2032R and 2038R Compact Utility Tractors Operator's Manual (North American Version)

JOHN DEERE

OPERATOR'S MANUAL

2032R and 2038R Compact Utility Tractors (North American Version)

OMLVU31185 ISSUE D4 (ENGLISH)

CALIFORNIA

Proposition 65 Warning

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

If this product contains a gasoline engine:

⚠ WARNING

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

The State of California requires the above two warnings.

John Deere Augusta Works
North America Edition
Printed in U.S.A.

Introduction

Foreword

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

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

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

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

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

WARRANTY is provided as part of John Deere's support program for customers who operate and maintain their equipment as described in this manual. The warranty is explained on the warranty certificate 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.

DX,IFC1-19-03APR09

Contents

Continued on next page

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

General Information

Product View

LV26013—UN—24AUG16

Open Operator's Station

UP00731,0000110-19-24AUG16

Trademarks

Trademarks	
GreenStar™	Trademark of Deere & Company
iMatch™	Trademark of Deere & Company
Quik-Tatch™	Trademark of Deere & Company
Cool-Gard™	Trademark of Deere & Company
Cool-Gard™ II	Trademark of Deere & Company
Plus-50™	Trademark of Deere & Company
Torq-Gard™	Trademark of Deere & Company
Hy-Gard™	Trademark of Deere & Company
LoadMatch™	Trademark of Deere & Company
SpeedMatch™	Trademark of Deere & Company
MotionMatch™	Trademark of Deere & Company
iMatch™	Trademark of Deere & Company

UP00731,0000111-19-27AUG18

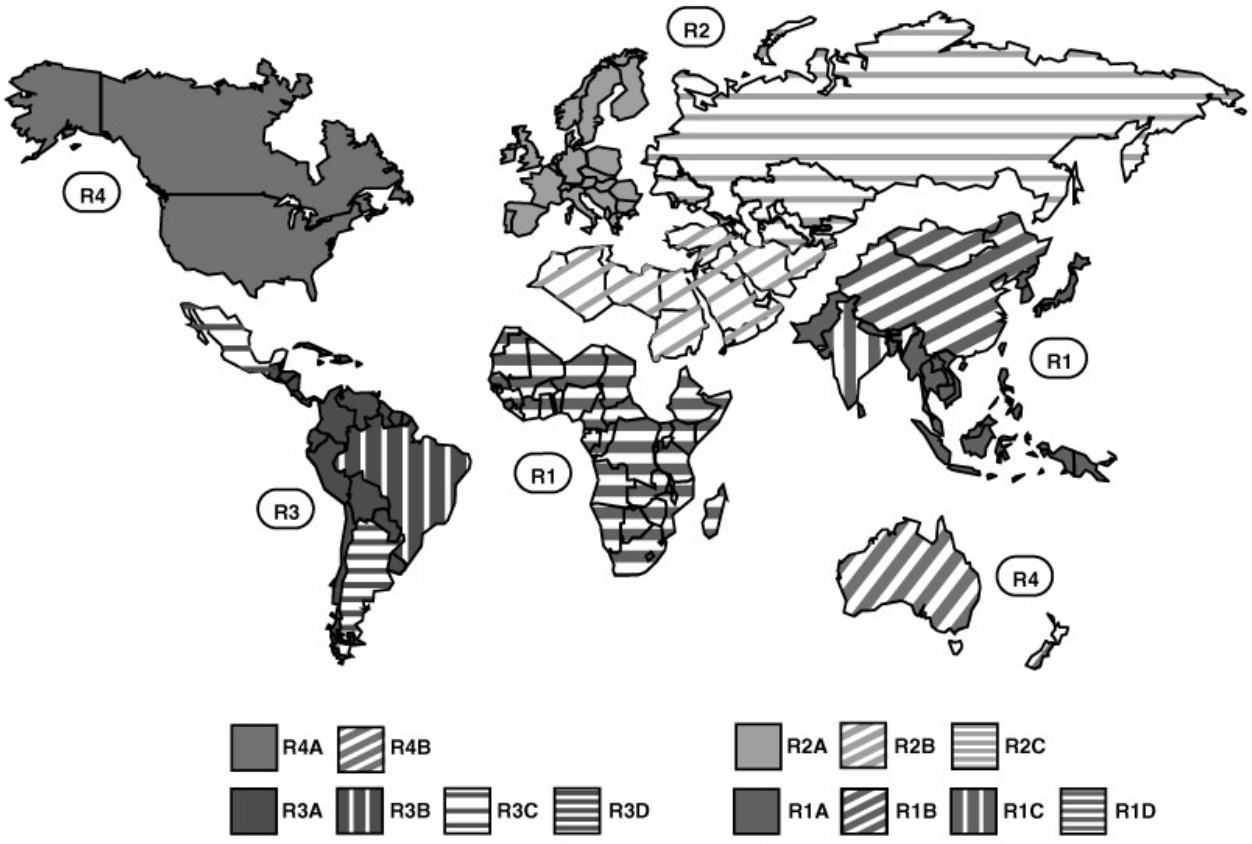
Glossary of Terms

Abbreviation	Description
DTC	Diagnostic Trouble Code
ECU	Engine Control Unit
HST	Hydrostatic Transmission

Abbreviation	Description
MFWD	Mechanical Front Wheel Drive
OBD	On-Board Diagnostic
PTO	Power Take Off
RIO	Reverse Implement Option
ROPS	Roll-Over Protective Structure
SCV	Selective Control Valve

UP00731,0000112-19-27AUG18

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—Commonwealth 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)

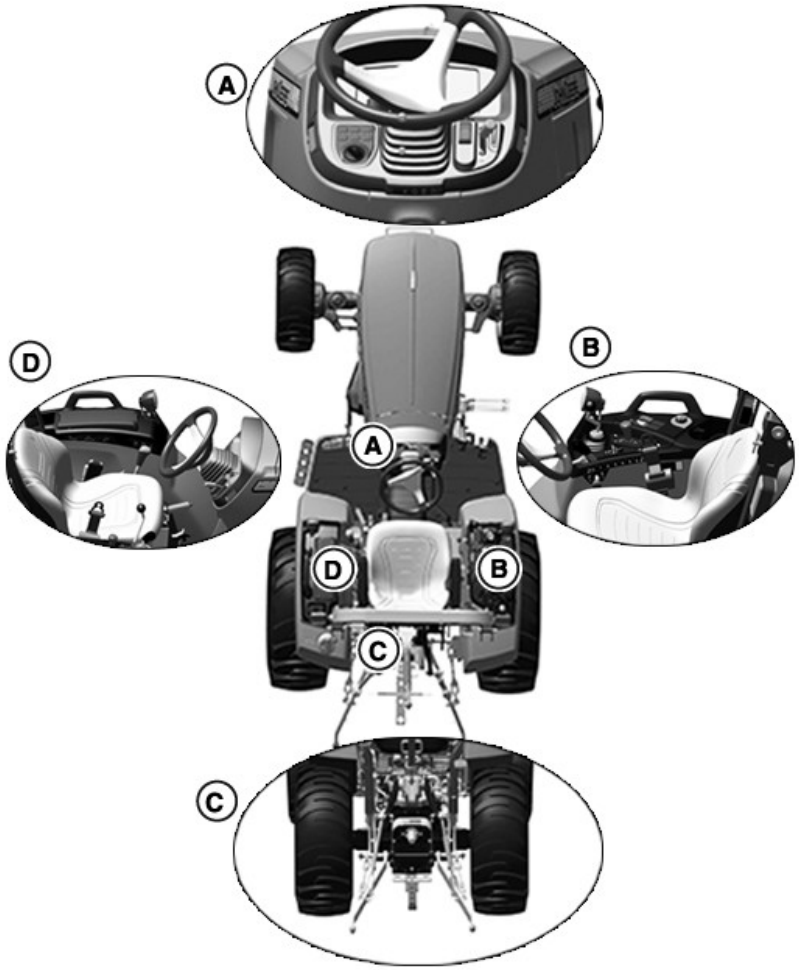
Regions 1, 2 and 3 equipment is traditionally manufactured with Economic Commission for Europe (ECE) features or systems.	Region 4 equipment is traditionally manufactured with Society of Automotive Engineers (SAE) features or systems.
Drive and signal lighting, traffic signs, safety signs, and braking 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. When identifying equipment information by regions, countries, trade federations, industry standards, or governmental regulations, refer to the region map provided. *NOTE: Australia and New Zealand (R4B) are available as either region 4 and/or region 2 configurations, only using text-free safety signs.*	

GS25068,0001DB8-19-14JAN19

Machine Overview

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.



LV25658—UN—21JUN16

A—Front Console Controls
B—Right Side Controls
C—Rear Implement Interface
D—Left Side Controls

Operating the Machine Introduction:

- Sit in operator's 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 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's Manuals.

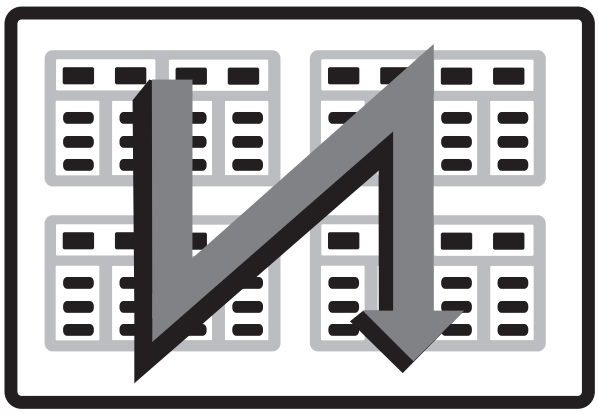
Using this Manual:

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, etc). 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 will learn which section to turn to for specific information. For example, the Safety information is covered at the beginning, the Operation of all features and systems are covered in the first half of the manual, Maintenance Intervals are in the middle of the manual, the Maintenance of all the features and systems are covered in the second half of the manual, and the 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
GS25068,0003DCB-19-24JAN18

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-19-03OCT22

Understand Signal Words

TS187—19—30SEP88

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

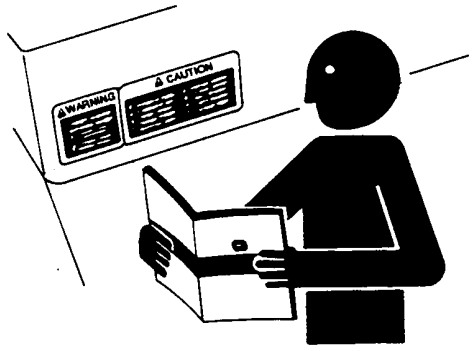
WARNING; The signal word WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

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

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

DX,SIGNAL-19-05OCT16

Follow Safety Instructions



TS201—UN—15APR13

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

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

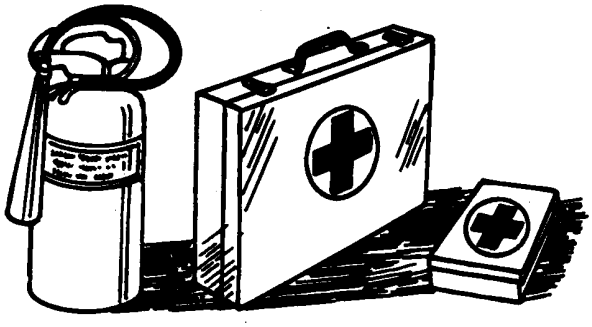
Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.

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

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

DX,READ-19-01AUG22

Prepare for Emergencies



TS291—UN—15APR13

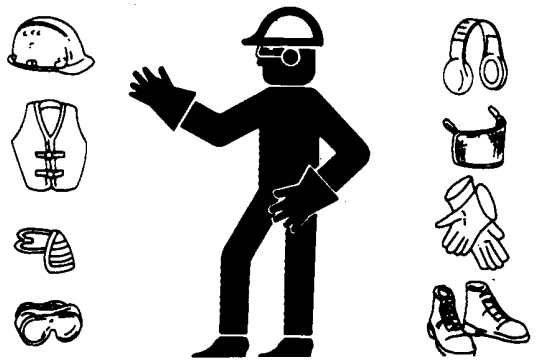
Be prepared if a fire starts.

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



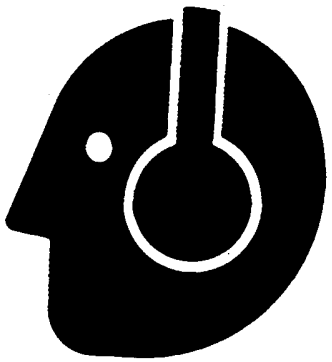
TS206—UN—15APR13

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.

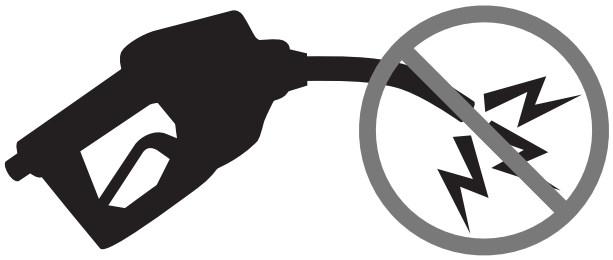
If your extinguisher does not have instructions, follow these general guidelines:

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.

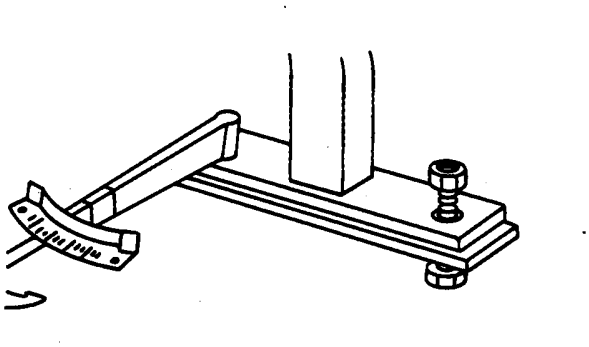
Refineries may have treated the fuel with a static dissipating additive. However, there are many factors that can reduce the effectiveness of the additive over time.

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.

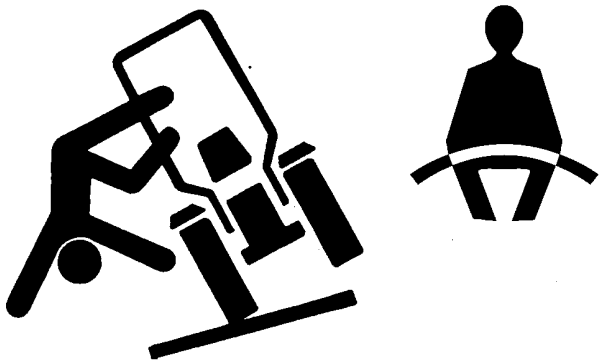
The protection offered by ROPS will be impaired if ROPS is subjected to structural damage, is involved in an overturn incident, or is in any way altered by welding, bending, drilling, or cutting. A damaged ROPS should be replaced, not reused.

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.

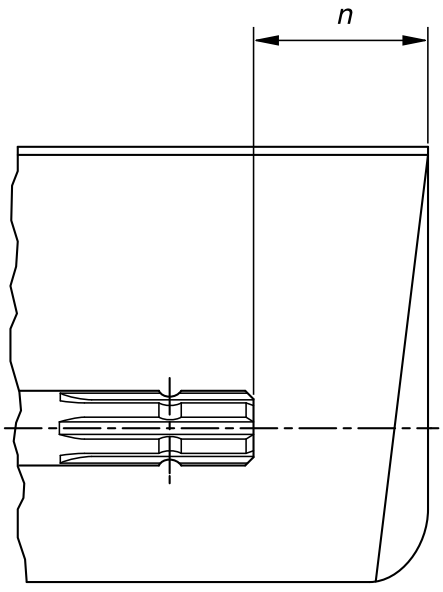
- Snug the seat belt across the hips.

- 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.

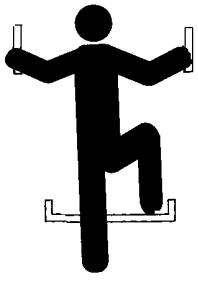
Do not raise implements high enough to damage the tractor master shield or guard of primary implement PTO driveshaft. Detach the PTO driveline shaft if it is necessary to increase implement height. (See Attching/ Detaching PTO Driveline)

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 ± 5 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

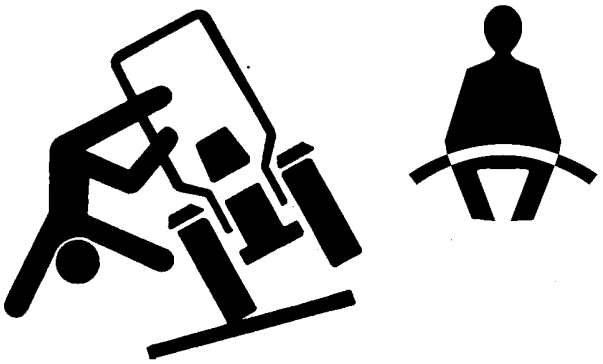
Read Operator's Manuals for ISOBUS Controllers

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, 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

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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

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.

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

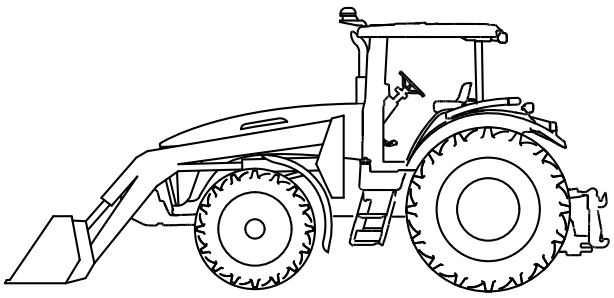
Limited Use in Forestry Operation

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.

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.

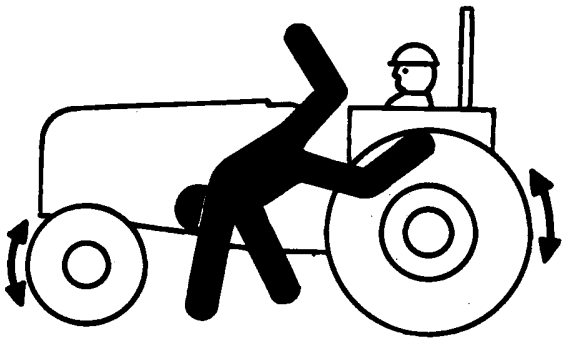
Lower loader to ground before leaving operators station.

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 clampers).

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

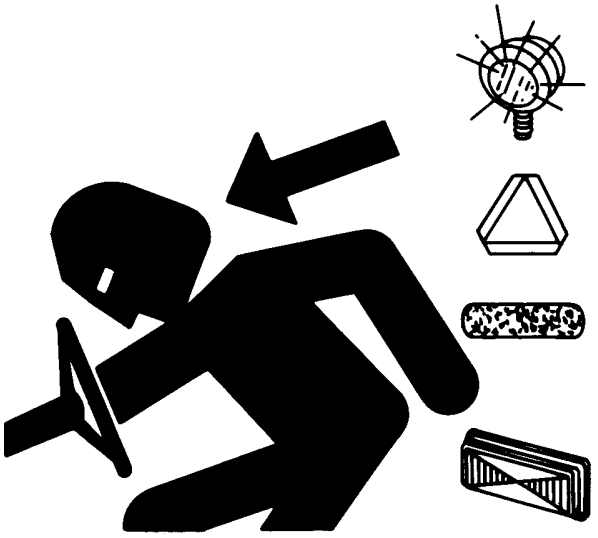
Instructional Seat

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



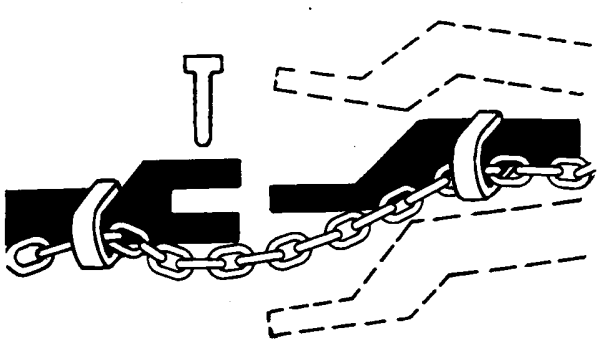
TS951—UN—12APR90

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

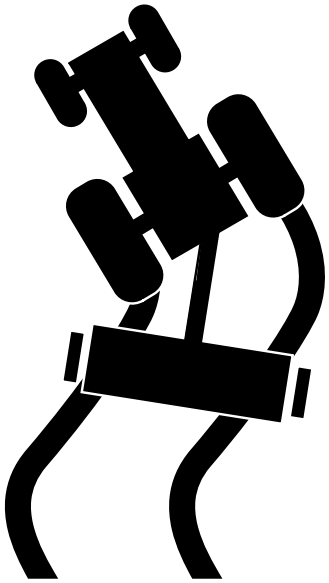
A safety chain will help control drawn equipment should it accidentally separate from the drawbar.

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).

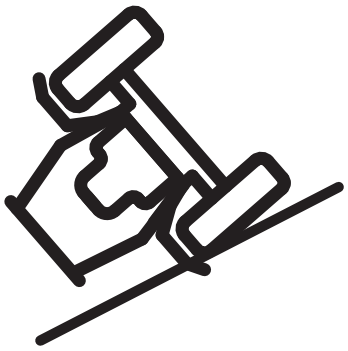
Implements with brakes:

- 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

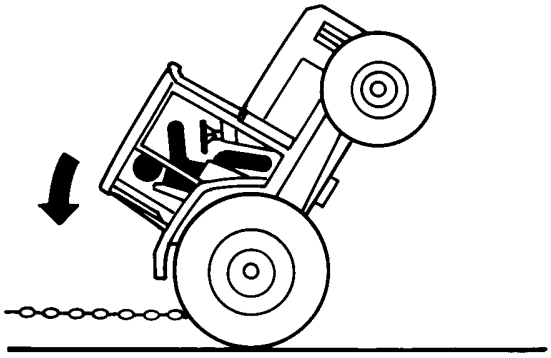
Choose a low ground speed so you will not have to stop or shift while on a slope.

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-19-07JUL99

Avoid Contact with Agricultural Chemicals

TS220—UN—15APR13

TS272—UN—23AUG88

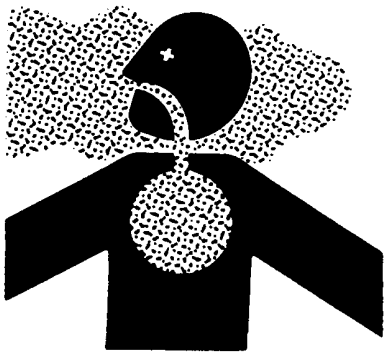
This enclosed cab does not protect against inhaling vapor, aerosol or dust. If pesticide use instructions require respiratory protection, wear an appropriate respirator inside the cab.

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.

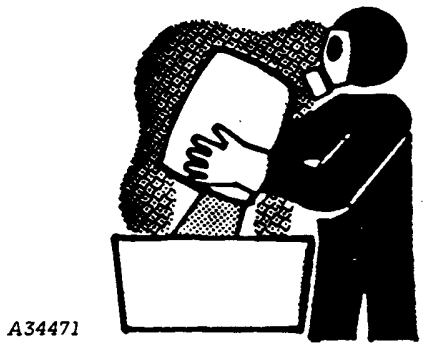
Clean your shoes or boots to remove soil or other contaminated particles prior to entering the cab.

DX,CABS-19-25MAR09

Handle Agricultural Chemicals Safely



TS220—UN—15APR13



A34471—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:

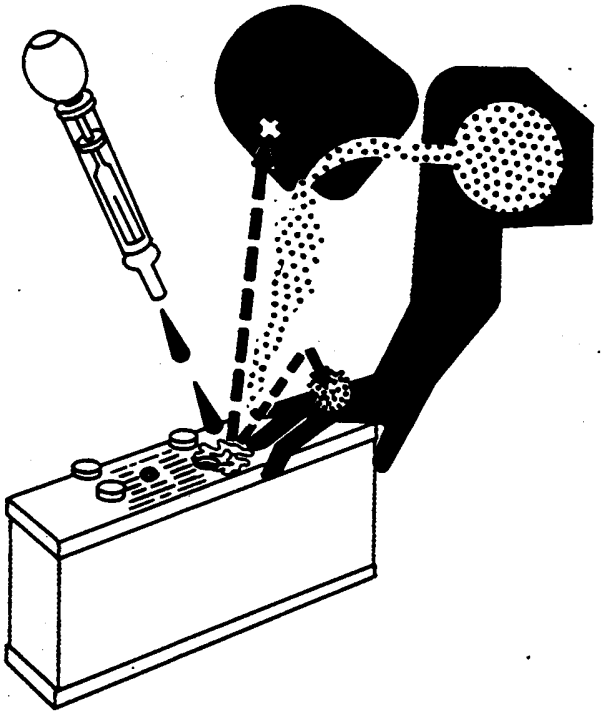
- Wear appropriate personal protective equipment as recommended by the manufacturer. In the absence of manufacturer's instructions, follow these general guidelines:
  - Chemicals labeled **'Danger'**: Most toxic. Generally require use of goggles, respirator, gloves, and skin protection.
  - Chemicals 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

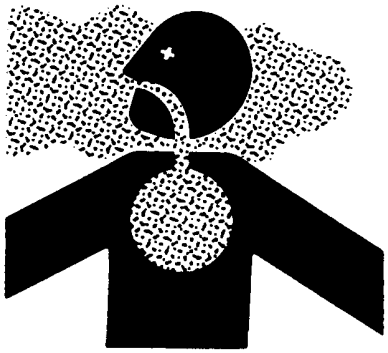
Avoid Heating Near Pressurized Fluid Lines

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

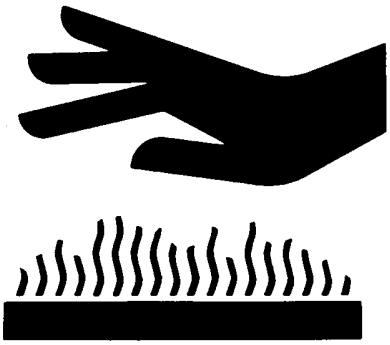
Servicing machine or attachments with engine running can result in serious personal injury. Avoid exposure and skin contact with hot exhaust gases and components.

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.

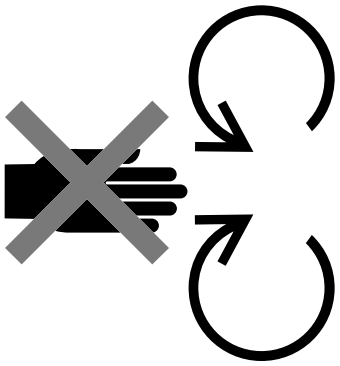
DX,EXHAUST-19-20AUG09

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

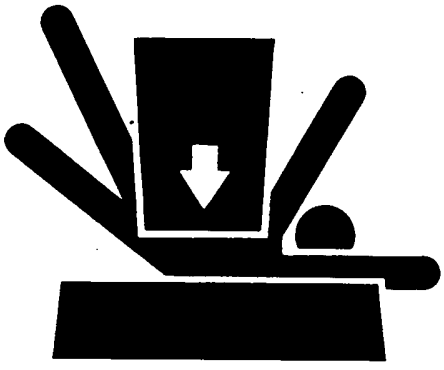
TS220—UN—15APR13

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

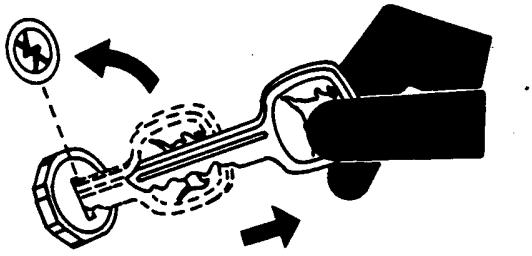
Avoid possible injury or death from machinery runaway.

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



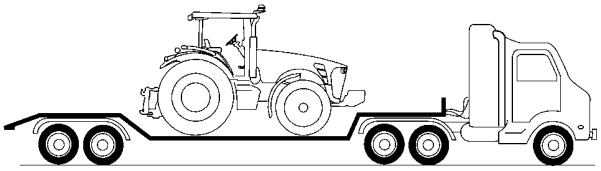
TS230—UN—24MAY89

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.

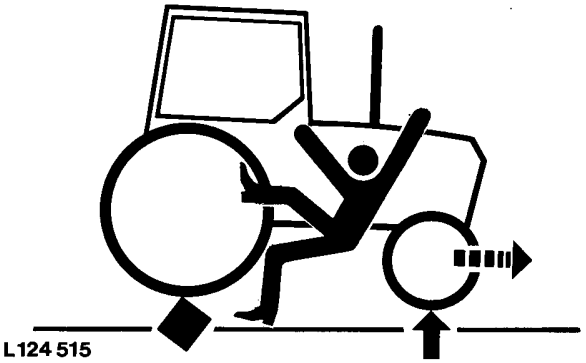
When inflating tires, use a clip-on chuck and extension hose long enough to allow you to stand to one side and NOT in front of or over the tire assembly. Use a safety cage if available.

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

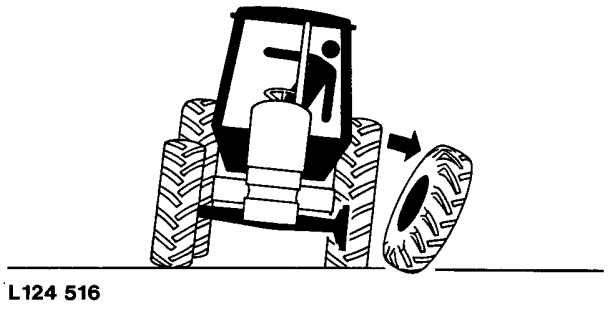


L124515—UN—06AUG94

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

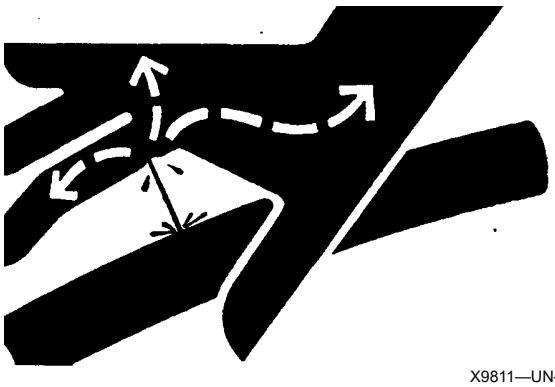


L124516—UN—03JAN95

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

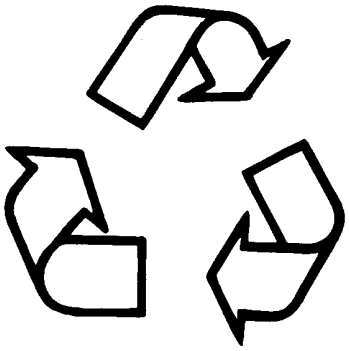
TS219—UN—23AUG88

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

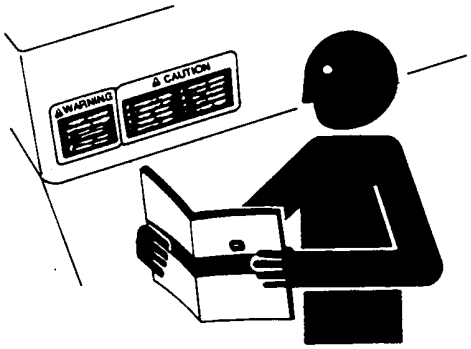
Safety and environmental stewardship measures must be taken into account when decommissioning a machine and/or component. These measures include the following:

- 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

Replace Safety Signs



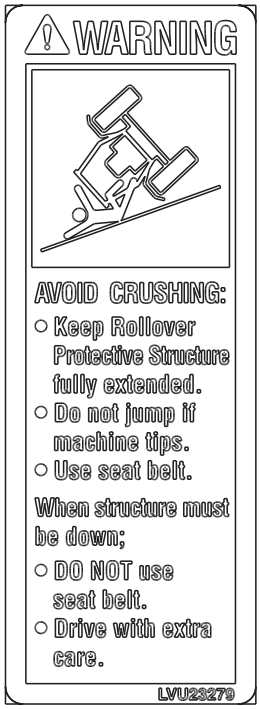
TS201—UN—15APR13

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

Use Seat Belt Properly



LV25652—UN—06JUL16

LV28762—UN—18DEC17

Right-Side ROPS

WARNING

AVOID CRUSHING:

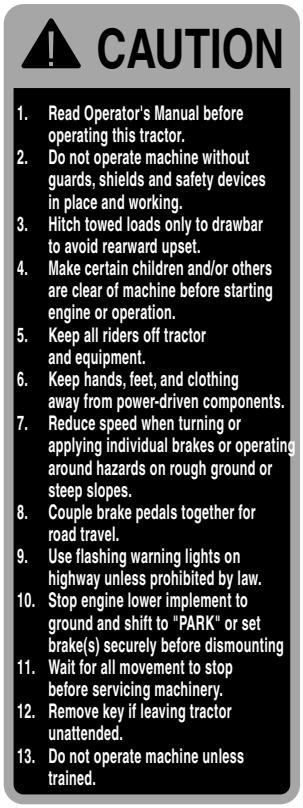
- **Keep Rollover Protective Structure Fully Extended.**
- **Do not jump if machine tips.**
- **Use Seat Belt.**

When structure must be down

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

UP00731,00001F4-19-18DEC17

Operators Manual



LV18510—UN—22OCT13

LV28761—UN—18DEC17

Left Side of ROPS

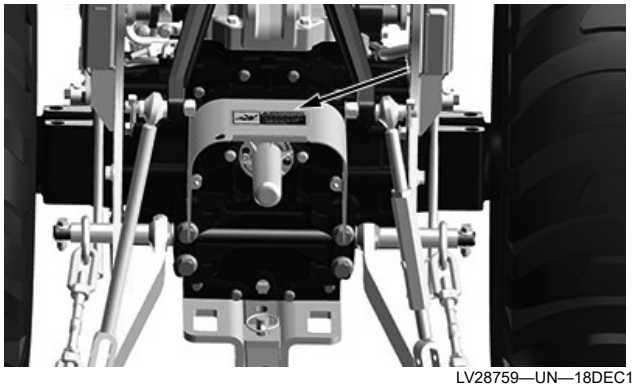
CAUTION

1. **Read Operator's Manual before operating this tractor.**
2. **Do not operate machine without guards, shields and safety devices in place and working.**
3. **Hitch towed loads only to drawbar to avoid rearward upset.**
4. **Make certain children and / or others are 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 brake(s) securely before dismounting.**
11. **Wait for all movement to stop before servicing machinery.**
12. **Remove key if leaving machine unattended.**
13. **Do not operate machine unless trained.**

UP00731,00001F5-19-18DEC17

PTO Shield

LV21308—UN—06MAR14



LV28759—UN—18DEC17

PTO Shied

WARNING

AVOID INJURY FROM PTO

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

UP00731,00001F6-19-18DEC17

Starter

LV18129—UN—14JUN13

LV28763—UN—18DEC17

Starter

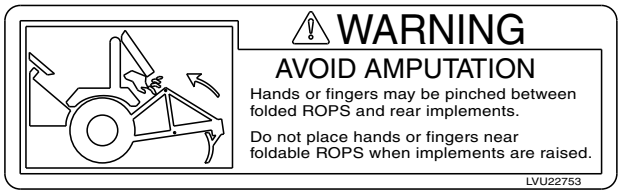
DANGER

Start only from seat in park or neutral.

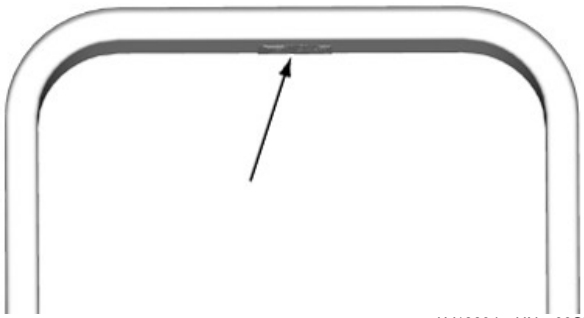
Starting in gear kills.

UP00731,00001F7-19-18DEC17

ROPS—Rear Implements



LV18555—UN—22OCT13



LV18894—UN—03SEP13

Top of ROPS

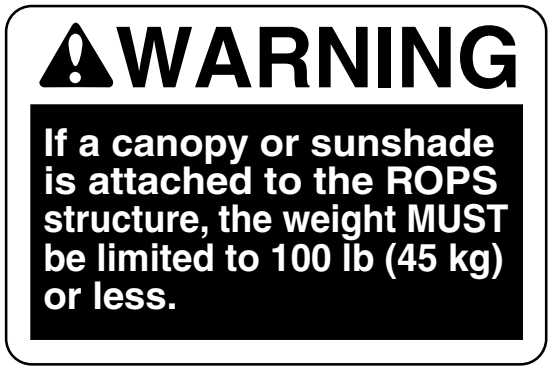
AVOID AMPUTATION

Hands or fingers may be pinched between folded ROPS and rear implements.

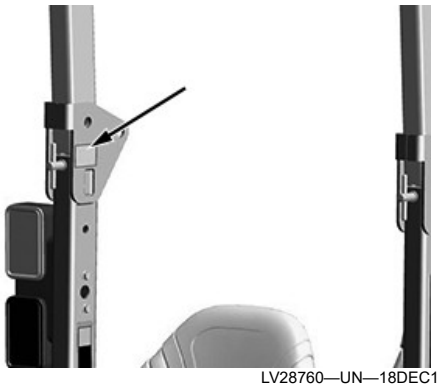
Do not place hands or fingers near foldable ROPS when implements are raised.

UP00731,00001F8-19-18DEC17

ROPS



LV19458—UN—22OCT13



LV28760—UN—18DEC17

Right Side of ROPS

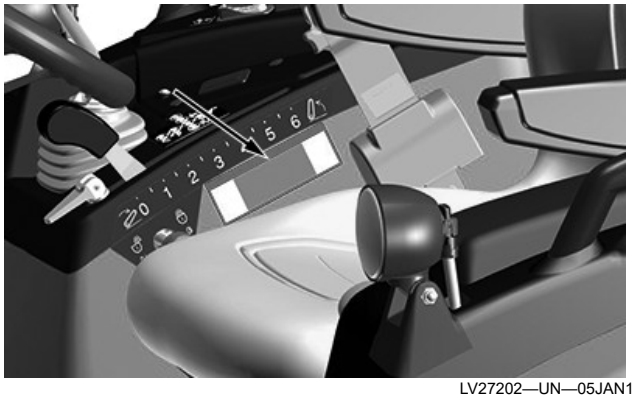
WARNING

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

UP00731,00001F9-19-18DEC17

Rotating Blades

LV25757—UN—07JUL16



LV27202—UN—05JAN17

Right Side Console

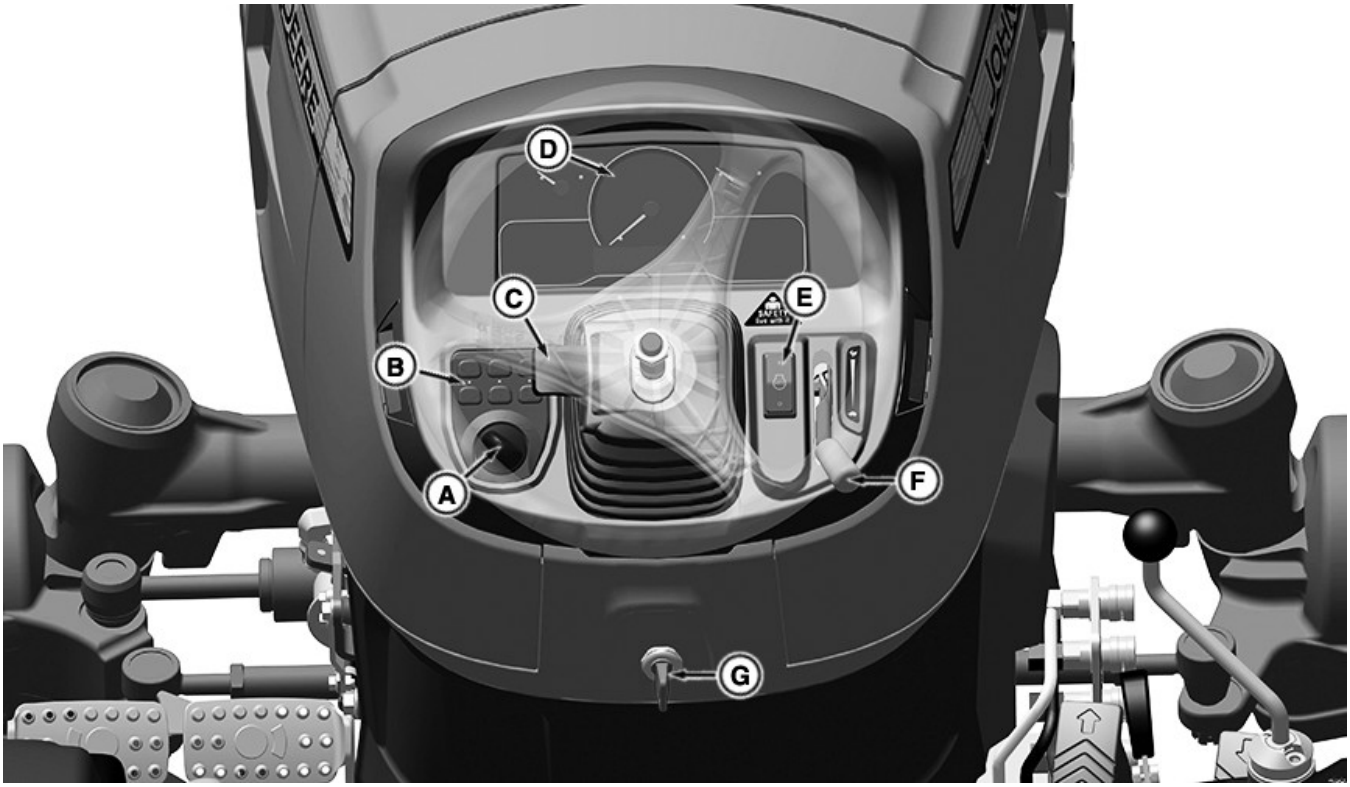
DANGER

ROTATING BLADES CUT OFF ARMS AND LEGS

- Do not mow when children or others are around
- Do not mow in reverse.
- Look down and behind before and while backing
- Never carry children even with blades off

UP00731,0000129-19-18DEC17

Front Console Controls



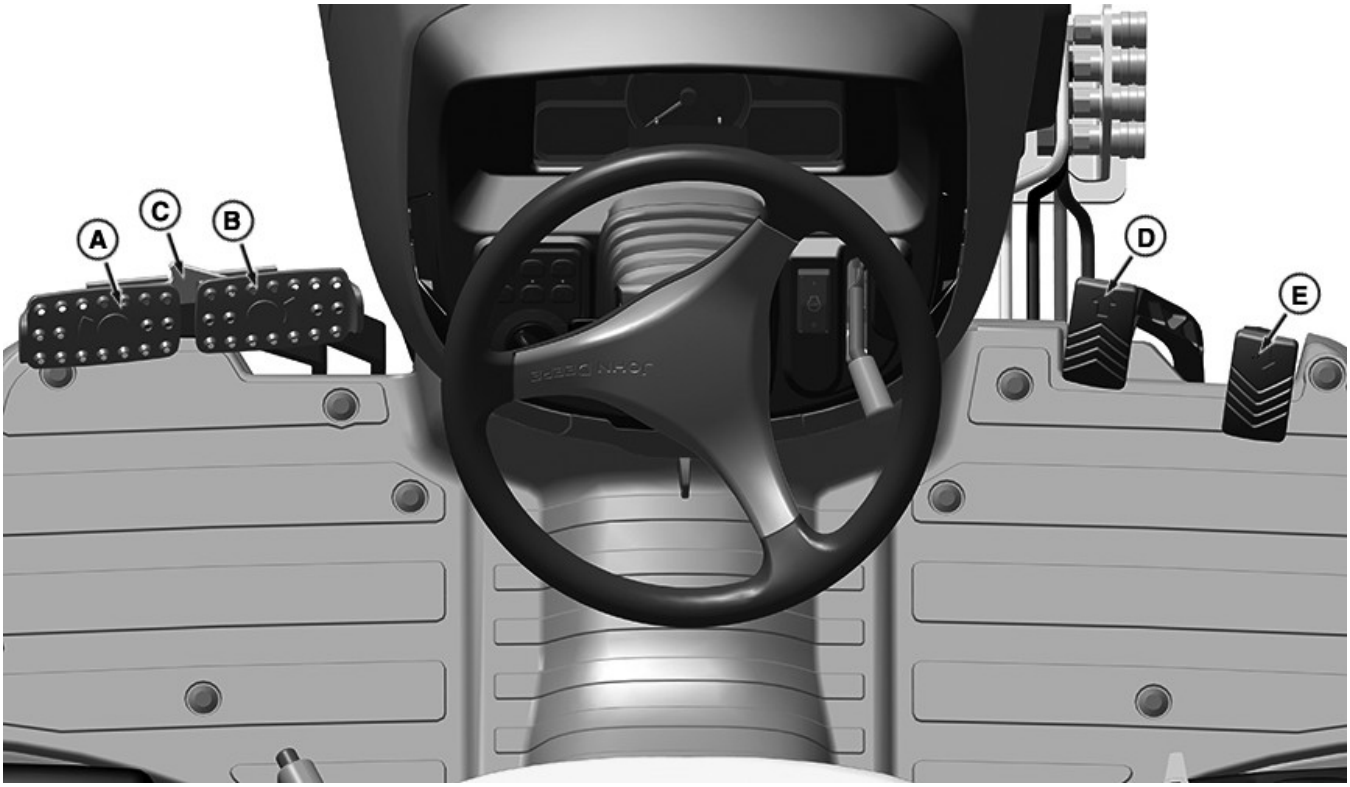
LV24873—UN—12APR16

Front Console

A—Head/Work Lights Switch
B—Dash Panel Module
C—Tilt Wheel Lever
D—Instrument Cluster
E—eThrottle Switch
F—Throttle Lever
G—Key Switch

