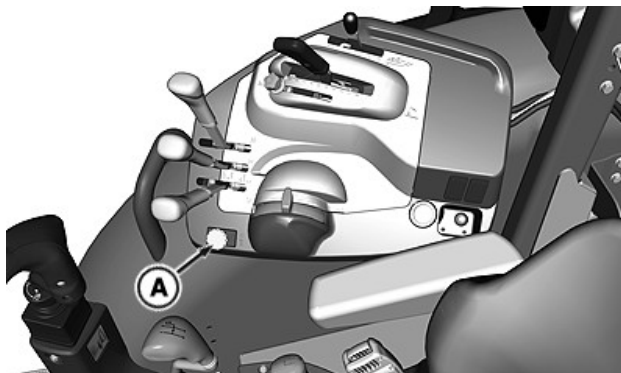
## PTO Check



LV14213—UN—02MAY11

Cab





RXA0146071—UN—27OCT14

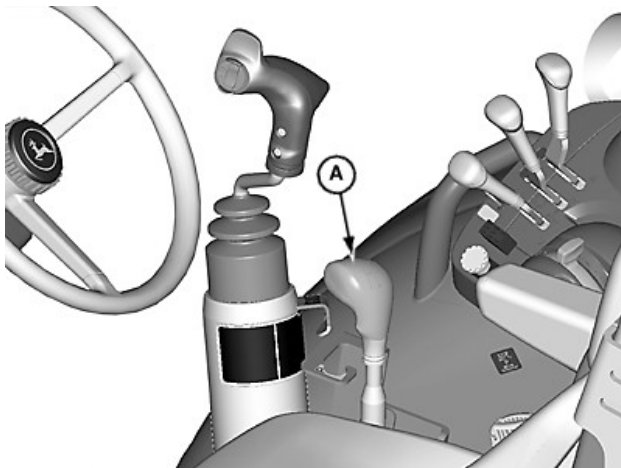
OOS and Low Profile

#### A—PTO Switch

1. Shut off engine.
2. Place transmission in Park position.
3. If equipped, place shiftable PTO speed lever into 540 position.
4. Place PTO engagement switch (A) in engaged position.
5. Start engine. Engine starts but PTO must not rotate.
6. Shut off engine, shift PTO lever to another speed and repeat process.

GS25068,0005B00-19-10OCT18

### Check Transmission Park System



LV15528—UN—05MAR12



CPA0004237—UN—09AUG17

A—Gearshift Lever  
B—Reverser Lever

**CAUTION:** Avoid personal injury. Make sure that everyone is clear of machine.

If machine does not hold stationary on an incline in Park, see your John Deere dealer immediately for repairs.

1. Position machine on a 30% incline [1 m (3.3 ft) vertically for every 3 m (9.8 ft) horizontally] with the front of machine facing downward.
2. Depress clutch pedal and brake pedals.
3. Place gearshift lever (A) in Park position.
4. Place reverser lever (B) in Neutral position.
5. Release the clutch and brake pedals. Wait 10-15 seconds, watching for movement.

DP51502,0002FBD-19-10JAN18

### Replace Transmission Dampener

<b>MAINTENANCE INTERVAL</b> <b>Every 4500 Hours/Five Years</b>
---

Have your John Deere dealer inspect and service the transmission dampener.

GS25068,0005B01-19-10OCT18

# MFWD and Front Axle Maintenance

## Check Axle Pivot Pin End Play

**MAINTENANCE INTERVAL**  
Every 600 Hours

Ask your John Deere dealer to check the front axle pivot pin for correct end play.

GS25068,0005B02-19-10OCT18

## Check MFWD Axle for Oil Leaks

**MAINTENANCE INTERVAL**  
Weekly or 50 Hours

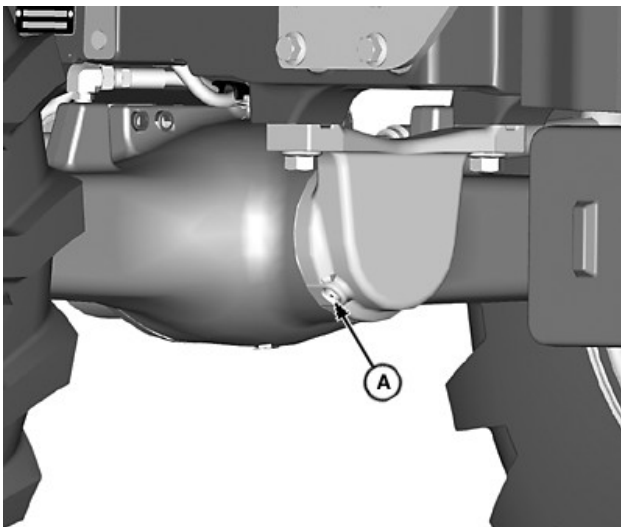
Check MFWD axle housing and wheel hub for leaks. Ensure that no oil leaks from the drain plug and fill port.

**NOTE:** If oil leaks, replace drain plug and fill port. If oil leaks in excess, see your John Deere dealer.

GS25068,0005B03-19-10OCT18

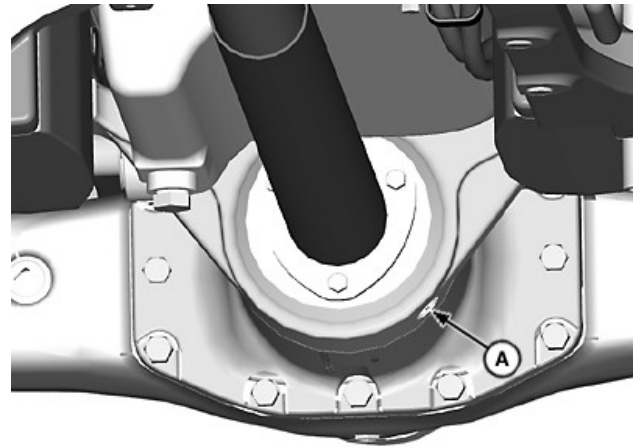
## Lubricate MFWD Axle Trunnion

**MAINTENANCE INTERVAL**  
Weekly or 50 Hours



Front Side of Axle

LV14409—UN—08JUN11



Back Side of Axle

LV14410—UN—08JUN11

### A—Trunnion Grease Points

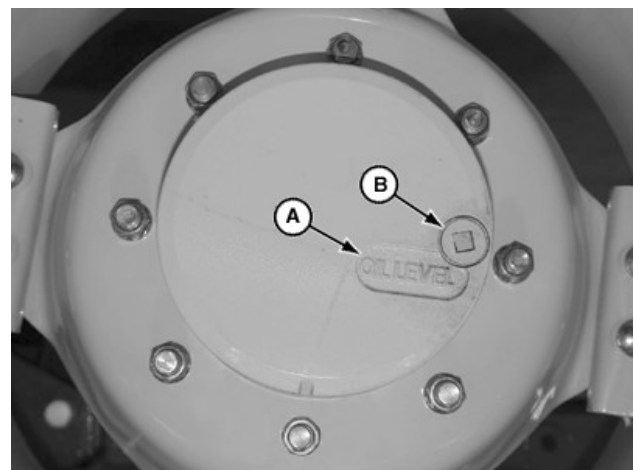
Apply several shots of multi-purpose grease to trunnion. (See Fuel, Lubricants, and Coolants section.)

**NOTE:** Daily maintenance is necessary when operating in wet and muddy conditions.

GS25068,0005B04-19-10OCT18

## Check MFWD Axle Housing and Wheel Hub Oil Levels

**MAINTENANCE INTERVAL**  
Every 300 Hours



Drain and Fill Plug

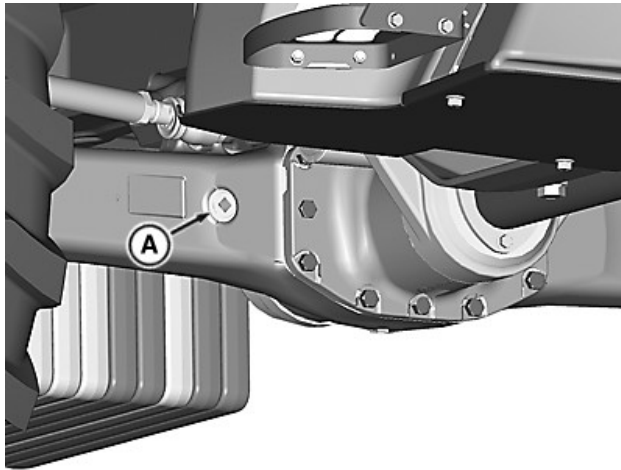
LV14649—UN—18AUG11

A—Oil Level  
B—Drain/Fill Port Plug

1. Park machine on a level surface, with wheel rotated until drain/fill port plug (B) is parallel to ground.
2. Remove drain/fill port plug (B).
3. Correct oil level is (A) at bottom of the drain/fill port.
4. Install drain/fill port plug and tighten to specifications.

**Specification**

Drain/Fill Port Plug—Torque. . . . . 70 N·m  
(52 lb·ft)



**A—Fill/Level Plug**

RXA0161442—UN—22JAN18

5. Remove fill/level plug (A).
6. Correct oil level at bottom of port.
7. Install fill/level port plug and tighten to specifications.

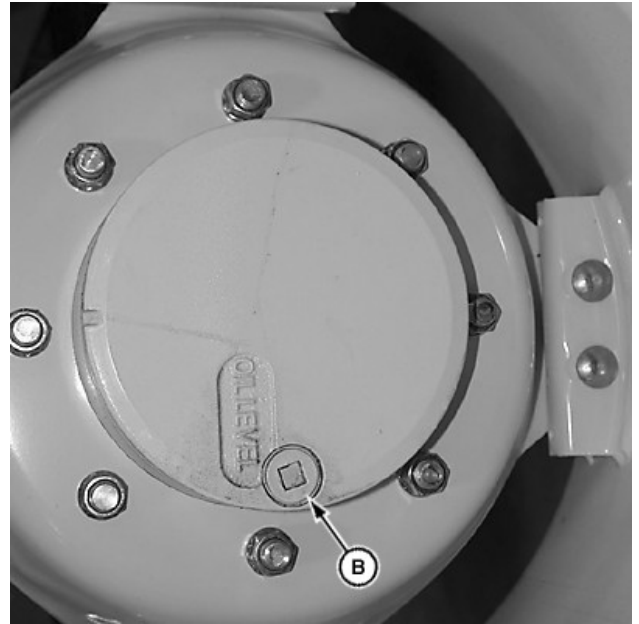
**Specification**

Fill/Level Port Plug—Torque. . . . . 70 N·m  
(52 lb·ft)

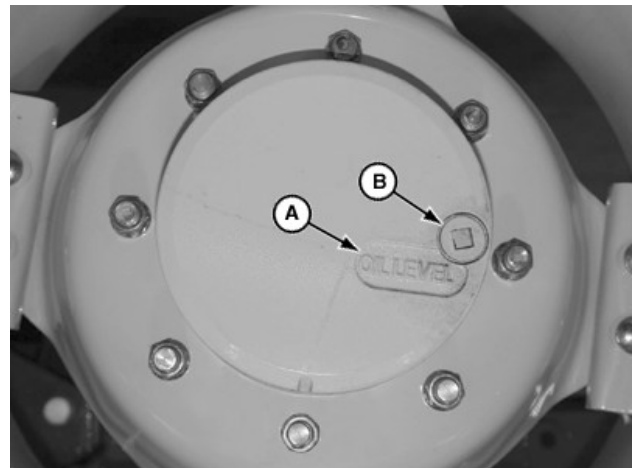
GS25068,0005B05-19-10OCT18

## Change MFWD Axle Wheel Hub Oil

<b>MAINTENANCE INTERVAL</b> Every 600 Hours
--



LV15529—UN—05MAR12



LV14649—UN—18AUG11

**Drain/Fill Plug**

**A—Oil Level**  
**B—Drain/Fill Port Plug**

**NOTE:** Approximate oil capacity for MFWD hubs is 0.8 L (0.9 qt). (See Fuel, Lubricants, and Coolants section.)

1. Park machine on a level surface, with wheel rotated until drain/fill port plug (B) is at bottom of hub.
2. Remove drain/fill port plug and drain oil.
3. After oil has drained, move and park machine so that "OIL LEVEL" mark at the drain/fill port is parallel to ground.
4. Add Hy-Gard™ J20C until it reaches oil level (A) at bottom of the drain/fill port.
5. Install drain/fill port plug and tighten to specifications.

**Specification**

Drain/Fill Port Plug—Torque. . . . . 70 N·m  
(52 lb·ft)

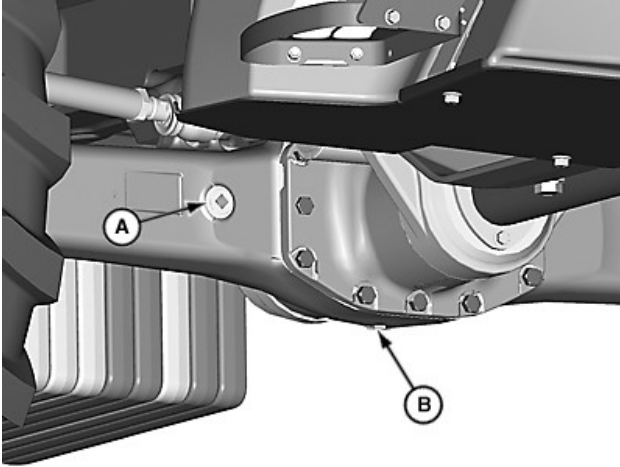
GS25068,0000AD0-19-14NOV19

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## Change MFWD Axle Housing Oil

**MAINTENANCE INTERVAL**

Every 600 Hours



LV14651—UN—17AUG11

**A—Fill Plug**  
**B—Drain Plug**

**NOTE:** Approximate MFWD axle housing oil capacity is 5 L (1.3 gal). (See *Fuel, Lubricants, and Coolants* section.)

1. Park machine on level ground. Remove key.
2. Remove fill plug (A) and drain plug (B).
3. Install drain plug and tighten to specification.
4. Add Hy-Gard™ J20C until even with the bottom of fill plug.
5. Install the fill plug and tighten to specification.

**Specification**

Plug to Housing—Torque. . . . . 70 N·m  
(52 lb·ft)

GS25068,0005B07-19-10OCT18

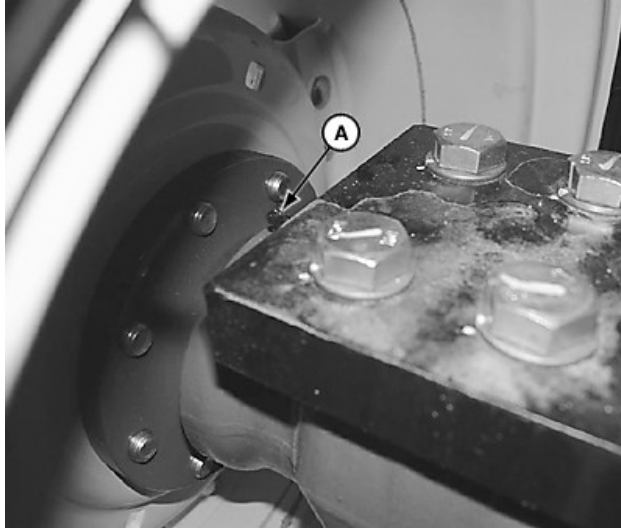
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# Differential and Rear Axle Maintenance

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## Lubricate Rear Axle Bearings

<b>MAINTENANCE INTERVAL</b> Every 600 Hours
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LV14653—UN—17AUG11

**A—Grease Point**

*NOTE: Maintain more often if operated in wet and muddy conditions.*

Lubricate rear axle grease points (A) on left and right-hand sides of the axle with several shots of multipurpose grease. (See Fuel, Lubricants, and Coolants section.)

GS25068,0005B08-19-10OCT18

# Power Take-Off (PTO) Maintenance

## Adjust PTO Speed Shift Lever

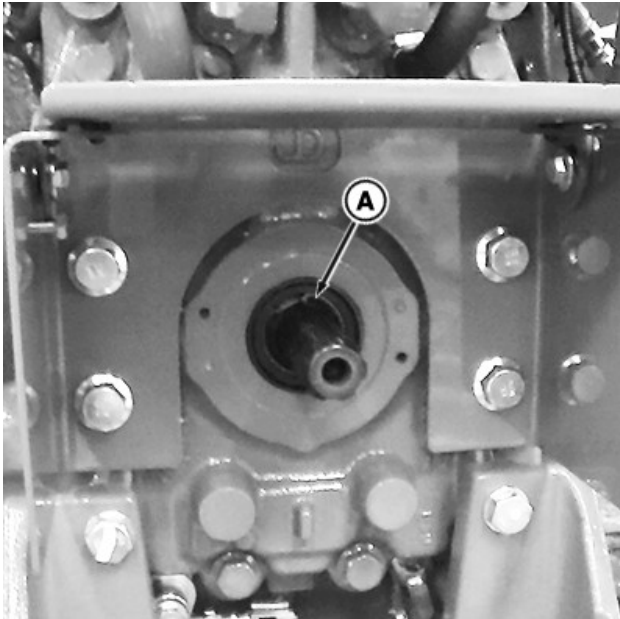
Have your John Deere dealer check and adjust PTO speed shift lever.

DP51502,0002FC4-19-10JAN18

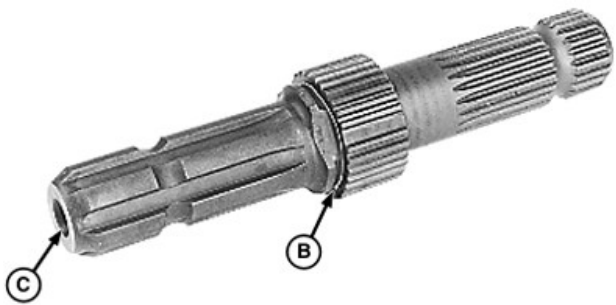
## Lubricate Exchangeable 540/1000 rpm PTO Shaft

### MAINTENANCE INTERVAL

Annually



RXA0155648—UN—11NOV16



LV12604—UN—26APR05

A—Snap Ring  
B—Stub Shaft  
C—Bore

**IMPORTANT:** Ensure that PTO is stopped and allowed to cool before servicing.

*NOTE:* When exchanging the PTO shaft, hydraulic oil does not leak out due to a dry socket design.

1. Locate flattened area on the stub shaft which facilitates snap ring removal and installation.

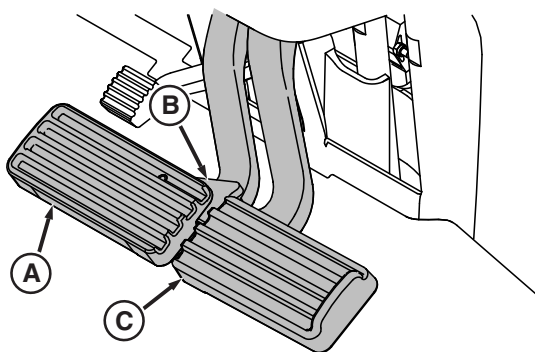
2. Align snap ring ends with flattened area. Remove snap ring (A) and pull out PTO shaft (B).
3. Clean PTO shaft thoroughly and apply a light coat of grease. Be sure the end bore (C) is clean if installing shaft for 1000 rpm operation.
4. Turn PTO shaft end-for-end and insert in the PTO housing until snap ring groove is visible.
  - a. **540 rpm shaft**—Rotate the shaft back and forth while installing. Ensure that the shaft is properly seated in housing; continue to push shaft in when installing snap ring.
  - b. **1000 rpm shaft**—Rotate the shaft back and forth while installing until engagement is felt.
5. Install snap ring in the groove to retain PTO stub shaft. Align ends of the snap ring with flat surface of shaft.

GS25068,0005B09-19-10OCT18

# Steering and Brake Maintenance

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## Check Manual Brakes



RXA0068386—UN—27AUG03

A—Left Brake Pedal  
B—Latch Bar  
C—Right Brake Pedal

**IMPORTANT:** Any noticeable pedal drift downward from initial point of resistance (solid pedal) indicates brake leakage. See your John Deere dealer.

1. Machine must be in park, with engine shut off to check brakes for correct function.
2. Position latch bar (B) to allow brake pedals to operate separately.
3. Pump the left brake pedal (A) and right brake pedal (C) individually. Pedals must have a solid feel. If pedals do not feel solid, have your John Deere dealer bleed brakes.
4. Check to make sure that pedals do not settle to end of stroke within 10 seconds after being applied. If leakage exceeds this rate, or if one pedal settles faster than the other, see your John Deere dealer.

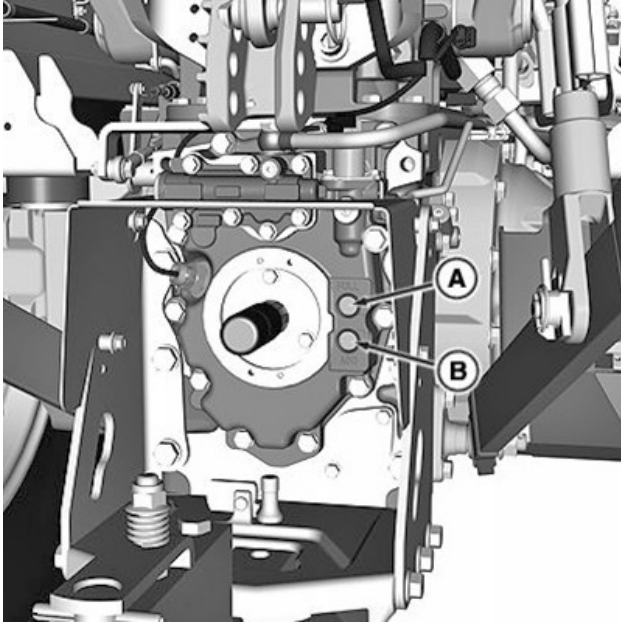
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# Hydraulics Maintenance

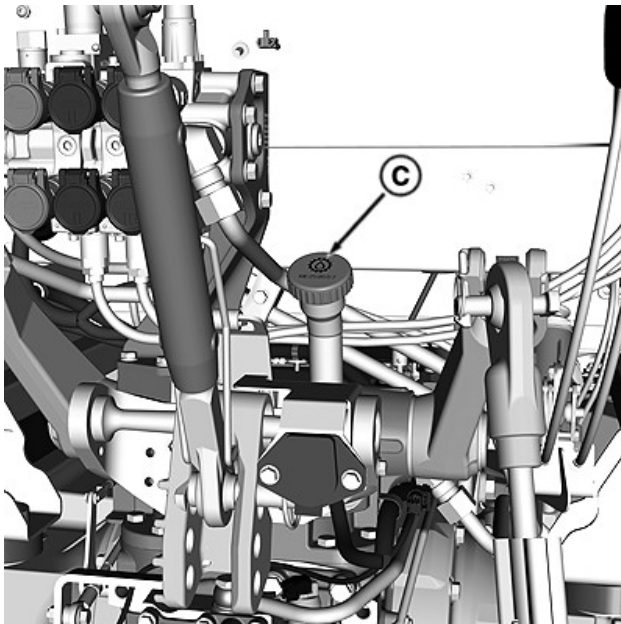
## Check Transmission/Hydraulic System Oil Level

### MAINTENANCE INTERVAL

Weekly or 50 Hours



CPA0004245—UN—09AUG17



RXA0146335—UN—12NOV14

A—FULL Sight Glass  
B—ADD Sight Glass  
C—Fill Cap

**IMPORTANT:** Oil level below top sight glass can result in power loss and heat generation during transport.

*NOTE: Oil temperature should be approximately 45°C (113°F). Sight glass observations will be significantly higher with hotter oil temperatures and lower with colder oil.*

1. Operate engine at 1000 rpm for a minimum of one minute.
2. Park machine on level ground and fully lower hitch.
3. Stop engine and wait three minutes before checking oil level.
4. Observe oil level in sight glasses at rear of PTO housing. Oil level should appear at BOTTOM of FULL sight glass (A).
5. If oil level is low, remove fill cap (C) and add transmission/hydraulic oil until oil level appears at the bottom of full sight glass. (See Fuel, Lubricants, and Coolants section for correct oil.)

*NOTE: If oil level is extremely low, it may be necessary to repeat this procedure after filling to ensure level is correct.*

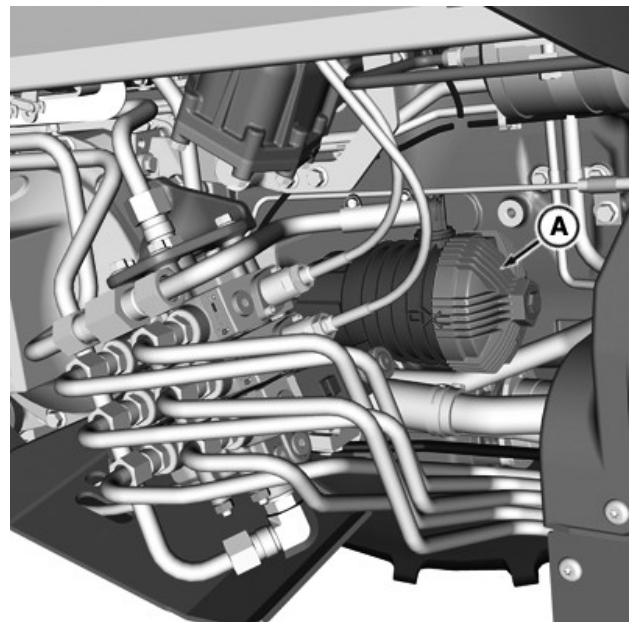
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## Change Transmission/Hydraulic Filter

### MAINTENANCE INTERVAL

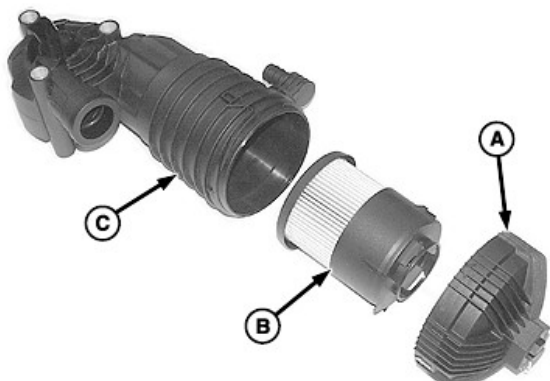
INITIAL — 100 Hours

REGULAR — Every 600 Hours



RXA0146168—UN—03NOV14





LV9610—UN—10AUG04

A—Cover  
B—Filter Element  
C—Housing

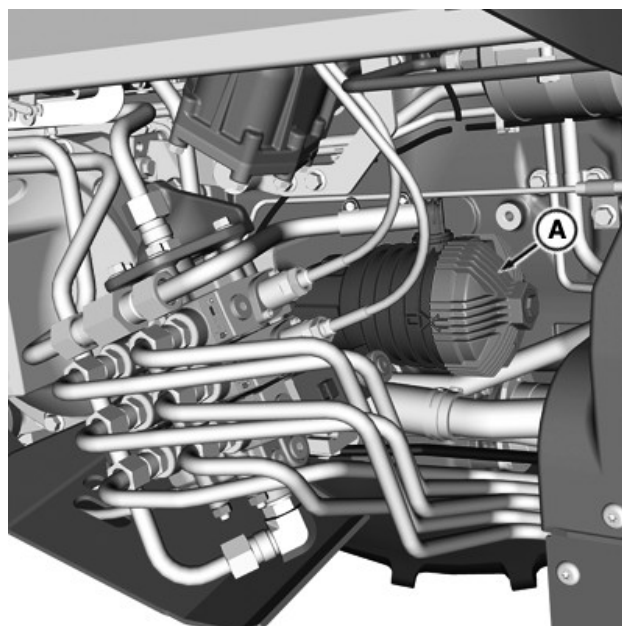
**IMPORTANT:** Capture oil from reservoir and filter using a drain pan. Dispose of waste oil properly.

1. Park machine on level ground, shut off engine, and remove key.
2. Remove cover (A) and filter.
3. Separate filter element (B) from cover. Discard filter element.
4. Clean cover, threads on the filter housing, and seal inside cover.
5. Assemble new filter element and cover. Filter should snap into cover.
6. Install cover and filter assembly.
7. Run engine several seconds and check transmission/hydraulic system oil level. (See Check Transmission/Hydraulic System Oil Level in this section.)
8. Add transmission/hydraulic oil as required. (See Fuel, Lubricants, and Coolants section for correct oil.)

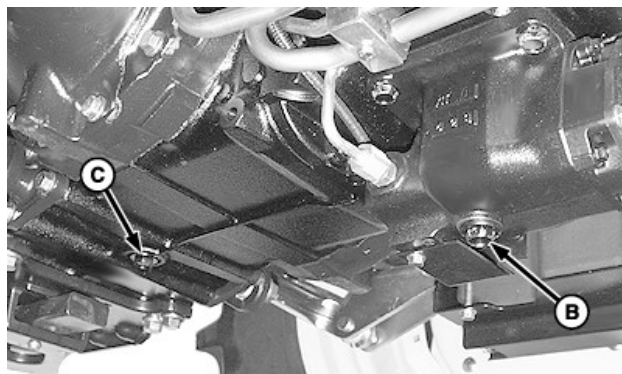
GS25068,0005B0B-19-10OCT18

## Change Transmission/Hydraulic Oil and Filter

<b>MAINTENANCE INTERVAL</b> Every 1200 Hours
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RXA0146168—UN—03NOV14



LV9622—UN—10AUG04

A—Filter  
B—MFWD Gearbox Drain Plug  
C—Transmission Case Drain Plug

**IMPORTANT:** Capture oil from reservoir and filter using a drain pan. Dispose of waste oil properly.

1. Lower rear hitch.
2. Park machine on level ground, shut off engine, and remove key.
3. Remove MFWD gearbox drain plug (B) and transmission case drain plug (C).
4. Replace filter (A) while draining oil. (See Change Transmission/Hydraulic Filter in this section.)
5. Replace drain plugs.
6. Fill system with transmission/hydraulic oil. (See Fuel, Lubricants, and Coolants section for correct oil.)

