



9R Tractors (Serial No. 066001-) North American Edition F1



JOHN DEERE



OPERATOR'S MANUAL

9R Tractors (Serial No. 066001-) North American Edition

OMRE596884 ISSUE F1 (ENGLISH)

CALIFORNIA
 Proposition 65 Warning

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

If this product contains a gasoline engine:

! WARNING

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

The State of California requires the above two warnings.

Additional Proposition 65 Warnings can be found in this manual.

John Deere Waterloo Works
 North American 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 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.

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

BEFORE DELIVERING THIS MACHINE, your dealer performed a predelivery inspection. After operating for an agreed upon period, schedule an after-sale inspection with your John Deere dealer to ensure best performance.

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

THIS TRACTOR SHOULD BE OPERATED, serviced and repaired only by persons familiar with all its

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

REGISTER USED PRODUCTS. If you purchased used John Deere products from an authorized John Deere dealer, the warranty registration information was updated by the dealer and requires no further information on your part.

If you purchased any used John Deere product from an auction, through a trader or from a farmer, please register it now. John Deere and John Deere dealers value their customer's safety and satisfaction. Your local John Deere dealer is best equipped and anxious to provide you superior levels of support for your machine. Please enter your product details and your address online, using the John Deere website corresponding to your country. Then select the dealer of your choice.

RW29387.00000CC-19-22JUL19

Emissions Performance and Tampering

Operation and Maintenance

The engine, including the emissions control system, shall be operated, used, and maintained in accordance with the instructions provided in this manual to maintain the emissions performance of the engine within the requirements applicable to the engine's category/certification.

Tampering

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

DX,EMISSIONS,PERFORM-19-12JAN18

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

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Glossary

Glossary of Terms

ITEM	ABBREVIATION	DESCRIPTION
Agriculture Tractor	[AG]	Tractor primary application
Scraper Tractor	[Scraper]	Tractor primary application
Air Conditioning	A/C	System used for conditioning the air in the cab
Automatic PowerShift™	APS	Transmission feature
Controller Area Network	CAN	A communication system linking on-board electronics
Cold Cranking Amperes	CCA	Refers to a battery's capability to perform during cold-weather operation
Chassis Control Unit	CCU	Computerized system for tractor monitoring
Diesel Exhaust Fluid	DEF	Abbreviation
Diesel Particulate Filter	DPF	Filter that prevents ash and soot from entering the atmosphere
Diagnostic Trouble Codes	DTC	Codes that inform the operator of stop, service, or information alerts
Economy Mode	ECO	Abbreviation
Engine Control Unit	ECU	Abbreviation
Engine Revolutions Per Minute	erpm	Abbreviation
Gallons per Minute	gpm	Fluid flow measured over a period of 1 minute
Global Positioning System	GPS	Abbreviation
Heavy Duty	HD	Abbreviation
High Intensity Discharge	HID	Type of Xenon working light used for front lighting
Heating Ventilating Air Conditioning	HVAC	Abbreviation
International Standards Organization	ISO	Abbreviation
Liters per Minute	L/min	Fluid flow measured over a period of 1 minute
Light Emitting Diode	LED	Abbreviation
Low Temperature Circuit	LTC	Abbreviation
Mechanical Front Wheel Drive	MFWD	Powered front axle which is driven mechanically from the transmission
Product Identification Number	PIN	Serial number relating to tractor identification
PowerShift™ Transmission	PST	Abbreviation
IVT™/AutoPowr™ Transmission Control Unit	PTI	Abbreviation
Power Take-Off	PTO	Abbreviation
PowerShift™ Transmission Control Unit	PTP	Computerized system used to control IVT transmission shift functions
Roll-Over Protective Structure	ROPS	Abbreviation
Right-Hand	RH	Abbreviation
Revolutions per Minute	rpm	Abbreviation
Society of Automotive Engineers	SAE	Engineering Standards Organization
Selective Control Valve	SCV	Device used to control remote hydraulic functions
Tire Pressure System	TPS	Abbreviation

KD34109,00008CB-19-18MAR21

Safety

Recognize Safety Information



T81389—UN—28JUN13

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

Follow recommended precautions and safe operating practices.

DX,ALERT-19-29SEP98

Follow Safety Instructions



TS201—UN—15APR13

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

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

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

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

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

DX,READ-19-16JUN09

Understand Signal Words



▲ WARNING

▲ CAUTION

TS187—19—30SEP88

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

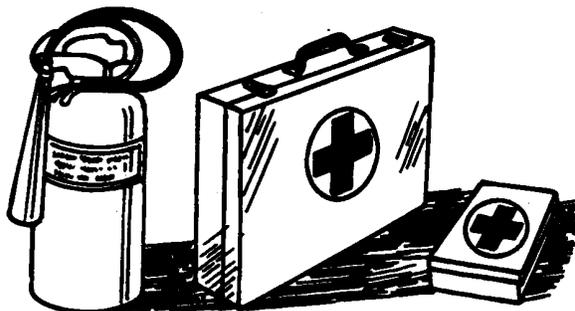
WARNING; The signal word WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

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

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

DX,SIGNAL-19-05OCT16

Prepare for Emergencies



TS291—UN—15APR13

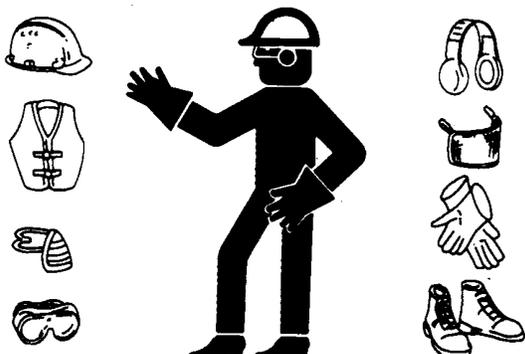
Be prepared if a fire starts.

Keep a first aid kit and fire extinguisher handy.

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

DX,FIRE2-19-03MAR93

Wear Protective Clothing



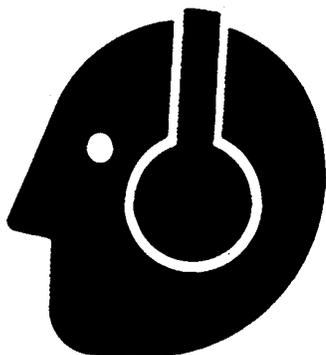
TS206—UN—15APR13

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

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

DX.WEAR2-19-03MAR93

Protect Against Noise



TS207—UN—23AUG88

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

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

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

DX.NOISE-19-03OCT17

Handle Fuel Safely—Avoid Fires



TS202—UN—23AUG88

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

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

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

Use only an approved fuel container for transporting flammable liquids.

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

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

DX.FIRE1-19-12OCT11

Handle Starting Fluid Safely



TS1356—UN—18MAR92

Starting fluid is highly flammable.

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

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

Do not incinerate or puncture a starting fluid container.

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

DX,FIRE3-19-14MAR14

Fire Prevention

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

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

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

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

In Case of Fire



TS227—UN—15APR13

CAUTION: Avoid personal injury.

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

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

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

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

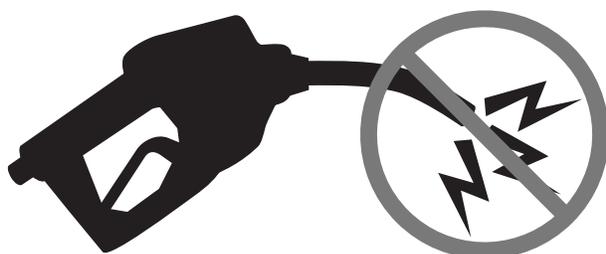
1. Pull the pin. Hold the extinguisher with the nozzle pointing away from you, and release the locking mechanism.
2. Aim low. Point the extinguisher at the base of the fire.
3. Squeeze the lever slowly and evenly.
4. Sweep the nozzle from side-to-side.

DX,FIRE4-19-22AUG13

Avoid Static Electricity Risk When Refueling



RG22142—UN—17MAR14



RG21992—UN—21AUG13

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

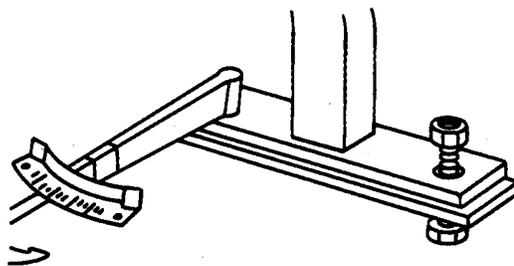
Refineries may have treated the fuel with a static dissipating additive. However, there are many factors that can reduce the effectiveness of the additive over time.

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

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

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

Keep ROPS Installed Properly



TS212—UN—23AUG88

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

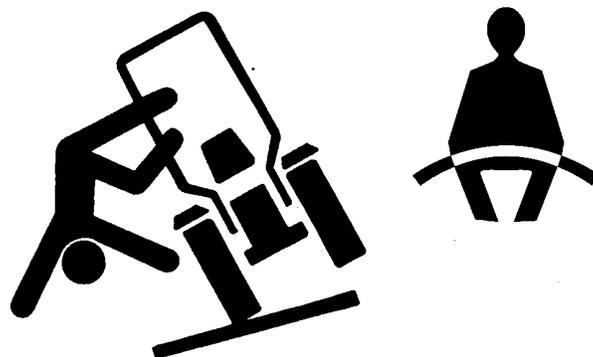
The protection offered by ROPS will be impaired if ROPS is subjected to structural damage, is involved in an overturn incident, or is in any way altered by welding, bending, drilling, or cutting. A damaged ROPS should be replaced, not reused.

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

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

DX,ROPS3-19-12OCT11

Use Foldable ROPS and Seat Belt Properly



TS1729—UN—24MAY13

Avoid crushing injury or death during rollover.

- If this machine is equipped with a foldable rollover protective structure (ROPS), keep the ROPS in the fully extended and locked position. USE a seat belt when you operate with a ROPS in the fully extended position.
 - Hold the latch and pull the seat belt across the body.
 - Insert the latch into the buckle. Listen for a click.
 - Tug on the seat belt to make sure that the belt is securely fastened.

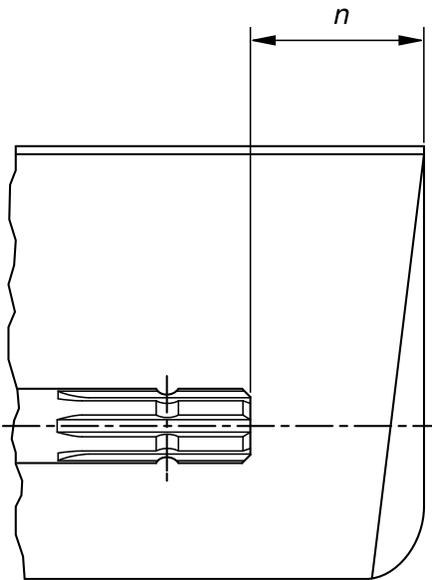
- Snug the seat belt across the hips.
- If this machine is operated with the ROPS folded (for example, to enter a low building), drive with extreme caution. **DO NOT USE** a seat belt with the ROPS folded.
- Return the ROPS to the raised, fully extended position as soon as the machine is operated under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

DX,FOLDROPS-19-22AUG13

Stay Clear of Rotating Drivelines



TS1644—UN—22AUG95



H96219—UN—29APR10

Entanglement in rotating driveline can cause serious injury or death.

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

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

Wear close fitting clothing. Stop the engine and be sure that PTO driveline is stopped before making

adjustments, connections, or cleaning out PTO driven equipment.

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

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

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

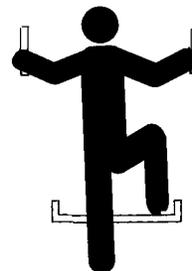
Do not raise implements high enough to damage the tractor master shield or guard of primary implement PTO driveshaft. Detach the PTO driveline shaft if it is necessary to increase implement height. (See Attching/ Detaching PTO Driveline)

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

PTO Type	Diameter	Splines	$n \pm 5 \text{ mm (0.20 in.)}$
1	35 mm (1.378 in.)	6	85 mm (3.35 in.)
2	35 mm (1.378 in.)	21	85 mm (3.35 in.)
3	45 mm (1.772 in.)	20	100 mm (4.00 in.)
4	57.5 mm (2.264 in.)	22	100 mm (4.00 in.)

DX,PTO-19-28FEB17

Use Steps and Handholds Correctly



T133468—UN—15APR13

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

Use extra care when mud, snow, or moisture present slippery conditions. Keep steps clean and free of grease

or oil. Never jump when exiting machine. Never mount or dismount a moving machine.

DX,WW,MOUNT-19-12OCT11

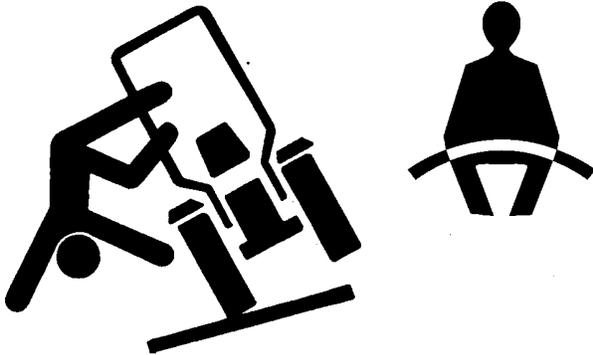
Read Operator's Manuals for ISOBUS Controllers

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

NOTE: ISOBUS refers to the ISO Standard 11783

DX,WW,ISOBUS-19-15JUL15

Use Seat Belt Properly



TS1729—UN—24MAY13

Avoid crushing injury or death during rollover.

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

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

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

Inspect seat belt and mounting hardware at least once a year. Look for signs of loose hardware or belt damage,

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

DX,ROPS1-19-22AUG13

Operating the Tractor Safely

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

- Use your tractor only for jobs it was designed to perform, for example, pushing, pulling, towing, actuating, and carrying a variety of interchangeable equipment designed to conduct agricultural work.
- Operators must be mentally and physically capable of accessing the operator's station and/or controls, and operating the machine properly and safely.
- Never operate machine when distracted, fatigued, or impaired. Proper machine operation requires the operator's full attention and awareness.
- This tractor is not intended to be used as a recreational vehicle.
- Read this operator's manual before operating the tractor and follow operating and safety instructions in the manual and on the tractor.
- Follow operation and ballasting instructions found in the operator's manual for your implements/ attachments, such as front loaders.
- Follow the instructions outlined in the operator's manual of any mounted or trailed machinery or trailer. Do not operate a combination of tractor-machine or tractor-trailer unless all instructions have been followed.
- Make sure that everyone is clear of machine, attached equipment, and work area before starting engine or operation.
- Stay clear of the three-point linkage and pickup hitch (if equipped) when controlling them.
- Keep hands, feet, and clothing away from power-driven parts.

Driving Concerns

- Never get on or off a moving tractor.
- Complete any required training prior to operating vehicle.
- Keep all children and nonessential personnel off tractors and all equipment.
- Never ride on a tractor unless seated on a John Deere approved seat with a seat belt.
- Keep all shields/guards in place.
- Use appropriate visual and audible signals when operating on public roads.
- Move to side of road before stopping.
- Reduce speed when turning, applying individual

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

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

Heated and Ventilated Operator's Seat

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

Towing Loads

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

Parking and Leaving the Tractor

- Before dismounting, shut off SCVs, disengage PTO, stop engine, lower implements/attachments to ground, place implement/attachment control devices in neutral, and securely engage park mechanism, including the park pawl and park brake. In addition, if the tractor is left unattended, remove key.
- Leaving transmission in gear with engine off will NOT prevent the tractor from moving.
- Never go near an operating PTO or an operating implement.
- Wait for all movement to stop before servicing machinery.

Common Accidents

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

The most common accidents involving tractors are:

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

- Crushing and pinching during hitching

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

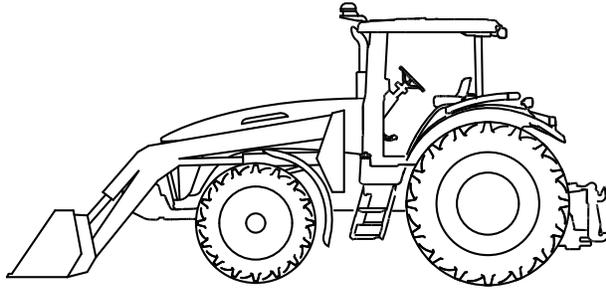
Limited Use in Forestry Operation

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.

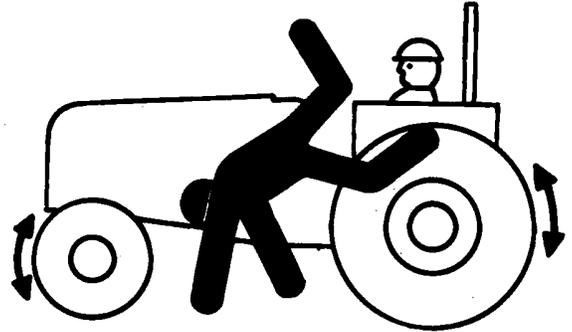
Lower loader to ground before leaving operators station.

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 claspers).

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

DX,WW,LOADER-19-18SEP12

Keep Riders Off Machine



TS290—UN—23AUG88

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

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

DX,RIDER-19-03MAR93

Instructional Seat

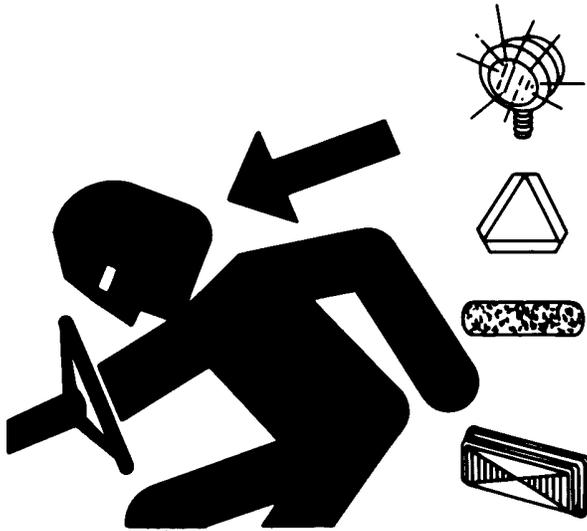


TS1730—UN—24MAY13

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

DX,SEAT,NA-19-22AUG13

Use Safety Lights and Devices



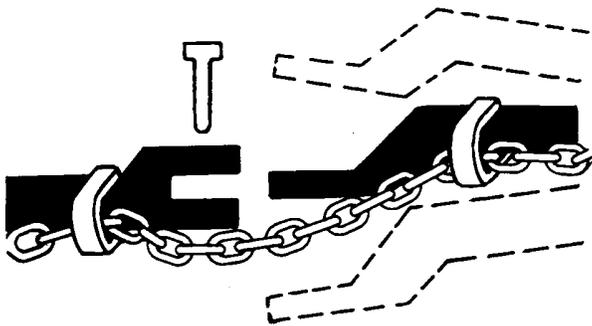
TS951—UN—12APR90

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

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

DX.FLASH-19-07JUL99

Use a Safety Chain



TS217—UN—23AUG88

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

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

See your John Deere dealer for a chain with a strength

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

DX.CHAIN-19-03MAR93

Transport Towed Equipment at Safe Speeds



TS1686—UN—27SEP06

Do not exceed the maximum transport speed. This towing unit may be capable of operating at transport speeds that exceed the maximum allowable transport speed for towed implements.

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

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

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

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

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

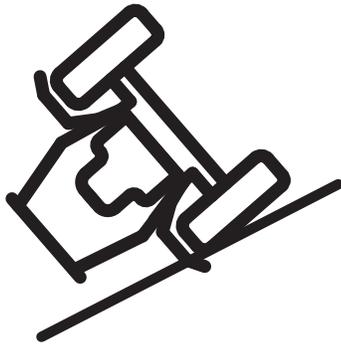
Implements with brakes:

- If the manufacturer does not specify a maximum transport speed, do not tow at speeds greater than 40 km/h (25 mph).
- When transporting at speeds up to 40 km/h (25 mph) the fully loaded implement must weigh less than 4.5 times the towing unit weight.
- When transporting at speeds between 40—50 km/h (25—31 mph) the fully loaded implement must weigh less than 3.0 times the towing unit weight.

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

DX,TOW1-19-28FEB17

Use Caution on Slopes, Uneven Terrain, and Rough Ground



RXA0103437—UN—01JUL09

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

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

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

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

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

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

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

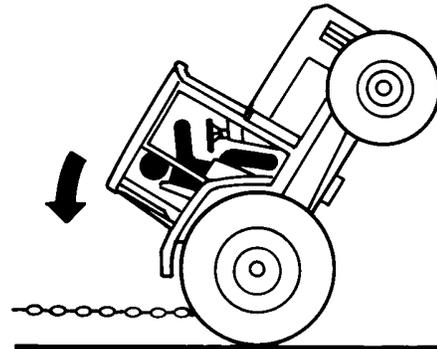
Choose a low ground speed so you will not have to stop or shift while on a slope.

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

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

DX,WW,SLOPE-19-28FEB17

Freeing a Mired Machine



TS1645—UN—15SEP95



TS263—UN—23AUG88

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

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

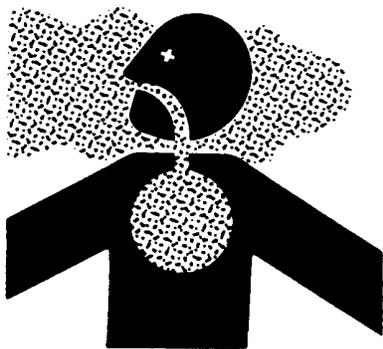
If necessary to tow with another unit, use a tow bar or a long chain (a cable is not recommended). Inspect the chain for flaws. Make sure all parts of towing devices are of adequate size and strong enough to handle the load.

Always hitch to the drawbar of the towing unit. Do not

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

DX,MIRE-19-07,JUL99

Avoid Contact with Agricultural Chemicals



TS220—UN—15APR13



TS272—UN—23AUG88

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

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

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

DX,CABS-19-25MAR09

Handle Agricultural Chemicals Safely



TS220—UN—15APR13



A34471

A34471—UN—11OCT88

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

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

Reduce risk of exposure and injury:

- Wear appropriate personal protective equipment as recommended by the manufacturer. In the absence of manufacturer's instructions, follow these general guidelines:
 - Chemicals labeled **'Danger'**: Most toxic. Generally require use of goggles, respirator, gloves, and skin protection.
 - Chemicals labeled **'Warning'**: Less toxic. Generally require use of goggles, gloves, and skin protections.
 - Chemicals labeled **'Caution'**: Least toxic. Generally require use of gloves and skin protection.
- Avoid inhaling vapor, aerosol or dust.
- Always have soap, water, and towel available when working with chemicals. If chemical contacts skin, hands, or face, wash immediately with soap and water. If chemical gets into eyes, flush immediately with water.
- Wash hands and face after using chemicals and before eating, drinking, smoking, or urination.