UP00731,0000200-19-16AUG16

Foot-Operated Controls



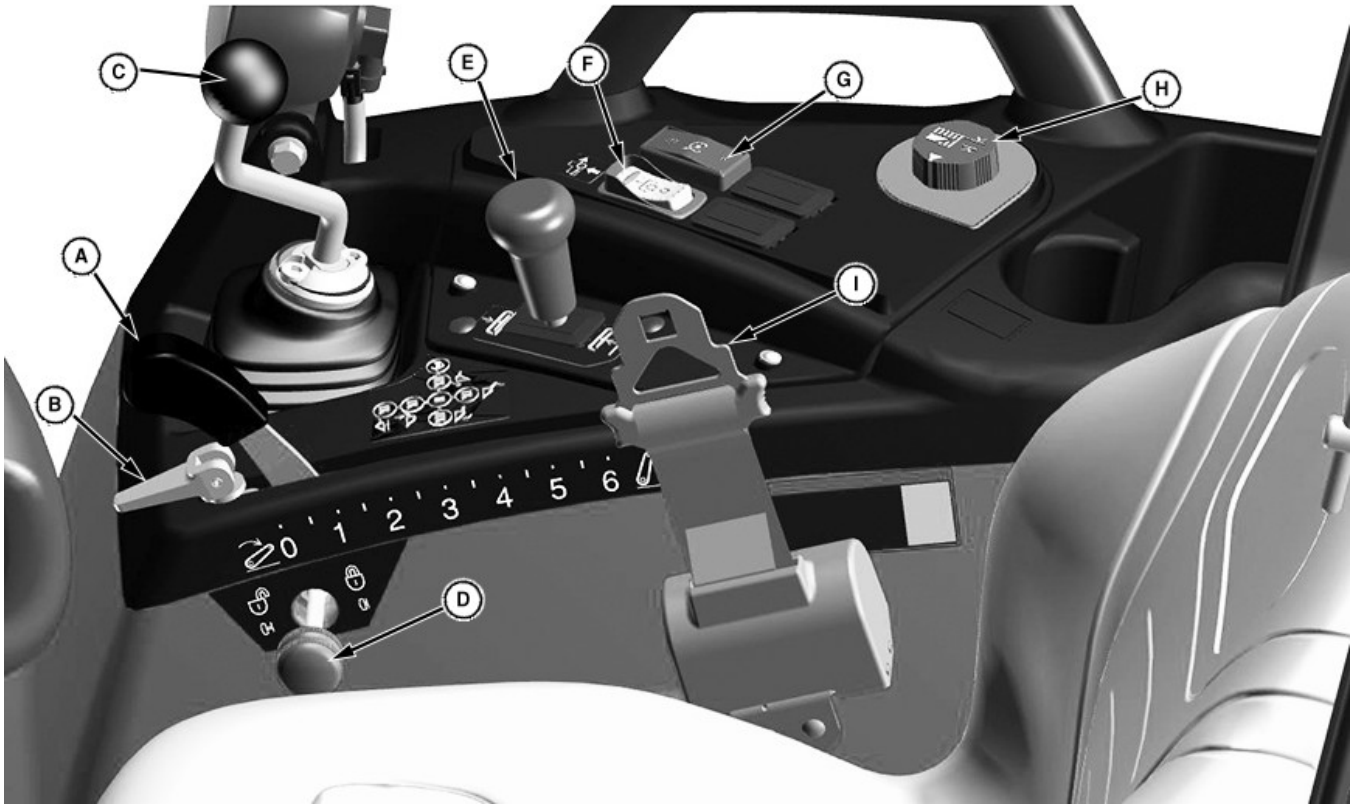
LV24874—UN—27APR16

Foot Controls

A—Left Brake Pedal
B—Right Brake Pedal
C—Brake Pedal Lock Tab
D—Forward Travel Pedal
E—Reverse Travel Pedal

UP00731,0000203-19-21JUN16

Right-Hand Console Controls



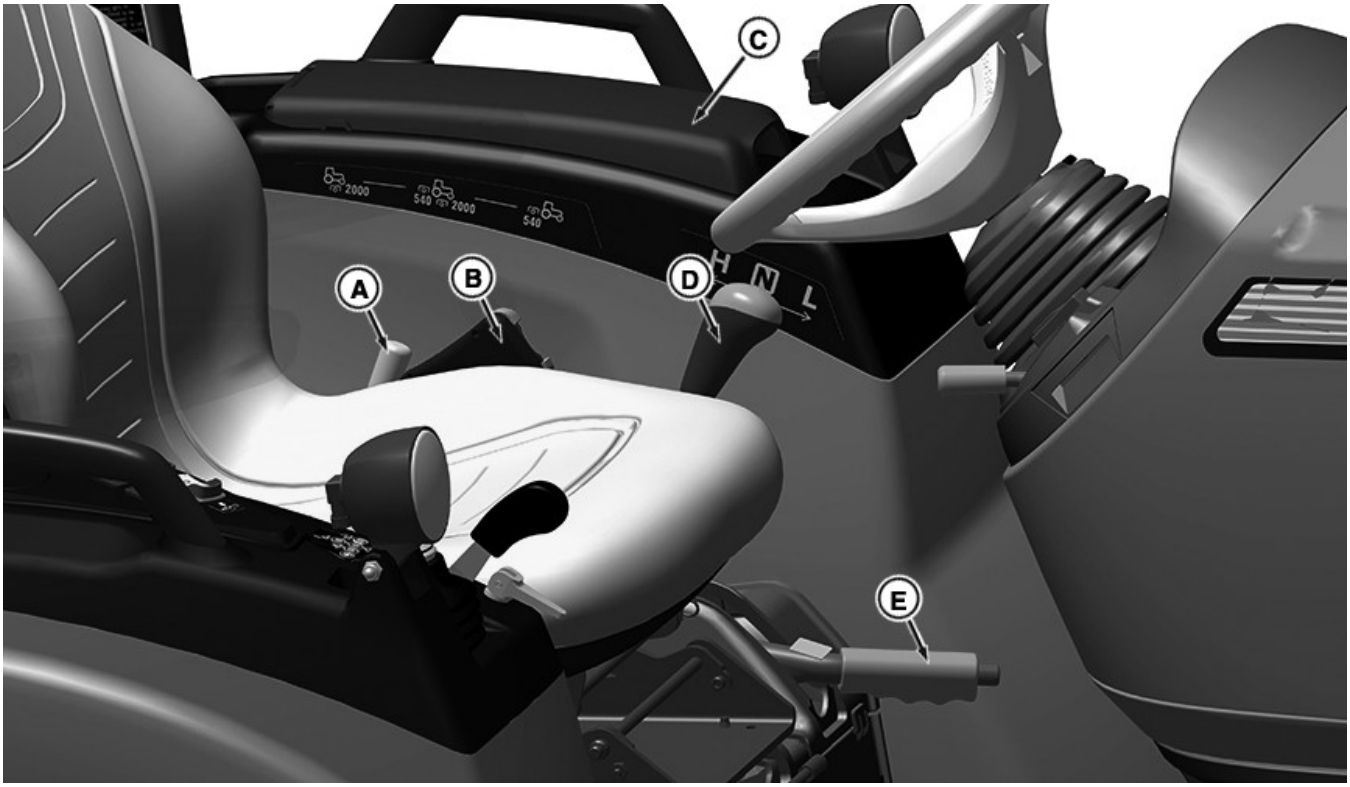
LV24986—UN—15JUN16

Right-Hand Side Console

A—Rockshaft Control Lever
B—Rockshaft Depth Stop
C—Dual Selective Control Valve (SCV) Lever
D—SCV Lever Lock
E—Mower Raise and Lower Lever (If equipped)
F—PTO Engagement Switch
G—Cruise Control Switch
H—Mower Height Control Knob (If equipped)
I—Seat Belt

UP00731,0000201-19-22AUG16

Left-Hand Console Controls



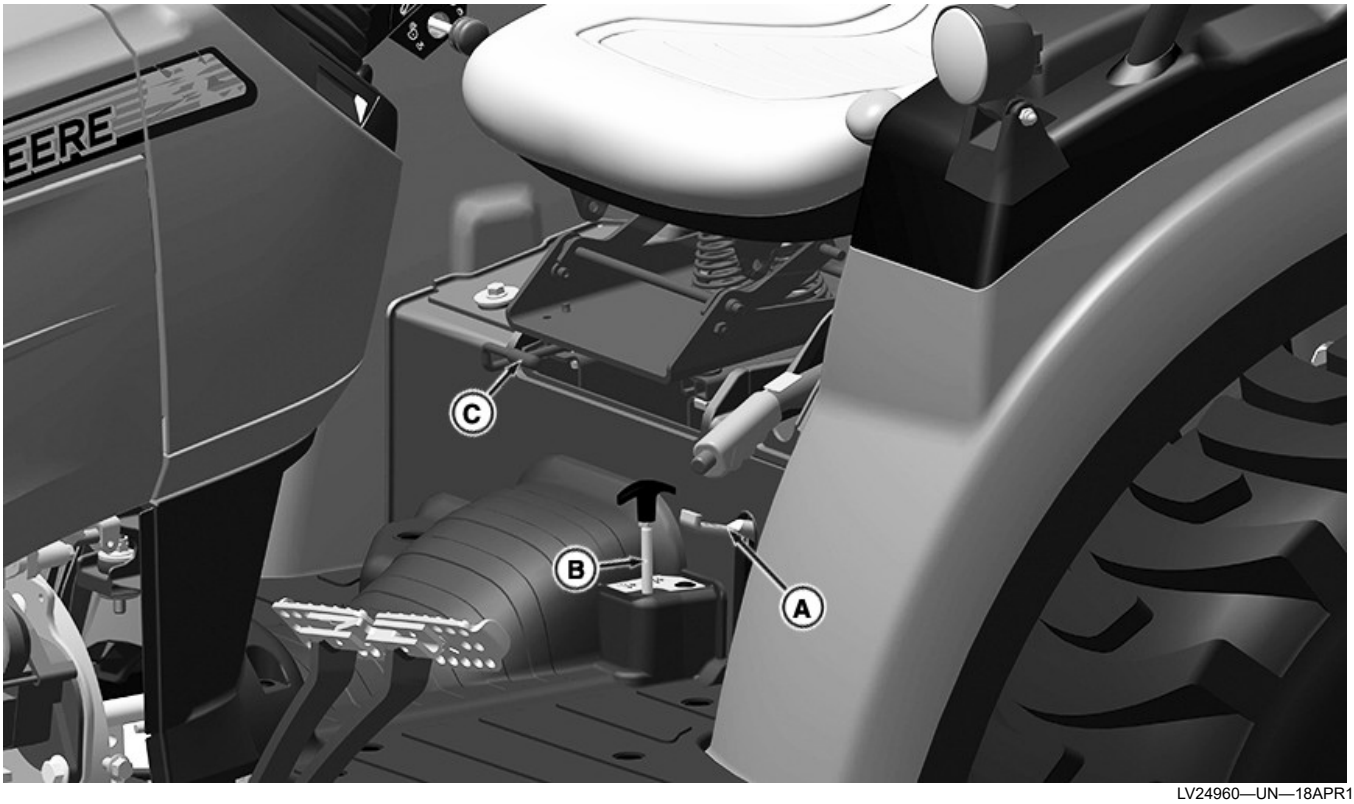
LV24962—UN—27APR16

Left-Hand Side Console

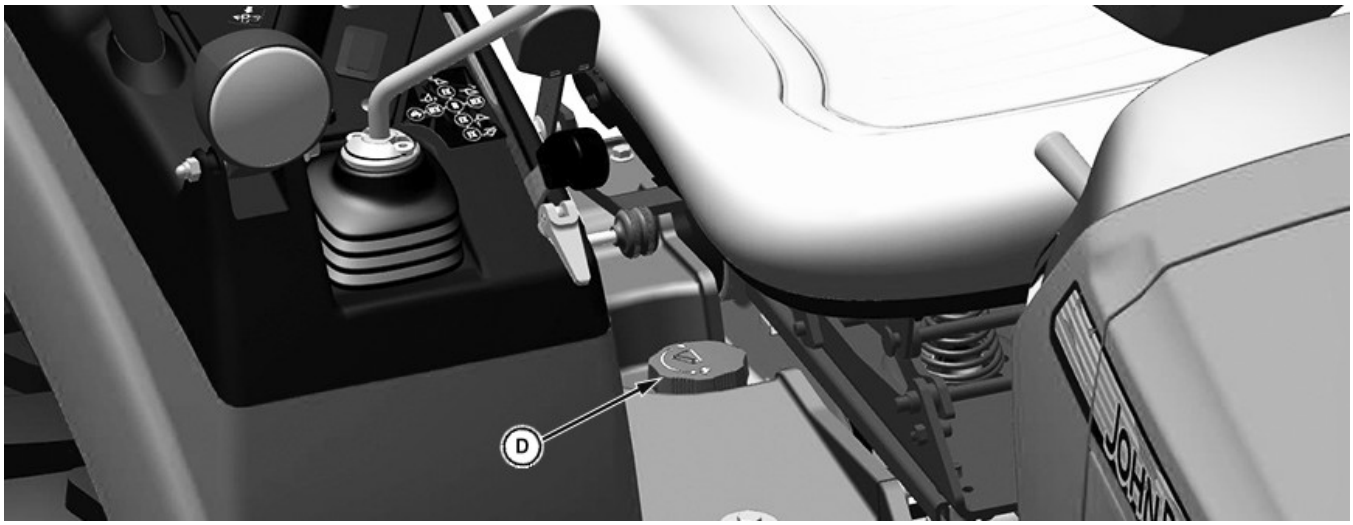
A—PTO Shift Lever
B—Seat Belt
C—Operator's Manual Holder
D—Transmission Range Shift Lever
E—Park Brake Lever

UP00731,0000202-19-19JUL22

Differential, MFWD, Rate of Drop, and Seat Controls



LV24960—UN—18APR16



LV28764—UN—18DEC17

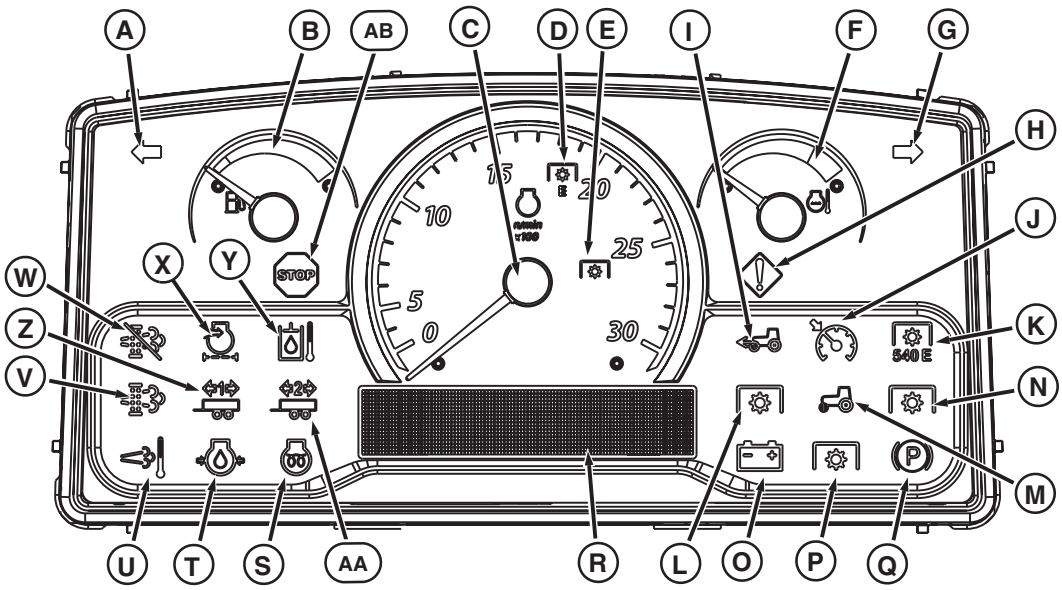
Rate of Drop/Lock Valve

A—Differential Lock Pedal
B—MFWD Control Lever
C—Fore and Aft Seat Adjustment Lever
D—Rate of Drop/Lock Valve Knob

WS68074,00022AF-19-18DEC17

Instrument Cluster

Instrument Control Panel



LV25927—UN—08AUG16

Instrument Control Panel

A - Left Turn Signal/Warning Flasher Indicator Icon - Left turn signal, hazard light, and the headlight/taillight ON indicator light.

B - Fuel Gauge - Indicates the fuel level in the tank.

C - Tachometer - Displays engine speed in increments of 100.

D - Rated Economy PTO Speed - Not used.

E - Rated PTO Speed - Indicates the rated PTO speed setting for 540 PTO.

F - Engine Coolant Temperature Gauge - Indicates the temperature of the cooling system.

G - Right Turn Signal/Warning Flasher Indicator Icon - Right turn signal, hazard light, and the headlight/taillight ON indicator light.

H - Service Alert Indicator Icon - Light flashes indicating performance or operational problem is detected that needs to be resolved as soon as possible.

I - Front-Wheel Drive Indicator Icon - Illuminates when front-wheel drive is switched on.

J - Cruise Control Switch Icon - Illuminates when cruise control is switched on.

K - 540E PTO Indicator Icon - Not used.

L - Front PTO Indicator Icon- Not used.

M - PTO Indicator Icon - Not used.

N - Rear PTO Indicator Icon - Not used.

O - Alternator/Battery Charging Icon - Illuminates when the ignition key is in the ON position and the engine is not running. It also indicates an electrical load has exceeded alternator capacity and continued operation could deplete battery reserve.

P - Mid PTO Indicator Icon - Illuminates when the Mid PTO is engaged.

Q - Parking Brake Light- Illuminates when the ignition key is in the ON position and the parking brake is engaged.

R - Information Display Screen - Displays operational information.

S - Engine Glow Plug Indicator Icon - Illuminates when the engine controller (ECU) determines the need for engine pre-heating. Time depends on ambient temperature.

T - Engine Oil Pressure Icon - Illuminates when there is insufficient engine oil pressure to continue operation.

U - High Exhaust Temperature Icon - Illuminates when

the temperature is high enough inside the exhaust filter to allow active filter cleaning.

V - Exhaust Filter Indicator Icon - Illuminates when soot levels in the filter are high and exhaust filter cleaning is needed.

W - Auto Cleaning Disabled Indicator Icon - Not used.

X - Air Filter Restriction Icon - Illuminates when air cleaner element is clogged, indicating air element needs to be cleaned or replaced.

Y - Hydraulic Oil Temperature Icon - Illuminates when the hydraulic oil temperature is overheated (If equipped).

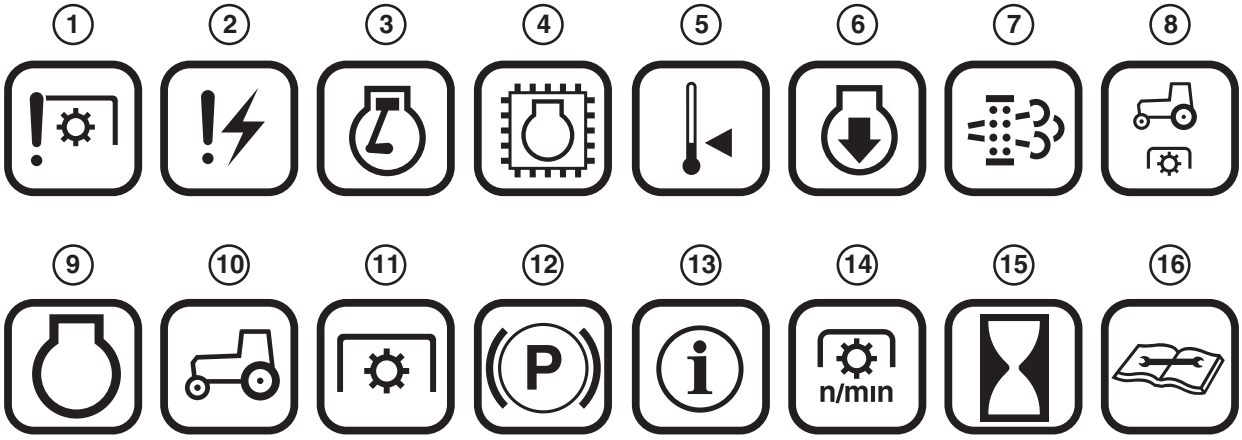
Z - Trailer 1 Indicator Icon - Not used.

AA - Trailer 2 Indicator Icon - Not used.

AB - STOP Indicator Icon - Light flashes when a serious malfunction is detected.

Information Display Icons

The following icons will show up in the information display screen.



LV26012—UN—25AUG16

Information Display Icons

1 - Shut PTO Off Icon - Illuminates when the condition requires the PTO shut off.

2 - Electrical Fault Icon - Illuminates when an electrical fault is present. May be accompanied by a display message.

3 - Engine Run Fault Icon - Illuminates when the operator attempts to engage the starter when the engine is already running. May be accompanied by a display message.

4 - ECU Regeneration Inhibited Icon - Illuminates if the ECU is preventing regeneration. See your John Deere dealer.

5 - Engine Cold Icon - Illuminates when regeneration requires engine to be above 60° C.

6 - Reduce Engine Speed Icon - Illuminates when regeneration requires initial low idle.

7 - Diesel Particulate Filter—Exhaust Filter Icon - When shown on the LCD, this symbol is associated with the display of soot level and filter hours.

8 - Mid PTO Icon - This symbol is associated with the display of Mid PTO speed.

9 - Engine Icon - This symbol is associated with the display of engine hours.

10 - Tractor Side View Icon - This symbol is associated with the display of vehicle hours.

11 - PTO Icon - This symbol is associated with the display of PTO hours.

12 - Apply Park Brake Icon - Illuminates when the condition requires park brake engaged. May be accompanied by a display message.

13 - Important Icon - This symbol is associated with feedback to operator.

14 - PTO Speed Icon - This symbol is associated with the display of PTO speed (mid or rear).

15 - Hour Meter Icon - Illuminates when the engine or PTO hour information is shown on the information display panel.

16 - Service Alert Icon - Illuminates when there is an active error shown on the information display panel. May be accompanied by a display message.

WS68074,00016C3-19-19DEC17

Information Display and Display Mode Switch

Normal Operation

LV25014—UN—22APR16

Left-Hand Switch Module

LV25660—UN—23JUN16

Engine Hours

A—Display Mode Switch
B—Information Display Screen

Press Display Mode Switch (A) to navigate through or select information in the Information Display (B).

Information display screen (B) shows normal operational information in the following order:

Engine Hours ⇒ Vehicle Hours ⇒ PTO Hours ⇒ Soot Level ⇒ Hours since last Regeneration

IMPORTANT: Machine damage will occur if a machine operation continues after STOP indicator is displayed. Shut off engine immediately and call your John Deere dealer for assistance before machine operation continues.

Stop, service alert, information messages, and diagnostics are also provided on the information display screen. This information overrides normal operation. Press display mode switch (A) to acknowledge this information and return to the normal operational information.

For additional information on codes, icon descriptions, messaging, and diagnostics, see the On Board Diagnostic Display section.

Programming Mode (If Equipped)

Programming of the machine can be performed with the display mode switch.

LV28765—UN—19DEC17

Release Message

C—Release Message

To enter programming mode, press and hold the Display Mode Switch until Release (C) appears on the display screen.

Programming mode shows programmable feature screens in the following order:

Brightness Mode ⇒ Dimmer Mode ⇒ Language

For more information on Instrument Cluster Display settings, see Electrical and Lighting Operation section.

WS68074,00016C0-19-01MAY23

Operate Key Switch

LV24878—UN—02MAY16

Key Switch

A—Accessories Position
B—Off Position
C—Run Position
D—Start Position

Position (A)—Provides power to the electrical accessories only, not the engine.

Position (B)—Switched power is off and engine is off.

Position (C)—The engine oil pressure light and battery charge light illuminates on initial activation. Glow plugs will be activated if there is a need for engine pre-heating.

Position (D)—Start position. Release the key after the engine has started to return to the run position (C). Engine oil pressure and battery charge lights turn off.

RD47322,0000AF2-19-19DEC17

Operate Throttle Lever

LV28766—UN—19DEC17

Throttle Lever

A—Throttle Lever

Use the throttle to change engine speeds. Use the throttle in conjunction with the tachometer to set engine speeds.

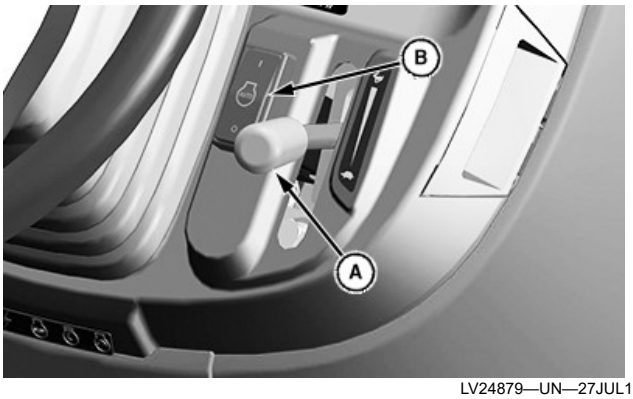
Increase Engine Speed - Push throttle lever (A) towards the front of machine.

Decrease Engine Speed - Pull throttle lever (A) towards the rear of machine.

GS25068,0003DE5-19-01FEB18

Operate eThrottle

NOTE: The use of eThrottle is not recommended during PTO applications. With eThrottle engaged, constant PTO rpm cannot be maintained, which results in reduced performance of implement.



LV24879—UN—27JUL16

Throttle Lever

A—Throttle Lever
B—eThrottle Switch

eThrottle enables the operator to increase or decrease the speed of the engine and tractor by using the forward and reverse travel pedals.

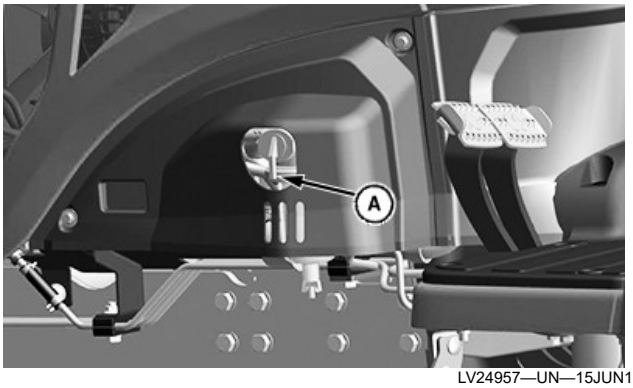
1. To set engine speed to low idle, pull throttle lever (A) towards rear of the machine.
2. Push eThrottle switch (B) to the “I” position to engage.
3. Push eThrottle switch to the “O” position to disengage.

GS25068,0003DE6-19-01FEB18

Operate Fuel Shut-Off Valve

CAUTION: Avoid Injury! Close fuel shut-off valve when performing any type of engine service, during transport of the machine, and during storage.

Locate fuel shut-off valve on the left-hand side of the machine on the fuel sediment filter.



LV24957—UN—15JUN16

Fuel Shut-Off Valve

A—Fuel Shut-Off Valve Lever

Open or close fuel shut-off valve lever (A) as required:

- **Open Valve:** Rotate valve lever pointer to the vertical position marked “ON”.
- **Close Valve:** Rotate valve lever pointer to the horizontal position marked “OFF”.

GS25068,0003DE7-19-01FEB18

Start the Engine

CAUTION: Prevent asphyxiation by providing adequate ventilation. If operating indoors, use an exhaust pipe extension to remove the exhaust fumes or open doors and windows to ventilate the area.

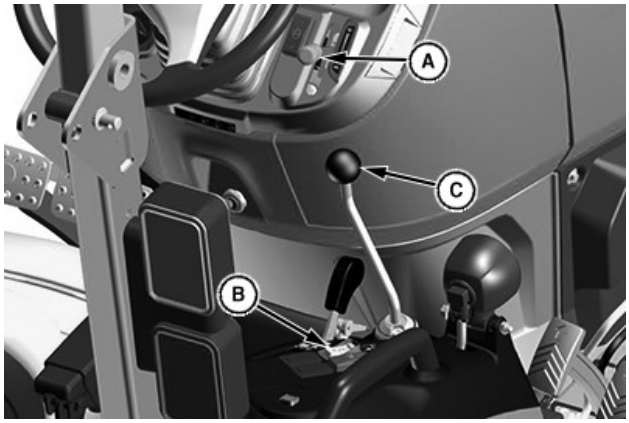
NOTE: If operating machine in temperatures below -18° C (0°F), installation of an optional engine block heater and hydraulic oil heater is recommended.

If temperature is below 0°C (32°F), see Cold Weather Starting procedure in this section.

LV26004—UN—16AUG16

A—Range Shift Lever

1. Apply park brake.
2. Move the transmission range-shift lever (A) to the neutral (N) position.



LV24951—UN—15JUN16

PTO Engagement Switch and Throttle Lever

A—Throttle Lever
B—PTO Engagement Switch
C—SCV Lever

3. Make sure PTO engagement switch (B) is in disengaged/off position.

CAUTION: Avoid Injury! Check to be sure that area is clear of any bystanders before lowering implements to the ground.

4. Lower any rear mount implement to the ground by pushing the rockshaft control lever forward.
5. Lower any front-mounted implement to the ground using the SCV lever (C).
6. Set throttle lever (A) to the 1/2-3/4 throttle position.
7. Turn ignition key switch to the run position.
8. Check indicator lights and gauges:
   - All indicator lights illuminates.
   - All gauges do a full sweep and return to normal.

IMPORTANT: Starter may be damaged if operated for more than 20 seconds at a time:

- **Wait two minutes before trying again if engine does not start.**

NOTE: It is normal for the engine to be louder and for blue-white exhaust smoke to be present during the engine warm-up. The amount of exhaust smoke depends on air temperature. Higher elevation affects the amount of exhaust smoke.

9. Turn key to start position to start engine. Release key after engine has started. If attempting to start engine when it is already running, “Engine Run” is displayed.
10. Check indicator lights:

IMPORTANT: If oil pressure light does not go out within 5 seconds, shut off the engine and check for cause.

- Oil pressure light goes out within 5 seconds.

NOTE: If battery charging light does not go out after 10 seconds, set engine speed at full throttle and then back to normal.

- Battery charging light goes out within 10 seconds.
- If indicator lights stay on longer than the given time interval, stop engine and check for cause.

11. Set engine speed control lever to the 1/2 throttle position for 1 minute without load to warm the engine.

GS25068,0003DF2-19-18MAR20

Cold-Weather Start

IMPORTANT: Avoid engine damage! The glow plugs and air heater are operational during starting. Damage to the engine results from using ether or starter fluid.

IMPORTANT: Starter damaged results if operated for more than 20 seconds at a time:

- **If the engine does not start, wait two minutes before trying again.**

IMPORTANT: Run the engine for several minutes to allow the engine and transmission oil to reach operating temperature to avoid damage in cold weather.

NOTE: It is normal for the engine to be louder and for blue-white exhaust smoke to be present during the engine warm-up procedure. The amount of exhaust smoke depends on air temperature.

1. Turn the ignition key switch to the run position.
2. When the glow plug light turns off, turn the key to the start position. Release the key after the engine has started. If the engine does not start, wait two minutes before trying again.
3. Check the indicator lights:

IMPORTANT: If oil pressure light does not go out within 5 seconds, shut off the engine and check for cause.

- Oil pressure light turns off within 5 seconds.

NOTE: If battery charging light does not turn off after 10 seconds, set engine speed at full throttle and then back to normal.

- Charging light turns off within 10 seconds.
- If indicator lights stay on longer than the given time interval, stop engine and check for cause.

4. To warm the engine, set the hand throttle to 1/2 throttle position for 5 minutes without load.

UP00731,0000215-19-11NOV19

Warm and Idle the Engine

Warm the Engine

1. Lock the park brake.
2. Set the hand throttle to the 1/2 throttle position for 5 minutes without load.

Idle the Engine

NOTE: Allowing the engine to idle for long periods of time wastes fuel and causes carbon buildup.

1. Set the hand throttle to the low idle position.
2. Apply the park brake.

GS25068,0003DF0-19-14FEB18

Start a Stalled Engine

IMPORTANT: Avoid engine damage! Start the engine immediately after stalling to prevent abnormal heat buildup.

1. If engaged, disengage the PTO.
2. Disengage the forward and reverse travel pedals.
3. Move the transmission range lever to the neutral (N) position.
4. Start the engine. Set the engine at low idle for 2 minutes before stopping the engine, or continue with normal operation.

GS25068,0003DF1-19-14FEB18

Stop Machine

Normal Stop

CAUTION: Avoid crushing injury. Couple the brake pedals together when driving at higher speeds.

1. Position the machine on a firm, level surface.

2. Stop motion by smoothly removing pressure from forward or reverse travel pedals.
3. Disengage the PTO switch.

CAUTION: Avoid crushing injury! Check that the area is clear of bystanders before lowering implements to the ground.

4. Lower implements to the ground.

IMPORTANT: Avoid Damage! Do not stop the engine immediately after a hard or extended operation. Prevent heat buildup by running the engine at low idle for 2 minutes.

5. Set hand throttle to the low idle position. Allow the engine to idle for 2 minutes.

CAUTION: Avoid crushing injury! Engage the park brake and move the transmission range lever to a position other than N (neutral) before leaving the machine unattended.

6. Apply the park brake.
7. Turn the key switch to the stop position.
8. Remove the key.
9. Wait for the engine and all moving parts to stop before leaving the operator station.

Emergency Stop

1. Remove pressure from the forward or reverse pedal.
2. Depress the brake pedal.
3. Turn the key switch to the stop position. Do not release the brake pedal until all moving parts have stopped.
4. Apply the park brake.

GS25068,0003DE9-19-14FEB18

Air Intake, Fuel, Coolant, and Exhaust Operation

Fill Fuel Tank

CAUTION: Avoid injury! Fuel vapors are explosive and flammable:

- **Shut engine off before filling fuel tank.**
- **Allow engine to cool before refueling.**
- **Do not smoke while handling fuel.**
- **Keep fuel away from flames or sparks.**
- **Fill fuel tank outdoors or in well ventilated area.**
- **Clean up spilled fuel immediately.**
- **Use clean approved non-metal container to prevent static electric discharge.**

IMPORTANT: Avoid damage! Dirt and water in fuel can cause engine damage:

- **Clean dirt and debris from the fuel tank opening.**
- **Use clean, fresh, stabilized fuel.**
- **Fill the fuel tank at the end of each day's operation to keep condensation out of the fuel tank.**
- **Use a non-metallic funnel with a plastic mesh strainer when filling the fuel tank or container.**

Fill fuel tank at the end of each day's operation to prevent condensation and freezing during cold weather.

1. Park machine safely.
2. Allow engine to cool.
3. Remove any trash from area around fuel tank cap.

LV25665—UN—29JUN16

A—Fuel Tank Cap

4. Remove fuel tank cap (A) slowly to allow any pressure built up in tank to escape.
5. Fill fuel tank only to bottom of filler neck. Do not overfill.
6. Install fuel tank cap.

GS25068,0003DEA-19-01FEB18

Exhaust Filter System Overview

LV23936—UN—24AUG16

Exhaust Filter Cleaning Mode Switch

A—Parked Exhaust Filter Cleaning Switch
B—Exhaust Filter Cleaning Disable Switch

Your machine is equipped with an emission compliant engine, which cleans and filters the engine exhaust. Please read the Air, Fuel, Coolant and Exhaust Maintenance sections to understand when and where operator interaction is required.

IMPORTANT: Soot builds up during times when engine exhaust gas temperature is lower (lower engine speed, lower engine load). Performing extended operations at either low engine speed (below 1500 rpm) or low engine load (such as backhoe work) could result in needing a parked exhaust cleaning. Periodically monitor the machine display during these operations to determine if parked exhaust cleaning is required.

NOTE: Under normal machine operation the system is in Automatic mode, and requires minimal operator interaction.

To avoid unnecessary buildup of diesel particulates or soot in the exhaust filter system:

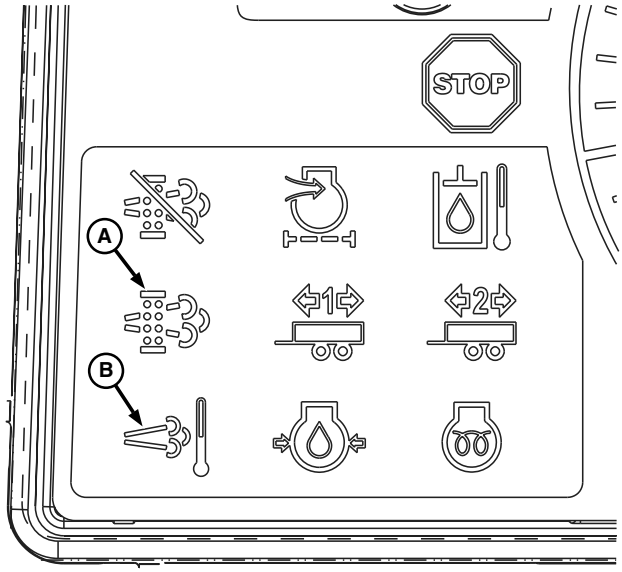
- Avoid unnecessary idling.
- Use proper engine oil. (See Fuel, Lubricants, and Coolant section for recommendations.)

- Use only ultra low sulfur fuel. (See Fuel, Lubricants, and Coolant section for recommendations.)

IMPORTANT: When vehicle use is not suited for higher temperatures created by exhaust filter cleaning, use the Disable mode (B). Be sure to deactivate disable mode as soon as possible to avoid unnecessary soot built up in exhaust filter.

Remember to select Disable mode (B) when temporarily connected to an indoor ducted exhaust system during vehicle diagnostic and repair activities.

Exhaust Filter Indicators



LV17596—UN—01MAY13

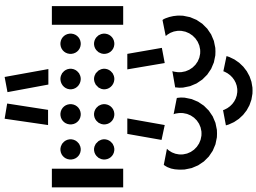
Exhaust Filter Indicators

A—Exhaust Filter Indicator
B—High Exhaust Temperature Indicator

Exhaust Filter Indicator (restriction) (A) — Indicates that buildup in the exhaust filter requires cleaning.

High Exhaust Temperature Indicator (B) — Illuminates when the exhaust filter system is actively performing exhaust filter cleaning.

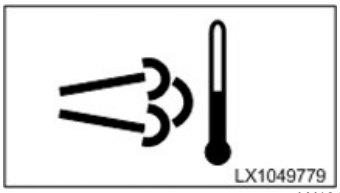
Operator Information



H94828—UN—13OCT09

1. **Exhaust Filter cleaning Indicator**

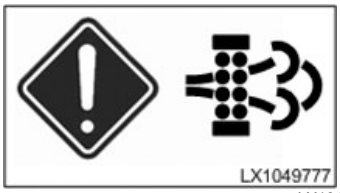
Description	Recommended Procedure
High level of soot at exhaust filter; the exhaust filter requires cleaning. *NOTE: If no cleaning is carried out, engine power is reduced .*	Exhaust filter cleaning with tractor parked may be carried out; see **Parked Exhaust Filter Cleaning**.



LX1049779—UN—22JUL10

2. **High Exhaust Temperature Indicator**

Description	Recommended Procedure
Exhaust filter cleaning is taking place. Exhaust temperatures are high.	Do not interrupt automatic exhaust filter cleaning unless absolutely necessary.



LX1049777—UN—22JUL10

3. **Parked Exhaust Filter Cleaning Required**

Description	Recommended Procedure
Very high level of soot at exhaust filter; the exhaust filter requires cleaning. "Parked Regen Required" will display on information display. *NOTE: Engine power is reduced.*	Perform **Parked Exhaust Filter Cleaning**.

LX1049776—UN—22JUL10

4. **Service Exhaust Filter Cleaning Required**

Description	Recommended Procedure
Extreme level of soot in exhaust filter. When this level of contamination is reached, service cleaning must be performed. *NOTE: Note: Engine power is reduced.*	Contact your John Deere dealer and get the dealer to service-clean the exhaust filter. See **Service Exhaust Filter Cleaning**.

UP00731,00001FB-19-19DEC17

Turn Signal and Hazard Lights

LV24993—UN—27APR16

Turn Signal Lights and Hazard Lights			
Activated Switch on Module	**Use**	**Right Amber Light**	**Left Amber Light**
A - Left Turn Signal	On Road, Day Time, Night Time	On	Flashing
B - Right Turn Signal	On Road, Day Time, Night Time	Flashing	On
C - Hazard Lights	On Road, Day Time, Night Time	Flashing	Flashing

To activate or deactivate left turn signal press (A).

To activate or deactivate right turn signal press (B).

To activate or deactivate hazard lights press (C).

GS25068,0003DC1-19-31JAN18

LV25017—UN—26APR16

Tractor Lights				
Activated Switch on Module	**Use**	**Tail Lights Red**	**Work Lights**	**Head Lights**
A - Off	Field, Day Time	Off	Off	Off
B - Road Lights	On Road, No Traffic, Night Time	On	Off	On
C - Work Lights	Off Road, Night Time	On	On	On

To view the hour meter in the instrument panel with the key switch in the off position, push the light switch to the (B) or (C) position.

GS25068,0003DC2-19-31JAN18

Road, Work, and Warning Lights

CAUTION: Avoid injury! Do not operate on roads with light switch in the field position. Front or Rear work lights may blind or confuse operators of oncoming or following vehicles.

Adjust Instrument Panel Brightness and LCD Display (If equipped)

LV25740—UN—16AUG16

Left-Hand Switch Module

LV26081—UN—16AUG16

Release Message

A—Display Mode Switch
B—Left Arrow
C—Right Arrow
D—Release Message

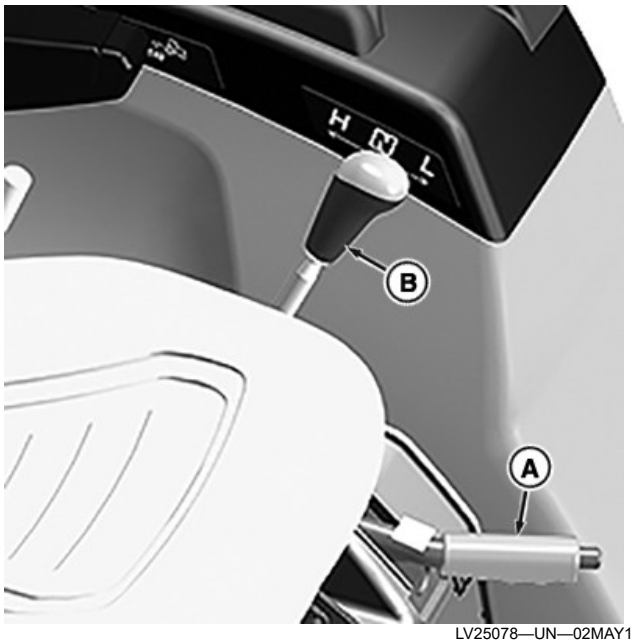
1. Press and hold the Display Mode Switch (A) until Release (D) appears on the display screen.
2. Use the right arrow (B) to navigate to the desired setting (dimmer, backlight, or contrast) or the left arrow (C) to abort programming and return to the main menu.
3. Press the display mode switch to edit the desired display setting (dimmer, backlight, or contrast).
4. Press the left or right arrow to select the desired setting (1 - 9) on the instrument panel.
5. Press the display mode switch to save the value and return to the main menu.

GS25068,0003DEB-19-01FEB18

Drive Machine

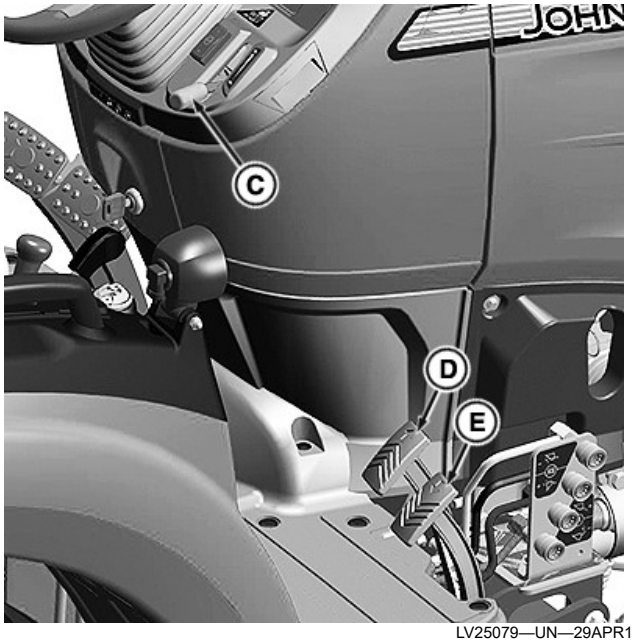
CAUTION: Avoid injury! Always check area around machine for bystanders and obstacles before operating the machine.