### Specification

12/12 PowrReverser™	
Transmission—Capacity. . . . .	43.5 L (11.5 gal)
24/12 PowrReverser™	
Transmission—Capacity. . . . .	45 L (12 gal)

7. Check transmission/hydraulic system oil level after filling. (See Check Transmission/Hydraulic System Oil Level in this section.)
8. Check oil level again after operating for 5 minutes.

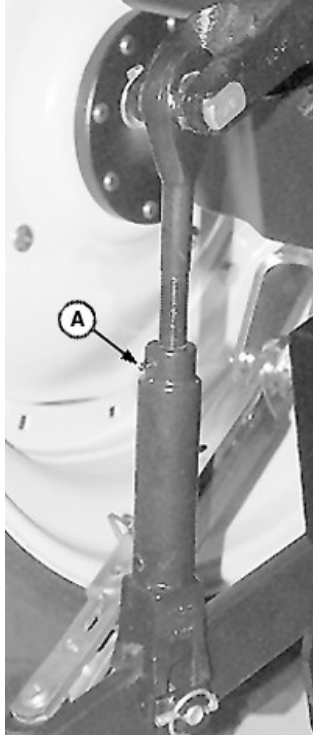
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GS25068,0005B0C-19-10OCT18

# Hitch and Drawbar Maintenance

## Lubricate Rear Hitch

<b>MAINTENANCE INTERVAL</b> Weekly or 50 Hours
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LV14236—UN—03MAY11

Lubricate grease points (A and B) on lift links with several shots of multipurpose grease. (See Fuel, Lubricants, and Coolants section.)

*NOTE: Grease daily if operated in wet and muddy conditions*

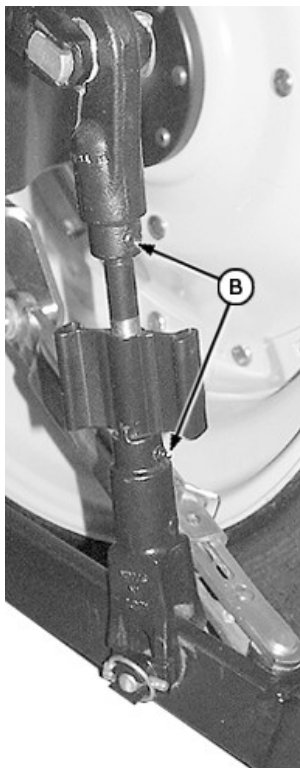
GS25068,0005B0D-19-10OCT18

## Inspect Hitch and Drawbar for Excessive Wear

<b>MAINTENANCE INTERVAL</b> Every 300 Hours
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Visually inspect the hitch and drawbar for excessive wear, hole deformation, cracks, or damage. Replace parts as needed, see your John Deere dealer.

GS25068,0005B0E-19-10OCT18



LV14237—UN—10MAY11

A—Left Link Lift Grease Point  
B—Right Lift Link Grease Points

# Selective Control Valve Maintenance

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## **Adjust Mechanical SCV Cables**

See your John Deere dealer for adjusting mechanical mid and rear SCV cables.

CO00266,00002B2-19-04AUG17

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# Wheels and Tires Maintenance

## Inspect Tires

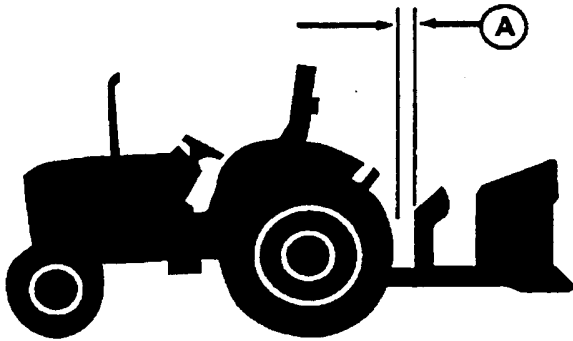
**MAINTENANCE INTERVAL**  
Weekly or 50 Hours

**IMPORTANT: Keep wheel hardware tight for safety.**

1. Check tires daily for damage or noticeably low pressure.
2. Have any cuts or breaks repaired as soon as possible.
3. At least every 50 hours of operation, 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 the valve stem at bottom.
4. Check wheel hardware torque before operating, twice during first 10 hours of operation and thereafter every week/50 hours of operation.
5. Remove chemicals and petroleum products from tires as soon as possible to avoid damage.

GS25068,0005B0F-19-10OCT18

## Adjust and Check Clearance



A—Clearance

M47177—UN—31JAN92

**IMPORTANT: Whenever an implement, quick coupler, or attachment is connected to the hitch, check full range of operation for interference, binding, or PTO separation.**

**When large diameter rear tires are installed, a quick coupler or similar device is required to provide adequate implement-to-tire clearance.**

1. Adjust center link and lift links as necessary. (See Level Hitch in Hitch and Drawbar Operation section.)
2. Adjust sway as necessary. (See Adjust Hitch Side Sway in Hitch and Drawbar Operation section.)
3. Start engine.

4. Slowly raise and lower implement with hitch fender switch or position lever.
5. Watch for interference points and adjust hitch setting as required.
6. Check for adequate clearance (A) between outside diameter of the tire and implement with hitch in raised position.

GS25068,0005B10-19-10OCT18

## Check Tire Inflation Pressure

**MAINTENANCE INTERVAL**  
Weekly or 50 Hours

### Consider the Following When Inflating Tires:

- At least every 50 hours 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 the valve stem at bottom.
- Correctly inflated radial tires show a large deflection of the sidewall or “cheeks.” Deflection is normal and does not damage the tire if the inflation pressure is maintained.
- Overinflation reduces performance and increases strain of both tire and rim.
- Regularly monitor inflation pressures less than 80 kPa (0.8 bar) (12 psi) because of the increased risk of low pressure leaks (especially due to leaking valve cores).
- When operating machine on a steep side slope or furrow plowing, increase inflation pressures 28 kPa (0.28 bar) (4 psi) above the values listed to compensate for lateral weight transfer.
- Tires run as singles in high-traction conditions sometimes experience bead slip. Increasing the inflation pressure compensates for this condition but causes reduced traction.
- If higher load capacities are needed, contact your John Deere dealer for tire manufacturer load and inflation table information.
- Maximum tire pressure is specified on the tire sidewall.
- Increase front tire pressures 30 kPa (0.3 bar) (4 psi) above values listed when operating with a loader to compensate for weight transfer.

GS25068,0005B11-19-10OCT18

## Tire Pressures

Long life and satisfactory performance of the tires depend on proper tire inflation. Underinflation of tires

leads to rapid wear. Overinflated tires reduce traction and increase wheel slippage.

Since correct tire pressures vary with working conditions and load, but also with model, tire size and manufacturer, we recommend that you approach your John Deere dealer or tire company for advice.

GS25068,0005B12-19-10OCT18

## Tire Inflation Pressure Guidelines

Check tire inflation pressure while tires are cool, using an accurate dial or stick-type gauge having 10 kPa (0.1 bar) (1 psi) graduations.

*NOTE: Use a special air-water gauge and measure with the valve stem at bottom, if tires contain liquid ballast.*

Correctly inflated radial tires show a deflection of the sidewall. This is normal and will not damage the tire.

Inflation pressures less than 83 kPa (0.8 bar) (12 psi) must be monitored frequently because of the increased risk of low-pressure leaks.

*NOTE: Bead-slip can be experienced in high-traction conditions when using single tires. Increasing inflation pressure helps, but reduces traction.*

Maximum tire pressure is specified on the tire sidewall.

### Determining Correct Tire Pressure

Integral implements transfer significant weight to the rear axle. Always include this weight when determining correct inflation pressures. Weigh the machine as described in order to determine the correct tire pressure:

**Rear-Mounted Implement** - The front axle must be weighed with implement lowered. The rear axle must be weighed with the implement raised.

**Front-Mounted Implement** - The front axle must be weighed with the implement raised. The rear axle must be weighed with the implement lowered.

**Front-Mounted and Rear-Mounted Implements** - Weigh the machine with front and rear implements both raised.

Set tire inflation pressures according to the weight measured. *Ballasting and tire inflation pressure may need to be adjusted when operating conditions change.* Refer to the tire manufacturers recommended inflation pressures as an initial starting point.

### Altering Tire Inflation Pressure

Machines operating with a loader should increase front tire pressures 30 kPa (0.3 bar) (4 psi) above the values listed to compensate for weight transfer.

Machines operating on steep side slopes or furrow

plowing should increase rear tire pressures 30 kPa (0.3 bar) (4 psi) above the values listed for base pressures 80 kPa (0.8 bar) (12 psi) and above to compensate for lateral weight transfer. For base pressures below 80 kPa (0.8 bar) (12 psi), pressure should be increased by 30%.

Reduce inflation pressure when using towed implements.

Machines with heavy hitch-mounted implements that require additional front cast weights to maintain steering stability require increased front and rear tire inflation pressure to carry the increased weight.

GS25068,0005B13-19-29JUL20

## Tire Sidewall Information

**520 / 85 R 42 158 A8**  
 (A) (B) (C) (D) (E) (F)

RXA0149658—UN—13AUG15

Information useful in selecting and working with tires is displayed on tire sidewalls.

- A**—Tire section width - Width in millimeters.
- B**—Aspect ratio - Ratio of height to tire section width.
- C**—Construction type - R = Radial, B = Bias.
- D**—Rim diameter - Diameter in inches (not total tire height or group size).
- E**—Load index - Numerical code indicates tire load-carrying capacity. Higher load index number designates higher load capacity.
- F**—Speed rating - Maximum speed tire is designed to travel.

Additional information that may be displayed on sidewall:

**Tread pattern**—Indicates tread design and tire usage. Designs offered are all lug- or bar-type tires and are separated into one of three specifications: R1, R1W, or R2.

**Direction of rotation**—Icon (usually an arrow or group of arrows) indicating tire rotation direction.

**Manufacturer name**—Name of tire manufacturer.

**Max load and pressure**—Maximum load a tire is permitted to carry under specified pressure and operating conditions.

**Safety warnings**—Important information provided by tire manufacturer.

GS25068,0005B14-19-10OCT18

## Use Correct Tire Combinations

**IMPORTANT:** When replacing tires, consult your tire dealer. Mixing worn and new tires, bias and radial, or tires of different diameters or loaded radii can reduce tire life and overall machine performance.

Using any tire combination, other than those listed, could result in premature tire and driveline wear due to excessive underspeed or overspeed.

In order to achieve maximum drawbar pull, maintain proper steerability, and reduce tire wear and fuel consumption, comply with the correct tire combinations shown.

When MFWD front tires show excessive wear in comparison with the rear tires, the front tires must be replaced in order to maintain the predetermined tire ratio.

Front	Rear
11.2-24	16.9-30
12.4-24	18.4-30
12.5/80-18	19.5L-24
12.5/80-18	480/65R24
280/85R24	420/85R30
320/85R24	460/85R30

GS25068,0005B15-19-10OCT18

## Correct Tire Selection

**IMPORTANT:** When replacing tires, consult your tire dealer. Mixing worn and new tires, bias and radial, or tires of different diameters or loaded radii can reduce tire life and overall machine performance.

Using any tire combination, other than those listed on the Tire Compatibility Chart, could result in premature tire and driveline wear due to excessive underspeed or overspeed.

**IMPORTANT:** If a different tire combination is selected, or new rear tires are selected with an SRI (speed/radius index) higher than the previous one, the machine electronics must be recalibrated by your John Deere dealer.

**IMPORTANT:** To prevent damage to the drivetrain and avoid premature tire wear, obtain a front axle overspeed calculation between 100—105%. This correlates to a 0—5% MFWD axle overspeed, which is recommended for optimal performance.

The size ratio of the front wheels to the rear ones is precisely determined in order to produce a positive front wheel lead of between 0% and 5%. To ascertain the correct ratio when changing tires, proceed as follows:

### Calculate MFWD Axle Overspeed with Front/Rear Axle Ratio:

#### Determine Front/Rear Axle Ratio:

The front/rear axle ratio is:

- 1.345

#### Determine Tire Rolling Circumferences:

This information must be obtained from the tire manufacturers manual.

1. Select tires with suitable load-bearing capability.
2. Select tires appropriate to machine top speed.
3. From the manual, obtain the rolling circumference of the tire desired for the rear wheel.
4. From the manual, obtain the rolling circumference of the tire desired for the front wheel.

### MFWD Axle Overspeed Formula

Calculate the overall transmission ratio using the following formula:

$$\text{MFWD Axle Overspeed} = \frac{\text{Rolling Circumference of Front Tire}}{\text{Rolling Circumference of Rear Tire}} (* \text{ F/R Axle Ratio}) * 100\%$$

*MFWD Axle Overspeed Formula*

Using the above formula, the following is an example of the calculation:

- Rolling circumference of the front tire = 3420 mm (134.6 in)
- Rolling circumference of the rear tire = 4395 mm (173.0 in)
- Front to rear axle ratio = 1.345

$$\text{MFWD Axle Overspeed} = \frac{3420}{4395} (* 1.345) * 100\%$$

*MFWD Axle Overspeed Example*

In the example, the MFWD axle overspeed equates to 104.7% or a 4.7% overspeed. The tires would be acceptable to use.

#### Calculate MFWD Axle Overspeed Alternate Method:

1. Mark the front/rear tires and the ground where they contact.
2. **With the MFWD Off**, roll the machine ten revolutions of the rear tires and count the revolutions of the front tire.
3. **With the MFWD On**, roll the machine ten revolutions of the rear tires and count the revolutions of the front tire.
4. Calculate the difference percentage.

MFWD Axle Overspeed =	$\frac{[(\text{MFWD On Revolutions} - \text{MFWD Off Revolutions}) / \text{MFWD Off Revolutions}] \times 100}{}$
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MFWD Axle Overspeed Formula (Alternate Method)

DP51502,000099D-19-11FEB20

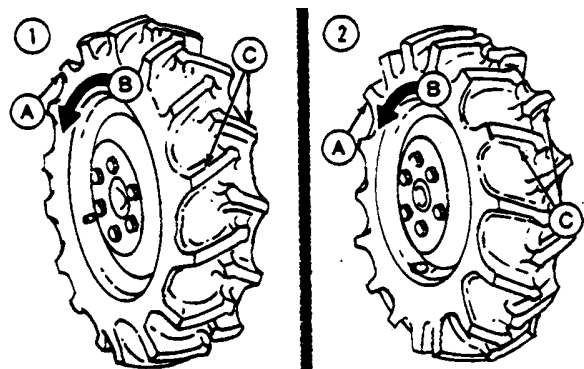
## Changing Tire Sizes

**NOTE:** When changing tire sizes, it is recommended to have your John Deere dealer ensure that the machine is properly set up.

- Changing tire sizes requires a software change to ensure that correct ground speed is achieved and displayed.
- Any change of tire combination must conform to a combination authorized for that particular machine.

DP51502,0002FD3-19-10JAN18

## Select Front Tire Rolling Direction



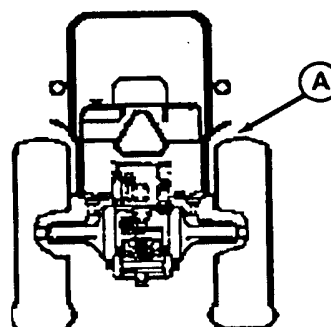
Left Tire (Viewed From Rear)

A—Front Tire (viewed from rear)  
B—Tire Rolling Direction  
C—Tire Lugs

1. Under most conditions, front tires (A) are mounted with the direction of tire lugs (C) the same as the tire rolling direction (B).
2. If machine is used primarily for loader operations, lug direction can be reversed on the MFWD axle for improved tire wear.

GS25068,0005B16-19-10OCT18

## Rear Wheel Tread Width Limitations



M47179—UN—31JAN92

A—Rear Wheel-to-Fender Clearance

**IMPORTANT:** Tires must have at least 25 mm (1 in) rear wheel-to-fender clearance (A). When rear tires are installed, check clearance between the tire and fenders.

GS25068,0005B17-19-10OCT18

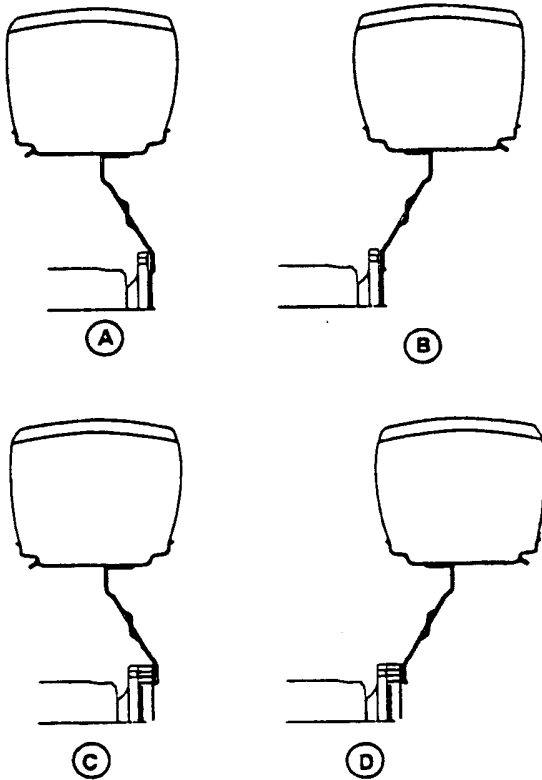
## Dual Wheel Usage

**IMPORTANT:** Do not use dual wheels on this machine. Machine damage occurs if dual wheels are installed and used on either the front or rear axle.

MP73369,000102D-19-27MAY21



## Set Tread—Two-Position MFWD Wheels



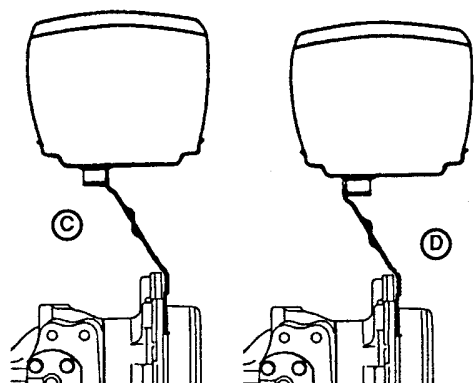
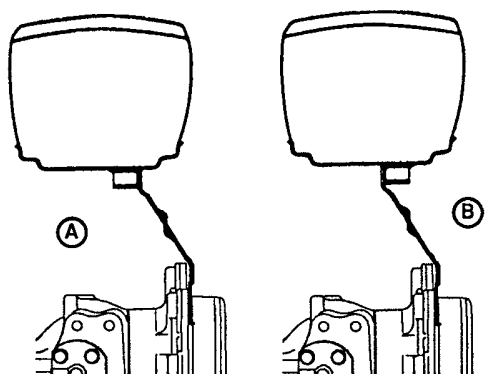
- Adjust wheel tread by exchanging the wheels from side-to-side and by using spacers.
- Tread settings are measured at the middle of the tires at axle height.

M47178—UN—31JAN92

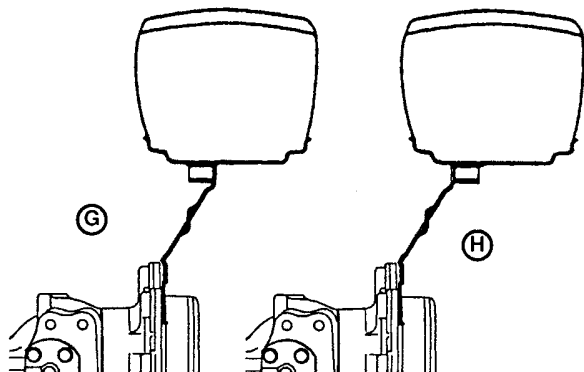
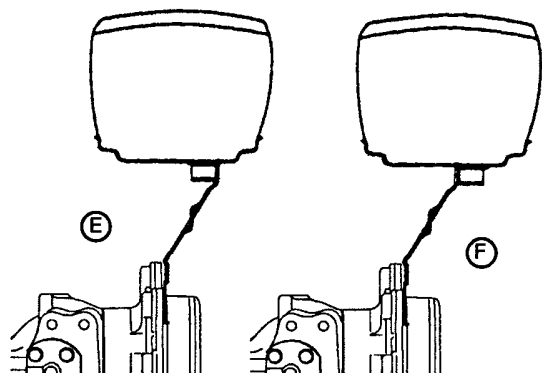
Two-Position MFWD Wheels—Tread Width (Centerline-to-Centerline)				
Tire	No Spacer		60 mm Spacer	
	A	B	C	D
12.5/80-18	1585 mm (62.4 in)	1714 mm (67.5 in)	1705 mm (67.1 in)	1834 mm (72.2 in)

DP51502,0003005-19-30JAN18

## Set Tread—Multi-Position MFWD Wheels



LV601—UN—22APR94



LV602—UN—22APR94

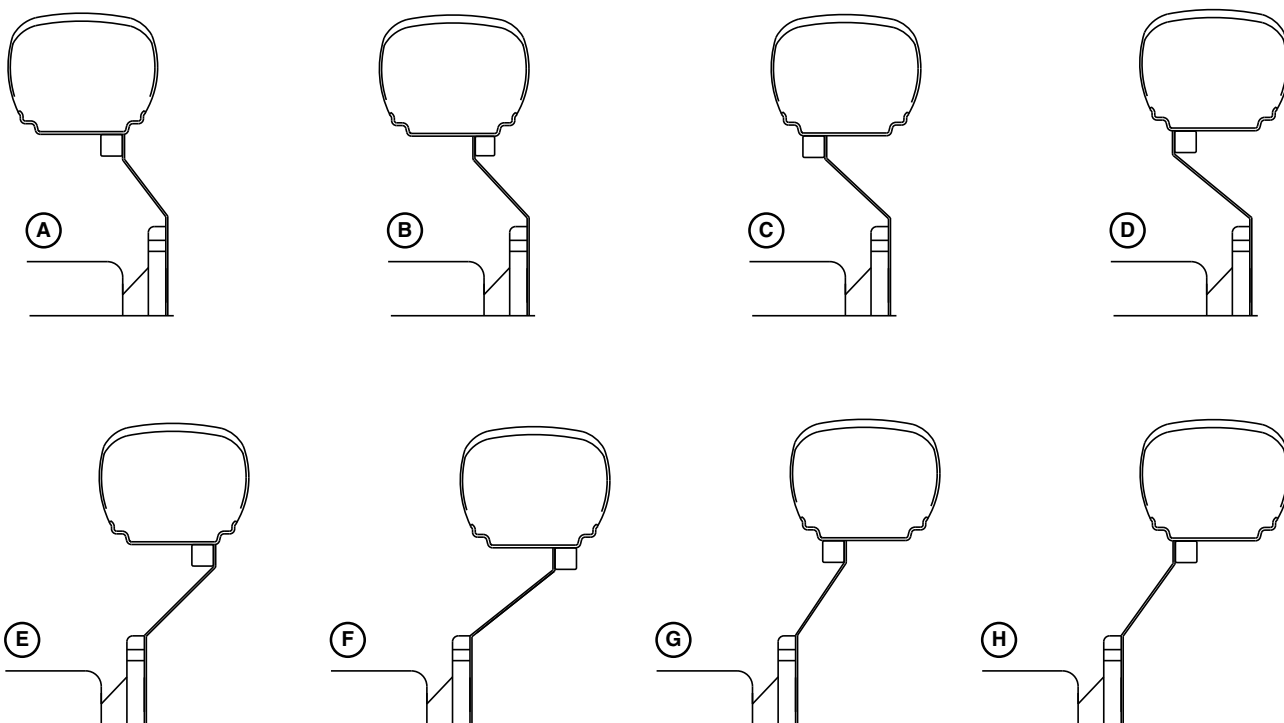
- Wheel tread with multi-position wheels is adjusted by repositioning or exchanging the rims or by reversing the wheel disks.
- Wheel tread can also be adjusted by exchanging the complete wheel to the opposite side of the machine. This permits the change from disk-dished-in to disk-dished-out operations without disassembling the wheel.
- When changing wheels from one side to the other, the arrow on the sidewall of tire points in the direction of forward rotation.
- The wheel tread can be adjusted by exchanging the wheels from side-to-side and by using spacers.
- Tread settings are measured at the middle of the tires at axle height.

MULTI-POSITION MFWD WHEELS—TREAD WIDTH (Centerline-to-Centerline)								
	No Spacer							
Tire	A	B	C	D	E	F	G	H
11.2-24 280/85R24	1299 mm (51.1 in)	1395 mm (54.9 in)	1501 mm (59 in)	1597 mm (62.9 in)	1699 mm (66.9 in)	1795 mm (70.6 in)	1901 mm (74.8 in)	1997 mm (78.6 in)
12.4-24 320/85R24	Not applicable	1395 mm (54.9 in)	1501 mm (59 in)	1597 mm (62.9 in)	1699 mm (66.9 in)	1795 mm (70.6 in)	1901 mm (74.8 in)	1997 mm (78.6 in)

MULTI-POSITION MFWD WHEELS—TREAD WIDTH (Centerline-to-Centerline)								
	60 mm Spacer							
Tire	A	B	C	D	E	F	G	H
11.2-24 280/85R24	1419 mm (55.9 in)	1515 mm (59.6 in)	1621 mm (63.8 in)	1717 mm (67.6 in)	1819 mm (71.6 in)	1915 mm (75.4 in)	2021 mm (79.6 in)	2117 mm (83.3 in)
12.4-24 320/85R24	1419 mm (55.9 in)	1515 mm (59.6 in)	1621 mm (63.8 in)	1717 mm (67.6 in)	1819 mm (71.6 in)	1915 mm (75.4 in)	2021 mm (79.6 in)	2117 mm (83.3 in)

GS25068,0005B18-19-10OCT18

## Set Tread—Multi-Position Rear Wheels



- Wheel tread with multi-position wheels is 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 machine. This permits the change from disk-dished-in to disk-

dished-out operations without disassembling the wheel.

- When changing wheels from one side to the other, the arrow on the sidewall of tire points in the direction of forward rotation.
- The wheel tread can be adjusted by exchanging the wheels from side-to-side and by using spacers.

LV8610—UN—28AUG03

## Wheels and Tires Maintenance

- Tread settings are measured at the middle of the tires at axle height.

MULTI-POSITION REAR WHEELS—TREAD WIDTH (Centerline-to-Centerline)								
No Spacer								
Tire	A	B	C	D	E	F	G	H
16.9-30 420/85R30	Not applicable	Not applicable	Not applicable	Not applicable	1515 mm (59.6 in)	1613 mm (63.5 in)	1715 mm (67.5 in)	1813 mm (71.4 in)
18.4-30 460/85R30	Not applicable	Not applicable	Not applicable	Not applicable	1515 mm (59.6 in)	1613 mm (63.5 in)	1715 mm (67.5 in)	1813 mm (71.4 in)
19.5L-24 480/65R24	Not applicable	Not applicable	Not applicable	Not applicable	1512 mm (59.5 in)	1617 mm (63.7 in)	1715 mm (67.6 in)	1820 mm (71.7 in)

MULTI-POSITION REAR WHEELS—TREAD WIDTH (Centerline-to-Centerline)								
30 mm Spacer								
Tire	A	B	C	D	E	F	G	H
16.9-30 420/85R30	Not applicable	Not applicable	Not applicable	Not applicable	1575 mm (62 in)	1673 mm (65.9 in)	1775 mm (69.9 in)	1873 mm (73.7 in)
18.4-30 460/85R30	Not applicable	Not applicable	Not applicable	Not applicable	1575 mm (62 in)	1673 mm (65.9 in)	1775 mm (69.9 in)	1873 mm (73.7 in)
19.5L-24 480/65R24	Not applicable	Not applicable	Not applicable	Not applicable	1572 mm (61.9 in)	1677 mm (66 in)	1775 mm (69.9 in)	1880 mm (74 in)

MULTI-POSITION REAR WHEELS—TREAD WIDTH (Centerline-to-Centerline)								
44 mm Spacer								
Tire	A	B	C	D	E	F	G	H
16.9-30 420/85R30	Not applicable	Not applicable	Not applicable	Not applicable	1603 mm (63.1 in)	1701 mm (67 in)	1803 mm (71 in)	1901 mm (74.8 in)
18.4-30 460/85R30	Not applicable	Not applicable	Not applicable	Not applicable	1603 mm (63.1 in)	1701 mm (67 in)	1803 mm (71 in)	1901 mm (74.8 in)
19.5L-24 480/65R24	Not applicable	Not applicable	Not applicable	Not applicable	1600 mm (63 in)	1705 mm (67.1 in)	1803 mm (71 in)	1908 mm (75.1 in)

MULTI-POSITION REAR WHEELS—TREAD WIDTH (Centerline-to-Centerline)								
111 mm Spacer								
Tire	A	B	C	D	E	F	G	H
16.9-30 420/85R30	Not applicable	Not applicable	1537 mm 60.5 in	1635 mm 64.4 in	1737 mm (68.4 in)	1835 mm (72.2 in)	1937 mm (76.3 in)	2035 mm (80.1 in)
18.4-30 460/85R30	Not applicable	Not applicable	1537 mm 60.5 in	1635 mm 64.4 in	1737 mm (68.4 in)	1835 mm (72.2 in)	1937 mm (76.3 in)	2035 mm (80.1 in)
19.5L-24 480/65R24	Not applicable	Not applicable	1531 mm 60.3 in	1636 mm 64.4 in	1734 mm (68.3 in)	1839 mm (72.4 in)	1937 mm (76.3 in)	2042 mm (80.4 in)

GS25068,0005B19-19-10OCT18

### Tighten Wheel Bolts Correctly

**CAUTION:** NEVER operate machine with a loose rim, wheel, hub, or axle.

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

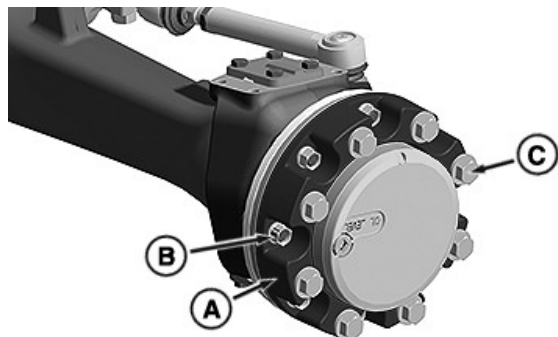
Any time hardware is loosened, tighten to specified torque. (See Tighten Wheel Bolts—MFWD Axle in this section.)