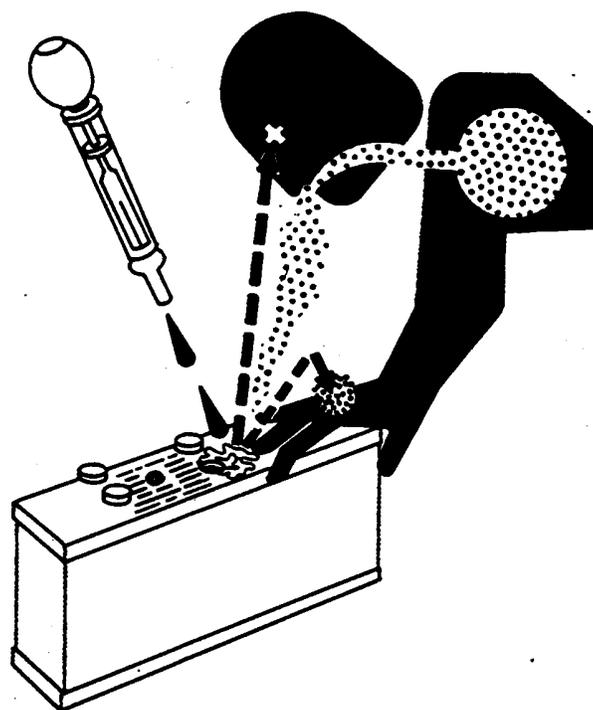
- Do not smoke or eat while applying chemicals.
- After handling chemicals, always bathe or shower and change clothes. Wash clothing before wearing again.
- Seek medical attention immediately if illness occurs during or shortly after use of chemicals.
- Keep chemicals in original containers. Do not transfer chemicals to unmarked containers or to containers used for food or drink.
- Store chemicals in a secure, locked area away from human or livestock food. Keep children away.
- Always dispose of containers properly. Triple rinse empty containers and puncture or crush containers and dispose of properly.

DX,WW,CHEM01-19-24AUG10

Handling Batteries Safely



TS204—UN—15APR13



TS203—UN—23AUG88

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

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

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

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

Avoid hazards by:

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

If acid is spilled on skin or in eyes:

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

If acid is swallowed:

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

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

DX,WW,BATTERIES-19-02DEC10

Avoid Heating Near Pressurized Fluid Lines



TS953—UN—15MAY90

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

DX,TORCH-19-10DEC04

Remove Paint Before Welding or Heating



TS220—UN—15APR13

Avoid potentially toxic fumes and dust.

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

Remove paint before heating:

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

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

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

Dispose of paint and solvent properly.

DX,PAINT-19-24JUL02

Handle Electronic Components and Brackets Safely



TS249—UN—23AUG88

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

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

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

DX,WW,RECEIVER-19-24AUG10

Practice Safe Maintenance



TS218—UN—23AUG88

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

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

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

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

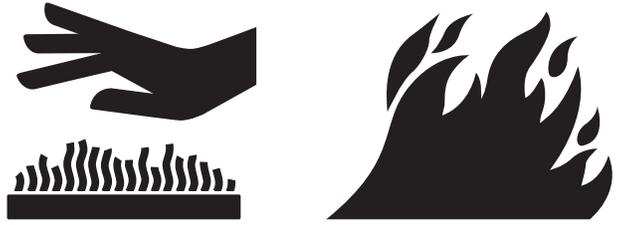
On self-propelled equipment, disconnect battery ground cable (-) before making adjustments on electrical systems or welding on machine.

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

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

DX,SERV-19-28FEB17

Avoid Hot Exhaust



RG17488—UN—21AUG09

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

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

DX,EXHAUST-19-20AUG09

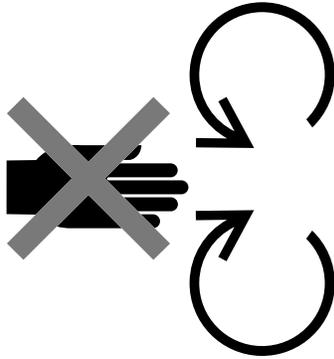
Clean Exhaust Filter Safely



TS227—UN—15APR13



TS271—UN—23AUG88



TS1693—UN—09DEC09



TS1695—UN—07DEC09

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

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

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

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

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

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

Avoid contact with these components until cooled to safe temperatures.

If service procedure requires engine to be running:

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

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

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

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

DX,EXHAUST,FILTER-19-12JAN11

Work In Ventilated Area



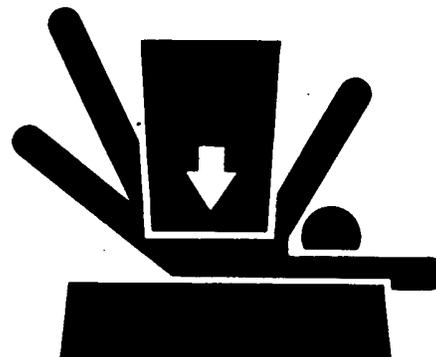
TS220—UN—15APR13

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

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

DX,AIR-19-17FEB99

Support Machine Properly



TS229—UN—23AUG88

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

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

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

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

DX,LOWER-19-24FEB00

Prevent Machine Runaway



TS177—UN—11JAN89

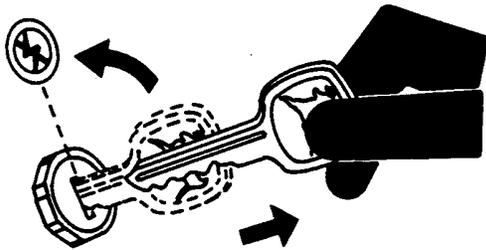
Avoid possible injury or death from machinery runaway.

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

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

DX,BYPAS1-19-29SEP98

Park Machine Safely



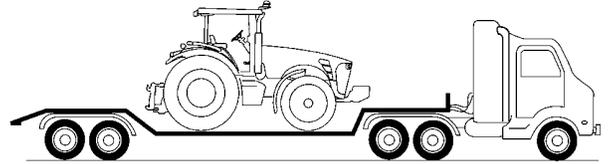
TS230—UN—24MAY89

Before working on the machine:

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

DX,PARK-19-04JUN90

Transport Tractor Safely



RXA0103709—UN—01JUL09

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

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

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

DX,WW,TRANSPORT-19-19AUG09

Service Cooling System Safely



TS281—UN—15APR13

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

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

DX,WW,COOLING-19-19AUG09

Service Accumulator Systems Safely



TS281—UN—15APR13

Escaping fluid or gas from systems with pressurized accumulators that are used in air conditioning, hydraulic, and air brake systems can cause serious injury. Extreme heat can cause the accumulator to burst, and pressurized lines can be accidentally cut. Do not weld or use a torch near a pressurized accumulator or pressurized line.

Relieve pressure from the pressurized system before removing accumulator.

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

Accumulators cannot be repaired.

DX,WW,ACCLA2-19-22AUG03

Service Tires Safely



RXA0103438—UN—11JUN09

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

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

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

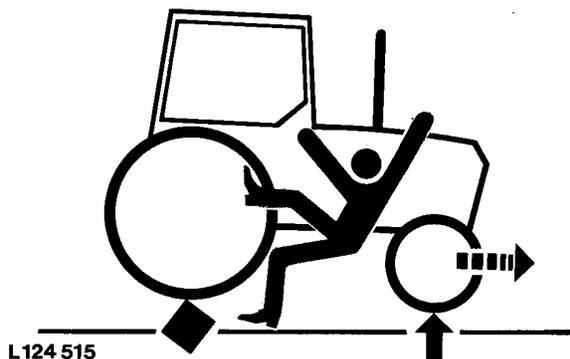
When inflating tires, use a clip-on chuck and extension hose long enough to allow you to stand to one side and NOT in front of or over the tire assembly. Use a safety cage if available.

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

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

DX,WW,RIMS-19-28FEB17

Service Front-Wheel Drive Tractor Safely



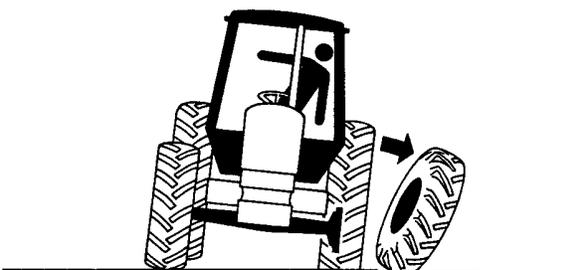
L124 515

L124515—UN—06AUG94

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

DX,WW,MFWD-19-19AUG09

Tightening Wheel Retaining Bolts/Nuts



L124 516

L124516—UN—03JAN95

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

DX,WW,WHEEL-19-12OCT11

Avoid High-Pressure Fluids



X9811—UN—23AUG88

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

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

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

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

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

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

DX,FLUID-19-12OCT11

Do Not Open High-Pressure Fuel System



TS1343—UN—18MAR92

High-pressure fluid remaining in fuel lines can cause serious injury. Do not disconnect or attempt repair of fuel

lines, sensors, or any other components between the high-pressure fuel pump and nozzles on engines with High Pressure Common Rail (HPCR) fuel system.

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

DX,WV,HPCR1-19-07JAN03

Store Attachments Safely



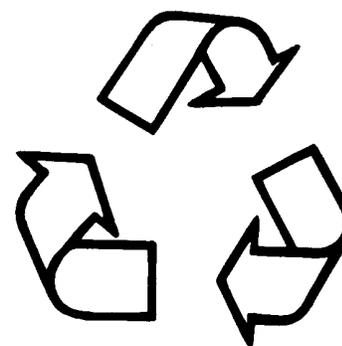
TS219—UN—23AUG88

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

Safety Signs

Operator's Manual

CAUTION

1. Before operating this tractor, read the Operator's Manual for complete operating instructions and safety information.
2. Keep all shields in place.
3. Be sure everyone is clear of tractor and attached equipment before starting engine or moving steering wheel, because tractor and equipment move as pictured.



4. Install lock-pin or lock-bars on tractor hinge before:
 - a. operating stationary PTO equipment.
 - b. performing service work near center of tractor.
 - c. lifting tractor or transporting on another vehicle.Be sure lock-pin or lock-bars are removed from hinge area before operating tractor.
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. Be especially careful when using single wheels. Danger of an overturn increases greatly with narrow tread (2m [80 inches] or less) and high speed.
For hillside operation, use only dual wheels, front and rear. Avoid sharp uphill turns.
9. Use flashing warning lights on highway unless prohibited by law.
10. Stop engine, lower implement to ground and shift to "PARK" or set hand-brake securely before dismantling. Wait for all movement to stop before servicing machinery.
11. Remove key if leaving tractor unattended.

RXA0179008—19—11AUG20



RXA0146223—UN—03NOV14

A— Before Operating Tractor Label (Left-Hand Side Cab Post)

AK08008,0000001-19-10AUG20

Instructional Seat (If Equipped)

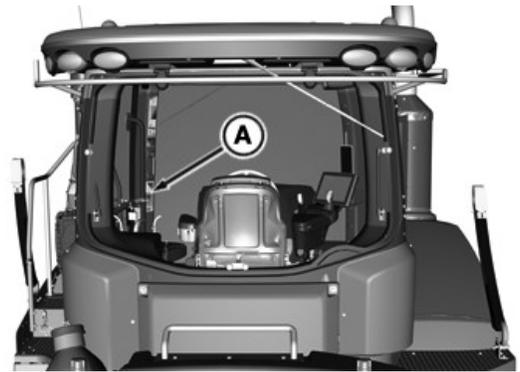
CAUTION

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

Keep all other riders off the tractor and equipment.

Always wear your seat belt.

RXA0179002—19—05AUG20



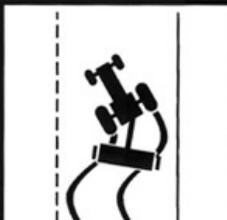
RXA0146222—UN—03NOV14

A— Use Instructional Seat Label (Left-Hand Front Cab Post)

AK08008,0000002-19-15NOV19

Seat Belt

WARNING

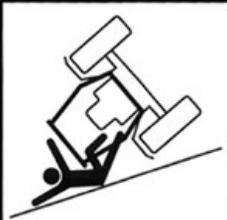


Avoid serious injury or death resulting from loss of control during transport or braking of a towed implement.

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

- Implements without brakes: 32 km/h (20 mph)
- Implements with brakes: 40 km/h (25 mph)

Do not exceed the implement's maximum transport speed.



AVOID CRUSHING:

- Do not jump if machine tips.

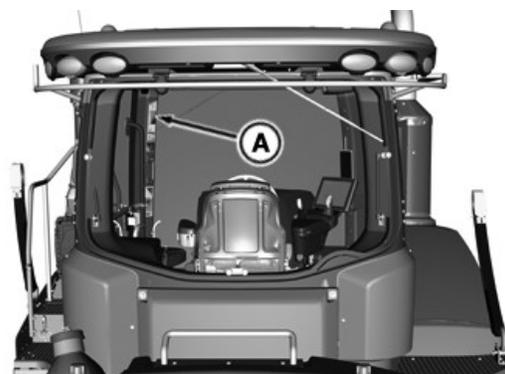
USE SEAT BELT

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

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

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

RXA0179028—19—05AUG20



RXA0146224—UN—03NOV14

A— Transport and ROPS Warning Label (Left-Hand Front Cab Post)

AK08008,0000003-19-15NOV19

Engine Block Heater—9.0 L Engine [Ag]

CAUTION

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

RXA0164782—19—07SEP18



RXA0164779—UN—12SEP18

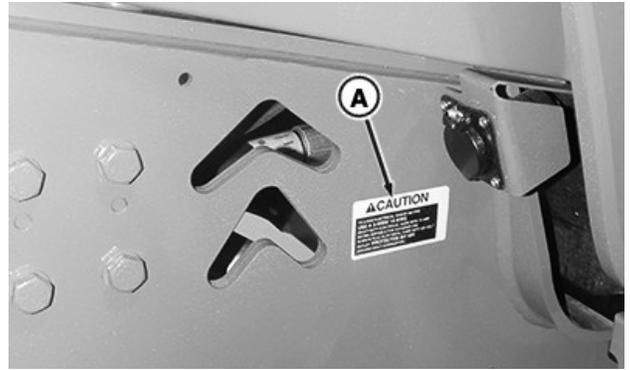
A— Engine Heater Label (Left-Hand Side of Tractor)

AK08008,0000004-19-15NOV19

Engine Block Heater—13.5 L Engine



RXA0164782—19—07SEP18



RXA0164781—UN—07SEP18

A— Engine Heater Label (Right-Hand Side of Tractor)

AK08008,0000006-19-15NOV19

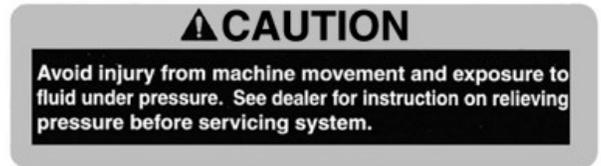


RXA0164781—UN—07SEP18

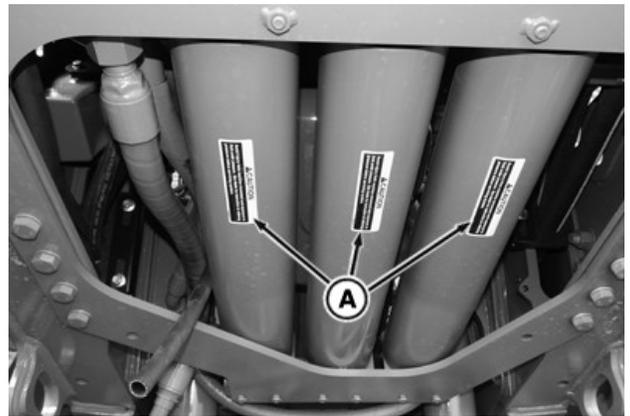
A— Engine Heater Label (Right-Hand Side of Tractor)

AK08008,0000005-19-15NOV19

HydraCushion™ Suspension Accumulators (If Equipped)



RXA0179005—19—05AUG20

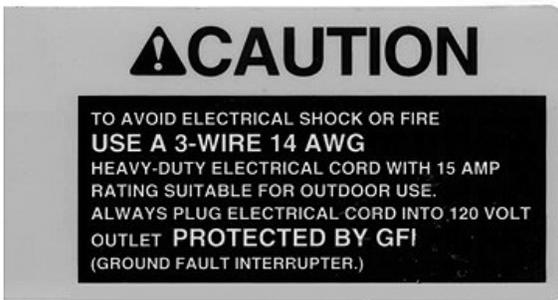


RXA0139051—UN—30MAY14

A— HydraCushion™ Suspension Label

AK08008,0000007-19-15NOV19

Engine Block Heater—15 L Engine



RXA0164782—19—07SEP18

Rear PTO Shield (If Equipped) [Ag]

WARNING

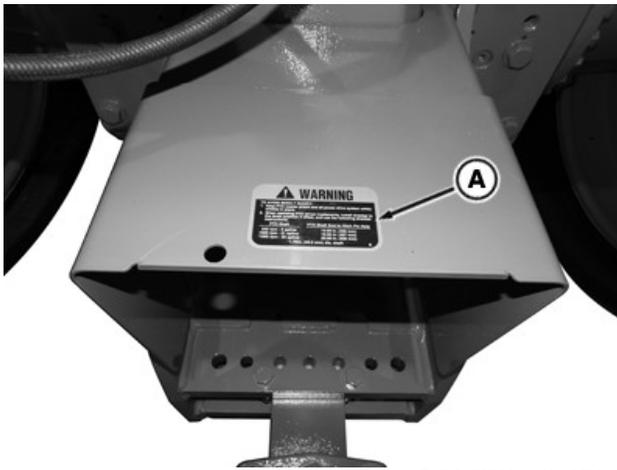
TO AVOID BODILY INJURY:

1. Keep PTO master shield and all power drive system safety shields in place.
2. When operating PTO driven implements, install drawbar in the down position if offset, and use the following drawbar instructions:

PTO Shaft	PTO Shaft End to Hitch Pin Hole
540 rpm - 6 spline	14.00 in. (356 mm)
1000 rpm - 21 spline	16.00 in. (407 mm)
*1000 rpm - 20 spline	20.00 in. (508 mm)

*1.75in. (44.5 mm) dia. shaft

RXA0179004—19—05AUG20



A— PTO Label

RXA0138836—UN—30MAY14

AK08008,0000008-19-15NOV19

Quick-Hitch (If Equipped) [Ag]

CAUTION

Improper action can cause the implement to be pulled over the tractor wheel and onto the operator station. Read and follow all instructions in the operator's manual before using hitch. Use control levers to fully engage both locking lugs over lower implement pins. Secure draft link attaching pins by tightening retainer bolts to 115 Nm (85.0 ft lb) torque.

RXA0179007—19—05AUG20



A— Quick-Hitch Label

RXA0138837—UN—31JAN14

AK08008,0000009-19-15NOV19

Hinge Area

WARNING

Crushing injury may result in hinge area if machine is turned. Make sure people are clear of machine before starting engine or moving steering wheel. Attach steering lockouts before performing service near center of machine or transporting on a truck.

RXA0179003—19—05AUG20

Safety Signs



RXA0138858—UN—30MAY14

A— Hinge Area Label (Left-Hand and Right-Hand)



RXA0142950—UN—24JUN14

AK08008,000000A-19-15NOV19

Park Brake (Stored Energy)

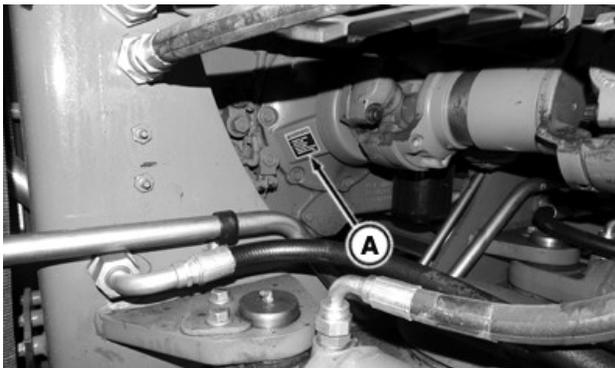


RXA0179010—19—05AUG20

Rotating Driveline (If Equipped) [Ag]



RXA0179006—19—05AUG20



RXA0138856—UN—31JAN14

A— Park Brake Label

AK08008,000000B-19-15NOV19



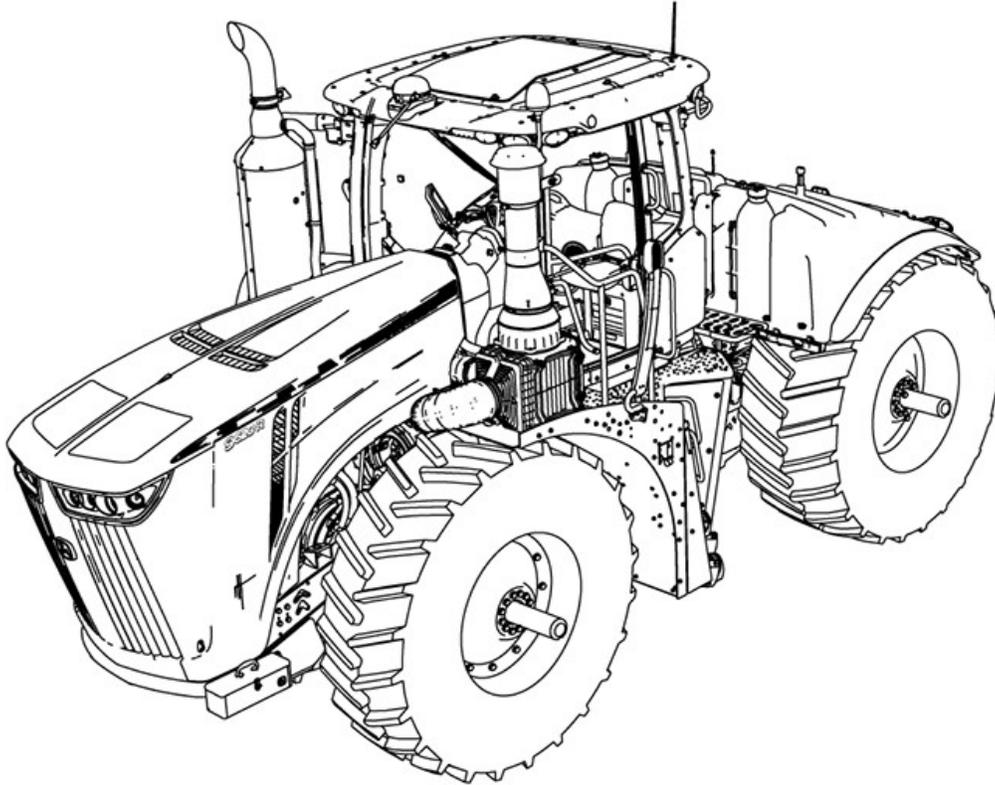
RXA0138860—UN—30MAY14

A— Rotating Driveline Label (Left-Hand and Right-Hand)

AK08008,000000C-19-15NOV19

Vehicle Overview

9R Series Tractor



9R Series Tractor (Typical)

RXA0157887—UN—16OCT17

AK08008,000000D-19-15NOV19

Engine Operation

Engine Settings—Access

Access Application Through Display:



Menu

RXA0167075—UN—20MAR19

1. Menu



Machine Settings

RXA0167076—UN—20MAR19

2. Machine Settings tab



Engine

RXA0175176—UN—17FEB20

3. Engine

Access Application Through Navigation Bar:



Engine

RXA0168449—UN—30MAY19

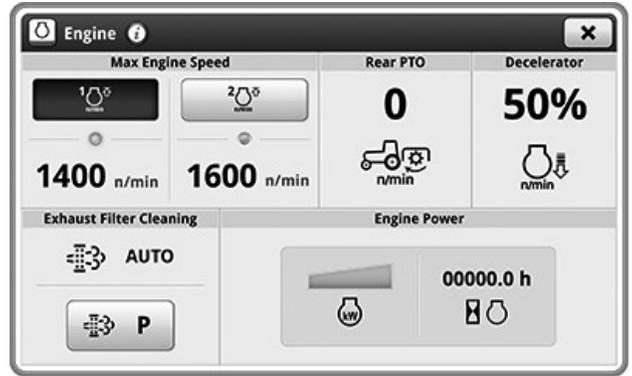
Press engine button on navigation bar below display.