IMPORTANT: Avoid damage! To prevent transmission damage, stop machine motion completely before shifting the transmission range shift lever.



LV25078—UN—02MAY16

Park Brake, Range Lever



LV25079—UN—29APR16

Throttle Lever, Forward, Reverse Pedals

A—Park Brake Lever
B—Transmission Range Shift Lever
C—Throttle Lever
D—Forward Pedal
E—Reverse Pedal

1. Start machine engine.
2. Unlock park brake (A).
3. Choose L or H speed range on transmission range shift lever (B) to match work application.
4. Move throttle lever (C) to desired operating speed.
5. Slowly depress forward travel pedal (D) downward to move forward. Slowly depress reverse travel pedal (E) downward to move in reverse.
6. Release travel pedal to stop machine and change speed range.
7. Fully stop machine motion before turning ignition key switch to off position.

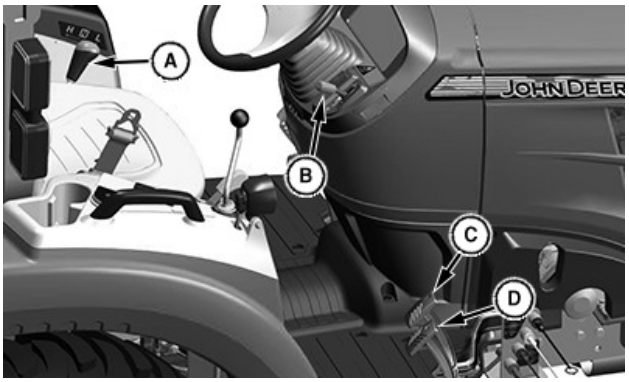
GS25068,0003DE4-19-31JAN18

Transmission Operation

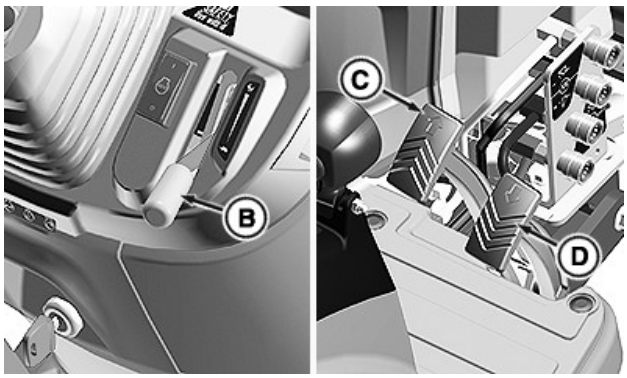
Operate Transmission

IMPORTANT: Avoid damage! Select the proper speed range for the job:

- **Never overload engine by lugging machine at low idle speeds.**
- **Raise engine speed to match expected loads. If a slight increase in engine rpm occurs simultaneously with moving throttle lever (B) forward, engine is not overloaded.**



LV25669—UN—30JUN16



LV25081—UN—26JUL16

A—Transmission Range Shift Lever
B—Throttle Lever
C—Forward Travel Pedal
D—Reverse Travel Pedal

1. The transmission range shift lever (A) provides two-speed ranges and is used in conjunction with the forward travel pedal (C), and reverse travel pedal (D).
2. Choose a speed range to match work application.
   - L – Low speed operations such as tilling hard soil, mowing long grass, or heavy hauling. Machine speed is decreased, but machine power is increased.
   - N – Neutral position. Lever must be in the N (neutral) position when starting the engine.
   - H – High speed operations such as light tilling and hauling, mowing short grass and transport. Machine speed is increased, but machine power is decreased.

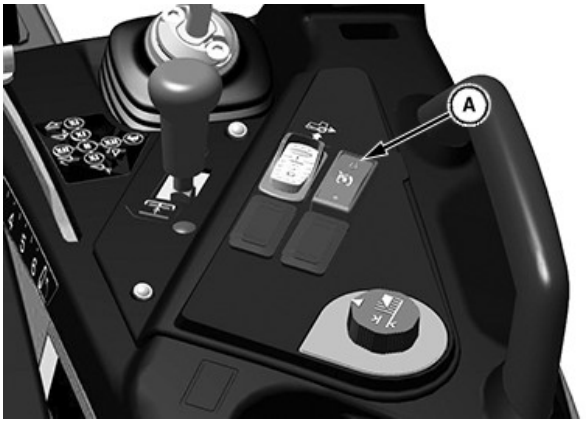
   Stop machine to change speed range.

GS25068,0003DEC-19-01FEB18

Operate Cruise Control

CAUTION: Avoid injury! Use cruise control only in large, open areas. Shut off before turning or when in areas with many obstacles.

NOTE: The cruise control is only operational when the machine is traveling forward.



LV24953—UN—07SEP16

A—Cruise Control Switch

1. Depress forward travel pedal until desired travel speed is reached.
2. Fully depress top of the cruise switch (A) to engage cruise control.
3. Release forward travel pedal.
4. To adjust travel speed, disengage cruise control and engage cruise control again at a different speed.

NOTE: The machine stops if cruise control is disengaged while the machine is in motion. To maintain forward motion, maintain the forward travel pedal while disengaging cruise control.

5. Fully depress the bottom of cruise switch (A), or depress the brake pedal to disengage.

GS25068,0003DED-19-18MAR20

Operate Mechanical Front Wheel Drive (MFWD)

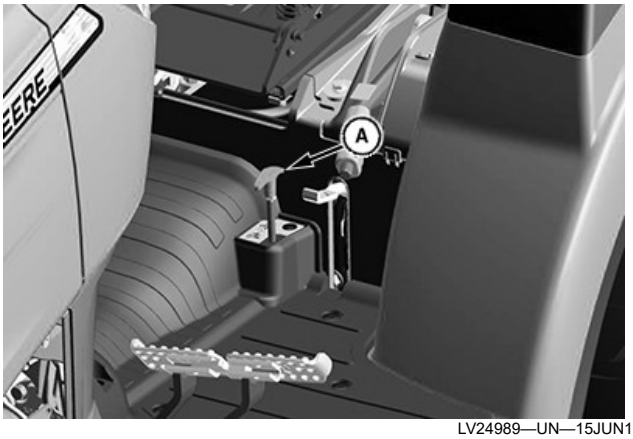
CAUTION: Avoid Injury! Use extra caution when driving on slopes. To increase traction and provide four-wheel braking, engage mechanical front wheel drive (MFWD) when driving on slopes. Be aware that MFWD can improve access to dangerously sloped terrain, thereby increasing the possibility of tipover.

To improve braking on sloped, icy, wet, or graveled surfaces, engage the MFWD. Add ballast to the tractor and travel at a reduced speed to avoid skidding and loss of steering control.

IMPORTANT: Avoid Damage! Always disengage MFWD when driving on a paved surface.

Put the transmission levers in neutral to move the machine when the engine is not running.

Mechanical front wheel drive (MFWD) enables the powertrain to drive both front and rear axles for improved traction on difficult ground conditions and provides 4-wheel braking. MFWD can be engaged and disengaged on-the-go with light loads and on low traction surfaces.



LV24989—UN—15JUN16

A—MFWD Lever Shown

NOTE: It may be necessary to reduce engine load to disengage front wheel drive.

Pull up on MFWD lever (A) to engage. Push down MFWD lever to disengage.

Tips for Operating MFWD:

- Maintain front tire pressure at maximum allowable level to ensure proper tire performance in all field conditions.
- Engage MFWD to provide four-wheel braking.
- Disengage MFWD when driving machine to or from work site to increase front tire life.

GS25068,0003DEE-19-01FEB18

Operate Differential Lock (Traction Assist)

CAUTION: Avoid Injury! Driving at high speeds with the traction assist engaged may result in loss of steering control. Do not engage traction assist or turn with the traction assist engaged while operating machine at high speeds or on slopes.

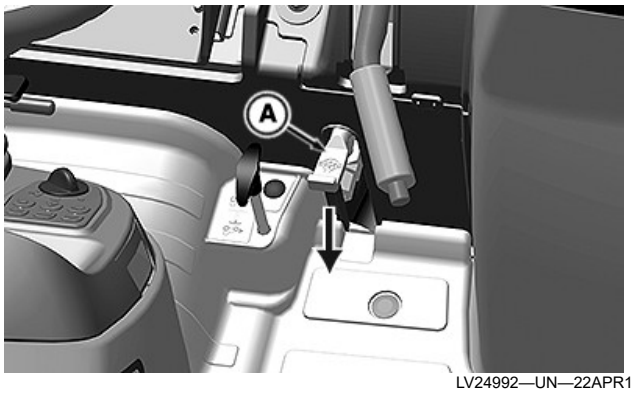
IMPORTANT: Avoid Damage! Using the traction assist function improperly can damage the transaxle:

- **Reduce speed and allow drive wheels to rotate at same speed before engaging or disengaging traction assist.**
- **Disengage traction assist when driving on dry asphalt or concrete.**
- **Use traction assist only when necessary for improved ground engagement.**

NOTE: Turning radius is increased when the differential lock is engaged.

The differential lock is used to provide better traction when rear wheels start to slip. Engaging differential lock will lock right and left side rear axles together and cause both rear wheels to turn at equal speeds for maximum traction.

Engage Differential Lock



LV24992—UN—22APR16

A—Differential Lock Pedal

1. Stop or slow machine movement.

NOTE: Differential lock will remain engaged as long as rear wheel slippage occurs. If tires slip and regain traction repeatedly, hold down pedal with foot so differential lock remains engaged. Remove foot from differential lock pedal once traction is regained.

2. Depress differential lock pedal (A) 20 - 25mm (3/4-1 in.) to operate differential lock.

Disengage Differential Lock

1. Remove foot from differential lock pedal.
2. The rear wheel slippage will keep the differential lock engaged. The lock will automatically disengage when the traction equalizes.

GS25068,0003DEF-19-05FEB18

Power Take Off (PTO) Operation

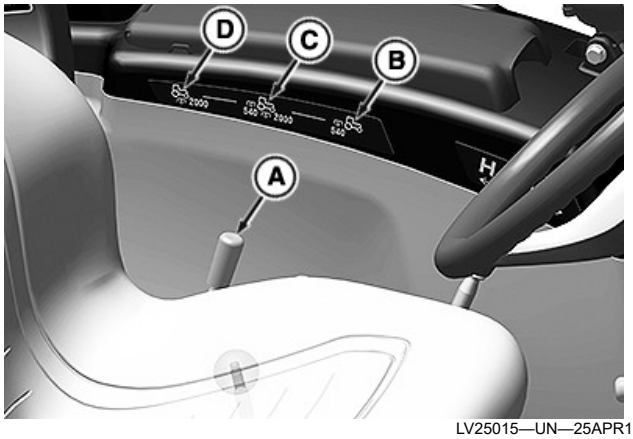
Operate Rear and Mid Power-Take-Off (PTO)

Engage the PTO—Operator on Seat

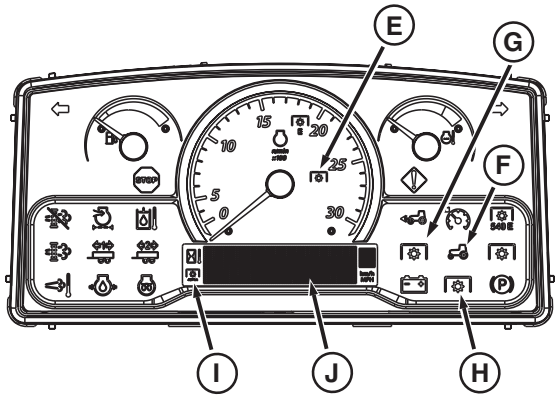
IMPORTANT: Avoid Damage! Use rear mounted equipment rated for 540 rpm. Do not operate mid or rear PTO over 540 rpm mark on tachometer.

NOTE: Mid PTO operation for this machine is not intended to be used when the operator is off the seat. Rear PTO operation is possible out of seat provided proper sequence is followed.

1. Sit on the operator seat.
2. Lock the park brake.
3. Move the speed range lever to the neutral (N) position.
4. Start the engine.
5. Set engine speed to 1500 rpm or less.



LV25015—UN—25APR16



LV25016—UN—13SEP19

A—PTO Control Lever
B—Rear PTO Only
C—Mid and Rear PTO
D—Mid PTO Only
E—Rated PTO Speed
F—PTO Indicator Light
G—Front PTO Indicator Light
H—Mid and Mid/Rear PTO Indicator Light
I—PTO Icon
J—Digital Display

6. Move the PTO control lever (A) to desired operating position.
   - Position (B) - Rear PTO only.
   - Position (C) - Mid and Rear PTO
   - Position (D) - Mid PTO only.
7. Push PTO/RIO switch forward to the engaged/on position.
8. Adjust the hand throttle lever forward to the desired speed for the implement used.
   - At, 2500 engine rpm the mid PTO speed will be 2000 rpm and rear PTO speed will be 540 rpm, as indicated on the LCD.
   - If the engine overheats during the PTO operation “Engine Overheat” will display on the information display and the PTO will automatically shutoff. Disengage the PTO/RIO switch, engage the park brake and the shut the engine off. Allow sufficient time for the engine to cool. Check coolant level and add coolant if necessary. Clean debris away from radiator cooling fins and front grill. If PTO does not engage after the engine has cooled, see your local John Deere Dealer for service.

Operate Rear Power-Take-Off (PTO)—Operator off Seat

1. Sit on the operator seat,
2. Lock the park brake.
3. Move the 2-speed range lever to the N position.
4. Start the engine.
5. Set engine speed to 1500 rpm or less.
6. Move the PTO control lever (A) to Position (B) - Rear PTO only.

NOTE: If the seat switch is engaged (operator sits in the seat) and then disengaged (operator leaves the seat) during PTO out of seat operation, the PTO will automatically disengage and “Operator Out of Seat” will display on the information display.

7. Exit seat for rear PTO operation without the operator on seat.
8. Push PTO/RIO switch forward to the engaged/on position.
9. Adjust the hand throttle lever forward to the desired speed for the implement used.

Another option to operate the PTO with the operator out of seat is:

1. While rear PTO only running, set park brake.
2. Press and hold PTO/RIO switch while exiting seat.

3. PTO will remain running without the need to restart the engine.

Disengage the PTO

1. Adjust engine rpm to low idle.
2. Push PTO/RIO switch rearward to the disengaged/off position.

GS25068,0003DF4-19-01FEB18

Operate Reverse Implement Option (RIO)

CAUTION: Avoid Injury! Rotating blades are dangerous. Children or bystanders may be injured by runover and rotating blades.

Before backing up, carefully check the area around the machine.

NOTE: Backing up while mower is engaged is strongly discouraged. The Reverse Implement Option should be used only when operating another attachment or when operator deems it necessary to reposition machine with mower engaged.

1. Stop machine forward travel with attachment engaged.
2. Look behind machine to be sure there are no bystanders.

NOTE: If attachment stops while repositioning machine, return PTO/RIO switch to off position. Begin again with Step 2 in procedure.

If reverse pedal is depressed without engaging the PTO/RIO switch, "RIO Shutdown" will be displayed in the information display.

LV25653—UN—16JUN16

A—PTO/RIO Switch

3. Press PTO/RIO switch (A) down past PTO engagement position to activate the reverse implement option. Then depress reverse travel pedal. "RIO Active" is shown in the display.
4. As machine begins to move backward, release PTO/RIO switch and reposition machine.
5. Resume forward travel. The attachment should continue operating.
6. Repeat Steps 1 through 5 to reposition machine again.

GS25068,0003DF5-19-31MAR20

Adjust Height of Cut—If Equipped

IMPORTANT: Avoid Damage! To avoid machine damage when operating without a mower, fully raise the mower lift kit rear draft arms, and turn mower height control knob clockwise to the transport position to lock the arms in raised position.

NOTE: When the height of cut (HOC) knob is set to the install position ("0" position on the knob) the mid PTO will not engage. It considers normal as it is a safety feature to protect the operator performing the deck installation.

LV24958—UN—15JUN16

Mower Height of Cut Dial Shown

A—Mower Height of Cut Dial

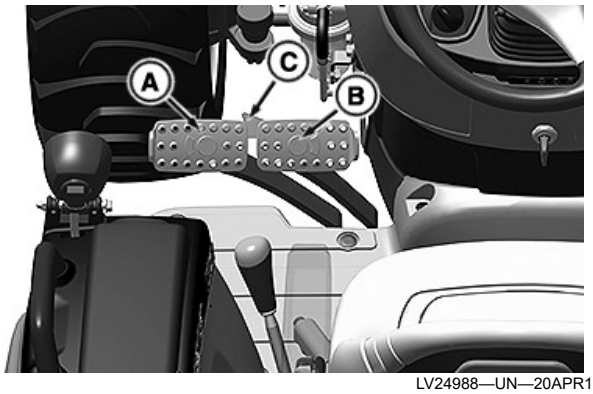
Use mower height of cut dial (A) to adjust mower cutting height, and lock mower lift kit rear draft arms in raised or transport lock position. See your mower deck operator's manual for instructions.

cwv14h6,1702891327496-19-18DEC23

Brake Operation

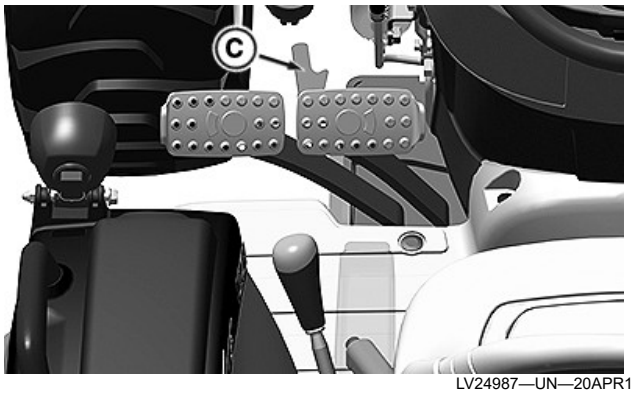
CAUTION: Avoid possible injury from losing control of tractor, lock brake pedals together with pedal lock tab when operating on roads or at high speeds.

- **Lock pedals together when not using the turning brakes or for road travel or transport.**
- **Slow down before making a turn.**



LV24988—UN—20APR16

Brake Pedals



LV24987—UN—20APR16

Brake Pedal Lock Tab

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

To stop tractor, depress both left (A) and right (B) brake pedals together with brake pedal lock tab (C) secured.

Using Brake Pedals to Assist in Turning

IMPORTANT: Avoid damage! Do not apply turn brakes while an implement is engaged with the ground. Damage to the 3-point hitch and implement may occur.

NOTE: Turning brake pedals can be used to make tighter turns and may reduce unnecessary backing.

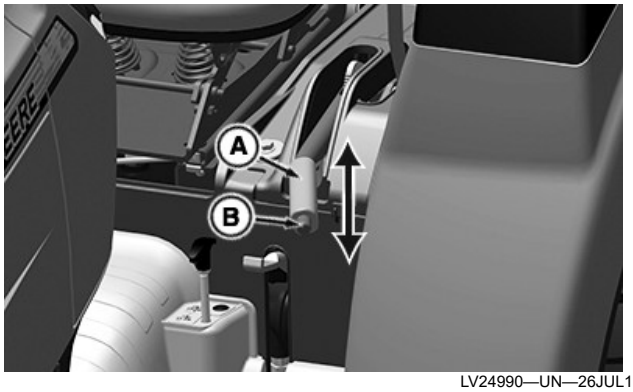
Rotate brake lock tab (C) clockwise to unlock left and right brake pedals. Brake pedals will now function independently.

- To make a tighter left turn, depress left turning brake pedal (A) while turning to the left.
- To make a tighter right turn, depress right turning brake pedal (C) while turning to the right.

RD47322,0000B06-19-25AUG16

Park Brake Operation

CAUTION: Avoid Injury! Engage park brake and move transmission range shift lever to a position other than N (neutral) before leaving machine unattended. Transmissions will not prevent machine motion without the park brake engaged.



LV24990—UN—26JUL16

Park Brake Location Shown

A—Park Brake Lever
B—Park Brake Release Button

To engage park brake, lift up on park brake lever (A) ensuring that it ratchets up and stays in position.

To release park brake, lift up on park brake lever and depress park brake release button (B). To fully disengage park brake, lower park brake lever completely, while park brake release button (B) is depressed.

RD47322,0000B07-19-25AUG16

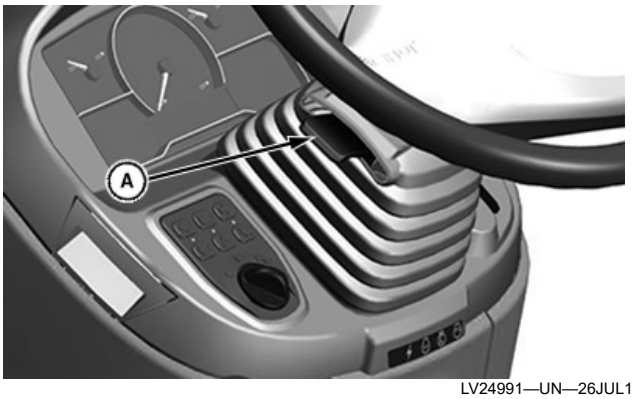
Adjust Tilt Steering Wheel

CAUTION: Avoid Injury! Do not attempt to adjust the steering wheel while the machine is moving. The operator can lose control of the machine.

- **Stop the machine before adjusting the steering wheel.**
- **Lock the steering wheel in position before driving the machine.**

1. Stop machine.

2. Pull tilt steering control lever (A) up to release steering wheel.



LV24991—UN—26JUL16

Tilt Steering Control Lever Location Shown

A—Tilt Steering Control Lever

3. Adjust steering wheel to desired position.
4. Release tilt steering control lever to lock steering wheel in position.

GS25068,0003DF7-19-01FEB18

Warm Hydraulic System Oil

IMPORTANT: Avoid damage to the hydraulic system. Do not exceed 2 to 3 minutes of warm-up time.

During cold weather, oil does not flow easily through the filter screen or the hydraulic system filter. This results in slow functionality of the hydraulic system. The hydraulic system functions normally after the oil warms up.

1. Start the machine and idle at low idle.
2. Turn and hold steering wheel in full left or right turn.

WS68074,00022B2-19-20DEC17

Hydraulics Information

For hydraulic operation of components, see specific component section. For example, operating the selective control valve (SCV) is in the Selective Control Valve Operation section.

UP00731,00002DC-19-14JAN19

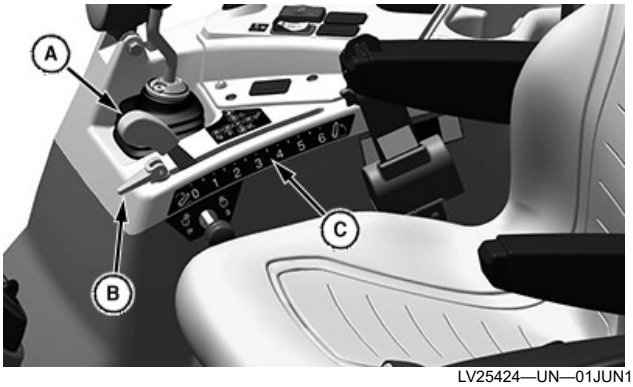
Operate Attachments

When operating attachments, check full range of three point hitch travel each time a new attachment or implement is mounted. Watch for hoses and attachment parts throughout the 3-point hitch travel range. Adjust the depth stop as needed. Some attachments with short driveshafts require an up-stop. See your John Deere dealer. If attachments are operated at too high an angle, the driveshaft can be damaged.

RD47322,0000B0C-19-27AUG18

Operate 3-Point Hitch

NOTE: The 3-point hitch on your machine is classified as a category 1 hitch.



LV25424—UN—01JUN16

A—Rockshaft Control Lever
B—Rockshaft Depth Stop
C—Rockshaft Position Identifiers

Use rockshaft control lever (A) to raise and lower equipment attached to 3-point hitch.

The nine rockshaft position identifiers (C) do not signify specific operating depths. When rockshaft control lever is moved forward, draft arms lower closer to ground.

Lower Implement: Push rockshaft control lever forward.

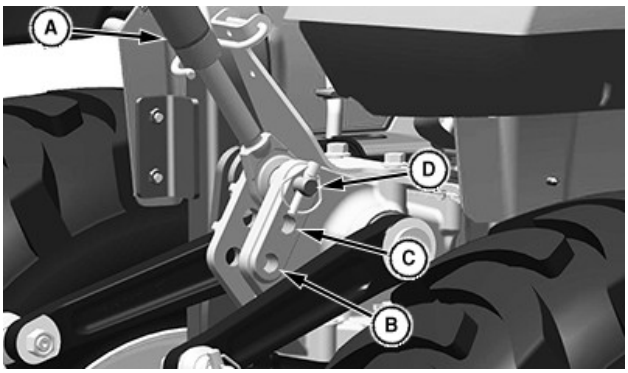
Raise Implement: Pull rockshaft control lever rearward.

The adjustable rockshaft depth stop (B) can be adjusted to maintain a particular implement operating depth. To use the depth stop knob:

1. Operate implement for a few minutes to determine the desired operating depth.
2. Pull up on rockshaft depth stop lever (B).
3. Move lever against rockshaft control lever.
4. Push lever down to keep the depth stop in position. Implement will operate in same position each time rockshaft control lever is pushed against the depth stop.

GS25068,0003DF8-19-01FEB18

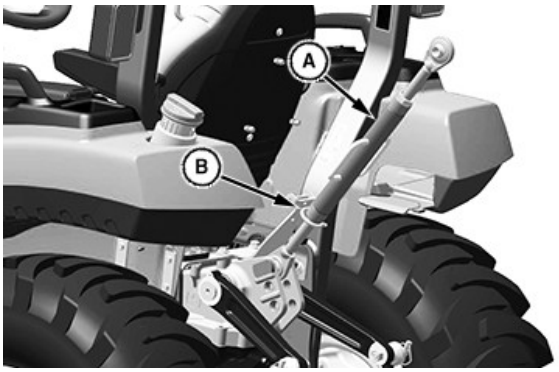
Position Center Link



LV25423—UN—01JUN16

A—Center Link
B—Light to Medium Draft Loads
C—Medium to Heavy Draft Loads
D—Very Heavy Draft Loads

- **For light and medium draft loads:** Install center link (A) in bottom hole (B) of mounting bracket. Example of light and medium draft load implements include a landscape rake. A category 1 implement tilts forward while raising in this position.
- **For medium and heavy draft loads:** Install center link in middle hole (C) of mounting bracket. Example of medium and heavy draft load implements include a tiller or box blade. A category 1 implement tilts forward slightly while raising in this position.
- **For very heavy draft loads:** Install center link in top hole (D) of mounting bracket. Example of very heavy draft load implements include a plow or ripper. A category 1 implement raises, but angle remains constant.



LV25422—UN—01JUN16

A—Center Link
B—Storage Hook

Place center link (A) in storage hook (B) when the hitch is not in use.

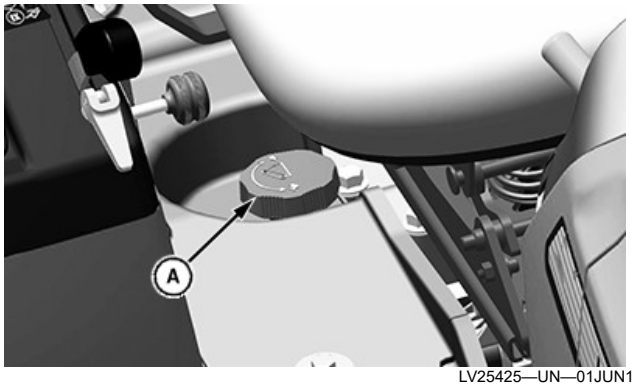
GS25068,0003DF9-19-01FEB18

Operate Rate of Drop/Lock Valve

CAUTION: Avoid Injury! Excessive rate-of-drop may cause injury or damage. Fully lowering implement should take at least 2 seconds.

IMPORTANT:

- **To prevent overheating hydraulic oil and damaging tractor, do not raise rockshaft when drop/lock valve is closed.**
- **Do not use implements or controls with valve locked, damage to tractor could occur.**



LV25425—UN—01JUN16

A—Rate-of-Drop/Lock Valve Knob

The rate of drop/lock valve controls the rate of rockshaft drop when rockshaft control lever is operated. This valve provides direct rate of drop control for 3-point hitch mounted implements. The valve can also be used to hydraulically lock rockshaft (3-point hitch) in a desired position. The tractor can be operated with rate of drop valve closed. With this valve closed, the rockshaft can be raised but not lowered.

Increase Rate-of-Drop: Rotate rate-of-drop/lock valve knob (A) counterclockwise to make drop faster.

Decrease Rate-of-Drop: Rotate rate-of-drop/lock valve knob (A) clockwise to make drop slower.

CAUTION: Avoid Injury! Do not use the rockshaft drop/lock valve for holding an attachment in raised position for service work. Loss of hydraulic pressure could result in sudden drop of attachment. Lower attachment onto blocks or remove from machine before servicing.

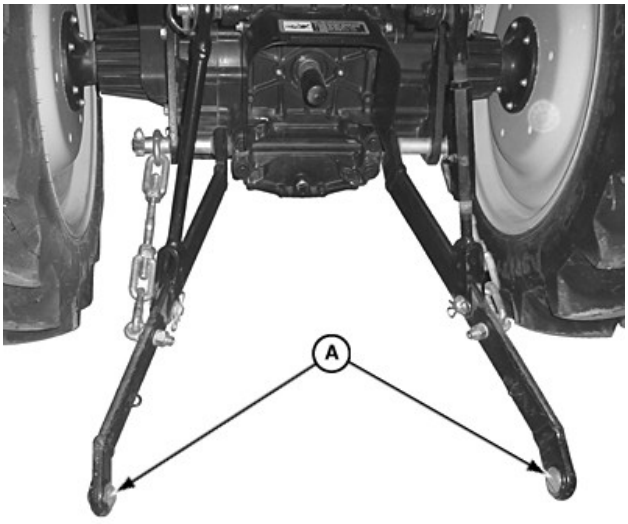
Lock 3-Point Hitch: Rotate drop/lock rate valve knob (A) clockwise until tight.

Unlock 3-Point Hitch: Rotate drop/lock rate knob (A) counterclockwise.

GS25068,0003DFA-19-01FEB18

Use Draft Links

CAUTION: Avoid Injury! Look down and behind before and while backing. Clear area of all bystanders before backing machine.



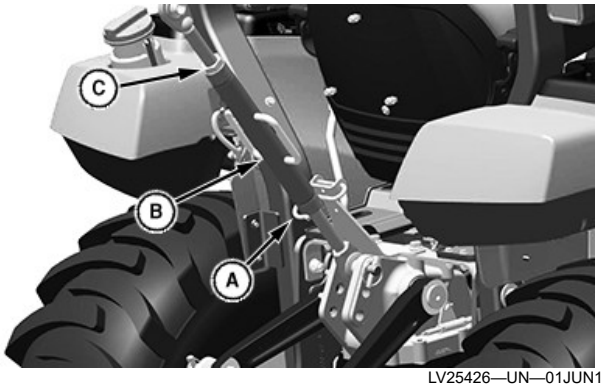
LV16780—UN—05MAR13

A—Draft Links

1. Slowly back machine into position to align draft links with implement lift brackets.
2. Park machine safely.
3. Connect draft links (A) to the implement.
4. Secure implement with lynch pins.

GS25068,0003DFB-19-01FEB18

Level Implement Front-to-Rear



LV25426—UN—01JUN16

A—Storage Hook
B—Center Link Body
C—Locknut

1. Park machine safely.

NOTE: When the 3-point hitch is not being used, return center link to storage hook (A).

2. Lower implement to ground to relieve pressure on center link.
3. Loosen locknut (C).

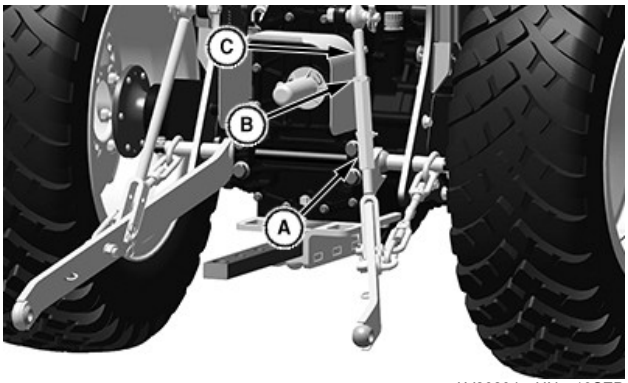
IMPORTANT: Avoid Damage! Do not turn center link body past the stops, or threads may be damaged.

4. Rotate center link body (B) to lengthen or shorten the center link as needed.
5. Tighten locknut (C).

GS25068,0003DFC-19-01FEB18

Level Implement Side-to-Side

Use turnbuckle (A) on the right adjustable lift link (C) to level a 3-point hitch implement side-to-side.



LV26204—UN—13SEP16

A—Turnbuckle
B—Locknut
C—Lift Link

1. Park machine safely.
2. Lower any rear mount implement to the ground.
3. Rotate turnbuckle (A) to raise or lower draft link until 3-point hitch mounted implement is level from side-to-side.
4. Tighten locknut (B) to secure position.

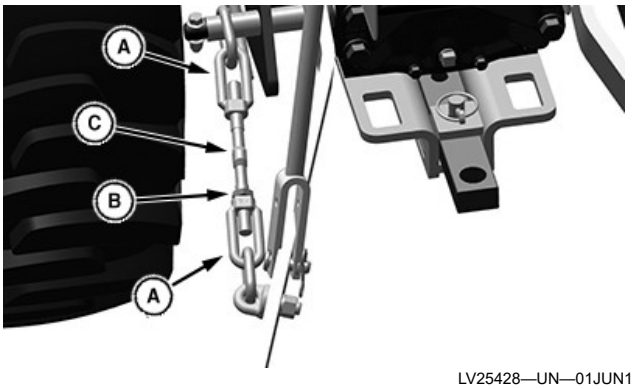
GS25068,0003DFD-19-01FEB18

Adjust Implement Side-to-Side Sway

IMPORTANT: Make sure sway chains are tightened properly. When using certain implements, damage can occur to the sway link anchor point if not properly tightened.

NOTE: Check implement operator's manual procedure for adjusting sway links. When sway links have been properly adjusted, side sway of implement is controlled by position of links. A small amount of sway, 13—25 mm (1/2 - 1 in.), is needed for many implements.

Use left and right sway links (A) to adjust 3-point hitch implement side-to-side sway:



LV25428—UN—01JUN16

A—Sway Link
B—Locknut
C—Sway Link Adjusting Rod

1. Park machine safely.
2. Lower any rear mount implement to the ground.
3. Loosen locknut (B).
4. Rotate sway link adjusting rod (C) to adjust 3-point hitch implement side-to-side sway.
5. Tighten locknut (B).

GS25068,0003DFE-19-01FEB18

Operate Drawbar Hitch (If Equipped)

CAUTION: Avoid Injury! Use only the drawbar that was provided with the machine. Do not install or use any other type drawbar.

To avoid rearward upset, all towed loads must be attached to the drawbar, not just to the center link or draft arms.

IMPORTANT: Avoid damage! Maximum static vertical load on drawbar not to exceed maximum recommendations. Drive slowly with heavy loads.

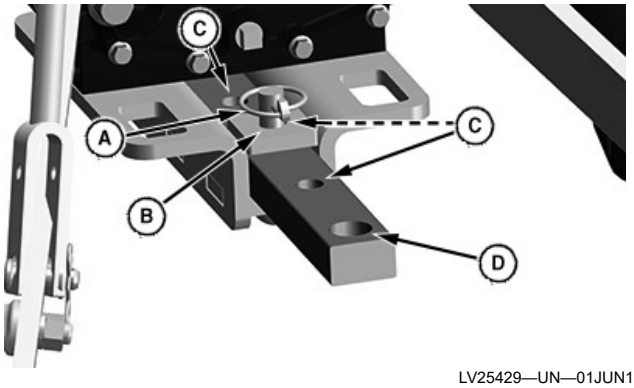
Maximum Drawbar Loads

Certain heavy equipment such as a loaded single-axle trailer can place excessive strain on the drawbar. Strain is greatly increased by speed and rough ground. Do not exceed the maximum static vertical loads on drawbar, see Specifications section.

Adjust Drawbar Length

IMPORTANT: Avoid damage! For drawn PTO-driven implements, the drawbar must be in the operating position.

The drawbar is equipped with three adjusting holes for changing drawbar length and one hole for storage.



LV25429—UN—01JUN16

A—Lock Pin
B—Drilled Pin
C—Operating Position
D—Storage Position

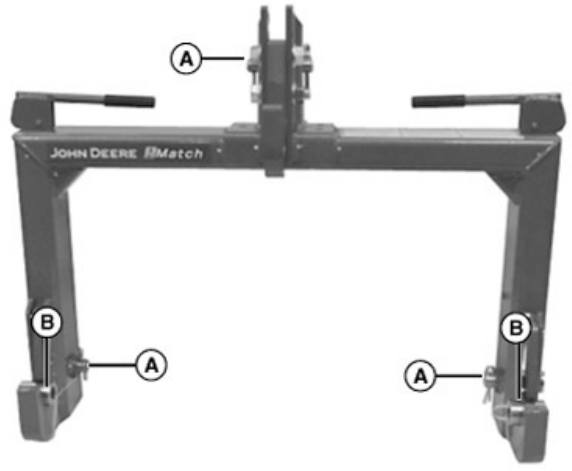
1. Remove lock pin (A) and drilled pin (B).
2. Adjust drawbar to one of the three operating positions (C), or to storage position (D).
3. Install drilled pin (B) up from bottom of tractor. Secure with lock pin (A).

GS25068,0003DFF-19-05DEC19

Operate Optional iMatch Quick-Attach Hitch System

The optional iMatch™ quick-attach hitch fits all Category I implements designed to the ASABE Cat I standard for quick-attach hitches.

Install iMatch Quick-Attach Hitch



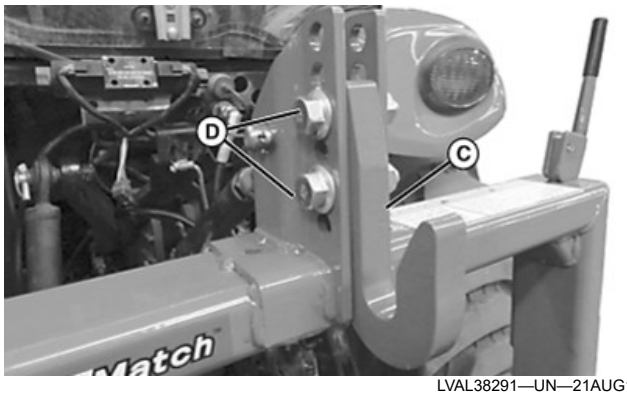
LVAL38290—UN—21AUG12

A—Drilled Pin (3 used)
B—Bushing (2 used)

1. Remove three drilled pins (A) and two bushings (B) from iMatch quick-attach hitch.
2. Use machine rockshaft lever to fully lower 3-point hitch draft links.

iMatch is a trademark of Deere & Company

3. Park machine safely.



LVAL38291—UN—21AUG12

C—Center Link Hook
D—Nut and Bolt

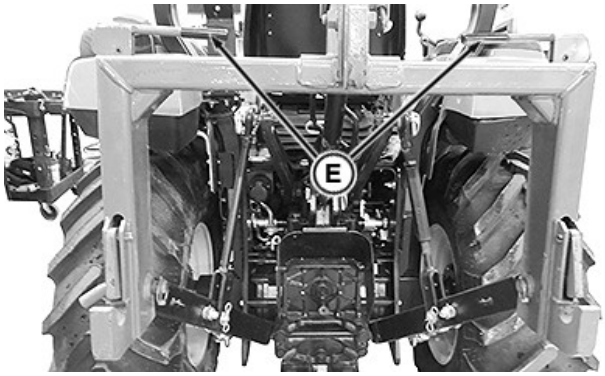
4. Center link hook (C) is set from the factory at standard height to accommodate most implements. Adjust center link hook, if necessary.
   - Remove nuts and bolts (D).
   - Raise or lower center link hook as required.
   - Install nuts and bolts. Torque bolts to specification before use of iMatch assembly.

Specification	
iMatch Bolts—Torque	245—318 N·m

5. Position iMatch quick-attach hitch near draft links and adjust 3-point hitch sway links to align draft links with quick-attach hitch.
6. Install iMatch quick-attach hitch on the draft links using drilled pins.
7. Install 3-point hitch center link on iMatch quick-attach hitch using quick-lock pin and drilled pin.

Connect Implement

1. Install two bushings, included with iMatch quick-attach hitch, on drilled pins in implement draft link brackets.



LV25907—UN—26JUL16

E—Levers

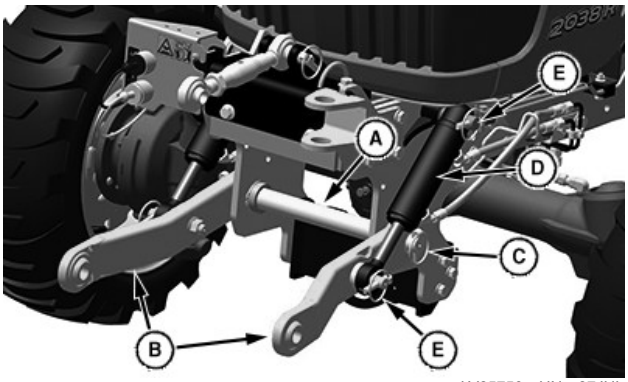
2. Move levers (E) on iMatch quick-attach hitch up to the unlocked position.

3. Back machine into position and align iMatch quick-attach hitch with implement lift brackets.
4. Use rockshaft lever to position iMatch quick-attach hitch under lift brackets and lift implement from ground.
5. Fully raise implement. Move levers (E) on iMatch quick-attach hitch down to the locked position.

GS25068,0003E04-19-30MAY19

Operate and Install Front 3-Point Hitch—If Equipped

Installing Lift Arms



LV25758—UN—27JUL16

A—Front Shaft
B—Lift Arms
C—Quick Lock Pin
D—Hitch cylinder
E—Quick Lock Pin

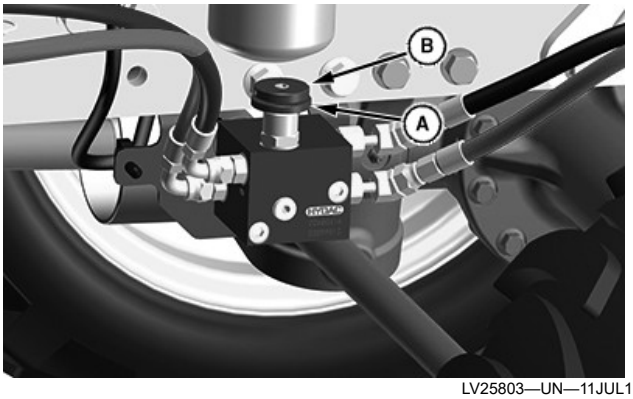
1. Slide front shaft (A) through bushings on bracket.
2. Install lift arms (B) and secure using quick lock pin (C).
3. Install front hitch cylinder (D) onto lift arms and secure with quick lock pin (E).

Operating Front Hitch

Raising and Lowering Hitch

1. Check to be sure hitch is not in transport lock position.
2. Review instructions on using hydraulic dual selective control valve (SCV) and dual selective control valve lock lever included in your tractor operator's manual.
3. Move the tractor dual SCV lever:
   a. To raise the hitch, move the lever rearward.
   b. To lower the hitch, move the lever forward.

Adjusting Hitch Control Valve



LV25803—UN—11JUL16

A—Knob
B—Locking Disc

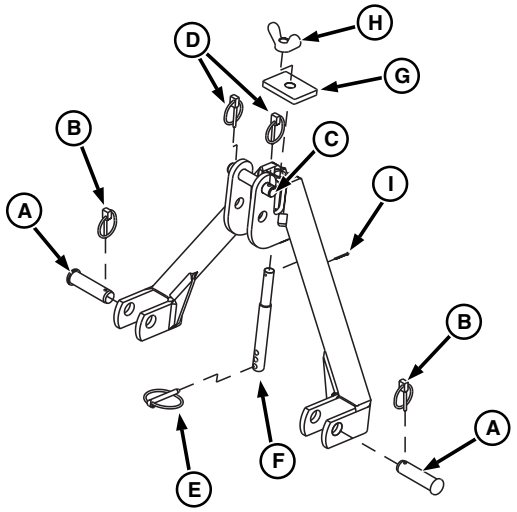
1. To adjust the speed of raising and lowering the hitch, rotate knob (A).
   a. Turning the knob clockwise—hitch raises and lowers slower.
   b. Turning the knob counterclockwise—hitch raises and lowers faster.
2. Once correct speed is achieved, rotate the locking disc (B) clockwise to lock into place.