1. After driving machine about 100 m (109 yd), and before placing it under load, tighten hardware to specified torque.

2. Check hardware after working 3 hours and again after 10 hours.
3. Check all hardware frequently every 50 hours thereafter.

GS25068,0005B1A-19-10OCT18

## Install Wheel Spacer



RXA0154078—UN—17NOV16

A—Spacer  
B—Flange Nuts  
C—Cap Screws

**NOTE:** Front and rear wheel spacers are available. See your John Deere dealer.

1. Install the spacer (A) over the hub.
2. Lubricate and install flange nuts (B).
3. Tighten to specified torque.

### Specification

Flange Nut—Torque. . . . . 300 N·m  
(221 lb·ft)

4. Install wheel and tighten cap screws (C) to specified torque. (See Tighten Wheel Bolts—MFWD Axle in this section.)

GS25068,0005B1B-19-10OCT18

## Tighten Wheel Bolts—MFWD Axle



LV14727—UN—25AUG11

A—MFWD Wheel Rim-to-Disk Bolt (8 used)  
B—MFWD Wheel Disk-to-Hub Nut (8 used)

1. Tighten MFWD wheel rim-to-disk bolts (A) to specification.

### Specification

MFWD Wheel Rim-to-Disk Bolts

(A)—Torque. . . . . 245 N·m  
(180 lb·ft)

2. Tighten MFWD wheel disk-to-hub nuts (B) to specification.

### Specification

MFWD Wheel Disk-to-Hub Nuts

(B)—Torque. . . . . 300 ± 30 N·m  
(221 ± 22 lb·ft)

3. Drive machine 100 m (109 yd) and tighten again.

GS25068,0000AD5-19-14NOV19

## Tighten Wheel Bolts—Rear Axle



LV14279—UN—10MAY11

A—Rear Wheel Rim-to-Disk Bolt (8 used)  
B—Rear Wheel Disk-to-Hub Nut (8 used)

1. Tighten rear wheel rim-to-disk bolts (A) to specification.

### Specification

Rear Wheel Rim-to-Disk Bolts

(A)—Torque. . . . . 245 N·m  
(180 lb·ft)

2. Tighten rear wheel disk-to-hub nuts (B) to specification.

### Specification

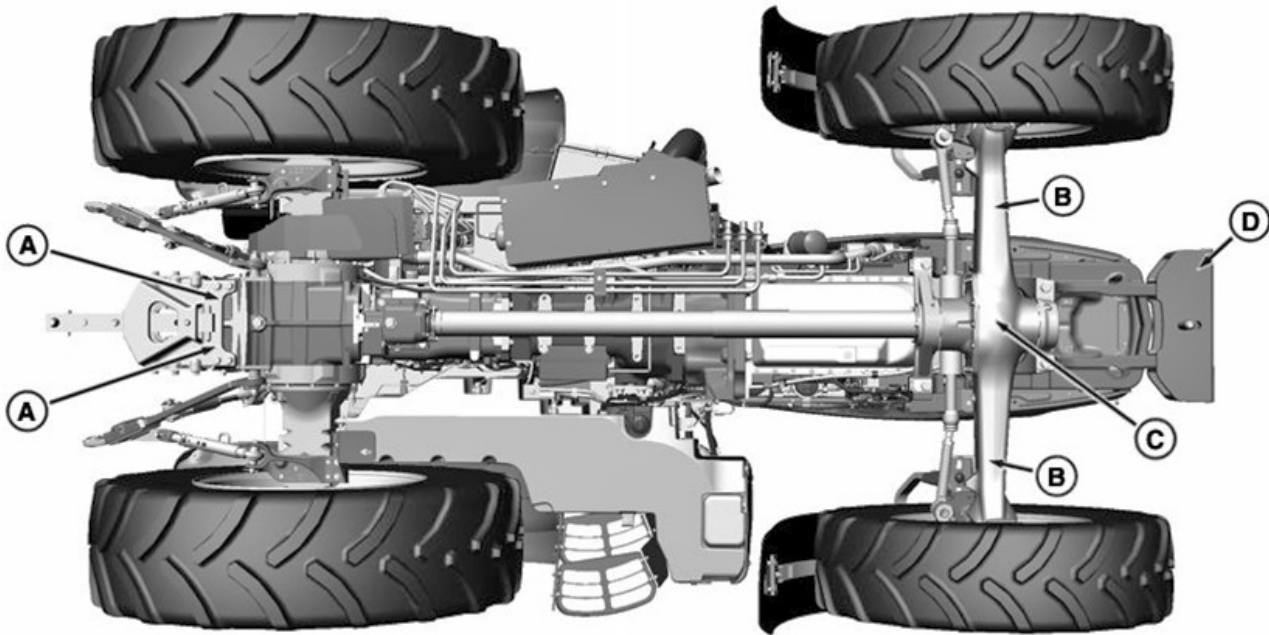
Rear Steel Wheel Disk-to-Hub

Nuts (B)—Torque. . . . . 550 ± 50 N·m  
(405 ± 36 lb·ft)

3. Drive machine 100 m (109 yd) and tighten again.

GS25068,0000AD6-19-14NOV19

## Jacking Up Machine



A—Rear of Machine Lift Point  
B—Front of Machine Lift Point

C—Center of Axle Lift Point (use wooden wedges to prevent axle from tilting)  
D—Front End of Machine under the Basic Weight

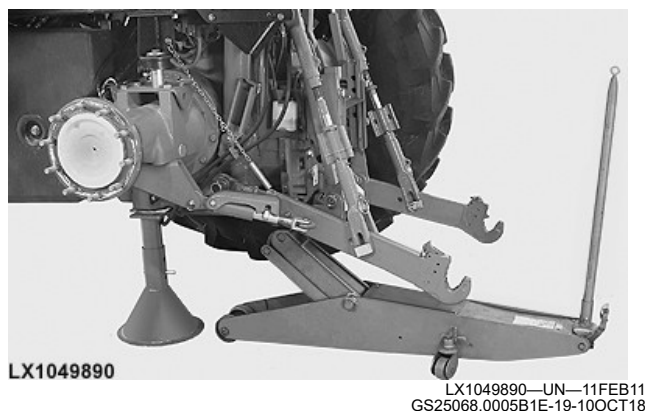
CPA0004249—UN—09AUG17

**CAUTION:** Use approved lifting equipment only.  
Jack up the machine on firm, level ground only.

Before doing any work on the machine, first secure it using suitable jackstands available from your John Deere dealer.

**NOTE:** It is recommended to remove front ballast weights before lifting front end of machine.

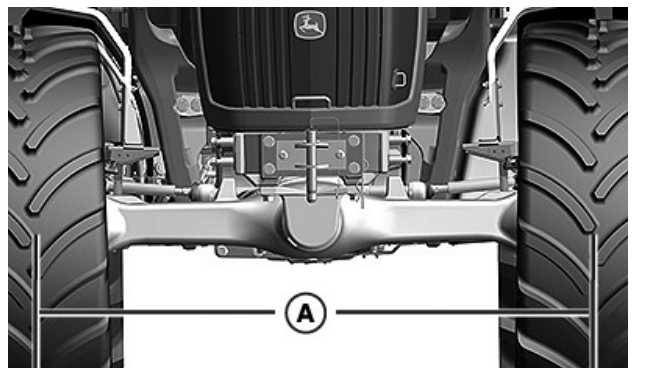
The illustration shows the recommended lifting points for jacking up the machine. Use a stable jack with sufficient lifting force. (See Specifications section.)



LX1049890

LX1049890—UN—11FEB11  
GS25068,0005B1E-19-10OCT18

## Check Toe-In—MFWD Axle



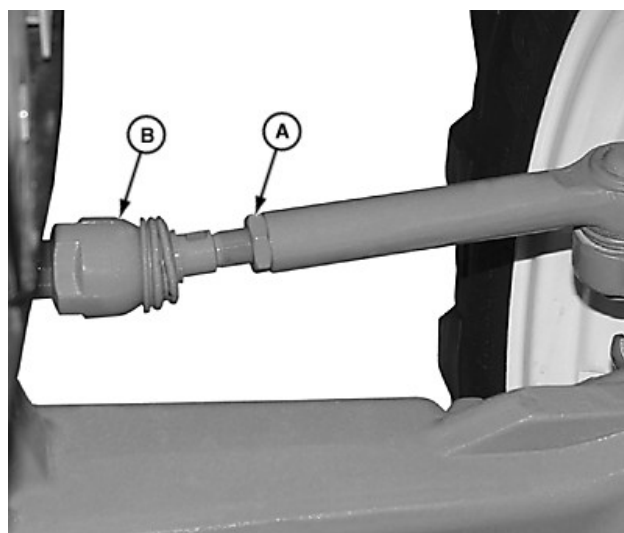
RXA0153367—UN—10AUG16

### A—MFWD Axle Toe-In Distance

1. Disengage MFWD and park machine on smooth, level surface. Steer front wheels straight ahead. Stop engine.
2. Measure MFWD axle toe-in distance (A) between centerline of tires at hub level in front of axle, using an outside lug of each tire or an inside lug of each tire. Record measurement and mark the tires.
3. Move machine back about 1 m (3 ft), so mark is at the hub level behind the axle. Again, measure distance between tires at same point on tire. Record measurement.
4. 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. The difference may be in either direction (toe-in or toe-out), but must be less than 3 mm (1/8 in). Adjust toe-in if necessary. (See Adjust Toe-In—MFWD Axle in this section.)

GS25068,0005B1F-19-10OCT18

## Adjust Toe-In—MFWD Axle



LV14732—UN—25AUG11

**A—Tie Rod Lock Nut**  
**B—Inner Rod**

1. Loosen tie rod lock nuts (A) on both ends of tie rod.
2. Adjust both sides equally by rotating the inner rod (B) to lengthen or shorten the tie rod, to obtain toe-in or toe-out of less than 3 mm (1/8 in).

Tie Rod Rotation	Approximate Change
1/8 turn	4 mm (3/16 in)
1/4 turn	8 mm (3/8 in)
1/2 turn	16 mm (5/8 in)

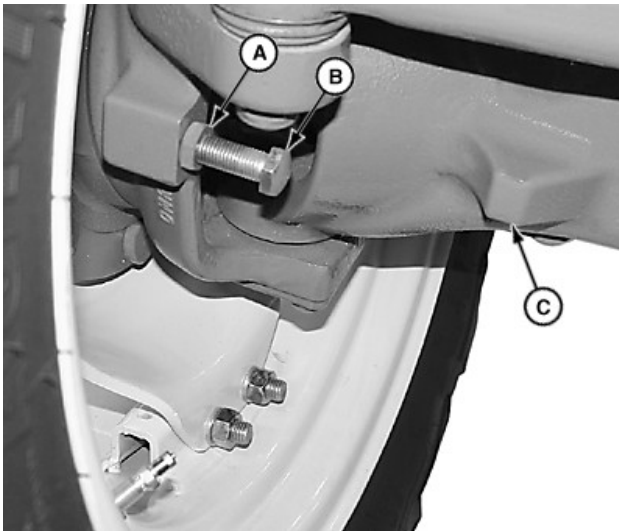
3. Tighten lock nuts to specification.

### Specification

Tie Rod Lock Nuts—Torque. . . . . 220—240 N·m  
(162—177 lb·ft)

GS25068,0005B20-19-10OCT18

## Set Steering Stops



LV14733—UN—25AUG11

**A—Steering Stop Lock Nut**  
**B—Steering Stop Bolt**  
**C—Steering Stop**

*NOTE: Wide tread settings and large tire sizes increase turn radius slightly.*

1. Raise and support front of the machine so the MFWD axle can be oscillated to its stops.
2. Slowly turn steering wheel to the left until steering cylinder travel has reached its limit, the steering stops, or the tires are within 25 mm (1 in) of grille screen or side panels.
3. Raise left side of the axle against its stop and measure clearance between tire and nearest machine component. The distance must not be less than 25 mm (1 in).
4. Loosen lock nut (A) on steering stop and adjust steering stop bolt (B) so it touches steering stop (C). Shorten the stop bolt (B) in order to obtain maximum turning angle if necessary.
5. Tighten steering stop bolt retaining lock nut (A) to specifications.

### Specification

Steering Stop Bolt Retaining	
Lock Nut—Torque. . . . .	125 N·m (92 lb·ft)

6. Turn wheel fully to the left. Impact knuckle housing to steering stop five times.
7. Tighten steering stop bolt retaining nuts again to specification.
8. Repeat steps for the right side.

DP51502,0002FE0-19-10JAN18



# Ballasting Maintenance

## General Ballast Information

**CAUTION:** Do not exceed permissible axle load or tire carrying capacities when adding ballast to the machine.

**IMPORTANT:** As front weight and tread width increase, steering capacity of machine is reduced.

## Basic Ballasting Definitions

Ballast is mass added to machine chassis and/or wheels to:

- Increase total weight and/or
- The influence of weight distribution between the front axle and rear axle (static balance). Static means that front and rear axle loads are determined when machine is parked.

Weight split is the static weight distribution between front and rear axles. It is expressed as percentages of total machine static weight supported by front and rear axles. For example, if the front axle supports 40% of total static machine weight, machine has a 40/60 weight split. Percentage of front axle weight is always stated first in this form.

A properly ballasted machine for a given type of implement (towed, integral, or semi-integral) has both correct total weight and static balance for that implement type.

## Major Considerations

Required ballast amount and mounting location depend on type of implement being used and operating speed.

Ballasting is required to:

- Assure front axle carries sufficient weight for steering security and stability with a field draft load, as well as transport in field and on road.
- Provide sufficient traction to pull high draft loads efficiently.
- Provide proper fore/aft balance to minimize occurrence of power hop in MFWD machines.
- Assure rear axle carries sufficient weight for traction, braking, and stability when a loader or other front implement is attached to front of machine.

Reconfigure ballast on machine when changing from one implement or attachment to another.

## MFWD:

Implement Type	Rear % of Machine Weight	Front % of Machine Weight
Towed	65	35
Semi-Integral	60	40

Implement Type	Rear % of Machine Weight	Front % of Machine Weight
Integral	60 <sup>a</sup>	40

<sup>a</sup>Front weight requirements are determined by weight of hitch-mounted implements. Add enough front weights to maintain steering control.

DP51502,0002FE1-19-10JAN18

## Select Ballast Carefully

**CAUTION:** When determining axle ballast, ensure permissible axle loads and the permissible weight are not exceeded. (See Specifications section.)

Comply with local regulations regarding installation and maximum permissible number of weights. To maintain steering capability, at least 20% of total weight must be on the front axle.

**CAUTION:** Use suitable lifting tools when handling weights.

Safety and performance of your machine depend on ballasting of the front axle (front weights) and rear axle (wheel weights, filling tires with liquid ballast).

Match amount of ballast needed for each job. Changing implements or attaching a loader requires changing ballast for best performance.

Factors determining amount of ballast:

- Soil surface—loose or firm
- Type of implement—integral/semi-integral or towed
- Travel speed—slow or fast
- Machine power output—partial or full load
- Tire size

## Ballasting MFWD Machines

Ideal tire slippage for MFWD is 8—12%. To reduce wheel slip, more weight is needed on the front. The ideal weight is 40% front and 60% rear of total machine weight. In some cases, liquid ballast is needed in tires to obtain this weight split.

The best way to check for correct ballast is to measure amount of travel reduction (% slip) of the drive wheels. Add more weight to drive wheels if slip is above 12%. If there is less than 8% slip, remove wheel weights.

If a loader is attached, provide adequate ballast to rear.

## Matching Ballast to Work Load

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

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

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

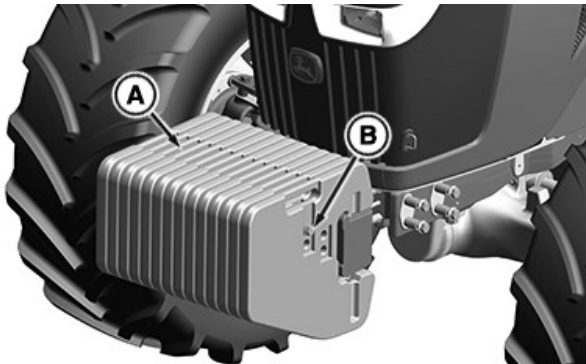
### Ballast Limitations

Ballast is limited by tire capacity or machine capacity. Each tire has a recommended carrying capacity, see Wheels and Tires Maintenance section. If a greater amount of weight is needed for traction, consider a larger single tire.

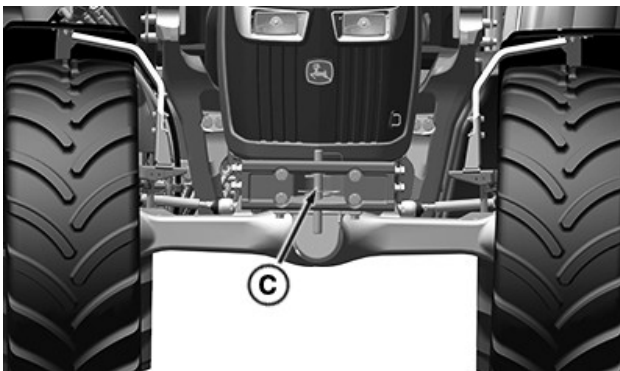
When determining axle ballast, ensure permissible axle loads and the permissible weight are not exceeded. (See Specifications section.)

GS25068,0000AD7-19-14NOV19

### Front-End Ballast



RXA0151009—UN—14JAN16



RXA0153889—UN—19SEP16

A—Ballast Center  
B—Ballast Retaining Bolt  
C—Ballast Retaining Pin

**CAUTION:** Additional front ballast may be needed for rear-mounted implements. Heavy pulling and heavy rear-mounted implements tend to lift front wheels. Use proper lifting equipment for weights.

**Determine the minimum number of front weights required from implement code in the implement operator's manual.**

*NOTE: Quik-Tatch™ weights can be installed on the front of the machine up to the width of the weight bracket. Do not exceed the maximum permissible axle load (See Specifications section).*

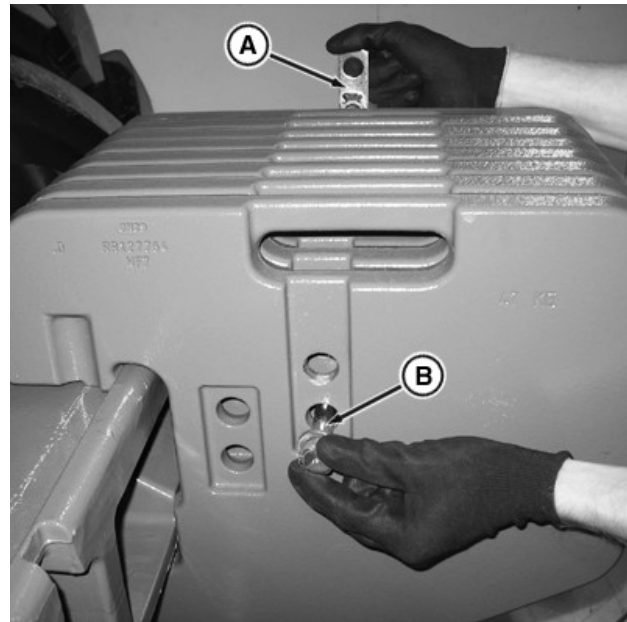
1. Install weights in pairs, one on each side of the ballast retaining pin (C). Place weights evenly on left and right sides of the retaining pin.
2. To hold six weights or fewer in position, insert retaining bolts (B) through holes and secure with a nut. Tighten to specification.

#### Specification

Ballast Weight Retaining

Bolt—Torque. . . . . 215 N·m  
(159 lb·ft)

3. When eight or more weights are installed, insert retainers (A) between weights, one with the threaded hole upward and the other with the threaded hole downward. Insert retaining bolts (B) through holes and secure with a nut. Tighten to specification.

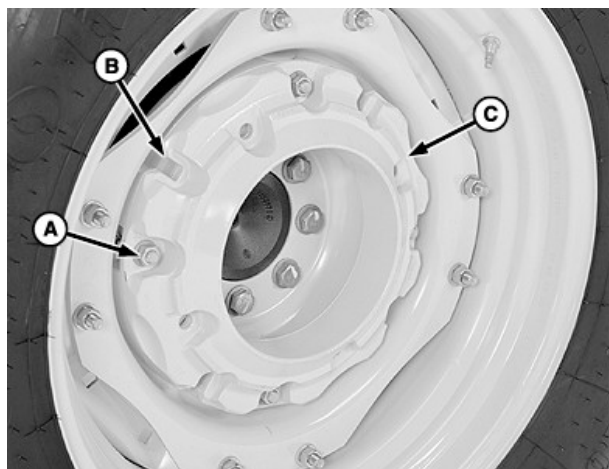


RXA0113871—UN—09FEB11

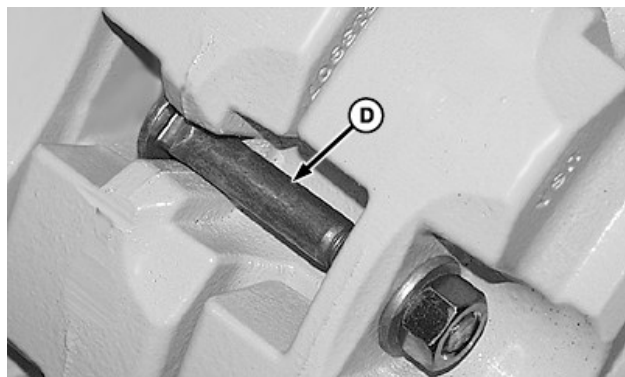
A—Retainers  
B—Retaining Bolt

GS25068,0000AD8-19-14NOV19

## Rear Wheel Ballast



LV9684—UN—17AUG04



LV9692—UN—19AUG04

Install Bolt in Slot (Additional Weight)

- A—Nut, 5/8-11 (4 used)  
 B—Slot (four locations)  
 C—Wheel Weight  
 D—Round-Head Bolt (4 used)

**CAUTION:** When installing weights, use appropriate lifting equipment or have the job performed by your John Deere Dealer.

1. Remove wheel.
2. Attach weight (C) to wheel disks using four special round-head bolts, washers, and nuts (A). Tighten nuts to specifications.

### Specification

Wheel Weight-to-Disk  
 Nuts—Torque. . . . . 215 N·m  
 (159 lb·ft)

3. Install additional weights:
  - a. Insert four round-head bolts (D) through slots (B) of first weight. Install bolts with the square neck in slot (as shown).
  - b. Align mounting holes of second weight with the round-headed bolts and install weight. Fasten

with washers and nuts. Tighten nuts to specifications.

### Specification

Wheel Weight-to-Weight  
 Nuts—Torque. . . . . 215 N·m  
 (159 lb·ft)

4. Install wheel and tighten mounting hardware. (See Wheel and Tire Maintenance section.)
5. Retighten bolts after 3 hours, 10 hours, and every 250 hours of operation thereafter.

GS25068,0005B24-19-10OCT18

## Control Power Hop - MFWD

Power hop is a condition where an MFWD machine without suspension exhibits severe bounce and/or pitch motions at field working speeds when pulling a towed implement. It can occur when pulling medium to high draft loads in loose, dry soil on top of a firm base and/or when climbing hills. As a result, machine cannot maintain pull due to either loss of traction, rough ride or both. Adjust only after assuring guidelines for optimum performance with towed implements have been followed. They are:

- No more than 40% of weight can be on the front axle.
- If liquid ballast is used in rear tires, do not exceed 40% fill (4 o'clock valve stem position).
- Front and rear inflation pressures are set correctly based on static axle loads.

### If power hop occurs:

1. Increase front inflation pressures by 40 kPa (0.4 bar) (6 psi) and operate machine.

2. If power hop still occurs:

Increase front inflation pressures by another 40 kPa (0.4 bar) (6 psi) and operate machine. Increase front inflation pressure as needed, up to a maximum of 40 kPa (0.4 bar) (6 psi) **above** the maximum pressure rating for tires. Usually 40–80 kPa (0.4–0.8 bar) (6–12 psi) above rated pressure for front axle load suffices to control power hop.

3. If power hop still occurs:

Remove all front ballast weights. Leave same front maximum inflation pressure from previous step and operate machine.

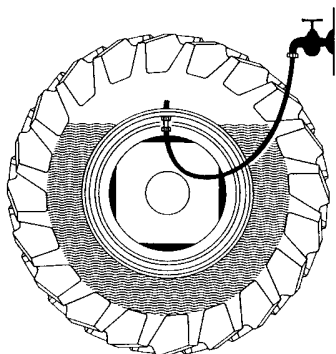
4. If power hop still occurs:

Install 75% liquid in front tires. Reinflate front tires to the maximum pressure rating for tires and operate machine.

**NOTE:** In most cases, step 4 is not required to control power hop.

GS25068,0005B25-19-10OCT18

## Add Liquid Ballast to Tires



LX009450

LX009450—UN—03JAN95

To fill a tire:

1. Jack up machine and turn wheel so that the tire valve is at the top.
2. Remove valve insert and screw water valve onto the valve stem. While water is entering, air escapes through a lateral bore in the water valve.
3. Stop filling tire when water drains from the vent hole of valve. Depending on tire size, filling a tire takes 15—30 minutes. Quantity of liquid ballast required varies, depending on tire size and type. If in doubt, consult your John Deere dealer or tire manufacturer.
4. After adding liquid, screw in the air valve and pump up tire to normal inflation pressure.

For low temperature climates:

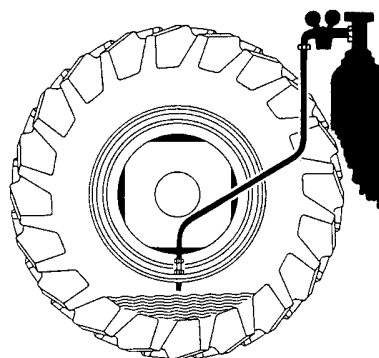
**NOTE:** Add calcium chloride to the water, NOT water to calcium chloride.

*Do not use this antifreeze solution in radiator.*

1. There are several types of liquid ballast available. Tire manufacturers recommend a mixture of water and calcium chloride. To provide protection down to -25°C (-13°F), dissolve 34 kg (75 lb) of calcium chloride in 86 L (22.7 gal) of water. This mixture makes 100 L (26.4 gal) of antifreeze solution. This solution produces an increase in weight of 120 kg (269 lb).
2. Draw antifreeze solution from an elevated tank. To speed up filling operation, use a pump (flush pump with clear water afterwards).

GS25068,0005B26-19-10OCT18

## Remove Liquid Ballast from Tires



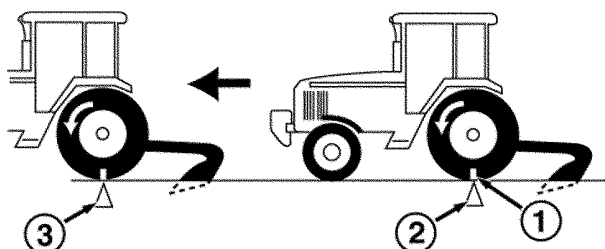
LX009451

LX009451—UN—03JAN95

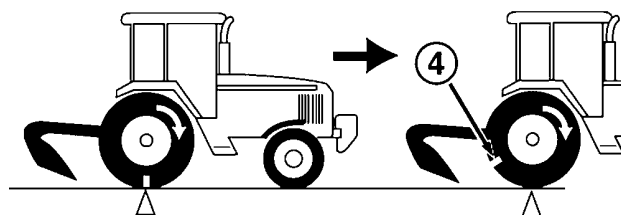
1. Jack up machine.
2. Remove air valve from the tire and allow liquid to drain out.
3. Clear remainder of liquid from tire by inserting drain tube with hose extension and pump air into tire. The air pressure pushes remaining liquid out of tire.

DP51502,0002FE8-19-10JAN18

## Measure Wheel Slip



RW26776—UN—12JAN00



RW26777—UN—13JAN00

- 1—Mark on Tire
- 2—Mark Starting Point
- 3—Mark Ending Point After Ten Revolutions
- 4—Revolution Count with Implement Raised

**IMPORTANT: Make sure that tire pressures are set for axle loads before measuring wheel slip.**

1. Mark a rear tire.
2. Mark a starting point on ground with machine moving and implement lowered on ground.
3. Follow machine and mark ground again where marked tire completes ten full revolutions.
4. Repeat procedure with implement raised at the same working speed. Count revolutions between same two marks.
5. Use second count and chart to determine slippage.