KD34109,00008BF-19-18MAR21

Engine Settings

The Engine application is used to access and adjust engine settings.

NOTE: Some items only display if machine is equipped with the associated option.



RXA0175172—UN—13FEB20

Engine Example

Items Accessible on the Engine Main Page:



Engine Power

RXA0175187—UN—13FEB20

Engine Power — select to display the current engine power level. See Engine Settings—Engine Power in this Operator's Manual section.

00000.0 h



Engine Hours

RXA0175162—UN—17FEB20

Engine Hours — displays the accumulated engine hours.

Max Engine Speed Items:



Max Engine Speed 1

RXA0175183—UN—17FEB20

Enable Max Engine Speed 1 — select to enable the saved maximum speed.

1400 n/min

Max Engine Speed 1 Value

RXA0175194—UN—18FEB20

Max Engine Speed 1 — select to adjust the maximum speed setting. See Engine Settings—Max Engine Speed in this Operator's Manual section.



RXA0175184—UN—17FEB20

Max Engine Speed 2

Enable Max Engine Speed 2 — select to enable the saved maximum speed.

1600 n/min

RXA0175195—UN—18FEB20

Max Engine Speed 2 Value

Max Engine Speed 2 — select to adjust the maximum speed setting. See Engine Settings—Max Engine Speed in this Operator's Manual section.



RXA0175181—UN—13FEB20

Indicator

Active Indicator — illuminates orange when a Max Engine Speed is enabled.

Standby Indicator — appears gray when a Max Engine Speed is disabled.

Rear PTO Items:



RXA0175189—UN—02APR20

Rear PTO Speed

Rear PTO — displays the current PTO speed.

Exhaust Filter Cleaning Items:

NOTE: Final Tier 4/Stage V engines only.



RXA0175166—UN—17FEB20

AUTO Exhaust Filter Cleaning

AUTO Exhaust Filter Cleaning — select to enable/disable an automated process to perform Exhaust Filter Cleaning during normal operation. See Engine Settings—Exhaust Filter System Overview in this Operator's Manual section.



RXA0175186—UN—18FEB20

Parked Filter Cleaning

Parked Filter Cleaning — select to start a process to perform Exhaust Filter Cleaning while the machine is

parked. See Engine Settings—Exhaust Filter System Overview in this Operator's Manual section.



RXA0175191—UN—18FEB20

Request Exhaust Filter Cleaning

Request Exhaust Filter Cleaning — select to start a more intense cleaning procedure than Parked Filter Cleaning. See Engine Settings—Exhaust Filter System Overview in this Operator's Manual section.

Decelerator Items:

50%



RXA0175169—UN—13FEB20

Decelerator

Decelerator — select to adjust how much the engine rpm decreases when the foot decelerator is used.

Engine Braking Items:



RXA0167071—UN—21MAR19

Advanced Settings

Advanced Settings — access further adjustments and less common settings.

Run Page Modules

Add modules for this application to run pages using Layout Manager. See the Generation 4 Display operator's manual.

Example:



RXA0175178—UN—17FEB20

Engine Power

NOTE: Different modules may be available for your application.

Engine Power — quick access to the Engine Power module.

Shortcut Keys

Add shortcut keys for this application to the shortcut bar using Layout Manager. See the Generation 4 Display operator's manual.

Example:



ON

RXA0175174—UN—17FEB20

NOTE: Different shortcut keys may be available for your application.

Engine Brake — quick access to turn the Engine Brake ON and OFF.

KD34109,00008C0-19-18MAR21

Engine Settings—Engine Power

The Engine Power page displays a graph of the current Engine Power level and the number of accumulated engine hours.

Items Accessible on Engine Power Page:



Power Level

RXA0175187—UN—13FEB20

The green fill indicates the amount of Engine Power being used. A reading does not display until 40% of the available Engine Power is being used.

00000.0 h



Engine Hours

RXA0175162—UN—17FEB20

Accumulated engine operating hours for the machine are displayed.

KD34109,00008C1-19-18MAR21

Engine Settings—Max Engine Speed

Limiting engine speed in light load situations can improve fuel economy. Max Engine Speed utilizes a constant speed governor curve, providing an instant response to varying loads. The setting can be adjusted

1100—2150 rpm. Two different speeds can be set, enabling the operator to toggle quickly from one to the other.

Procedure to Modify:

NOTE: The engine must be running to adjust the Max Engine Speed.

1400 n/min

Max Engine Speed Value

RXA0175194—UN—18FEB20

1. Select Max Engine Speed value.



Adjust Speed

RXA0175163—UN—17FEB20

2. Select (+/++) to increase or (-/-) to decrease the setting. Use (++) and (- -) to increase or decrease the value at a higher rate than (+) and (-). The value is shown in the display box.



Close

RXA0167129—UN—25MAR19

3. Select to close.

PTO Items:



Rear PTO Speed

RXA0175189—UN—02APR20

Rear PTO — displays the current PTO speed.

External Sources:

Max Engine Speed Button — enable/disable Max Engine Speeds using the button on the CommandARM™. See CommandARM™ Controls—Left Side in CommandARM™ Controls section of this Operator's Manual. The last Max Engine Speed

selected in the CommandCenter™ is used. A box displays on the page around the Max Engine Speed that was enabled last.

Interaction with Transmission Modes:

NOTE: The transmission mode is changed on the Transmission page. For more information, see Transmission section.

- **Full AUTO** — at full throttle, the minimum engine speed is 1500 rpm with the PTO off. The transmission downshifts and the engine speeds up to the Max Engine Speed to compensate for increasing workloads. The available engine speed range is 1500 rpm to Max Engine Speed.
- **Custom** — two minimum engine speed settings are also available, ECO ON and ECO OFF. ECO ON runs the engine as low as possible for light loads that do not change quickly. ECO OFF can handle quick load changes.
- **Manual** — the operator sets the engine speed using the hand throttle. The engine speed stays constant and is limited by the Max Engine Speed.

KD34109,00008C2-19-18MAR21

Engine Settings—Exhaust Filter System Overview

Final Tier 4/Stage V engines clean and filter the exhaust. Under normal machine operation and with filter cleaning in AUTO mode, minimal interaction is required.

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

- Utilize the AUTO Exhaust Filter Cleaning mode.
- Avoid unnecessary idling.
- Use proper engine oil.
- Use only ultra-low sulfur fuel.

CAUTION: When AUTO, Parked, or Requested Filter Cleaning is in progress, the exhaust temperature can be high under no load or light load conditions at certain times during the Exhaust Filter Cleaning cycle.

Servicing the machine or attachments during the Exhaust Filter Cleaning can result in serious personal injury. Avoid exposure and skin contact with hot exhaust gases and components.

During the AUTO and manual/stationary Exhaust Filter Cleaning operations, the engine runs at elevated idle and hot temperatures for an extended period. Exhaust gases and exhaust filter components reach temperatures hot enough to cause burns to people, or to ignite or melt common materials.

Never perform exhaust cleaning procedures in a closed building unless suitable exhaust is provided.

Corner post display indicators and CommandCenter™ prompts provide information related to the exhaust filter system activity.



AUTO
RXA0175166—UN—17FEB20
AUTO Exhaust Filter Cleaning

NOTE: Exhaust Filter Cleaning automatically resets back to AUTO mode after every key cycle.

AUTO Exhaust Filter Cleaning — an automated process to perform Exhaust Filter Cleaning during normal operation. See Engine Settings—AUTO Exhaust Filter Cleaning in this Operator’s Manual section.



DISABLED
RXA0175164—UN—17FEB20
AUTO Exhaust Filter Cleaning Disabled

Disable AUTO Exhaust Filter Cleaning — use in conditions where it can be unsafe for elevated exhaust temperatures. See Engine Settings—Disable AUTO Exhaust Filter Cleaning in this Operator’s Manual section.



P
RXA0175186—UN—18FEB20
Parked Filter Cleaning

NOTE: The process requires about 1 hour to complete.

Parked Filter Cleaning — a process to perform Exhaust Filter Cleaning while machine is parked. See Engine Settings—Parked Filter Cleaning in this Operator’s Manual section.



Request Exhaust Filter Cleaning
RXA0175191—UN—18FEB20

NOTE: The process requires about 2—3 hours to complete.

Request Exhaust Filter Cleaning — a more intense cleaning procedure than Parked Filter Cleaning. See Engine Settings—Parked Filter Cleaning in this Operator’s Manual section.

Exhaust Filter Cleaning Indicator — illuminates on the corner post display when the exhaust filter system is

actively performing an Exhaust Filter Cleaning. See Corner Post Display in Corner Post Display section of this Operator's Manual.

KD34109,00008C3-19-18MAR21

Engine Settings—AUTO Exhaust Filter Cleaning

NOTE: Final Tier 4/Stage V engines only.

The Exhaust Filter Cleaning page allows you to enable/disable AUTO mode. AUTO mode automatically performs Exhaust Filter Cleaning as required.

NOTE: Tractors equipped with 15L engines will automatically perform an initial exhaust filter cleaning after a few hours of operation. This procedure may have occurred prior to tractor delivery. If the procedure begins, allow the full process to complete.

CAUTION: When AUTO, Parked, or Requested Filter Cleaning is in progress, the exhaust temperature can be high under no load or light load conditions at certain times during the Exhaust Filter Cleaning cycle.

Servicing the machine or attachments during the Exhaust Filter Cleaning can result in serious personal injury. Avoid exposure and skin contact with hot exhaust gases and components.

During the AUTO and manual/stationary Exhaust Filter Cleaning operations, the engine runs at elevated idle and hot temperatures for an extended period. Exhaust gases and exhaust filter components reach temperatures hot enough to cause burns to people, or to ignite or melt common materials.

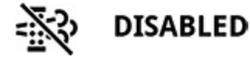
Never perform exhaust cleaning procedures in a closed building unless suitable exhaust is provided.

IMPORTANT: Disable AUTO Exhaust Filter Cleaning when temporarily connected to an indoor ducted exhaust system for diagnostic and repair activities, or in any elevated exhaust temperature conditions that are unsafe. See Engine Settings—Disable AUTO Exhaust Filter Cleaning in this Operator's Manual section.

Do not disable AUTO Exhaust Filter Cleaning unless absolutely necessary. Repeated disabling or ignoring prompts to perform manual or Parked Filter Cleaning procedure will cause additional engine power limitation and can eventually lead to required dealer service.

Damage to exhaust cleaning components can occur if the engine is turned off while performing Exhaust Filter Cleaning or shortly after the cleaning is complete.

Procedure to Modify When Disabled:



RXA0175164—UN—17FEB20
AUTO Exhaust Filter Cleaning Disabled

1. Select to open the AUTO Exhaust Filter Cleaning page.

NOTE: Exhaust Filter Cleaning automatically resets back to AUTO mode after every key cycle.



ON/OFF

RXA0167628—UN—26APR19

2. Select ON to enable AUTO Exhaust Filter Cleaning.



Close

RXA0167129—UN—25MAR19

3. Select to close.

KD34109,00008C4-19-18MAR21

Engine Settings—Disable AUTO Exhaust Filter Cleaning

NOTE: Final Tier 4/Stage V engines only.

AUTO Exhaust Filter Cleaning can be disabled in certain conditions.

IMPORTANT: Disable the AUTO Exhaust Filter Cleaning system only when necessary.

Modify When:

- Indoors or under a roof, unless a high temperature externally vented exhaust system is connected.
- There is not enough time available for the machine to complete a cleaning cycle before it is shut down.
- Operating in high crop dust or chaff conditions.
- Next to a fueling area.

Procedure to Modify:



1. Select to open the AUTO Exhaust Filter Cleaning page.

NOTE: Exhaust Filter Cleaning automatically resets back to AUTO mode after every key cycle.



2. Select OFF to disable AUTO Exhaust Filter Cleaning.



3. Select to close.



The DISABLED icon and text will display on the main page.

KD34109,00008C5-19-18MAR21

Engine Settings—Parked Filter Cleaning

NOTE: Final Tier 4/Stage V engines only.

Parked Filter Cleaning is an operator-initiated process to clean the exhaust filter.

During the process, the system controls engine speed and the machine must remain parked to complete the procedure. The time required for the Parked Filter Cleaning process is dependent upon the level of exhaust filter restriction, ambient temperatures, and the current exhaust gas temperature.

Modify When:

- The Exhaust Filter Cleaning indicator is flashing on the corner post display.
- Constantly disabling AUTO Exhaust Filter Cleaning mode.
- Idling excessively.
- Incorrect fuel quality is used.

NOTE: If Parked Filter Cleaning is ignored and the soot level gets too high, Request Filter Cleaning, a more intense cleaning procedure, will be forced.

CAUTION: When AUTO, Parked, or Requested Exhaust Filter Cleaning is in progress, the exhaust temperature can be high under no load or light load conditions at certain times during the Exhaust Filter Cleaning cycle.

Servicing the machine or attachments during the Exhaust Filter Cleaning can result in serious personal injury. Avoid exposure and skin contact with hot exhaust gases and components.

During the AUTO and manual/stationary Exhaust Filter Cleaning operations, the engine runs at elevated idle and hot temperatures for an extended period. Exhaust gases and exhaust filter components reach temperatures hot enough to cause burns to people, or to ignite or melt common materials.

Never perform exhaust cleaning procedures in a closed building unless suitable exhaust is provided.

Procedure to Modify:

1. Select appropriate procedure:



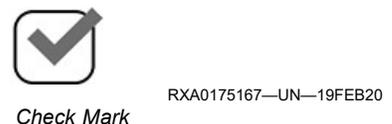
- a. Parked Filter Cleaning



- b. Request Exhaust Filter Cleaning

2. Verify that the machine is configured for Parked Filter Cleaning.

- Stop machine motion.
- Set the engine speed to low idle.
- Engage the park brake.
- Disengage the PTO (front and rear).



Once a condition has been met, a green check mark displays next to the condition.



Next

RXA0175185—UN—19FEB20

3. Once all conditions have been met, select Next.

NOTE: The exhaust filter system controls the engine speed to increase the exhaust temperature.



Progress Indicator

RXA0175188—UN—19FEB20

A progress indicator displays while Exhaust Filter Cleaning is running.



Complete

RXA0175168—UN—19FEB20

The system informs you when each of the two stages is complete:

- Preparation — the exhaust filter system controls engine speed to increase the exhaust temperature.
- Cleaning — diesel particulates (soot) are cleaned from the exhaust filter system. The process may exceed 40 minutes.



Close

RXA0167129—UN—25MAR19

4. Select to close.

NOTE: The system defaults to AUTO mode when cleaning is complete.

If you are not returning the machine to service immediately after the procedure, allow the engine enough time to return to normal operating temperature before turning off the engine.

Cancel Procedure:



Abort

RXA0175161—UN—19FEB20

To cancel the process, select Abort at any time during the cleaning procedure.

The process is also canceled by:

- Advancing the throttle.
- Engaging the transmission.
- Stopping the engine.
- Engaging the PTO (front or rear).

KD34109,00008C6-19-18MAR21

Engine Settings—Decelerator

The Decelerator page allows a percentage adjustment of the maximum engine rpm for the foot decelerator. When the decelerator is active, the full range of the throttle is affected.

When using Efficiency Manager™ and depressing the foot decelerator, transmission downshifts to the startup gear may occur in order to reduce wheel speed. To reduce the number of shifts, adjust the start gear.

Procedure to Modify:



Increase/Decrease Value

RXA0175170—UN—17FEB20

1. Select (+) to increase or (-) to decrease the percentage. The default setting is 65% and can be adjusted 50—95%. The value is shown in the display box.



Close

RXA0167129—UN—25MAR19

2. Select to close.

KD34109,00008C7-19-18MAR21

Engine Settings—Advanced

Advanced settings allow you to access further adjustments and less common settings.

Items Accessible on Advanced Settings Page:



AUTO ON/OFF

RXA0175165—UN—17FEB20

NOTE: Only available for 15L engines.

IMPORTANT: Avoid injury and/or engine damage:

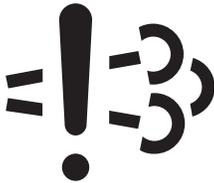
- The Engine Braking system assists the service brakes in slowing the vehicle down. Never use only the engine brakes to stop the vehicle.
- Do not exceed the governed engine speed when operating the engine brakes.

Automatic Engine Braking — reduces the tractor speed using engine compression, allowing less wear on the service brakes. Use when traveling under load on level surfaces. Select ON to enable or OFF to disable.

KD34109,00008C8-19-18MAR21

Required Machine Stop Warning

Machine Stop Mandate Occurs



RG22491—UN—21AUG13

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

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



RG22492—UN—21AUG13

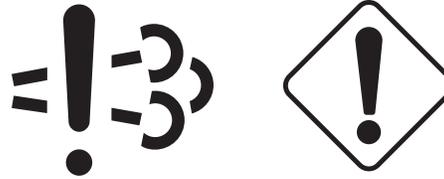
Warning Indicator illuminates when a condition exists which requires operator action.



RG22493—UN—21AUG13

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

Emission System Fault Has Occurred



RG26361—UN—04SEP14

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

- Engine power is normal.
- Machine operation is normal.
- Place machine in a safe state.
- Contact service provider.



RG26972—UN—26MAR15

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

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



RG26972—UN—26MAR15

2 minutes or less remaining, Engine Emissions System Malfunction and Engine Stop Indicators are illuminated and alarm sounds to warn operator of emissions-related

fault which has not been corrected. "Power Restriction" displayed on machines with displays.

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

DX,MACHSTOPWARN,AG-19-02OCT15

Engine Fuel System and Power Rating

Fuel System

IMPORTANT: Modification or alteration of injection system or emission control devices will terminate warranty to purchaser.

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

Engine Certification/Power Rating

kW (hp) rating on engine emissions certification label specifies gross engine kW (hp), which is flywheel power without fan.

AK08008,00001C7-19-15NOV19

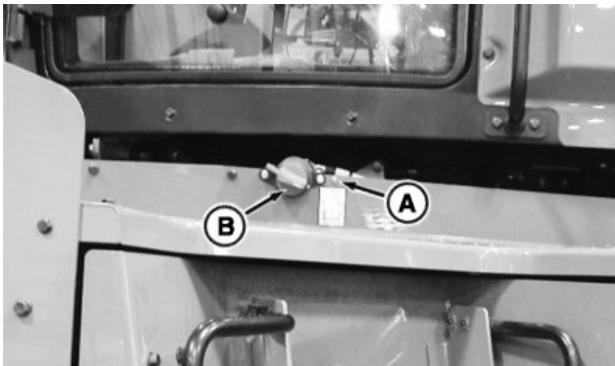
Battery Disconnect Switch

CAUTION: Avoid injury or damage to tractor systems from inadvertent contact with electrical power. Disconnect battery when directed.

IMPORTANT: Never turn power off with the battery disconnect switch while engine is running. This could result in serious damage to tractor electrical components.

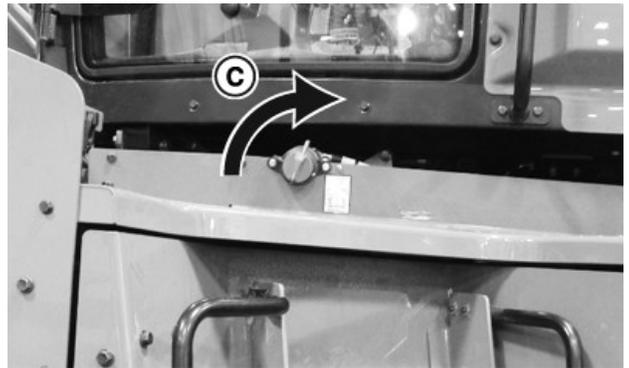
During a long storage period, always turn battery disconnect switch to off position. If battery disconnect switch is left on, battery could lose charge.

1. Stop tractor and place transmission into PARK.



RXA0163863—UN—10JUL18

IMPORTANT: Prevent damage to tractor emissions system. Tractor is equipped with an engine which uses a Selective Catalytic Reduction (SCR) system. Electrical power must be maintained during automatic purge of Diesel Exhaust Fluid (DEF). Light (A) is illuminated during DEF purge. If full system is not purged, any DEF remaining can crystallize and plug system. At temperatures below -15°C (5°F), unpurged DEF freezes and may damage system components. Light is illuminated during Diesel Exhaust Fluid (DEF) purge from system. Do not turn off disconnect switch (B) until light goes out.



RXA0163864—UN—10JUL18

2. When battery disconnect switch indicator light has gone out, turn disconnect switch off (C).

AK08008,00001C8-19-15NOV19

Start the Engine



TS177—UN—11JAN89

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

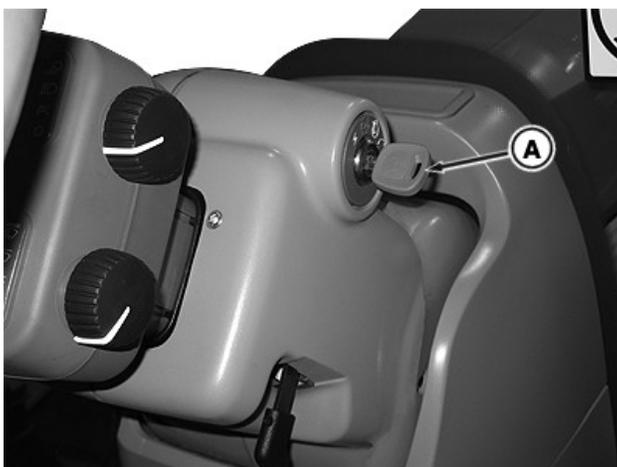
Do not start engine by shorting across starter terminals. Tractor will start in gear if normal circuitry is bypassed. Start engine **ONLY** from operator seat.