GS25068,0003E00-19-01FEB18

Assemble and Install A-Frame—If Equipped

Assemble A-Frame

List of parts for reference:

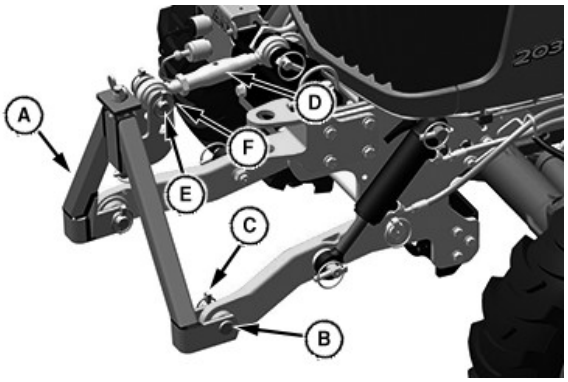


LV25809—UN—14JUL16

A—Cylinder Pin
B—Lynch Pin
C—Hinge Pin
D—Lynch Pin
E—Quick Lock Pin
F—Retainer Rod
G—Retainer Plate
H—Wing Nut
I—Cotter Pin

1. Install cylinder pins (A) in frame with lynch pins (B).
2. Install hinge pin (C) in middle hole in frame with lynch pins (D).
3. Install quick-lock pin (E) in retainer rod (F). Install retainer rod on frame with retainer plate (G), wing nut (H), and cotter pin (I).

Install A-Frame



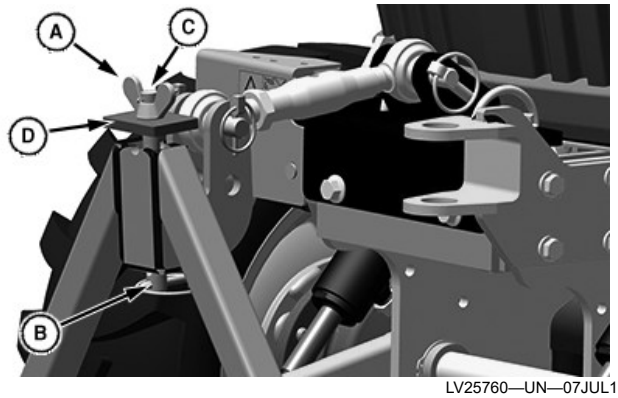
LV25759—UN—07JUL16

A—A-Frame
B—Pin
C—Quick Lock Pin
D —Center Link
E—Quick Lock Pin

1. Install A-Frame (A) on lift arms as shown.
2. Secure with pin (B) and quick lock pin (C).
3. Install front hitch center link (D) on A-Frame with hinge pin (E) and quick lock pins (F).

GS25068,0003E13-19-01FEB18

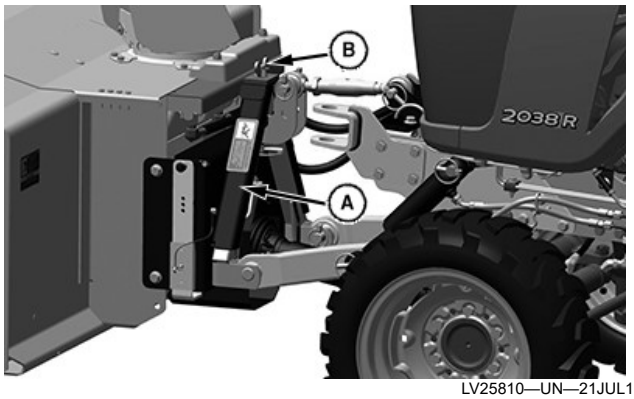
Install Implements on Front Hitch with A-Frame—If Equipped



LV25760—UN—07JUL16

A—Wing Nut
B—Quick Lock Pin
C—Retainer Rod
D—Retainer Plate

1. Loosen wing nut (A) and remove quick-lock pin (B).
2. Remove retainer rod (C) with wing nut and retainer plate (D) from A-Frame.
3. Check to be sure that the implement hydraulic hoses are out of the way if applicable.



LV25810—UN—21JUL16

A—Mount
B—Wing Nut

4. Drive tractor forward slowly and align A-Frame with mount (A) on implement.
5. Raise hitch to install A-Frame on mount.
6. Install retainer rod with wing nut and retainer plate through mount and A-Frame. Position wing nut (B) as needed to install quick-lock pin in retainer rod.
7. Tighten wing nut to secure implement to A-Frame.

GS25068,0003E14-19-01FEB18

Install and Remove Mid-Mount Mower with Front Hitch Installed—If Equipped

Install Mid-Mount Mower::

1. Remove any front implement, if installed.
2. Park machine safely.
3. Raise hitch fully before driving over mid-mower deck.
4. Follow installing instructions in mid-mount mower operator's manual.

Remove Mid-Mount Mower:

1. Remove any front implement, if installed.
2. Park machine safely.
3. Ensure hitch is fully raised before removing mid-mower deck.
4. Following removing mower instructions in mid-mount mower operator's manual.

GS25068,0003E15-19-02FEB18

Selective Control Valve Operation

Connect Implement Hydraulic Hoses

CAUTION: Avoid injury! Escaping fluid under pressure can penetrate the skin causing serious injury. Relieve hydraulic system pressure by moving hydraulic controls in all directions before connecting or disconnecting hydraulic lines.

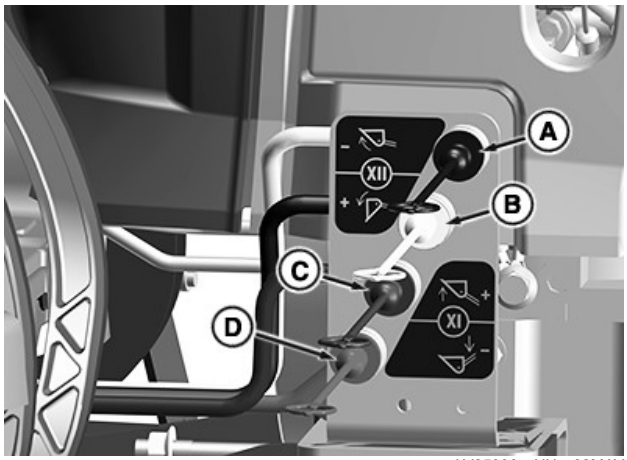
1. Park machine safely.
2. Lower all implements to the ground.
3. Turn machine off.
4. Relieve all hydraulic pressure by moving SCV lever rearward-to-forward and side-to-side several times.
5. Refer to implement operator's manual for instructions on connecting hydraulic hoses to couplers.

GS25068,0003E05-19-01FEB18

Operate Hydraulic Selective Control Valve (SCV)

IMPORTANT: To prevent contamination of female quick couplers, color-coded dust plugs should be installed in the couplers when not being used.

This machine series is equipped with a hydraulic Selective Control Valve (SCV) and hydraulic outlets to operate hydraulically driven implements.



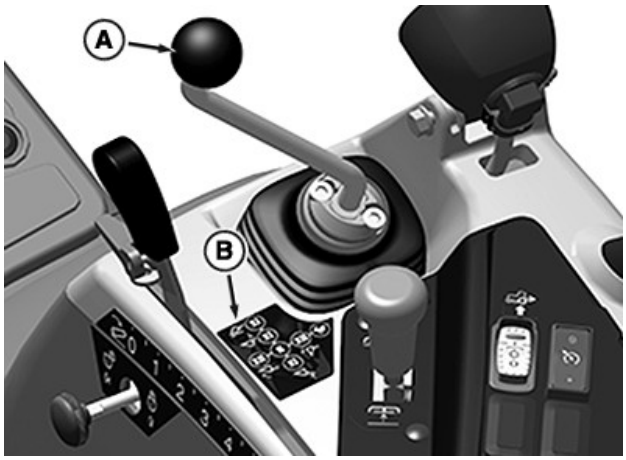
LV25090—UN—02MAY16

Selective Control Valve (SCV) Shown

A—Bucket Cylinder—Retract (Black)
B—Bucket Cylinder—Extend (Yellow)
C—Boom Cylinder—Extend (Blue)
D—Boom Cylinder—Retract (Red)

The machine-mounted hydraulic outlets are female quick couplers color coded for easy hookup.

Implement hydraulic hoses are also color coded. Match the color coded hose ends to the color coded hydraulic couplers on the machine when making connections.



LV25091—UN—02MAY16

Using Hydraulic Dual Selective Control Valve (SCV)

A—Dual SCV Lever
B—Information Label

The dual SCV lever (A) controls the oil flow to the corresponding selective control valve (SCV) couplers at the front of the tractor. Refer to information label (B) for assistance during operation.

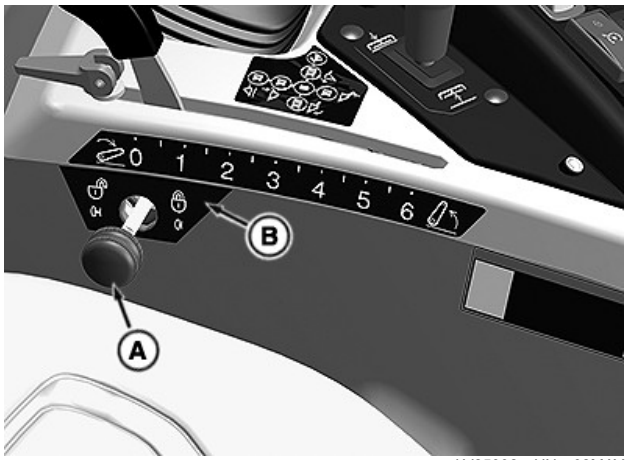
- SCV Lever Left—Bucket Curl
- SCV Lever Right—Bucket Dump
- SCV Lever Forward—Boom Lower
- SCV Lever Rearward—Boom Raise

Regenerative Bucket Dump—Move the lever to the full right or "detent position " for a faster dump when returning to the dig position.

Boom Float—Move the lever to the full forward or "float" position to remove pressure in both connector lines. This allows the loader to follow the contour of the ground without down force pressure.

GS25068,0003E06-19-01FEB18

Operate Selective Control Valve (SCV) Lock Lever



LV25092—UN—02MAY16

A—Lock Lever
B—Label

- Pull the lock lever (A) to allow SCV lever movement in all directions. Operation of the SCV is unlocked.
- Push the lock lever (A) to prohibit SCV lever movement in all directions. Operation of the SCV is locked.
- Operation of the lock lever is indicated on label (B).

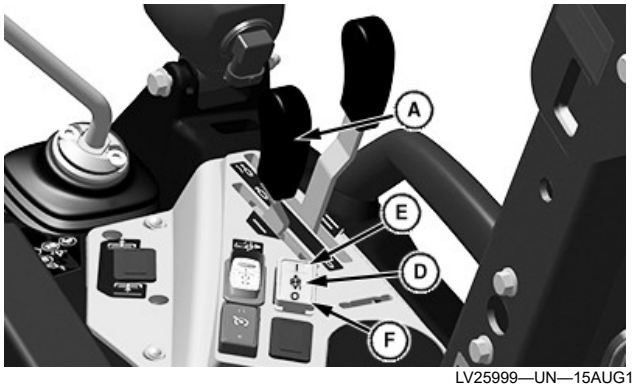
GS25068,0003E07-19-01FEB18

Operate Dual Rear Selective Control Valve (SCV)—If Equipped

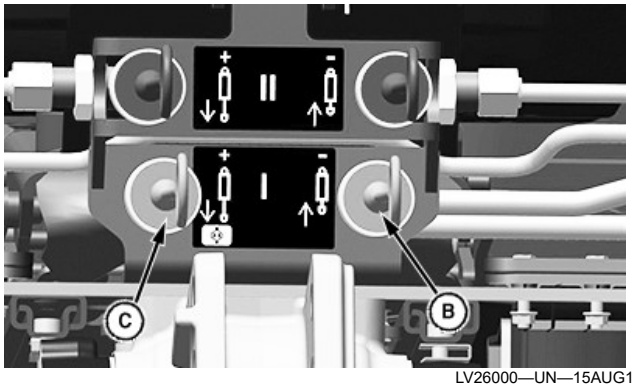
This machine can be equipped with an optional dual rear selective control valve outlet kit to operate hydraulically driven implements from outlets at the rear-mount position.

The machine-mounted hydraulic outlets are female quick couplers.

I Rear Outlet Selective Control Valve



LV25999—UN—15AUG16



LV26000—UN—15AUG16

A—I Rear Selective Control Valve Lever
B—Retract Outlet
C—Extend Outlet
D—Continuous Flow Switch
E—On Position
F—Off Position

- **Cylinder Extend**—Pull I rear selective control lever (A) rearward to allow flow from the circuit out through outlet (C) and return to the machine through outlet (B).
- **Cylinder Retract**—Push I rear selective control lever (A) forward to allow flow from the circuit out through outlet (B) and return to the machine through outlet (C).

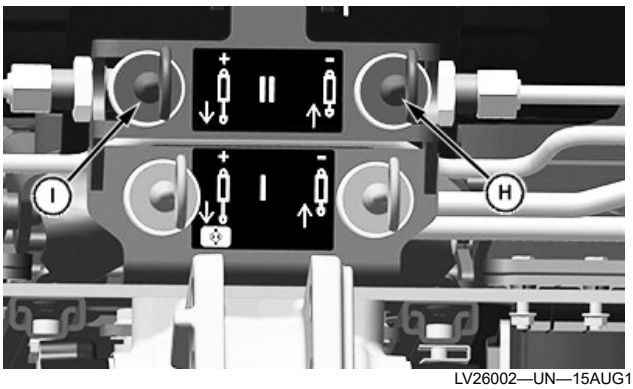
Operate the Continuous Flow Switch (I Rear Outlet SCV)

The I rear outlet SCV can be operated in a momentary condition to operate attachments such as extending or retracting a hydraulic cylinder. The attachment receives full hydraulic flow in direct response to the use of the control switch.

- The continuous flow switch (D) supplies continuous flow to the I rear selective control valve. To operate the continuous flow:
  - Depress the continuous flow switch to the on position (E) to activate. Pull rearward on the control lever (A). Once activated, “Continuous Flow On” is displayed in the information display screen.
  - Depress the continuous flow switch to the off position (F) or move control lever to deactivate.

II Rear Outlet Selective Control Valve

LV26001—UN—15AUG16



LV26002—UN—15AUG16

G—II Rear Selective Control Valve Lever
H—Retract Outlet
I—Extend Outlet

- **Cylinder Extend**—Pull II rear selective control lever (G) rearward to allow flow from the circuit out through outlet (I) and return to the machine through outlet (H).
- **Cylinder Retract**—Push the II rear selective control lever (G) forward to allow flow from the circuit out through outlet (H) and return to the machine through outlet (I).

Float Position (II Rear Outlet SCV)

"Float" operation allows the cylinder to extend and retract freely, such as when an implement follows ground contour.

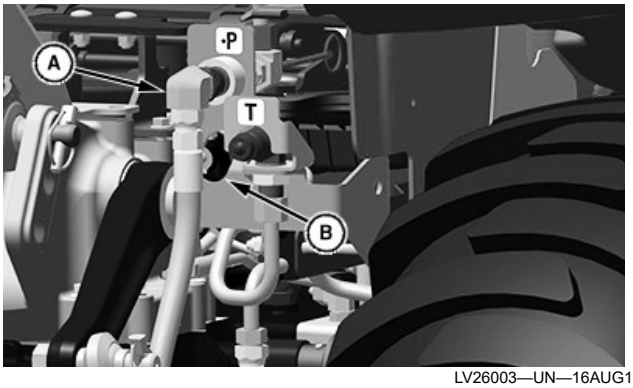
- To operate the "float" feature, push the lever forward, through retract, into detent to operate.
- Manually return the lever to center position when "float" is no longer required.

GS25068,0003E08-19-18MAR20

Use Power Beyond Outlet—If Equipped

IMPORTANT: Avoid damage to the hydraulic system. The power beyond hydraulic circuit must be routed to tank at all times during machine operation. DO NOT operate the machine without the power beyond hose connected to "+P" Port or without a suitable hydraulic attachment installed that connects to the "+P" port and tank "T" port.

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



LV26003—UN—16AUG16

A—Power Beyond Hose
B—Storage Location

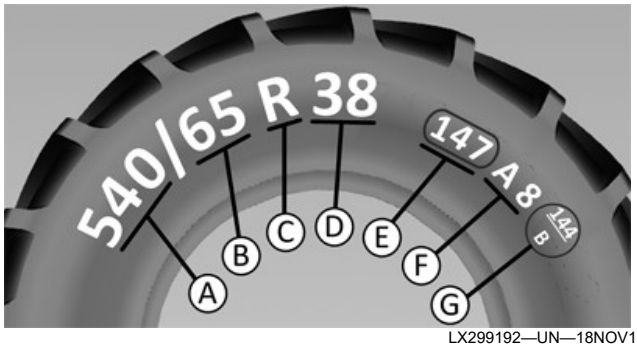
1. Shut off engine.
2. Disconnect power beyond hose (A) from quick connect coupler.
3. Remove cover from port "T" and place cover on hose (A).
4. Place hose (A) in storage location (B).
5. Connect implement pressure supply hose to port "P".
6. Connect implement return hose to port "T".

GS25068,0003E09-19-01FEB18

Tire Labeling, Ascertain the Load Capacity of Tires

CAUTION: Load capacity of tires and permissible axle loads must not be exceeded under any circumstances.

Tire load capacities stated in the Operator's Manual apply for a ground speed of 40 km/h (25 mph).



LX299192—UN—18NOV16

Example of Manufacturer's Information on Sidewall of Tires

Manufacturer's Information on Sidewall of Tires		
A	Tire Width	Width in millimeters
B	Tire Section	Ratio of tire height to tire width
C	Type	"R" = Radical "—" = cross-ply (example: 18.4-38)
D	Rim Diameter	Diameter in inches
E	Tire Load Index (LI)	Maximum permissible load capacity per tire, in relation to speed index (F)
F	Speed Index	Maximum permissible ground speed at which (E) applies
G	Tire Load Index (LI)	Tire load capacity at an alternative permitted ground speed
	Speed Index	

Apply to your tire dealership or directly to the tire manufacturer for more information on tires and tables concerning load index and ground speed.

Tire load capacity at a specific ground speed:

On the sidewall of the tire can be seen details of its load capacity (E) at maximum permissible ground speed (F).

If the tire manufacturer has approved the same tire for another ground speed, additional information (G) is provided. In this case, note especially that tire load capacity may change in relation to the maximum permissible ground speed.

Speed Index	A6	A8	B	C	D
km/h	30	40	50	60	65
mph	19	25	31	37	40

Example: Tire 540/65R38 147A8 (144/B)		
Tire Load Index (LI)	***147***	3075 kg (6780 lb) load capacity per tire
Speed Index	***A8***	40 km/h (25 mph)
+		
Tire Load Index (LI)	***(144)***	2800 kg (6175 lb) load capacity per tire
Speed Index	***(B)***	50 km/h (31 mph)

Permissible deviation in load capacity in relation to speed index, in percent:					
Speed Index	Permissible Ground Speed		Permissible deviation in load capacity of tires at:		
	km/h	mph	30 km/h (19 mph)	40 km/h (25 mph)	50 km/h (31 mph)
A6	30	19	± 0%	- 10%	—
A8	40	25	+ 7%	± 0%	- 9%
D	65	40	+ 15%	+ 9.5%	+ 5%

GS25068,0003D8D-19-23JAN18

Select Tire Inflation Pressure

IMPORTANT: Any tire inflation quoted in this Operator's Manual is binding.

Tires must never be inflated to a pressure higher than the maximum value stated on the tire.

Use a tire pressure of 2 bar (29 psi) if no other pressure value is available.

Particular attention must be paid to inflation pressures for row-crop tires, special tires, and tires with liquid ballast. If in doubt, obtain the correct inflation pressure from the tire manufacturer.

Tire inflation pressure plays a vital role in determining vehicle behavior, tractive force, and fuel consumption.

Since the correct tire pressure is dependent on many different factors, it is not possible to make a general recommendation.

When selecting inflation pressure, take the following into account:

- Tire manufacturer
- Tire size
- Axle load of machine

- Ballast on machine
- Whether tire is used on a front or rear wheel
- Nature of the work to be done
- Soil conditions
- Expected travel speed

To ascertain the pressure for specific applications, refer to the inflation pressure tables provided by the tire manufacturers. Many tire manufacturers provide apps on their Internet portals which allow the recommended tire pressure to be calculated.

GS25068,0003D8E-19-23JAN18

Tire Combinations

In order to achieve maximum drawbar pull, maintain proper steering ability, and reduce tire wear and fuel consumption, comply with the correct tire combinations.

Tire Combinations	
Rear	14-17.5 6PR R4 GA Marathoner
Front	23x8.50-14 6PR R4 GA Marathoner
Rear	14-17.5 6PR R3 GA Mighty Mow
Front	23x8.50-14 6PRR3 GA Mighty Mow
Rear	300/70R20 R3+ GA Garden Pro radial
Front	200/60R15R3+ GA Garden Pro radial
Rear	12.4-16 6PR R1 Titan
Front	7.00-12 6PR R1 Titan

GS25068,0003DBE-19-24JAN18

Front and Rear Tire Capacity

Front Tires—Capacity			
Tire Size	**Tread**	**kg**	**lb**
23x8.50-14 6PR	R4	445	981
23x8.50-14 6PR	R3	445	981
200/60R15	R3	455	1003
7.00-12 6PR	R1	455	1003

Rear Tires—Capacity			
Tire Size	**Tread**	**kg**	**lb**
14-17.5 6PR	R4	1570	3462
14-17.5 6PR	R3	1570	3462
300/70R20	R3	1180	2602

Rear Tires—Capacity			
Tire Size	**Tread**	**kg**	**lb**
12.4-16 6PR	R1	1000	2205

GS25068,0003DBF-19-24JAN18

Ballasting

Ballast Machine

CAUTION: Avoid injury! Ballasted machine becomes unstable when attachment is raised. Always drive slowly over uneven ground and when turning with raised attachment.

IMPORTANT: Avoid damage! Do not overload tires. Do not exceed maximum inflation pressure or maximum load capacity of tire.

Avoid damage! Remove ballast from the machine when no longer needed.

- Add weight to the machine front end if needed for stability. Heavy pulling and heavy rear mounted implements tend to lift front wheels. To maintain steering control and prevent tip over, ensure that enough ballast has been added. Remove weight when it is no longer needed.
- See tire maximum inflation pressure and maximum load capacities in the Specifications section.
- Verify maximum tire inflation pressure and maximum load information if embossed into the tire side wall.

GS25068,0003D95-19-23JAN18

Implement Codes

Use the following tables to determine the number of front weights to use with John Deere implements. Implement code data can be found in the ballasting section of the implement operator's manual.

Match the implement code from the implement manual with the codes for your machine and type of hitch. If the code falls between two numbers in the table, use the next higher number for the number of front weights to use with that implement.

These codes are for ideal conditions. Actual field conditions can require additional ballast. Some John Deere implements require using a certain number of front weights rather than giving implement codes.

Maximum recommended implement codes:

- Base tractor: 31

2032R and 2038R				
Implement Code	Minimum Number of 20 kg (42 lb.) Weights	Minimum Number of 32 kg (70 lb.) Weights	Minimum Number of 20 kg (42 lb.) Weights when using iMatch™	Minimum Number of 32 kg (70 lb.) Weights when using iMatch
31	0	0	0	0
33	1	1	1	1
35	1	1	2	2
37	2	1	2	2
39	3	2	3	2

2032R and 2038R				
Implement Code	Minimum Number of 20 kg (42 lb.) Weights	Minimum Number of 32 kg (70 lb.) Weights	Minimum Number of 20 kg (42 lb.) Weights when using iMatch™	Minimum Number of 32 kg (70 lb.) Weights when using iMatch
41	4	2	4	3
46	5	3	6	4
49	6	4	7	4
53	8	5	8	5
55	8	5	9	5
57	9	5	10	6
60	10	6	Not recommended	6
65	Not recommended	7	Not recommended	8
70	Not recommended	8	Not recommended	9
75	Not recommended	9	Not recommended	Not recommended

iMatch is a trademark of Deere & Company

GS25068,0003DB5-19-01JUL19

Tire Capacities

IMPORTANT: Avoid damage! Do not overload tires. Do not exceed tire maximum inflation pressure or maximum load capacity.

If necessary ballast exceeds tire load capacity, reduce load or install other tires.

See tire maximum inflation pressure in the Wheels and Tires Maintenance section.

See maximum load capacities in the Wheels and Tires Operation section.

Verify maximum tire inflation pressure and maximum load information if embossed into the tire side wall.

GS25068,0003DBA-19-01FEB18

Use Optional Rear Cast Iron Wheel Weights

CAUTION: Avoid Injury! Machine component or attachment is heavy. Use a safe lifting device or get an assistant to help lift, install, or remove component or attachment.

IMPORTANT: Avoid damage! Do not overload tires. Do not exceed tire maximum inflation pressure or maximum load capacity.

Mount rear wheels in the wide position for improved stability.

Fasten weight to each rear wheel using a safe lifting device. A total of three weights per wheel can be used. See your implement operator's manual for installation and number of weights to use.

Rear wheel weights are available from your John Deere Dealer.

GS25068,0003DB6-19-24JAN18

Use Optional Rear Ballast Box

CAUTION: Avoid Injury! To improve front loader-machine stability, use of ballast box is recommended. Use ballast as recommended in loader operator's manual.

The rear ballast box is used for carrying ballast on the 3-point hitch. Approximate weight of different materials is given in the implement operator's manual.

GS25068,0003DB7-19-24JAN18

Use Liquid Weight in Tires

CAUTION: Avoid Injury! Installing liquid ballast requires special equipment and training. Injury can occur from exploding tire. Have the job done by your John Deere dealer or a tire service store.

IMPORTANT: Avoid Damage! Cover rim completely with solution to avoid corrosion, but never more than 90 percent full. More solution would leave too little air space to absorb shocks. Damage to tire could occur.

NOTE: Use of alcohol as ballast is not recommended. Calcium chloride solution is heavier and more economical.

A solution of water and calcium chloride provides safe economical ballast, and prevents freezing. If used properly, it will not damage tires, tubes, or rims.

A mixture of 0.4 kg of calcium chloride per liter of water (3.5 lb./gal.), prevents freezing solid above -45 °C (-50 ° F).

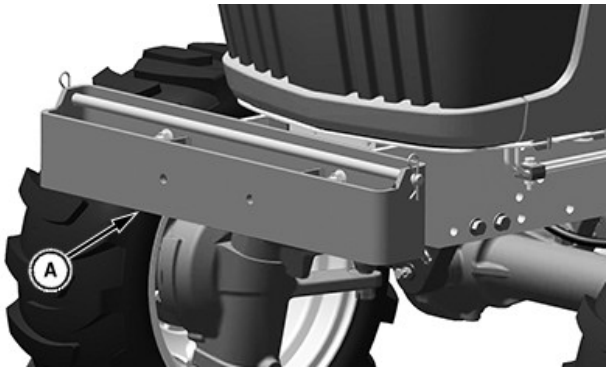
Fill tubeless tires at least to valve stem level (minimum 75% full). Less solution would expose part of rim, possibly causing corrosion.

Tube-type tires can be filled to any level below 90%.

GS25068,0003DB8-19-24JAN18

Use Optional Front Weights

IMPORTANT: Avoid Damage! Do not install weights on front bumper plate, damage to can occur to the front grille. Use optional bolt-on weight bracket for front weights.



LV26018—UN—25AUG16

A—Front Weight Bracket

Quik-Tatch™ weights and attaching hardware are available at your John Deere dealer. Each weight is 19 kg (42 lb.) or 32 kg (70 lb.).

An optional front weight bracket extension kit (A) is available at your John Deere dealer. This optional front weight bracket extension kit holds up to ten Quik-Tatch weights.

GS25068,0003DB9-19-24JAN18

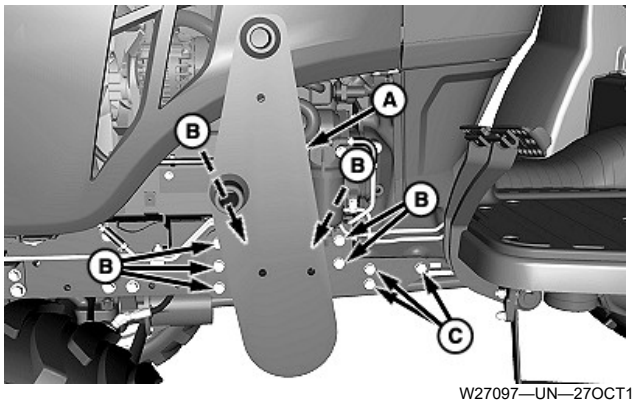
Quik-Tatch is a trademark of Deere & Company

Additional Equipment Operation

To operate attachments or implements, refer to relevant Operator's Manual.

UP00731,0000206-19-26MAY17

Front Loader Mounting Frames, Installation



W27097—UN—27OCT15

Left-Hand Side Shown

A—Mounting Frame
B—Cap Screw and Washer, M12 x 70 (7 per side)
C—Cap Screw and Washer, M12 x 40 (3 per side)

1. Install mounting frame (A) with cap screws and washers (B and C).
2. Tighten all cap screws to specification.

Specification

Cap Screws (B and C)—Torque. . . . . 140 N·m (103 lb·ft)

3. Repeat procedure on the opposite side.

UP00731,0000300-19-06SEP16

Enter and Exit Machine

LV25484—UN—01JUN16

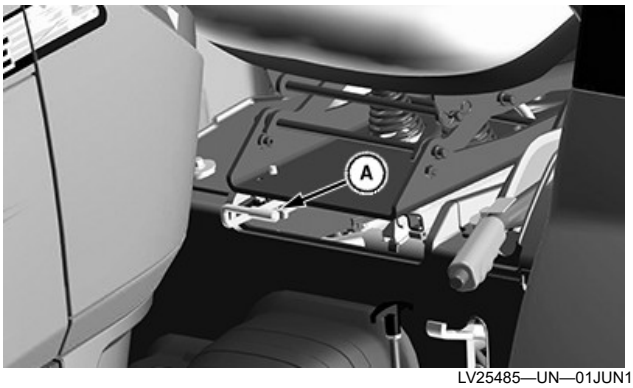
A—Step

Using Step

Step (A) is located on the left side of machine. Use step for entering and exiting the operator station. Face machine when getting on and off and maintain 3-point contact with steps, handholds, and handrails.

GS25068,0003E0B-19-01FEB18

Adjust Seat



LV25485—UN—01JUN16

A—Seat Lever

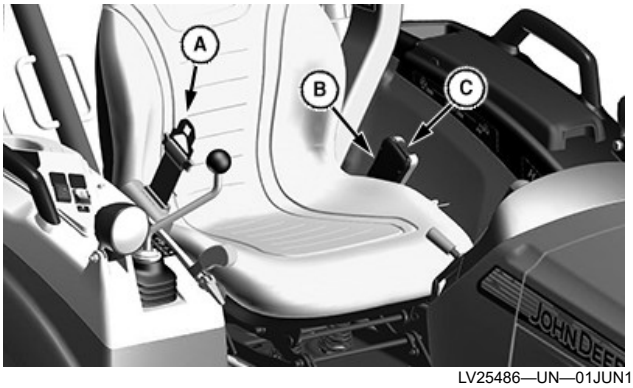
1. Sit on seat.
2. Pull seat lever (A) up to unlock seat position.
3. Slide seat forward or rearward to desired position where all controls can be easily reached.
4. Release lever to lock seat in position.

GS25068,0003E0C-19-01FEB18

Use Seat Belt

CAUTION: Avoid Injury! Always wear seat belt when operating machine with folding roll-over protective structure (ROPS) in upright position. Do not jump from machine if machine tips.

If ROPS must be folded to operate in a low clearance area, do not use seat belt. Raise ROPS and use seat belt as soon as conditions permit.



LV25486—UN—01JUN16

A—Seat Belt
B—Latch
C—Red Button

1. **To fasten the seat belt:** Extend self-retracting seat belt (A) and insert into latch (B) on opposite side of seat. Seat belt is self-retracting and will automatically adjust to fit operator.
2. **To release the seat belt:** Press red button (C) on latch (B) to release seat belt end.

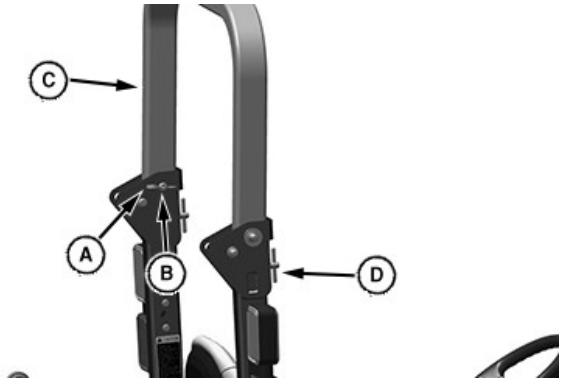
GS25068,0003E0D-19-01FEB18

Raise and Lower Roll-Over Protective Structure (ROPS)

CAUTION: Avoid injury! Always wear seat belt when operating machine with folding roll-over protective structure (ROPS) in upright position. Do not jump from machine if machine tips.

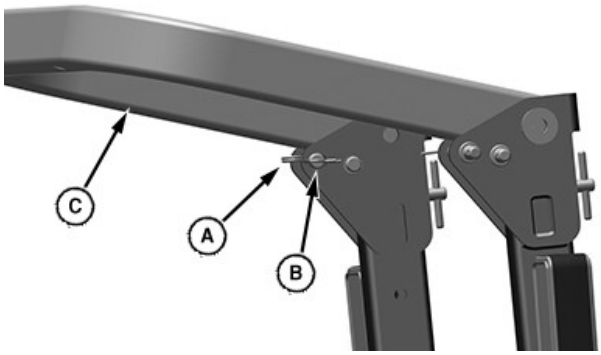
If ROPS must be folded to operate in a low clearance area, do not use seat belt. Raise ROPS and use seat belt as soon as conditions permit.

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



LV25680—UN—30JUN16

ROPS Upright Position



LV25681—UN—30JUN16

ROPS Folded Position

A—Spring Locking Pin
B—Drilled Pin
C—ROPS Crossbar
D—Anti-Rattle T-Handle

Lower ROPS Crossbar

1. Turn anti-rattle t-handle (D) counterclockwise to relieve tension.
2. Remove spring locking pin (A) and drilled pin (B) on each side of the ROPS.
3. Install drilled pins (B) and spring locking pins (A) and lower crossbar (C) onto drilled pins (B).

Raise ROPS Crossbar

1. Carefully raise ROPS crossbar (C) to the operating position.
2. Align crossbar bracket holes with support bracket holes on each side of the ROPS.
3. Install drilled pins (B) and spring locking pins (A) to lock crossbar (C) in the raised position.
4. Tighten anti-rattle t-handle (D). Repeat for other side of ROPS.

GS25068,0003E0E-19-02FEB18

Transport Machine on Trailer

CAUTION: Avoid injury! Use extra care when loading or unloading the machine into a trailer or truck.

Close fuel shutoff valve, if the machine is equipped.

IMPORTANT: Avoid damage! Transporting a machine on a trailer at high speeds can result in hood raising and possibly coming off machine if not secured.

- **Position machine on trailer so hood or engine cover opens from rear of trailer to prevent wind from blowing hood or cover open.**
- **Secure hood with existing machine locks or latches.**
- **If no locks or latches exist, secure hood with tie-down straps.**

NOTE: Use a heavy-duty trailer to transport the machine.

1. Drive or back machine onto trailer so hood or engine cover opens from rear of trailer.
2. Lower any implements to the trailer deck.
3. Lock the park brake.
4. Stop the engine.
5. Remove the key.
6. Close the fuel shutoff valve.
7. Remove or cover up the slow moving vehicle (SMV) sign.

NOTE: Both front and rear straps must be directed down and outward from machine. Trailer must have signs and lights as required by law.

8. Fasten machine to trailer with heavy-duty straps, chains, or cables.

GS25068,0003E2E-19-02FEB18

Transport Machine

Drive Machine Safely on Roads

CAUTION: Avoid injury! Use caution when operating machine at transport speeds. Reduce speeds if towed load weighs more than machine. Consult towed equipment operator's manual for recommended transport speeds.

Use additional caution when transporting towed loads under adverse surface conditions, especially when turning, and on inclined surfaces.

Use of warning lights and turn signals are recommended when traveling on public roads unless prohibited by state or local regulations. Lighting kits are available from a John Deere dealer.

Observe the following precautions when operating the machine on a road:

- Make sure SMV (Slow Moving Vehicle) emblem and warning lights are clean and visible. If towed or rear-mounted equipment obstructs these safety devices, install SMV emblem and warning lights on equipment.
- Turn on the warning lights and headlights, except if prohibited by law.
- Drive slowly enough to maintain safe control at all times. Slow down for hillsides, rough ground, and sharp turns, especially when transporting heavy, rear-mounted implements.
- To provide maximum stability, adjust tread width position of rear wheels.
- If equipped, disengage the MFWD to reduce tire wear.
- Never coast a machine downhill.

JZ81662,0000FC8-19-15JAN19

Push or Tow Machine

CAUTION: Avoid injury! Never tow machine faster than 10 km/h (6 mph). If possible, have someone operate steering and brakes of towed tractor.

IMPORTANT: Avoid damage! Push or tow machine for short distances only.

1. Push the PTO knob to the disengaged/off position.
2. Disengage the differential lock.
3. Disengage park brake.
4. Move the transmission range lever to the N (neutral) position.
5. Disengage the MFWD.

JZ81662,0000FC9-19-19JAN17

Tow Loads

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

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

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

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

1. Hitch the towed load only to the rear drawbar.
2. Connect safety chains to the lower draft arm crossbar and to the towed load. Provide only enough slack to permit turning.
3. Before descending a hill, make sure speed is low enough to control machine without having to use the brake pedal to brake the machine and any installed implements.

GS25068,0003E31-19-02FEB18

Safety Chain

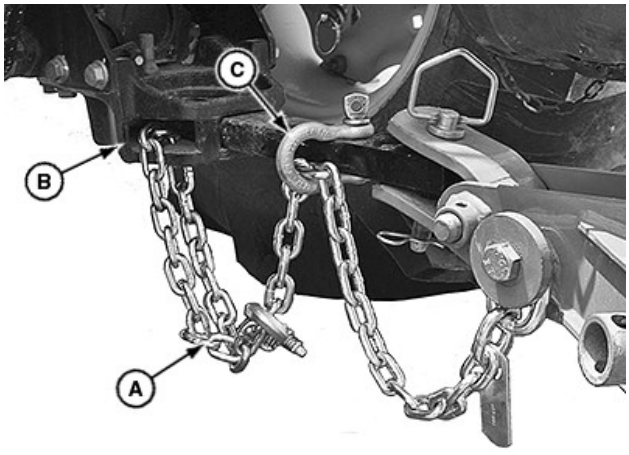
CAUTION: Avoid injury! Hitch towed loads only to the drawbar to avoid rearward upset. Do not use the safety chain for towing loads.

IMPORTANT: Avoid damages! Secure the towed load to the drawbar. The safety chain is designed to help control the towed load in case of separation from the drawbar.

Use a chain with a strength rating greater than the gross weight of the towed load.

Replace the safety chain if one or more links or fittings are broken, stretched, or otherwise damaged or deformed.

Do not use an intermediate support as the primary attaching point.



LV17806—UN—15MAY13

A—Safety Chain
B—Attachment Point
C—Intermediate Support

1. Attach safety chain (A) to attachment point (B) and to towed load. Provide only enough slack to permit turning.
2. Install additional intermediate support point (C) for chain on drawbar to reduce slack in chain when necessary.
3. Remove safety chain and store when not in use.

UP00731,000020F-19-24AUG16

Store Safety

CAUTION: Avoid injury! Fuel vapors are explosive and flammable. Engine exhaust contain carbon monoxide and cause serious illness or death:

- **Run the engine only long enough to move the machine to or from storage.**
- **Do not store vehicle with fuel in the tank inside a building where fumes may reach an open flame or spark.**
- **Allow the engine to cool before storing the machine in any enclosure.**

KN52281,1003F62-19-29NOV16

Prepare Machine for Storage

1. Repair any worn or damaged parts. Replace parts if necessary. Tighten loose hardware.
2. To prevent rust, repair scratched or chipped metal surfaces.

3. Wash the machine and apply wax to metal and plastic surfaces.
4. To dry belts and pulleys, run machine for five minutes.
5. To prevent rust, apply a light coat of engine oil to pivot and wear points.
6. Lubricate grease points.
7. Check tire pressure.

KN52281,1003F63-19-15JAN19

Prepare Fuel and Engine for Storage

Fuel:

If you have been using stabilized fuel, add stabilized fuel to the tank until the tank is full.

NOTE: Filling the fuel tank reduces the amount of air in the fuel tank and helps reduce deterioration of fuel.

If you are not using stabilized fuel:

1. Park machine safely in a well-ventilated area.

NOTE: Leave as little fuel in the fuel tank as possible for the season.

2. Turn on engine and allow to run until it runs out of fuel.
3. Turn key to OFF position.

IMPORTANT: Avoid damage! Stale fuel can produce varnish and plug injector components and affect engine performance.

- **Add fuel conditioner or stabilizer to fresh fuel before filling tank.**

4. Mix fresh fuel and fuel stabilizer in a separate container. Follow stabilizer instructions for mixing.
5. Fill fuel tank with stabilized fuel.
6. Run engine for a few minutes to allow fuel mixture to circulate through the fuel system.
7. Turn key to OFF position.

Engine:

Use engine storage procedure when vehicle is not to be used for longer than 60 days.

1. Change engine oil and filter while engine is warm.
2. Service air filter if necessary.
3. Clean debris from the air intake screen.
4. Clean the engine and engine compartment.
5. Remove the battery.
6. Clean the battery and battery posts.
7. Close fuel shutoff valve, if your machine is equipped.
8. To avoid the battery freezing, store it in a cool, dry place.

NOTE: Recharge the stored battery every 90 days.

9. Charge the battery.
10. Store the vehicle in a dry, protected place. If vehicle is stored outside, put a waterproof cover over it.

UP00731,00001A5-19-15JAN19

Remove Machine from Storage

1. Check tire pressure.
2. Check engine oil level.
3. Charge battery if necessary.
4. Install battery.
5. Lubricate all grease points.
6. Open fuel shutoff valve, if your machine is equipped.
7. Run the engine 5 minutes without any attachments running to allow oil to be distributed throughout engine.
8. Be sure all shields and guards or deflectors are in place.

KN52281,1003F65-19-29NOV16

Remove Front A-Frame—If Equipped

Remove Implement

1. Park machine safely.
2. Loosen wing nut.
3. Remove quick-lock pin in retainer rod.
4. Remove retainer rod with retainer plate.
5. Lower the hitch to remove A-Frame from implement mount, and slowly back tractor away from implement.
6. Install retainer rod with retainer plate on A-Frame with the quick-lock pin.

Remove A-Frame

1. Remove pin and quick lock pins in front hitch lift arms.
2. Remove front hitch center link from A-Frame by removing quick lock pin and hinge pin.
3. Remove A-Frame.

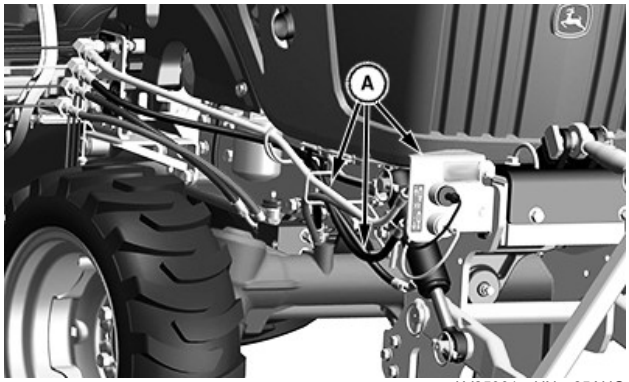
4. Install pin and quick lock pins in front hitch lift arms for storage.

GS25068,0003E12-19-01FEB18

Remove Front 3-Point Hitch—If Equipped

Remove Hitch

- Front hitch can be left on tractor when not in use.
- Lift arms are to be removed when front hitch is not in use, and must be removed for loader operation.
- Lift arms and center link are to be removed and stored.



LV25901—UN—25AUG16

A—Auxiliary Coupler Kit

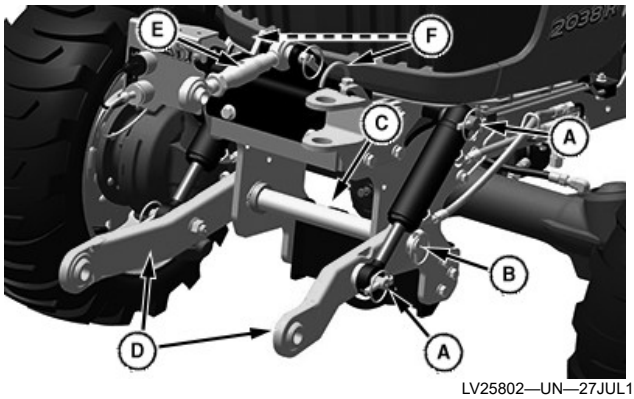
- Auxiliary coupler kit (A) must be removed for loader operation.

GS25068,0003E0F-19-01FEB18

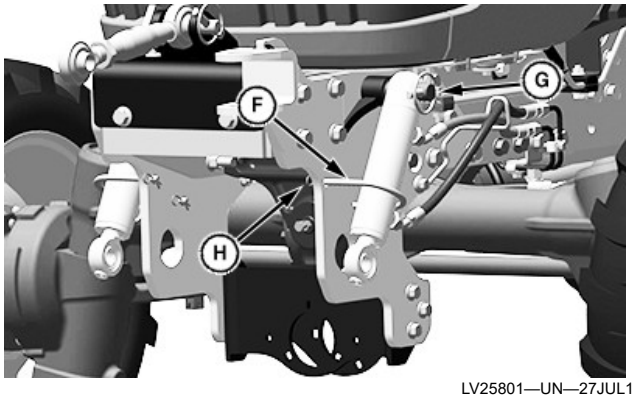
Store Front 3-Point Hitch—If Equipped

NOTE: Lift arms are to be removed when front hitch is not in use.