*NOTE: Ideal slippage is 8—12% (machines with MFWD).*

6. Adjust ballast or load to give correct slippage.

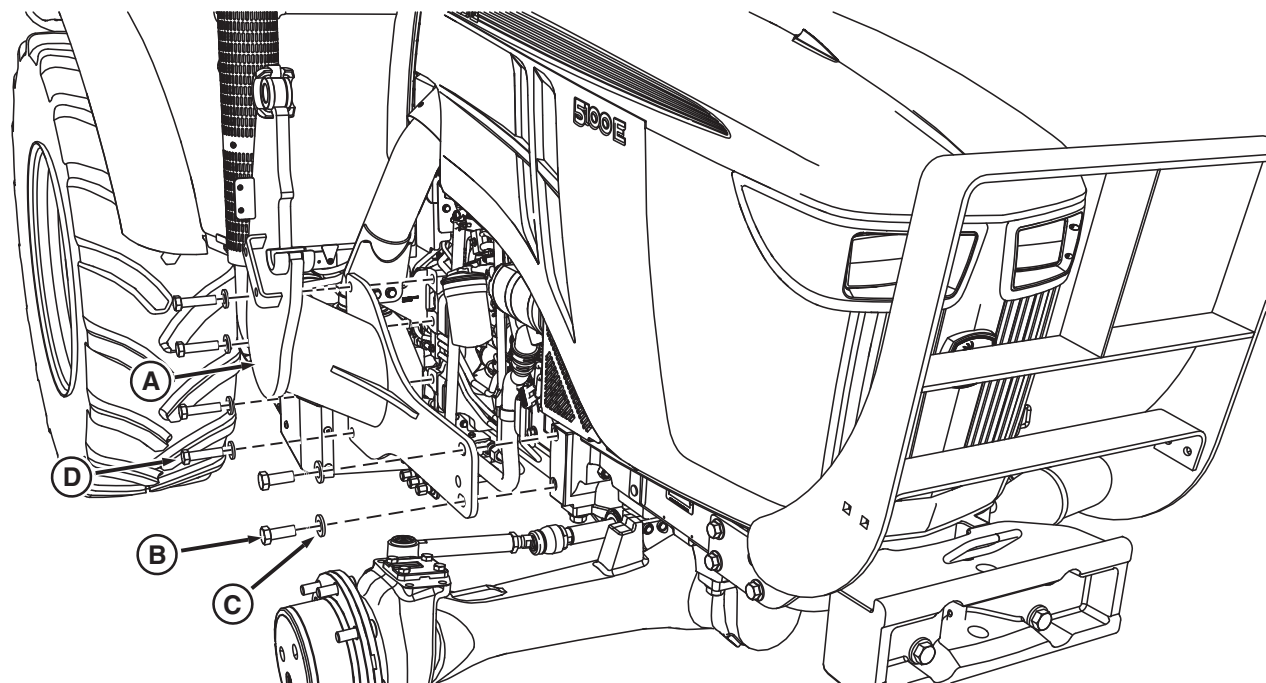
*NOTE: Available horsepower is greatly reduced when wheel slip drops below minimum percent.*

Wheel Slippage Chart		
Wheel Revolutions (Step 4)	% Slip	Result
10	0	Remove Ballast
9-1/2	5	
9	10	Correct Ballast
8-1/2	15	Add Ballast
8	20	
7-1/2	25	
7	30	

GS25068,0005B27-19-10OCT18

# Additional Equipment Maintenance

## Front Loader Bracket Installation



RXA0146175—UN—06NOV14

A—Front Loader Bracket  
B—Hex Head Cap Screw

C—Flat Washer  
D—Hex Head Cap Screw

Hardware for John Deere front loader brackets						
Description	Quantity	Width across Flats	Standard	Thread	Length	Identification/Grade
Hex Head Cap Screw (B)	4	30 mm	ISO 4014	M20 x 2.5	50 mm	10.9
Washer (C)	12	—	JDS 130	—	—	300HV
Hex Head Cap Screw (D)	8	30 mm	ISO 4014	M20 x 2.5	80 mm	10.9

**IMPORTANT:** Attach loader brackets as shown with hardware listed in the table. Do not attach loader brackets at other points or using other hardware.

4. Check torque regularly.

GS25068,0005B28-19-10OCT18

Comply with Operator’s Manual and Installation Instructions of the front loader.

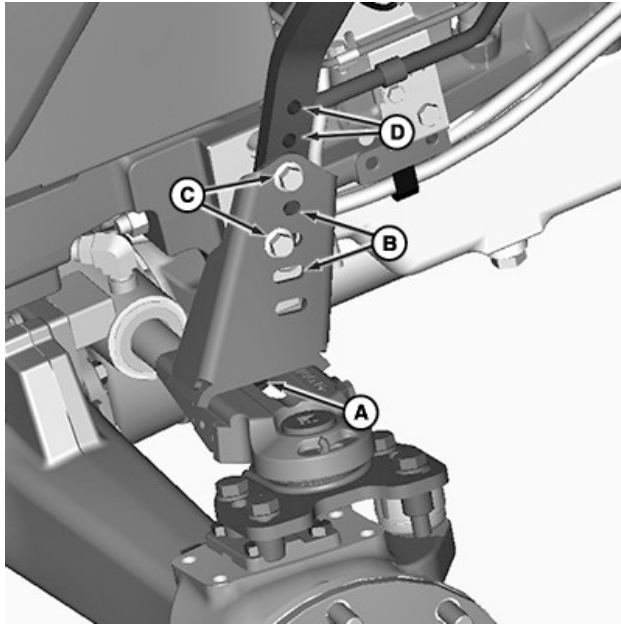
1. Position front loader bracket (A) on machine using a suitable hoist.
2. Install hardware and torque to specification.

### Specification

Loader Mounting Bracket  
Hardware—Torque. . . . . 490 ± 49.5 N·m  
(360 ± 36 lb·ft)

3. Repeat on the other bracket.

## Set Pivoting Fender Brackets



CPA0004115—UN—09AUG17

- A—Bolt and Nut**  
**B—Height and Angle Adjustment Slots**  
**C—Height Bolts**  
**D—Fender Arm Height Adjustment Holes**

**NOTE:** It is best to set fenders with the tires on the machine, resting on the ground, and inflated to intended application pressure.

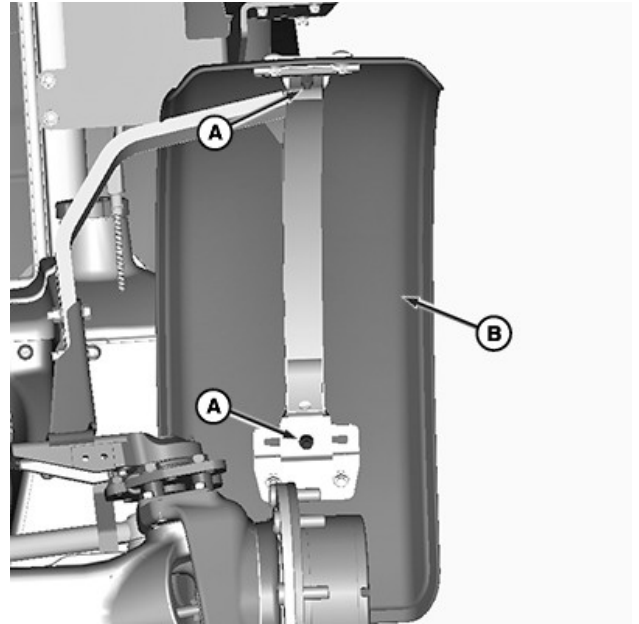
1. Loosen bolt and nut (A) to allow fender arm to be moved in or out as needed.
2. Select a position that allows tire clearance and centers the fender arm over the center of the tire as close as possible.
3. Tighten bolt and nut (A).
4. Loosen and remove height bolts (C) to change fender height.
5. Set fender height to allow clearance for tire movement and material buildup on the tire.

**NOTE:** Height bolts must be located correctly in the height and angle adjustment slots (B). Use the top and third slot (as shown), the second and fourth or the third and fifth.

6. Insert height bolts through the bracket and fender arm height adjustment holes (D) as required to obtain proper height for tire clearance.
7. Fender tilts forward or rearward to get desired clearance. Tighten bolts once position is set.
8. Additional adjustment of the fender is possible to get proper alignment. (See Set Fender Position in this section.)

GS25068,0005B29-19-10OCT18

## Set Fender Position



CPA0004116—UN—09AUG17

- A—Fender Nuts**  
**B—Fender**

1. To adjust fender position, loosen fender nuts (A).
2. Slide fender (B) inward or outward as required to center the fender over the tire.
3. Tighten fender nuts once position is set.
4. Verify fender clearance by turning steering wheel to left stop and right stop. If the fender contacts machine or tire, readjust brackets and fender to resolve the problem. See Set Pivoting Fender Brackets in this section.

DP51502,0002FEC-19-10JAN18

# Operator's Station Maintenance

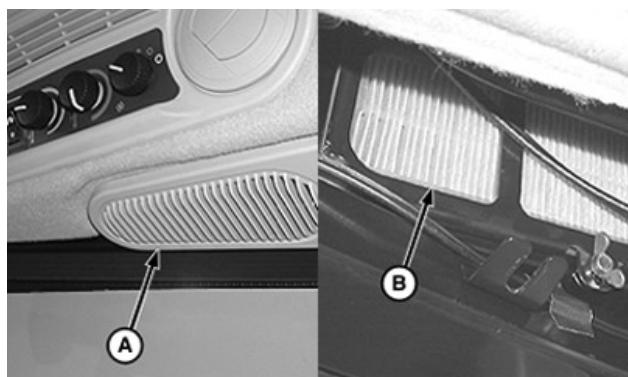
## Clean Cab Air Filters

### MAINTENANCE INTERVAL

**Every 600 Hours** Cleaning filters is required more often in dusty conditions.

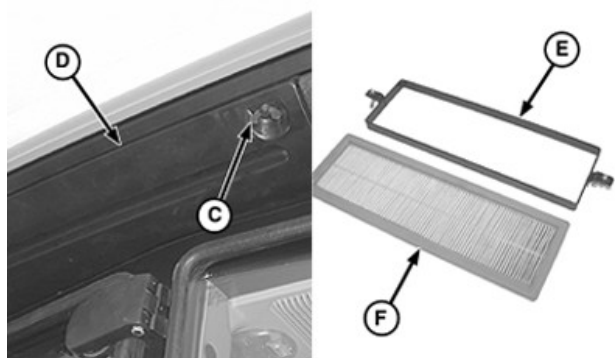
**Every 250 Hours** Replace Activated Carbon Filter

**IMPORTANT:** Activated carbon filters can NOT be cleaned.



PULV000657—UN—05MAY08

*Under Cab Headliner*



PULV000658—UN—05MAY08

*Under Roof*

- A—Filter Cover—Upper Right Side Shown (Left Side Similar)  
B—Recirculated Air Filter  
C—Screws (2 used)  
D—Filter Cover  
E—Retainer Plate (2 used)  
F—Fresh Air Filter (2 used)

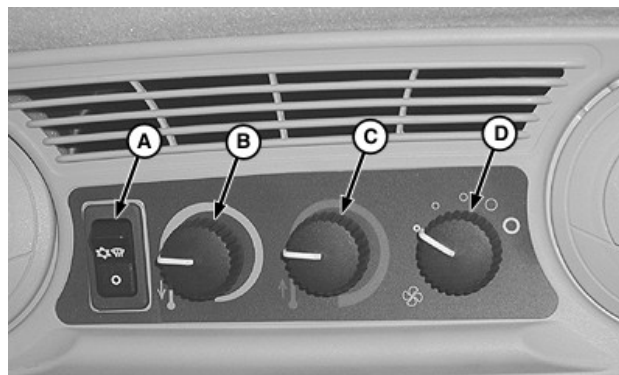
**CAUTION:** Check whether the cab offers sufficient protection before working in an environment containing hazardous substances (pesticides and others). Refer to the product data sheets of the spray manufacturer specifying the category required for the cab.

The air system filters are not designed to filter out harmful chemicals. Follow the implement operator's manual and chemical manufacturer instructions when using agricultural chemicals.

2. Clean filters with compressed air. Inspect filters for damage. Replace as necessary.
3. Remove screws (C), filter cover (D), retainer plate (E), and filter (F) on both sides of the cab above door.
4. Clean filters with compressed air. Inspect filters for damage. Replace as necessary.

HV12280,000047A-19-26FEB19

## Check Air Conditioning System



LV8415—UN—14JUL03

- A—Air Conditioner and Defog Switch  
B—Air Conditioner Temperature Control Knob  
C—Heater Temperature Control Knob  
D—Fan Speed Control Knob

Perform following checks if air conditioning system does not cool, or cooling is intermittent:

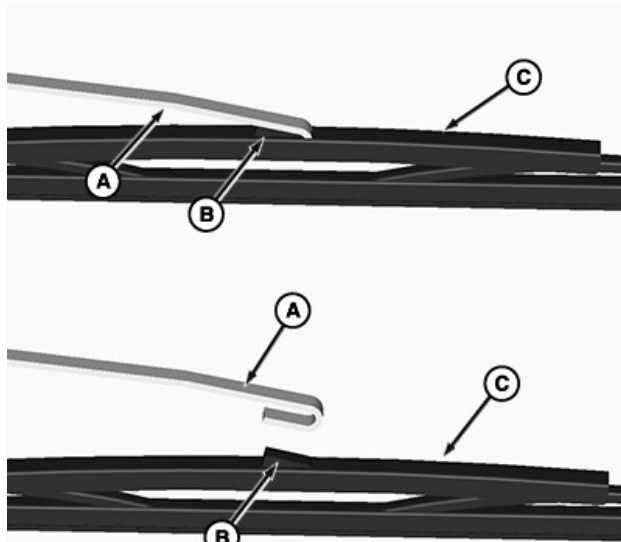
1. Confirm that system does not function correctly. Reconfirm after cleaning or adjustments are made.
  - a. Turn air conditioner and defog switch (A) on.
  - b. Set fan speed control knob (D) to highest speed.
  - c. Set temperature control knobs (B and C) to coldest setting.
  - d. Operate engine at 2000 rpm.
  - e. Check air vents to confirm that cold air is not present.
2. Inspect and clean cab air filters. Replace filters if necessary. (See Clean Air Filters in this section.)
3. Clean grille and radiator. (See Clean Grille Screens and Cooling Package in the Air, Fuel, Coolant, and Exhaust Maintenance section.)
4. If problems persist, see your John Deere dealer.

GS25068,0005B2B-19-10OCT18

1. Remove filter covers (A) and filters (B).



## Replace Wiper Blade



CPA0004117—UN—04AUG17

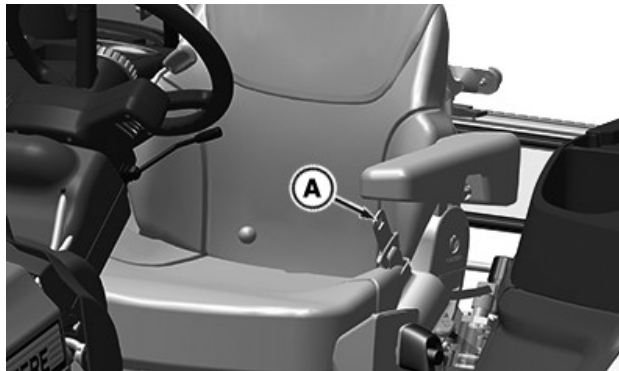
A—Wiper Arm  
B—Blade Retainer  
C—Wiper Blade

1. Insert screwdriver in the blade retainer (B) to release.
2. Slide wiper blade (C) toward the wiper arm (A) to remove.
3. Align and slide a new wiper blade into the arm until it locks into place.

CO00266,00002D5-19-04AUG17

## Inspect Seat Belts

<b>MAINTENANCE INTERVAL</b> Annually
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RXA0152422—UN—14JUN16

Operator's Seat Belt



PY42046—UN—11MAY17

Instructional Seat Belt

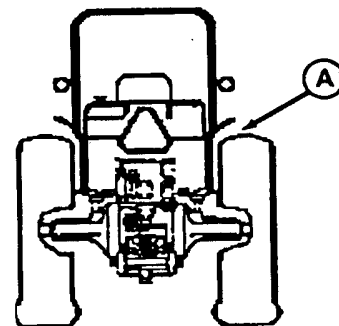
A—Seat Belt

**CAUTION:** Inspect operator's and instructional seat belts (A), buckles, retractors, and mounting hardware. Check for any sign of damage, cuts, fraying, extreme or unusual wear, discoloration, or abrasions.

If damage is found, the entire seat belt system must be replaced immediately. Replace the belt system only with replacement parts approved for your machine. See your John Deere dealer.

GS25068,0005B2C-19-10OCT18

## Adjust OOS and Low Profile Rear Fender



M47179—UN—31JAN92

A—Rear Wheel-to-Fender Clearance

**IMPORTANT:** Tires must have at least 25 mm (1 in) rear wheel-to-fender clearance (A). When large diameter rear tires are installed, check clearance between the tires and fenders.

Have your John Deere dealer check and adjust rear fenders.

GS25068,0005B2D-19-10OCT18

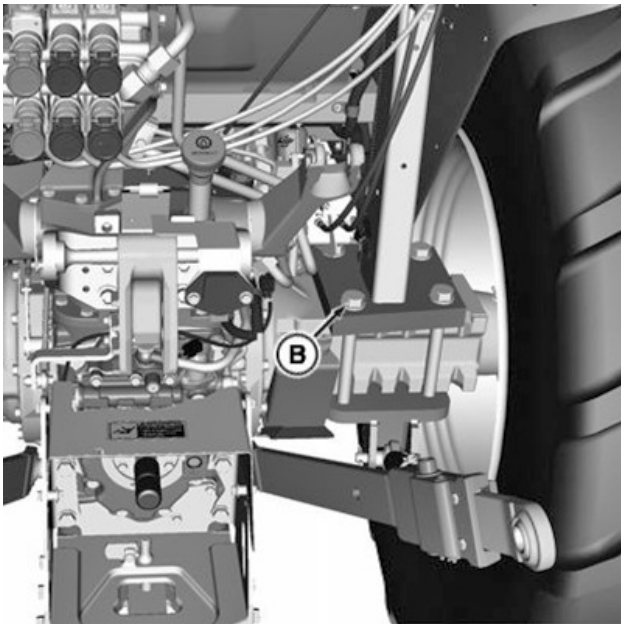
## Keep Roll-Over Protective Structure (ROPS) Installed Properly

**CAUTION:** Make certain all parts are installed correctly if roll-over protective structure (ROPS) is loosened or removed for any reason. Replace and tighten mounting cap screws to specification.

If ROPS is subjected to structural damage, as in an overturn incident, the protection a ROPS offers is impaired. Protection is also impaired if ROPS is in any way altered via welding, bending, drilling, or cutting. Replace damaged ROPS, do not reuse. Any alteration to the ROPS requires approval by the manufacturer.



RXA0147448—UN—23FEB15



CPA0004258—UN—09AUG17

A—Roll-Over Protective Structure (ROPS)  
B—Mounting Cap Screw (8 used)

When installation of equipment on a machine necessitates loosening or removing roll-over protective structure (ROPS) (A), replace and tighten mounting cap screws (B) to specification.

### Specification

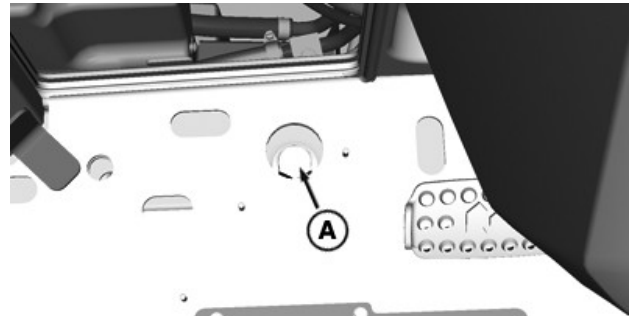
ROPS Mounting Cap	
Screws—Torque. . . . .	365 N·m (284 lb·ft)

GS25068,0005B2E-19-10OCT18

## Keep Cab Protection System Installed Properly

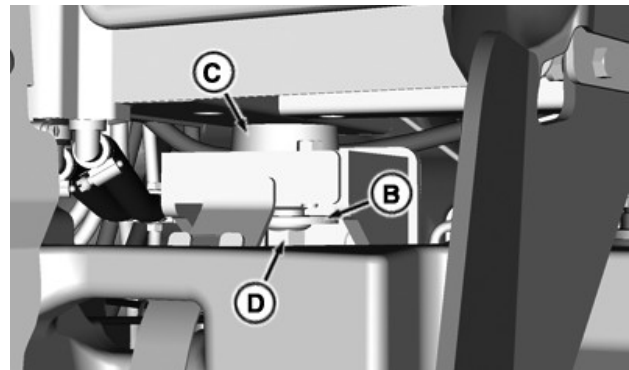
**CAUTION:** The cab protection system is impaired if it is subjected to structural damage, or is in any way altered by welding, bending, drilling, or cutting. A damaged cab protection system must be replaced.

Any alteration to the cab protection system must be approved by the manufacturer.



RXA0146931—UN—27JAN15

Front Cab Mount Inside Cab



RXA0146932—UN—27JAN15

Front Cab Mount Under Cab

RXA0146933—UN—27JAN15

**A—Cap Screws**  
**B—Washers**  
**C—Isolators**  
**D—Nut**

1. Lift up rubber floor mat and pry out plugs to access front mounting hardware.
2. Check front and rear mounting hardware (A—D) for proper torque.

Front—Torque. . . . . 350 N·m  
(284 lb·ft)

Rear—Torque. . . . . 220 N·m  
(162 lb·ft)

**290-4**

# Troubleshooting

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## Engine

Symptom	Problem	Solution
<b>Engine turns over but does not start.</b>	Incorrect starting procedure.	Review starting procedure.
	No fuel.	Check fuel tank.
	Exhaust restricted.	Check and correct exhaust restriction.
	Fuel filter plugged or full of water.	Replace fuel filter or drain water from filter.
	Injection pump not getting fuel or air in the fuel system.	Check fuel flow at the supply pump or bleed fuel system.
	Faulty injection pump or nozzles.	See your John Deere dealer.
<b>Engine hard to start or does not start.</b>	Air in the fuel tank.	Bleed fuel system.
	Cold weather.	Use cold weather starting procedure.
	Slow starter speed.	See Starter Turns Over Slowly in Electrical Troubleshooting.
	Crankcase oil too heavy.	Use oil of proper viscosity.
	Improper type of fuel.	Consult fuel supplier; use proper type of fuel for operating conditions.
	Water, dirt, or air in the fuel system.	Drain, flush, fill, and bleed system.
	Clogged fuel filter.	Replace filter element.
	Dirty or faulty injectors.	See your John Deere dealer.
	Injection pump shutoff not reset.	Turn ignition switch to STOP, then to ON.
<b>Engine knocks.</b>	Low engine oil level.	Add oil to the engine crankcase.
	Injection pump out of time.	See your John Deere dealer.
	Low coolant temperature.	See your John Deere dealer.
<b>Engine runs irregularly or stalls frequently.</b>	Low coolant temperature.	See your John Deere dealer.
	Clogged fuel filter.	Replace fuel filter element.
	Water, dirt, or air in the fuel system.	Drain, flush, fill, and bleed system.
	Dirty or faulty injectors.	See your John Deere dealer.
<b>Below normal engine temperature.</b>	Defective thermostat.	Remove and check thermostat.

## *Troubleshooting*

Symptom	Problem	Solution
<b>Lack of power.</b>	Defective temperature gauge or sender.	Check gauge, sender, and conditions.
	Exhaust filter restriction.	See your John Deere Dealer.
	Engine overloaded.	Reduce load.
	Low high idle speed.	See your John Deere dealer.
	Intake air restriction.	Service air cleaner.
	Clogged fuel filter.	Replace filter element.
	Improper type of fuel.	Use proper fuel.
	Overheated engine.	Check coolant level, inspect fan belt, and check radiator fins for debris.
	Below normal engine temperature.	See your John Deere dealer.
	Improper valve clearance.	See your John Deere dealer.
	Dirty or faulty injectors.	Have John Deere dealer check injectors.
	Injection pump out of time.	See your John Deere dealer.
	Turbocharger not functioning.	See your John Deere dealer.
	Leaking exhaust manifold gasket.	See your John Deere dealer.
	Implement improperly adjusted.	See implement operator's manual.
	Restricted fuel line.	See your John Deere dealer.
	Restricted return line.	See your John Deere dealer.
	Improper ballast.	Adjust ballast to load.
	Poor fuel performance.	See your John Deere dealer.
	Poor bio-fuel performance.	See your John Deere dealer.
<b>Low oil pressure.</b>	Low oil level.	Add oil.
	Improper type of oil.	Drain and fill crankcase with oil of proper viscosity and quality.
	Bad pump.	See your John Deere dealer.
	Bad sender.	See your John Deere dealer.
	Sender disconnected.	Connect sender.

## *Troubleshooting*

Symptom	Problem	Solution
<b>High oil consumption.</b>	Crankcase oil too light.	Use proper viscosity oil.
	Oil leaks.	Check for leaks in lines, around gaskets and drain plugs.
	Restricted crankcase vent tube.	Clean vent tube.
	Defective turbocharger.	See your John Deere dealer.
<b>Engine emits white smoke.</b>	Improper type fuel.	Use proper fuel.
	Low engine temperature.	Warm up engine to normal operating temperature.
	Engine out of time.	See your John Deere dealer.
	Cold start advance or light load advance not functioning.	See your John Deere dealer.
<b>Engine emits black or gray exhaust smoke.</b>	Improper type of fuel.	Use proper fuel.
	Clogged or dirty air cleaner.	Service air cleaner.
	Engine overloaded.	Reduce load or shift to a lower gear.
	Engine out of time.	See your John Deere dealer.
<b>Engine overheats.</b>	Turbocharger not functioning.	See your John Deere dealer.
	Engine overloaded.	Reduce load.
	Dirty radiator core or grille screen.	Remove all debris.
	Low coolant level.	Fill radiator to proper level. Check radiator, coolant recovery tank, and hoses for loose connection or leaks.
	Stretched poly-vee belt or defective belt tensioner.	Check automatic belt tensioner and check belts for stretching. Replace as required.
	Faulty radiator cap.	Replace cap.
	Low engine oil level.	Check oil level. Add oil as required.
	Cooling system needs flushing.	See your John Deere dealer.
	Defective thermostat.	See your John Deere dealer.
	Defective temperature gauge or sender.	See your John Deere dealer.
	Incorrect grade of fuel.	Use proper fuel.

## *Troubleshooting*

Symptom	Problem	Solution
<b>High fuel consumption.</b>	Viscous fan drive not engaged.	See your John Deere dealer.
	Dirty charge air cooler.	Clean charge air cooler fins.
	Improper type of fuel.	Use proper fuel.
	Clogged or dirty air cleaner.	Service air cleaner.
	Engine overloaded.	Reduce load or shift to a lower gear.
	Fuel leakage.	Check fuel supply and return line for leaks. Check fuel tank for leaks and tighten clamps.
	Improper valve clearance.	See your John Deere dealer.
	Engine out of time.	See your John Deere dealer.
	Implement improperly adjusted.	See implement operator's manual.
	Low engine temperature.	See your John Deere dealer.
	Excessive ballast.	Adjust ballast to load.
	Defective turbocharger.	See your John Deere dealer.
	Restricted air intake system.	Check system.
	Plugged crankcase vent tube.	Clean vent tube.
	Transmission oil overfilled.	Drain excess oil.
<b>Undercharged electrical system.</b>	Excessive electrical load from added accessories.	Remove accessories or install a higher output alternator.
	Excessive engine idling.	Increase engine rpm when heavy electrical load is used.
	Poor electrical connections on battery, ground strap, starter, or alternator.	Inspect and clean as necessary.
	Defective battery.	Test battery.
	Defective alternator.	Test charging system.
<b>Battery uses too much water.</b>	Cracked battery case.	Check for moisture and replace as necessary.
	Defective battery.	Test battery.
	Battery charging rate too high.	Test charging system.
<b>Batteries does not charge.</b>	Loose or corroded connections.	Clean and tighten connections.

## *Troubleshooting*

Symptom	Problem	Solution
<b>Starter does not turn over.</b>	Sulfated or worn-out batteries.	See your John Deere dealer or engine distributor.
	Stretched poly-vee belt or defective belt tensioner.	Adjust belt tension or replace belt.
	Loose or corroded connections.	Clean and tighten loose connections.
<b>Starter turns over slowly.</b>	Low battery output voltage.	See your John Deere dealer or engine distributor.
	Faulty start circuit relay.	See your John Deere dealer or engine distributor.
	Low battery output.	See your John Deere dealer or engine distributor.
<b>Entire electrical system does not function.</b>	Crankcase oil too heavy.	Use proper viscosity oil.
	Loose or corroded connections.	Clean and tighten loose connections.
	Faulty battery connection.	Clean and tighten connections.
	Sulfated or worn-out batteries.	See your John Deere dealer or engine distributor.

GS25068,0005B2F-19-10OCT18

## **Heat and Air Conditioning**

Symptom	Problem	Solution
<b>All cab electrical switches do not work.</b>	Loose, defective, or blown fusible link.	See your John Deere dealer.
<b>Blower malfunctioning.</b>	Blower does not work.	Check both blower fuses.
<b>Blower operates only in purge position.</b>	One of two fuses blown.	Replace fuse.
	Blown blower resistance assembly.	See your John Deere dealer.
<b>Heater does not work.</b>	Low coolant level.	Check coolant level; add if necessary.
	Faulty thermostat.	See your John Deere dealer.
	Heater control valve not functioning properly.	See your John Deere dealer.
	Heater core or hoses clogged or damaged.	Flush cooling system. See your John Deere dealer. Replace heater core or hoses. See your John Deere dealer.



## *Troubleshooting*

Symptom	Problem	Solution
<b>Air conditioning does not work.</b>	Fan belt loose or slipping.	Check belt tension. Replace belt if necessary.
	Blown fuse.	Replace fuse.
	Defective switch.	See your John Deere dealer.
	Faulty wiring or loose connections.	See your John Deere dealer.
	Defective compressor clutch.	See your John Deere dealer.
	Condenser dirty.	Clean condenser.
	Heater valve leaking.	See your John Deere dealer.
	No Freon charge.	See your John Deere dealer.
<b>Drafts.</b>	Poor air distribution.	Adjust directional air louvers. Set blower switch to medium or low position.
<b>Inadequate air flow.</b>	Clogged air filters.	Clean filters.
	Evaporator core air flow restricted.	Clean evaporator and housing with compressed air.
	Faulty blower fan motors.	See your John Deere dealer.
	Defective blower switch.	See your John Deere dealer.
	Faulty wiring or loose connections.	See your John Deere dealer.
<b>Water leaking or dripping from evaporator core compartment.</b>	Loose hose clamp.	Tighten clamp.
	Air conditioning drip pan dirty.	Clean evaporator pan and outlet with compressed air.
	Air conditioning drain tubes plugged.	Clean drain tubes.
<b>Strange odors inside cab.</b>	Dirty air filters.	Clean filters.
	Evaporator condenser pan dirty.	Clean pan and outlet with compressed air.
	Drain tubes plugged.	Clean drain tubes.
	Foreign substance on the evaporator exterior.	Clean filters.
<b>Partial frosting and sweating of lines combined with poor cooling.</b>	Fan belt slipping.	Check belt tension. Replace belt if necessary.