Before Starting Tractor

1. Move SCV levers to NEUTRAL position.
2. Disengage PTO [Ag].
3. Move hand throttle to slow idle position.
4. Move transmission shift lever to PARK position.

⚠ CAUTION: Avoid possibility of serious injury or death. Be sure tractor and attached equipment are clear of people and other objects.

5. Depress clutch and brake pedals.
6. Sound horn.



RXA0129144—UN—30OCT12

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

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

If Engine Fails To Start:

Check quantity and quality of fuel.

Check electrical system.

In cold weather (at or below -6°C (21°F)), follow steps listed in appropriate Cold Weather Starting topic in Cold Weather Operation section of this Operator's Manual.

Engine speed is limited to 1500 rpm at temperatures below -18°C (0°F).

If engine fails to start after three attempts, see your John Deere dealer.

AK08008,00001C9-19-15NOV19

Run the Engine

IMPORTANT: Do not start engine with throttle pushed completely forward.

Avoid excessive engine idling (more than 5 minutes).

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

Operate engine between 1500—2100 rpm. Do not operate engine constantly below 1500 rpm during heavy draft usage or when tractor is under full PTO [Ag] load.

For maximum tractor performance:

- Ensure that tractor is correctly ballasted, see Performance Ballasting section of this Operator's Manual.
- For transmission information, see e18™ PowerShift™ Transmission section of this Operator's Manual.

If engine stalls, start immediately to provide lubrication to critical engine parts.

Allow engine to idle for 20 seconds before turning key switch to OFF position.

IMPORTANT: Contact your John Deere dealer if any symptoms that may be early signs of engine problems are detected:

- Sudden drop in oil pressure
- Abnormal coolant temperatures
- Unusual noise or vibration
- Sudden loss of power
- Excessive fuel consumption
- Excessive oil consumption
- Fluid leaks

AK08008,00001CA-19-15NOV19

Stop the Engine

⚠ CAUTION: Avoid accidents, remove the key after switching off the tractor.

IMPORTANT: To avoid engine damage, allow the engine and engine parts to cool before stopping the engine. Idle the engine at 1000—1200 rpm for a minimum of:

- **4 minutes after:**
 - Operating at a working load.
 - An exhaust filter cleaning has completed.
- **10 minutes if service work is going to be performed on the exhaust filter.**

IMPORTANT: Prevent damage to the tractor:

- **Never disconnect the battery disconnect switch while the light is illuminated.**
- **See Battery Disconnect Switch in Engine Operation section of this Operator's Manual.**

1. Pull the throttle back to the low idle position.
2. Depress clutch and brake pedals.
3. Put the transmission in the PARK position.
4. Lower all equipment to the ground.
5. Make sure that SCV levers are in the NEUTRAL position.
6. Pull rear and front PTO (if equipped) switches rearward to disengage PTO.
7. Turn the key switch to the OFF position and remove the key.

KD34109,00008C9-19-18MAR21

Restart Engine That Has Run Out of Fuel

1. Fill fuel tank.
2. Turn key switch to RUN position to start electric fuel pump and bleed air from fuel system.

NOTE: Steps two and three may need to be repeated as necessary if fuel tanks have been removed or drained.

3. Allow pump to run for 30 seconds to 1 minute before attempting to restart engine.

Fuel pump will turn off after 1 minute. Key switch must be turned to OFF and back to RUN to turn pump back on.

AK08008,00001CC-19-15NOV19

Reduce Fuel Consumption

Following are guidelines to reduce fuel consumption:

- Replace air cleaner elements and fuel, engine oil, and transmission/hydraulic filter elements at specified service intervals, see Service - Record Charts section of this Operator's Manual or when indicated by CommandCenter™ display messages.
- Use recommended oils and lubricants only, see Fuel, Lubricants, and Coolant sections of this Operator's Manual.
- Adjust hitch function for most efficient operation, see TouchSet Depth Control Section of this Operator's Manual.
- Check tire for correct pressure weekly, see Wheels, Tires, and Treads Section of this Operator's Manual.
- Ballast tractor for conditions, see Performance Ballasting Section of this Operator's Manual.

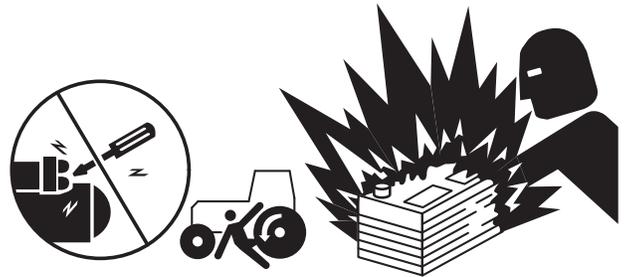
- Always drive in highest possible gear with reduced engine speed. Choose a gear so engine speed drops 150-250 rpm when tractor is operating and engine is under load. See e18™ PowerShift™ Transmission section of this Operator's Manual.

NOTE: For light work, reduce engine speed below 2000 rpm. Select a gear so that engine speed drops 200—300 rpm when operating.

Using Max Engine Speed may improve fuel economy, see Activate and Set Max Engine Speed in Transmission—General Information section of this Operator's Manual.

AK08008,00001CD-19-16APR21

Battery Booster or Charger



RXA0086722—UN—10FEB06

CAUTION: Gas given off by batteries is explosive. Keep sparks and flames away from batteries. Make last connection and first disconnection at point away from booster batteries.

CAUTION: 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.

IMPORTANT: Be sure polarity is correct before making connections. Reversed polarity will damage electrical system or possibly cause battery to explode.

If two or more booster batteries are used, they must be connected in parallel ensuring booster batteries are producing 12 volt charge.

Prevent damage to tractor emissions system. Battery disconnect switch with indicator light: Tractor is equipped with an engine which uses a Selective Catalytic Reduction (SCR) system. Light is illuminated during Diesel Exhaust Fluid (DEF) purge from system. Do not turn disconnect switch off until light goes out.

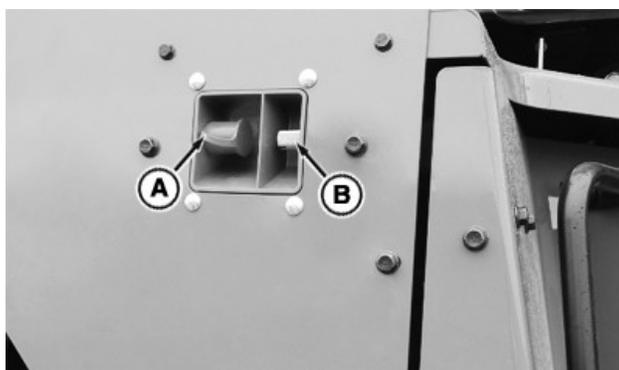
Battery disconnect switch without indicator light: Engine not equipped with SCR system. No waiting period is required before turning off switch.

See Battery Disconnect Switch in this Operator's Manual section.

5. Switch charger off.
6. When tractor has started, remove negative charger lead from tractor.
7. Remove positive lead from tractor.

AK08008,00001CE-19-15NOV19

Booster Battery



RXA0148265—UN—27MAY15

1. Remove cap and attach red (positive) battery cable end to remote positive starter terminal (A) and positive terminal of booster battery.
2. Attach black (ground) battery cable to negative terminal of booster battery. Attach other end to remote ground post (B).
3. When tractor has started, remove negative cable from tractor.
4. Remove negative cable from booster battery.
5. Remove positive cable from battery.
6. Remove positive cable from tractor.

Battery Charger

IMPORTANT: Set battery charger at nominal 12 volt and no more than 16 volt maximum. Consult battery charger manufacturers operator's manual.

1. Assure battery charger is turned off.
2. Remove cap and attach positive (red) charger lead to remote positive starter terminal.
3. Attach black (ground) negative charger lead to remote ground post.
4. Switch charger on and charge battery according to charger manufacturers operator's manual.

Cold Weather Operation

Cold Weather Starting—With Starting Aid

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

Starting fluid is highly flammable. While using this product do not smoke and make sure to extinguish all flames. Turn off all pilot lights, stoves, heaters, electrical motors, and other sources of ignition while using this product and/or if vapors are still present. Avoid contact of aerosol with battery terminals, solenoid, or other electrical/electronic components. Do not overuse this product. Keep cap on container and store in cool location when not in use.

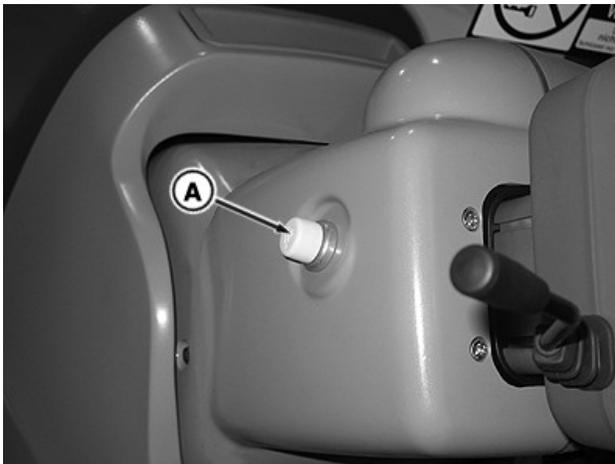
NOTE: Use of cold weather starting option is recommended when starting tractor at or below -6 ° C (21 °F).

1. Start tractor as described in Start the Engine in Engine Operation section of this Operator's Manual.

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

When applying starter fluid, if pre-ignition knocking is detected, stop using starter fluid immediately.

2. If engine refuses to start, complete these steps while engine is cranking:



RXA0129150—UN—05NOV12

- Press starter fluid button (A) in a series of quick taps rather than stream.
- After series of taps (no more than three) on starter fluid button, release starter fluid button for three seconds.
- If engine attempts to start but falters, use tapping motion on starter fluid button sparingly and only until engine runs on its own.

IMPORTANT: Idle engine at approximately 1000 rpm with no load for one to two minutes to assure adequate lubrication. Do not operate under full load until engine has reached normal operating temperature.

3. When engine starts, run engine at approximately 1000 rpm for two minutes.

AK08008,000000E-19-15NOV19

Cold Weather Starting And Operation—Internal Starting Aid

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

Use following procedure:



RXA0138501—UN—21JAN14

1. Put hand throttle (A) in slow idle (900 rpm) position.
2. Start engine.
3. Leave hand throttle in slow idle position.

Operating Characteristics After Start of Engine:

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

e18™ PowerShift™ Transmission Cold Weather Operating Characteristics:

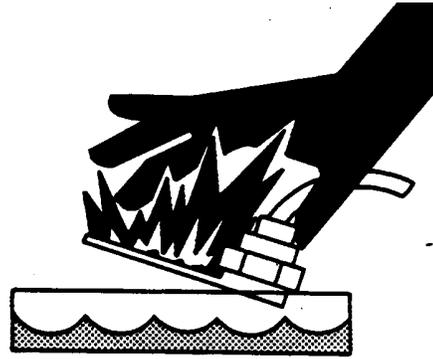
- When temperature is -10 °C (14°F) or lower it may take one minute to get parking brake released with operator in seat and transmission in gear. Several shifts between PARK and NEUTRAL may be required.
- When temperature is -10 °C (14°F) or above it may

take 3 seconds to get parking brake released with operator in seat.

- When shift lever is moved to NEUTRAL, corner post display will show “N” for three seconds. If park brake does not release “N” will change back to “P”. Move shift lever back to PARK then back to NEUTRAL until “N” displays more than three seconds.
- During cold weather starting, transmission will not shift into 14F through 18F speeds until normal operating temperature has been reached. Delayed shifting, slow hydraulic operation, hard steering, and limited engine rpm may also be noticeable until operating temperature is obtained.

AK08008,00000F-19-15NOV19

Engine Coolant Heater Use—9.0 L Engine [Ag]



TS210—UN—23AUG88

CAUTION: To avoid electrical shock or fire. Use a three-wire, 14 AWG (14 gauge), heavy-duty electrical cord with 15-amp rating, suitable for outdoor use. Always plug electrical cord into 120 volt outlet protected by GFI (Ground Fault Interrupter).

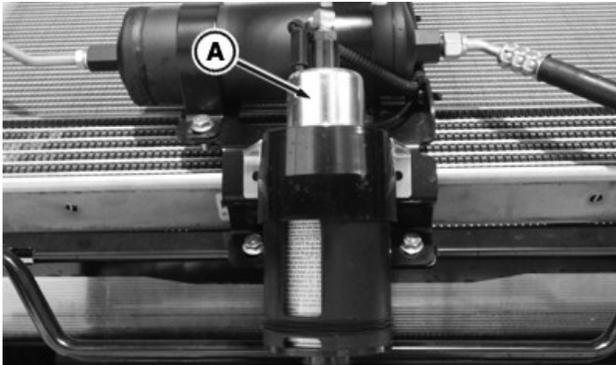
Before connecting heater to power source, be sure that element is immersed in coolant. NEVER energize heater in air. Doing so can cause element sheath to burst causing personal injury.

IMPORTANT: Ground fault interrupter on tractor protects tractor only, not electrical wiring supplying power to tractor. Test ground fault interrupter before each use.

NOTE: Extremely cold weather may require 1—2 hours to heat engine.

Change Starting Fluid Canister

CAUTION: Do not use starting fluid near fire, sparks or flames. Read caution information on container. Protect container against damage. Do not carry starting fluid cans inside cab.



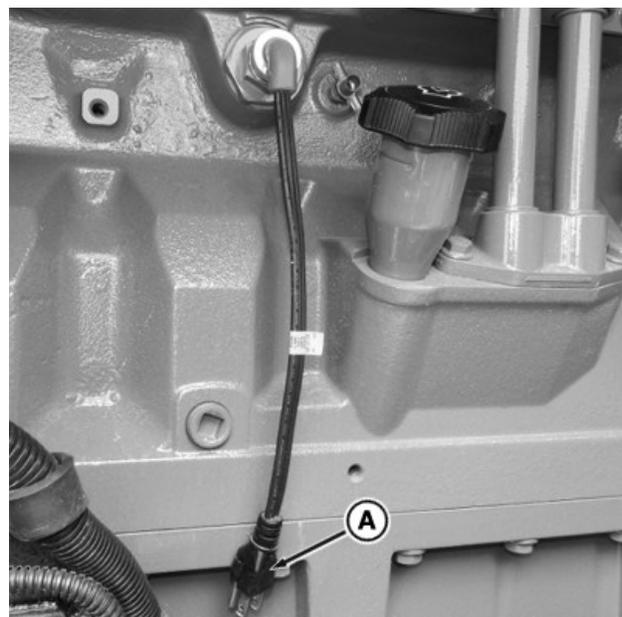
RXA0141914—UN—05JUN14

1. Raise hood to access canister (A).
2. Remove safety cap and plastic spray nozzle from new can.
3. Loosen canister and remove old can.

IMPORTANT: To avoid drawing dust into engine, always keep starting fluid can in position or clean bottom of canister and install bottom side up.

4. Install new can and tighten canister.

AK08008,000010-19-15NOV19



RXA0142165—UN—05JUN14

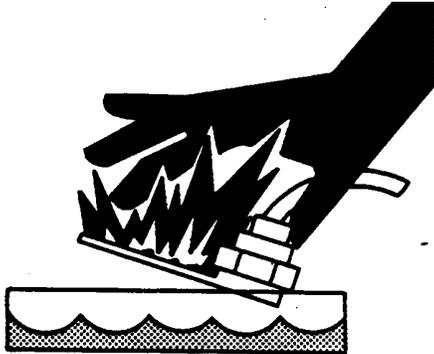
Left-Hand Side of Engine

Connect heater plug (A) located on, left-hand side of engine, to a ground fault protected 120 volt electrical outlet.

A 1000 W engine coolant heater is available from your John Deere dealer.

AK08008,0000011-19-15NOV19

Engine Coolant Heater Use—13.5 L or 15 L Engines



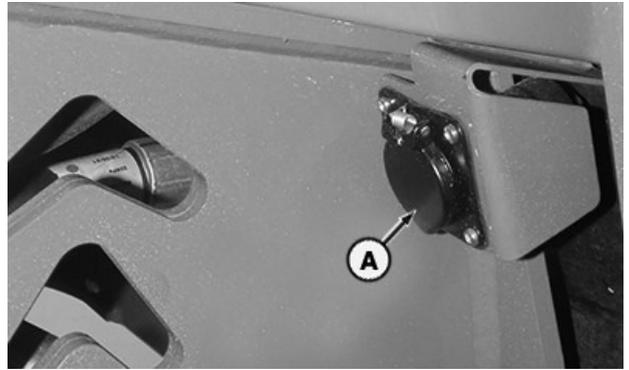
TS210—UN—23AUG88

CAUTION: To avoid electrical shock or fire, use 3-wire, 14 AWG (14 gauge), heavy-duty electrical cord with 15-amp rating, suitable for outdoor use. Always plug electrical cord into 220 volt outlet protected by GFI (Ground Fault Interrupter).

Before connecting heater to power source, be sure that element is immersed in coolant. NEVER energize heater in air. Doing so can cause element sheath to burst causing personal injury.

IMPORTANT: Ground fault interrupter on tractor protects tractor only, not electrical wiring supplying power to tractor. Test ground fault interrupter before each use.

NOTE: Extremely cold weather may require 1—2 hours to heat engine.



RXA0164452—UN—05SEP18

Front Right-Hand Side of Tractor

Connect engine coolant heater plug (A), located on right-hand side of engine, to a ground fault protected 120 volt electrical outlet.

A 1000 W engine coolant heater is available from your John Deere dealer.

AK08008,0000012-19-15NOV19

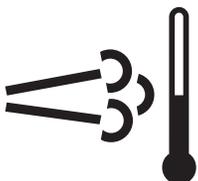
Emissions Equipment

Aftertreatment Indicators Overview



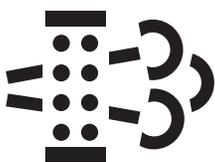
Diesel Exhaust Fluid Indicator

RG22487—UN—21AUG13



Engine Emissions Temperature Indicator

RG22488—UN—21AUG13



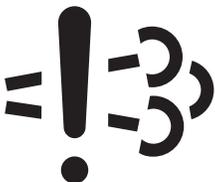
Exhaust Filter Indicator

RG22489—UN—21AUG13



Auto Cleaning Disabled Indicator

RG22490—UN—21AUG13



Engine Emissions System Malfunction Indicator

RG22491—UN—21AUG13



Warning Indicator

RG22492—UN—21AUG13



Engine Stop Indicator

RG22493—UN—21AUG13

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

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

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

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

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

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

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

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

Perform manual service regeneration or follow DTC procedure.

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

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

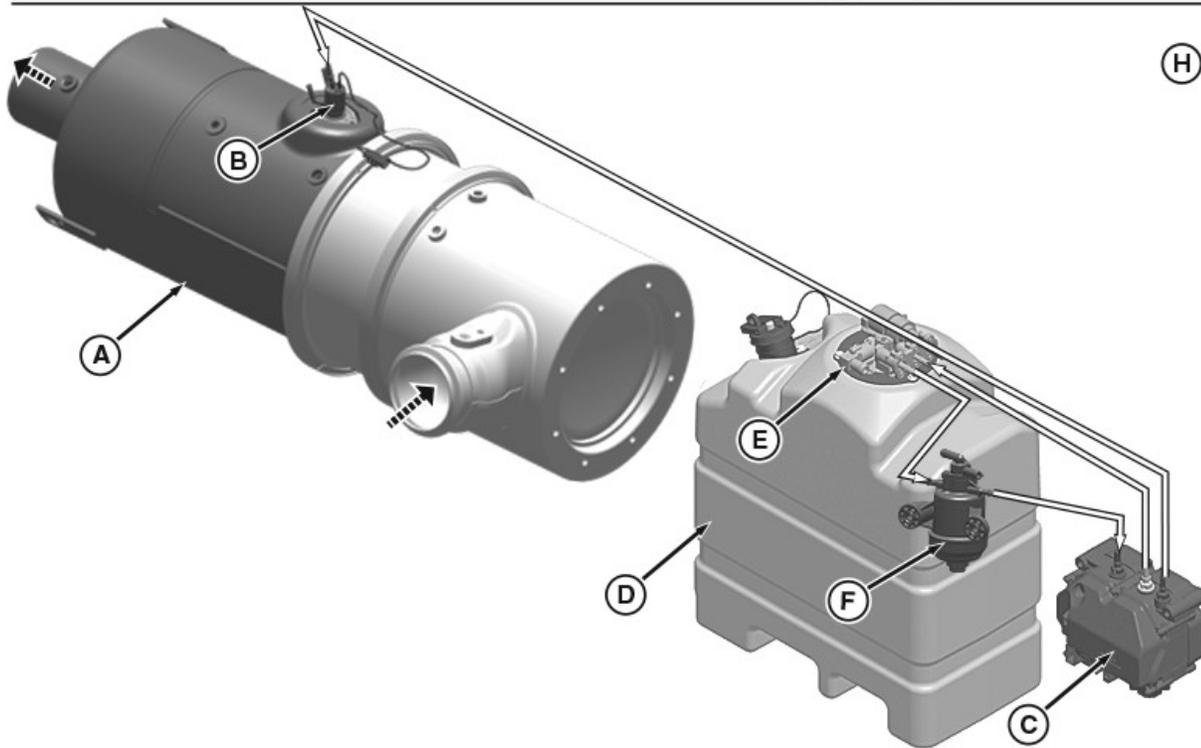
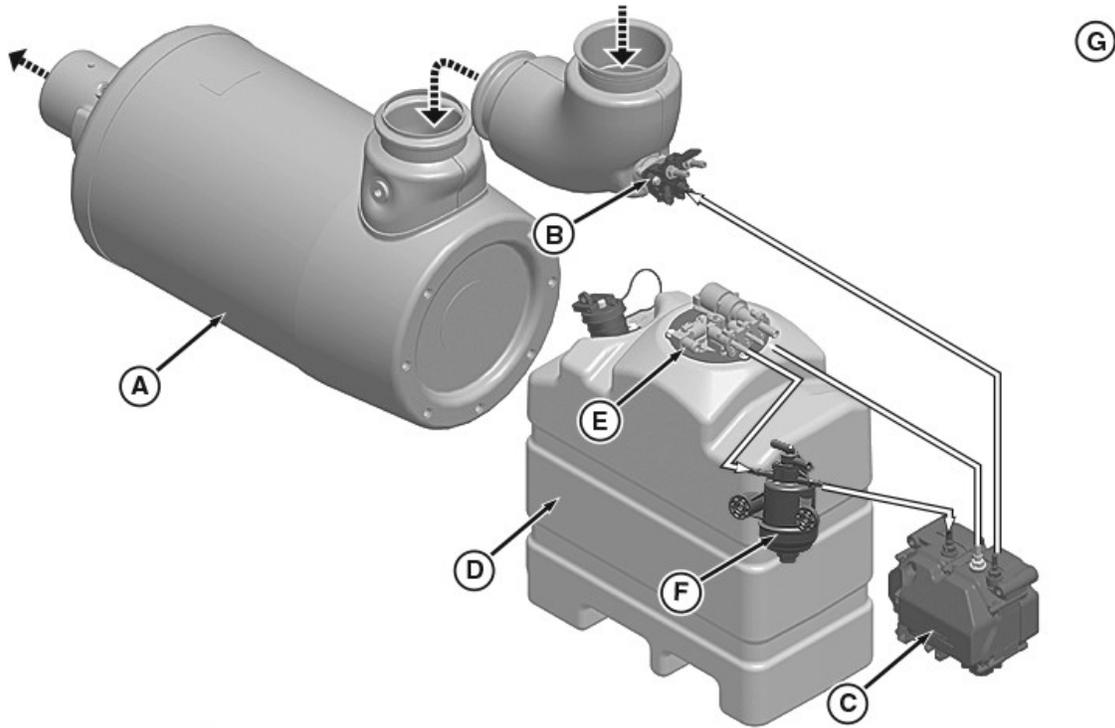
lacks the required fuel to complete the cleaning process.