The front hitch should be put into storage position when the front loader is being used.



LV25802—UN—27JUL16



LV25801—UN—27JUL16

A—Quick Lock Pin
B—Quick Lock Pin
C—Front Shaft
D—Lift Arms
E—Center Link
F—Front Hitch Storage Bracket
G—Hitch Pin
H—Spring Clip

1. Remove cylinder from lift arms by removing quick lock pins (A).
2. Remove quick lock pin (B).
3. Remove front shaft (C) from brackets.
4. Remove lift arms (D).
5. Remover center link (E) from bracket.
6. Remove front hitch storage bracket (F).
7. Replace hydraulic cylinder on hitch pin (G) and secure with quick lock pin.
8. Retain hydraulic cylinder to the front bracket using storage bracket (F) and spring clips (H).

GS25068,0003E10-19-01FEB18

Maintenance Intervals

Service Your Machine

IMPORTANT: Avoid damage! Operating in extreme conditions require more frequent service intervals:

- **Engine components become dirty or plugged when operating in extreme heat, dust, or other severe conditions.**
- **Engine oil can degrade if machine is operated constantly at slow or low engine speeds or for frequent short periods of time.**

Use the following timetables to perform routine maintenance on your machine.

Park the vehicle safely.

UP00731,0000223-19-29NOV16

Maintenance Interval Chart—Daily to Every 400 Hours

Item	Daily	Every 10 Hours	Every 50 Hours	Every 200 Hours	Every 400 Hours
Check engine coolant level. Refill with correct coolant and conditioner as required.	•				
Check primary fuel filter. Drain water and sediment from fuel sediment bowl, and service water separator.	•				
Check the front grille screen.	•				
Check safety interlock system.	•	•			
Check engine oil level.	•	•			
Check transmission oil level.	•	•			
Check air filter rubber dust valve.		•			
Check radiator coolant level.		•			
Check front axle oil level.			•		
Lubricate 3-point hitch.			•		
Check wheel bolt torque.				•	
Change engine oil and filters.				•	
Inspect alternator belt.				•	
Change transmission oil and filters.[a]					•
Drain water from fuel tank and replace fuel filters.					•
Lubricate grease points (normal conditions).			•		
Lubricate grease points (wet conditions).		•			

Maintenance Interval Chart — Daily to Every 400 Hours

[a]Transmission oil can be changed every 1200 hours or 3 years if the specific requirements are met, see Transmission Maintenance for additional information.

GS25068,0003E16-19-01FEB18

Maintenance Interval Chart—Every 600 Hours to Every 6000 Hours

Item	Every 600 Hours	Yearly	Every 1000 Hours	Every 2000 Hours or Annually [a]	Every 6000 Hours/Six Years[a]
Service air filter element and hoses	•				
Check all hoses and clamps	•				
Change front axle oil	•				
Check axle thrust bolt torque	•				
Clean front axle breather valve	•				
Change engine oil and filter		•			
Check wheel bolt torque		•			
Drain water from fuel tank and replace fuel filter		•			
Check all hoses and clamps		•			
Check engine valve clearance. See your John Deere dealer.			•		
Drain, Flush and Refill Engine Cooling System [b]				•	

Item	Every 600 Hours	Yearly	Every 1000 Hours	Every 2000 Hours or Annually [a]	Every 6000 Hours/Six Years[a]
when coolant is NOT checked annually or NOT serviced with the pre-diluted John Deere COOL-GARD II™[c]					
Drain, Flush and Refill Engine Cooling System [b] when coolant is checked annually and serviced with the pre-diluted John Deere COOL-GARD II™					•

Maintenance Interval Chart — 600 Hours to 6000 Hours

COOL-GARD II is a trademark of Deere & Company
[a]If COOL-GARD II is not used and coolant is not tested annually, service interval is 2000 hours/annually
[b]See your John Deere dealer for service.
[c]Service interval can be extended to six years and 6000 hours thereafter if tractor coolant has been checked annually and serviced with pre-diluted John Deere COOL-GARD II ™.

UP00731,000035A-19-26JUN17

Test the Safety Interlock System Before Startup

Test the Neutral Start Switch

1. Sit on operator's seat.
2. Disengage PTO.
3. Move the transmission range shift lever to the H (high) or L (low) position.
4. Turn key switch to START position.

   Result: Engine must not crank.

Test the Seat Switch

1. Sit on operator's seat.
2. Do not depress the hydrostatic travel pedals.
3. Lock park brake.
4. Start engine.
5. Press PTO/RIO switch.
6. Raise up slightly from operator's seat. Do not dismount machine.

   Result: Engine must shut down within 1 second.

Test Reverse Implement Option (RIO)

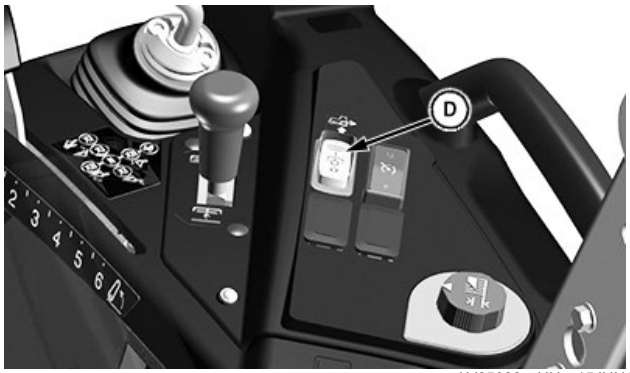
Test 1

CAUTION: Avoid Injury! Rotating blades are dangerous. Children or bystanders may be injured by runover and rotating blades.

Before backing up, carefully check the area around the machine.

LV25021—UN—01SEP16

PTO Shift Lever



LV25022—UN—15JUN16

PTO/RIO Switch

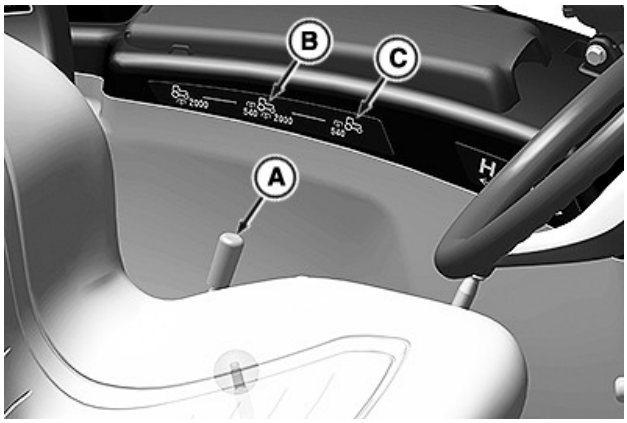
A—PTO Selector Lever
B—Mid/Rear PTO
C—Rear PTO
D—PTO / RIO Switch

1. Park machine safely.
2. Start engine.
3. Set engine speed to 1600 rpm or less.
4. Set PTO selector lever (A) to mid/rear PTO (B) or mid PTO (C).
5. Press PTO/RIO switch (D) to start attachment.

6. Look behind and down before backing up to be sure there are no bystanders and there is a clear path.
7. Begin reverse travel by depressing reverse travel pedal.

   Result: Attachment and engine should stop operation. If attachment or engine continues to operate while machine travels in reverse, do not continue operation.

Test 2



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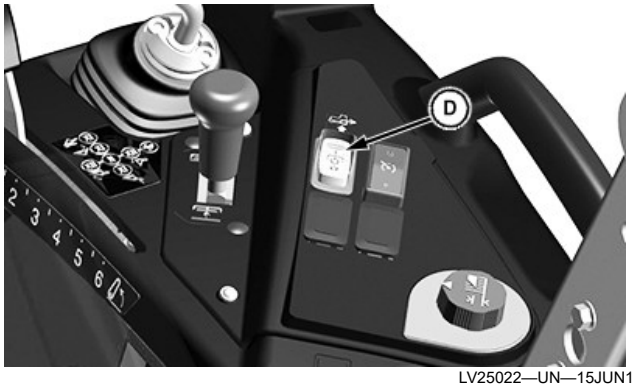
PTO Shift Lever



LV25022—UN—15JUN16

PTO/RIO Switch

A—PTO Selector Lever
B—Mid/Rear PTO
C—Rear PTO
D—PTO / RIO Switch

1. Park machine safely.
2. Start engine.
3. Set engine speed to 1600 rpm or less.
4. Set PTO selector lever (A) to mid/rear PTO (B) or mid PTO (C).
5. Press PTO/RIO switch (D) to start attachment.
6. Look behind and down before backing up to be sure there are no bystanders and there is a clear path.
7. Press PTO/RIO switch (D) to the momentary position (RIO) to activate the reverse implement option.

   Result: Machine should begin to travel in reverse and attachment should remain in operation.

GS25068,0003E17-19-02FEB18

Avoid Damage to Plastic and Painted Surfaces

- Rinse the machine before wiping plastic parts. Using a dry cloth causes scratches.
- Insect repellent spray damages plastic and painted surfaces. Do not spray insect repellent near machine.
- Be careful not to spill fuel on the machine, it damages the surface. Wipe up spilled fuel immediately.
- Prolonged exposure to sunlight damages the hood surfaces.

KN52281,1003EA4-19-15JAN19

Clean Plastic Surfaces

IMPORTANT: Avoid damage! Improper care of machine plastic surfaces can damage that surface:

- **Do not wipe plastic surfaces when they are dry. Dry wiping results in minor surface scratches.**
- **Use a soft, clean cloth (bath towel, diaper, automotive mitt).**
- **Do not use abrasive materials, such as polishing compounds, on plastic surfaces.**

1. To remove the dirt and dust that scratches the surface, rinse hood and entire machine with clean water.
2. Wash surface with clean water and a mild liquid automotive washing soap.
3. Dry thoroughly to avoid water spots.
4. Wax the surface with a liquid automotive wax. Use products that specifically say “contains no abrasives.”

IMPORTANT: Avoid damage! Do not use a power buffer to remove wax.

5. Buff applied wax by hand using a clean, soft cloth.

KN52281,1003F50-19-29NOV16

Clean and Repair Metal Surfaces

Clean:

To care for the painted metal surfaces of the machine, follow automotive practices. To maintain the factory look

of the machine painted surfaces, use a high-quality automotive wax regularly.

.

Repair Minor Scratches (Surface Scratch):

1. Clean area to be repaired thoroughly.

IMPORTANT: Avoid damage! Do not use rubbing compound on painted surfaces.

2. Use automotive polishing compound to remove surface scratches.
3. Apply wax to the entire surface.

Repair Deep Scratches (Bare Metal or Primer Showing):

1. Clean area to be repaired with rubbing alcohol or mineral spirits.
2. To fill scratches, use a paint stick with factory-matched colors. Paint sticks are available from an authorized dealer. Follow directions included on the paint stick for use and for drying.
3. Smooth out surface using an automotive polishing compound. Do not use power buffer.
4. Apply wax to the entire surface.

KN52281,1003F51-19-15JAN19

Diesel Fuel

Use the proper diesel fuel to help prevent decreased engine performance and increased exhaust emissions. Failure to follow the fuel requirements listed below can void your engine warranty.

Consult your local fuel distributor for properties of the diesel fuel 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 ISO EN 590 or ASTM D975 are recommended.

Required fuel properties

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

Cetane number of 45 minimum. Cetane number greater than 50 is preferred, especially when temperatures are below -20°C (-4°F) or elevations above 1500 m (5000 ft).

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

Fuel lubricity should comply with ISO EN 590 or ASTM D975.

IMPORTANT: Avoid damage! Improper fuel additive usage may cause damage on fuel injection equipment of diesel engines.

If a fuel of low or unknown lubricity is used, addition of John Deere PREMIUM DIESEL FUEL CONDITIONER at the specified concentration is recommended.

Sulfur content

- Diesel fuel quality and fuel sulfur content must comply with all existing emissions regulations for the area in which the engine operates.
- Use only ultra low sulfur diesel (ULSD) fuel with a maximum of 0.0015% (15mg/kg) sulfur content.

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

Using BioDiesel Fuel

BioDiesel fuels may be used only if the BioDiesel fuel properties meet the latest edition of ASTM D6751, ASTM D7467, EN14214, or equivalent specification.

The current maximum allowable BioDiesel concentration is a 20% blend (also known as B20) in petroleum diesel fuel.

Use of B6-B20 fuel will require special procedures for fuel handling and machine storage.

To learn of any changes to the recommendations for BioDiesel usage with your diesel engine, ask your John Deere dealer.

Handling and Storing Diesel Fuel

CAUTION: Avoid injury! 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.

IMPORTANT: Avoid damage! Do not use galvanized containers—diesel fuel stored in galvanized containers reacts with zinc coating in the container to form zinc flakes. If fuel contains water, a zinc gel will also form. The gel and flakes will quickly plug fuel filters and damage fuel injectors and fuel pumps.

- Fill the fuel tank at the end of each day's operation to prevent water condensation and freezing during cold weather.
- When fuel is stored for an extended period or if there is a slow turnover of fuel, add a fuel conditioner to stabilize the fuel and to prevent water condensation. Contact your fuel supplier for recommendations.

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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.

To prevent water condensation and freezing during cold weather, fill the fuel tank at the end of operation each day.

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 requires more frequent replacement due to premature plugging.

Check engine oil level daily before starting the engine. Rising oil level indicates fuel dilution of the engine oil.

IMPORTANT: The fuel tank pressure is relieved through the filler cap. If a new filler cap is required, always replace it with an original John Deere replacement cap.

When fuel is stored for an extended period or if there is a slow turnover of fuel, add a fuel conditioner to stabilize the fuel and prevent water condensation. Contact your

fuel supplier or John Deere dealer for recommendations.

UP00731,0000158-19-17JAN19

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.

DX,FUEL6-19-13JAN18

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

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.

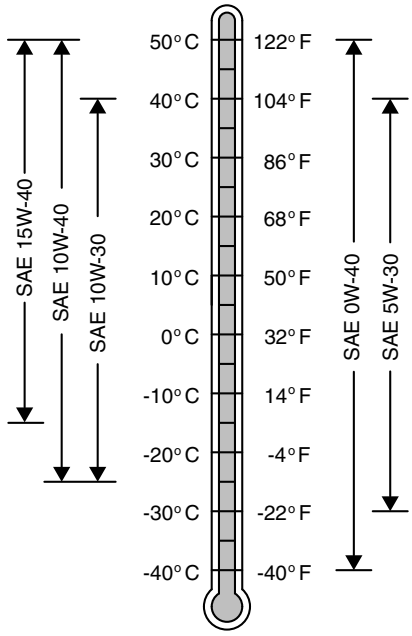
Synthetic lubricants may be used if they meet the performance requirements as shown in this manual.

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

Engine Oil



TS1691—UN—18JUL07

Oil Viscosities for Air Temperature Ranges

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

The following John Deere oils are preferred:

- John DeerePlus-50™ II
- John DeereTorq-Gard™ Supreme

Other oils may be used if John Deere oils are not available, provided they meet one of the following specifications:

- API Service Classification CJ-4, or CK-4
- ACEA Specification E6 or E9
- JASO Specification DH-2

Diesel fuel quality and fuel sulfur content must comply with all existing emissions regulations for the area in which the engine operates.

UP00731,1004800-19-12JAN17

Diesel Engine Coolant

Preferred coolants:

The following pre-mix engine coolants are preferred:

- **John Deere Cool-Gard™ II**
- **John Deere Cool-Gard™ II PG**

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: Avoid damage! 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 one of the following specifications:

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

- Pre-mix coolant meeting ASTM D6210 requirements
- Coolant concentrates meeting ASTM D6210 requirements in a 40% to 60% mixture of concentrate with quality water
- Pre-mix coolant meeting ASTM D3306 requirements
- Coolant concentrates meeting ASTM D3306 requirements in a 40% to 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:

- Is formulated with a quality nitrite-free additive package.
- Protects the cooling system metals (cast iron, aluminum alloys, and copper alloys such as brass) from corrosion.

Water Quality

Water quality is important to the performance of the cooling system. Distilled, deionized, or demineralized water is recommended for mixing with ethylene glycol 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 operating hours.

If a coolant other than Cool-Gard™ II or Cool-Gard™ II PG is used, reduce the drain interval to 2 years or 2000 operating hours.

IMPORTANT: Avoid Damage!

- **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.**

UP00731,0000022-19-17JAN19

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

Additional Information About Diesel Engine Coolants and John Deere COOL-GARD™ II Coolant Extender

Engine coolants are a combination of three chemical components: ethylene glycol (EG) or propylene glycol (PG) antifreeze, inhibiting coolant additives, and quality water.

Coolant Specifications

John Deere COOL-GARD™ II Premix either EG or PG, are fully formulated coolants that contain all three components in their correct concentrations. DO NOT add an initial charge of John Deere COOL-GARD II Coolant Extender to COOL-GARD II Premix. DO NOT add any other supplemental coolant additive or water to COOL-GARD II Premix.

John Deere COOL-GARD II Concentrate contains both ethylene glycol and inhibiting coolant additives. Mix this product with quality water, but DO NOT add an initial charge of John Deere COOL-GARD II Coolant Extender or any other supplemental coolant additive.

Replenish Coolant Additives

Some coolant additives will gradually deplete during engine operation. Periodic replenishment of inhibitors is required, even when John Deere COOL-GARD II Premix or COOL-GARD II Concentrate is used. Follow the recommendations in this manual for the use of John Deere COOL-GARD II Coolant Extender.

Why use John Deere COOL-GARD II Coolant Extender?

Operating without proper coolant additives will result in increased corrosion, cylinder liner erosion and pitting, and other damage to the engine and cooling system. A simple mixture of ethylene glycol or propylene glycol and water will not give adequate protection.

John Deere COOL-GARD II Coolant Extender is a chemically matched additive system designed to fortify the proprietary additives used in John Deere COOL-GARD II Premix and COOL-GARD II Concentrate and to provide optimum protection for up to six years or 6000 hours of operation.

COOL-GARD is a trademark of Deere & Company

Avoid Automotive-type Coolants

Never use automotive-type coolants (such as those meeting ASTM D3306). These coolants do not contain the correct additives to protect heavy-duty diesel engines. Do not treat an automotive engine coolant with supplemental coolant additives because the high concentration of additives can result in additive fallout.

Water Quality

Water quality is important to the performance of the cooling system. Distilled, deionized, or demineralized water is recommended for mixing with ethylene glycol and propylene glycol base engine coolant concentrate. All water used in the cooling system should meet the following minimum specifications for quality:

Chlorides	<40 mg/L
Sulfates	<100 mg/L
Total dissolved solids	<340 mg/L
Total hardness	<170 mg/L
pH	5.5 to 9.0

Freeze Protection

The relative concentrations of glycol and water in the engine coolant determine its freeze protection limit.

Ethylene Glycol	Freeze Protection Limit
40%	-24°C (-12°F)
50%	-37°C (-34°F)
60%	-52°C (-62°F)
Propylene Glycol	**Freeze Protection Limit**
40%	-21°C (-6°F)
50%	-33°C (-27°F)
60%	-49°C (-56°F)

DO NOT use a coolant-water mixture greater than 60% ethylene glycol or 60% propylene glycol.

DX,COOL17-19-20APR11

Testing Diesel Engine Coolant

Maintaining adequate concentrations of glycol and inhibiting additives in the coolant is critical to protect the engine and cooling system against freezing, corrosion, and cylinder liner erosion and pitting.

Test the coolant solution at intervals of 12 months or less and whenever excessive coolant is lost through leaks or overheating.

Coolant Test Strips

Coolant test strips are available from your John Deere dealer. These test strips provide a simple, effective method to check the freeze point and additive levels of your engine coolant.

When Using John Deere COOL-GARD II

John Deere COOL-GARD II Premix™ , COOL-GARD II PG Premix and COOL-GARD II Concentrate are maintenance free coolants for up to six years or 6000 hours of operation, provided that the cooling system is topped off using only John Deere COOL-GARD II Premix or COOL-GARD II PG premix. Test the coolant condition annually with coolant test strips designed for use with John Deere COOL-GARD II coolants. If the test strip chart indicates that additive is required, add John Deere COOL-GARD II Coolant Extender as directed.

Add only the recommended concentration of John Deere COOL-GARD II Coolant Extender. DO NOT add more than the recommended amount.

When Using Nitrite-Containing Coolants

Compare the test strip results to the supplemental coolant additive (SCA) chart to determine the amount of inhibiting additives in your coolant and whether more John Deere Liquid Coolant Conditioner should be added.

Add only the recommended concentration of John Deere Liquid Coolant Conditioner. DO NOT add more than the recommended amount.

Coolant Analysis

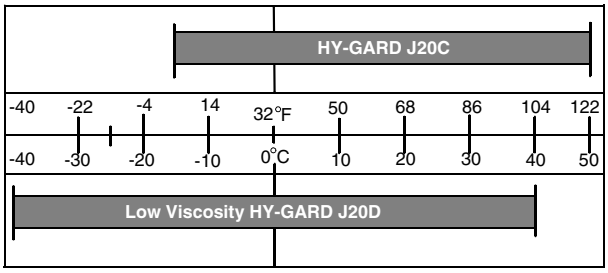
For a more thorough evaluation of your coolant, perform a coolant analysis. The coolant analysis can provide critical data such as freezing point, antifreeze level, pH, alkalinity, nitrite content (cavitation control additive), molybdate content (rust inhibitor additive), silicate content, corrosion metals, and visual assessment.

Contact your John Deere dealer for more information on coolant analysis.

DX,COOL9-19-11APR11

Transmission and Hydraulic Oil

IMPORTANT: Avoid damage! Transaxle is filled with John Deere HY-Gard™ (J20D) transmission oil at the factory. DO NOT mix oils.



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Do not use type “F” automatic transmission fluid.

COOL-GARD is a trademark of Deere & Company

Use Low Viscosity Hy-Gard™ (J20D) transmission oil.

John Deere Low Viscosity Hy-Gard transmission oil is specially formulated for operation below -18°C (0)°F to provide maximum protection for the hydraulic system.

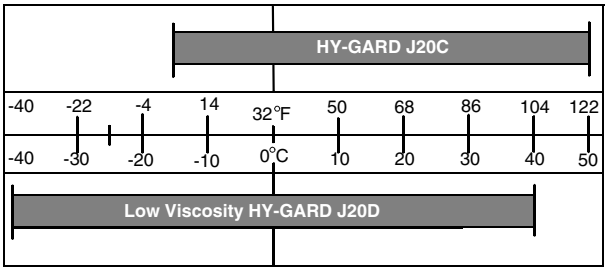
Use oil viscosity based on the expected air temperature range during the period between oil changes.

IMPORTANT: Avoid damage! Use recommended oil only. Do not use engine oil or "Type F" automatic transmission fluid.

Other oils may be used if they meet John Deere standard JDM J20D or J20C.

KN52281,1003F22-19-22AUG12

Front Axle and MFWD Oil



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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

UP00731,000016D-19-11SEP15

Grease

IMPORTANT: Avoid Damage! Use recommended John Deere greases to avoid component failure and premature wear.

The recommended John Deere greases are effective within an average air temperature range of -29 to 135 degrees C (-20 to 275 degrees F).

If operating outside that temperature range, contact your Servicing dealer for a special-use grease.

The following greases are preferred:

- John Deere Multi-Purpose SD Polyurea Grease
- John Deere Multi-Purpose HD Lithium Complex Grease

If not using any of the preferred greases, be sure to use a general all-purpose grease with an NLGI grade No.2 rating.

Wet or high speed conditions may require use of a special-use grease. Contact your Servicing dealer for information.

The following lubricant is preferred:

- SUPER LUBE® lubricant.[1]

JZ81662,0000FD4-19-18MAR13

Hy-Gard is a trademark of Deere & Company

[1] SUPER LUBE is a registered trademark of Synco Chemical Corp.

Maintenance—As Required

Service—As Required

- Replace alternator belt.
- Replace air filter elements.
- Replace light bulbs.
- Replace fuses.
- Clean and replace battery.
- Replace radiator hoses and clamps.
- Check engine coolant level. Refill with correct coolant and conditioner as required.
- Check and clean radiator fins.
- Check tire air pressure.
- Check primary fuel filter. Drain water and sediment from fuel sediment bowl, and service water separator.
- Check and adjust front wheel toe-in.
- Check and clean front grille and side screens.
- Check and clean radiator cooling screen (If equipped).
- Clean debris from engine compartment.
- Monitor engine exhaust filter and perform cleaning as required.

UP00731,00001AE-19-13JUL16

Controls and Instruments Maintenance

For controls and instruments maintenance, see specific component in maintenance section.

UP00731,0000224-19-27JUN16

Engine Maintenance

Required Emission-Related Information

Service Provider

A 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-19-08DEC23

Daily Startup Procedure

- ☐ Test safety systems. Perform safety interlock system checkout procedure.
- ☐ Check engine oil level.
- ☐ Check / drain water separator.
- ☐ Check transmission fluid level.
- ☐ Check coolant level.
- ☐ Clean air intake screen and radiator screen.
- ☐ Check air filter elements and dust valve.
- ☐ Check wheel bolt torques.
- ☐ Check tire pressure.
- ☐ Check fuel level.
- ☐ Remove grass and debris from machine.
- ☐ Check area below machine for leaks.

RD47322,0000AEA-19-15APR16

Check Engine Oil Level

IMPORTANT: Avoid damage! Failure to check the oil level regularly could lead to serious engine problems if oil level is low:

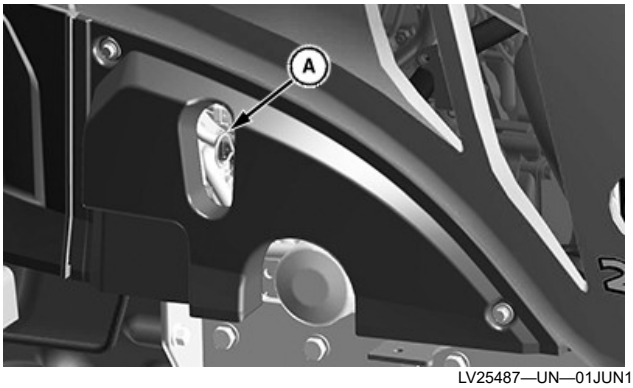
- **Check oil level before operating.**
- **Check oil level when the engine is cold and not running.**
- **Keep level between the Full and the Add marks.**
- **Shut off engine before adding oil.**

NOTE: Check engine oil when engine is cold. If engine is warm, allow to cool for at least 5 minutes before checking oil..

Check engine oil with machine parked on a level surface.

1. Park the machine safely.

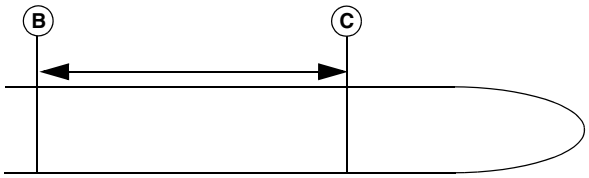
IMPORTANT: Avoid damage! Dirt and contamination can enter engine when checking oil level. Clean area around dipstick before loosening or removing.



LV25487—UN—01JUN16

A—Dipstick

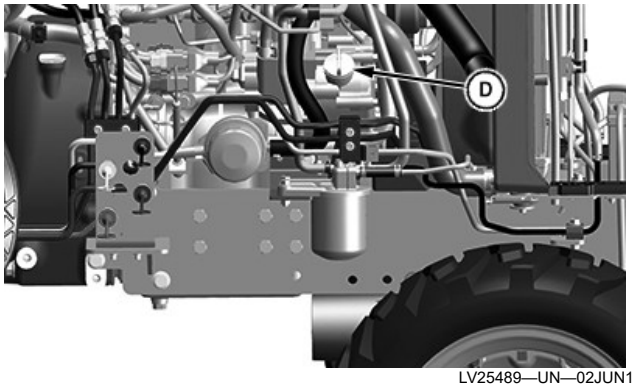
2. Remove dipstick (A), located at the right side of the engine. Wipe with a clean cloth.
3. Install dipstick.
4. Remove dipstick.



LVAL38308—UN—21AUG12

B—Oil Level
C—Oil Level

5. Check oil level on dipstick. Oil level should be between levels (B) and (C) on dipstick.
6. If oil level is low:
   a. Raise hood.
   b. Remove right side panel.



LV25489—UN—02JUN16

D—Oil Fill Cap

c. Remove oil fill cap (D).

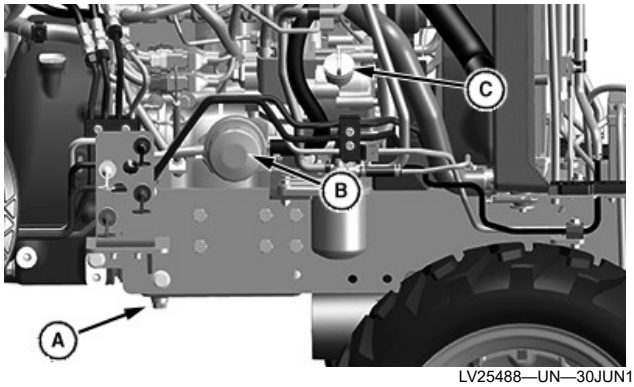
d. Add recommended engine oil until level is within operating range on dipstick. Do not overfill.

e. Install dipstick.

7. If oil is above the specified level on the dipstick, drain to the proper level.
8. Install right side panel.
9. Lower hood.

GS25068,0003E18-19-01FEB18

Change Engine Oil and Filter



LV25488—UN—30JUN16

A—Oil Drain Plug
B—Oil Filter
C—Oil Fill Cap

1. Run engine to warm the oil.
2. Park machine safely.
3. Place drain pan under oil drain plug (A) located on under side of engine.
4. Remove drain plug.
5. Wipe dirt from around oil filter (B).
6. Turn filter counterclockwise to remove.
7. Put a light coat of clean engine oil on gasket of new filter.
8. Install replacement oil filter by turning filter clockwise until gasket contacts filter base. Tighten additional one half turn.
9. Install drain plug. Do not overtighten.
10. Remove oil fill cap (C).
11. Add engine oil.

Specification	
Engine Crankcase—Oil—Capacity	4.3 L (4.5 qt)

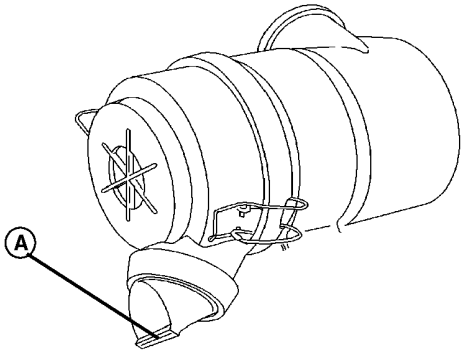
12. Install oil fill cap.
13. Start and run engine at idle to check for leaks.
14. Stop engine. Fix any leaks before operating.
15. Check engine oil level. Add oil if necessary.

GS25068,0003E19-19-01FEB18

Clean Dust Unloading Valve

IMPORTANT: Avoid damage! Ensure air cleaner element and rubber dust unloading valve are installed before operating the engine.

1. Park the machine safely.
2. Allow engine to cool.
3. Access the engine compartment.



LVAL38312—UN—21AUG12

A—Dust Unloading Valve

4. Squeeze dust unloading valve (A) to clean. Remove and replace if damaged.

KN52281,1003F0E-19-12JUN17

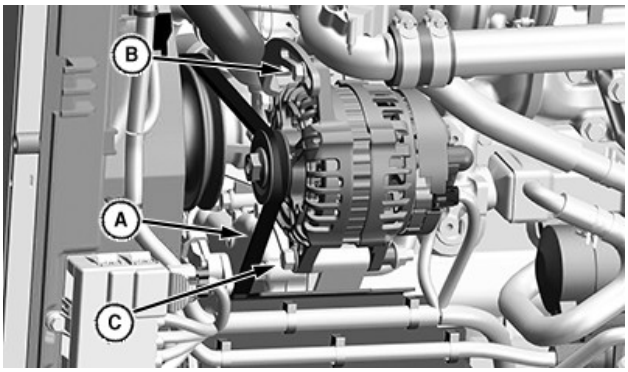
Service the Alternator Belt

CAUTION: Avoid injury! Rotating parts can catch fingers, loose clothing, or long hair. Wait for engine and all moving parts to stop before leaving operator station to adjust or service machine.

NOTE: This procedure requires a John Deere belt tension gauge, or equivalent.

Check Belt Tension

1. Park machine safely. Allow engine to cool.
2. Raise hood.
3. Remove left side panel.



LV25490—UN—30JUN16

A—Thumb Position
B—Adjusting Bolt
C—Pivot Bolt

4. Check tension by using the belt tension gauge to apply pressure to the belt (A) halfway between the pulleys.
5. Adjust belt tension if not within specifications.

Specification	
Belt Tension—Force	334 N (75 lb)
Belt Tension—Inward Pressure	9 mm (3/8 in.)

Adjust Belt Tension

1. Loosen adjusting bolt (B) and pivot bolt (C).
2. Apply outward pressure to alternator housing until tension is correct.
3. Tighten bolts (B) and (C).
4. Check belt tension.
5. Install left side panel.
6. Lower hood.

Replace Belt

NOTE: Replace alternator belt if excessive wear, damage, or stretching is detected.

1. Park machine safely. Allow engine to cool.
2. Raise hood.
3. Remove left side panel.
4. Loosen adjusting bolt (B) and pivot bolt (C).
5. Apply inward pressure to alternator housing.
6. Remove belt from alternator pulley, fan pulley, and crankshaft pulley.
7. Route belt over fan and remove.
8. Install new belt over fan and onto pulleys.
9. Apply outward pressure to alternator housing until tension is correct.
10. Tighten bolts (B) and (C).
11. Check belt tension. Adjust as necessary.
12. Install left side panel.
13. Lower hood.

GS25068,0003E1A-19-02FEB18

Clean Front and Side Grille Screens

IMPORTANT: Avoid damage! Grille and side screens must be clean to prevent engine from overheating and to allow adequate air intake.

1. Check front and side grille screens for dirt, grass clippings and debris.
2. Raise hood and clean screens with a brush or cloth.
3. Lower hood.

GS25068,0003E1B-19-01FEB18

Clean Engine Compartment

Keep all the dirt and debris cleaned from inside of the engine compartment.

1. Park machine safely.
2. Clean all the dirt and debris from inside of the engine compartment.

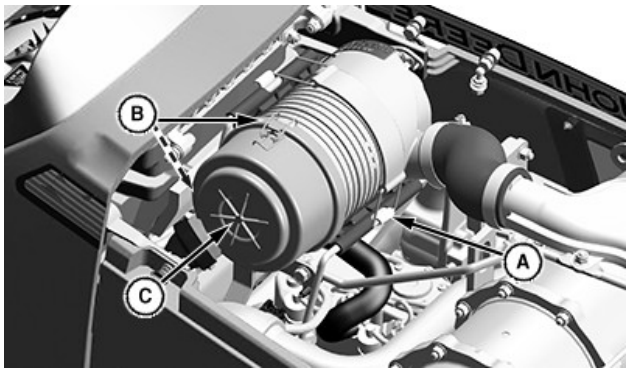
UP00731,00002A1-19-16FEB17

Service Air Filter Elements

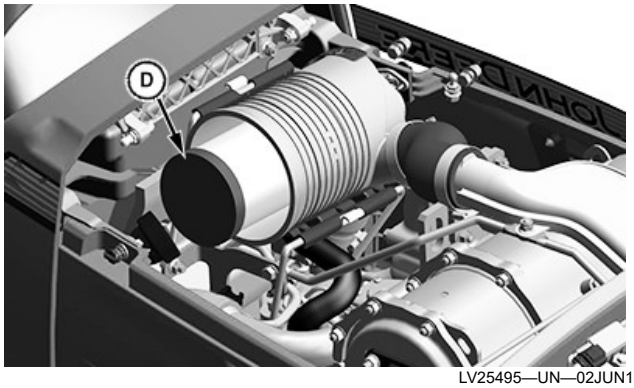
CAUTION: Avoid injury! Touching hot surfaces can burn skin. The engine, components, and fluids will be hot if the engine has been running. Allow the engine to cool before servicing or working near the engine and components.

IMPORTANT: Avoid damage! Dirt and debris can enter the engine through a damaged filter element:

Service Primary Air Filter Element:



LV25494—UN—02JUN16



LV25495—UN—02JUN16

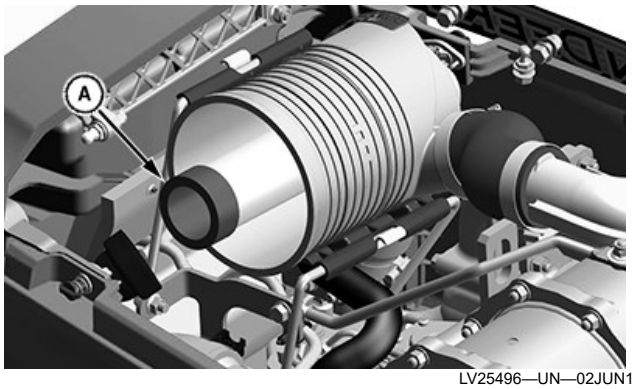
A—Hold Down Strap
B—Latches
C—Air Filter Canister Cover
D—Primary Element

1. Park machine safely.
2. Allow engine to cool.
3. Raise hood.
4. Remove hold down strap (A).
5. Tilt canister up and release latches (B) and remove air filter canister cover (C).
6. Remove and discard primary element (D). Clean out any dirt in canister, taking care not to damage secondary filter element. Replace with a new primary filter element.
7. Install air filter canister cover with rubber dust unloading valve pointing downward.
8. Secure latches.
9. Lower hood.

Service Secondary Air Filter Element:

IMPORTANT: Avoid damage! Secondary element does not need routine replacement. Visually inspect it without removing from canister. Do not attempt to clean secondary element. If secondary element is replaced, install new primary and secondary element immediately to prevent dust from entering air intake system.

1. Remove air filter canister cover.
2. Remove and discard primary air filter element.



LV25496—UN—02JUN16

A—Secondary Element

3. Remove and discard secondary air filter element (A). Replace with a new secondary air filter element.
4. Install new primary air filter element.
5. Install air filter canister cover.
6. Position canister back in place and install strap.
7. Lower hood.

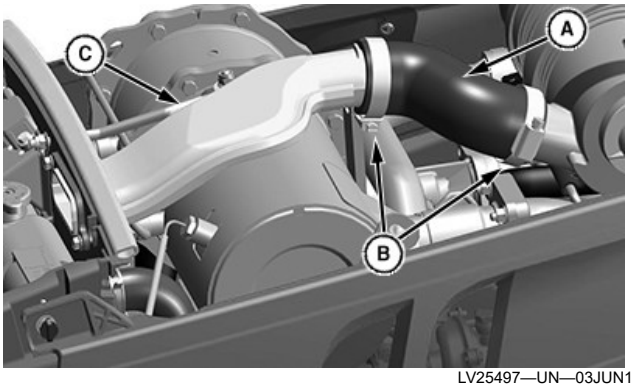
GS25068,0003D98-19-02FEB18

Check Air Filter Hose

NOTE: Inspect air intake system hoses and connections each time the air filter is changed, or at a minimum yearly.

1. Park machine safely.
2. Raise hood.

NOTE: Visually inspect hose for cracks and wear. Squeeze hose to check for deterioration. Hose should not be hard and brittle, nor soft or swollen.



LV25497—UN—03JUN16

A—Hose
B—Hose clamps
C—Air Intake Duct

3. Check air intake hose (A).
4. Tighten hose clamps (B) if necessary.
5. Check for wear on air intake duct (C).
6. Lower hood.

GS25068,0003D99-19-23JAN18

Exhaust Filter Maintenance and Service

IMPORTANT: Performing recommended exhaust filter cleaning will help to reduce ash build up and extend the life. Refer to the "Operating" section of the OM for exhaust filter cleaning directions.

See your John Deere dealer for exhaust filter maintenance. Ensure that exhaust filter cleaning has been performed first as this may resolve problems. If exhaust filter cleaning has been performed and the service exhaust filter indicator light (Stop and exhaust filter) on the dash turns on after a short period, exhaust filter service may be required.

The Exhaust Filter includes the Diesel Oxidation Catalyst (DOC) and Diesel Particulate Filter (DPF). The DPF retains residual ash, which is the noncombustible result of additives used in crankcase lubrication oils and the fuel. The exhaust filter provides many hours of maintenance free operation. At some point the exhaust filter will require replacement to remove the accumulated ash.

The exact number of hours of operation before replacement or service is required will vary depending upon the engine's power category, duty cycle and operating conditions, engine oil ash content, and fuel quality. Adhering to John Deere's recommended oil and fuel specifications will maximize the hours of operation before service is required.

During normal equipment operation the DPF service interval will depend on the rate at which ash accumulates in it. An ECU will provide an alert when ash cleaning is required. This does not occur until at least 3,000 hours and may be longer depending on usage. As ash levels rise in the DPF, the capacity for soot storage is reduced and the back pressure of the exhaust system will rise more frequently. The exhaust filter indicator will indicate when cleaning or service is needed.

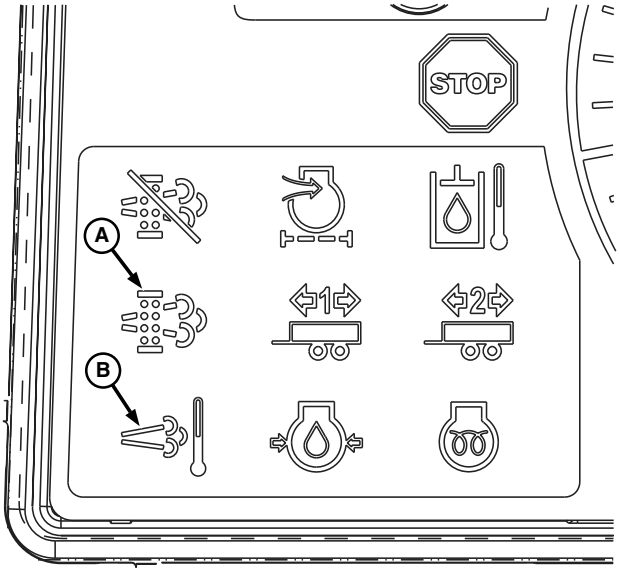
The removal and disposal of DPF ash must be done by a professional, see your John Deere dealer. Do not attempt to remove ash by using water or other chemicals. Removing ash by these methods may damage the material securing the DPF in its canister, resulting in the loosening of the DPF element in the canister and subjecting it to damage from vibration.

Failure to follow the approved ash removal methods may damage the exhaust filter resulting in potential denial of the Exhaust Filter emissions warranty. Take your machine to an authorized John Deere dealer for service.

UP00731,0000177-19-17OCT19

Automatic (AUTO) Exhaust Filter Cleaning

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



LV17596—UN—01MAY13

A—Exhaust Filter Indicator
B—High Exhaust Temperature Indicator

Automatic exhaust filter cleaning is started when soot in the exhaust filter reaches a certain level. This occurs less frequently if the engine is operated for long periods under conditions where passive exhaust filter cleaning takes place. Automatic exhaust filter cleaning is initiated and performed without any intervention on the part of the operator.

The exhaust filter indicator (A) will illuminate if the system determines that soot buildup in the exhaust filter requires cleaning. The light will remain on until an auto exhaust cleaning process is performed

An exhaust filter cleaning will start automatically unless the disabled switch has been activated. The high exhaust temperature indicator (B) will illuminate and stay on during the cleaning process.

Do not disable automatic exhaust filter cleaning unless it is absolutely necessary.

If there is not sufficient engine speed during an automatic exhaust filter cleaning, the information display will show “Increase Engine Speed”. Operator should increase engine speed, so the automatic exhaust filter cleaning can be performed.

UP00731,00001FC-19-21DEC17

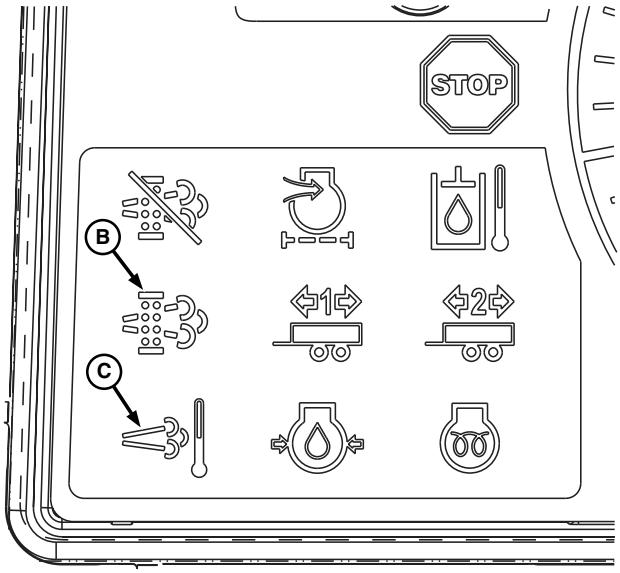
Disabled Exhaust Filter Cleaning

IMPORTANT: Operate vehicle with the exhaust filter cleaning mode switch in the AUTO position.