## *Troubleshooting*

Symptom	Problem	Solution
	Loss of refrigerant.	Check system for leaks. See your John Deere dealer.
	Restricted or clogged liquid line.	See your John Deere dealer.
	Expansion valve malfunctioning.	See your John Deere dealer.
<b>Ice flecks blowing from evaporator.</b>	Control dial set too low.	Adjust the temperature control to a warmer position.
<b>Failure to cool.</b>	Insufficient blower speed.	Increase blower speed.
	Dirty air filters.	Clean filters.
	Debris on the front grille.	Clean front grille.
	Lint or dirt on condenser fins.	Blow out condenser fins with compressed air.
	Refrigerant is lost or low.	See your John Deere dealer.
	Loose fan belt.	Check belt tension. Replace belt if necessary.
	Compressor clutch not engaging.	See your John Deere dealer.
	Expansion valve not functioning.	See your John Deere dealer.
	Restriction in the refrigerant system.	See your John Deere dealer.
	Faulty wiring or loose connections.	See your John Deere dealer.
	Defective temperature control switch.	See your John Deere dealer.
	Outside temperature too low, below 21°C (70°F).	Wait until day gets warmer. If there is a malfunction in system, see your John Deere dealer.
	Condenser is overheating.	Clean condenser screens, cores, and fins of condenser and radiator.
	Severe restriction in the high side.	See your John Deere dealer.
	Burned out clutch field or faulty field.	See your John Deere dealer.
<b>Hissing noise at the expansion valve.</b>	Short circuit in the control circuit or failure of a switch in circuit.	See your John Deere dealer.
	Fan viscous drive not engaged.	See your John Deere dealer.
	Loss of refrigerant.	Check system for leaks. See your John Deere dealer.

Symptom	Problem	Solution
	Restriction in the refrigerant system.	Check for kinks in hoses. Check receiver-drier for uniformity of temperature. See your John Deere dealer.

CO00266,00002DB-19-07AUG17

## Electrical

Symptom	Problem	Solution
<b>Battery does not charge.</b>	Loose or corroded connections.	Clean and tighten connections.
	Sulfated or worn-out battery.	See your John Deere dealer.
	Loose or defective fan belt.	Check belt tension. Replace belt if necessary.
<b>Charging system indicator glows with engine running.</b>	Low engine speed.	Increase speed.
	Defective battery.	See your John Deere dealer.
	Defective alternator.	See your John Deere dealer.
	Slipping fan belt.	Check belt tension. Replace belt if necessary.
<b>Starter inoperative.</b>	Gear shift lever not in PARK.	Move lever to PARK.
	PowrReverser™ Transmission: EH directional reverser lever in forward or reverse.	Move lever to NEUTRAL.
	Mechanical PTO lever engaged.	Disengage PTO.
	Low battery output.	See your John Deere dealer.
	Blown fuse.	Replace fuse.
	Bypass starter circuit.	See your John Deere dealer.
<b>Starter turns over slowly.</b>	Low battery output.	See your John Deere dealer.
	Crankcase oil too heavy.	Use proper viscosity oil.
	Loose or corroded connections.	Clean and tighten loose connections.
<b>Light system does not function; rest of the electrical system functions.</b>	Blown fuse.	Replace fuse.
<b>Work Lights do not work.</b>	Blown Fuse.	Replace fuse.

## Troubleshooting

Symptom	Problem	Solution
	Defective bulb or switch.	Replace bulb or see your John Deere dealer.
	Faulty wiring or loose connections.	See your John Deere dealer.
	Loose, defective, or blown fusible link.	See your John Deere dealer.
<b>All cab electrical switches do not work.</b>		
<b>Window wipers and washer do not operate.</b>	Blown fuse.	Replace fuse.
	Defective switches.	See your John Deere dealer.
	Defective motors.	See your John Deere dealer.
	Faulty wiring or loose connections.	See your John Deere dealer.
<b>Radio does not work.</b>	Blown fuse.	Replace fuse.
<b>Entire electrical system does not function.</b>	Faulty battery connections.	Clean and tighten connections.
	Sulfated or worn-out battery.	Check electrolyte level and specific gravity.
	Blown fuse.	Replace fuse.
<b>Relay(s) sticking or nonfunctional; repeated failures.</b>	Diode to protect circuit from arcing has failed.	See your John Deere dealer.

OURX985.0003217-19-16JAN18

## Display

Symptom	Problem	Solution
<b>Fog in the primary display.</b>	Fogging in the inside of the primary display.	The primary display builds moisture that does not bead up after 20 minutes, it is recommended to replace the primary display.

GS25068.00014A8-19-23FEB21

## Transmission

Symptom	Problem	Solution
<b>Transmission oil overheats.</b>	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.

## *Troubleshooting*

Symptom	Problem	Solution
<b>Low transmission pressure.</b>	Implement-mounted hydraulic motor not plumbed correctly or matched to circuit.	See your John Deere dealer.
	SCV lever held in extend or retract position.	Return SCV lever to neutral position.
	Transmission oil over full mark.	Drain to the full mark.
	Oil cooler dirty.	Clean oil cooler.
	Viscous fan drive not engaged.	See your John Deere dealer.
	Low oil supply.	Fill system with correct oil.
	Clogged transmission/hydraulic oil filter.	Replace filter.

GS25068,0005B30-19-10OCT18

### **Brakes**

Symptom	Problem	Solution
<b>No solid pedals feel.</b>	Air in system.	See your John Deere dealer.
<b>Pedal settles.</b>	Rear brake piston seal leaking.	See your John Deere dealer.
<b>Excessive pedal travel.</b>	Air in system.	See your John Deere dealer.
<b>Brakes drag during transport.</b>	Brakes out of adjustment.	See your John Deere dealer.

CO00266,00002DE-19-07AUG17

### **Hydraulics**

Symptom	Problem	Solution
<b>Entire hydraulic system fails to function.</b>	Low oil supply.	Fill system with correct oil.
	Clogged transmission/hydraulic oil filter.	Replace filter.
	High-pressure internal leak.	See your John Deere dealer.
<b>Hydraulic oil overheats.</b>	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.

## *Troubleshooting*

Symptom	Problem	Solution
	Implement-mounted hydraulic motor not plumbed correctly or matched to circuit.	See your John Deere dealer.
	Standard Valve: SCV lever held in extend or retract position.	Return SCV lever to neutral position.
	Deluxe Valve: Flow control or detent setting incorrect.	Adjust flow control and/or detent setting.
<b>Direction of remote cylinder travel is reversed.</b>	Improper hose connections.	Reverse hose connections.
<b>Hoses do not couple.</b>	Improper hose male tips.	Replace tip with ISO standard tips.
<b>Remove cylinder does not lift load.</b>	Excessive load.	Reduce load.
	Hoses not installed correctly.	Attach hoses correctly.
	Incorrect remove cylinder size.	Use correct size cylinder.

GS25068,0005B31-19-10OCT18

## **Hitch**

Symptom	Problem	Solution
<b>Insufficient transport clearance.</b>	Center link too short.	Adjust center link.
	Lift links too short.	Adjust lift links.
	Implement not level.	Level implement.
	Hitch feedback linkage not properly adjusted.	See your John Deere dealer.
	Implement not properly adjusted.	See implement operator's manual.
	Front of center link in upper holes.	Move center link to lower holes.
	Sway bars too short.	Adjust sway bars.
	Raise height limit not correctly set.	Adjust raise height limit.
<b>Hitch fails to follow the lever.</b>	Malfunction in the lever position sensor or hitch position sensor.	See your John Deere dealer.
<b>Poor position control.</b>	Draft control in wrong position.	Turn draft control to position control detent.
	System is reset (fender switches override operator's control).	Enable system with operator's control.

## *Troubleshooting*

Symptom	Problem	Solution
	Malfunction in the lever position sensor or hitch position sensor.	See your John Deere dealer.
<b>Hitch drops slowly.</b>	3-point hitch rate-of-drop control not properly set.	Adjust rate-of-drop.
<b>Hitch fails to lift or lifts slowly.</b>	Excessive load on hitch.	Reduce load.
	Center link in wrong position.	Adjust center link.
	Low oil level.	Fill system with proper oil.
	Hydraulic oil too cold.	Allow oil to warm.
	Transmission/hydraulic oil filter clogged.	Replace filter.
<b>Implement does not operate at desired depth.</b>	Lift links too short.	Adjust lift links.
	Lack of penetration.	See implement operator's manual.
	Electro-hydraulic controls: draft sensor failed.	See your John Deere dealer.
	Improper setting of the hitch control stop.	Readjust position.
	Improper setting of draft control.	Adjust draft control.
<b>Insufficient or no hitch response to draft load.</b>	Draft control lever in OFF (forward) position.	Move lever to desired position.
	Adjust draft feedback cable.	See your John Deere dealer.
	Lift links too short.	Adjust lift links.
	Lack of penetration.	See implement operator's manual.
	Rate-of-drop too slow.	Adjust rate-of-drop.
<b>Hitch too responsive.</b>	Improper draft control setting.	Adjust draft control.
<b>Hitch drops too fast.</b>	Rate-of-drop set too fast.	Adjust rate-of-drop.
<b>Position and draft levers drift, levers too loose.</b>	Friction disks are loose at the mechanical hitch control box.	See your John Deere dealer.
<b>Hitch settles too fast after machine is shutoff.</b>	Internal system leakage.	See your John Deere dealer.

GS25068,0005B32-19-10OCT18

## Selective Control Valves (SCV)

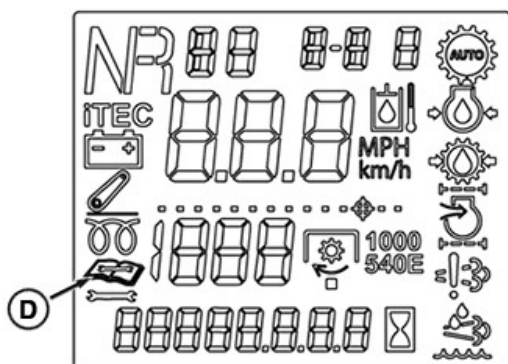
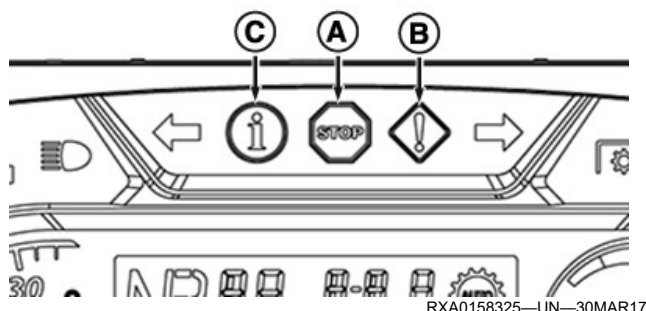
Symptom	Problem	Solution
<b>Flow control knob or detent does not turn.</b>	Dirt buildup.	Clean dirt from flow control knob shaft.
<b>Remote cylinders rate-of-travel too fast or too slow.</b>	Incorrect flow control adjustment.	Adjust flow control.
<b>Detent does not hold SCV lever (Deluxe Rear SCV).</b>	Detent selector in wrong position.	Turn selector to correct position.
	Mid-SCV activated.	Avoid use of mid-SCV.
	3-Point Hitch activated.	Avoid use of 3-point hitch.
	Low Engine rpm.	Increase engine rpm.
	Pressure restriction with some implements.	Reduce oil flow by changing flow control setting.
	Flow control or detent setting incorrect.	Adjust flow control and detent setting.
<b>SVC lever released too soon (Deluxe Rear SCV).</b>	Detent selector in wrong position.	Turn selector to correct position.
	Kick out pressure setting incorrect.	See your John Deere dealer.
	Implement is not connected to SCV I.	Connect implement to SCV I.
<b>SCV lever does not release.</b>	Detent selector not in automatic detent position (Deluxe Rear SCV).	Turn selector to correct position.
		See your John Deere Dealer.
	Built-in pressure leakage with some implements.	Increase oil flow by changing flow control setting.
	Incorrect flow control (Deluxe rear SCV).	Adjust flow control.
	Overtorqued cable-to-valve connection.	Adjust torque at the connector.
<b>Rear SCV fails to function.</b>	Rear SCV does not generate pressure.	Check O-ring and backup ring on power beyond the fitting in mid-SCV.

GS25068,0005B33-19-11OCT18



# On-Board Diagnostics

## STOP, Service, Information Alert Indicators, and Alarms



- A—STOP Alert Indicator  
B—Service Alert Indicator  
C—Information Alert Indicator  
D—Diagnostic Trouble Code Indicator

**IMPORTANT:** Capture operating conditions, machine performance, and environment whenever any alert or alarm is active. Use information to self-correct operation or contact your John Deere dealer for assistance.

Alarm conditions are visually communicated using alert indicators for STOP alert indicator (A), service alert indicator (B), and information alert indicator (C). Audible alarms (beeping or continuous) accompany alert indicators and/or diagnostic trouble code indicator (D).

STOP alert indicator (A) represents an urgent warning. Immediate attention or service is required in order to prevent serious malfunction or damage. Engine or function shuts down. Do not continue operation. Contact your John Deere dealer to diagnose the problem.

Service alert indicator (B) represents a performance/protection warning. Immediate attention or operation is required in order to prevent reduced performance or cause a malfunction or damage. Adjust operating

conditions or conduct maintenance. Contact your John Deere dealer as needed.

Information alert indicator (C) represents an informational warning. Attention or adjustment may be required in order to maintain performance and prevent a more severe alert condition. Adjust operating conditions or conduct maintenance. Contact your John Deere dealer as needed.

Diagnostic trouble code indicator (D) illuminates when a condition occurs that triggers a code to set. Other indicator lights may illuminate which correspond to a functional system of the machine when alarms and indicators are present. Severity levels for alarms are as followed from the highest level of priority to the lowest:

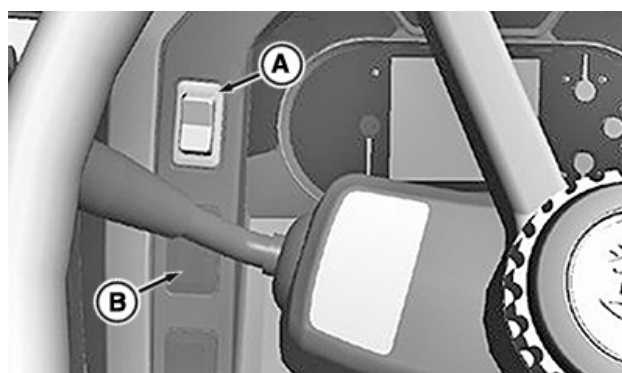
1. STOP Alert Indicator (A)
2. Operator out of seat
3. Service Alert Indicator (B)
4. Information Alert Indicator (C)

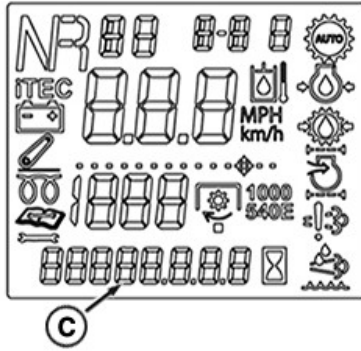
For display details, see Displays, Software, and Electronics Operation section and further details in this section.

Contact your John Deere dealer for troubleshooting assistance. Your dealer has additional access to the information display and tools to diagnose and repair problems.

GS25068,0005B34-19-10OCT18

## On-Board Diagnostic Tool





RXA0161888—UN—08FEB18

- A— Roll-Mode Switch (cab and OOS machines)  
 B— Roll-Mode Switch (low-profile machines)  
 C— Information Display

Roll mode switch (A) or (B) is used to gain access to diagnostic mode of information display (C). Diagnostic mode has two levels of access:

- **Customer access** - Press and hold roll mode switch for 5 seconds to begin diagnostic session. This action allows operator to see diagnostic trouble codes and a limited number of diagnostic addresses at the information display (C).
- **Technician access** - Only for dealer use.

#### Customer access; diagnostic trouble codes:

1. Press and hold the roll mode switch for 5 seconds to begin diagnostic session.
2. Upon entering diagnostics, any active or previously active codes automatically appear in a scrolling fashion. Each one shows the control unit (three letter abbreviations) and the code number (XXXXXX.XX).
3. To view or clear diagnostic trouble codes for any given control unit:
  - a. Use the right turn signal switch to scroll to the desired control unit.
  - b. Press and release the roll mode switch to enter the diagnostic addresses for that desired control unit.
  - c. Use the right turn signal switch to scroll to diagnostic address 001 for the desired control unit.
  - d. If codes are present the word "codes" appears. If not, the word "none" appears.
  - e. Press and release the roll mode switch to view all code details for this control unit.
  - f. Any codes present in that control unit appears there in scrolling fashion for multiple codes.
  - g. To access the option for clearing codes for this selected control unit, press and release the right turn signal switch.
  - h. The question "CLR ?" appears.

- i. To clear the codes, press and release the roll mode switch.
- j. To go back to the entire control unit list, press and release the left turn signal switch.
- k. Proceed to the next desired control unit by repeating steps.

#### Customer access; diagnostic addresses:

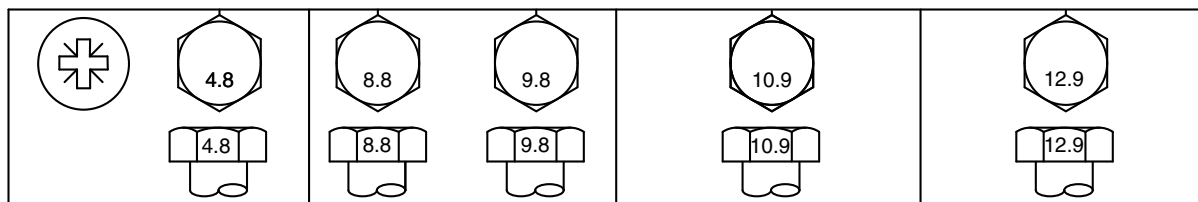
1. Press and hold the roll mode switch for 5 seconds to begin diagnostic session.
2. To view or adjust diagnostic addresses for any given control unit, do the following:
  - a. Use the right turn signal switch to scroll to the desired control unit.
  - b. Press and release the roll mode switch to enter the diagnostic addresses for that desired control unit.
  - c. Use the right turn signal switch to scroll through diagnostic addresses for the desired control unit.
  - d. To go back to the entire control unit list, press and release the left turn signal switch.
  - e. Proceed to the next desired control unit by repeating steps.
3. Address information displays as follows:
  - Address 1 is a list of stored diagnostic trouble codes for that selected control unit software. (See Diagnostic Trouble Codes in this section.)
  - Address 2 is a beep mode. Operate a control device (switch, button, lever) to see an address number display, a value change state, and an audible beep.
  - Addresses 3—199 are various feature or function information related to status, configuration, and operation.
  - Addresses 200—251 are related to software and hardware numbers and versions.

Consult your John Deere dealer about details of addresses and configurations related to your specific machine.

GS25068,0005B35-19-10OCT18

# Specifications

## Metric Bolt and Screw Torque Values



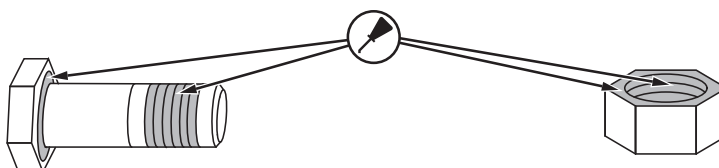
TS1742—UN—31MAY18

Bolt or Screw Size	Class 4.8				Class 8.8 or 9.8				Class 10.9				Class 12.9			
	Hex Head <sup>a</sup>		Flange Head <sup>b</sup>		Hex Head <sup>a</sup>		Flange Head <sup>b</sup>		Hex Head <sup>a</sup>		Flange Head <sup>b</sup>		Hex Head <sup>a</sup>		Flange Head <sup>b</sup>	
	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in
M6	3.6	31.9	3.9	34.5	6.7	59.3	7.3	64.6	9.8	86.7	10.8	95.6	11.5	102	12.6	112
									N·m	lb·ft	N·m	lb·ft	N·m	lb·ft	N·m	lb·ft
M8	8.6	76.1	9.4	83.2	16.2	143	17.6	156	23.8	17.6	25.9	19.1	27.8	20.5	30.3	22.3
			N·m	lb·ft	N·m	lb·ft	N·m	lb·ft								
M10	16.9	150	18.4	13.6	31.9	23.5	34.7	25.6	46.8	34.5	51	37.6	55	40.6	60	44.3
	N·m	lb·ft														
M12	—	—	—	—	55	40.6	61	45	81	59.7	89	65.6	95	70.1	105	77.4
M14	—	—	—	—	87	64.2	96	70.8	128	94.4	141	104	150	111	165	122
M16	—	—	—	—	135	99.6	149	110	198	146	219	162	232	171	257	190
M18	—	—	—	—	193	142	214	158	275	203	304	224	322	245	356	263
M20	—	—	—	—	272	201	301	222	387	285	428	316	453	334	501	370
M22	—	—	—	—	365	263	405	299	520	384	576	425	608	448	674	497
M24	—	—	—	—	468	345	518	382	666	491	738	544	780	575	864	637
M27	—	—	—	—	683	504	758	559	973	718	1080	797	1139	840	1263	932
M30	—	—	—	—	932	687	1029	759	1327	979	1466	1081	1553	1145	1715	1265
M33	—	—	—	—	1258	928	1398	1031	1788	1319	1986	1465	2092	1543	2324	1714
M36	—	—	—	—	1617	1193	1789	1319	2303	1699	2548	1879	2695	1988	2982	2199

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

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

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



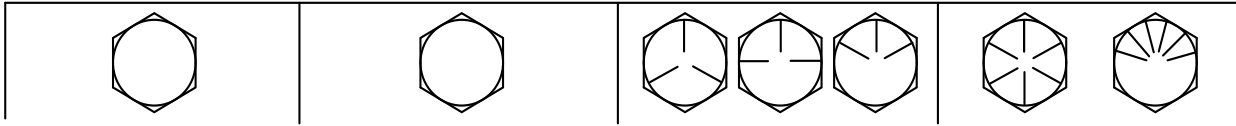
TS1741—UN—22MAY18

<sup>a</sup>Hex head column values are valid for ISO 4014 and ISO 4017 hex head, ISO 4162 hex socket head, and ISO 4032 hex nuts.

<sup>b</sup>Hex flange column values are valid for ASME B18.2.3.9M, ISO 4161, or EN 1665 hex flange products.

DX,TORQ2-19-30MAY18

## Unified Inch Bolt and Screw Torque Values



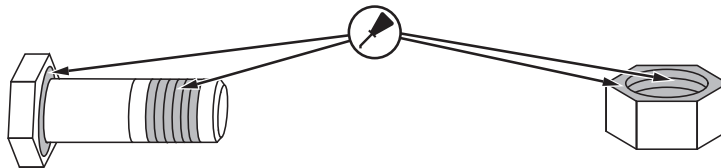
TS1671—UN—01MAY03

Bolt or Screw Size	SAE Grade 1 <sup>a</sup>				SAE Grade 2 <sup>b</sup>				SAE Grade 5, 5.1 or 5.2				SAE Grade 8 or 8.2			
	Hex Head <sup>c</sup>		Flange Head <sup>d</sup>		Hex Head <sup>c</sup>		Flange Head <sup>d</sup>		Hex Head <sup>c</sup>		Flange Head <sup>d</sup>		Hex Head <sup>c</sup>		Flange Head <sup>d</sup>	
	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in
1/4	3.1	27.3	3.2	28.4	5.1	45.5	5.3	47.3	7.9	70.2	8.3	73.1	11.2	99.2	11.6	103
													N·m	lb·ft	N·m	lb·ft
5/16	6.1	54.1	6.5	57.7	10.2	90.2	10.9	96.2	15.7	139	16.8	149	22.2	16.4	23.7	17.5
									N·m	lb·ft	N·m	lb·ft				
3/8	10.5	93.6	11.5	102	17.6	156	19.2	170	27.3	20.1	29.7	21.9	38.5	28.4	41.9	30.9
					N·m	lb·ft	N·m	lb·ft								
7/16	16.7	148	18.4	163	27.8	20.5	30.6	22.6	43	31.7	47.3	34.9	60.6	44.7	66.8	49.3
	N·m	lb·ft	N·m	lb·ft												
1/2	25.9	19.1	28.2	20.8	43.1	31.8	47	34.7	66.6	49.1	72.8	53.7	94	69.3	103	75.8
9/16	36.7	27.1	40.5	29.9	61.1	45.1	67.5	49.8	94.6	69.8	104	77	134	98.5	148	109
5/8	51	37.6	55.9	41.2	85	62.7	93.1	68.7	131	96.9	144	106	186	137	203	150
3/4	89.5	66	98	72.3	149	110	164	121	230	170	252	186	325	240	357	263
7/8	144	106	157	116	144	106	157	116	370	273	405	299	522	385	572	422
1	216	159	236	174	216	159	236	174	556	410	609	449	785	579	860	634
1-1/8	305	225	335	247	305	225	335	247	685	505	751	554	1110	819	1218	898
1-1/4	427	315	469	346	427	315	469	346	957	706	1051	775	1552	1145	1703	1256
1-3/8	564	416	618	456	564	416	618	456	1264	932	1386	1022	2050	1512	2248	1658
1-1/2	743	548	815	601	743	548	815	601	1665	1228	1826	1347	2699	1991	2962	2185

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

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

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



TS1741—UN—22MAY18

<sup>a</sup>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.

<sup>b</sup>Grade 2 applies for hex cap screws (not hex bolts) up to 6 in (152 mm) long.

<sup>c</sup>Hex head column values are valid for ISO 4014 and ISO 4017 hex head, ISO 4162 hex socket head, and ISO 4032 hex nuts.

<sup>d</sup>Hex flange column values are valid for ASME B18.2.3.9M, ISO 4161, or EN 1665 hex flange products.

DX,TORQ1-19-30MAY18

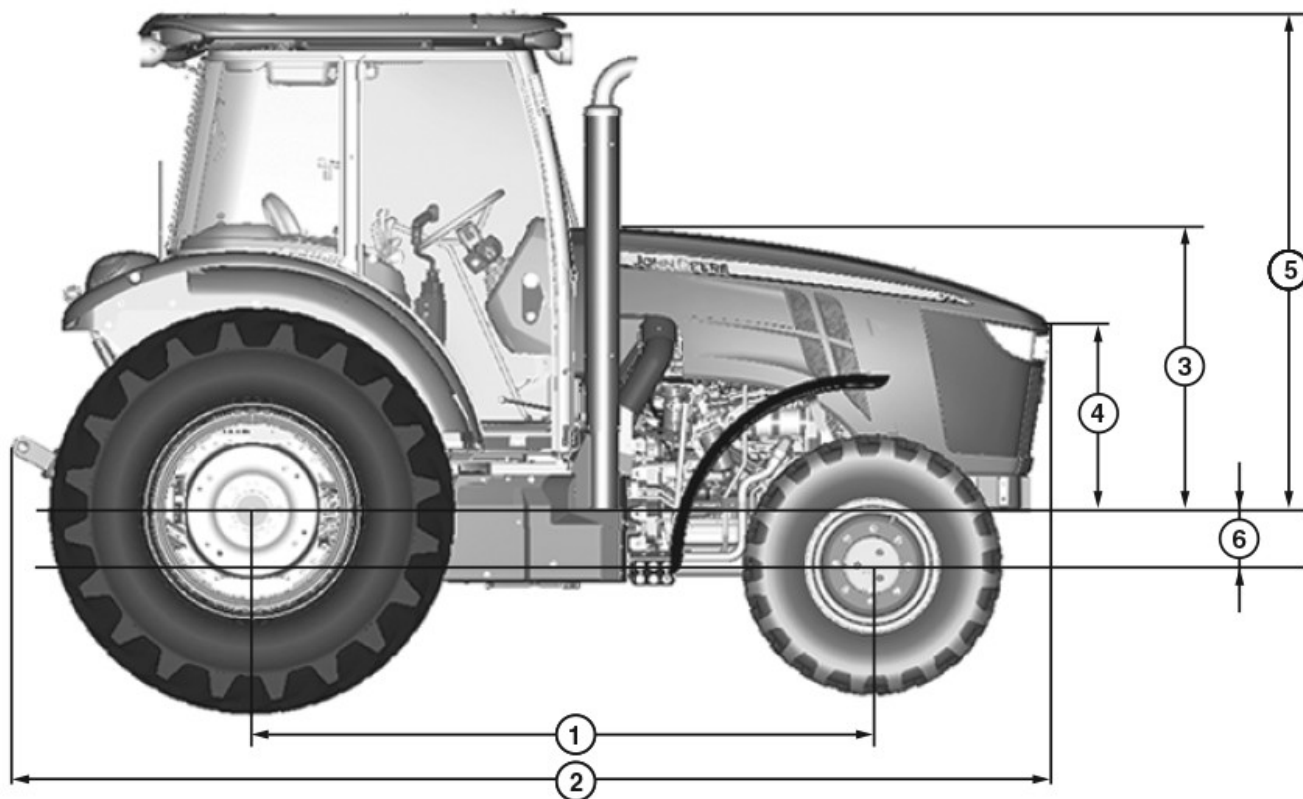
## Fluid Capacities

	Liters	Gallons
Fuel Tank Capacity	112.6	29.7
DEF Tank Capacity	12	3.2
Cooling System (Cab)	11.4	3
Cooling System (OOS and Low-Profile)	9.5	2.5
Engine Crankcase with Filter	12.1	3.2
Transmission/Hydraulic System	43.5	11.5
MFWD Differential Housing	5	1.3
MFWD Wheel Hub (Each)	0.7	0.74 qt

HV12280,00004B6-19-05MAR19

## Machine Dimensions

### Cab



CPA0004297—UN—14AUG17

- 1—Wheelbase  
2—Overall Length  
3—Rear Axle to Top of Hood at Rear

- 4—Rear Axle to Top of Hood at Front  
5—Rear Axle to Top of Cab  
6—Rear Axle to Front Axle