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

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

DX,AFTRTREAT,INDCATRS-19-12FEB18

Selective Catalytic Reduction (SCR) System Overview



SCR System

RG22427A—UN—07JAN20

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

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

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

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

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

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

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

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

DX,SCR,OVERVIEW-19-30MAR20

Diesel Particulate Filter (DPF) Service

CAUTION: Correctly dispose of an exhaust filter that has reached the end of its useful life. The exhaust filter contains DPF ash that:

- Can be classified as a hazardous waste.
- Requires disposal in accordance with all applicable federal, state, and local laws or regulations governing hazardous waste disposal.

Used exhaust filters, including the DPF, can be exchanged at any John Deere dealer or qualified service provider.

- Always allow a qualified service provider to remove ash from the DPF.
- See your John Deere dealer or other qualified service provider for assistance.

Failure to follow approved DPF ash removal methods can:

- Violate U.S. federal, state, and local hazardous waste law.
- Damage the DPF, resulting in potential denial of the emissions warranty.

IMPORTANT: Avoid damage to the aftertreatment system. Never:

- Use incorrect or unapproved aftertreatment components.
- Interchange aftertreatment components between Interim Tier 4/Stage III B and other vehicles equipped with other aftertreatment systems.

The exhaust filter includes a DPF. The DPF is designed to:

- Retain residual ash, which is a noncombustible result of additives used in crankcase lubrication oils and the fuel.
- Provide many hours of maintenance-free operation. However, the DPF requires professional service to remove the accumulated ash at some point. The exact number of hours of operation before professional service is required depends on:
 - The engine power category, duty cycle, operating conditions, fuel quality, and ash content of the engine oil.
 - Adhering to the recommended oil and fuel specifications to maximize the hours of operation.

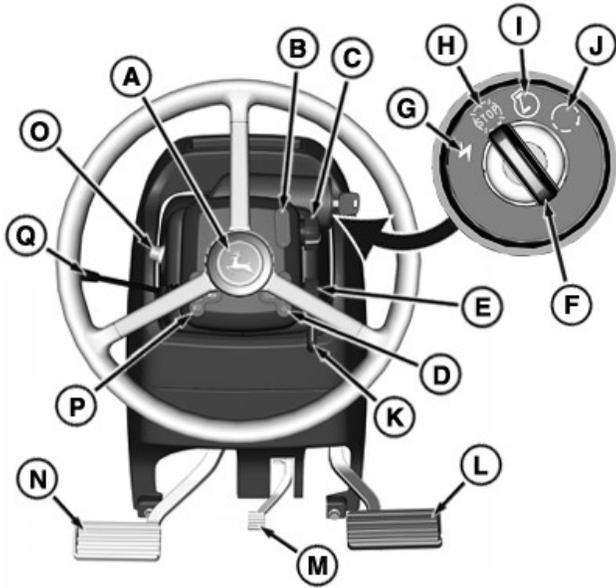
The engine owner is responsible for performing the required maintenance described in this Operator's Manual. During normal equipment operation:

- DPF maintenance requirements depend on the rate at which ash accumulates in the DPF.
- As ash levels rise in the DPF, the capacity for soot storage is reduced and the backpressure of the exhaust system rises more frequently.
- The dash lamp indicator or diagnostic gauge indicates when the DPF needs servicing.

KD34109,00008A1-19-17MAR21

Controls and Instruments

Front Console



Front Console
RXA0157262—UN—01FEB17

- A—Steering Wheel Telescope Release
- B—Light Selection Cluster
- C—Light Selector Knob
- D—Windshield Wiper Cluster
- E—Windshield Wiper Control Knob
- F—Key Switch
- G—Accessories
- H—OFF (Stop)
- I—Run
- J—Start
- K—Steering Column Tilt Release Lever
- L—Brake Pedal
- M—Steering Wheel Tilt Release
- N—Clutch Pedal
- O—Starting Aid Switch (If Equipped)
- P—Turn Signal Icon, Road/Field Light Icon and Horn Icon
- Q—Turn Signal Lever/Horn

AK08008,0000013-19-15NOV19

CommandARM™ ISOBUS Shortcut Button (ISB)

In an ISOBUS-system, operator can activate function of implement over ISOBUS via Implement's Operator Interface on display, see ISOBUS controller's operator's manual.

After activation, operator can change screen of display in order to operate another implement or interact with other applications.

Deactivation of functions on first implement is not possible unless operator manually switches back to corresponding screen of first implement. ISB provides a direct method to inform all ISOBUS participants about operators desire to deactivate functions that were activated by an ISOBUS control.

CAUTION: Read appropriate operator's manual. ISB button function is proprietary to implement manufacturer. Verify button function in a safe and open area that is clear of bystanders.



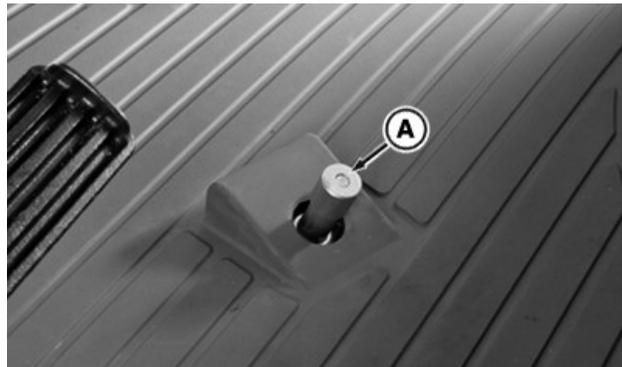
RXA0136449—UN—06NOV13

ISOBUS Shortcut Button (ISB): Pressing ISB button (A) sends "Stop All Implement Operations" signal out on ISOBUS. Reaction on ISB is proprietary to receiving control unit.

Example: Implement currently using ISOBUS Class 3 automation goes to its safe state. See Tractor-Implement Automation™ (TIA™) section of this Operator's Manual.

AK08008,0000014-19-15NOV19

Foot Decelerator



RXA0160338—UN—01AUG17

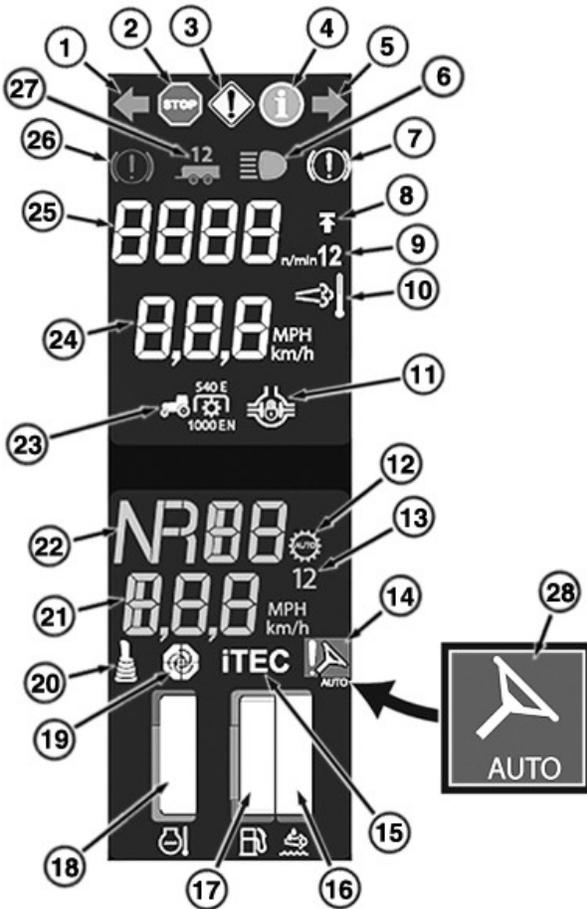
Use foot decelerator (A), to slow down engine rpm when turning at end of field.

For foot decelerator settings, see Engine Settings—Decelerator in Engine Operation section of this Operator's Manual.

AK08008,000047D-19-09JUN20

Corner Post Display

Corner Post Display



RXA0166756—UN—04MAR19

Corner Post Display

- 1—Left Turn Indicator
- 2—Stop Indicator
- 3—Service Alert Indicator
- 4—Information Indicator
- 5—Right Turn Indicator
- 6—High Beam Indicator
- 7—Brake Warning Indicator (Yellow)
- 8—Maximum Set Speed Indicator
- 9—Maximum Set Speed Selection (1 or 2)
- 10—Exhaust Filter Cleaning Indicator
- 11—Differential Lock Indicator
- 12—Efficiency Manager Indicator
- 13—Efficiency Manager Set Speed Indicator
- 14—Steering Warning Indicator
- 15—iTEC™ Indicator
- 16—Diesel Exhaust Fluid (DEF) Gauge (FT4/Stage V Engine Only)
- 17—Fuel Gauge
- 18—Coolant Temperature Gauge
- 19—Tractor Automation Indicator
- 20—ISOBUS Auxiliary Mode Indicator
- 21—Set Speed
- 22—Current Gear/Range
- 23—PTO Indicator (If Equipped) [Ag]
- 24—Vehicle Ground Speed
- 25—Tachometer
- 26—Brake Warning Indicator (Red)
- 27—Trailer Indicator (If Equipped)
- 28—AutoTrac™ Indicator

AK08008,0000016-19-15NOV19

Information Indicators

STOP, Service, and Information Alert Indicators are accompanied by informative message, diagnostic trouble code, and/or fault description shown on CommandCenter™. For description of indicators and codes, see STOP, Service, and Information Alert Indicators in Troubleshooting - Diagnostic Trouble Codes (DTC) section of this Operator's Manual.



RXA0109847—UN—20AUG10

STOP Alert Indicator (A): Light flashes and an alarm pattern sounds continuously, indicating a serious malfunction requiring immediate attention.

Service Alert Indicator (B): Light flashes and an alarm pattern sounds five times, indicating a performance or operational problem has been detected and must be resolved as soon as possible.

Information Alert Indicator (C): Light illuminates continuously and an alarm pattern sounds for two seconds, indicating possible fault condition.

AK08008,0000017-19-15NOV19

Warning Indicators

NOTE: Brake Warning Indicator (Red) illuminates while trailer air brakes reach operating pressure, indicator turns off once operating pressure is reached.

When a warning occurs:

- Park tractor on level ground and prevent tractor from rolling away.
- Diagnostic Trouble Code (DTC) will display on CommandCenter™, follow instructions to fix the fault.
- If fault cannot be fixed, see your John Deere dealer.



RXA0166758—UN—04MAR19

Steering Warning Indicator (A): Light illuminates when a serious fault has been detected in the steering system.

Yellow Brake Warning Indicator (B): Light illuminates

when an electrical fault has been detected that affects the ability to detect additional faults.

Red Brake Warning Indicator (C):

- Light illuminates when a serious fault has been detected that affects brake system performance. Stop tractor immediately.
- Light flashes when park lock cannot engage.

AK08008,0000018-19-15NOV19

Digital Indicators—Tachometer, Ground Speed, and Transmission



RXA0153154—UN—04AUG16

A—Tachometer: Displays engine speed in multiples of 10. If “- - -” is displayed, no speed signal is being received.

B—Ground Speed Indicator: Displays ground speed in either miles-per-hour or kilometers-per-hour, depending on operator-selected units (U.S. or Metric).

If “- - -” is displayed, no speed signal is being received.

C—Transmission Information: Shows if transmission is in Neutral—N, Forward—F, Reverse—R or Park—P.

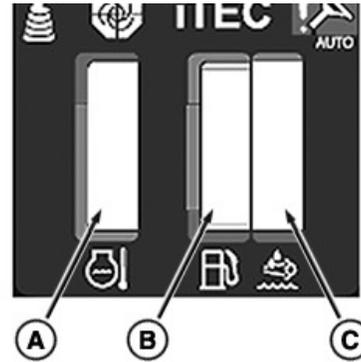
If “- - -” is displayed, no gear signal is being received.

Efficiency Manager™: Shows set speeds 1 or 2.

PST Only: Shows gear selected.

AK08008,0000019-19-15NOV19

Gauges—Coolant Temperature, DEF Level, and Fuel Level



RXA0160352—UN—02AUG17

A—Coolant Temperature Gauge: Shows engine coolant temperature between 40—120 °C (104—248 ° F). All segments are off when coolant temperature is below 40°C (104°F). All segments are lit when temperature is 120°C (248°F) and above.

B—Fuel Level Gauge: Displays fuel level in tank. Each lighted segment represents 4% of fuel tank total capacity. When fuel tank is full, all segments are lit. When only bottom segment is lit, tank is nearly empty with approximately 39 L (10 gal) remaining.

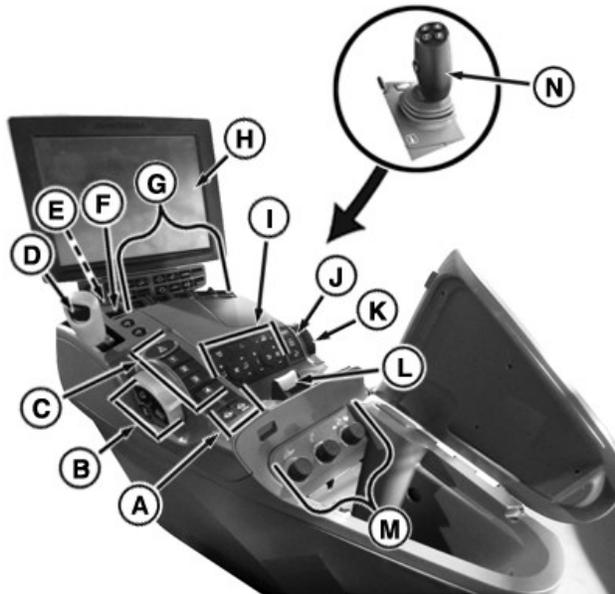
NOTE: Diesel Exhaust Fluid (DEF) is only available on FT4/ Stage V engine equipped tractors. DEF gauge will not show up if not equipped with those engines.

C—Diesel Exhaust Fluid (DEF) Gauge (If Equipped): Displays diesel exhaust fluid level. Each lighted segment represents 4% of DEF fluid tank total capacity. When DEF fluid tank is full, all segments are lit. When only bottom segment is lit, tank is nearly empty. DEF fluid tank should be filled whenever fuel tank is filled.

AK08008,000001A-19-15NOV19

CommandARM™ Controls

CommandARM™ with Generation 4 CommandCenter™ Display



RXA0138558—UN—23JAN14

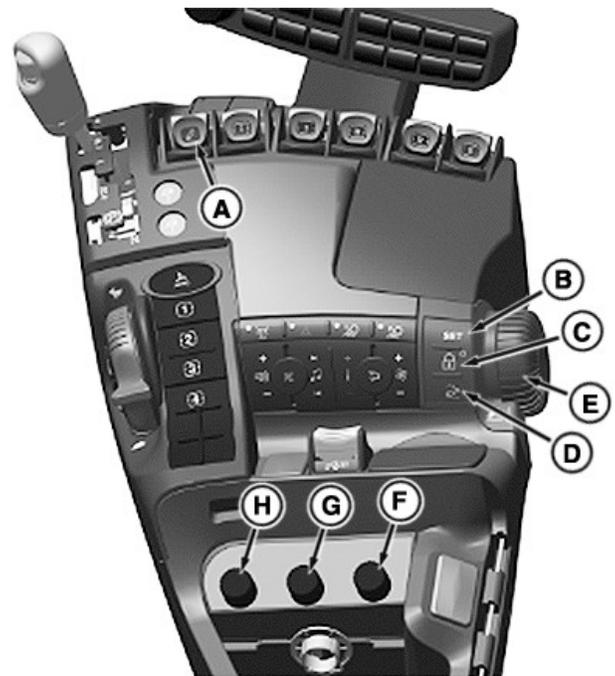
Ag CommandARM™ Shown

- A—Differential Lock
- B—Hand Throttle Control
- C—iTEC™ & AutoTrac™ Resume
- D—Speed Control Lever/Shift Lever
- E—SCV Control Lever Lock/ISB Lock Button
- F—Hitch Lever [Ag]/SCV Lever [Scraper]
- G—SCV Control Levers
- H—Generation 4 CommandCenter™ Display
- I—Climate, Radio and Lighting Controls
- J—Set/Lock/Resume Buttons [Ag]
- K—Depth Adjust Hitch Dial [Ag]
- L—PTO Lever [Ag]
- M—Load Depth/ Upper Limit/ Drop Rate Hitch Dials [Ag]
- N—Joystick (If Equipped)

NOTE: See your transmission section for Efficiency Manager™ options (if equipped).

AK08008,000001B-19-15NOV19

CommandARM™ Hitch Controls [Ag]



RXA0158491—UN—29MAR17

- A—Hitch Control Lever (If Equipped)
- B—Set Point Button
- C—Hitch Control Lever Lock
- D—Return to Lower Set Point
- E—Depth Adjust Hitch Dial
- F—Drop Rate Hitch Dial
- G—Upper Limit Hitch Dial
- H—Load Depth Hitch Dial

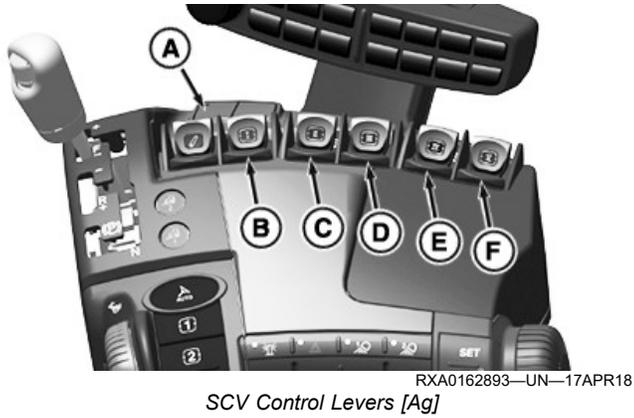
AK08008,000001C-19-15NOV19

CommandARM™ SCV Control Levers

Tractors without hitch may have up to eight SCVs installed.

[Ag] Tractors equipped with hitch may have up to six SCVs installed.

Reconfigurable SCV Controls allows operator to match device with various implement functions. This process is called "Assignment" input to function, see Controls Setup in CommandCenter™ section of this Operator's Manual for more information.



SCV Control Levers [Ag]



SCV Control Levers [Scraper]

- A—SCV Control Lever Lock
- B—SCV 1 Control Lever
- C—SCV 2 Control Lever
- D—SCV 3 Control Lever
- E—SCV 4 Control Lever
- F—SCV 5 Control Lever
- G—SCV 6 Control Lever [Scraper]

SCV control lever lock (A) locks out control of SCVs by SCV control levers only.

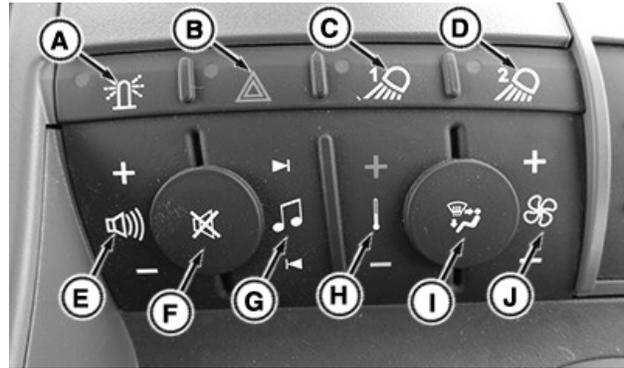


RXA0133735—UN—17JUL13

Controls Setup icon appears on SCV control levers that are reconfigurable.

AK08008,000001D-19-15NOV19

CommandARM™ Climate, Radio and Lighting Controls



- A—Rotary Beacon Lights Button
- B—Hazard Lights Button
- C—Field Lights 1 Button
- D—Field Lights 2 Button
- E—Radio Volume
- F—Radio Mute Button
- G—Next/Previous Station, Preset or Track
- H—Temperature Control
- I—Air Flow Control
- J—Fan Control

AK08008,000001E-19-15NOV19

CommandARM™ PTO Control Lever [Ag]

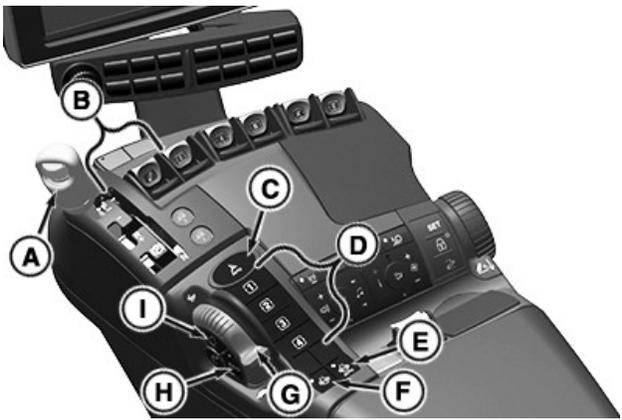


A—PTO Control Lever

RXA0142354—UN—09JUN14

AK08008,000001F-19-15NOV19

CommandARM™ Controls—Left Side



RXA0164310—UN—21AUG18

Ag CommandARM™ Shown

- A—Transmission Shift Lever
- B—SCV Control Lever Lock/ISB Button
- C—AutoTrac™ Resume Button
- D—iTEC™ Buttons
- E—Auto Differential Lock Button
- F—Differential Lock Button
- G—Hand Throttle Control
- H—ECO ON/OFF Button
- I—Maximum Set Speed ON/OFF Button

AK08008,0000489-19-06MAY20

CommandCenter™

Generation 4 Display

For additional information on Generation 4 Display hardware and software functionality, reference the Generation 4 Display Operator's Manual and the Help Center application on the display. To obtain a copy of the Operator's Manual, contact your dealer, use the Help Center application on the display, or visit techpubs.deere.com.