If your vehicle must be used in a situation not suited for higher temperatures created during exhaust filter cleaning, the system can be temporarily disabled. Be sure to deactivate the disabled exhaust filter cleaning mode as soon as possible to avoid soot buildup in the exhaust filter.

LV26014—UN—24AUG16

Exhaust Filter Cleaning Disable Switch



LV17598—UN—01MAY13

A—Exhaust Filter Cleaning Disable Switch
B—Exhaust Filter Cleaning Indicator
C—High Exhaust Temperature Indicator

Activate exhaust filter cleaning disable switch (A) to disable exhaust filter cleaning mode. The LED will illuminate indicating it is disabled. To enable exhaust filter cleaning, select exhaust filter cleaning disable switch (A). The LED will turn off indicating it is enabled

While in disabled mode, if the system determines that soot buildup in the exhaust filter requires cleaning, Exhaust Filter Indicator - Restriction (B) comes on. Press exhaust filter cleaning disable switch (A) to return to Automatic (AUTO) mode. High Exhaust Temperature Indicator (C) remains illuminated during the exhaust filter cleaning.

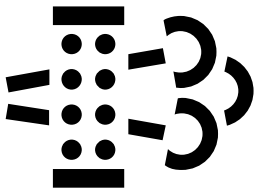
Do not disable automatic exhaust filter cleaning unless it is absolutely necessary. If disabled mode is used frequently, the system will eventually activate a parked exhaust filter cleaning. Meaning that the engine performance is reduced and will not return to normal until a park exhaust filter cleaning is performed.

WS68074,00016B5-19-24AUG16

Parked Exhaust Filter Cleaning

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

H94831—UN—13OCT09
Service Alert Indicator



H94828—UN—13OCT09
Exhaust Filter Cleaning Indicator

The following occurs when exhaust filter becomes restricted:

- Service alert and exhaust filter cleaning indicators (on dash) are illuminated.
- Engine power is reduced.
- Information display will show “Parked Regen Required”

At this time, a parked exhaust filter cleaning is required.

Before a parked exhaust filter cleaning can be completed, the following criteria must be met:

- Set engine rpm at low idle.
- Coolant temperature **must** be above 60 deg°C (140° F).
- Transmission **must** be in neutral.
- Zero ground speed commanded.
- Park brake **must** be engaged.
- PTO **must** be turned off.

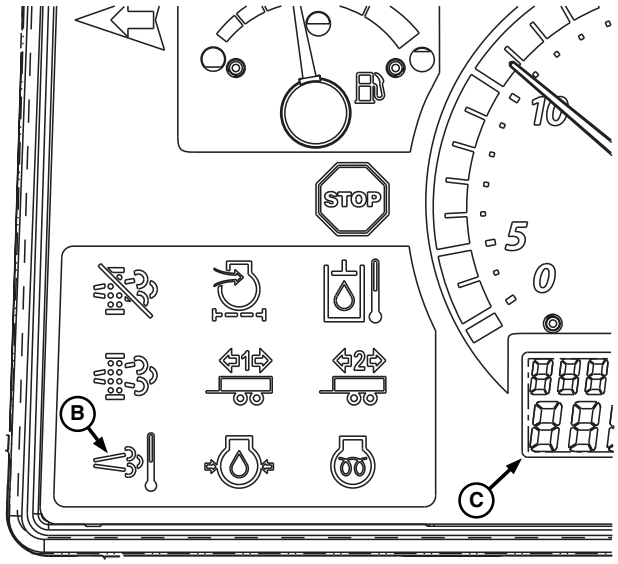
IMPORTANT: Select a suitable space to park the machine and lower all implements to the ground.

No other machine functions can be used while exhaust filter cleaning is taking place with the machine parked. Excluded from this are functions that are required for an emergency shutdown of the machine.

Make sure the low fuel indicator is not displayed and there is at least 1/8 of a tank of fuel before starting regeneration.

Only stop engine if absolutely necessary due to heat build up in the engine compartment.

LV26015—UN—24AUG16



LV17600—UN—01MAY13

A—Parked Cleaning Position
B—Exhaust Filter Temperature Indicator
C—Information Display
D—Filter Cleaning Disable Switch

1. Press and hold the exhaust filter cleaning switch (A) in the parked cleaning position for 5 seconds; LED above the switch will start blinking if all conditions are met. Release, then push for another 3 seconds; the icon should remain lit. The following prompt messages may appear on the screen before the filter cleaning will start:

NOTE: If cancellation of a parked exhaust filter cleaning process is necessary, push filter cleaning disable switch (D).

Parked regeneration is aborted if any messages appear. The process must be repeated by holding the Parked Regen button for 5 seconds.

Exhaust Filter Messages	
Apply Park Brake	Engage the parking brake.
Filter Hours	Not enough time has elapsed since last regeneration.
Engine Cold	The engine is too cold. The engine must be at operating temperature before a parked regeneration is performed.
Shift To Neutral	Shift the transmission range selector to neutral.
Shut PTO Off	Turn off the PTO.
Reduce Engine Speed	Reduce engine speed to low idle.

2. During the parked cleaning process, the high exhaust temperature indicator (B) and the LED above the Exhaust Filter Cleaning Switch (A) illuminate.
3. Soot Level will be displayed and engine speed will slowly increase.
4. When the parked cleaning process is complete, the LED above the Exhaust Filter Cleaning Switch turns off. High exhaust temperature indicator (B) remains on for 30 seconds after completion and the engine speed returns to low idle.

NOTE: If not returning machine to operation, allow engine time to return to normal operating temperature before stopping engine.

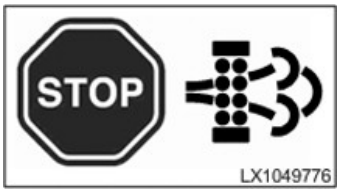
5. After high exhaust temperature indicator (B) turns off, the system defaults to automatic exhaust filter cleaning mode and machine can be operated as normal.

WS68074,00016B6-19-21DEC17

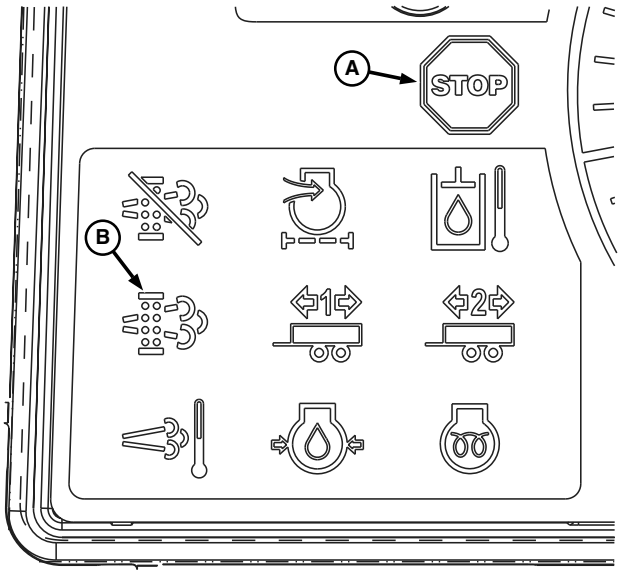
Service Exhaust Filter Cleaning

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

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



LX1049776—UN—22JUL10



LV17601—UN—01MAY13

A—Stop Indicator
B—Exhaust Filter Cleaning Indicator

If level of soot at exhaust filter is extreme, the icon shown opposite appears, “Recovery Regen Prohibited” is displayed on the information display, and engine power is reduced. In this case, contact your John Deere dealer to service and clean the exhaust filter.

Automatic exhaust filter cleaning and filter cleaning with machine parked are no longer possible at this time.

*NOTE: If the tractor is switched off after this icon appears, it will not reappear immediately if the engine is restarted, and the tractor is **briefly** capable of operating, albeit with reduced power. This action is intentional, the intention being to allow the dealer to perform service-cleaning.*

Tips for avoiding service-cleaning:

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

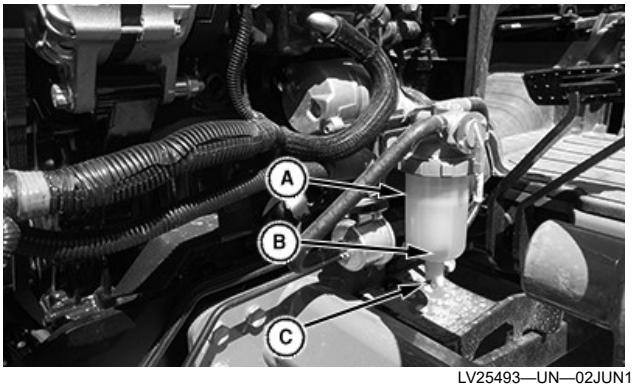
WS68074,00016B7-19-21DEC17

Check and Drain Water Separator

CAUTION: Avoid injury! Fuel vapors are explosive and flammable:

- **Do not smoke while handling fuel.**
- **Keep fuel away from flames or sparks.**
- **Shut off engine before servicing.**
- **Cool engine before servicing.**
- **Work in a well-ventilated area.**
- **Clean up spilled fuel immediately.**

1. Park machine safely. Allow engine to cool.



LV25493—UN—02JUN16

Covers removed for clarity

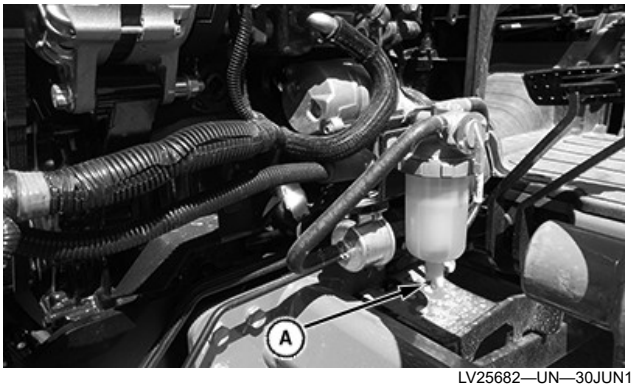
A—Sediment Bowl
B—Indicator Ring
C—Drain Cock

2. Check sediment bowl (A). If the orange indicator ring (B) is floating, water is present.
   a. Place drain pan under sediment bowl.
   b. Turn drain cock (C) to open position.
   c. Drain water until the orange indicator ring re-seats back on the bottom of bowl.
   d. Turn drain cock to closed position.

GS25068,0003D9A-19-23JAN18

Clean Water Separator and Filter Screen

1. Move the fuel shutoff valve to closed position.
2. Place drain pan under sediment bowl.



LV25682—UN—30JUN16

A—Drain Cock

3. Turn drain cock (A) to open position.
4. Wipe dirt from around sediment bowl.
5. Turn sediment bowl counterclockwise to remove.
6. Clean the filter screen and bowl.
7. Install sediment bowl.
8. Open fuel shutoff valve.

NOTE: Fuel system is self bleeding.

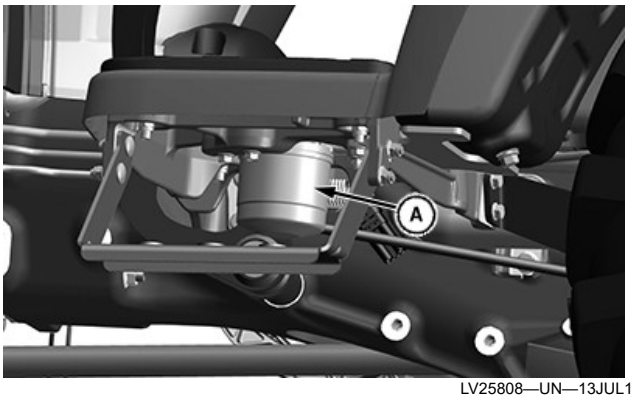
9. Turn key to the ON position for 10—15 seconds before attempting to start, electric pump purges air from water separator.

GS25068,0003D9B-19-23JAN18

Replace Fuel Filters

- Park machine safely. Allow engine to cool.
- Close fuel shutoff valve.

Replacing In-line Pre-Fuel Filter



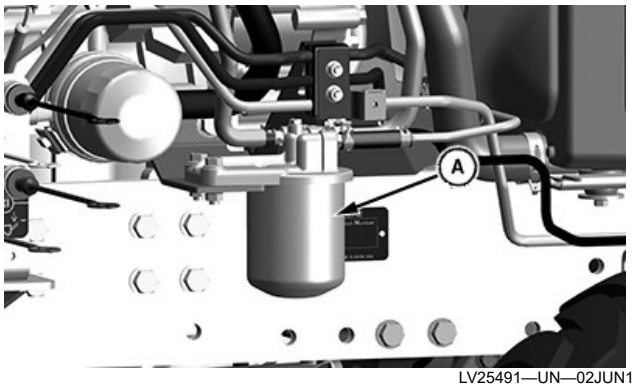
LV25808—UN—13JUL16

A—Fuel Filter

1. Position drain pan under fuel filter (A).
2. Wipe dirt from around filter.
3. Turn filter counterclockwise to remove.
4. Apply fuel to surface of new filter gasket.

5. Install replacement filter by turning filter clockwise until gasket contacts filter base. Tighten an additional 1/2 turn.
6. Start and run engine at idle to check for leaks.

Replacing Final Fuel Filter



LV25491—UN—02JUN16

A—Fuel Filter

1. Position drain pan under fuel filter (A).
2. Wipe dirt from around filter.
3. Turn filter counterclockwise to remove and discard.
4. Apply fuel to surface of new filter gasket.
5. Install new filter to filter head. Tighten to one complete turn after filter contacts head.
6. Open fuel shutoff valve.

GS25068,0003D9C-19-23JAN18

Fuel Injection Pump

IMPORTANT: Avoid damage! Do not clean a warm or hot fuel injection pump with steam or water. Clean with compressed air if pump is not cooled.

NOTE: The fuel injection pump is calibrated by the engine manufacturer and should not require any adjustments.

If engine is hard to start, lacks power, or runs rough, see Troubleshooting Section of this manual.

After performing the check in the troubleshooting section and your engine is still not performing correctly, contact your John Deere dealer.

KN52281,1003F19-19-22AUG12

Fuel Injection Nozzles

IMPORTANT: Avoid damage! Do not service or remove fuel injection nozzles. Service life of injection nozzles may be shortened by overheating, improper operation, poor fuel quality, or excessive idling.

If injection nozzles are not working correctly or are dirty, engine will run poorly. See your John Deere dealer for service.

KN52281,1003F1A-19-22AUG12

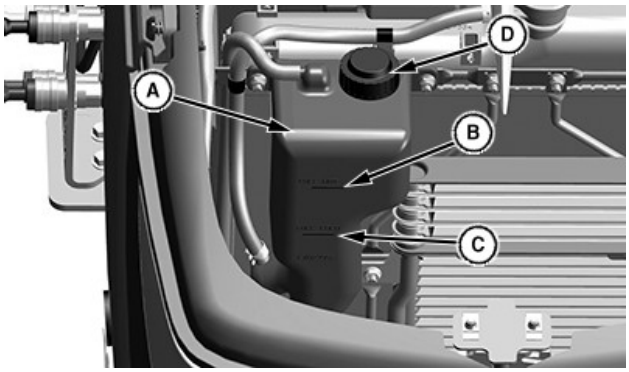
Drain and Flush Fuel Tank

See your John Deere dealer for draining and flushing the fuel tank.

UP00731,00002A4-19-29NOV16

Check Coolant Level

1. Park machine safely.
2. Raise hood.



LV25498—UN—03JUN16

A—Recovery Tank
B—Full Hot
C—Full Cold
D—Tank Cap

3. Check recovery tank (A) coolant level:
   - If engine is at operating temperature, coolant level should be at the FULL HOT line (B).
   - If engine is cold, coolant level should be at the FULL COLD line (C) on the recovery tank.
4. Remove recovery tank cap (D) if needed to add coolant.

IMPORTANT: Avoid damage! Using incorrect coolant mixture can damage the radiator:

- **Do not operate engine with plain water.**
- **Do not exceed a 50% mixture of coolant and water.**
- **Aluminum engine blocks and radiators**

require approved ethylene-glycol based antifreeze.

NOTE: John Deere COOL-GARD™ coolant is recommended when adding new coolant to the cooling system.

Follow the directions on the container for correct mixture ratio.

5. Add recommended coolant if needed.
6. Install recovery tank cap.
7. Lower hood.

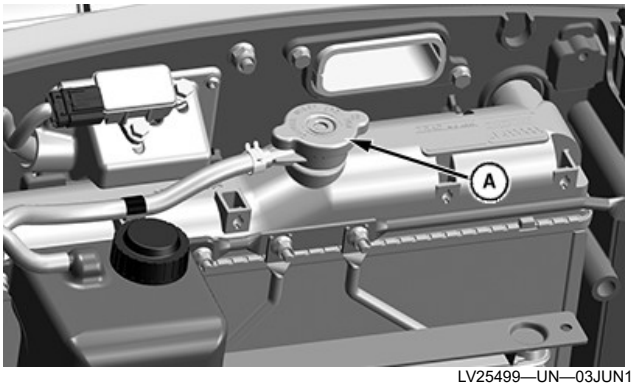
GS25068,0003D9D-19-23JAN18

Drain and Flush Cooling System

CAUTION: 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.

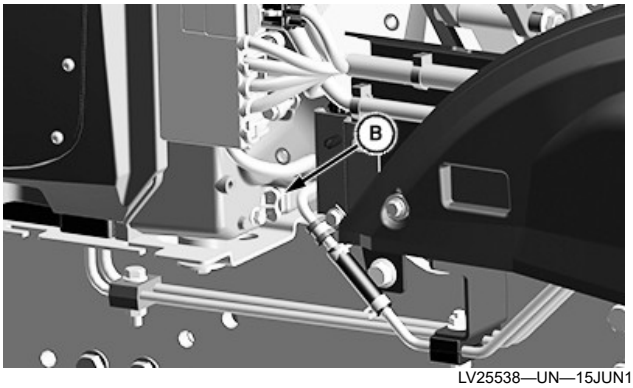
1. Park machine safely.
2. Allow engine to cool.
3. Raise hood.



LV25499—UN—03JUN16

A—Radiator Cap

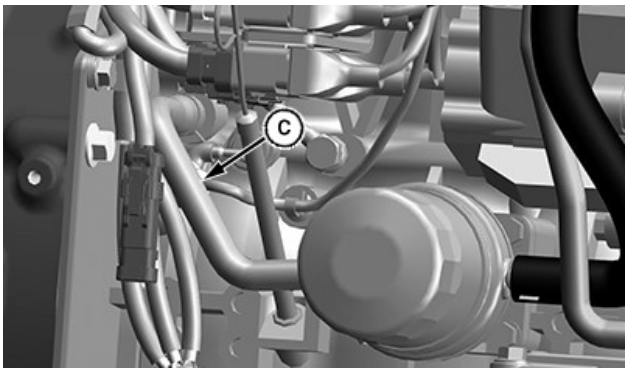
4. Slowly open radiator cap (A) to the first stop to release all pressure.
5. Close radiator cap tightly.



LV25538—UN—15JUN16

B—Radiator Drain Plug

6. Position drain pan under radiator drain plug (B) and drain coolant from the system.



LV25539—UN—03JUN16

C—Engine Oil Cooler Hose

7. For engines with engine oil cooler: Position drain pan under hose, remove hose (C) and allow all coolant to drain.
8. When coolant drains from the recovery tank, remove the radiator cap.
9. Close drain plug and install radiator hose, if removed.
10. Fill the cooling system with clean water. Run engine until water passes through the thermostat to stir up possible rust or sediment.
11. Stop engine immediately and drain water from system before rust and sediment settles.
12. Fill cooling system with clean water and John Deere Cooling System Cleaner, or John Deere Cooling System Quick Flush or an equivalent. Follow directions on the container.
13. After cleaning the system, drain cleaner and fill the system with clean water to flush the system.
14. Start and run engine until water passes through the thermostat.
15. Stop engine, and drain flushing water from the system.

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IMPORTANT: Avoid damage! Using incorrect coolant mixture can damage the radiator:

- **Do not operate engine with plain water.**
- **Do not exceed a 50% mixture of coolant and water.**
- **Aluminum engine blocks and radiators require approved ethylene-glycol based antifreeze.**

NOTE: John Deere COOL-GARD™ coolant is recommended when adding new coolant to the cooling system.

Follow the directions on the container for correct mixture ratio.

16. Close all drain orifices and fill cooling system to specification.

GS25068,0003D9E-19-02FEB18

Fill Cooling System

IMPORTANT: Avoid damage! Using incorrect coolant mixture can damage the radiator:

- **Do not operate engine with plain water.**
- **Do not exceed a 50% mixture of coolant and water.**
- **Aluminum engine blocks and radiators require approved ethylene-glycol based antifreeze.**

NOTE: John Deere COOL-GARD™ coolant is recommended when adding new coolant to the cooling system.

Follow the directions on the container for correct mixture ratio.

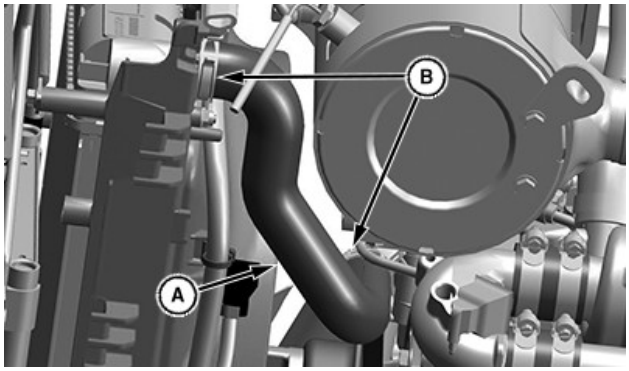
1. Allow radiator to cool.
2. Fill cooling system.
3. Install and tighten radiator cap.
4. Run engine until it reaches operating temperature.
5. Stop engine.
6. Check recovery tank coolant level and add coolant if necessary
7. Lower hood.

GS25068,0003D97-19-23JAN18

Check Radiator Hoses and Clamps

1. Park machine safely.
2. Raise hood.
3. Remove right and left-hand side panels.

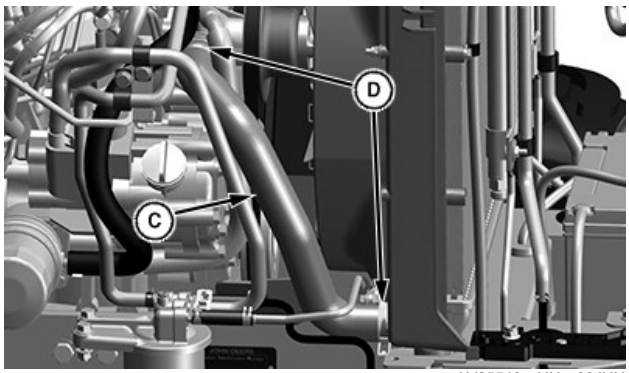
NOTE: Visually inspect hoses for cracks and wear. Squeeze hoses to check for deterioration. Hoses should not be hard and brittle, nor soft or swollen.



LV25541—UN—03JUN16

A—Upper Radiator Hose
B—Hose Clamps

4. Check upper radiator hose (A) for damage or cracking. Replace if necessary.
5. Check hose clamps (B) as needed.



LV25540—UN—03JUN16

C—Lower Radiator Hose
D—Hose Clamps

6. Check lower radiator hose (C) for damage or cracking. Replace if necessary.
7. Check hose clamps (D) as needed.
8. Install right and left-hand side panels.
9. Lower hood.

GS25068,0003D9F-19-23JAN18

Clean Radiator, Fuel, and Transmission Cooling Fins

CAUTION: Avoid injury! Compressed air can cause debris to fly a long distance.

- **Clear work area of bystanders.**

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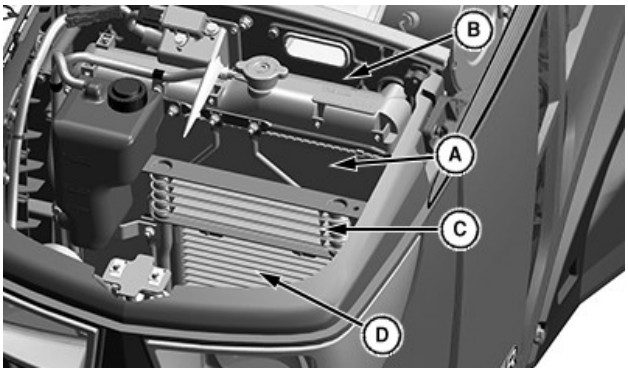
- **Wear eye protection when using compressed air for cleaning purposes.**
- **Reduce compressed air pressure to 210 kPa (2.1 bar) (30 psi).**

IMPORTANT: Avoid damage! Reduced air intake can cause overheating. Keep radiator cooling fins clean.

Do not use pressure washers to clean radiator cooling fins. The force produced by pressure washers can damage the radiator and cooling fins.

Spray compressed air straight into radiator. Do not spray radiator on an angle or cooling fins can be bent.

1. Park machine safely. Allow engine to cool.
2. Raise hood.



LV25542—UN—03JUN16

A—Radiator
B—Fan Shroud
C—Fuel Cooler
D—Transmission Oil Cooler

3. Using compressed air or water, remove all dirt and debris from fins at front and rear of the following:
   - Radiator (A), including fan shroud (B).
   - Fuel cooler (C).
   - Transmission oil cooler (D).
4. Lower hood.

GS25068,0003DA0-19-01OCT19

Prevent Battery Explosions

TS204—UN—15APR13

Keep sparks, lighted matches, and open flame away from the top of battery. Battery gas can explode.

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

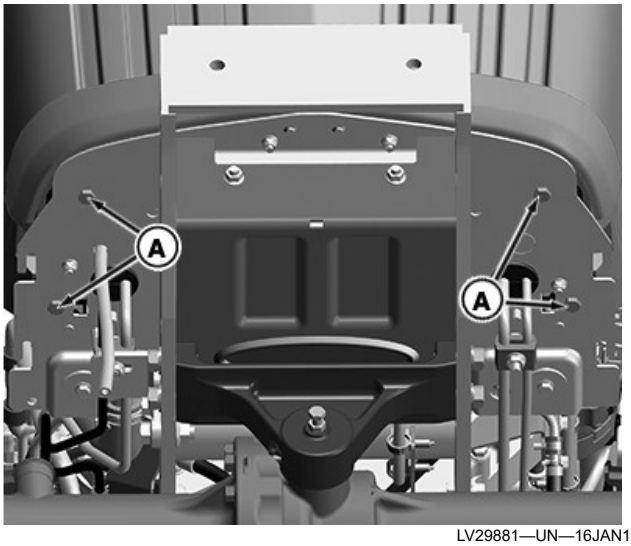
Do not charge a frozen battery; it may explode. Warm battery to 16°C (60°F).

DX,SPARKS-19-03MAR93

Remove and Install Battery

Remove:

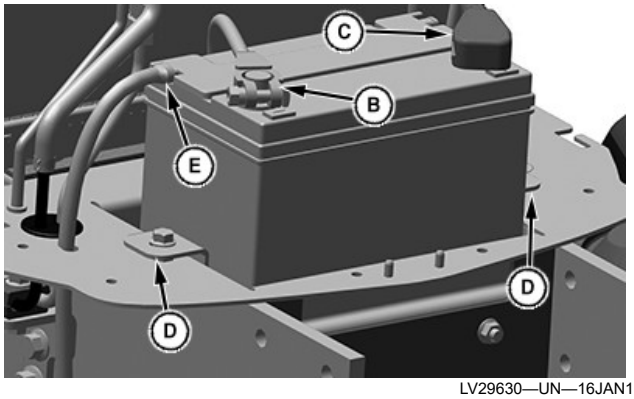
1. Park machine safely.
2. Raise hood.
3. Remove side panels.
4. Disconnect headlight harness at fan shroud.



LV29881—UN—16JAN18

A—Cap Screw and Nut (4 used)

5. Remove and retain grille mounting cap screws and nuts (A).
6. Slide grill up.
7. Disconnect black negative (-) cable (B) from battery terminal first.



LV29630—UN—16JAN18

B—Negative (-) Cable
C—Positive Terminal Cover
D—Hold Down Bracket
E—Vent Tube

8. Slide red positive terminal cover (C) back and disconnect red positive (+) cable from battery terminal.
9. Remove hold down bracket (D) from both sides of battery tray.
10. Pull battery vent tube (E) from battery tray.
11. Remove battery.

Install:

1. Position battery in machine.
2. Route battery vent tube through hole in battery tray.
3. Install hold down brackets securing battery to battery tray.
4. Connect positive (+) cable to battery first, then attach negative (-) cable to battery.
5. Apply spray lubricant on battery terminals to help prevent corrosion.
6. Position red positive battery terminal cover on red positive (+) cable.
7. Slide grill back into position.
8. Install grille mounting cap screws and nuts.
9. Connect headlight harness at fan shroud.
10. Install side panels.
11. Lower hood.

GS25068,0003E1C-19-02FEB18

Clean Battery and Terminals

1. Park machine safely.
2. Disconnect and remove battery.
3. Wash battery with solution of four tablespoons of

baking soda to one gallon of water. Be careful not to get the soda solution into the cells.

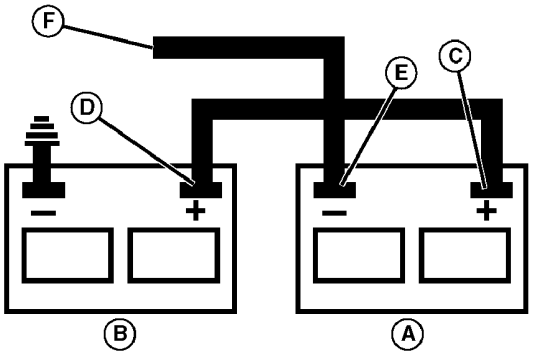
4. Rinse the battery with plain water and dry.
5. Clean terminals and battery cable ends with wire brush until bright.
6. Install battery.
7. Attach cables to battery terminals, beginning with the positive cable.
8. Apply spray lubricant to terminal to prevent corrosion.

KN52281,1003F36-19-17FEB17

Use Booster Battery

CAUTION: Avoid injury! The battery produces a flammable and explosive gas. The battery may explode:

- **Do not smoke or have open flame near the battery.**
- **Wear eye protection and gloves.**
- **Do not jump-start or charge a frozen battery. Warm battery to 16°C (60°F).**
- **Do not connect the negative (-) booster cable to the negative (-) terminal of the discharged battery. Connect at a good ground location away from the discharged battery.**



LVAL38352—UN—21AUG12

A—Booster Battery
B—Disabled Vehicle Battery
C—Booster Battery Positive (+) Post
D—Disabled Vehicle Battery Positive (+) Post
E—Booster Battery Negative (-) Post
F—Disabled Vehicle Battery Negative (-) Post

1. Connect positive (+) booster cable to the booster battery (A) positive (+) post (C).
2. Connect the other end of positive (+) booster cable to the disabled vehicle battery (B) positive (+) post (D).
3. Connect negative (–) booster cable to the booster battery negative (–) post (E).

IMPORTANT: Avoid damage! Electric charge from the booster battery can damage machine components. Do not install negative booster cable to the machine frame. Install only to the engine block.

Install negative booster cable away from moving parts in the engine compartment, such as belts and fan blades.

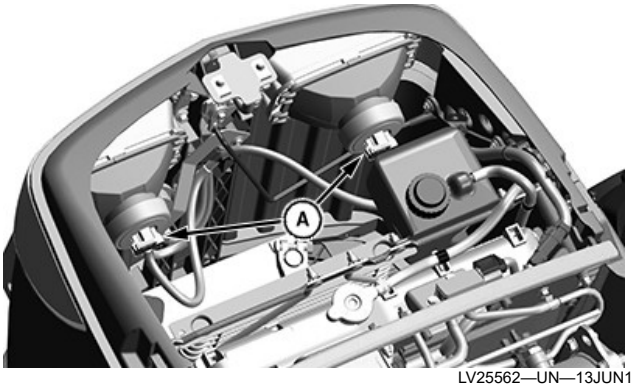
4. Connect the other end (F) of negative (–) booster cable to a metal part of the disabled machine engine block away from battery.
5. Start the engine of the disabled machine and run machine for several minutes.
6. Carefully disconnect the booster cables in the exact reverse order: negative cable first and then the positive cable.

KN52281,1003F37-19-16FEB17

Replace Headlight Bulb

IMPORTANT: Avoid damage! Do not touch glass headlight bulb with bare skin. Contact with bare skin could cause bulb to fail prematurely. Use gloves or a cloth when inspecting or replacing the bulb.

1. Park machine safely.
2. Raise hood.



LV25562—UN—13JUN16

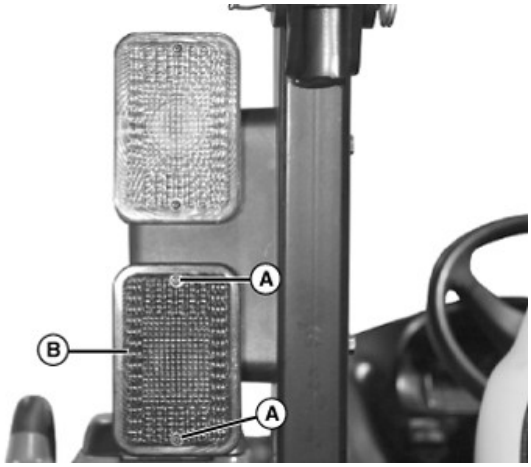
A—Headlight Bulb

3. Remove connector from base of headlight bulb (A).
4. Rotate base counterclockwise to remove bulb assembly from housing.
5. Insert new bulb in housing and turn clockwise to secure.
6. Insert connector into base of bulb.
7. Lower hood.
8. Check operation of headlights.

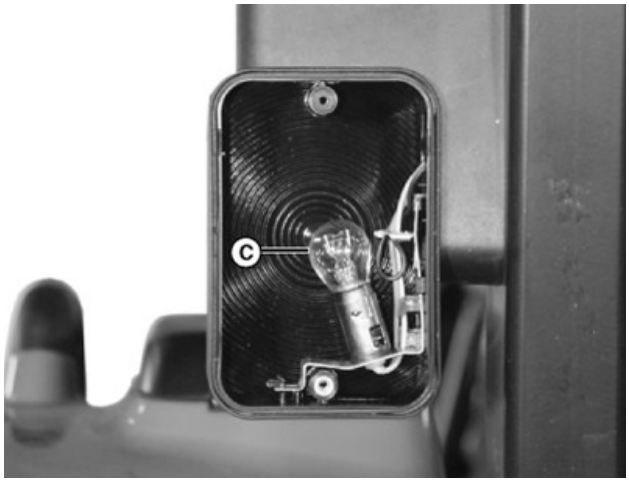
GS25068,0003E1D-19-01FEB18

Replace Tail/Turn Light Bulb

NOTE: Taillight can be serviced by removing the rear assembly lens only.



LVAL38748—UN—05OCT12



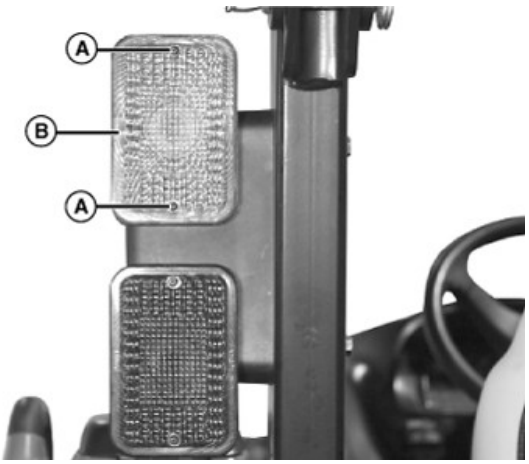
LVAL38749—UN—05OCT12

A—Screw
B—Lens
C—Bulb

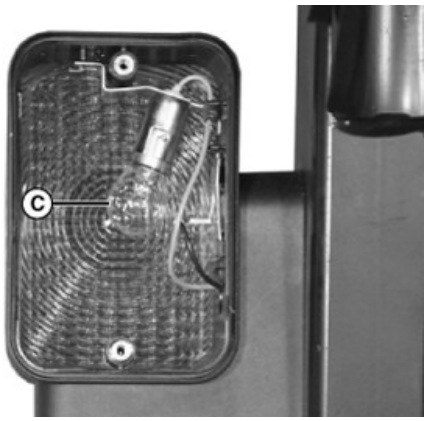
1. Park machine safely.
2. Remove two screws (A) and red lens (B).
3. Push down and rotate bulb (C) to remove. Do not twist bulb.
4. Push down and rotate new bulb into socket.
5. Check operation of taillights and turn signals.
6. Install lens and screws.

GS25068,0003E2F-19-02FEB18

Replace Warning Light Bulb



LVAL38750—UN—05OCT12



LVAL38751—UN—05OCT12

A—Screw
B—Lens
C—Bulb

1. Park machine safely.
2. Remove two screws (A) and amber lens (B).
3. Push up and rotate bulb (C) to remove. Do not twist bulb.
4. Push up and rotate new bulb into socket.
5. Check operation of turn signal and warning lights.
6. Install lens and screws.

GS25068,0003E30-19-02FEB18

Replace Relays and Fuses

IMPORTANT: Avoid damage! The electrical system may be damaged if incorrect replacement fuses are used. Replace the bad fuse with a fuse of the same Amp rating.

Locate Fuses and Relays

All electrical circuits are protected by fuses. ampere rating is marked on each fuse, plus fuses are color coded to ensure proper replacement.

Fuses	
Fuse Rating	**Color**
10 Amp	Red
15 Amp	Blue
20 Amp	Yellow
30 Amp	Green

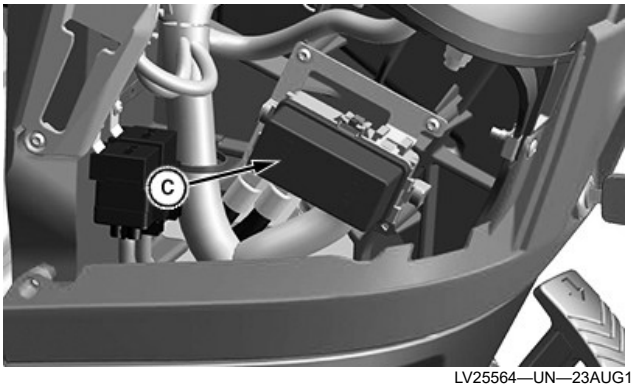
Fuse Location—Under Hood Cowl

1. Park machine safely.
2. Open hood.

LV25563—UN—13JUN16

A—Hood Cowl Latch
B—Hood Cowl

3. Pull hood cowl latch (A) out and up on both sides.
4. Remove hood cowl (B).



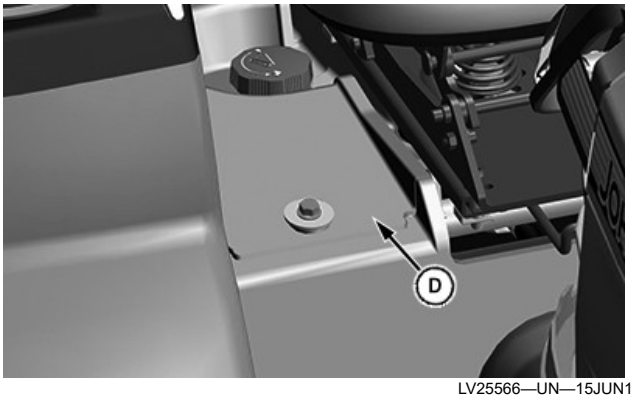
LV25564—UN—23AUG16

C—Load Center Cover

5. Remove load center cover (C).
6. Identify fuse or relay in fuse block.
7. Pull defective relay or fuse out.
8. Replace with new relay or fuse.
9. Install load center cover.
10. Line up hood cowl and gently slide into place.
11. Close hood.

Fuse Location—Right of Seat

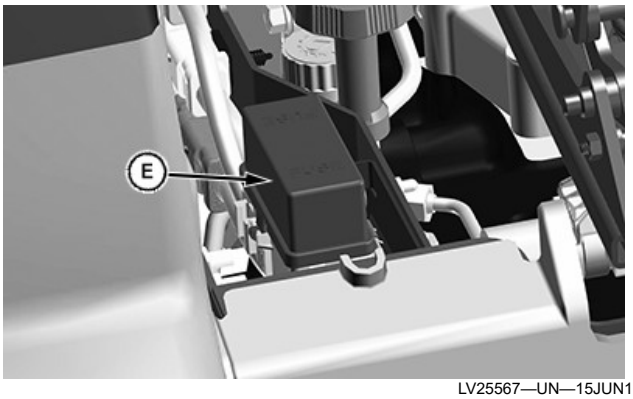
1. Park Machine Safely.



LV25566—UN—15JUN16

D—Cover

2. Remove bolt, washer and cover (D).



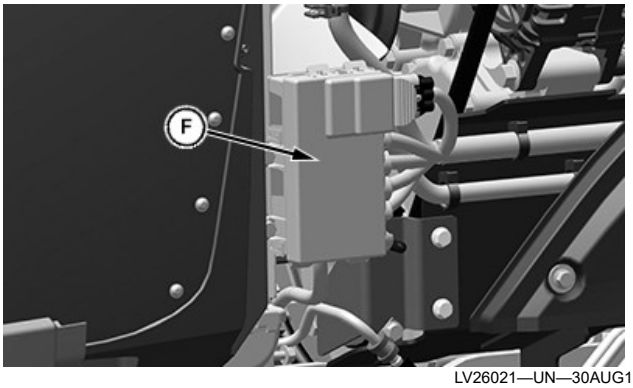
LV25567—UN—15JUN16

E—Load Center Cover

3. Remove load center cover (E).
4. Identify fuse or relay in fuse block.
5. Pull defective relay or fuse out.
6. Replace with new relay or fuse.
7. Install load center cover.
8. Install cover (D). Secure with washer and bolt.

Fuse Location—Left of Radiator

1. Park Machine Safely.
2. Remove side panel.

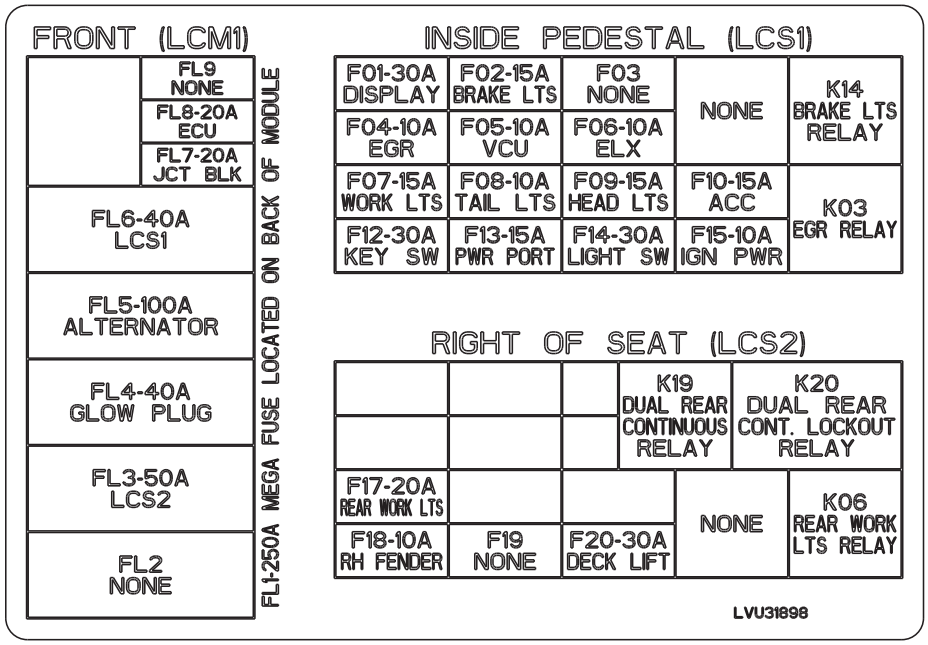


LV26021—UN—30AUG16

F—Load Center Cover

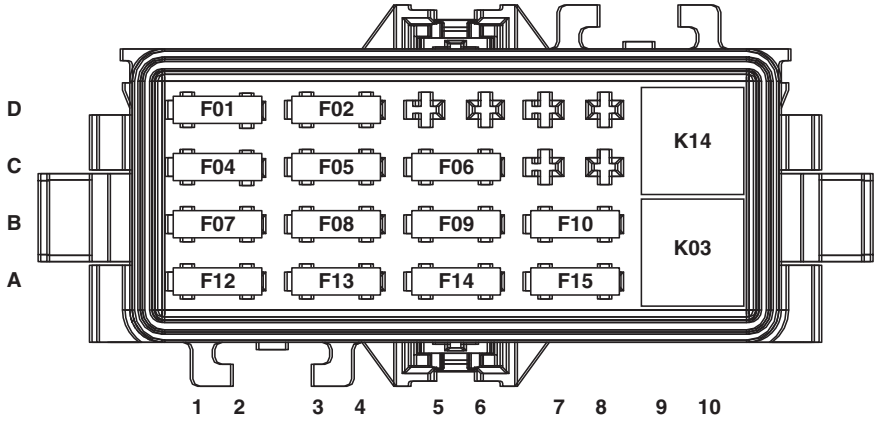
3. Remove load center cover (F).
4. Identify fuse or relay in fuse block.
5. Pull defective relay or fuse out.
6. Replace with new relay or fuse.
7. Install load center cover.
8. Install side panel.