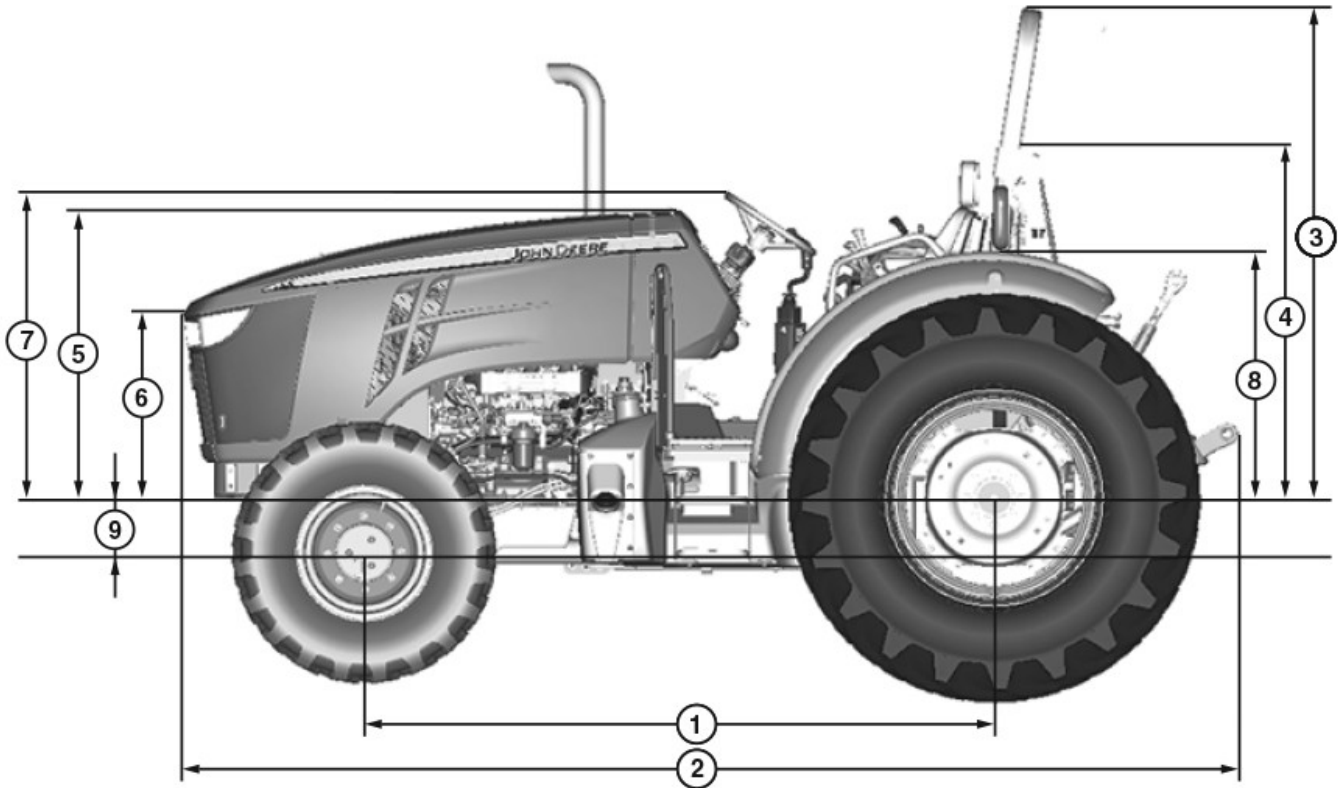
	Millimeters	Inches
Wheelbase	2350	92.5
Overall Length	4042	159.13
Rear Axle to Top of Hood at Rear	1069	42.1
Rear Axle to Top of Hood at Front	738	29.1
Rear Axle to Top of Cab	1877	73.9

## Specifications

	Millimeters	Inches
Rear Axle to Front Axle	206	8.1

Minimum outside edge of tires	Millimeters	Inches
5E (with 16.9-30 in R1)	2123	83.6
5E (with 18.4-30 in R1)	2162	85.1

**OOS**



CPA0004298—UN—14AUG17

- 1—Wheelbase
- 2—Overall Length
- 3—Rear Axle to Top of ROPS
- 4—Rear Axle to Top of Folded ROPS
- 5—Rear Axle to Top of Hood at Rear

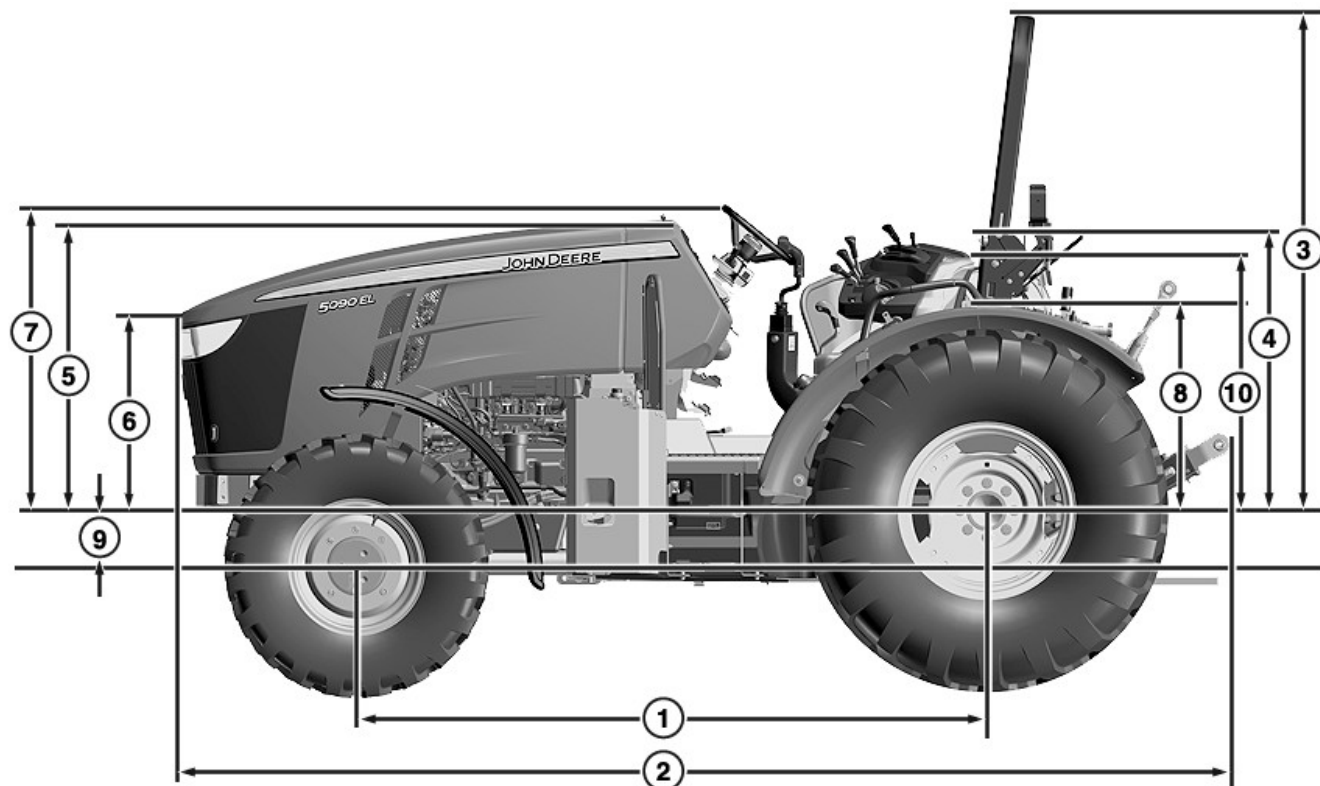
- 6—Rear Axle to Top of Hood at Front
- 7—Rear Axle to Top of Steering Wheel
- 8—Rear Axle to Top of Seat Cushion
- 9—Rear Axle to Front Axle

	Millimeters	Inches
Wheelbase	2350	92.5
Overall Length	4042	159.13
Rear Axle to Top of ROPS	1844	72.6
Rear Axle to Top of Folded ROPS	1298	51.1
Rear Axle to Top of Hood at Rear	1069	42.1
Rear Axle to Top of Hood at Front	738	29.1
Rear Axle to Top of Steering Wheel	1148	45.2
Rear Axle to Top of Seat Cushion	928	36.5
Rear Axle to Front Axle	206	8.1

## Specifications

Minimum outside edge of tires	Millimeters	Inches
5E (with 16.9-30 in R1)	2123	83.6
5E (with 18.4-30 in R1)	2162	85.1

### Low-Profile



RXA0161423—UN—11DEC17

- 1—Wheelbase
- 2—Overall Length
- 3—Rear Axle to Top of ROPS
- 4—Rear Axle to Top of Folded ROPS
- 5—Rear Axle to Top of Hood at Rear

- 6—Rear Axle to Top of Hood at Front
- 7—Rear Axle to Top of Steering Wheel
- 8—Rear Axle to Top of Seat Cushion
- 9—Rear Axle to Front Axle Drop
- 10—Rear Axle to Top of Fender

	Millimeters	Inches
Wheelbase	2350	92.5
Overall Length	3934	154.9
Rear Axle to Top of ROPS	1840	72.4
Rear Axle to Top of Folded ROPS	1050	41.3
Rear Axle to Top of Cowl at Rear	1080	42.5
Rear Axle to Top of Hood at Front	738	29.1
Rear Axle to Top of Steering Wheel	1135	44.7
Rear Axle to Top of Seat Cushion, Standard Seat	1102	43.4
Rear Axle to Top of Seat Cushion, Low Profile Seat	936	36.9
Rear Axle to Front Axle Drop	201	7.9
Rear Axle to Top of Fender in Highest Position	849	33.4
Rear Axle to Top of Fender in Lowest Position	761	30.0

## Specifications

Minimum outside edge of tires	Millimeters	Inches
5E (with 16.9-30 in R1)	2123	83.6
5E (with 18.4-30 in R1)	2162	85.1
5EL (with 16.930 Goodyear)	1970	77.6
5EL (with 480/65R24 Mitas)	2105	82.9
5EL (with 16.9R30 Michelin)	2182	85.9
5EL (with 19.5L24 Goodyear)	2131	83.9

OURX985,000318E-19-11DEC17

## Machine Weight

*NOTE: Machine weight is measured with more than 18.9 L (5 gal) of fuel and all other fluids at full capacity.*

*Machine weight is approximately shipping weight. Adding or removing options will change the weight. If more accurate weight is desired, weigh on a platform scale.*

Base Machine Weight	Kilograms	Pounds
OOS and Low-Profile	3200	7055
MFWD Cab	3600	7937

OURX985,000318F-19-01DEC17

## Engine and PTO Power

	5090E and 5090EL	5100E
Engine Power at 2400 rpm (Factory observed per 97/68/EC ISO industry standard) ( $\pm 3\%$ )	67.1 kW 90 hp	74.6 kW 100 hp
PTO Power at 2400 rpm (Factory observed per SAE industry standard) ( $\pm 5\%$ )	56.0 kW 75 hp	63.4 kW 85 hp

DP51502,0002FF4-19-10JAN18

## Engine Specifications

Engine Type	Diesel
Aspiration	Turbocharged and Aftercooled
Cylinders	In-line 4
Displacement	4.5 L 275 in <sup>3</sup>
Fuel Control	Electronic
Low Idle Speed	900 $\pm$ 10 rpm
Rated Speed	2200 rpm
High Idle Speed	2300 $\pm$ 50 rpm

HV12280,00004A6-19-04MAR19



## Electrical Specifications

Battery Voltage	12 Volts
Battery Cold Cranking Capacity	950 A
Reserve Capacity	180 Minutes
Alternator Capacity	OOS and Low-Profile: 90 A Cab: 120 A Field Installed Option: 120 A

GS25068,0005B37-19-11OCT18

## PTO Engine Speeds

PTO Speed	Engine Speed (rpm)
540	2400
540E	1716
1000	2400

DP51502,0002FF6-19-10JAN18

## Hydraulic Specifications

Pump Type	Gear
Steering Pump Displacement	11.9 cc/rev
Implement Pump Displacement	28.8 cc/rev
Steering Pump Flow	24.9 L/min 6.6 gal/min
Implement Pump Flow	60.2 L/min 15.9 gal/min
Maximum Pressure-Steering	14700 kPa 147 bar 2130 psi
Maximum Pressure-Implement	20000 kPa 200 bar 2900 psi

CO00266,0000304-19-08AUG17

## Rear Hitch Lift Capacities

**IMPORTANT:** In all applications, pay attention to axle load capacity and tire load capacity.

Throughout Lift Range Force		Max Lift Force	
At Hitch Ball	610 mm Behind Lift Point	At Hitch Ball	610 mm Behind Lift Point
17.1 kN (3847 lbf) 1744.3 kg (3846 lb)	14.3 kN (3215 lbf) 1457.7 kg (3214 lb)	23.0 kN (5161 lbf) 2340.2 kg (5159 lb)	16.8 kN (3777 lbf) 1712.6 kg (3776 lb)

DP51502,0002FF7-19-10JAN18

## Drawbar Capacities

Maximum Static Vertical Loads		
Drawbar-Standard	250 mm Extended	1250 kg 2755 lb
	350 and 400 mm Extended	1100 kg 2425 lb
Drawbar-Heavy Duty	250 mm Extended	1450 kg 3195 lb
	350 and 400 mm Extended	1200 kg 2645 lb

CO00266,0000307-19-08AUG17

## Weight Distribution

### MFWD

Implement Attachment	Rear Weight (% of machine weight)	Front Weight (% of machine weight)
Drawbar	65	35
Integral (Hitch)	60	40

CO00266,0000308-19-08AUG17

## Permissible Load

**IMPORTANT:** Always consult your tire manufacturer's information, as permissible load varies per manufacturer, load capacity, inflation pressure, speed-radius index, and travel speed.

Machine Configuration	Max Permissible Weight	Max Front Axle Load	Max Rear Axle Load	Max Payload
Cab	5220 kg 11510 lb	3000 kg 6615 lb	6000 kg 13230 lb	1620 kg 3570 lb
OOS and Low Profile	5220 kg 11510 lb	3000 kg 6615 lb	6000 kg 13230 lb	2020 kg 4455 lb

DP51502,0002FF8-19-10JAN18

## Ballast Capacities

Maximum Ballast Weight	4430 kg 9765 lb
Front Base Weight	55 kg 120 lb
Maximum Number of Front Weights	10
Maximum Front Ballast	555 kg 1225 lb
Maximum Number of Rear Weights	Up to 4 pairs of 43 kg (95 lb) or Up to 3 pairs of 48 kg (105 lb)

CO00266,000030A-19-10AUG17

## Sound Level

Maximum sound level at operator's ear	Measurement method in accordance with Directive 2009/76/EC
Cab	80 dB (A)
OOS and Low Profile	90 dB (A)

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CO00266,000030B-19-08AUG17

# Identification Numbers

## Product Identification Number

1	P	0	6	1	5	5	J	J	C	7	1	2	3	4	5	6
WMC	Build Factory	Machine Series	Engine hp		Machine Family		Check Letter	Calendar Year	Transmission Type	Serial Number						
		Model Number														

WMC: World Manufacturing Code.

Build Factory: represents manufacturing location.

Machine Series: represents tractor series.

Engine hp: represents approximate engine horsepower.

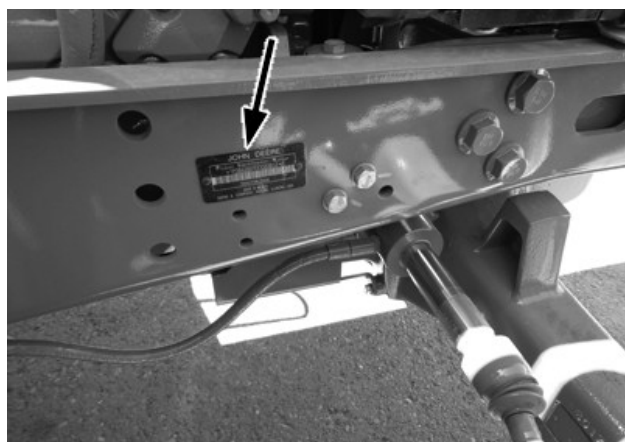
Machine Family: represents overall machine configuration.

Check Letter: assigned by Deere system.

Calendar Year = represents calendar year of manufacture (2012 = A, 2031 = 1, 2040 = A again).

Transmission Type: represents transmission type.

Serial Number: Consecutive Number Assigned by IJD; example shown 123456.



P17084—UN—20AUG13

*Product Identification Number Plate Location*

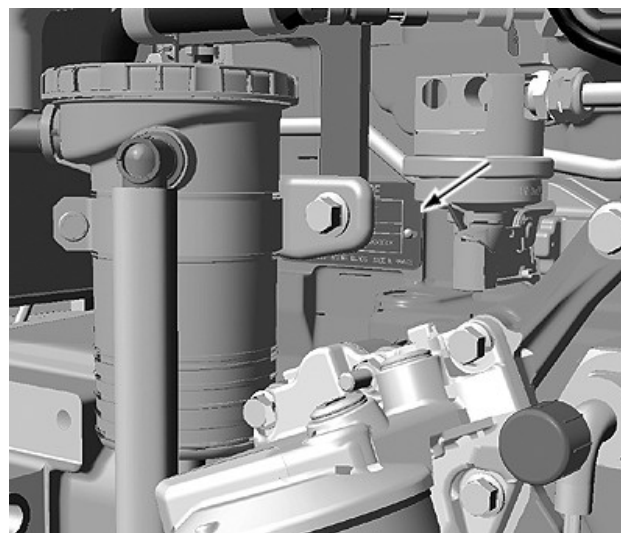
Refer below chart to see Transmission Type

Position 11	Transmission Type
1	Available
2	TSS 24X8
3	TSS 12X4
4	9X3 Sync
5	PR 12X12
6	PR 24X12
7	12X4 Sync plus
8	16X16 POWQUAD
9	Available
A	Available
B	Available
C	Available
D	Available

E	Available
F	Available
G	Available
H	Available
J	Available
K	Available
L	Available
M	Available
N	Available
P	Available
R	Available
S	Available
T	Available
V	Available
W	Available
X	Available
Y	Available

EKPQ1SQ,00034D9-19-03FEB22

## Record Engine Serial Number



LV16466—UN—04JAN13

Serial number plate is located on the right side of the engine block behind the OCV filter housing.

Engine Serial Number \_\_\_\_\_

CO00266,00002EA-19-07AUG17

## Record Transmission Serial Number

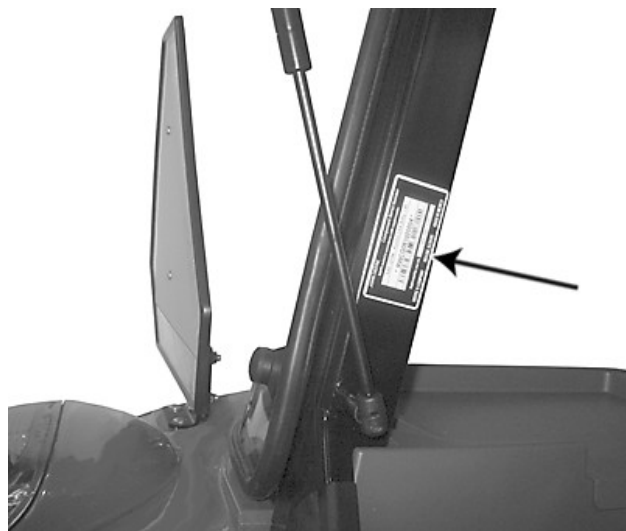


Serial number is stamped on the top left side of the front housing.

Transmission Serial Number \_\_\_\_\_

CO00266,00002EB-19-07AUG17

## Record Cab Serial Number



Serial number label is located on the inside of the rear left post.

Cab Serial Number \_\_\_\_\_

CO00266,00002EC-19-07AUG17

## Record Front Axle Serial Number



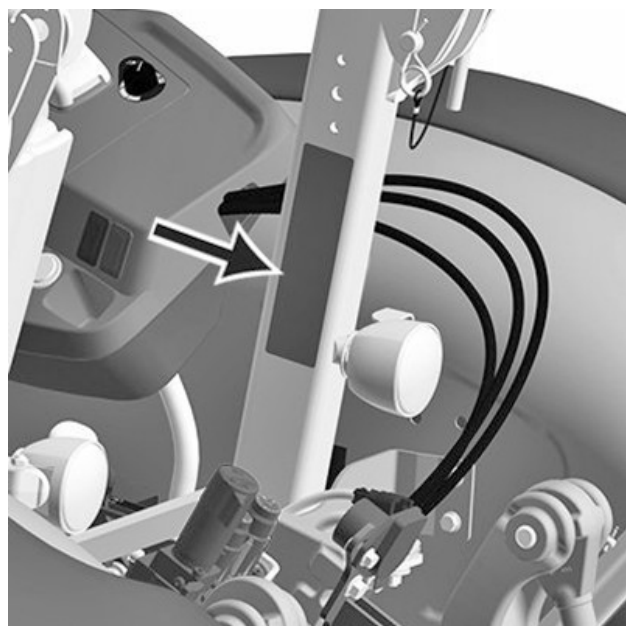
*MFWD Axle Shown*

Serial number plate is located on the rear side of the left axle housing.

Front Axle Serial Number \_\_\_\_\_

DP51502,0002FFB-19-10JAN18

## Record ROPS Serial Number



The serial number label is on the right-hand ROPS post behind the operator's seat.

ROPS Serial Number \_\_\_\_\_

GS25068,0005B39-19-11OCT18

## Keep Proof of Ownership



TS1680—UN—09DEC03

1. Maintain in a secure location an up-to-date inventory of all product and component serial numbers.
2. Regularly verify that identification plates have not been removed. Report any evidence of tampering to law enforcement agencies and order duplicate plates.
3. Other steps you can take:
  - Mark your machine with your own numbering system
  - Take color photographs from several angles of each machine

DX, SECURE1-19-18NOV03

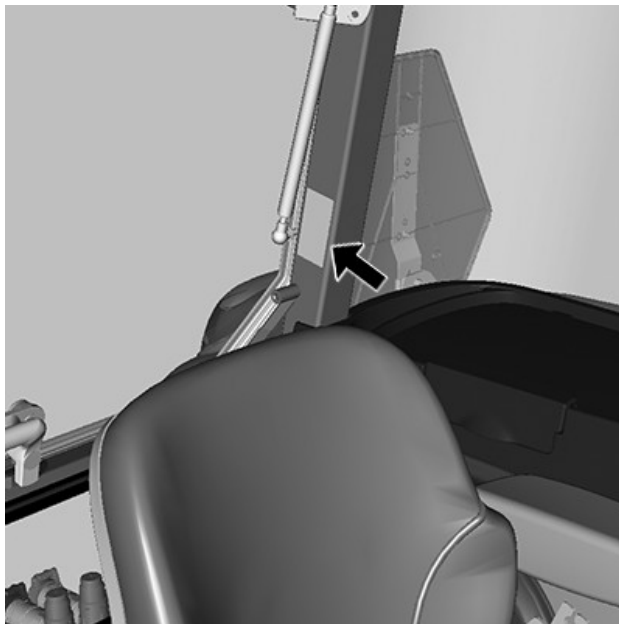
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# Certification and Warranty

## Cab ROPS Certificate

JOHN DEERE		Component Serial Number
ROPS tested in accordance with requirements:		
SAE J2194-AUG02	CSA B352.1-95	
*PXC103-----*		
Approved for use on: 5085E, 5090E, AND 5100E		
DEERE & COMPANY	MOLINE, ILLINOIS	MADE IN MEXICO

CPA0004270—UN—18AUG17  
ROPS Certification Label



CPA0004318—UN—16AUG17  
Left Rear Cab Post

**ROPS tested in accordance with requirements:**

**SAE J2194 AUG02**

**CSA B352.1 - 95**

**Approved for use on: 5085E, 5090E, AND 5100E**

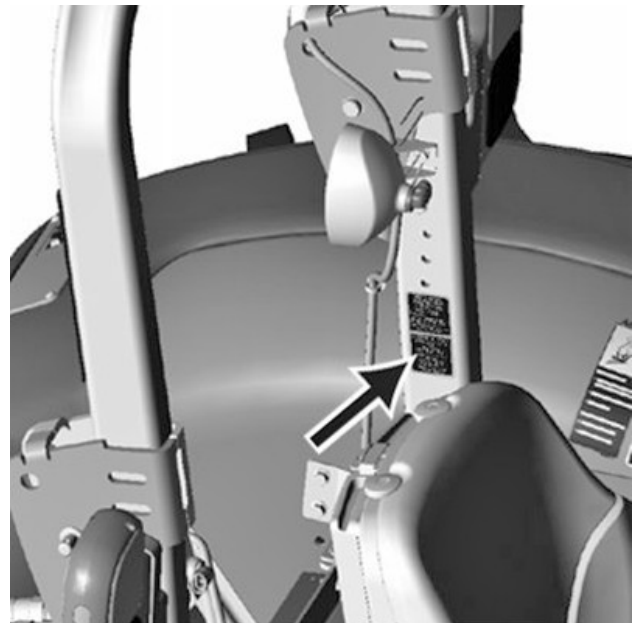
**DEERE & COMPANY, MOLINE, ILLINOIS, MADE IN MEXICO**

DP51502,0002FFE-19-10JAN18

## OOS ROPS Certificate

<b>ROLL-OVER PROTECTIVE STRUCTURE</b> To maintain operator protection and ROPS certification: -Replace damaged ROPS. do not repair or revise -Any alteration to the ROPS must be approved by the manufacturer
<b>SJ24411 Roll-Gard®</b> Tested in accordance with: SAE: J2194 ISO: 5700-2013 John Deere Tractor Models: 5085E, 5090E, 5100E  Deere & Company Moline, Illinois

CPA0004268—UN—18AUG17  
ROPS Certification Label



CPA0004265—UN—09AUG17  
Left-Hand Side

## ROLL-OVER PROTECTIVE STRUCTURE

**To maintain operator protection and ROPS certification:**

- Replace damaged ROPS, do not repair, or revise.
- Any alteration to the ROPS must be approved by the manufacturer.

**SJ24411 Roll-Gard®**

**Tested in accordance with:**

**SAE: J1294**

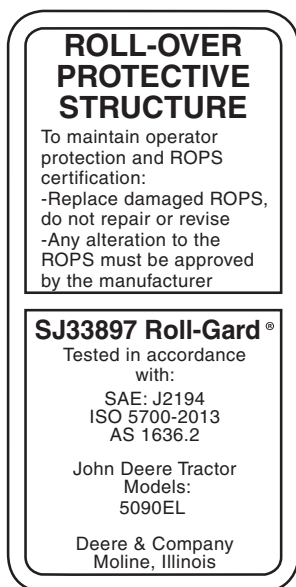
## ISO 5700-2013

John Deere Tractor Models: 5085E, 5090E, 5100E

Deere & Company Moline, Illinois

DP51502,0002FFC-19-10JAN18

## Low Profile ROPS Certificate



RXA0161415—UN—29NOV17

ROPS Certification Label



RXA0161416—UN—29NOV17

Left-Hand Side

## ROLL-OVER PROTECTIVE STRUCTURE

To maintain operator protection and ROPS certification:

- Replace damaged ROPS, do not repair, or revise.
- Any alteration to the ROPS must be approved by the manufacturer.

**SJ33897 Roll-Gard®**

Tested in accordance with:

SAE: J1294

ISO 5700-2013

John Deere Tractor Models: 5090EL

Deere & Company Moline, Illinois

DP51502,0002FFD-19-10JAN18

## Limited Battery Warranty

*NOTE: Applicable in North America only. For complete machine warranty, reference a copy of the John Deere warranty statement. Contact your John Deere dealer to obtain a copy.*

### To Secure Warranty Service

The purchaser must request warranty service from a John Deere dealer authorized to sell John Deere batteries, and present the battery to the dealer with the top cover plate codes intact.

### Replacement

Any new battery which becomes unserviceable (not merely discharged) due to defects in material or workmanship will be eligible for warranty consideration.

### This Warranty Does Not Cover

Breakage of the container, cover, or terminals.

Depreciation or damage caused by lack of reasonable and necessary maintenance or by improper maintenance.

Transportation, mailing, or service call charges for warranty service.

### Limitation of Implied Warranties and Purchaser's Remedies

To the extent permitted by law, neither John Deere nor any company affiliated with it makes any warranties, representations or promises as to the quality, performance or freedom from defect of the products covered by this warranty. IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, TO THE EXTENT APPLICABLE, SHALL BE LIMITED IN DURATION TO THE APPLICABLE ADJUSTMENT PERIOD SET FORTH HERE. THE PURCHASER'S ONLY REMEDIES IN CONNECTION WITH THE BREACH OR PERFORMANCE OF ANY WARRANTY ON JOHN DEERE BATTERIES ARE THOSE SET FORTH HERE. IN NO EVENT WILL THE DEALER, JOHN DEERE OR



ANY COMPANY AFFILIATED WITH JOHN DEERE BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES. (Note: Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages. So these limitations and exclusions may not apply to you.) This warranty gives you specific legal rights, and you may also have some rights which vary from state to state.

### No Dealer Warranty

The selling dealer makes no warranty of its own and the dealer has no authority to make any representation or promise on behalf of John Deere, or to modify the terms or limitations of this warranty in any way.

DX,BATWAR,NA-19-06AUG21

## Emissions Control System Certification Label



Engine Emissions Label

RG33429—UN—04FEB21

**CAUTION:** Statutes providing severe penalties for tampering with emissions controls may apply to the user or dealer.

The emissions warranty applies to those engines marketed by John Deere that have been certified by the United States Environmental Protection Agency (EPA) and/or California Air Resources Board (CARB); and used in the United States and Canada in Non-road equipment. The presence of an emissions label like the one shown signifies that the engine has been certified with the EPA and/or CARB. The EPA and CARB warranties only apply to new engines having the certification label affixed to the engine and sold as stated above in the geographic areas. The presence of an EU number signifies that the engine has been certified with the European Union countries per Regulation (EU) 2016/1628 and supplementing legislation. The EPA and/or CARB emissions warranties do not apply to the EU countries.