DX,PC,DISPLAY,REFERENCE-19-21MAY20

Rear Hitch or PTO Availability

[Ag] PTO or rear hitch options are available only on an agricultural tractor.

[Scraper] For scraper tractor, ignore CommandCenter™ content that pertains to these options.

AK08008,00001D5-19-15NOV19

Machine Settings Overview

NOTE: Some items are only displayed if machine is equipped with the associated option.



RXA0167076—UN—20MAR19

Machine Settings tab allows selection of application main pages. Available applications vary depending on tractor configuration.



Audio

RXA0134978—UN—07AUG13

Audio

- Use Audio application to adjust audio settings.
- For more information, see CommandCenter™ Audio and Phone section of this Operator's Manual.



AutoLoad™

RXA0162901—UN—18APR18

AutoLoad™

CommandCenter is a trademark of Deere & Company

- Use AutoLoad™ application to adjust AutoLoad™ settings.
- For more information, see Scraper Information section of this Operator's Manual.



Engine

RXA0134955—UN—07AUG13

Engine

- Use engine application to adjust exhaust filter system settings, Maximum Set Speed settings or engine rpm.
- For more information, see Engine Operation and Transmission—General Information sections of this Operator's Manual.



Front Hitch

RXA0168825—UN—11JUN19

Front Hitch

- Use Front Hitch application to adjust front hitch settings.
- For more information, see Front Hitch section of this Operator's Manual.



HVAC

RXA0134979—UN—07AUG13

HVAC

- Use HVAC application to adjust heating, ventilation, and air conditioning settings.
- For more information, see HVAC section of this Operator's Manual.



iTEC™

RXA0134980—UN—07AUG13

iTEC™

- Use iTEC™ application to program and repeat common tasks.
- For more information, see Intelligent Total Equipment Control (iTEC™) section of this Operator's Manual.



Lights

RXA0134956—UN—07AUG13

Lights

- Use Lights application to adjust lights settings.
- For more information, see Lights section of this Operator's Manual.



Maintenance and Calibrations

RXA0134981—UN—07AUG13

Maintenance and Calibrations

- Use Maintenance and Calibrations application to add/edit service intervals and perform ground radar and slip calibrations.



Phone

RXA0134982—UN—07AUG13

Phone

- Use Phone application to make/receive calls through CommandCenter™.
- For more information, see CommandCenter™ Audio and Phone section of this Operator's Manual.



PTO

RXA0134957—UN—07AUG13

PTO

- Use PTO application to adjust PTO settings.
- For more information, see Rear PTO section of this Operator's Manual.



Rear Hitch

RXA0134958—UN—07AUG13

Rear Hitch

- Use Rear Hitch application to adjust rear hitch settings.
- For more information, see Rear Hitch section of this Operator's Manual.



SCV

RXA0134983—UN—07AUG13

SCV

- Use SCV application to adjust SCV settings.
- For more information, see Selective Control Valves section of this Operator's Manual.



Steering

RXA0152447—UN—27JUN16

Steering

- Use Steering application to adjust steering settings.
- For more information, see Steering and Steering settings in this section of this Operator's Manual.



Suspension

RXA0134976—UN—07AUG13

Suspension

- Use Suspension application to adjust suspension settings.
- For more information, see Drive Train section of this Operator's Manual.



Trailer Brake

RXA0152439—UN—20JUN16

Trailer Brake

- Use Trailer Brake application to adjust brake and pre-brake settings and to test trailer brakes.
- For more information, see Trailer Brake System Settings in the Brakes section of this Operator's Manual.



Transmission

RXA0134984—UN—07AUG13

Transmission

- Use Transmission application to adjust transmission settings.
- For more information, see appropriate transmission section of this Operator's Manual.

AK08008,0000411-19-16APR21

Automation Status Overview



RXA0135012—UN—12AUG13

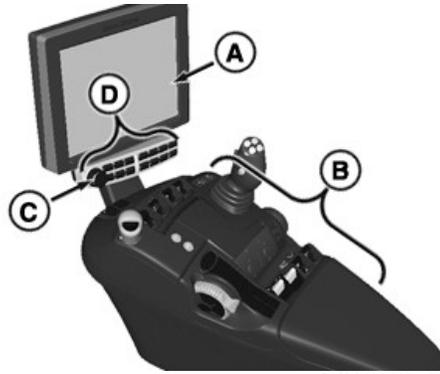
- Use Automation Status application to see which tractor functions are being controlled and their current status.
- It can be found on Applications tab of the display menu.

AK08008,00001DA-19-15NOV19

Navigate Generation 4 CommandCenter™

NOTE: Images are reference and may differ by tractor configuration or operator settings. As operator pages through CommandCenter™, more in-depth information is presented, allowing operator to fine tune tractor functions.

Navigating CommandCenter™ Pages



RXA0130496—UN—09APR13

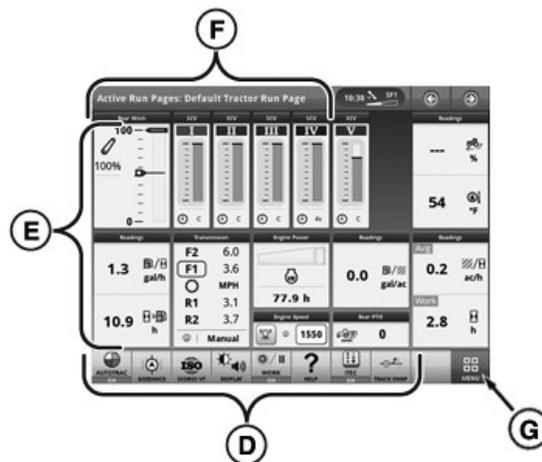
CommandCenter™ and CommandARM™

Use Touch Screen CommandCenter™ buttons or icons to make selection. For input boxes use either key pad, or select input box and scroll adjustment dial (C) to desired value. Yellow highlight box appears around selected input box and indicates adjustment dial is active.

A—CommandCenter™: attached to CommandARM™ (B), allows operator to view selected pages required to operate tractor. Display is Touch Screen, allowing operator to touch options on screen to move through pages and access tractor functions.

B—CommandARM™: made up of buttons, joystick (if equipped), switches, and shortcuts allowing operator to manage tractor or implement functions.

C—Adjustment Dial/Close Window Button: allows operator to change values in input boxes. Rotating adjustment dial clockwise raises input box values. Rotating adjustment dial counterclockwise lowers input box values. Push button one time to close window. Push and hold to close all open windows.



RXA0137128—UN—19NOV13

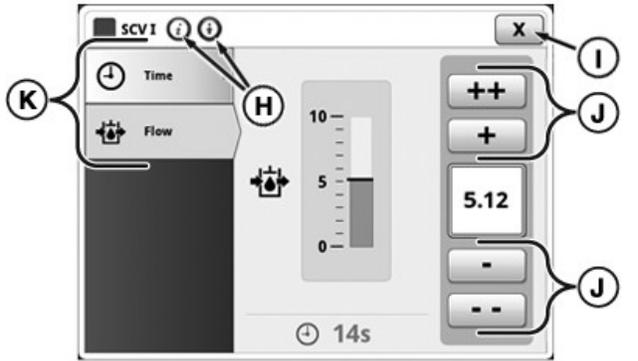
Run Page

D—Shortcut Keys/Buttons: allow operator to access specific functions without going through CommandCenter™ menu.

E—Run Page Modules: allow quick access to functions.

F—Title Bar: select on any run page for drop-down bar to change run page.

G—Menu: lists all applications installed on display and machine. Select left-hand tabs to view different groups of applications.



RXA0137084—UN—13DEC13

Module Functions

H—Help/Advanced Settings Buttons: press title bar, while in application, to view help or change settings for current page when available.

I—Close Button: press to close current page.

J—Increase/Decrease Value Buttons: use to change value within input boxes. Use (++) and (- -) buttons to make larger incremental changes when adjusting value, rather than touching (+) or (-) buttons. For areas that require tighter adjustments, only (+) and (-) buttons are available.

K—Tabs: allow operator to change to different section topic.

AK08008,00001DB-19-15NOV19

Compatible Universal Displays

Generation 4 CommandCenter™ may be configured to run with the following John Deere universal displays connected at the corner post.

- GreenStar™ 3 2630 Display
- 4640 Universal Display

KD34109,00008A2-19-17MAR21

Power Display On and Off

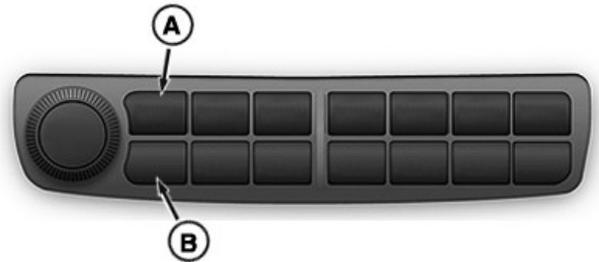
Generation 4 CommandCenter™ display turns on and off with tractor key switch.

- **Warm boot** occurs when CommandCenter™ display has been run within last 24 hours. Display rests in hibernation state for that time. Display powers up quickly (approximately ten seconds).

- **Cold boot** occurs if display is not operated for 24 hours or more, or if unswitched power has been disconnected. During this period, display shuts down completely to conserve battery power. Next power-up will take approximately 60 seconds.

NOTE: After turning engine off, avoid turning key switch back on until display screen has gone black.

- **Hard reset** is required when display is unresponsive for more than a few minutes under normal operating conditions.



RXA0148512—UN—25JUN15

Navigation Bar

Perform hard rest by pressing left-most upper and lower buttons (A and B), of navigation bar, simultaneously for five seconds. If display does not reset, pull fuse nine located in load center fuse panel and replace after five seconds. For more information on load center fuse panel, see Service - Electrical section of this Operator's Manual. If problem persists, see your John Deere dealer.

AK08008,00001DC-19-15NOV19

Change Pages and Values

Various methods are provided to allow selection and modification of CommandCenter™ pages and values.

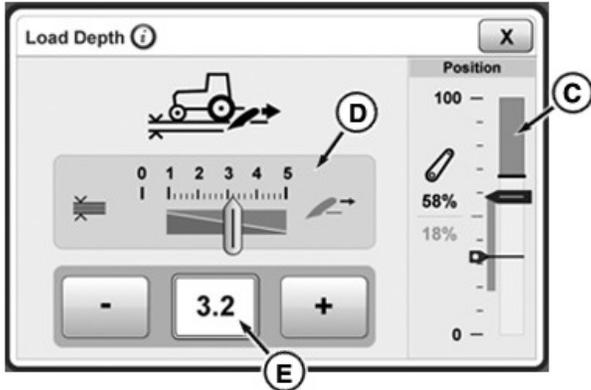


RXA0133414—UN—27JUN13

Input Fields

CommandCenter is a trademark of Deere & Company

- **A—Section Tab:** To change to different section topic, click desired section tab.
- **B—Icons:** Select to open application.



RXA0130123—UN—23APR13

Menu

- **C—Bar Graph:** To change value, use increase (+) or decrease (-) buttons.
- **D—Slider Bar:** To change value, select slider bar module and use increase (+) or decrease (-) button.
- **E—Input Box:** Use increase (+) or decrease (-) buttons to adjust value. To enter new values or text, select desired input box.

NOTE: When changing values using adjustment dial, increasing speed of adjustment dial rotation increases speed of value changes.

If a large range of values is available a numeric keypad appears, allowing direct input of desired value.

AK08008.00001DE-19-15NOV19

Factory and Service ADVISOR™ Installed Onscreen Help

Tractor Application Help Package is installed at factory and with Service ADVISOR™ or Service ADVISOR™ Remote for eight languages listed below:

- Chinese
- English
- French
- German
- Italian
- Portuguese
- Russian
- Spanish

Generation 4 Operating System Help Package is installed for all languages at factory.

For instructions on how to install and update onscreen help packages, see the Generation 4 Display operator's manual.

AK08008.0000417-19-16JUN20

Radar Calibration

CAUTION: Avoid injury. Perform calibration in safe and open area that is clear of objects and bystanders.

Perform radar calibration if:

- Radar speed and wheel/track speed are not equal when slip is not present.
- Radar device was installed/replaced.
- Tire size was changed.
- Ballast of tractor was changed.



RXA0147926—UN—13APR15

1. Select Menu.
2. Select Machine Settings tab.
3. Select Maintenance & Calibrations icon.
4. Select Calibrations tab.
5. Select Radar Calibration icon.
6. Drive unloaded tractor on hard, dry, and level surface at approximately 3.2 km/h (2.0 mph).



RXA0147580—UN—10MAR15

NOTE: Radar calibration can be canceled by selecting Cancel (B).

7. Select Start (A) to begin radar calibration process.

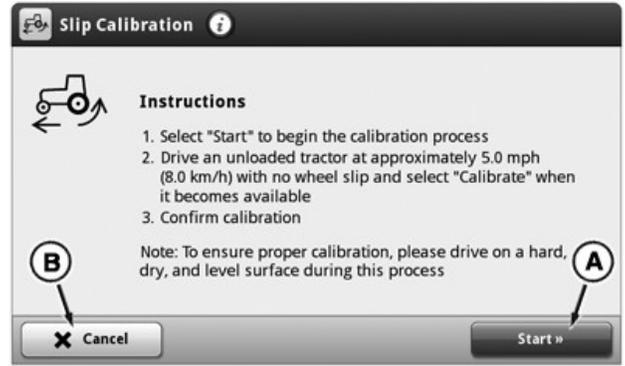


RXA0147581—UN—10MAR15

8. Select OK (C) to complete radar calibration.

If radar calibration is unsuccessful after three attempts, see your John Deere dealer.

AK08008,00001E0-19-15NOV19



RXA0147582—UN—10MAR15

NOTE: Slip calibration can be canceled by selecting Cancel (B).

6. Select Start (A) to begin slip calibration process.

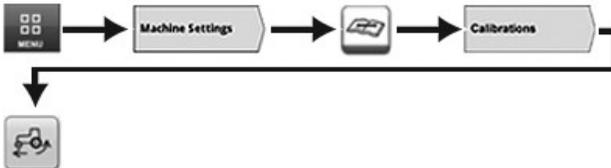
7. Drive unloaded tractor on hard, dry, and level surface at least 8 km/h (5 mph).

Slip Calibration

CAUTION: Avoid injury. Perform calibration in safe and open area that is clear of objects and bystanders.

Perform slip calibration if:

- Radar calibration has been performed.
- Slip is displayed when slip should not be present.
- Ballast of tractor was changed.

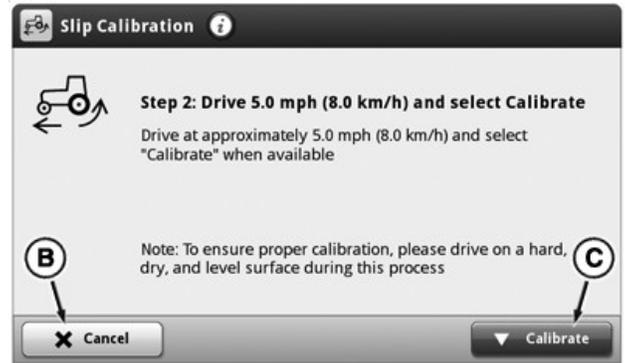


RXA0147928—UN—13APR15

1. Select Menu.
2. Select Machine Settings tab.
3. Select Maintenance & Calibrations icon.
4. Select Calibrations tab.

NOTE: Tractor must be in motion for slip calibration icon to appear.

5. Select Slip Calibration icon.



RXA0147583—UN—10MAR15

8. Select Calibrate (C).



RXA0147584—UN—10MAR15

9. Select OK (D) to complete slip calibration.

If slip calibration is unsuccessful after three attempts, see your John Deere dealer.

AK08008,00001E1-19-15NOV19

Steering Settings—Access

Access Application Through Display:



Menu

RXA0167075—UN—20MAR19

1. Menu



Machine Settings

RXA0167076—UN—20MAR19

2. Machine Settings tab



Steering

RXA0171926—UN—06NOV19

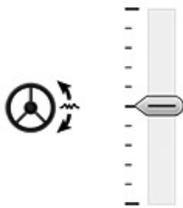
3. Steering

AK08008,00001E2-19-15NOV19

Steering Settings

Steering application is used to access and adjust steering settings.

Items Accessible on Steering Main Page:



Resistance Status

RXA0174749—UN—05FEB20

Steering Wheel Resistance — select to adjust setting for force required to turn steering wheel. See Steering Settings—Steering Wheel Resistance in this Operator's Manual section.

KD34109,00005AA-19-05FEB20

Steering Settings—Steering Wheel Resistance

Steering Wheel Resistance setting allows operator to adjust setting for force required to turn steering wheel.

Procedure to Modify:



Increase/Decrease Value

RXA0171921—UN—07NOV19

Select (+) to increase or (-) to decrease value.

- Maximum: 2
- Minimum: -2
- Increment: 0.1
- Default: 0



Close

RXA0167129—UN—25MAR19

Select to close.

AK08008,00001E4-19-15NOV19

Controls Setup



PC15326—UN—08JUL13

Controls Setup configures integrated tractor joystick, CommandARM™ levers, iTEC™ buttons, and third-party devices to control tractor or implement functions. ISO Aux implements configure to tractor joystick or third-party device.

Set up assignments:

1. Select Menu.
2. Select Applications tab.
3. Select Controls Setup application.
4. Select from following tabs on left-hand side of page:

NOTE: Unlock tractor joystick to activate default and custom (manually set) assignments. See CommandARM™ Joystick-Custom Setup in Selective Control Valves section of this Operator's Manual.

- **Integrated Tractor Joystick:** Assign to control tractor and implement functions (for example: front hitch).
- **CommandARM™ Levers and iTEC™ Buttons:** Assign to control tractor and implement functions (for example: rear hitch).
- **Third-Party Devices:** Any mechanism, John Deere, or non-John Deere, attached to ISOBUS. Once attached, assign control to tractor and implement functions (for example: wagon).
- **ISO Aux implements:** Assign implement (for example: wagon) function to a specific button on tractor joystick.

5. Select reconfigurable assignment module.

Depending on selected source, the following combinations (assignments) are possible

- **Integrated Tractor Joystick, CommandARM™ Levers, iTEC™ buttons, and Third-Party Devices:** Input + Source + Function
- **ISO Aux Implements:** Function + Device + Input

Manage Assignments:

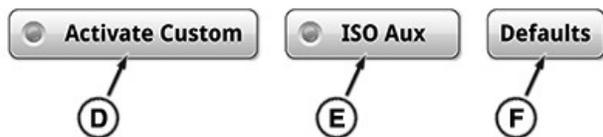


RXA0156706—UN—11JAN17

To edit assignments for tractor joystick, CommandARM™ levers, or iTEC™ buttons, select desired reconfigurable assignment module. To remove assignment, select remove button (A) (in source overlay).

To edit assignments for third-party devices or ISO Aux implements, select edit button (B) in desired reconfigurable assignment module. To remove assignment, select trash button (C).

Activate Custom, ISO Aux, and Defaults:



RXA0166821—UN—05MAR19

Select Activate Custom and ISO Aux buttons to enable custom assignments for ISO Aux implements

Activate Custom (D): enables all customized assignments across all groups.

ISO Aux (E): determines if messages from tractor joystick are sent to ISO Aux implement. Select to enable implement functions. Select again to disable. Functions are stored until operator edits corresponding assignment.

Defaults (F): clears and restores any custom control assignments to factory default settings.

AK08008,00001E5-19-15NOV19

Automation Status

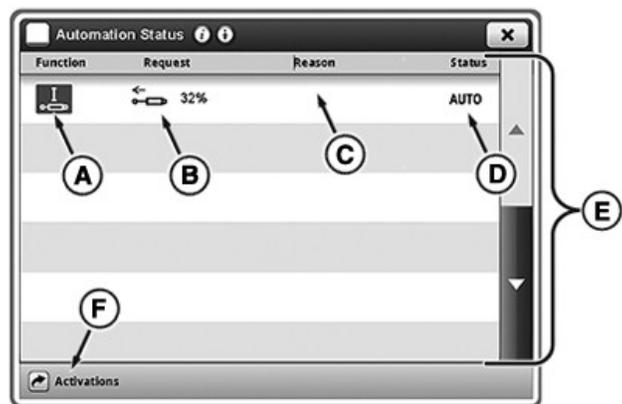
Automation Status allows control of various tractor functions. Automation Status displays which tractor functions are being controlled and their current status.

SCV Function Example: SCV status set to AUTO. Implement actively controls SCV 1. Implement requests SCV flow to be set at 32% in extend direction.



RXA0135014—UN—12AUG13

1. Select **Menu**.
2. Select **Applications** tab.
3. Select **Automation Status** icon.



RXA0135016—UN—12AUG13

Automation Status Page

- A—Function
- B—Request
- C—Reason
- D—Status
- E—Scroll Bar
- F—Activations button

Press Activations button (F) to navigate to Software Manager application.

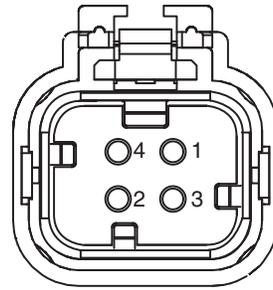
AK08008,00001E6-19-15NOV19

Install Video Display Camera

IMPORTANT: Avoid damaging camera by mounting camera securely to equipment and in location where camera will not be pinched, crushed, kicked, or knocked off.

NOTE: Camera placement is limited to video camera cable length. Consider camera field of view when selecting location.

Tractors equipped with 4200 processor will have one camera input connector and 4600 processor will have four camera input connectors.



RXA0107925—UN—28MAY10

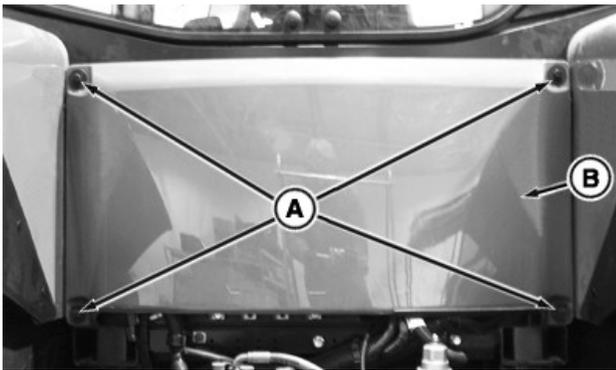
Video Connector Pin Identification

Pin Number	Function
1	Power
2	Ground
3	Signal
4	Signal—Ground

2. Connect camera cable into 4-pin connectors, route cable and mount camera at desired location.
3. Install rear panel on cab and tighten screws.