Fuse and Relay Size and Function



LV25750—UN—05JUL16

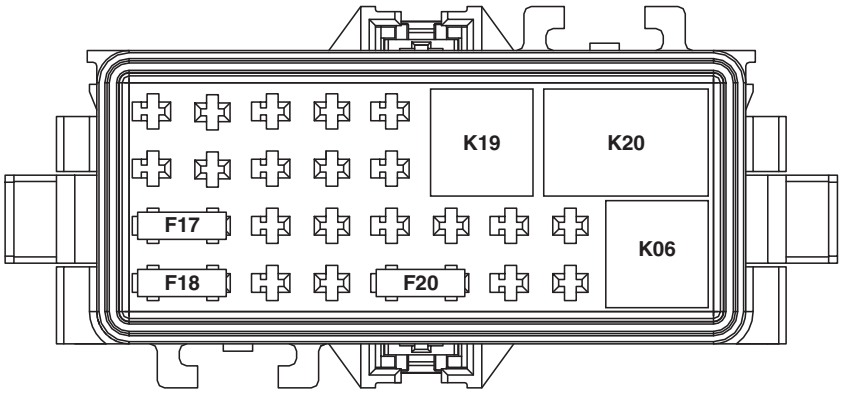
Fuse Label



LV25569—UN—13JUN16

Load Center 1

F01—Display (30A)
F02—Brake Lights (15A)
F03—None
F04—EGR Fuse (10A)
F05—VCU Fuse (10A)
F06—ELX Fuse (10A)
F07—Work Lights Fuse (20A)
F08—Tail Lights (10A)
F09—Head Lights (15A)
F10—Accessory Fuse (15A)
F12—Key Switch Fuse (20A)
F13—Power Port (15A)
F14—Light Switch (30A)
F15—Ignition Power (10A)
K14—Brake Lights Relay
K03—EGR Relay



LV25570—UN—13JUN16

Load Center 2

F17—Rear Work Lights (20A)
F18—Right Fender (10A)
F20—Deck Lift (30A)
K06—Rear Work Light Relay
K19—Dual Rear Continuous Relay
K20—Dual Rear Continuous Lockout Relay

GS25068,0003E1E-19-01FEB18

Drivetrain Maintenance

See specific drivetrain component for maintenance information.

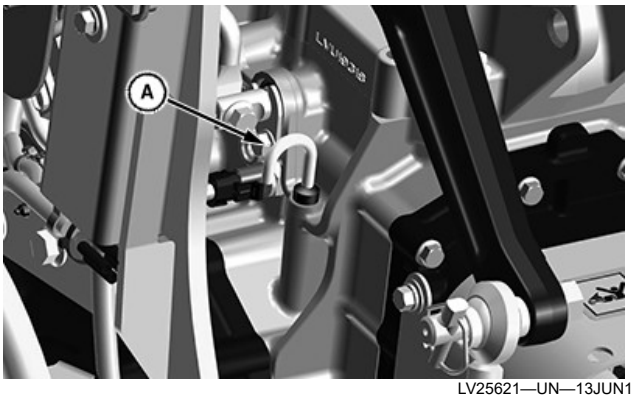
UP00731,0000208-19-22JUN16

Check Transmission Oil Level

IMPORTANT: Avoid damage! Dirt and contamination can enter transmission when checking oil level. Clean area around dipstick before removing.

Do not overfill transmission. Oil expands during operation and could overflow.

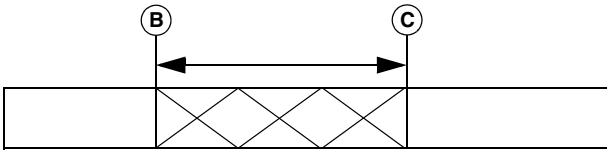
1. Park machine safely. Allow machine to cool down for at least 1 hour.



LV25621—UN—13JUN16

A—Dipstick

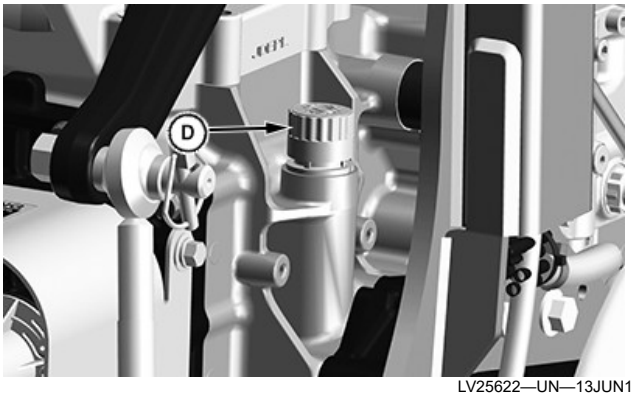
2. Pull to remove dipstick (A), located at left side of transaxle. Wipe with a clean cloth.
3. Install dipstick.
4. Remove dipstick.



LVAL38336—UN—21AUG12

B—Oil Level Mark
C—Oil Level Mark

5. Check oil level on dipstick. Correct level is between oil level mark (B) and (C) on dipstick.



LV25622—UN—13JUN16

D—Oil Filler Cap

6. If oil level is low, remove oil filler cap (D) and add recommended oil until the level is correct.
7. If oil exceeds top mark on the dipstick, drain to proper level.
8. Install and tighten filler cap.
9. Install dipstick.

GS25068,0003E1F-19-01FEB18

Change Transmission Oil and Hydraulic Suction Oil Filter

CAUTION: Avoid injury! Touching hot surfaces can burn skin. The engine, components, and fluids are hot when engine has been running. Allow the engine to cool before servicing or working near the engine and components.

IMPORTANT: Avoid damage! If there is evidence of severe oil contamination, it may be necessary to change the oil several times.

Contamination of hydraulic fluid could cause transmission damage or failure.

Severe or unusual conditions require a more frequent service interval.

NOTE: Transmission oil can be changed every 1200 hours or 3 years if the following requirements are met:

- *Use John Deere Hy-Gard™ or Lo-Vis Hy-Gard oil.*
- *Suction and transmission filter are both changed every 400 hours.*
- *Perform oil-scan of transmission oil every 400 hours or once per year.*

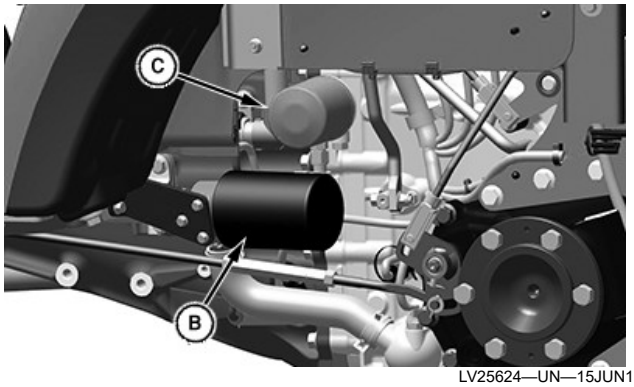
1. Drive tractor a few minutes to warm and mix transmission oil.
2. Park machine safely.

LV25623—UN—25AUG16

A—Transmission Drain Plug

Hy-Gard is a trademark of Deere & Company

3. Position drain pan under transmission drain plug (A) at rear cover. Remove plug and allow oil to drain.
4. Install transmission drain plug.

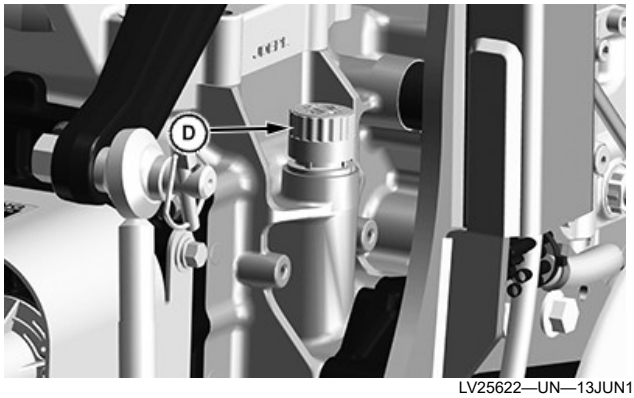


LV25624—UN—15JUN16

Shown with left rear tire removed for clarity.

B—Hydraulic Suction Filter
C—HST Filter

5. Position drain pan under suction filter (B) and HST filter (C). Remove filters and allow oil to drain.
6. Put a light coat of clean transmission oil on gasket of new filters.
7. Install replacement filters by turning clockwise until gasket contacts filter base. Tighten additional one half turn.



LV25622—UN—13JUN16

D—Oil Fill Cap

8. Remove oil fill cap (D).
9. Add recommended oil into filler opening.
10. Start engine. Check for oil leaks around filter bases and drain plugs.
11. Stop engine.
12. Check transmission oil level. Add oil if necessary.

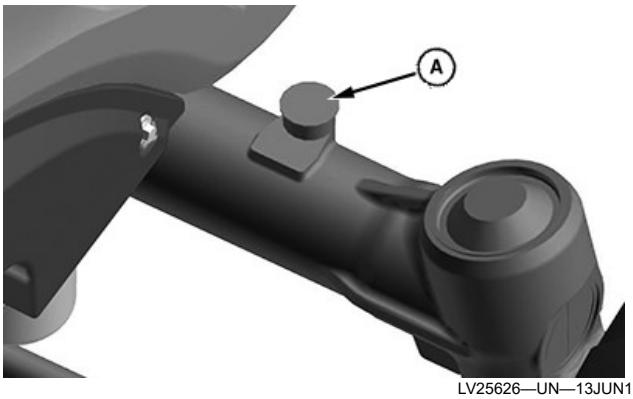
GS25068,0003E20-19-01FEB18

Check Front Axle Oil Level

IMPORTANT: Avoid damage! Allow oil one hour to settle before checking level to ensure accurate dipstick reading. Repeat oil level check after several hours of operation.

1. Park the machine safely. Allow the machine to cool down for at least 1 hour.

IMPORTANT: Avoid damage! Dirt and debris in oil damages the transaxle. Clean area around opening before removing dipstick.



LV25626—UN—13JUN16

A—Dipstick

2. Loosen and remove dipstick (A) located on the right side of the front axle.
3. Wipe the dipstick clean with a rag. Install and tighten the dipstick.

LVAL38331—UN—21AUG12

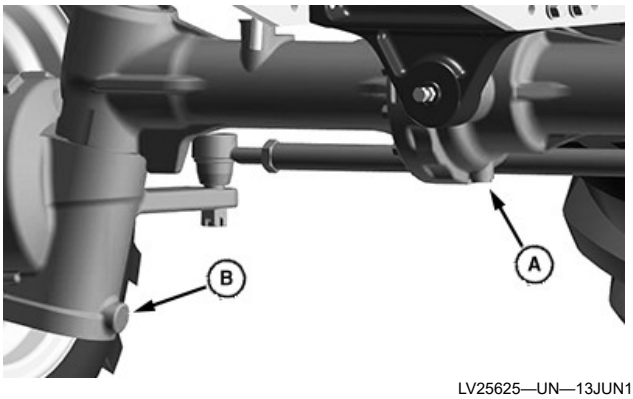
B—High
C—Low

4. Remove the dipstick. The correct oil level is between high (B) and low (C) on the dipstick.
5. If the oil level is low, add recommended oil through the dipstick opening until the level is correct
6. Install and tighten the dipstick.
7. Check the front axle oil level again after the first several hours of operation.

GS25068,0003E21-19-01FEB18

Change Front Axle Oil

1. Warm the front axle oil by operating the machine.
2. Park the machine safely.

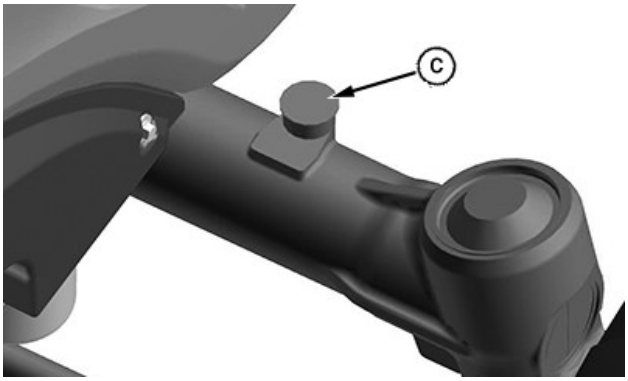


LV25625—UN—13JUN16

Right Front Axle Drain Plug Shown, Left is Similar

A—Differential Drain Plug
B—Axle Drain Plug (right side shown, left side is similar)

3. Position a drain pan under the differential drain plug (A) and both the axle drain plugs (B).
4. Remove the drain plugs and allow the oil to drain.
5. Install and tighten drain plugs after all the oil has drained.



LV25627—UN—13JUN16

C—Dipstick

6. Remove the dipstick (C) on the right side of the front axle.
7. Add the recommended oil through the dipstick fill opening until the oil level is correct.
8. Install and tighten the dipstick.

IMPORTANT: Avoid damage! Drive the tractor 1 minute at low speed, in both forward and reverse to help fill the wheel ends.

Allow the oil 1 hour to settle before checking the level to ensure accurate dipstick reading. Repeat the oil level check after several hours of operation.

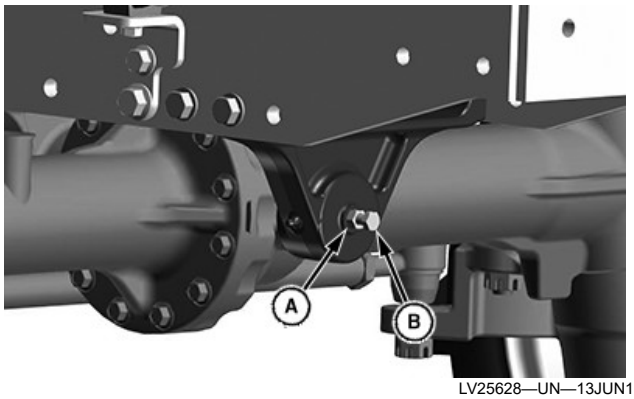
9. Check the front axle oil level.

GS25068,0003E22-19-01FEB18

Adjust Front Axle Thrust Bolt Torque

NOTE: Prevent excessive forward or rearward movement of front axle by adjusting the bolt torque at the required service intervals.

1. Park the machine safely.



LV25628—UN—13JUN16

A—Locknut
B—Thrust Bolt

CAUTION: Avoid injury! The machine can fall or slip from an unsafe lifting device or supports.

- **Use a safe lifting device rated for the load to be lifted.**
- **Lower the machine onto jack stands or other stable supports and block the wheels before servicing.**

2. Raise the front axle off the ground to take the machine weight off the front axle.
3. Loosen the locknut (A).
4. Tighten the thrust bolt (B).

Specification

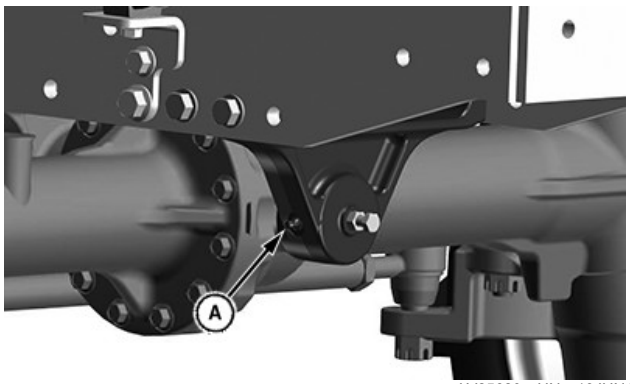
Thrust Bolt—Torque	14 N·m (10 lb·ft)

Do not overtighten.

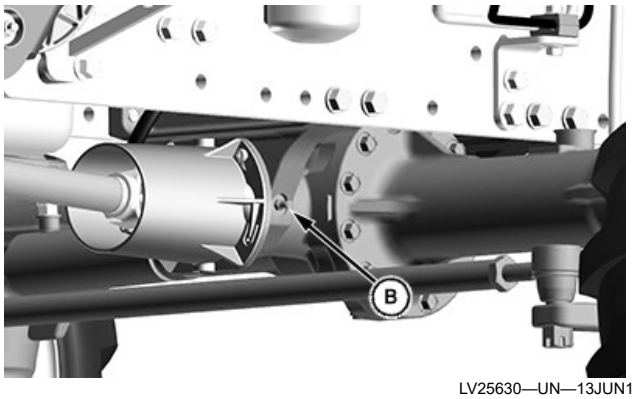
5. Oscillate the axle from stop to stop. Check the torque.
6. Tighten the locknut.
7. Lower the front axle to the ground.

GS25068,0003E23-19-01FEB18

Lubricate Axle Trunnion



LV25629—UN—13JUN16



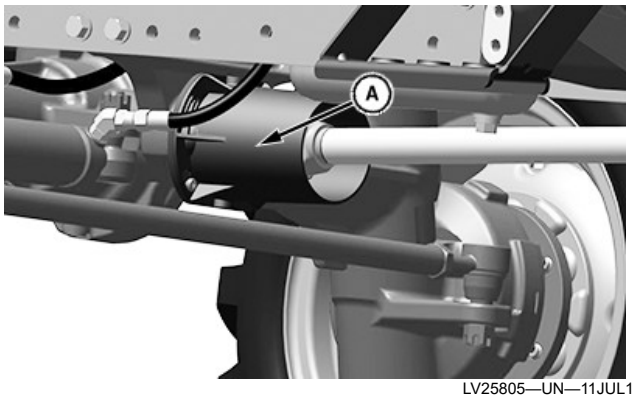
LV25630—UN—13JUN16

A—Front Trunnion Grease Fitting
B—Rear Trunnion Grease Fitting

Lubricate the front trunnion grease fitting (A) and the rear trunnion grease fitting (B) with the recommended grease or equivalent.

GS25068,0003E24-19-01FEB18

Lubricate MFWD Driveshaft

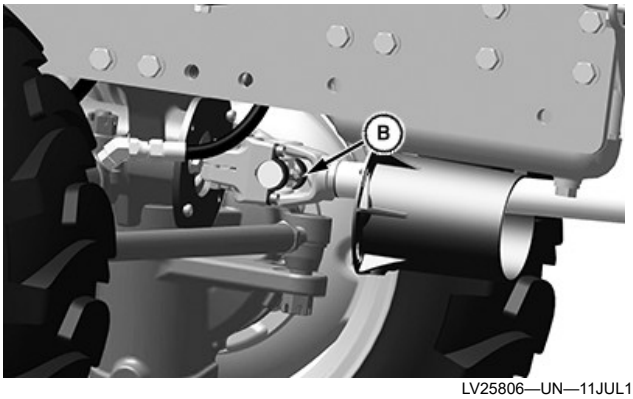


LV25805—UN—11JUL16

Front MFWD Driveshaft Shield

A—Front MFWD Driveshaft Shield

1. Remove two screws, then rotate the front MFWD shield (A) counterclockwise to remove.

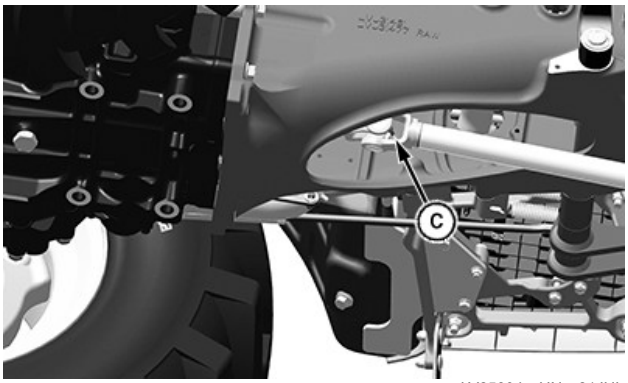


LV25806—UN—11JUL16

Front MFWD Driveshaft

B—Front MFWD Driveshaft Grease Fitting

2. Lubricate the front MFWD driveshaft grease fitting (B) with John Deere multi-purpose grease.



LV25804—UN—21JUL16

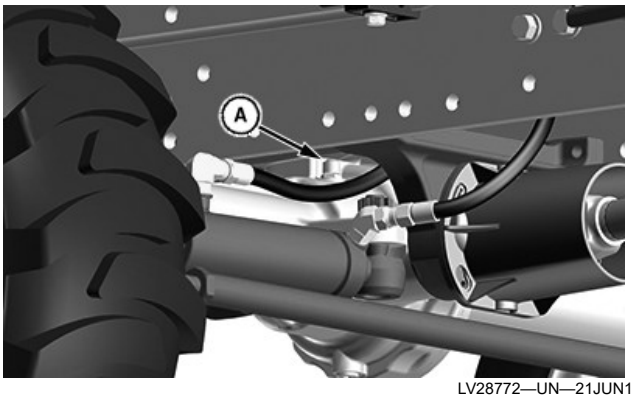
Rear MFWD Driveshaft

C—Rear MFWD Driveshaft Grease Fitting

3. Lubricate the rear MFWD driveshaft grease fitting (C) with John Deere multi-purpose grease.

GS25068,0003E25-19-01FEB18

Clean MFWD Axle Breather Valve



LV28772—UN—21JUN17

A—Breather Valve

1. Remove the breather valve (A) from the front axle.
2. Clean all the dirt and debris from the breather valve.
3. Install the breather valve.

UP00731,0000359-19-03JAN18

Differential and Rear Axle Maintenance

Rear Axle

The rear axle is part of the transmission. See Transmission Maintenance for the rear axle information.

UP00731,00001CA-19-03JAN18

Power Take Off (PTO) Maintenance

PTO Maintenance

See the specific system for maintenance.

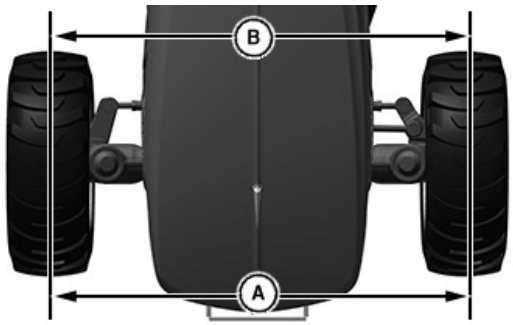
UP00731,00001BE-19-03JAN18

Check and Adjust Toe-In

1. Stop the machine on a firm, level surface.
2. Disengage the MFWD if equipped.
3. Turn the steering wheel so the front wheels are pointing straight ahead.
4. Park the machine safely.

Check Toe-In

NOTE: Use an outside or inside bar on each tire for marking the center line if the front axle is equipped with bar tires.

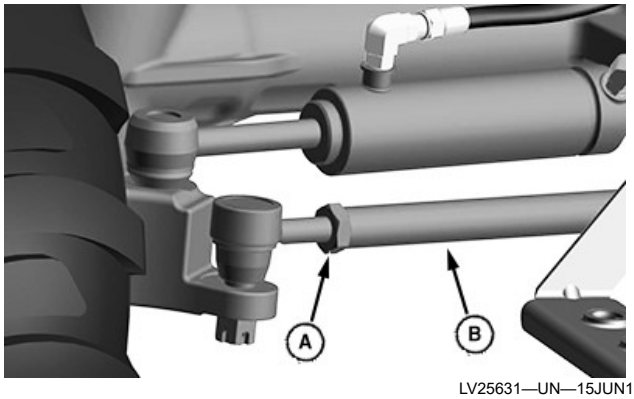


LV26019—UN—25AUG16

A—Distance between center line of tire.
B—Distance between center line of tire.

1. Using chalk, mark the center line of each tire at hub height and to the front of the axle.
2. Measure and record the distance (A) between the center lines of each tire.
3. Drive the machine forward or rearward until the chalk mark moves 180° to rear of the axle.
4. Park the machine safely.
5. Measure and record the distance (B) between the center lines of each tire.
6. Determine the difference between the front and rear measurement. The measured distance (A) must be 3 mm (1/8 in) less than the measured distance (B). Adjust the toe-in if necessary.

Adjust Toe-In



LV25631—UN—15JUN16

A—Nut
B—Tie Rod

1. Loosen nuts (A) on both ball joints.

NOTE: Rotating the threaded rod in 1/2 turn increments equals 1.5 mm (1/16 in).

2. Rotate the tie rod (B) clockwise or counterclockwise to adjust the amount of toe-in. Adjust the tie rod until the toe-in measurement is within the correct specification.
3. Tighten the nuts to the correct specification.

Specification	
Ball Joint Nut—Torque	120 N·m 88 lb·ft

4. Check the toe-in setting. Repeat the procedure if further adjustment is required.

GS25068,0003E91-19-05FEB18

Steering Maintenance

See your John Deere dealer if steering problems exist on the machine.

GS25068,0003DA2-19-23JAN18

Brake Maintenance

See your John Deere dealer if brake problems exist on the machine.

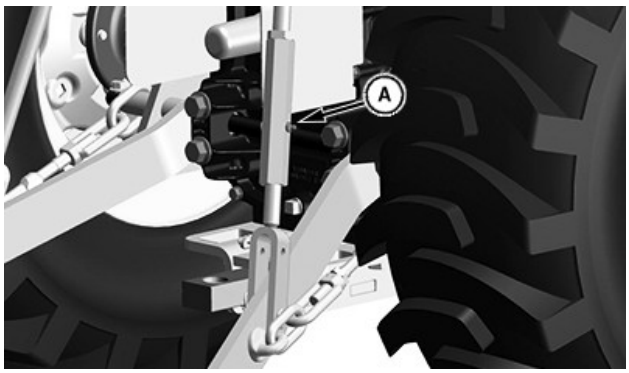
GS25068,0003DA3-19-23JAN18

Hydraulic Maintenance

See the Transmission Maintenance section for servicing the hydraulic oil and filters.

UP00731,0000117-19-03JAN18

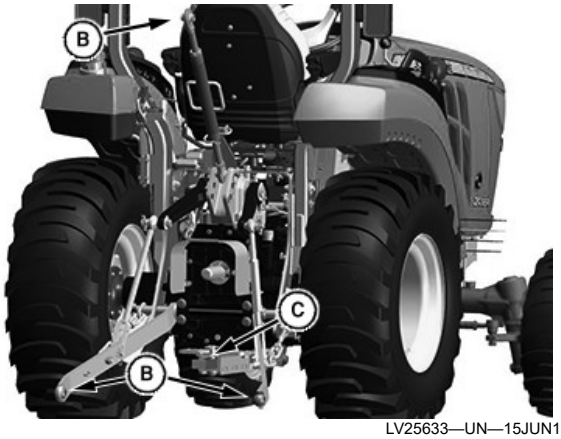
Lubricate 3-Point Hitch



LV25632—UN—15JUN16

A—Lift Link Grease Fitting

1. Lubricate the lift link grease fitting (A) with the recommended grease or equivalent.



LV25633—UN—15JUN16

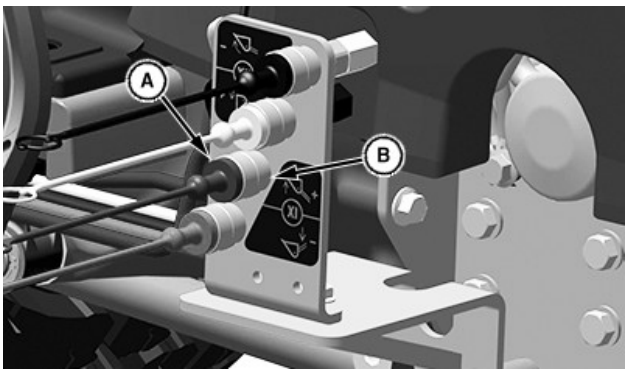
B—Ball Joints
C—Drawbar

2. Lubricate the ball joints (B) and the drawbar (C) with SUPER LUBE® lubricant.[1]

GS25068,0003E26-19-01FEB18

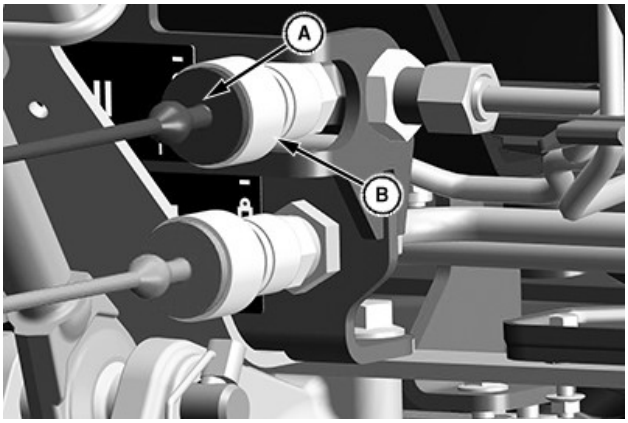
[1] *SUPER LUBE is a registered trademark of Synco Chemical Corp.*

Check Selective Control Valve



LV26016—UN—25AUG16

SCV Couplers



LV25634—UN—15JUN16

Dual Rear SCV Couplers (If equipped)

A—Dust Plugs
B—Coupler

1. Check the dust plugs (A) for damage, replace as needed.
2. Clean the dirt and debris from the selective control valve couplers (B) and check for oil leakage. Contact your John Deere dealer for service.

UP00731,00001CD-19-03JAN18

Check Wheel Lug Bolts and Hardware

CAUTION: Avoid injury! Prevent possible machine roll-over by periodically checking the rim, hub, and axle hardware.

When the machine is new, check the lug bolts torque after the first 10 hours of use.

Tighten all lug bolts after 1 hour of operation and every 4 hours thereafter until proper torque values are maintained anytime the wheel hardware is loosened.

Maintained the lug bolt torque according to the service interval recommendations.

Tighten the lug bolts alternately to specifications.

Specification	
Front and Rear Lug Bolt—Torque	140 N·m (103 lb·ft)

GS25068,0003E40-19-05FEB18

Remove and Install Wheels

CAUTION: Avoid injury! Remove wheels safely.

- **Use a safe lifting device and support the machine securely on jack stands.**
- **Block the front and rear of wheel not raised to prevent machine movement.**
- **The wheel can be heavy or difficult to handle when removing.**

1. Loosen the lug bolts slightly before raising the machine.
2. Raise the machine and lower onto suitable jackstand.
3. Remove the lug bolts and the wheel.
4. Install the wheels onto axle, insert the lug bolts, and lightly tighten the bolts.
5. Raise the machine, remove the jackstand and lower the machine to floor.
6. Tighten the lug bolts alternately to specification.

Specification	
Front and Rear Lug Bolt—Torque	140 N·m (103 lb·ft)

GS25068,0003E41-19-05FEB18

Check Tire Pressure

CAUTION: Avoid injury! Explosive separation of tire and rim parts is possible when they are serviced incorrectly:

- **Do not attempt to mount a tire without the proper equipment and experience to perform the job.**
- **Do not inflate the tires above the recommended pressure.**
- **Do not weld or heat a wheel and tire assembly. Heat can cause an increase in air pressure resulting in an explosion. Welding can structurally weaken or deform the wheel.**
- **Do not stand in front or over the tire assembly when inflating. Use a clip-on chuck and extension hose long enough to allow you to stand to one side.**

1. Check the tires for damage.
2. Check the tire pressure with an accurate gauge.
3. Add or remove air as necessary.

KN52281,1003F4E-19-07MAY18

Tire Inflation Pressure Chart

Front Tires—Standard Factory Inflation				
Tire Size	**Tread**	**kPa**	**bar**	**psi**
23x8.50-14 6PR	R4	210	2.1	30
23x8.50-14 6PR	R3	210	2.1	30
200/60R15 (Radial)	R3	160	1.6	23
7.00-12 6PR	R1	138	1.4	20

Rear Tires—Standard Factory Inflation				
Tire Size	**Tread**	**kPa**	**bar**	**psi**
14-17.5 6PR	R4	210	2.1	30
14-17.5 6PR	R3	210	2.1	30
300/70R20 (Radial)	R3	160	1.6	23
12.4-16 6PR	R1	103	1.1	15

UP00731,000021C-19-03JAN18

Select Front Tire Rolling Direction

CAUTION: Avoid injury! Remove wheels safely.

- **Use a safe lifting device and support machine securely on jack stands.**
- **Block front and rear of wheel not raised to prevent machine movement.**
- **Wheel can be heavy or difficult to handle when removing.**

The machines are equipped with directional type tires (such as bar tires) and have directional arrows on the

tire sidewall. Install the tires with the directional arrow pointing in the direction of travel.

If the machine is manly used for loader operations, lug direction may be reversed on the MFWD axle to increase tire life, improve tire wear, and increased traction.

Change the tire rolling direction by moving the wheel from one side of the machine to the other.

Install the wheel with the valve stem facing outwards.

GS25068,0003DC4-19-24JAN18

Change Wheel Spacing and Tread Width

In special cases, front tires can be set to wide position; however, wide position cannot be used with a loader. Using wide position during loader operation reduces front axle life.

Mount Guidelines

- To keep tire rotation in right direction, move each rim to opposite side of machine, rather than turning around rim.
- Dished wheels can be reversed.
- Tighten all bolts to specifications.

Rear Tires

Rear Tire Size	Narrow Tire Position	
	Overall	Tread
14-17.5 6PR R4 GA	1380 mm (54.3 in)	1031 mm (40.6 in)
14-17.5 6PR R3 GA	1380 mm (54.3 in)	1031 mm (40.6 in)
300/70R20 R3	1260 mm (49.6 in)	965 mm (38.0 in)
12.4-16 6PR R1	1361 m (53.6 in)	1045 mm (41.1 in)

Rear Tire Size	Wide Tire Position	
	Overall	Tread
14-17.5 6PR R4 GA	1500 mm (59.0 in)	1151 mm (45.3 in)
14-17.5 6PR R3 GA	1500 mm (59.0 in)	1151 mm (45.3 in)
300/70R20 R3	1380 mm (54.3 in)	1085 mm (42.7 in)
12.4-16 6PR R1	1481 mm (58.3 in)	1165 mm (45.9 in)

Front Tires

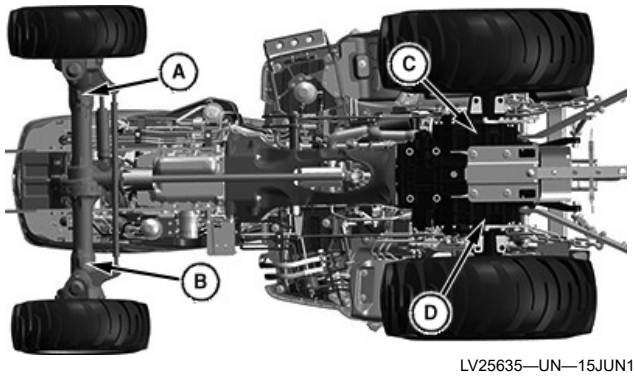
Front Tire Size	Narrow Tire Position	
	Overall	Tread
23x8.50-14 6PR R4 GA	1304 mm (51.3 in)	1086 mm (42.8 in)
23x8.50-14 6PR R3 GA	1304 mm (51.3 in)	1086 mm (42.8 in)
200/60R15 R3 GA	1227 mm (48.3)	1030 mm (40.6 in)
7.00-12 4PR R1 GA	1321 (52.0)	1158 mm (45.6 in)

Front Tire Size	Wide Tire Position	
	Overall	Tread
23x8.50-14 6PR R4 GA	1472 mm (58.0 in)	1254 mm (49.4 in)
23x8.50-14 6PR R3 GA	1472 mm (58.0 in)	1254 mm (49.4 in)
200/60R15 R3 GA	1506 mm (59.3 in)	1309 mm(51.5 in)
7.00-12 4PR R1 GA	1341 mm (52.8 in)	1178 mm (46.4 in)

GS25068,0003E27-19-01FEB18

Lift Points for Jacking up the Tractor

CAUTION: Avoid crushing injury. Use approved lifting equipment only. Raise tractor on firm, level ground only. Before doing any work on the tractor, secure it using suitable jack stands.



LV25635—UN—15JUN16

A—Front Left Lift Point
B—Front Right Lift Point
C—Rear Left Lift Point
D—Rear Right Lift Point

GS25068,0003E28-19-01FEB18

Match Ballast to Work Load

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

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

Not Enough Ballast	Too Much Ballast
Excessive wheel slip	Increased load
Power loss due to churning of soil	Power loss due to carrying extra weight
Tire wear	Tire strain
Fuel waste	Soil compaction
Lower productivity	Fuel waste
	Lower productivity

UP00731,00001D0-19-26MAY17

Additional Equipment Maintenance

To service additional equipment, refer to the additional equipment operator's manual.

UP00731,0000207-19-26MAY17

Raise and Lower Hood

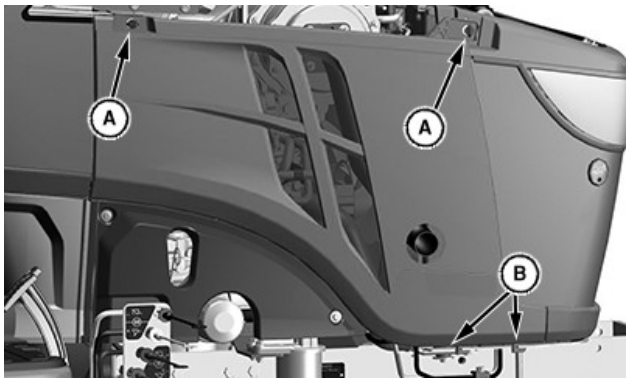
LV25637—UN—05JUL16

A—Hood lock
B—Hood

1. Park the machine safely.
2. Release the latch by inserting a screw driver into the hood lock (A).
3. Raise the hood (B).
4. Lock the latch by gently pushing down on both sides of the hood.

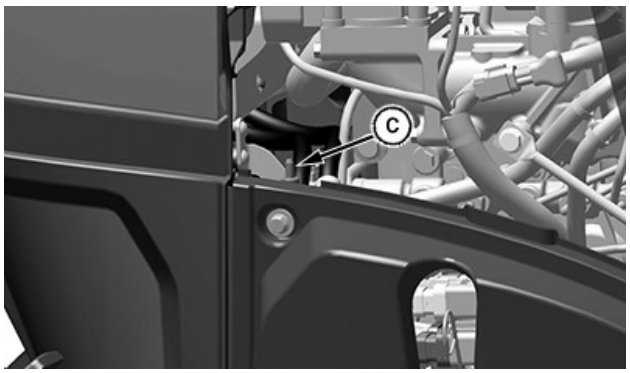
GS25068,0003E29-19-01FEB18

Remove and Install Side Panels



LV25552—UN—05JUL16

Left side shown. Right side is the same



LV26017—UN—25AUG16

Alignment Pin

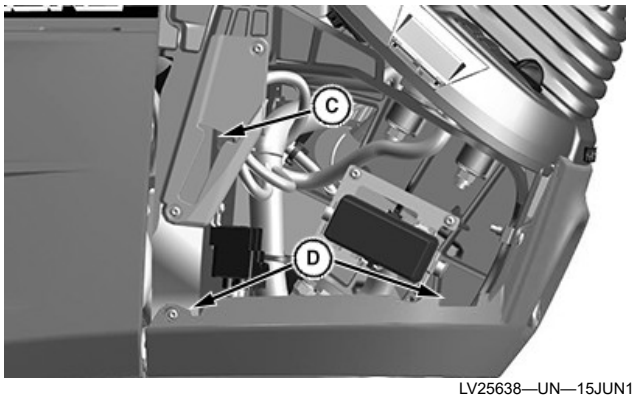
A— Locking Pin
B—Mounting Tabs
C—Alignment Pin

1. Park the machine safely.
2. Raise the hood.
3. Releases the side panel by pushing and turning the locking pins (A).
4. Tilt the side panel away from the machine and lift until the slots clear the front mounting tabs (B). Remove the side panel.
5. Align the side panel mounting slots with the front mounting tabs (B) and alignment pin (C).
6. Push the side panel into place.
7. Secure the side panel pushing and turning the lock pin (A).
8. Lower the hood.

GS25068,0003E2A-19-01FEB18

Remove and Install Front Cowl

LV25563—UN—13JUN16



LV25638—UN—15JUN16

A—Hood Cowl Latch
B—Hood Cowl
C—Alignment Slot
D—Alignment Slot

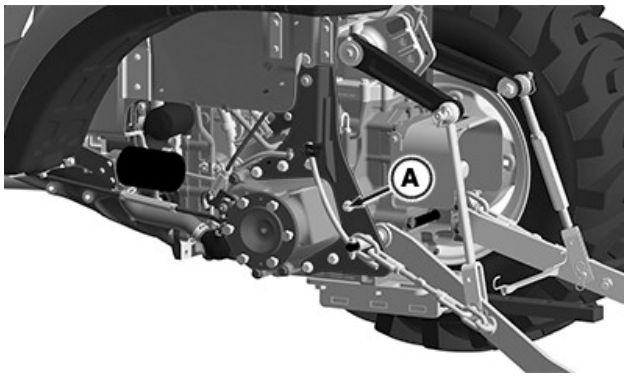
1. Park the machine safely.
2. Close the hood.
3. Pull the hood cowl latch (A) out on both sides.

4. To remove, slide the hood cowl (B) up.
5. Align the hood cowl tabs with the alignment slots (C and D).
6. Slide the cowl into position.
7. Pull out the hood cowl latch on both sides and release.

GS25068,0003E2B-19-01FEB18

Inspect ROPS for Loose Hardware

CAUTION: 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.



LV29940—UN—23JAN18

A—Bolt (6 each side)

Tighten the ROPS attaching hardware on each side of the ROPS to specification.