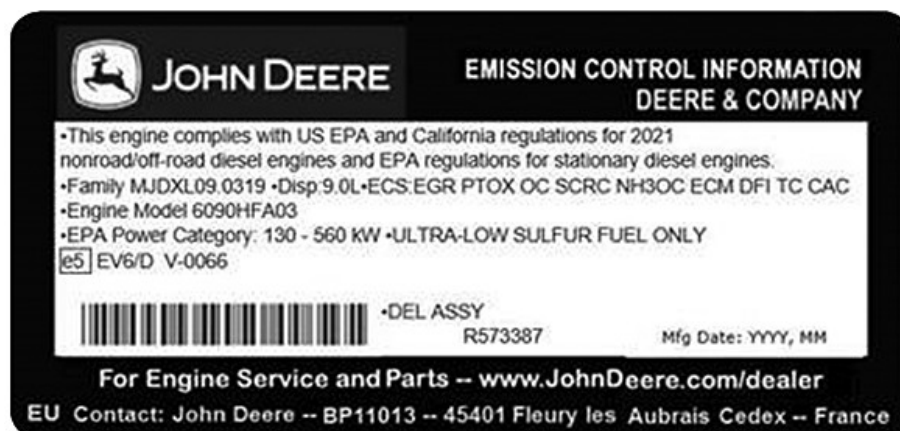
The emissions label has applicable US EPA and/or CARB regulatory year. The regulatory year determines which warranty statement is applicable to engine. See "EPA Non-road Emissions Control Warranty Statement—Compression Ignition" and "CARB Non-road Emissions Control Warranty Statement—Compression Ignition". For additional regulatory year warranty statements, see [www.JohnDeere.com](http://www.JohnDeere.com) or contact the nearest John Deere service dealer for assistance.

### Emission Control System(s) Laws

The U.S. EPA and California ARB prohibit the removal or rendering inoperative of any device or element of design installed on or in engines/equipment in compliance with applicable emission regulations prior to or after the sale and delivery of the engines/equipment to the ultimate purchaser.

DX,EMISSIONS,LABEL-19-05FEB21

## Carbon Dioxide Emissions (CO<sub>2</sub>)



SAMPLE - Engine Emissions Label

RG33429—UN—04FEB21

To identify the carbon dioxide (CO<sub>2</sub>) output, locate the engine emissions label. Find the appropriate family on the emissions label and reference the chart.

**NOTE:** The first letter of the family number is not utilized for family identification on the chart.

Emissions Label Family	CO <sub>2</sub> Result
_JDXL02.9323	952 g/kW-hr
_JDXL02.9327	784 g/kW-hr
_JDXL04.5337	819 g/kW-hr
_JDXL04.5338	682 g/kW-hr
_JDXL04.5304	1004 g/kW-hr
_JDXN04.5174	792 g/kW-hr
_JDXL06.8324	720 g/kW-hr
_JDXL06.8328	683 g/kW-hr
_JDXL06.8336	701 g/kW-hr
_JDXN06.8175	771 g/kW-hr
_JDXL09.0319	646 g/kW-hr

Emissions Label Family	CO <sub>2</sub> Result
_JDXL09.0325	695 g/kW-hr
_JDXL09.0329	657 g/kW-hr
_JDXL09.0333	650 g/kW-hr
_JDXL13.5326	684 g/kW-hr
_JDXL13.6320	651 g/kW-hr
_JDXL13.5340	632 g/kW-hr
_JDXL18.0341	683 g/kW-hr
F28	870 g/kW-hr
F32	710 g/kW-hr
F33	677 g/kW-hr

This CO<sub>2</sub> measurement results from testing over a fixed test cycle under laboratory conditions a(n) (parent) engine representative of the engine type (engine family) and shall not imply or express any guarantee of the performance of a particular engine.

DX,EMISSIONS,CO2-19-20JUL21

## CARB Non-road Emissions Control Warranty Statement—Compression Ignition

### Emissions Control Warranty Statement 2019 through 2021



JOHN DEERE

DXLOGOV1—UN—28APR09

#### CALIFORNIA EMISSIONS CONTROL WARRANTY STATEMENT YOUR WARRANTY RIGHTS AND OBLIGATIONS

To determine if the John Deere engine qualifies for the additional warranties set forth below, look for the "Emission Control Information" label located on the engine. If the engine is operated in the United States or Canada and the engine label states: "This engine complies with US EPA regulations for nonroad and stationary diesel engines", or "This engine complies with US EPA regulations for stationary emergency diesel engines", refer to the "U.S. and Canada Emission Control Warranty Statement." If the engine is operated in California, and the engine label states: "This engine complies with US EPA and CARB regulations for nonroad diesel engines" also refer to the "California Emissions Control Warranty

Statement.”

Warranties stated on this certificate refer only to emissions-related parts and components of your engine. The complete engine warranty, less emission-related parts and components, is provided separately. If you have any questions about your warranty rights and responsibilities, you should contact John Deere at 1-319-292-5400.

#### **CALIFORNIA EMISSIONS CONTROL WARRANTY STATEMENT:**

The California Air Resources Board (CARB) is pleased to explain the emission-control system warranty on 2019 through 2021 off-road diesel engines. In California, new off-road engines must be designed, built and equipped to meet the State's stringent anti-smog standards. John Deere must warrant the emission control system on your engine for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your engine.

Your emission control system may include parts such as the fuel injection system and the air induction system. Also included may be hoses, belts, connectors and other emission-related assemblies.

John Deere warrants to the ultimate purchaser and each subsequent purchaser that this off-road diesel engine was designed, built, and equipped so as to conform at the time of sale with all applicable regulations adopted by CARB and is free from defects in materials and workmanship which would cause the failure of a warranted part to be identical in all material respects to the part as described in John Deere's application for certification for a period of five years from the date the engine is delivered to an ultimate purchaser or 3,000 hours of operation, whichever occurs first for all engines rated at 19 kW and greater. In the absence of a device to measure hours of use, the engine shall be warranted for a period of five years.

#### **EMISSIONS WARRANTY EXCLUSIONS:**

John Deere may deny warranty claims for failures caused by the use of an add-on or modified part which has not been exempted by the CARB. A modified part is an aftermarket part intended to replace an original emission-related part which is not functionally identical in all respects and which in any way affects emissions. An add-on part is any aftermarket part which is not a modified part or a replacement part.

In no event will John Deere, any authorized engine distributor, dealer, or repair facility, or any company affiliated with John Deere be liable for incidental or consequential damage.

#### **JOHN DEERE'S WARRANTY RESPONSIBILITY:**

Where a warrantable condition exists, John Deere will repair or replace, as it elects, your off-road diesel engine at no cost to you, including diagnosis, parts or labor. Warranty coverage is subject to the limitations and exclusions set forth herein. The off-road diesel engine is warranted for a period of five years from the date the engine is delivered to an ultimate purchaser or 3,000 hours of operation, whichever occurs first. The following are emissions-related parts:

##### **Air Induction System**

- Intake manifold
- Turbocharger
- Charge air cooler

##### **Fuel Metering system**

- Fuel injection system

##### **Exhaust Gas Recirculation**

- EGR valve

##### **Catalyst or Thermal Reactor Systems**

- Catalytic converter
- Exhaust manifold

##### **Emission control labels**

##### **Particulate Controls**

- Any device used to capture particulate emissions
- Any device used in the regeneration of the capturing system
- Enclosures and manifolding
- Smoke Puff Limiters

##### **Positive Crankcase Ventilation (PCV) System**

- PCV valve
- Oil filler cap

##### **Advanced Oxides of Nitrogen (NOx) Controls**

- NOx absorbers and catalysts

##### **SCR systems and urea containers/dispensing systems**

##### **Miscellaneous Items used in Above Systems**

- Electronic control units, sensors, actuators, wiring harnesses, hoses, connectors, clamps, fittings, gasket, mounting hardware

## *Certification and Warranty*

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Any warranted emissions-related part scheduled for replacement as required maintenance is warranted by John Deere for the period of time prior to the first scheduled replacement point for the part. Any warranted emissions-related part not scheduled for replacement as required maintenance or scheduled only for regular inspection is warranted by John Deere for the stated warranty period.

### **OWNER'S WARRANTY RESPONSIBILITIES:**

As the off-road diesel engine owner you are responsible for the performance of the required maintenance listed in your Operator's Manual. John Deere recommends that the owner retain all receipts covering maintenance on the off-road diesel engine, but John Deere cannot deny warranty solely for the lack of receipts or for the owner's failure to ensure the performance of all scheduled maintenance. However, as the off-road diesel engine owner, you should be aware that John Deere may deny you warranty coverage if your off-road diesel engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

The off-road diesel engine is designed to operate on diesel fuel as specified in the Fuels, Lubricants and Coolants section in the Operators Manual. Use of any other fuel may result in the engine no longer operating in compliance with applicable emissions requirements.

The owner is responsible for initiating the warranty process, and should present the machine to the nearest authorized John Deere dealer as soon as a problem is suspected. The warranty repairs should be completed by the authorized John Deere dealer as quickly as possible.

Emissions regulations require the customer to bring the unit to an authorized servicing dealer when warranty service is required. As a result, John Deere is NOT liable for travel or mileage on emissions warranty service calls.

Emission\_CI\_CARB (01Feb17)

## Emissions Control Warranty Statement 2019 through 2021

DXLOGOV1 —UN—28APR09



**JOHN DEERE**

### **CALIFORNIA EMISSIONS CONTROL WARRANTY STATEMENT YOUR WARRANTY RIGHTS AND OBLIGATIONS**

To determine if the John Deere engine qualifies for the additional warranties set forth below, look for the "Emission Control Information" label located on the engine. If the engine is operated in the United States or Canada and the engine label states: "This engine complies with US EPA regulations for nonroad and stationary diesel engines", or "This engine complies with US EPA regulations for stationary emergency diesel engines", refer to the "U.S. and Canada Emission Control Warranty Statement." If the engine is operated in California, and the engine label states: "This engine complies with US EPA and CARB regulations for nonroad diesel engines" also refer to the "California Emissions Control Warranty Statement."

Warranties stated on this certificate refer only to emissions-related parts and components of your engine. The complete engine warranty, less emission-related parts and components, is provided separately. If you have any questions about your warranty rights and responsibilities, you should contact John Deere at 1-319-292-5400.

#### **CALIFORNIA EMISSIONS CONTROL WARRANTY STATEMENT:**

The California Air Resources Board (CARB) is pleased to explain the emission-control system warranty on 2019 through 2021 off-road diesel engines. In California, new off-road engines must be designed, built and equipped to meet the State's stringent anti-smog standards. John Deere must warrant the emission control system on your engine for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your engine.

Your emission control system may include parts such as the fuel injection system and the air induction system. Also included may be hoses, belts, connectors and other emission-related assemblies.

John Deere warrants to the ultimate purchaser and each subsequent purchaser that this off-road diesel engine was designed, built, and equipped so as to conform at the time of sale with all applicable regulations adopted by CARB and is free from defects in materials and workmanship which would cause the failure of a warranted part to be identical in all material respects to the part as described in John Deere's application for certification for a period of five years from the date the engine is delivered to an ultimate purchaser or 3,000 hours of operation, whichever occurs first for all engines rated at 19 kW and greater. In the absence of a device to measure hours of use, the engine shall be warranted for a period of five years.

#### **EMISSIONS WARRANTY EXCLUSIONS:**

John Deere may deny warranty claims for failures caused by the use of an add-on or modified part which has not been exempted by the CARB. A modified part is an aftermarket part intended to replace an original emission-related part which is not functionally identical in all respects and which in any way affects emissions. An add-on part is any aftermarket part which is not a modified part or a replacement part.

In no event will John Deere, any authorized engine distributor, dealer, or repair facility, or any company affiliated with John Deere be liable for incidental or consequential damage.

RG29280—UN—02FEB17

#### JOHN DEERE'S WARRANTY RESPONSIBILITY:

Where a warrantable condition exists, John Deere will repair or replace, as it elects, your off-road diesel engine at no cost to you, including diagnosis, parts or labor. Warranty coverage is subject to the limitations and exclusions set forth herein. The off-road diesel engine is warranted for a period of five years from the date the engine is delivered to an ultimate purchaser or 3,000 hours of operation, whichever occurs first. The following are emissions-related parts:

Air Induction System	Emission control labels	Advanced Oxides of Nitrogen (NOx) Controls
<ul style="list-style-type: none"><li>• Intake manifold</li><li>• Turbocharger</li><li>• Charge air cooler</li></ul>	Particulate Controls	<ul style="list-style-type: none"><li>• NOx absorbers and catalysts</li></ul>
Fuel Metering system	<ul style="list-style-type: none"><li>• Any device used to capture particulate emissions</li><li>• Any device used in the regeneration of the capturing system</li><li>• Enclosures and manifold</li><li>• Smoke Puff Limiters</li></ul>	SCR systems and urea containers/dispensing systems
<ul style="list-style-type: none"><li>• Fuel injection system</li></ul>	Positive Crankcase Ventilation (PCV) System	Miscellaneous Items used in Above Systems
Exhaust Gas Recirculation	<ul style="list-style-type: none"><li>• PCV valve</li><li>• Oil filler cap</li></ul>	<ul style="list-style-type: none"><li>• Electronic control units, sensors, actuators, wiring harnesses, hoses, connectors, clamps, fittings, gasket, mounting hardware</li></ul>
<ul style="list-style-type: none"><li>• EGR valve</li></ul>		
Catalyst or Thermal Reactor Systems		
<ul style="list-style-type: none"><li>• Catalytic converter</li><li>• Exhaust manifold</li></ul>		

Any warranted emissions-related part scheduled for replacement as required maintenance is warranted by John Deere for the period of time prior to the first scheduled replacement point for the part. Any warranted emissions-related part not scheduled for replacement as required maintenance or scheduled only for regular inspection is warranted by John Deere for the stated warranty period.

#### OWNER'S WARRANTY RESPONSIBILITIES:

As the off-road diesel engine owner you are responsible for the performance of the required maintenance listed in your Operator's Manual. John Deere recommends that the owner retain all receipts covering maintenance on the off-road diesel engine, but John Deere cannot deny warranty solely for the lack of receipts or for the owner's failure to ensure the performance of all scheduled maintenance. However, as the off-road diesel engine owner, you should be aware that John Deere may deny you warranty coverage if your off-road diesel engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

The off-road diesel engine is designed to operate on diesel fuel as specified in the Fuels, Lubricants and Coolants section in the Operators Manual. Use of any other fuel may result in the engine no longer operating in compliance with applicable emissions requirements.

The owner is responsible for initiating the warranty process, and should present the machine to the nearest authorized John Deere dealer as soon as a problem is suspected. The warranty repairs should be completed by the authorized John Deere dealer as quickly as possible.

Emissions regulations require the customer to bring the unit to an authorized servicing dealer when warranty service is required. As a result, John Deere is NOT liable for travel or mileage on emissions warranty service calls.

Emission\_CI\_CARB (01Feb17)

RG29281—UN—27FEB17

### Emissions Control Warranty Statement 2022 through 2024



JOHN DEERE

DXLOGOV1—UN—28APR09

#### CALIFORNIA EMISSIONS CONTROL WARRANTY STATEMENT YOUR WARRANTY RIGHTS AND OBLIGATIONS

To determine if the John Deere engine qualifies for the additional warranties set forth below, look for the "Emission Control Information" label located on the engine. If the engine is operated in the United States or Canada and the engine label states: "This engine complies with US EPA regulations for nonroad and stationary diesel engines", or "This engine complies with US EPA regulations for stationary emergency diesel engines", refer to the "U.S. and Canada Emission Control Warranty Statement." If the engine is operated in California, and the engine label states: "This engine complies with US EPA and California regulations for nonroad/off-road diesel engines" also refer to the "California Emissions Control Warranty Statement."

Warranties stated on this certificate refer only to emissions-related parts and components of your engine. The complete engine warranty, less emission-related parts and components, is provided separately. If you have any questions about your warranty rights and responsibilities, you

should contact John Deere at 1-319-292-5400.

### CALIFORNIA EMISSIONS CONTROL WARRANTY STATEMENT:

The California Air Resources Board (CARB) is pleased to explain the emission-control system warranty on 2022 through 2024 off-road diesel engines. In California, new off-road engines must be designed, built and equipped to meet the State's stringent anti-smog standards. John Deere must warrant the emission control system on your engine for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your engine.

Your emission control system may include parts such as the fuel injection system and the air induction system. Also included may be hoses, belts, connectors and other emission-related assemblies.

John Deere warrants to the ultimate purchaser and each subsequent purchaser that this off-road diesel engine was designed, built, and equipped so as to conform at the time of sale with all applicable regulations adopted by CARB. John Deere warrants that this engine is free from defects in materials and workmanship which would cause the failure of emissions warranted parts to be identical in all material respects to the part as described in John Deere's application for certification for a period of five years from the date the engine is delivered to an ultimate purchaser or 3,000 hours of operation, whichever occurs first. This applies to all engines rated at 19 kW and greater. In the absence of a device to measure hours of use, the engine shall be warranted for a period of five years.

### EMISSIONS WARRANTY EXCLUSIONS:

John Deere may deny warranty claims for failures caused by the use of an add-on or modified part which has not been exempted by the CARB. A modified part is an aftermarket part intended to replace an original emission-related part which is not functionally identical in all respects and which in any way affects emissions. An add-on part is any aftermarket part which is not a modified part or a replacement part.

In no event will John Deere, any authorized engine distributor, dealer, or repair facility, or any company affiliated with John Deere be liable for incidental or consequential damage.

### JOHN DEERE'S WARRANTY RESPONSIBILITY:

Where a warrantable condition exists, John Deere will repair or replace, as it elects, your off-road diesel engine at no cost to you, including diagnosis, parts or labor. Warranty coverage is subject to the limitations and exclusions set forth herein. The off-road diesel engine is warranted for a period of five years from the date the engine is delivered to an ultimate purchaser or 3,000 hours of operation, whichever occurs first. The following are emissions-related parts:

#### Air Induction System

- Intake manifold
- Turbocharger
- Charge air cooler

#### Fuel Metering system

- Fuel injection system

#### Exhaust Gas Recirculation

- EGR valve

#### Catalyst or Thermal Reactor Systems

- Catalytic converter
- Exhaust manifold

#### Emission control labels

#### Particulate Controls

- Any device used to capture particulate emissions
- Any device used in the regeneration of the capturing system
- Enclosures and manifolding
- Smoke Puff Limiters

#### Positive Crankcase Ventilation (PCV) System

- PCV valve
- Oil filler cap

#### Advanced Oxides of Nitrogen (NOx) Controls

- NOx absorbers and catalysts

#### SCR systems and urea containers/dispensing systems

#### Miscellaneous Items used in Above Systems

- Electronic control units, sensors, actuators, wiring harnesses, hoses, connectors, clamps, fittings, gasket, mounting hardware

## *Certification and Warranty*

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Any warranted emissions-related part scheduled for replacement as required maintenance is warranted by John Deere for the period of time prior to the first scheduled replacement point for the part. Any warranted emissions-related part not scheduled for replacement as required maintenance or scheduled only for regular inspection is warranted by John Deere for the stated warranty period.

### **OWNER'S WARRANTY RESPONSIBILITIES:**

As the off-road diesel engine owner you are responsible for the performance of the required maintenance listed in your Operator's Manual. John Deere recommends that the owner retain all receipts covering maintenance on the off-road diesel engine, but John Deere cannot deny warranty solely for the lack of receipts or for the owner's failure to ensure the performance of all scheduled maintenance. However, as the off-road diesel engine owner, you should be aware that John Deere may deny you warranty coverage if your off-road diesel engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

The off-road diesel engine is designed to operate on diesel fuel as specified in the Fuels, Lubricants and Coolants section in the Operators Manual. Use of any other fuel may result in the engine no longer operating in compliance with applicable emissions requirements.

The owner is responsible for initiating the warranty process, and should present the machine to the nearest authorized John Deere dealer as soon as a problem is suspected. The warranty repairs should be completed by the authorized John Deere dealer as quickly as possible.

Emissions regulations require the customer to bring the unit to an authorized servicing dealer when warranty service is required. As a result, John Deere is NOT liable for travel or mileage on emissions warranty service calls.

Emission\_CI\_CARB (14Apr20)



## Emissions Control Warranty Statement 2022 through 2024

DXLOGOV1 —UN—28APR09



**JOHN DEERE**

### CALIFORNIA EMISSIONS CONTROL WARRANTY STATEMENT YOUR WARRANTY RIGHTS AND OBLIGATIONS

To determine if the John Deere engine qualifies for the additional warranties set forth below, look for the "Emission Control Information" label located on the engine. If the engine is operated in the United States or Canada and the engine label states: "This engine complies with US EPA regulations for nonroad and stationary diesel engines", or "This engine complies with US EPA regulations for stationary emergency diesel engines", refer to the "U.S. and Canada Emission Control Warranty Statement." If the engine is operated in California, and the engine label states: "This engine complies with US EPA and California regulations for nonroad/off-road diesel engines" also refer to the "California Emissions Control Warranty Statement."

Warranties stated on this certificate refer only to emissions-related parts and components of your engine. The complete engine warranty, less emission-related parts and components, is provided separately. If you have any questions about your warranty rights and responsibilities, you should contact John Deere at 1-319-292-5400.

#### CALIFORNIA EMISSIONS CONTROL WARRANTY STATEMENT:

The California Air Resources Board (CARB) is pleased to explain the emission-control system warranty on 2022 through 2024 off-road diesel engines. In California, new off-road engines must be designed, built and equipped to meet the State's stringent anti-smog standards. John Deere must warrant the emission control system on your engine for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your engine.

Your emission control system may include parts such as the fuel injection system and the air induction system. Also included may be hoses, belts, connectors and other emission-related assemblies.

John Deere warrants to the ultimate purchaser and each subsequent purchaser that this off-road diesel engine was designed, built, and equipped so as to conform at the time of sale with all applicable regulations adopted by CARB. John Deere warrants that this engine is free from defects in materials and workmanship which would cause the failure of emissions warranted parts to be identical in all material respects to the part as described in John Deere's application for certification for a period of five years from the date the engine is delivered to an ultimate purchaser or 3,000 hours of operation, whichever occurs first. This applies to all engines rated at 19 kW and greater. In the absence of a device to measure hours of use, the engine shall be warranted for a period of five years.

#### EMISSIONS WARRANTY EXCLUSIONS:

John Deere may deny warranty claims for failures caused by the use of an add-on or modified part which has not been exempted by the CARB. A modified part is an aftermarket part intended to replace an original emission-related part which is not functionally identical in all respects and which in any way affects emissions. An add-on part is any aftermarket part which is not a modified part or a replacement part.

In no event will John Deere, any authorized engine distributor, dealer, or repair facility, or any company affiliated with John Deere be liable for incidental or consequential damage.

RG32758—UN—19AUG20

#### JOHN DEERE'S WARRANTY RESPONSIBILITY:

Where a warrantable condition exists, John Deere will repair or replace, as it elects, your off-road diesel engine at no cost to you, including diagnosis, parts or labor. Warranty coverage is subject to the limitations and exclusions set forth herein. The off-road diesel engine is warranted for a period of five years from the date the engine is delivered to an ultimate purchaser or 3,000 hours of operation, whichever occurs first. The following are emissions-related parts:

Air Induction System	Emission control labels	Advanced Oxides of Nitrogen (NOx) Controls
<ul style="list-style-type: none"><li>• Intake manifold</li><li>• Turbocharger</li><li>• Charge air cooler</li></ul>	Particulate Controls	<ul style="list-style-type: none"><li>• NOx absorbers and catalysts</li></ul>
Fuel Metering system	<ul style="list-style-type: none"><li>• Any device used to capture particulate emissions</li><li>• Any device used in the regeneration of the capturing system</li><li>• Enclosures and manifolding</li><li>• Smoke Puff Limiters</li></ul>	SCR systems and urea containers/dispensing systems
<ul style="list-style-type: none"><li>• Fuel injection system</li></ul>	Positive Crankcase Ventilation (PCV) System	Miscellaneous Items used in Above Systems
Exhaust Gas Recirculation	<ul style="list-style-type: none"><li>• PCV valve</li><li>• Oil filler cap</li></ul>	<ul style="list-style-type: none"><li>• Electronic control units, sensors, actuators, wiring harnesses, hoses, connectors, clamps, fittings, gasket, mounting hardware</li></ul>
<ul style="list-style-type: none"><li>• EGR valve</li></ul>		
Catalyst or Thermal Reactor Systems		
<ul style="list-style-type: none"><li>• Catalytic converter</li><li>• Exhaust manifold</li></ul>		

Any warranted emissions-related part scheduled for replacement as required maintenance is warranted by John Deere for the period of time prior to the first scheduled replacement point for the part. Any warranted emissions-related part not scheduled for replacement as required maintenance or scheduled only for regular inspection is warranted by John Deere for the stated warranty period.

#### OWNER'S WARRANTY RESPONSIBILITIES:

As the off-road diesel engine owner you are responsible for the performance of the required maintenance listed in your Operator's Manual. John Deere recommends that the owner retain all receipts covering maintenance on the off-road diesel engine, but John Deere cannot deny warranty solely for the lack of receipts or for the owner's failure to ensure the performance of all scheduled maintenance. However, as the off-road diesel engine owner, you should be aware that John Deere may deny you warranty coverage if your off-road diesel engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

The off-road diesel engine is designed to operate on diesel fuel as specified in the Fuels, Lubricants and Coolants section in the Operators Manual. Use of any other fuel may result in the engine no longer operating in compliance with applicable emissions requirements.

The owner is responsible for initiating the warranty process, and should present the machine to the nearest authorized John Deere dealer as soon as a problem is suspected. The warranty repairs should be completed by the authorized John Deere dealer as quickly as possible.

Emissions regulations require the customer to bring the unit to an authorized servicing dealer when warranty service is required. As a result, John Deere is NOT liable for travel or mileage on emissions warranty service calls.

Emission\_CI\_CARB (14Apr20)

RG32759—UN—19AUG20  
DX,EMISSIONS,CARB-19-26AUG20

## EPA Non-road Emissions Control Warranty Statement—Compression Ignition



JOHN DEERE

DXLOGOV1—UN—28APR09

### U.S. AND CANADA EMISSION CONTROL WARRANTY STATEMENT YOUR WARRANTY RIGHTS AND OBLIGATIONS

To determine if the John Deere engine qualifies for the additional warranties set forth below, look for the "Emissions Control Information" label located on the engine. If the engine is operated in the United States or Canada and the Emissions Control information label states: "This engine complies with US EPA regulations for nonroad and stationary diesel engines", or "This engine conforms to US EPA nonroad compression-ignition regulations", refer to the "U.S. and Canada Emission Control Warranty Statement." If the engine is operated in California, and the label states: "This engine complies with US EPA and CARB regulations for nonroad diesel engines", or "This engine conforms to US EPA and California nonroad compression-ignition emission regulations", also refer to the "California Emission Control Warranty Statement."

Warranties stated on this certificate refer only to emissions-related parts and components of your engine. The complete engine warranty, less emissions-related parts and components, is provided separately. If you have any questions about your warranty rights and responsibilities, you

should contact John Deere at 1-319-292-5400.

#### **JOHN DEERE'S WARRANTY RESPONSIBILITY**

John Deere warrants to the ultimate purchaser and each subsequent purchaser that this off-road diesel engine including all parts of its emission-control system was designed, built and equipped so as to conform at the time of the sale with Section 213 of the Clean Air Act and is free from defects in materials and workmanship which would cause the engine to fail to conform with applicable US EPA regulations for a period of five years from the date the engine is placed into service or 3,000 hours of operation, whichever first occurs.

Where a warrantable condition exists, John Deere will repair or replace, as it elects, any part or component with a defect in materials or workmanship that would increase the engine's emissions of any regulated pollutant within the stated warranty period at no cost to you, including expenses related to diagnosing and repairing or replacing emission-related parts. Warranty coverage is subject to the limitations and exclusions set forth herein. Emission- related components include engine parts developed to control emissions related to the following:

Air-Induction System

Fuel System

Ignition System

Exhaust Gas Recirculation Systems

Aftertreatment Devices

Crankcase Ventilation Valves

Sensors

Engine Electronic Control Units

#### **EMISSION WARRANTY EXCLUSIONS**

John Deere may deny warranty claims for malfunctions or failures caused by:

- Non-performance of maintenance requirements listed in the Operator's Manual
- The use of the engine/equipment in a manner for which it was not designed
- Abuse, neglect, improper maintenance or unapproved modifications or alterations
- Accidents for which it does not have responsibility or by acts of God

The off-road diesel engine is designed to operate on diesel fuel as specified in the Fuels, Lubricants and Coolants section in the Operators Manual. Use of any other fuel can harm the emissions control system of the engine/equipment and is not approved for use.

To the extent permitted by law John Deere is not liable for damage to other engine components caused by a failure of an emission-related part, unless otherwise covered by standard warranty.

**THIS WARRANTY IS EXPRESSLY IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. REMEDIES UNDER THIS WARRANTY ARE LIMITED TO THE PROVISIONS OF MATERIAL AND SERVICES AS SPECIFIED HEREIN. WHERE PERMITTED BY LAW, NEITHER JOHN DEERE NOR ANY AUTHORIZED JOHN DEERE ENGINE DISTRIBUTOR, DEALER, OR REPAIR FACILITY OR ANY COMPANY AFFILIATED WITH JOHN DEERE WILL BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.**

Emission\_CI\_EPA (18Dec09)



**JOHN DEERE**

**U.S. AND CANADA EMISSION CONTROL WARRANTY STATEMENT  
YOUR WARRANTY RIGHTS AND OBLIGATIONS**

To determine if the John Deere engine qualifies for the additional warranties set forth below, look for the "Emissions Control Information" label located on the engine. If the engine is operated in the United States or Canada and the Emissions Control information label states: "This engine complies with US EPA regulations for nonroad and stationary diesel engines", or "This engine conforms to US EPA nonroad compression-ignition regulations", refer to the "U.S. and Canada Emission Control Warranty Statement." If the engine is operated in California, and the label states: "This engine complies with US EPA and CARB regulations for nonroad diesel engines", or "This engine conforms to US EPA and California nonroad compression-ignition emission regulations", also refer to the "California Emission Control Warranty Statement."

Warranties stated on this certificate refer only to emissions-related parts and components of your engine. The complete engine warranty, less emissions-related parts and components, is provided separately. If you have any questions about your warranty rights and responsibilities, you should contact John Deere at 1-319-292-5400.

**JOHN DEERE'S WARRANTY RESPONSIBILITY**

John Deere warrants to the ultimate purchaser and each subsequent purchaser that this off-road diesel engine including all parts of its emission-control system was designed, built and equipped so as to conform at the time of the sale with Section 213 of the Clean Air Act and is free from defects in materials and workmanship which would cause the engine to fail to conform with applicable US EPA regulations for a period of five years from the date the engine is placed into service or 3,000 hours of operation, whichever first occurs.