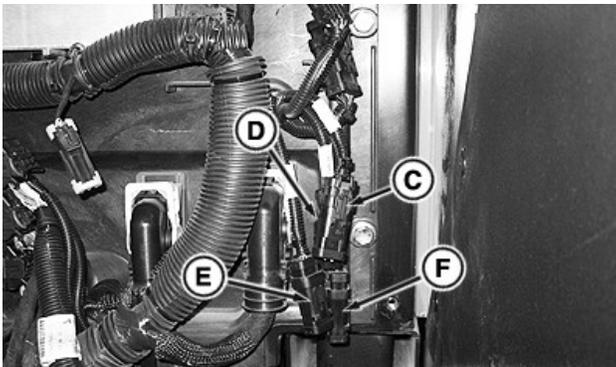
For information on how to adjust Video settings, see the Generation 4 Display operator's manual.

AK08008,000041F-19-16JUN20



RXA0132177—UN—23APR13

Remove Rear Panel



RXA0132178—UN—23APR13

Video Connectors Location (Equipped with 4600 Processor)

1. Tractors are equipped with one or four, 4-pin video connector(s) to attach camera(s). Remove rear cab panel cap screws (A). Remove cab rear panel (B) to access each marked video camera connector(s) (C, D, E or F). Chart shows connector pin/function information.

CommandCenter™ - Radio

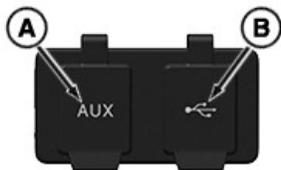
External Sources

NOTE: Information in this section pertains to CommandCenter™ Audio and Phone applications and audio sources external to radio. For information specific to the radio, see Operator's Manual for equipped radio.

External audio sources can be connected using convenience port on right-hand console. Sources can also be connected using Bluetooth® functions.

AUX Input

NOTE: AUX audio source may only display in sources if device is connected to external AUX input.



RXA0165156—UN—14NOV18

Connect external audio source using auxiliary input (A) and select AUX as source on radio.

USB Input (If Equipped)

NOTE: USB audio source may only display in sources if device is connected to external USB input.

Charging some external audio sources, such as smart phones and tablets, via audio USB port is not supported. Attempting to charge device that is not supported may shutoff USB port. Device must be removed and cycle radio power to recover.

Connect external audio source using USB input (B) and select USB as source on radio.

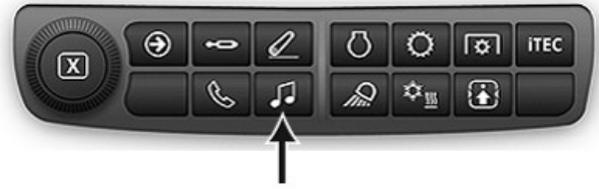
AK08008,0000022-19-15NOV19

Select Audio Source with Generation 4 CommandCenter™

Use audio source tabs on Generation 4 CommandCenter™ to select audio source.

When radio is on, Audio page navigates to home page of current source selected. When radio is off, Feature unavailable or not installed displays.

NOTE: Selecting source will not turn on radio. Turn on radio by pressing power button on radio faceplate.



RXA0133718—UN—16JUL13

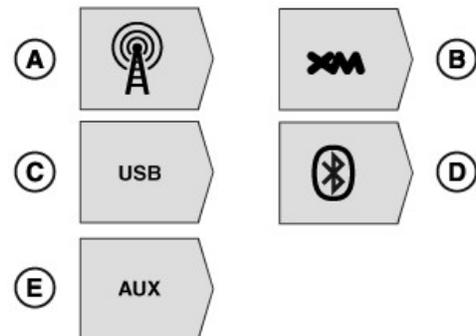
To access Audio main page, use shortcut button on navigation bar or follow alternative path:



RXA0147929—UN—13APR15

1. Select Menu.
2. Select Machine Settings tab.
3. Select Audio icon.
4. Select desired source tab:

NOTE: Some items are only displayed if machine is equipped with the associated options.



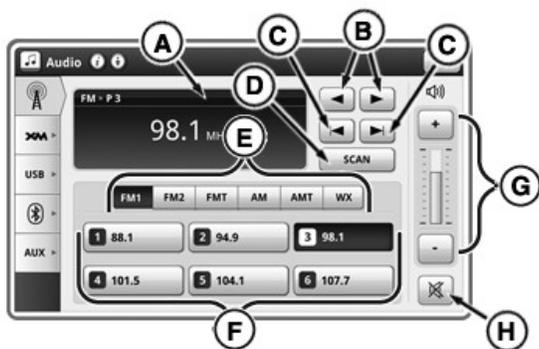
RXA0163496—UN—04JUN18

- A—FM, AM, and Weather Tab
- B—XM Tab
- C—USB Tab
- D—Bluetooth® Audio Tab
- E—Auxiliary Tab

AK08008,0000022-19-15NOV19

AM, FM, Weather Channel Home Page

Navigate to AM, FM, Weather Channel home page. See Select Audio Source with Generation 4 CommandCenter™ in this Operator's Manual section.



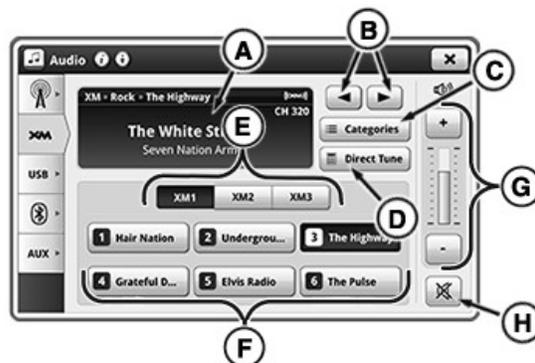
RXA0163498—UN—04JUN18

- A—Display Area:** Displays current radio activity/information.
- B—Manually Tune Forward/Back:** Use left or right button to manually tune in desired station. Each time button is pressed, radio frequency increases or decreases by standard increment.
- C—Next/Previous Station:** Select to seek next available station before or after current station.
- D—Scan Button:** Select to cycle through available stations. Each station broadcasts for 5 seconds before moving to next station. Cycle ends if returns to original station or by selecting button again.
- E—AM/FM/Weather Button Bar:** Cycle through channel presets using toggle bar (FM1, FM2, FMT, AM, AMT, WX).
- F—Presets:** Six presets can be programmed to FM1, FM2, FMT, AM, and AMT banks. To change presets, press preset for 3 seconds, while on desired station, until “beep” sounds. Press again to tune radio to saved station. Six presets are pre-programmed into WX bank and cannot be changed. FMT and AMT banks can be set automatically using T-STORE function.
- G—Volume Adjustment:** Adjust volume.
- H—Mute:** Silence sound.

AK08008,0000023-19-15NOV19

XM Home Page

Navigate to XM home page. See Select Audio Source with Generation 4 CommandCenter™ in this Operator's Manual section.



RXA0163501—UN—04JUN18

- A—Display Area:** Displays XM activity/information.
- B—Next/Previous Station:** Select to seek next available station before or after current station.
- C—(CAT) Category Mode:** Select to launch category search mode. Scroll up or down through categories and select station within category.
- D—Direct Tune:** Select to enter desired channel with keypad.
- E—XM Channel Bank:** Toggle through banks using buttons (XM1, XM2, XM3).
- F—Presets:** Six presets can be programmed per bank. To set, press and hold desired preset for at least three seconds.
- G—Volume Adjustment:** Adjust volume.
- H—Mute:** Silence sound.

AK08008,0000024-19-15NOV19

USB Home Page

Navigate to USB home page. See Select Audio Source with Generation 4 CommandCenter™ in this Operator's Manual section.

Connect USB using USB input, on right-hand console/storage tray, to play stored music. See External Sources in this Operator's Manual section.



RXA0163502—UN—04JUN18

- A—Display Area:** Displays current USB activity/information.

B—Next/Previous Track: Select to skip back to beginning of current track or ahead to beginning of next track. Press previous button twice to skip to previous track.

C—Play/Pause: Play or pause track.

D—Volume Controls: Adjust volume.

E—Mute: Silence sound.

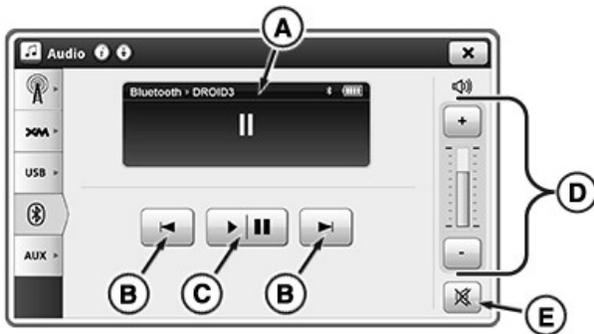
AK08008,0000025-19-15NOV19

Bluetooth® Home Page

Navigate to Bluetooth® home page. See Select Audio Source with Generation 4 CommandCenter™ in this Operator's Manual section.

NOTE: If Bluetooth® device with stored music is not connected, select Pair Device and complete pairing process. For more information, see steps 6 and 7 in Pair Bluetooth® Device to Generation 4 CommandCenter™ in this Operator's Manual section.

Radio systems equipped with Bluetooth® allow data transfer between radio system and paired close-range Bluetooth® device (such as cell phone). Music stored on device does not transfer to CommandCenter™.



RXA0163504—UN—04JUN18

A—Display Area: Displays current Bluetooth® activity/information.

B—Next/Previous Track: Skip back to beginning or ahead to beginning of next track. Press previous button twice to skip to previous track.

NOTE: Not all devices support pause function. Devices may mute sound, but not pause play.

C—Play/Pause: Play or pause track.

D—Volume Adjustment: Adjust volume.

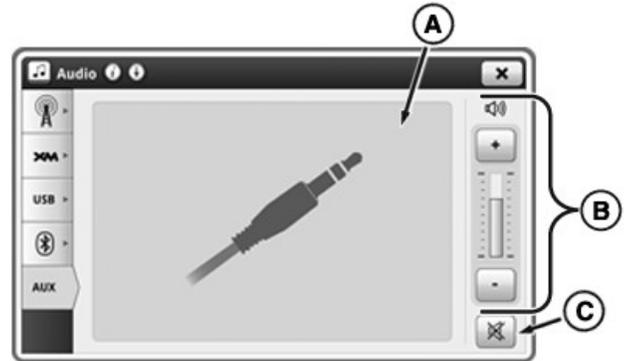
E—Mute: Silence sound.

AK08008,0000026-19-15NOV19

Auxiliary Home Page

Navigate to Auxiliary home page. See Select Audio Source with Generation 4 CommandCenter™ in this Operator's Manual section.

Connect external audio source to listen to stored music. See External Sources in this Operator's Manual section.



RXA0163506—UN—04JUN18

A—Display Area: Displays image shown. Activity or information displays on external device only, not on CommandCenter™ display.

B—Volume Adjustment: Adjust volume.

C—Mute: Silence sound.

AK08008,0000027-19-15NOV19

Pair Bluetooth® Device to Generation 4 CommandCenter™

Radio system is equipped with integrated Bluetooth®, which allows data transfer between radio system and paired close-range Bluetooth® device. Up to five device pairings can be stored for Bluetooth® feature. See Manage Paired Bluetooth® Devices in this Operator's Manual section.

Phone book does not appear on CommandCenter™ display.

To access Phone page:



RXA0147930—UN—13APR15

1. Select **Menu**.
2. Select **Machine Settings** tab.
3. Select **Phone** icon.

NOTE: Not ALL devices are able to use Bluetooth® feature on radio.

4. Enable Bluetooth® mode on device.

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Bluetooth is a trademark of Bluetooth SIG



RXA0132157—UN—28JUN13

3. Select **Phone icon**.



RXA0147944—UN—13APR15

4. Select **Advanced Settings icon**.

5. Select **Settings tab**.

6. Information & Settings / Phone page appears.

5. Select **Pair Device button (A)** to start pairing process.

NOTE: Once Bluetooth® pairing process is initiated, changes to radio - such as changing source or frequency - cancels pairing.



RXA0163558—UN—12JUN18

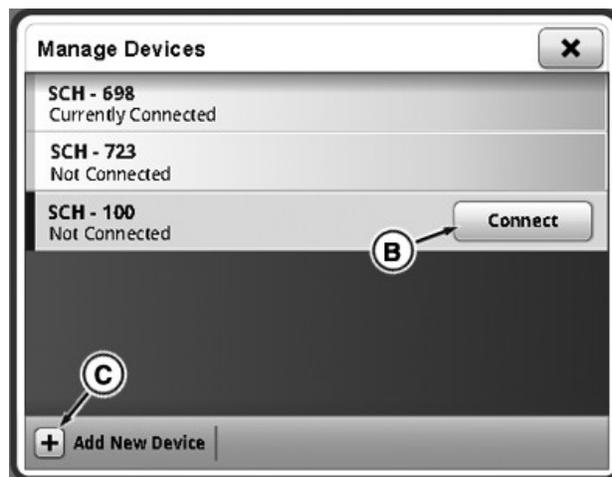
6. Enter pairing code displayed in Pairing Code box (B) into device. Pairing process begins immediately.

7. Once device is connected successfully, **"Pairing Complete"** is displayed.



RXA0147734—UN—30MAR15

7. Select **Manage Devices button (A)**.



RXA0147733—UN—30MAR15

8. Choose desired device from list of paired devices and select **Connect Device button (B)**.

9. Select **Add New Device button (C)** to pair new Bluetooth® device.

AK08008,0000028-19-15NOV19

AK08008,0000029-19-15NOV19

Manage Paired Bluetooth® Devices

Up to five device pairings can be stored in radio's Bluetooth® feature. See Pair Bluetooth® Device to Generation 4 CommandCenter™ in this Operator's Manual section.

Use phone advanced settings to connect devices paired to radio or add new devices to paired list.



RXA0147930—UN—13APR15

1. Select **Menu**.

2. Select **Machine Settings tab**.

Phone Operation

Use Bluetooth® capability to make or receive phone calls from paired Bluetooth® enabled cell phone. See Pair Bluetooth® Device to Generation 4 CommandCenter™ in this Operator's Manual section.

To access Phone page:

Bluetooth is a trademark of Bluetooth SIG
CommandCenter is a trademark of Deere & Company



RXA0147930—UN—13APR15

1. Select **Menu**.
2. Select **Machine Settings tab**.
3. Select **Phone icon**.
4. Phone home page appears.



RXA0137742—UN—11DEC13

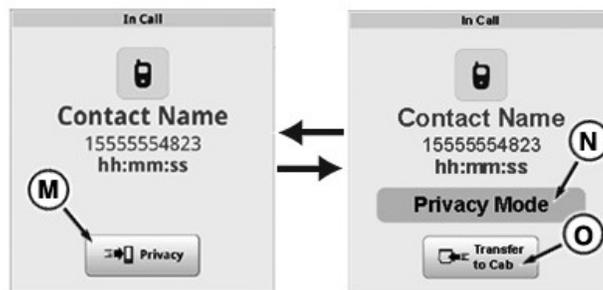
NOTE: Phone options A, B, C and E are not available during call. Use cell phone if another number is needed.

Phone controls on this page are disabled while device is syncing with radio.

- A—Input Box:** Displays typed digits.
 - B—Backspace Button:** Cancel typed digit. Press and hold to cancel multiple digits.
 - C—Dial Pad:** Enter phone number using number buttons.
 - D—Dial Pad Tab:** Press to display dial pad during phone call.
- NOTE: Favorites are stored permanently and can be viewed by any operator. Clear favorites before leaving tractor, if desired. See Clear Favorites and Call History in this Operator's Manual section.*
- E—Favorites Button:** View/edit favorites contacts.
 - F—Recent Button:** Review previous missed calls, incoming calls or outgoing calls.
 - G—Volume Control:** Adjust volume.
 - H—Mute Button:** Mutes microphone.
 - I—Battery Icon:** Displays battery life.
 - J—Signal Icon:** Displays current phone signal strength.
 - K—Bluetooth® Icon:** If blue, Bluetooth® device is

connected. If grayed out, Bluetooth® device is not connected.

L—Call Button: After dialing or selecting number, press to begin call.



RXA0147774—UN—30MAR15

M—Privacy Mode Button: Transfers phone audio from cab speakers to phone speakers during call.

N—Privacy Mode Message: Displays when call has entered privacy mode.

O—Transfer to Cab Button: Exits privacy mode and transfers phone audio from phone speakers to cab speakers.

AK08008,000002A-19-15NOV19

Contact List

Device's phone book synchronizes with radio, not CommandCenter™. Contacts must be added and edited manually on display.

Maximum number of phone numbers that can be stored in CommandCenter™ is 25. Maximum number of characters in phone number is 21.

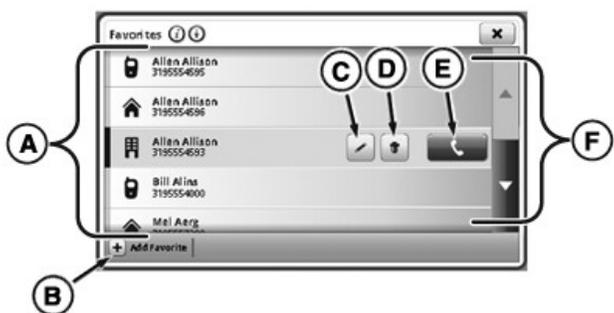
Favorites are stored permanently and can be viewed by any operator. Clear favorites before leaving tractor, if desired. See Clear Favorites and Call History in this Operator's Manual section.



RXA0147931—UN—13APR15

1. Select **Menu**.
2. Select **Machine Settings tab**.
3. Select **Phone icon**.
4. Select **Favorites button**.
5. Favorites page appears.

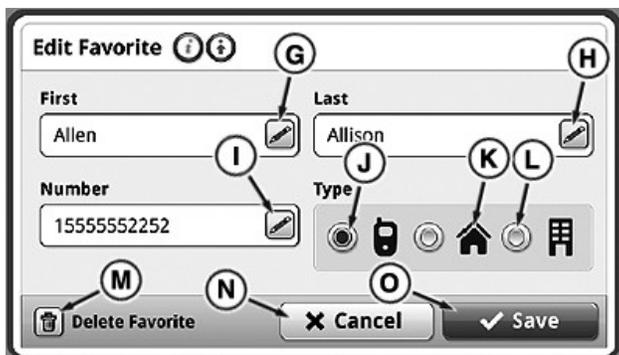
*Bluetooth is a trademark of Bluetooth SIG
CommandCenter is a trademark of Deere & Company*



RXA0132498—UN—28JUN13

6. To edit favorites, press Add (B), Edit (C), or Delete (D) Favorite button.
7. Edit Favorite page appears.

- A—Favorite List:** List of available contacts.
- B—Add Favorite Button:** Select to add contact manually.
- C—Edit Favorite Button:** Select to edit current contact.
- D—Delete Button:** Select to delete contact from favorites.
- E—Call Button:** Select to call currently selected contact.
- F—Scroll Bar:** Select to scroll up or down.



RXA0132499—UN—28JUN13

- G—Edit Favorite First Name:** Select to edit first name.
- H—Edit Favorite Last Name:** Select to edit last name.
- I—Edit Favorite Phone Number:** Select to edit phone number.
- J—Mobile Phone Button:** Select to list contact information under mobile phone.
- K—Home Phone Button:** Select to list contact information under home phone.
- L—Work Phone Button:** Select to list contact information under work phone.
- M—Delete Favorite Button:** Select to delete contact.
- N—Cancel Button:** Select to cancel edits.

O—Save Button: Select to save edits.

AK08008,000002B-19-15NOV19

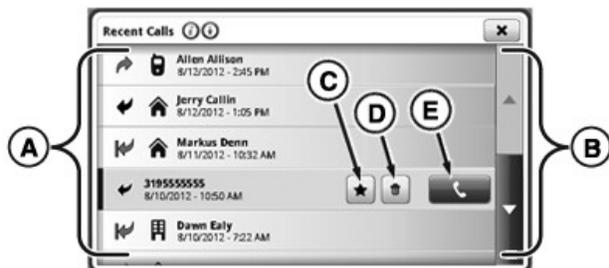
Recent Calls

Review previous missed, incoming or outgoing calls placed or received through CommandCenter™.



RXA0147933—UN—13APR15

1. Select **Menu**.
2. Select **Machine Settings** tab.
3. Select **Phone** icon.
4. Select **Recent** button.
5. Recent Calls page appears.



RXA0132556—UN—28JUN13

- A—Recent Calls Contact List:** List of recently called contacts.
- B—Scroll Bars:** Use to scroll up or down through recent calls contact list.
- C—Add Favorite Button:** Select to add contact to favorites.
- D—Delete Button:** Select to delete contact from favorites.
- E—Call Button:** Select to call currently selected contact.

AK08008,000002C-19-15NOV19

Clear Favorites and Call History

Use phone advanced settings to clear favorites and call history. Contacts will be cleared on CommandCenter™ display only, not on phone.



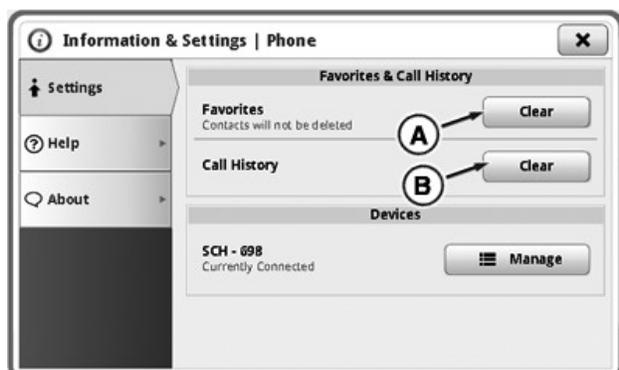
RXA0147930—UN—13APR15

1. Select **Menu**.
2. Select **Machine Settings** tab.
3. Select **Phone** icon.



RXA0147944—UN—13APR15

4. Select **Advanced Settings** icon.
5. Select **Settings** tab.
6. Information & Settings / Phone page appears.



RXA0147732—UN—30MAR15

7. Press clear favorites button (A) to erase favorites.
Phone contacts will not be deleted.
8. Press clear call history button (B) to erase call history.

AK08008,000002D-19-15NOV19

Intelligent Total Equipment Control (iTEC™)

CommandARM™ Control Functions

Intelligent Total Equipment Control (iTEC™) allows multiple recurring tasks to be performed with the touch of one button.