Specification	
Mounting Bolts (A)—Torque.	85.5—104.5 N·m (63 —77 lb·ft)

GS25068,0003DA4-19-23JAN18

Information Display Fault Messages

Symptom	Problem	Solution
"PTO Switch Fault" Message	Fault with the switch circuit	See a John Deere dealer
"PTO Coil Fault" Message	Fault with the PTO solenoid circuit	See a John Deere dealer
"Start Coil Fault" Message	Fault with starting circuit	See a John Deere dealer
"RIO Fault" Message	Fault with RIO circuit	See a John Deere dealer
"Glow Plug Coil Fault" Message	Fault with cold starting device	See a John Deere dealer
"Audible Alarm Fault" Message	Fault with information display audible alarm	See a John Deere dealer
"Engine Overheat" Message	Coolant level is below specification	Add coolant to specification
	Leak in coolant system	Check for leaks and repair or see your John Deere dealer
	Improperly adjusted or broken fan belt	Tighten or replace fan belt
	Dirt or debris accumulation on hood screen or radiator	Clean debris and dirt from front screen and radiator fins
"Low Oil Pressure" Message	Engine oil level low	Add oil to specification
	Plugged engine oil filter	Replace oil filter
	Improper type of engine oil	Verify correct engine oil. Drain system and fill with correct oil type
	Oil leaks	Check for leaks and repair or see your John Deere dealer
"Oil Pressure Sensor Disconnected" Message	Problem with oil pressure sensor	See a John Deere dealer
"Low Fuel" Message	Fuel level low	Fill fuel tank
	Fault with fuel sensing circuit	See a John Deere dealer
"Hydraulic Oil Overtemp" Message	Water in hydraulic oil	Replace hydraulic oil with correct oil type or see a John Deere dealer
	Plugged hydraulic oil filter	Replace oil filter
	Improper type of hydraulic oil	Verify correct hydraulic oil. Drain system and fill with correct oil type
	Oil leaks	Check for leaks and repair or see your John Deere dealer
"Air Filter Restriction" Message	Plugged air filter	Replace air filter elements

Symptom	Problem	Solution
	Plugged inlet air filter suction pipe	Clean debris from suction inlet tube

UP00731,00002E6-19-25AUG16

Engine

Symptom	Problem	Solution
Engine Will Not Start Or Is Hard To Start	Transmission gearshift lever is not in neutral position	Place range shift lever to Neutral
	Engine throttle lever not pushed forward	Move throttle to half throttle
	Fuel shutoff valve CLOSED (OFF)	Open fuel shutoff valve at the water separator
	Stale fuel/improper fuel/fuel level	Drain stale or improper fuel and fill to capacity
	Wrong engine oil viscosity	Change engine oil and fill with correct viscosity oil for conditions
	Cold start system not being used, or malfunctioning	Verify that cold start system is utilized during required temperatures or see your John Deere dealer
	Plugged fuel filter	Replace fuel filter
	Plugged air intake filter	Clean or replace air filter elements
	Dirty or faulty fuel injectors	See your John Deere dealer
	Blown fuse	Check and replace and faulty fuses
Engine Runs Rough Or Stalls	Fuel shutoff valve partially closed	Open fuel shutoff valve at the water separator
	Plugged fuel filter	Replace fuel filter
	Plugged air intake system	Clean or replace air filter elements
	Stale or improper fuel/fuel level	Drain stale or improper fuel and fill to capacity
	Dirty or faulty fuel injectors	See your John Deere dealer
	Low coolant temperature	See your John Deere dealer
	Fuel pump not functioning properly	See your John Deere dealer
Engine Overheats	Dirt or debris accumulation on hood screen or radiator fins	Clean debris and dirt from the front screen and radiator fins

Symptom	Problem	Solution
	Coolant level is below specification	Add coolant as specified
	Leak in the coolant system	Check for leaks and repair or see your John Deere dealer
	Improperly adjusted or broken fan belt	Tighten or replace fan belt
	Cooling system needs flushing	See your John Deere dealer
	Defective radiator cap	Replace radiator cap
	Defective thermostat	See your John Deere dealer
	Defective water temperature indicator or sensor.	See your John Deere dealer
	Loose or defective alternator belt	Tighten or replace belt
	Engine speed too low for load. Do not operate at low idle	Raise engine speed to match load requirements
	Operating at too fast ground speed for conditions	Reduce speed to match operating conditions
Engine Knocks	Fuel shutoff valve partially closed	Open fuel shutoff valve at the water separator
	Plugged fuel filter	Replace fuel filter
	Plugged air intake system	Clean or replace air filter elements
	Stale or improper fuel/fuel level	Drain stale or improper fuel and fill to capacity
	Dirty or faulty fuel injectors	See your John Deere dealer
	Low coolant temperature See your John Deere Dealer	See your John Deere dealer
	Fuel pump not functioning properly	See your John Deere dealer
Low Oil Pressure	Engine oil level low	Add oil to specification
	Plugged engine oil filter	Replace oil filter
	Improper type of engine oil	Verify correct engine oil. Drain system and fill with the correct oil type
	Oil leaks	Check for leaks and repair or see your John Deere dealer
Engine Uses Too Much Oil	Oil leaks	Check for leaks and repair or see your John Deere dealer

Symptom	Problem	Solution
	Improper type of engine oil	Verify correct engine oil. Drain system and fill with the correct oil type
Engine Emits White Smoke	Stale or improper fuel/fuel level	Drain stale or improper fuel and fill to capacity
	Internal coolant leak	See your John Deere dealer
Engine Emits Black or Gray Exhaust Smoke	Stale or improper fuel/fuel level	Drain stale or improper fuel and fill to capacity
	Dirty or faulty fuel injectors	See your John Deere dealer
	Fuel pump not functioning properly	See your John Deere dealer
High Fuel Consumption	Stale or improper fuel/fuel level	Drain stale or improper fuel and fill to capacity
	Dirty or faulty fuel injectors	See your John Deere dealer
	Fuel pump not functioning properly	See your John Deere dealer
	Failed fuel solenoid	See your John Deere dealer
	Operating at too fast ground speed for conditions	Reduce speed to match operating conditions
	Improper valve clearance	See your John Deere dealer
	Plugged air intake system	Clean or replace air filter elements

UP00731,00002E7-19-30NOV16

Electrical System

Symptom	Problem	Solution
Battery Will Not Charge	Poor electrical connection at alternator	Check for proper electrical connections at alternator
	Loose or corroded connections	Clean connections at alternator and battery terminals
	Check for a blown fuse	Check starting circuit fuses and replace if necessary
	Loose or defective alternator belt	Tighten or replace belt
	Defective battery	Replace battery or see your John Deere dealer
	Defective alternator	See your John Deere dealer

Symptom	Problem	Solution
Battery Discharge Indicator Stays On With Engine Running	Poor electrical connection at alternator	Check for proper electrical connections at alternator
	Loose or corroded connections	Clean connections at alternator and battery terminals
	Loose or defective alternator belt	Tighten or replace belt
	Defective battery	Replace battery or see your John Deere dealer
	Defective alternator	See your John Deere dealer
Starter Will Not Work	Poor electrical connection at battery or starter motor	Check for proper electrical connections
	Loose or corroded connections	Clean connections at alternator and battery terminals
	Low battery charge	Charge battery to proper specification
	Defective battery	Replace battery or see your John Deere dealer
	Defective starter motor	See your John Deere dealer
	Check for a blown fuse	Check starting circuit fuses and replace if necessary
	Neutral start switch faulty or not adjusted properly	See your John Deere dealer
	Key switch or starter faulty	See your John Deere dealer
	Range transmission lever not in neutral position	Place range transmission lever in neutral
Starter Turns Slowly	Loose or corroded connections	Clean connections at alternator and battery terminals
	Low battery charge	Charge battery to proper specification
	Defective battery	Replace battery or see your John Deere dealer
	Defective starter motor	See your John Deere dealer
Light Circuit Not Working	Defective bulb	Check and replace faulty bulbs
	Check for a blown fuse	Check light circuit fuses and replace if necessary

Symptom	Problem	Solution
	Faulty switch	See your John Deere dealer

UP00731,00002E8-19-25AUG16

Machine

Symptom	Problem	Solution
Operation Sluggish, Slow	Water in hydraulic oil	Replace hydraulic oil with correct oil type or see your John Deere dealer
	Plugged hydraulic oil filter	Replace oil filter
	Improper type of hydraulic oil	Verify correct hydraulic oil. Drain system and fill with correct oil type
	Oil leaks	Check for leaks and repair or see your John Deere dealer
Poor Hydraulic Performance	Water in hydraulic oil	Replace hydraulic oil with correct oil type or see your John Deere dealer
	Plugged hydraulic oil filter	Replace oil filter
	Improper type of hydraulic oil	Verify correct hydraulic oil. Drain system and fill with correct oil type
	Oil leaks	Check for leaks and repair or see your John Deere dealer
Machine Will Not Move With Engine Running	Park brake engaged	Release park brake
	Transmission oil level low	Fill hydraulic oil with correct oil type as specified, or see your John Deere dealer
	Transmission oil cold	Allow engine to warm before operating
	Transmission range shift lever in neutral position	Place range transmission lever in high or low range
3-point Hitch Fails To Lift	Transmission oil level low	Fill hydraulic oil with correct oil type to specification or see your John Deere dealer
	Transmission oil cold	Allow engine to warm before operating
	Rate-of-drop valve closed	Open rate-of-drop valve to desired setting
	Excessive load on hitch	Reduce load on hitch
	Plugged hydraulic oil filter	Replace oil filter

Symptom	Problem	Solution
	Worn hydraulic pump	See your John Deere dealer
3-point Hitch Lifts Slowly	Transmission oil level low	Fill hydraulic oil with correct oil type as specified, or see your John Deere dealer
	Transmission oil cold	Allow engine to warm before operating
	Excessive load on hitch	Reduce load on hitch
	Plugged hydraulic oil filter	Replace oil filter
	Worn hydraulic pump	See your John Deere dealer
3-point Hitch Drops Slowly Or Does Not Drop	Rate-of-drop valve set too slow	Adjust rate-of-drop valve to desired setting
3-point Hitch Drops Too Fast	Rate-of-drop valve set too fast	Adjust rate-of-drop valve to desired setting
	Excessive load on hitch	Reduce load on hitch
Noise Is Coming From PTO During Operation	Too low engine speed	Increase to rated engine speed

WS68074,00016B2-19-30NOV16

Brakes

Symptom	Problem	Solution
Rear Brakes Not Working	Brakes out of adjustment	Adjust brakes to specification
	Worn or damaged brake linkage or brake disks	See your John Deere dealer

WS68074,00016C5-19-17AUG16

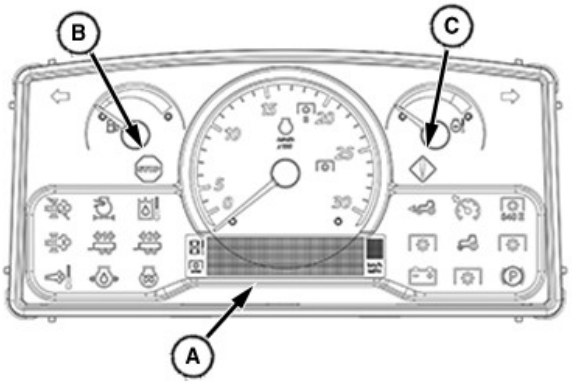
Steering

Symptom	Problem	Solution
Steering Not Working	Improper tire inflation	Inflate tires to proper specification
	Hydraulic oil level low	Fill hydraulic oil with correct oil type as specified, or see your John Deere dealer
	Hydraulic oil cold	Allow engine to warm before operating
	Plugged hydraulic oil filter	Replace hydraulic oil filter
	Excessive play in steering	See your John Deere Dealer

Symptom	Problem	Solution
	Worn hydraulic pump or steering gear	See your John Deere dealer

WS68074,00016B4-19-30NOV16

Service Alert and Information Display



LV25639—UN—15JUN16

A—Information Display
B—Stop Indicator
C—Service Alert Indicator

On-board diagnostic information is displayed using the indicator lights and the information display (A). If the control unit software detects a malfunction or a status “out of the permissible range”, an error message or diagnostic trouble code is displayed. These numbers identify the machine system and problem type.

STOP Indicator (B): The light illuminates and indicates the tractor requires immediate attention or the tractor will be damaged. Correct problem before restarting the engine. See your John Deere dealer if the issue can not be resolved.

Service Alert Indicator (C): The light flashes and indicates a performance problem or malfunction that has to be resolved as soon as possible. Continued operations during a service alert can result in the STOP indicator lighting up. If appropriate corrective action is not taken soon (maintenance, repair, change of operating mode), a significant reduction in performance and/or machine damage will occur.

Whenever a STOP indicator is displayed, switch the transmission to the park position and shut down the engine.

UP00731,00001D9-19-13SEP16

On Board Diagnostic Display

Information Display acts as a visual, user interface device for machine functions and operation. The information display provides normal operational information, such as display settings, performance monitoring and more for selected machine features or functions.

Certain conditions associate displayed text along with instrument cluster icons.

LV25997—UN—15AUG16

Information Display

For more information on instrument cluster icon descriptions see Controls and Instruments section.

For more information on display messages see the Troubleshooting section.

WS68074,00016BC-19-17AUG16

On-Board Diagnostic (OBD) Tool

On-board diagnostic tool is not available on this tractor.

WS68074,00016BD-19-16AUG16

Diagnostic Trouble Code (DTC)

IMPORTANT: When a DTC occurs; make note of operating conditions and information alert indicators. Contact your John Deere dealer for service assistance.

LV25998—UN—15AUG16

If a control unit software detects a malfunction or a status fault, a Diagnostic Trouble Code (DTC) is registered. A DTC number consist of the control unit software abbreviation, suspect parameter number (SPN), and a failure mode indicator number (FMI). A DTC identifies which machine system is experiencing a certain type of problem.

Software	SPN	FMI
ECU	3251	.04

Example of an Engine Control Unit (ECU) Diagnostic Trouble Code

If the DTC is accompanied by the STOP warning

indicator, cease machine operation immediately and correct problem before resuming operation. See your John Deere dealer if the issue can not be resolved.

LV25014—UN—22APR16

A—Display Mode Switch

For DTCs that are not accompanied by a Service Alert Indicator, press the display mode switch (A) to acknowledge the condition and resume the current operation. Resolve the DTC as soon as possible. An unresolved DTC can result in a STOP condition if left unresolved.

WS68074,00016BE-19-15AUG16

Specifications

Engine Specifications

Engine Specifications		
	2032R	2038R
Engine Manufacturer	Yanmar	Yanmar
Engine Model	3TNV88C-NJT2	3TNV86CT-NJT2
Type	Diesel	Diesel
Gross Horsepower	22.9 kW (30.7 hp)	27.4 kW (36.8 hp)
Manufacturer's Estimated PTO Horsepower	18.1 kW (24.2 hp)	22.7 kW (30.4 hp)
Low Idle Speed	950 rpm	950 rpm
Rated Engine Speed	2500 rpm	2500 rpm
High Idle	2650 rpm	2650 rpm
Operating Range	950—2650 rpm	950—2650 rpm
Engine Torque @ Rated Speed	87 N·m (64.2 lb·ft)	105 N·m (77.4 lb·ft)
Maximum Torque @ 1625 rpm	108 N·m (77.4 lb·ft)	127 N·m (93.7 lb·ft)
Displacement	1.64 L	1.57 L
Cylinders	3	3
Cooling System	Liquid	Liquid
Oil Filter	Single Element	Single Element
Air Cleaner	Dual Element	Dual Element
Starting Aid	Glow Plug	Glow Plug

NOTE: Engine Power rated according to SAE J1995.

GS25068,0003DA6-19-23JAN18

Drivetrain Specifications

Drivetrain Specifications		
	2032R	2038R
Transmission Type	Hydrostatic	Hydrostatic
Speeds	Infinite / 2 Range	Infinite / 2 Range
Mechanical Front Wheel Drive	Standard	Standard
Final Drive	Spur Gear	Spur Gear
Rear Axle Weight Capacity (Continuous)	1800 kg (3968 lb)	1800 kg (3968 lb)
Front Axle Weight Capacity (Continuous)	880 kg (1764 lb)	880 kg (1764 lb)

GS25068,0003DA7-19-23JAN18

Hydraulic System Specifications

Hydraulic System Specifications		
	2032R	2038R
Pump Type	Tandem Gear	Tandem Gear
Hydrostatic Pump Type	PV Axial Piston	PV Axial Piston
System Relief Pressure	17237 kPa (2500 psi)	17237 kPa (2500 psi)

Hydraulic System Specifications		
	2032R	2038R
Implement Flow @ Rated Speed	20.2 L/min (5.3 gpm)	20.2 L/min (5.3 gpm)
Steering Flow @ Rated Speed	15 L/min (4 gpm)	15 L/min (4 gpm)
Total Pump Flow	35.2 L/min (9.3 gpm)	35.2 L/min (9.3 gpm)

GS25068,0003DA8-19-23JAN18

Electrical System Specifications

Electrical System Specifications		
	2032R	2038R
Battery Voltage	12V	12V
Battery Cold Cranking Amps @ -18 °C (0 °F)	500	500
Alternator Capacity	85 Amp	85 Amp

GS25068,0003DA9-19-23JAN18

Fluid Capacities

Fluid Capacities		
	2032R	2038R
Fuel Tank	32 (8.5 gal)	32 (8.5 gal)
Cooling System	4.9 L (5.2 qt)	5.2 L (5.5 qt)
Crankcase with Filter	4.3 L (4.5 qt)	4.3 L (4.5 qt)
Transmission and Hydraulic System	23.5 L (24.8 qt)	23.5 L (24.8 qt)
Front Axle	3.8 L (4 qt)	3.8 L (4 qt)

GS25068,0003DAA-19-30MAY19

Ground Speeds

NOTE: All ground speed calculations shown are with machine equipped with standard rear tires and operated at 2500 engine rpm.

Ground Speeds		
	2032R	2038R
Forward and Reverse Low Range	Low 0-9.2 km/h (0-5.7 mph)	Low 0-9.2 km/h (0-5.7 mph)
Forward and Reverse High Range	High 0-24.7 km/h (0-15.4 mph)	High 0-24.7 km/h (0-15.4 mph)

GS25068,0003DAB-19-23JAN18

Dimensions

NOTE: Machine equipped with 23x8.50-14 6PR front and 14-17.5 6PR rear tires.

Dimensions		
	2032R	2038R
Wheelbase	1723 mm (67.8 in.)	1723 mm (67.8 in.)
Overall Length with 3-point Hitch	2990 mm (117.5 in.)	2990 mm (117.5 in.)
Overall Width	1400 mm (55.1 in.)	1400 mm (55.1 in.)

GS25068,0003DAC-19-23JAN18

Height From Ground

NOTE: Machine equipped with 23x8.50-14 6PR front and 14-17.5 6PR rear tires.

Height From Ground		
	2032R	2038R
Height to top of hood (R4 Tires)	1280 mm (50.4 in.)	1280 mm (50.4 in.)
Height to top of ROPS (R4 Tires)	2344 mm (92.3 in.)	2344 mm (92.3 in.)

GS25068,0003DAD-19-23JAN18

Ground Clearance

NOTE: Machine equipped with 23x8.50-14 6PR front and 14-17.5 6PR rear tires.

Ground Clearance		
	2032R	2038R
Front Axle Clearance	248.5 mm (9.8 in.)	248.5 mm (9.8 in.)

GS25068,0003DAE-19-23JAN18

Turning Radius

Turning Radius		
	2032R	2038R
Turning Radius—In 2WD with brakes	2.15 m (84.6 in.)	2.15 m (84.6 in.)
Turning Radius—In 2WD without brakes	2.5 m (98.4 in.)	2.5 m (98.4 in.)

GS25068,0003DAF-19-23JAN18

Machine Weight

NOTE: Machine equipped with a ROPS, 3-point hitch, standard R1 tires and all fluids

Weight		
	2032R	2038R
Base Tractor Weight	1105 kg (2436 lb)	1105 kg (2436 lb)

GS25068,0003DB0-19-23JAN18

3-Point Hitch Specification

3-Point Hitch		
	2032R	2038R
3-Point Hitch Type	Category 1	Category 1
3-Point Hitch Lift Capacity—61 cm (24 in.) behind hitch ball	675 kg (1488 lb)	675 kg (1488 lb)

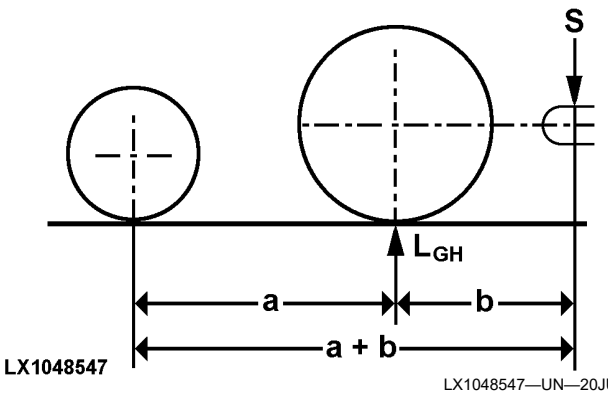
GS25068,0003DB1-19-23JAN18

Coupling Devices

Coupling devices		Drawbar
Maximum vertical load (daN)		500
Towable Mass (kg)	Unbraked	1500
	Independently braked	2400
	Inertia braked	2500
	Assisted braked	---
Combination mass tractor plus trailer		4900

GS25068,0003DB2-19-23JAN18

How to Calculate Maximum Permissible Download on Trailer Hitch



LX1048547—UN—20JUL09

Calculation of maximum permissible download at the trailer hitch in relation to Load Index (LI)

- The load index can be read on the sidewall of the tire. If the index is not provided, refer to the tire's load capacity as quoted by the tire manufacturer.
- The load index is quoted in conjunction with a Speed index (SI)
- As a rule, the load capacity of the tire in kg can be derived directly from the LI; see the following table:

LI	kg	LI	kg	LI	kg	LI	kg
90 . .	600	111 . .	1090	132 . .	2000	153 . .	3650
91 . .	615	112 . .	1120	133 . .	2060	154 . .	3750
92 . .	630	113 . .	1150	134 . .	2120	155 . .	3875
93 . .	650	114 . .	1180	135 . .	2180	156 . .	4000
94 . .	670	115 . .	1215	136 . .	2240	157 . .	4125
95 . .	690	116 . .	1250	137 . .	2300	158 . .	4250
96 . .	710	117 . .	1285	138 . .	2360	159 . .	4375
97 . .	730	118 . .	1320	139 . .	2430	160 . .	4500
98 . .	750	119 . .	1360	140 . .	2500	161 . .	4625
99 . .	775	120 . .	1400	141 . .	2575	162 . .	4750
100 . .	800	121 . .	1450	142 . .	2650	163 . .	4875
101 . .	825	122 . .	1500	143 . .	2725	164 . .	5000
102 . .	850	123 . .	1550	144 . .	2800	165 . .	5150
103 . .	875	124 . .	1600	145 . .	2900	166 . .	5300
104 . .	900	125 . .	1650	146 . .	3000	167 . .	5450
105 . .	925	126 . .	1700	147 . .	3075	168 . .	5600
106 . .	950	127 . .	1750	148 . .	3150	169 . .	5800
107 . .	975	128 . .	1800	149 . .	3250	170 . .	6000
108 . .	1000	129 . .	1850	150 . .	3350	171 . .	6150
109 . .	1030	130 . .	1900	151 . .	3450	172 . .	6300
110 . .	1060	131 . .	1950	152 . .	3550	173 . .	6500

As a general rule, SI A8 implies a top speed of 40 km/h (25 mph), while SI B implies a top speed of 50 km/h (31 mph). If the SI is different, the manufacturer's instructions apply.

Calculate maximum trailer hitch download as follows:

$$S = \frac{(H_{max} - L_{GH}) * a}{a + b}$$, where

$H_{max.}$ =	the smaller value from 2*load capacity of a tire on the rear axle and the maximum permissible rear axle load in kg
L_{GH} =	the mass in kg acting on the ground through the rear wheels (to be ascertained by weighing)
a =	the wheelbase (the horizontal distance between the front and rear axles)
b =	the rear overhang (the horizontal distance between the center of the rear axle and center of the hitch point)

Example of how to calculate maximum trailer hitch download:

Given that:

Empty mass on rear axle L_{GH} = 1800 kg

Wheelbase a = 2100 mm

Overhang b = 600 mm

Tire marking = 130A8

Maximum permitted speed of tractor = 40 km/h (25 mph)

Permissible rear axle load = 3500 kg

$H_{max.}$ = 3500 kg
(1900 kg * 2 = 3800 kg, rear axle load = 3500 kg)

$$S = \frac{(3500\ kg - 1800\ kg) * 2100\ mm}{2100\ mm + 600\ mm} = 1322\ kg$$

CAUTION: At least 20% of the vehicle's total unladen mass must be on the front axle.

Trailer hitch download must not exceed the trailer hitch limit specified by the manufacturer.

WS68074,00022C8-19-16JAN18

How to Calculate Permissible Mass

Calculating permissible tractor mass and permissible trailer mass on the basis of the D value

EC-approved, dynamically tested hitches are always provided with a D value. This is calculated as follows:

$$D = \frac{G * A * B}{A + B}$$, where

D =	D value of hitch
G =	Gravitational constant 9.81 m/s^2
A =	Tractor mass
B =	Trailer mass

To calculate trailer mass for a given D value and a given tractor mass, and to calculate tractor mass for a given D value and a given trailer mass, use the following formulas:

Tractor mass $A = \frac{D * B}{G * B - D}$

Trailer mass $B = \frac{D * A}{}$

G * A - D

*NOTE: If when calculating A the product of G*B is less than the D value, or if when calculating B the product of G*A is less than the D value, then the result of this calculation is negative. Even so, the D value is sufficient for every combination of tractor mass and trailer mass.*

Example of how to calculate permissible trailer mass:

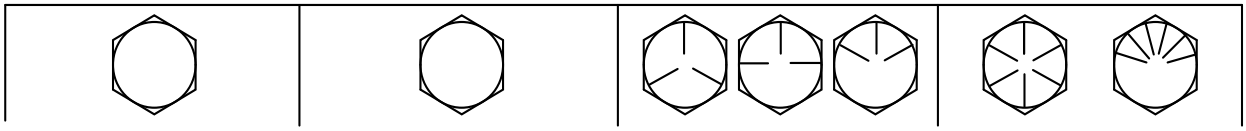
Given that: D value, D = 55 kN = 55000 N
Tractor mass A = 7000 kg

$$B = \frac{55000\ N * 7000\ kg}{9.81\ m/s^2 * 7000\ kg - 55000\ N} = 28163\ kg$$

Pay close attention to permissible towed mass and tractor mass!

WS68074,00022C9-19-16JAN18

Unified Inch Bolt and Screw Torque Values



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Bolt or Screw Size	SAE Grade 1				SAE Grade 2[a]				SAE Grade 5, 5.1 or 5.2				SAE Grade 8 or 8.2			
	Lubricated[b]		Dry[c]		Lubricated[b]		Dry[c]		Lubricated[b]		Dry[c]		Lubricated[b]		Dry[c]	
	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	3.7	33	4.7	42	6	53	7.5	66	9.5	84	12	106	13.5	120	17	150
													N·m	lb.-ft.	N·m	lb.-ft.
5/16	7.7	68	9.8	86	12	106	15.5	137	19.5	172	25	221	28	20.5	35	26
									N·m	lb.-ft.	N·m	lb.-ft.				
3/8	13.5	120	17.5	155	22	194	27	240	35	26	44	32.5	49	36	63	46
			N·m	lb.-ft.	N·m	lb.-ft.	N·m	lb.-ft.								
7/16	22	194	28	20.5	35	26	44	32.5	56	41	70	52	80	59	100	74
	N·m	lb.-ft.														
1/2	34	25	42	31	53	39	67	49	85	63	110	80	120	88	155	115
9/16	48	35.5	60	45	76	56	95	70	125	92	155	115	175	130	220	165
5/8	67	49	85	63	105	77	135	100	170	125	215	160	240	175	305	225
3/4	120	88	150	110	190	140	240	175	300	220	380	280	425	315	540	400
7/8	190	140	240	175	190	140	240	175	490	360	615	455	690	510	870	640
1	285	210	360	265	285	210	360	265	730	540	920	680	1030	760	1300	960
1-1/8	400	300	510	375	400	300	510	375	910	670	1150	850	1450	1075	1850	1350
1-1/4	570	420	725	535	570	420	725	535	1280	945	1630	1200	2050	1500	2600	1920
1-3/8	750	550	950	700	750	550	950	700	1700	1250	2140	1580	2700	2000	3400	2500
1-1/2	990	730	1250	930	990	730	1250	930	2250	1650	2850	2100	3600	2650	4550	3350

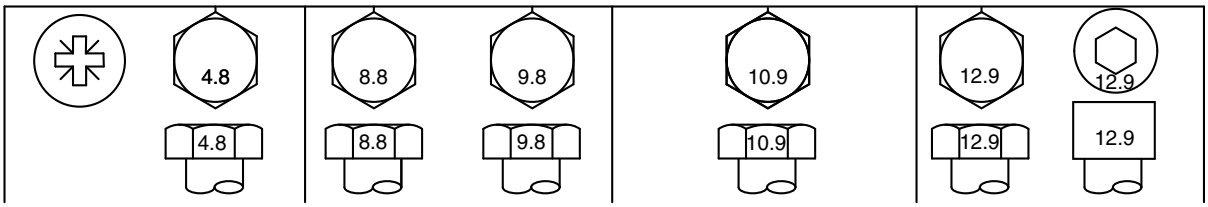
Torque values listed are for general use only, based on the strength of the bolt or screw. DO NOT use these values if a different torque value or tightening procedure is given for a specific application. For plastic insert or crimped steel type lock nuts, for stainless steel fasteners, or for nuts on U-bolts, see the tightening instructions for the specific application. Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical grade.

Replace fasteners with the same or higher grade. If higher grade fasteners are used, tighten these to the strength of the original. Make sure fastener threads are clean and that you properly start thread engagement. When possible, lubricate plain or zinc plated fasteners other than lock nuts, wheel bolts or wheel nuts, unless different instructions are given for the specific application.

[a] Grade 2 applies for hex cap screws (not hex bolts) up to 6 in. (152 mm) long. Grade 1 applies for hex cap screws over 6 in. (152 mm) long, and for all other types of bolts and screws of any length.
[b] "Lubricated" means coated with a lubricant such as engine oil, fasteners with phosphate and oil coatings, or 7/8 in. and larger fasteners with JDM F13C, F13F or F13J zinc flake coating.
[c] "Dry" means plain or zinc plated without any lubrication, or 1/4 to 3/4 in. fasteners with JDM F13B, F13E or F13H zinc flake coating.

WS68074,00022CA-19-16JAN18

Metric Bolt and Screw Torque Values



TS1670—UN—01MAY03

Bolt or Screw Size	Class 4.8				Class 8.8 or 9.8				Class 10.9				Class 12.9			
	Lubricated[a]		Dry[b]		Lubricated[a]		Dry[b]		Lubricated[a]		Dry[b]		Lubricated[a]		Dry[b]	
	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	4.7	42	6	53	8.9	79	11.3	100	13	115	16.5	146	15.5	137	19.5	172
									N·m	lb.-ft.	N·m	lb.-ft.	N·m	lb.-ft.	N·m	lb.-ft.
M8	11.5	102	14.5	128	22	194	27.5	243	32	23.5	40	29.5	37	27.5	47	35
			N·m	lb.-ft.	N·m	lb.-ft.	N·m	lb.-ft.								
M10	23	204	29	21	43	32	55	40	63	46	80	59	75	55	95	70
	N·m	lb.-ft.														
M12	40	29.5	50	37	75	55	95	70	110	80	140	105	130	95	165	120
M14	63	46	80	59	120	88	150	110	175	130	220	165	205	150	260	190
M16	100	74	125	92	190	140	240	175	275	200	350	255	320	235	400	300
M18	135	100	170	125	265	195	330	245	375	275	475	350	440	325	560	410
M20	190	140	245	180	375	275	475	350	530	390	675	500	625	460	790	580
M22	265	195	330	245	510	375	650	480	725	535	920	680	850	625	1080	800
M24	330	245	425	315	650	480	820	600	920	680	1150	850	1080	800	1350	1000
M27	490	360	625	460	950	700	1200	885	1350	1000	1700	1250	1580	1160	2000	1475
M30	660	490	850	625	1290	950	1630	1200	1850	1350	2300	1700	2140	1580	2700	2000
M33	900	665	1150	850	1750	1300	2200	1625	2500	1850	3150	2325	2900	2150	3700	2730
M36	1150	850	1450	1075	2250	1650	2850	2100	3200	2350	4050	3000	3750	2770	4750	3500

Torque values listed are for general use only, based on the strength of the bolt or screw. DO NOT use these values if a different torque value or tightening procedure is given for a specific application. For stainless steel fasteners or for nuts on U-bolts, see the tightening instructions for the specific application. Tighten plastic insert or crimped steel type lock nuts by turning the nut to the dry torque shown in the chart, unless different instructions are given for the specific application.

Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical property class. Replace fasteners with the same or higher property class. If higher property class fasteners are used, tighten these to the strength of the original. Make sure fastener threads are clean and that you properly start thread engagement. When possible, lubricate plain or zinc plated fasteners other than lock nuts, wheel bolts or wheel nuts, unless different instructions are given for the specific application.

[a] *"Lubricated" means coated with a lubricant such as engine oil, fasteners with phosphate and oil coatings, or M20 and larger fasteners with JDM F13C, F13F or F13J zinc flake coating.*

[b] *"Dry" means plain or zinc plated without any lubrication, or M6 to M18 fasteners with JDM F13B, F13E or F13H zinc flake coating.*

WS68074,00022CB-19-16JAN18

Identification Numbers

Product Identification Information

1	L	V	3	0	4	6	R	#	#	A	1	0	0	0	0	1
WMC	Build Factory		Machine Series	Engine Hp			Machine Family	Check Letter	Calendar Year	Model Year	Operator Station Identifier	Build Sequence				
			Model Number								Serial Number					

Product Identification Number (PIN) is made of various alphabetical and numeric characters. Characters represent multiple machine attributes like manufacture location, model number, manufacture date, model year, machine configurations, serial number, and more.

Use machine PIN when communicating with John Deere Dealer.

Each machine has its own unique Product Identification Number (PIN). The PIN number is broken down as follows:

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: calculated based on values and positions of the other characters in the PIN.

Calendar Year = represents calendar year of manufacture (2010 = A, 2031 = 1, 2041 = A again).

Model Year = year of new product release or year of updates to existing product.

Operator Station = represents style of cab or open operation station.

Build Sequence = represents consecutive number of machines built with same machine series through operator station.

Model Number: made up of series, Hp, and family; example shown 3046R.

Serial Number: made up of model year, operator station, and build sequence.

GS25068,0003DB3-19-23JAN18

Record Identification Numbers

Compact Utility Tractor

2032R and 2038R PIN (GH100001—)

If you need to contact an Authorized Service Center for information on servicing, always provide the product model and identification numbers.

You will need to locate the identifications numbers for the product. Record the information in the spaces provided below.

DATE OF PURCHASE:

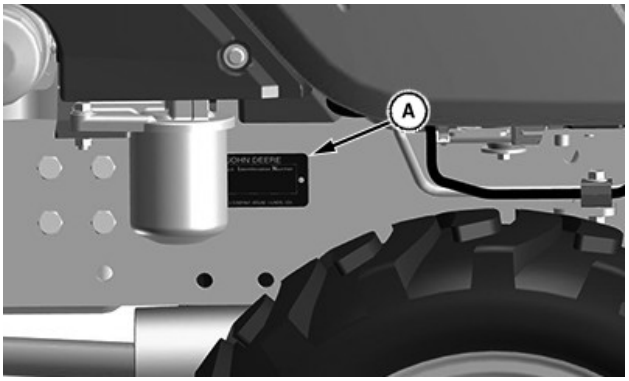
_____

DEALER NAME:

_____

DEALER PHONE:

_____



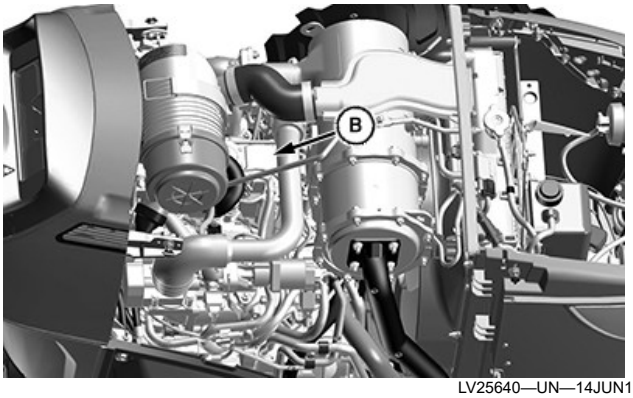
LV25641—UN—14JUN16

Product Identification Number Plate

PRODUCT IDENTIFICATION NUMBER (A):

— — — — — — — — — — — — — — — — —

Engine Serial Number



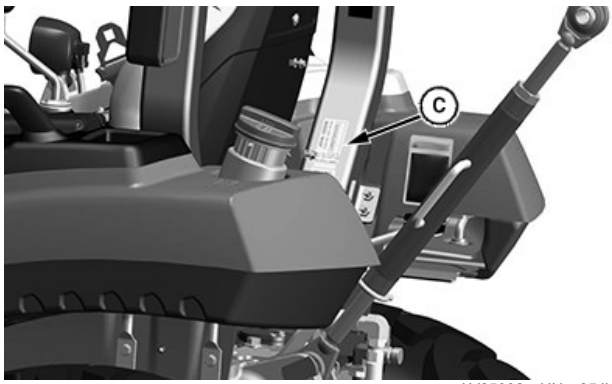
LV25640—UN—14JUN16

Engine Serial Number Plate

ENGINE SERIAL NUMBER (B):

— — — — — — — — — — — — — — — — —

Roll Over Protection Serial Number Plate



LV25902—UN—25JUL16

ROPS Serial Number Plate

ROPS Serial Number (C):

— — — — — — — — — — — — — — — — —

UP00731,0000101-19-12SEP16

Certification and Warranty

Product Warranty

John Deere offers a standard warranty on new John Deere products. For a copy of the product warranty statement or for details on the warranty terms and conditions for products purchased in the United States and Canada, please contact your local John Deere Dealer or utilize the following resources:

United States

Website:

http://www.deere.com/en_US/services_and_support/warranty/warranty.page

Toll Free: 1-800-537-8233

Dealer Locator:

http://dealerlocator.deere.com/servlet/country=US

Canada

Website (English):

http://www.deere.ca/en_CA/services_and_support/service_plans_warranties/service_plans_warranties.page

Website (French):

http://fr.deere.ca/en_CA/services_and_support/service_plans_warranties/service_plans_warranties.page

Toll Free: 1-800-537-8233

Dealer Locator:

http://dealerlocator.deere.com/servlet/country=CA

Emission-related warranties are included in this Operator's Manual, and applicable if required by law or regulation.

For products purchased in a country other than the United States or Canada, please contact your local John Deere dealer for assistance.

MP47322,00F4690-19-27FEB24

John Deere, California and U.S. EPA Emission Control System Warranty (Non-Road Diesel)

Your Warranty Rights and Obligations:

The California Air Resources Board (CARB), the United States Environmental Protection Agency (EPA) and John Deere are pleased to explain the **emission control system warranty** on your 2018, 2019, or 2020 model year industrial compression-ignition engine. California-certified, new off-road compression-ignition engines must be designed, built and equipped to meet the State's stringent anti-smog standards. In the remaining forty nine (49) states, new non-road compression-ignition engines must be designed, built and equipped to meet the United States EPA emissions 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, the air induction system, the electronic control system, EGR (exhaust gas recirculation) system and the diesel particulate filter system. Also included may be hoses, belts, connectors and other emission-related assemblies.

Where a warrantable condition exists, John Deere will repair your off-road compression-ignition engine at no charge to you including diagnosis, parts and labor.

Manufacturer's Warranty Period:

2018, 2019, or 2020 model year off-road compression-ignition engines are warranted for the periods listed below. If any emission-related part on your engine is found to be defective during the applicable warranty period, the part will be repaired or replaced by John Deere.

If your engine is certified as	And its maximum power is	And its rated speed is	Then its warranty period is
Variable speed or constant speed	kW <19	Any speed	1,500 hours or two (2) years whichever comes first. In the absence of a device to measure the hours of use, the engine has a warranty period of two (2) years.
Constant speed	19 ≤ kW <37	3000 rpm or higher	1,500 hours or two (2) years whichever comes first. In the absence of a device to measure the hours of use, the engine has a warranty period of two (2) years.
Constant speed	19 ≤ kW <37	Less than 3,000 rpm	3,000 hours or five (5) years whichever comes first. In the absence of a device to measure the hours of use, the engine has a warranty period of five (5) years.
Variable speed	19 ≤ kW <37	Any speed	3,000 hours or five (5) years whichever comes first. In the absence of a device to measure the hours of use, the engine has a warranty period of five (5) years.
Variable speed or constant speed	kW ≥ 37	Any speed	3,000 hours or five (5) years whichever comes first. In the absence of a device to measure the hours of use, the engine has a warranty period of five (5) years.

Warranty Coverage:

This warranty is transferable to each subsequent purchaser for the duration of the warranty period. Repair or replacement of any warranted part will be performed at an authorized John Deere service provider.

Warranted parts not scheduled for replacement as required maintenance in the owner's manual shall be warranted for the warranty period. Warranted parts scheduled for replacement as required maintenance in the owner's manual are warranted for the period of time prior to the first scheduled replacement. Any warranted parts scheduled for replacement as required maintenance that are repaired or replaced under warranty shall be warranted for the remaining period of time prior to the first scheduled replacement. Any part not scheduled for replacement that is repaired or replaced under warranty shall be warranted for the remaining warranty period.

During the warranty period, John Deere is liable for damages to other engine components caused by the failure of any warranted part during the warranty period.

Any replacement part that is functionally identical to the original equipment part in all respects may be used in the maintenance or repair of your engine, and shall not reduce John Deere's warranty obligations. Add-on or modified parts that are not exempted may not be used. The use of any non-exempted add-on or modified parts shall be grounds for disallowing a warranty.

Warranted Parts:

This warranty covers engine components that are a part of the emission control system of the engine as delivered by John Deere to the original retail purchaser. Such components may include the following:

(A) Fuel injection system (including Altitude compensation system)

(B) Cold start enrichment system

(C) Intake manifold and Air intake throttle valve

(D) Turbocharger systems

(E) Exhaust manifold

(F) Positive crankcase ventilation system

(G) Charge Air Cooling systems

(H) Exhaust Gas Recirculation (EGR) systems

(I) Exhaust gas after treatment (diesel particulate filter system)

(J) Electronic Control units, sensors, solenoids and wiring harnesses used in above systems

(K) Hoses, belts, connectors and assemblies used in above systems

(L) Emission Control Information Labels

Since emissions related parts may vary slightly between models, certain models may not contain all of these parts and other models may contain the functional equivalents.

Exclusions:

Failures other than those arising from defects in material or workmanship are not covered by this warranty. The warranty does not extend to the following: malfunctions caused by abuse, misuse, improper adjustment, modification, alteration, tampering, disconnection, improper or inadequate maintenance, or use of fuels and lubricating oils not meeting specified standards, accident-caused damage and replacement of expendable items made in connection with scheduled maintenance. John Deere disclaims any responsibility for incidental or consequential damages such as loss of time, inconvenience, loss of use of equipment/engine or commercial loss.

Owner’s Warranty Responsibilities:

As the off-road compression-ignition engine owner, you are responsible for the performance of the required maintenance listed in your owner’s manual. John Deere recommends that you retain all documentation, including receipts, covering maintenance on your off-road compression-ignition engine, but John Deere cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.

John Deere may deny your warranty coverage if your off-road compression-ignition engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

Your engine is designed to operate on diesel fuel only. Use of any other fuel may result in your engine no longer operating in compliance with CARB and EPA emissions requirements.

You are responsible for initiating the warranty process. You must present your engine to a John Deere service provider as soon as a problem exists. The warranty repairs should be completed by the dealer as expeditiously as possible.

If you have a question about your emissions warranty coverage, how to make an emissions warranty claim or how to make arrangements for emissions-related authorized repairs, you should contact your John Deere Turf and Utility retailer, or the John Deere Customer Contact Center at 1-800-537-8233, or e-mail John Deere from https://www.deere.com/en/our-company/contact-us/.

TC00531,00000EA-19-05APR19

Tire Warranty

John Deere warranty applies for tires available through the John Deere parts system. For tires not available through the John Deere parts system, the tire manufacturer’s warranty applicable to your machine

may not apply outside the U.S. (See your John Deere dealer for specific information.)

KN52281,1003F90-19-22AUG12

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 it's 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

Service Records

Every 10 Hour Service

SERVICE PROCEDURE	
□ Check safety interlock system	□ Radiator Coolant Level
□ Check Engine Oil Level	□ Lubricate Grease Points (Wet Conditions)
□ Check Transmission Oil Level	
□ Clean Air Filter Rubber Dust Valve	

Hours: Date: Work Carried Out By:	Comments:	Dealer's Stamp

UP00731,00002A7-19-27MAR20

Every 50 Hour Service

SERVICE PROCEDURE	
□ Check Front Axle Oil Level	□ Lubricate Grease Points (Normal Conditions)
□ Lubricate 3-Point Hitch	

Hours: Date: Work Carried Out By:	Comments:	Dealer's Stamp

UP00731,00002EC-19-27MAR20

Every 200 Hour Service

SERVICE PROCEDURE	
□ Check Wheel Bolt Torque	□ Inspect Alternator Belt
□ Change Engine Oil and Filter(s)	

Hours: Date: Work Carried Out By:	Comments:	Dealer's Stamp

UP00731,00002A9-19-27MAR20

Every 400 Hour Service

SERVICE PROCEDURE	
□ Change Transmission Oil and Filter[a]	□ Drain water from fuel tank and replace fuel filter

[a]Transmission oil can be changed every 1200 hours or 3 years if specific requirements are met., see transmission maintenance for additional information.

Hours: Date: Work Carried Out By:	Comments:	Dealer's Stamp

UP00731,00002AA-19-27MAR20

Every 600 Hour Service

SERVICE PROCEDURE	
□ Service Air Filter Element and Hoses	□ Check Front Axle Oil
□ Check all Hoses and Clamps	□ Check Axle Thrust Bolt Torque

Hours: Date: Work Carried Out By:	Comments:	Dealer's Stamp

UP00731,00002AB-19-27MAR20

Yearly

SERVICE PROCEDURE	
□ Change Engine Oil and Filter	□ Drain Water from Fuel Tank and Replace Fuel Filter
□ Check Wheel Bolt Torque	□ Check all Hoses and Clamps

Hours: Date: Work Carried Out By:	Comments:	Dealer's Stamp

UP00731,00002AC-19-27MAR20

Every 1000 Hour Service

SERVICE PROCEDURE	
□ Check Engine Valve Clearance. See your John Deere Dealer	

Hours: Date: Work Carried Out By:	Comments:	Dealer's Stamp

UP00731,00002E4-19-26MAY17

Every 2000 Hour Service or Every Two Years

SERVICE PROCEDURE	
□ Drain, Flush and Refill Engine Cooling System [a]	

[a] *When coolant is NOT checked annually or NOT serviced with the pre-diluted John Deere Cool-Gard II*

Hours: Date: Work Carried Out By:	Comments:	Dealer's Stamp

UP00731,00002AD-19-27MAR20

Every 6000 Hour Service or Every Six Years

SERVICE PROCEDURE	
□ Drain, Flush and Refill Engine Cooling System[a]	

[a] *When coolant is checked annually and serviced with the pre-diluted John Deere Cool-Gard II*

Hours: Date: Work Carried Out By:	Comments:	Dealer's Stamp

UP00731,00002AE-19-27MAR20

Change of Ownership

Serial Number																	
Engine Number																	

Previous Owner:
Address:
Purchase Date:
Hours at Purchase:

Machine Model:
Registration No.:
New Owner:
Address:
Dealer's Stamp (only if sold through dealer)

UP00731,0000233-19-22FEB18

Change of Ownership

Serial Number																	
Engine Number																	

Previous Owner:
Address:
Purchase Date:
Hours at Purchase:

Machine Model:
Registration No.:
New Owner:
Address:
Dealer’s Stamp (only if sold through dealer)

UP00731,0000234-19-22FEB18

Change of Ownership

Serial Number																	
Engine Number																	

Previous Owner:
Address:
Purchase Date:
Hours at Purchase:

Machine Model:
Registration No.:
New Owner:
Address:
Dealer’s Stamp (only if sold through dealer)

UP00731,0000235-19-22FEB18

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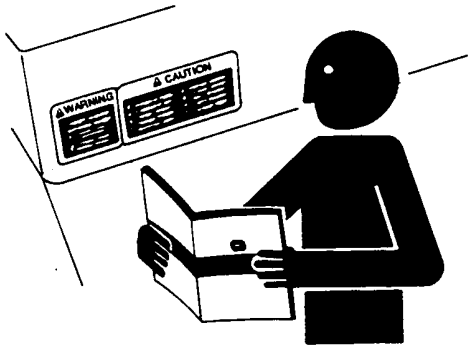
John Deere Service

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/.

DX,IBC,2-19-02APR02

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.

DX,SERVLIT-19-07DEC16