Where a warrantable condition exists, John Deere will repair or replace, as it elects, any part or component with a defect in materials or workmanship that would increase the engine's emissions of any regulated pollutant within the stated warranty period at no cost to you, including expenses related to diagnosing and repairing or replacing emission-related parts. Warranty coverage is subject to the limitations and exclusions set forth herein. Emission-related components include engine parts developed to control emissions related to the following:

Air-Induction System	Aftertreatment Devices
Fuel System	Crankcase Ventilation Valves
Ignition System	Sensors
Exhaust Gas Recirculation Systems	Engine Electronic Control Units

**EMISSION WARRANTY EXCLUSIONS**

John Deere may deny warranty claims for malfunctions or failures caused by:

- Non-performance of maintenance requirements listed in the Operator's Manual
- The use of the engine/equipment in a manner for which it was not designed
- Abuse, neglect, improper maintenance or unapproved modifications or alterations
- Accidents for which it does not have responsibility or by acts of God

The off-road diesel engine is designed to operate on diesel fuel as specified in the Fuels, Lubricants and Coolants section in the Operators Manual. Use of any other fuel can harm the emissions control system of the engine/equipment and is not approved for use.

To the extent permitted by law John Deere is not liable for damage to other engine components caused by a failure of an emission-related part, unless otherwise covered by standard warranty.

**THIS WARRANTY IS EXPRESSLY IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. REMEDIES UNDER THIS WARRANTY ARE LIMITED TO THE PROVISIONS OF MATERIAL AND SERVICES AS SPECIFIED HEREIN. WHERE PERMITTED BY LAW, NEITHER JOHN DEERE NOR ANY AUTHORIZED JOHN DEERE ENGINE DISTRIBUTOR, DEALER, OR REPAIR FACILITY OR ANY COMPANY AFFILIATED WITH JOHN DEERE WILL BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.**

Emission\_CI\_EPA (18Dec09)

TS1721—UN—15JUL13  
DX,EMISSIONS,EPA-19-12DEC12

# Maintenance Records

## Daily or 10 Hours Record

MAINTENANCE PROCEDURE		
<input type="checkbox"/> Check Engine Oil Level	<input type="checkbox"/> Drain Water and Sediment from Fuel Tank and Fuel Filter	
<input type="checkbox"/> Clean Air Filter Dust Unloading Valve	<input type="checkbox"/> Break-In Checks	
Hours:  Date:  Signature:  Dealer's Stamp	Hours:  Date:  Signature:  Dealer's Stamp	Hours:  Date:  Signature:  Dealer's Stamp
Hours:  Date:  Signature:  Dealer's Stamp	Hours:  Date:  Signature:  Dealer's Stamp	Hours:  Date:  Signature:  Dealer's Stamp

EKPQ1SQ,00034DE-19-27AUG21

## Weekly or 50 Hours Record

MAINTENANCE PROCEDURE		
<input type="checkbox"/> Check Tire Inflation Pressure	<input type="checkbox"/> Check Coolant Level	
<input type="checkbox"/> Check Transmission/Hydraulic Oil Level	<input type="checkbox"/> Lubricate Rear Hitch	
<input type="checkbox"/> Lubricate MFWD Axle Trunnion	<input type="checkbox"/> Inspect Tires	
Hours:  Date:  Signature:  Dealer's Stamp	Hours:  Date:  Signature:  Dealer's Stamp	Hours:  Date:  Signature:  Dealer's Stamp
Hours:  Date:  Signature:  Dealer's Stamp	Hours:  Date:  Signature:  Dealer's Stamp	Hours:  Date:  Signature:  Dealer's Stamp

## Maintenance Records

MAINTENANCE PROCEDURE		
<input type="checkbox"/> Check Tire Inflation Pressure	<input type="checkbox"/> Check Coolant Level	
<input type="checkbox"/> Check Transmission/Hydraulic Oil Level	<input type="checkbox"/> Lubricate Rear Hitch	
<input type="checkbox"/> Lubricate MFWD Axle Trunnion	<input type="checkbox"/> Inspect Tires	

AG32641,00004CB-19-19FEB22

## First 100 Hours Record

MAINTENANCE PROCEDURE		
<input type="checkbox"/> Tighten Air Intake System and Engine Cooling System Hose Clamps	<input type="checkbox"/> Change Transmission/Hydraulic Filter	
Hours:	Hours:	Hours:
Date:	Date:	Date:
Signature:	Signature:	Signature:
Dealer's Stamp	Dealer's Stamp	Dealer's Stamp

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## Every 250 Hours Record

MAINTENANCE PROCEDURE		
<input type="checkbox"/> Activated Carbon Filters	<input type="checkbox"/> Change Engine Oil and Filter. <sup>a</sup>	
Hours:	Hours:	Hours:
Date:	Date:	Date:
Signature:	Signature:	Signature:
Dealer's Stamp	Dealer's Stamp	Dealer's Stamp

<sup>a</sup> Use this interval when using oils such as John Deere Torq-GARD™ oil, or engine oils from other manufacturers that met the conditions specified in the Fuels Lubricants and Coolant section..

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## Every 300 Hours Record

MAINTENANCE PROCEDURE		
<input type="checkbox"/> Inspect Hitch and Drawbar for Excessive Wear	<input type="checkbox"/> Drain and Flush Fuel Tank	
<input type="checkbox"/> Check MFWD Axle Housing and Wheel Hub Oil Levels		
Hours: Date: Signature: Dealer's Stamp	Hours: Date: Signature: Dealer's Stamp	Hours: Date: Signature: Dealer's Stamp
Hours: Date: Signature: Dealer's Stamp	Hours: Date: Signature: Dealer's Stamp	Hours: Date: Signature: Dealer's Stamp
Hours: Date: Signature: Dealer's Stamp	Hours: Date: Signature: Dealer's Stamp	Hours: Date: Signature: Dealer's Stamp
Hours: Date: Signature: Dealer's Stamp	Hours: Date: Signature: Dealer's Stamp	Hours: Date: Signature: Dealer's Stamp
Hours: Date: Signature: Dealer's Stamp	Hours: Date: Signature: Dealer's Stamp	Hours: Date: Signature: Dealer's Stamp

*Maintenance Records*

<b>MAINTENANCE PROCEDURE</b>		
<input type="checkbox"/> <b>Inspect Hitch and Drawbar for Excessive Wear</b>	<input type="checkbox"/> <b>Drain and Flush Fuel Tank</b>	
<input type="checkbox"/> <b>Check MFWD Axle Housing and Wheel Hub Oil Levels</b>		
Dealer's Stamp	Dealer's Stamp	Dealer's Stamp
Hours:  Date:  Signature:  Dealer's Stamp	Hours:  Date:  Signature:  Dealer's Stamp	Hours:  Date:  Signature:  Dealer's Stamp
Hours:  Date:  Signature:  Dealer's Stamp	Hours:  Date:  Signature:  Dealer's Stamp	Hours:  Date:  Signature:  Dealer's Stamp
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Hours:  Date:  Signature:  Dealer's Stamp	Hours:  Date:  Signature:  Dealer's Stamp	Hours:  Date:  Signature:  Dealer's Stamp



## Maintenance Records

MAINTENANCE PROCEDURE		
<input type="checkbox"/> <b>Inspect Hitch and Drawbar for Excessive Wear</b>	<input type="checkbox"/> <b>Drain and Flush Fuel Tank</b>	
<input type="checkbox"/> <b>Check MFWD Axle Housing and Wheel Hub Oil Levels</b>		
Signature:  Dealer's Stamp	Signature:  Dealer's Stamp	Signature:  Dealer's Stamp

EKPQ1SQ,00034E2-19-27AUG21

## Every 500 Hours Record

MAINTENANCE PROCEDURE		
<input type="checkbox"/> <b>Change Engine Oil and Filter <sup>a</sup></b>	<input type="checkbox"/> <b>Replace Fuel Filters</b>	
<input type="checkbox"/> <b>Change Activated Carbon Cab Filter</b>		
Hours:  Date:  Signature:  Dealer's Stamp	Hours:  Date:  Signature:  Dealer's Stamp	Hours:  Date:  Signature:  Dealer's Stamp
Hours:  Date:  Signature:  Dealer's Stamp	Hours:  Date:  Signature:  Dealer's Stamp	Hours:  Date:  Signature:  Dealer's Stamp
Hours:  Date:  Signature:  Dealer's Stamp	Hours:  Date:  Signature:  Dealer's Stamp	Hours:  Date:  Signature:  Dealer's Stamp
Hours:	Hours:	Hours:

## Maintenance Records

MAINTENANCE PROCEDURE		
<input type="checkbox"/> <b>Change Engine Oil and Filter <sup>a</sup></b>	<input type="checkbox"/> <b>Replace Fuel Filters</b>	
<input type="checkbox"/> <b>Change Activated Carbon Cab Filter</b>		
Date:  Signature:  Dealer's Stamp	Date:  Signature:  Dealer's Stamp	Date:  Signature:  Dealer's Stamp
Hours:  Date:  Signature:  Dealer's Stamp	Hours:  Date:  Signature:  Dealer's Stamp	Hours:  Date:  Signature:  Dealer's Stamp
Hours:  Date:  Signature:  Dealer's Stamp	Hours:  Date:  Signature:  Dealer's Stamp	Hours:  Date:  Signature:  Dealer's Stamp
Hours:  Date:  Signature:  Dealer's Stamp	Hours:  Date:  Signature:  Dealer's Stamp	Hours:  Date:  Signature:  Dealer's Stamp

<sup>a</sup> If Plus-50™ oil and a John Deere filter are not used, lower this service interval to 250 hours.

EKPQ1SQ,00034E3-19-31AUG21

## Every 600 Hours Record

MAINTENANCE PROCEDURE		
<input type="checkbox"/> Check Neutral Start System	<input type="checkbox"/> Clean Cab Air Filters	
<input type="checkbox"/> Change MFWD Axle Wheel Hub Oil	<input type="checkbox"/> Change MFWD Axle Housing Oil	
<input type="checkbox"/> Clean Open Crankcase Vent (OCV) Tube	<input type="checkbox"/> Lubricate Rear Axle Bearings	
<input type="checkbox"/> Check Front Axle Pivot Pin End Play	<input type="checkbox"/> Tighten Air Intake System and Engine Cooling System Hose Clamps	
<input type="checkbox"/> Change Transmission/Hydraulic Filter		
Hours: Date: Signature: Dealer's Stamp	Hours: Date: Signature: Dealer's Stamp	Hours: Date: Signature: Dealer's Stamp
Hours: Date: Signature: Dealer's Stamp	Hours: Date: Signature: Dealer's Stamp	Hours: Date: Signature: Dealer's Stamp
Hours: Date: Signature: Dealer's Stamp	Hours: Date: Signature: Dealer's Stamp	Hours: Date: Signature: Dealer's Stamp
Hours: Date: Signature: Dealer's Stamp	Hours: Date: Signature: Dealer's Stamp	Hours: Date: Signature: Dealer's Stamp
Hours: Date: Signature: Dealer's Stamp	Hours: Date: Signature: Dealer's Stamp	Hours: Date: Signature: Dealer's Stamp

## Maintenance Records

MAINTENANCE PROCEDURE		
<input type="checkbox"/> Check Neutral Start System	<input type="checkbox"/> Clean Cab Air Filters	
<input type="checkbox"/> Change MFWD Axle Wheel Hub Oil	<input type="checkbox"/> Change MFWD Axle Housing Oil	
<input type="checkbox"/> Clean Open Crankcase Vent (OCV) Tube	<input type="checkbox"/> Lubricate Rear Axle Bearings	
<input type="checkbox"/> Check Front Axle Pivot Pin End Play	<input type="checkbox"/> Tighten Air Intake System and Engine Cooling System Hose Clamps	
<input type="checkbox"/> Change Transmission/Hydraulic Filter		
Date:  Signature:  Dealer's Stamp	Date:  Signature:  Dealer's Stamp	Date:  Signature:  Dealer's Stamp

EKPQ1SQ,00034E4-19-27AUG21

## Every 1200 Hours Record

MAINTENANCE PROCEDURE		
<input type="checkbox"/> Check Fan Belt Tensioner	<input type="checkbox"/> Replace Fan Belt	
<input type="checkbox"/> Change Transmission/Hydraulic Oil and Filter	<input type="checkbox"/> Service Air Cleaner Elements	
<input type="checkbox"/> Clean Fuel Tank Vent Filter		
Hours:  Date:  Signature:  Dealer's Stamp	Hours:  Date:  Signature:  Dealer's Stamp	Hours:  Date:  Signature:  Dealer's Stamp
Hours:  Date:  Signature:  Dealer's Stamp	Hours:  Date:  Signature:  Dealer's Stamp	Hours:  Date:  Signature:  Dealer's Stamp
Hours:  Date:  Signature:  Dealer's Stamp	Hours:  Date:  Signature:  Dealer's Stamp	Hours:  Date:  Signature:  Dealer's Stamp

## Maintenance Records

MAINTENANCE PROCEDURE		
<input type="checkbox"/> Check Fan Belt Tensioner	<input type="checkbox"/> Replace Fan Belt	
<input type="checkbox"/> Change Transmission/Hydraulic Oil and Filter	<input type="checkbox"/> Service Air Cleaner Elements	
<input type="checkbox"/> Clean Fuel Tank Vent Filter		

EKPQ1SQ,00034E5-19-27AUG21

## Annual Maintenance Record

MAINTENANCE PROCEDURE		
<input type="checkbox"/> Change Open Crankcase Vent (OCV) Filter	<input type="checkbox"/> Inspect Seat Belt	
<input type="checkbox"/> Lubricate Exchangeable 540/1000 rpm PTO Shaft	<input type="checkbox"/> Battery Maintenance	
Hours: Date: Signature: Dealer's Stamp	Hours: Date: Signature: Dealer's Stamp	Hours: Date: Signature: Dealer's Stamp
Hours: Date: Signature: Dealer's Stamp	Hours: Date: Signature: Dealer's Stamp	Hours: Date: Signature: Dealer's Stamp
Hours: Date: Signature: Dealer's Stamp	Hours: Date: Signature: Dealer's Stamp	Hours: Date: Signature: Dealer's Stamp

AG32641,00004CC-19-19FEB22

## Every 3000 Hours Record

MAINTENANCE PROCEDURE		
<input type="checkbox"/> <b>Adjust Engine Valve Clearance</b>		
Hours:  Date:  Signature:  Dealer's Stamp	Hours:  Date:  Signature:  Dealer's Stamp	Hours:  Date:  Signature:  Dealer's Stamp

EKPQ1SQ,00034E7-19-27AUG21

## Every 4500 Hours Record

MAINTENANCE PROCEDURE		
<input type="checkbox"/> <b>Flush Cooling System and Replace Thermostat</b>		<input type="checkbox"/> <b>Changing Diesel Exhaust Fluid (DEF) Dosing Unit Filter</b>
<b>Replace Diesel Exhaust Fluid (DEF) Tank Header Suction Screen</b>		
Hours:  Date:  Signature:  Dealer's Stamp	Hours:  Date:  Signature:  Dealer's Stamp	Hours:  Date:  Signature:  Dealer's Stamp

AG32641,00004CD-19-19FEB22

**Change of Ownership**

Machine Model:
Serial Number:
Engine Number:
Previous Owner:
Address:
Purchase Date:
Hours at Purchase:
Registration Number:
New Owner:
Address:
Dealer's Stamp (if sold through dealer)

DP51502,0003002-19-23JAN18

Purchase Date:
Hours at Purchase:
Registration Number:
New Owner:
Address:
Dealer's Stamp (if sold through dealer)

DP51502,0003004-19-23JAN18

**Change of Ownership**

Machine Model:
Serial Number:
Engine Number:
Previous Owner:
Address:
Purchase Date:
Hours at Purchase:
Registration Number:
New Owner:
Address:
Dealer's Stamp (if sold through dealer)

DP51502,0003003-19-23JAN18

**Change of Ownership**

Machine Model:
Serial Number:
Engine Number:
Previous Owner:
Address:

# Pre-Delivery Inspection

## Notes on Pre-Delivery Inspection

*NOTE: Depending on the regional peculiarities and individual vehicle configuration, the tasks are only applicable if the corresponding equipment is available. The configuration can be found in the order information of the vehicle. Subsequent additions and conversions must be taken into account.*

MP73369,0001044-19-09JUN21

## Service Procedure

**The following inspection, adjustment, and service work were performed prior to the delivery of the machine.**

**Note for the dealer: Visit [ccms.deere.com](http://ccms.deere.com) for the most updated information.**

- |  |   |  |
|--|---|--|
| <p>1. Fill levels of the following systems were checked and refilled if necessary:</p> <ul style="list-style-type: none"><li><input type="checkbox"/> 1.1 Engine oil*</li><li><input type="checkbox"/> 1.2 Transmission and hydraulic oil*</li><li><input type="checkbox"/> 1.3 Front-wheel drive axle, oil*</li><li><input type="checkbox"/> 1.4 Coolant</li><li><input type="checkbox"/> 1.5 Wheel Hub (if equipped)</li></ul> <p>2. Screws and nuts of the following components have been tightened to the specified torque:</p> <ul style="list-style-type: none"><li><input type="checkbox"/> 2.1 Wheels and rims</li><li><input type="checkbox"/> 2.2 Additional weights (if equipped), number of pieces (if equipped); _____.</li><li><input type="checkbox"/> 2.3 Front loader, mounting frame (if equipped)</li></ul> <p><input type="checkbox"/> 3. All grease fittings have been lubricated.</p> <p><input type="checkbox"/> 4. Guards and shields have been checked.</p> <p><input type="checkbox"/> 5. Battery verification. Write date of verification: _____ Voltage &amp; Amperes: _____</p> <p><input type="checkbox"/> 6. Operator's cab controls have all been checked (heater, blower, windshield wiper, and windshield washer).</p> <p><input type="checkbox"/> 7. Operator's seat adjustment working properly.</p> <p><input type="checkbox"/> 8. Seat belts checked.</p> <p><input type="checkbox"/> 9. Headlights have been adjusted**.</p> <p><input type="checkbox"/> 10. Lights working properly.</p> <p><input type="checkbox"/> 10.1 Headlights</p> <p><input type="checkbox"/> 10.2 Front worklights</p> <p><input type="checkbox"/> 10.3 Rear Work lights</p> | <p><input type="checkbox"/> 12 Transmission shifting mechanism working properly.</p> <p>13. PTOs working properly:</p> <ul style="list-style-type: none"><li><input type="checkbox"/> 13.1 Rear PTO</li></ul> <p>14. Hitches working properly:</p> <ul style="list-style-type: none"><li><input type="checkbox"/> 14.1 Rear hitch</li><li><input type="checkbox"/> 14.2 Front hitch (if equipped)</li></ul> <p><input type="checkbox"/> 15. Selective control valves working properly.</p> <p><input type="checkbox"/> 16. Trailer hitches working properly.</p> <p><input type="checkbox"/> 17. Check tire pressure ,check tires for low pressure, cuts, bubbles, damaged rims.</p> <p><input type="checkbox"/> 18. Front axle toe-in has been checked with tractor fully ballasted; adjust, if necessary.</p> <p><input type="checkbox"/> 19. Pivoting fenders have been adjusted.</p> <p><input type="checkbox"/> 20. Steering stops checked and adjusted. Inspection of the clearances when the front-wheel drive axle is pivoted and steering is at the stop.</p> <p><input type="checkbox"/> 21. Steering system working properly.</p> <p><input type="checkbox"/> 22. Park lock and park function of air brake valve of trailer have been checked. (If equipped)</p> | <p><input type="checkbox"/> 25. Verify DTC (diagnostic trouble codes). If necessary diagnose the problem.</p> <p><input type="checkbox"/> 26. Display language, units of measurement, and date have been adjusted according to operator's needs.</p> <p><input type="checkbox"/> 27. Attach the StarFire™ receiver (if equipped).</p> <p><input type="checkbox"/> 28. Paint has been checked for the good condition.</p> <p><input type="checkbox"/> 29. Take evidence, pictures, or videos and report immediately to your TCSM if we found damages.</p> <p><input type="checkbox"/> 30. All warning and information stickers.</p> <p><input type="checkbox"/> 31. The SMV emblem is attached:</p> <p><input type="checkbox"/> 32. The following systems have been checked and are free of leaks:</p> <ul style="list-style-type: none"><li><input type="checkbox"/> 32.1 Engine cooling system</li><li><input type="checkbox"/> 32.2 Fuel system</li><li><input type="checkbox"/> 32.3 Hydraulic system</li></ul> <p><input type="checkbox"/> 33. All obligatory and open product improvement programs must be completed prior to delivering the machine to a customer.</p> |
|--|---|--|



## Pre-Delivery Inspection

The following inspection, adjustment, and service work were performed prior to the delivery of the machine.

Note for the dealer: Visit [ccms.deere.com](http://ccms.deere.com) for the most updated information.

- ☐ 10.4 Tail Lights
- ☐ 10.5 Warning lights
- ☐ 10.6 Turn signals
- ☐ 10.7 Beacon light (if equipped)
- ☐ 11. Info board display and indicator lights work flawlessly.
- ☐ 23. Service brakes and secondary brake have been checked.
- ☐ 24. Trailer brake has been checked. (If equipped)
- ☐ 34. Test drive has been performed.

\* Top-up with oil only if the oil level is at or below the MIN mark.

\*\* Lights checked for compliance with local regulations and adjusted if necessary (also additional headlights, if equipped).

AG32641,000045B-19-05JUL21

### Copy for Owner

Serial Number: \_\_\_\_\_ Vehicle model: \_\_\_\_\_

Operator's Manual No.: \_\_\_\_\_ Issue: \_\_\_\_\_ Registration Number: \_\_\_\_\_

Engine Number: \_\_\_\_\_ Delivery Date: \_\_\_\_\_

Owner's Name: \_\_\_\_\_ Operating Hours at Delivery: \_\_\_\_\_

Address: \_\_\_\_\_ Number of Keys Handed Over (only for immobilizer): \_\_\_\_\_

\_\_\_\_\_ Dealer: \_\_\_\_\_

\_\_\_\_\_ Dealer's Stamp: \_\_\_\_\_

### DELIVERY CHECK LIST

The following checklist is a reminder of important information, which should be conveyed directly to the customer at the time tractor is delivered. Tick off each item as it is fully explained to the customer. Refer to the Operator's Manual and the Technical Manual for more information.

- ☐ Give Operator's Manual to customer. Encourage the customer to read manual.
- ☐ John Deere warranty
- ☐ Safe and correct operation and service
- ☐ Daily and periodic inspections
- ☐ Servicing machine regularly and correctly
- ☐ Recommended machine storage
- ☐ Transporting machine correctly
- ☐ Make the customer aware of all the safety precautions that must be exercised while using this machine.
- ☐ Recommended lubricants. (See the lubrication and maintenance section in Operator's Manual.)
- ☐ Review service intervals and lubrication points. (See the lubrication and maintenance section in Operator's Manual.)
- ☐ Review all adjustments. (See the service section in Operator's Manual.)
- ☐ When the tractor is transported on a road or highway at night or during the day, lights and devices should be used for adequate warning to operators of other vehicles.
- ☐ John Deere parts and service
- ☐ Remove and file this page.

To the best of my knowledge, this machine has been delivered ready for field use and above points has been explained in detailed for the proper care and operation.

## Pre-Delivery Inspection

### DELIVERY CHECK LIST

Signature of Customer

Date:

- ☐ Operator's seat, all possible seat configurations
- ☐ Consoles/corner post display
- ☐ Differential lock
- ☐ Transmission
- ☐ Starting and stopping
- ☐ Steering and steering system
- ☐ Brakes and brake systems
- ☐ Speed control
- ☐ Lights
- ☐ Wipers
- ☐ Heater

#### Operating the Tractor

- ☐ Air conditioning system
- ☐ PTOs
- ☐ Rear hitch, front hitch, and selective control valves
- ☐ Hydraulic pickup hitch
- ☐ Three-point hitch adjustment
- ☐ Fuel system and fuel quality
- ☐ Checking fluid levels (radiator, engine, transmission)
- ☐ Settings on the corner post display
- ☐ Front axle suspension
- ☐ Cab suspension

To the best of my knowledge, this machine has been delivered ready for field use and above points has been explained in detailed for the proper care and operation.

Signature of Customer

Date:

MP73369,0001046-19-09JUN21

### Copy for Dealer

Serial Number: \_\_\_\_\_ Vehicle model: \_\_\_\_\_

Operator's Manual No.: \_\_\_\_\_ Issue: \_\_\_\_\_ Registration Number: \_\_\_\_\_

Engine Number: \_\_\_\_\_ Delivery Date: \_\_\_\_\_

Owner's Name: \_\_\_\_\_ Operating Hours at Delivery: \_\_\_\_\_

Address: \_\_\_\_\_ Number of Keys Handed Over (only for immobilizer): \_\_\_\_\_

\_\_\_\_\_  
Dealer: \_\_\_\_\_

\_\_\_\_\_  
Dealer's Stamp: \_\_\_\_\_

### DELIVERY CHECK LIST

**The following checklist is a reminder of important information, which should be conveyed directly to the customer at the time tractor is delivered. Tick off each item as it is fully explained to the customer. Refer to the Operator's Manual and the Technical Manual for more information.**

- |   |  |
|---|--|
| <input type="checkbox"/> Give Operator's Manual to customer. Encourage the customer to read manual.                             | <input type="checkbox"/> Recommended lubricants. (See the lubrication and maintenance section in Operator's Manual.)   |
| <input type="checkbox"/> John Deere warranty  | <input type="checkbox"/> Review service intervals and lubrication points. (See the lubrication and maintenance section in Operator's Manual.)  |
| <input type="checkbox"/> Safe and correct operation and service   | <input type="checkbox"/> Review all adjustments. (See the service section in Operator's Manual.)   |
| <input type="checkbox"/> Daily and periodic inspections   | <input type="checkbox"/> When the tractor is transported on a road or highway at night or during the day, lights and devices should be used for adequate warning to operators of other vehicles. |
| <input type="checkbox"/> Servicing machine regularly and correctly  |  |
| <input type="checkbox"/> Recommended machine storage  | <input type="checkbox"/> John Deere parts and service  |
| <input type="checkbox"/> Transporting machine correctly   | <input type="checkbox"/> Remove and file this page.  |
| <input type="checkbox"/> Make the customer aware of all the safety precautions that must be exercised while using this machine. |  |

To the best of my knowledge, this machine has been delivered ready for field use and above points has been explained in detailed for the proper care and operation.

Signature of Dealer

Date:

#### Operating the Tractor

- |  |   |
|--|---|
| <input type="checkbox"/> Operator's seat, all possible seat configurations | <input type="checkbox"/> Air conditioning system                                |
| <input type="checkbox"/> Consoles/corner post display                      | <input type="checkbox"/> PTOs   |
| <input type="checkbox"/> Differential lock                                 | <input type="checkbox"/> Rear hitch, front hitch, and selective control valves  |
| <input type="checkbox"/> Transmission                                      | <input type="checkbox"/> Hydraulic pickup hitch                                 |
| <input type="checkbox"/> Starting and stopping                             | <input type="checkbox"/> Three-point hitch adjustment                           |
| <input type="checkbox"/> Steering and steering system                      | <input type="checkbox"/> Fuel system and fuel quality                           |
| <input type="checkbox"/> Brakes and brake systems                          | <input type="checkbox"/> Checking fluid levels (radiator, engine, transmission) |
| <input type="checkbox"/> Speed control                                     | <input type="checkbox"/> Settings on the corner post display                    |
| <input type="checkbox"/> Lights  | <input type="checkbox"/> Front axle suspension                                  |
| <input type="checkbox"/> Wipers  | <input type="checkbox"/> Cab suspension   |
| <input type="checkbox"/> Heater  |   |

To the best of my knowledge, this machine has been delivered ready for field use and above points has been explained in detailed for the proper care and operation.

Signature of Dealer

Date:

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# John Deere Service

## Technical Information

Technical information can be purchased from John Deere. Publications are available in print or CD-ROM format.

Orders can be made using one of the following:

- John Deere Technical Information Store: **www.JohnDeere.com/TechInfoStore**
- Call 1-800-522-7448
- Contact your John Deere dealer

Available information includes:



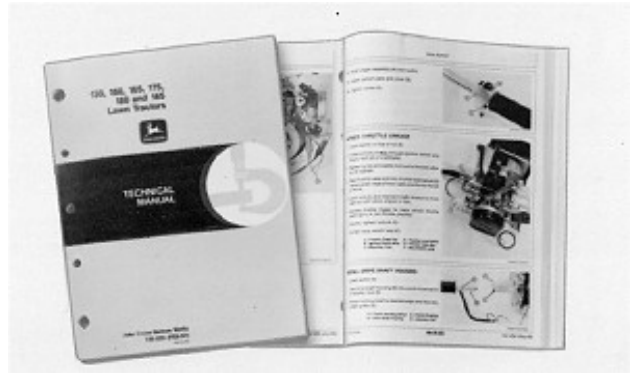
TS189—UN—17JAN89

**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.



TS191—UN—02DEC88

**OPERATOR'S MANUALS** providing safety, operating, maintenance, and service information.



TS224—UN—17JAN89

**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 a separate component technical manual.



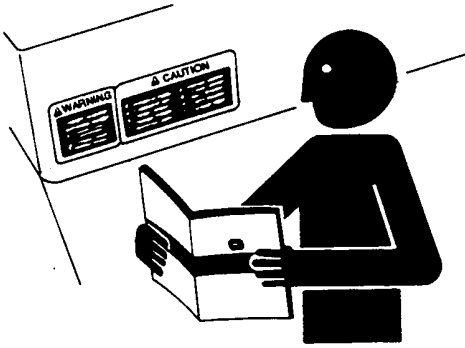
TS1663—UN—10OCT97

**EDUCATIONAL CURRICULUM** including five comprehensive series of books detailing basic information regardless of manufacturer:

- Agricultural Primer series covers technology in farming and ranching.
- 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.
- Fundamentals of Compact Equipment manuals provide instruction in servicing and maintaining equipment up to 40 PTO horsepower.

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## John Deere Is At Your Service



TS201—UN—15APR13

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/](http://www.deere.com/en_US/ag/contactus/).

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