For example, one sequence made up of series of functions, operations, and distances used at start of field and second sequence used at water way in center of field. Each sequence can include up to 20 functions. Sequences remain in memory until deleted or overwritten, even if electrical current is switched off.

A sequence is a course of events, from start of first function, to completion of last function, that the operator can start by pressing an iTEC™ button.



RXA0158412—UN—29MAR17

iTEC™ Functionality		
	Item	Function/Functions
A	Transmission	Upshift or downshift in Forward Gear
B	Rear Hitch (If Equipped) [Ag]	Raise Detent and Lower Detent, and Fast Lower
C	SCVs (CommandARM™)	Extend, Retract, Float, and Cancel
D	Rear PTO (If Equipped) [Ag]	On-Off
E	iTEC™ Buttons	1/2/3/4
F	Differential Lock (If Equipped)	On/Off/Auto

iTEC™ pages are accessed through CommandCenter™.

AK08008,000002E-19-15NOV19

CommandCenter™ Pages Descriptions and Functions

iTEC™ Main Page



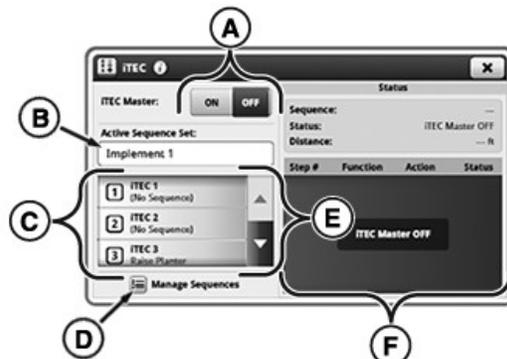
RXA0168452—UN—30MAY19

Use shortcut button or follow alternative path:



RXA0145566—UN—01OCT14

1. Select **Menu**.
2. Select **Machine Settings** tab.
3. Select **iTEC™** Icon.

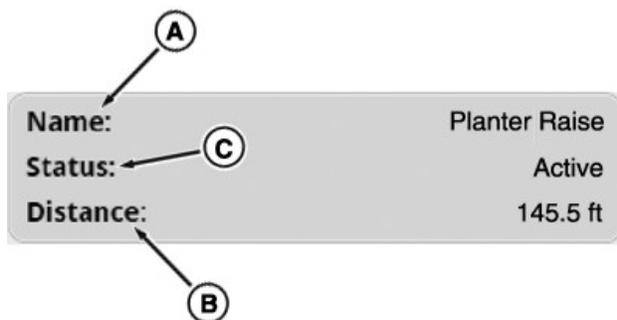


RXA0158043—UN—02MAR17

- **A — iTEC™ Master Toggle:** Toggle iTEC™ ON/OFF.
- **B — Active Assignment Set Button:** Select or create an assignment set.
- **C — Assignments List:** List of sequences assigned to iTEC™ buttons.
- **D — Manage Sequences Button:** Edit sequence and assign buttons.
- **E — Scroll Bar:** Scroll up or down.
- **F — Status List:** Shows status of each iTEC™ sequence step as sequence progresses.

AK08008,000002F-19-15NOV19

Status Area



RXA0131243—UN—08MAR13

- **A—Name:** Name of sequence that is currently running.
- **B—Distance:** Displays accumulated distance while iTEC™ sequence is running.
- **C—Status:** Indicator of current iTEC™ status.
 - **Off** - No sequence execution possible.
 - **Ready** - Waiting for iTEC™ button to which a sequence is assigned to be pressed.
 - **Active** - iTEC™ sequence execution active.
 - **RPM Limit** - Engine speed is out of range. ¹
 - **Park** - Transmission indicates that park lock is engaged. ²
 - **Operator Presence** - No operator presence, no iTEC™ execution allowed. Operator returns to seat. ¹
 - **Wheel Speed Low** - Wheel speed < 0.5 km/h (0.3 MPH), execution is paused.
 - **Complete** - Sequence successfully completed.
 - **Aborted** - Sequence execution aborted by operator or active abort condition.
 - **Error** - One or more sequence steps did not execute.

AK08008,0000030-19-15NOV19

All Sequence Page



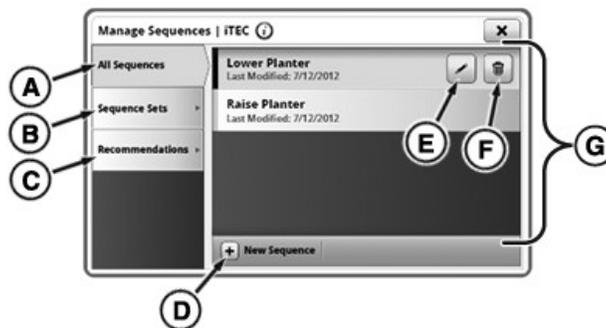
RXA0129723—UN—06MAR13

Select **Manage Sequences button** on iTEC™ main page.

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¹ Sequences pauses or cannot start if this condition exists. Correct condition to resume sequence.

² Sequence pauses or cannot start if this condition exists. Correct condition to resume sequence.



RXA0158044—UN—02MAR17

- **A—All Sequences Tab:** View available, delete saved, edit saved, or add new sequences.
- **B—Sequence Sets Tab:** View assigned sequences or give sequence assignment.
- **C—Recommendations (AutoLearn):** View and edit learned sequences.
- **D—New Sequence Button:** Manually program new sequence.
- **E—Edit Button:** Edit saved sequence.
- **F—Trash Button:** Deleted saved sequence.
- **G—Sequence List:** List of saved sequences.

AK08008,0000031-19-15NOV19

Add New Sequence

NOTE: For complete list of functions available, see CommandCenter™ Pages Descriptions and Functions in this Operators Manual section.

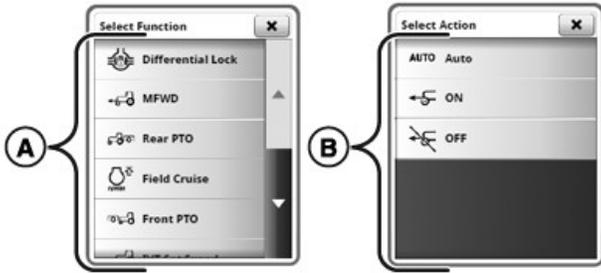
From iTEC™ main page, follow steps listed below:



RXA0158059—UN—02MAR17

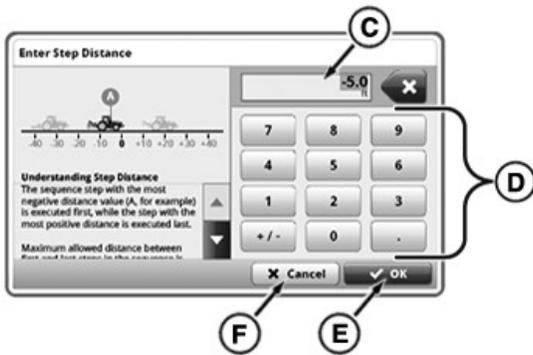
1. Select **Manage Sequences button**.
2. Select **All Sequences tab**.
3. Select **New Sequence button**.
4. Select **Add Step button**.

NOTE: Select Cancel button (F) to exit editing process without saving changes.



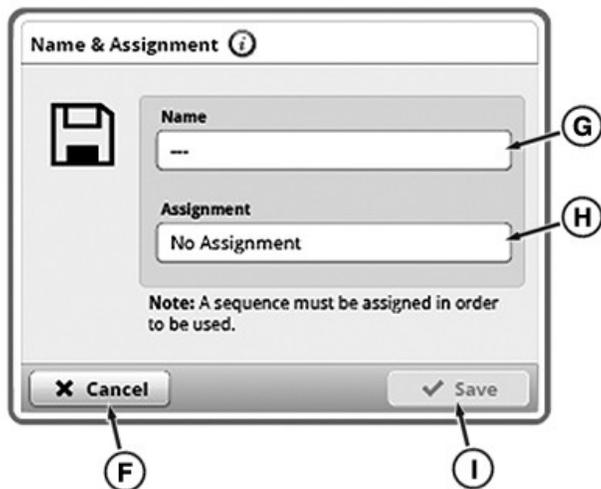
RXA0158057—UN—02MAR17

5. Select from list of functions (A).
6. Select from list of actions (B).



RXA0158047—UN—02MAR17

7. On Step Distance page, use keypad (D) to enter distance into step distance box (C).
8. Select OK Button (E).
9. Repeat steps 4-8 to add steps to sequence.
10. Press **Next button** to continue.



RXA0158048—UN—02MAR17

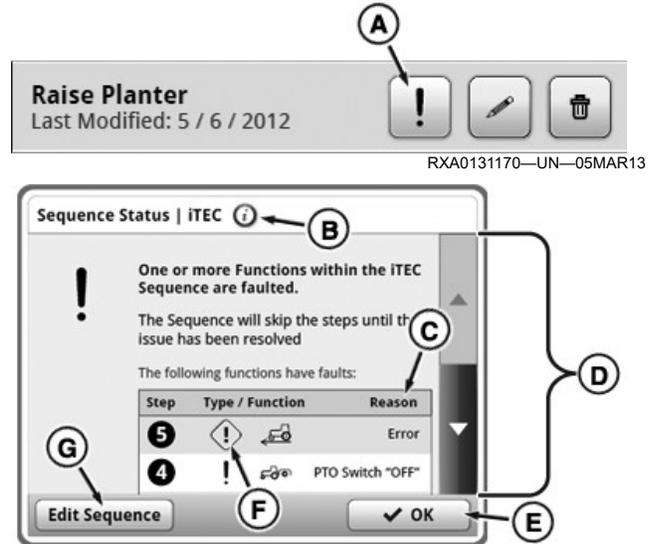
11. Select Sequence Name box (G). Type name of sequence. Select **Save/OK button** when complete.

NOTE: A sequence must be assigned in order to be used.

12. Select Sequence Assignment box (H). Select assignment, if desired, and select **Save/OK button** when complete.
13. Select **Save button (I)** to save sequence.

AK08008,0000032-19-15NOV19

Sequence Step Status



RXA0131170—UN—05MAR13

RXA0131609—UN—25JUL13

NOTE: Press Information Button (B) on any iTEC™ page to access a general status page. General status page will list all functions that are part of the sequences of current selected implement.

Whenever execution of a sequence step is not possible or is interrupted, iTEC™ system informs operator about new issue by displaying Information Alert (A) or Fault Alert (F) next to the sequence or sequence step. Press **Alert Symbol** next to the sequence (in assignment area or sequence assignment tab) to access the sequence status page to read steps with errors. Use scroll bars (D) to scroll up and down list. Select edit sequence button (G) if you want to edit a sequence. Press **Alert Symbol** next to a sequence step (while in EDIT) for information about the issue just for that step. Both views will show a short reason (C) for issue. Press OK button (E) to exit.

AK08008,0000033-19-15NOV19

Edit or Remove Sequence

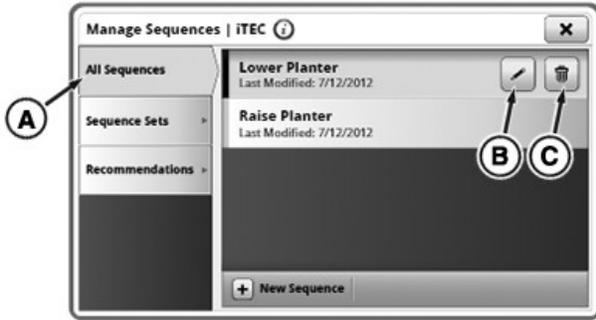
From iTEC™ main page:



RXA0129723—UN—06MAR13

1. Select **Manage Sequences button**.

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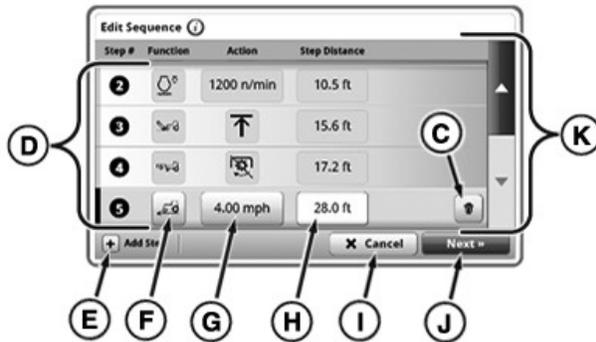


RXA0158049—UN—02MAR17

2. Select All Sequences tab (A).
3. Select desired sequence.

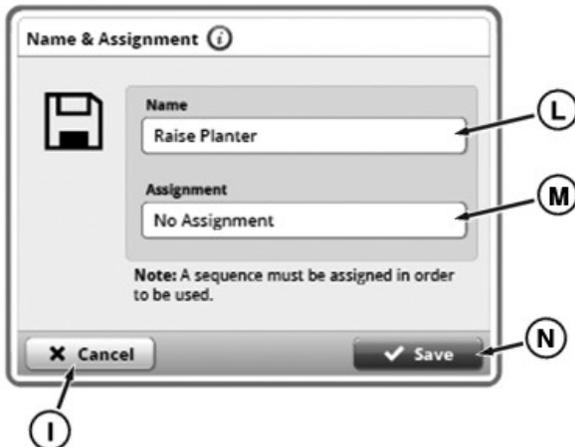
NOTE: Trash button (C) removes sequence or step within sequence.

4. To update sequence steps, select Edit button (B).



RXA0158050—UN—02MAR17

5. Select desired step to edit from sequence step list (D). If needed, use scroll bar (K) to locate step.



RXA0158051—UN—02MAR17

NOTE: To exit editing process without saving changes, select Cancel button (I).

6. To edit step, select add new step (E), function (F), or action (G) buttons or use distance input box (H).
7. Select Next button (J).

8. If needed, edit sequence name (L) or sequence assignment (M).
9. Select Save button (N).

AK08008,0000034-19-15NOV19

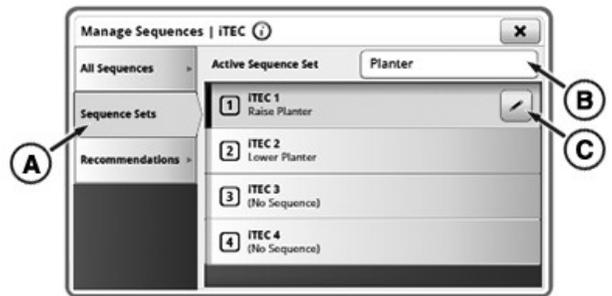
Sequence Sets Page

From iTEC™ main page, use following steps:



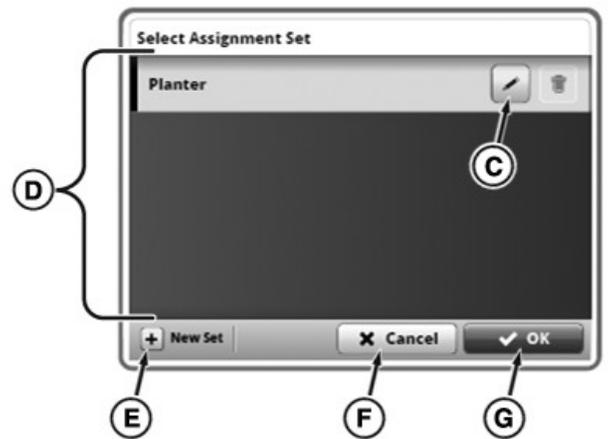
RXA0129723—UN—06MAR13

1. Select **Manage Sequences** button.



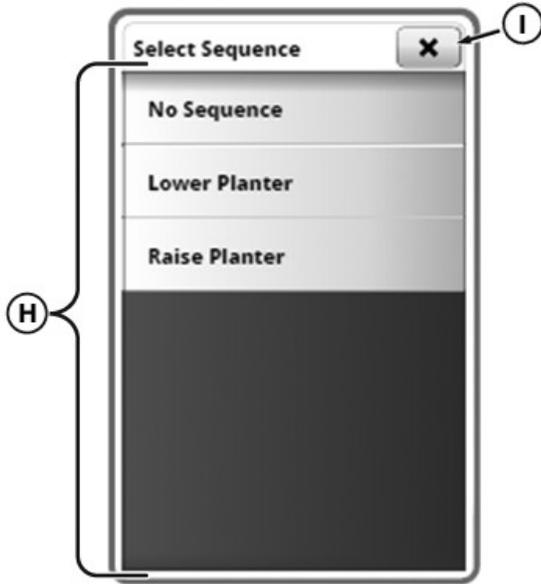
RXA0158311—UN—15MAR17

2. Select **Sequence Sets** tab (A).
3. If needed, select Active Sequence Set (B) and follow steps 4-6. If not, skip to step 7.



RXA0158312—UN—15MAR17

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RXA0158313—UN—15MAR17

NOTE: To exit page without saving changes, select Cancel (F) or Close (I) button.

4. Select sequence set from Sequence Set list (D).
5. If needed, select Edit (C) or New Set (E) button.
6. Select OK button (G).
7. Select desired iTEC™ button to assign.
8. Select Edit button (C).
9. Select sequence from Sequence list (H).

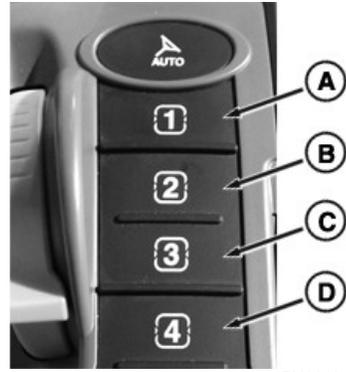
AK08008,0000035-19-15NOV19

Perform Sequence

iTEC™ sequence execution requires certain tractor controls be operated in a particular way. Sequence will NOT execute with tractor in PARK position. Transmission shift lever must be in forward position when executing set speeds, gears, or Automatic Gear Shift. Tractor ground speed must be at least 0.5 km/h (0.31 mph).

[Ag] If a PTO function is included in sequence, PTO must be engaged manually, using PTO switch, for initial engagement.

Before performing sequence using SCV functions, relevant SCV levers must be in neutral position.



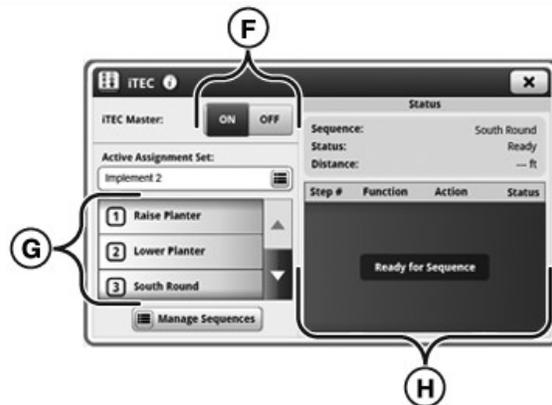
RXA0137808—UN—22JAN14

Abort current sequence at any time by again pressing same iTEC™ **Sequence Button (A-D)** used for starting sequence. Currently active commanded functions will be canceled (for example, hitch motion or SCV flow will stop if previously initiated as part of sequence [Ag]).



RXA0152788—UN—13JUL16

iTEC™ Indicator (E) is illuminated when active.



RXA0131608—UN—26MAR13

During sequence execution, a function can be actuated manually at any time without execution of sequence being interrupted. Functions that are actuated manually are ignored by iTEC™ for the rest of sequence. Relevant alert icon for this function appears in **Status Area (H)**.

1. Turn iTEC™ **Master Toggle (F)** to ON position.
2. Select iTEC™ **Sequence button (A-D)** on CommandARM™ for desired sequence.

3. Sequence steps appear in **Status Area (H)** and show progression of steps.

AK08008,0000036-19-15NOV19

Recommendations (AutoLearn)

When AutoLearn is ON, the system learns every action the machine completes in the background. When the same patterns, actions, or steps are recognized, AutoLearn creates a sequence. AutoLearn then recommends assignment to an iTEC™ button.

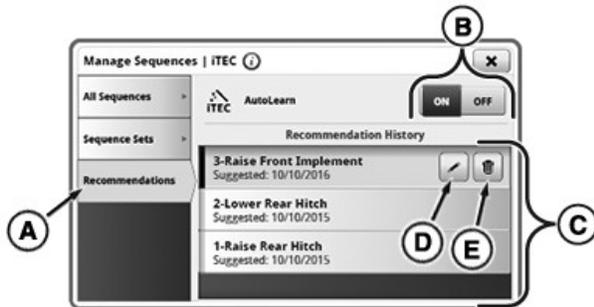
Sequences can be deleted when no longer needed. When a sequence is deleted, all button assignments clear and sequence is no longer available for use.

From iTEC™ main page, use following steps:



RXA0129723—UN—06MAR13

1. Select Manage Sequences.



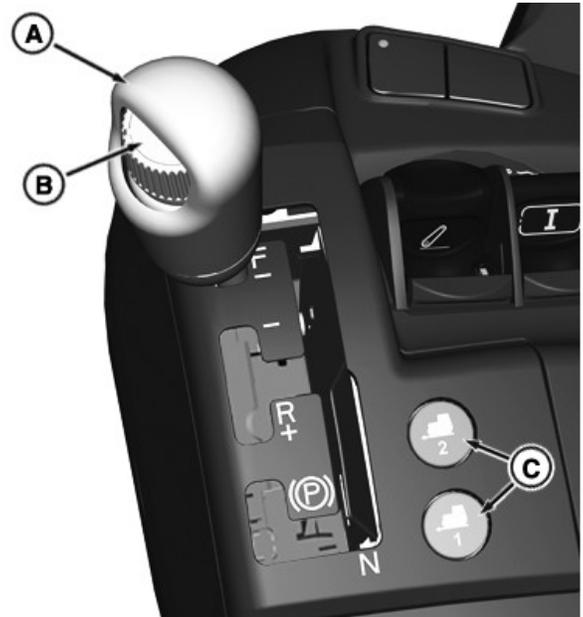
RXA0158056—UN—02MAR17

NOTE: AutoLearn is ON by default. To turn AutoLearn OFF, use AutoLearn ON/OFF toggle (B).

2. Select Recommendations (AutoLearn) tab (A).
3. Review Recommendation History (C).
4. To edit or assign recommended sequence, select edit (D). To remove sequence from list, select trash (E).

AK08008,0000037-19-15NOV19

iTEC™ Functions—Efficiency Manager™



RXA0139446—UN—17MAR14

Efficiency Manager™ Set Speed Buttons (C): The current forward set speed can be changed up or down with the set speed adjusting wheel (B) on shift knob (A). Transmission changes will be executed at the normal rate once the set speed has been changed.

The minimum set speed that can be saved is 0.8 km/h (0.5 mph). Changing the set speed or shifting during execution of a sequence will not cause iTEC™ to abort, but set speed changes will not be executed for the remainder of the sequence.

When a set speed is changed by an iTEC™ sequence, transmission will react as if the operator changed set speed, shifting up or down as a result.

AK08008,0000038-19-15NOV19

Tractor-Implement Automation™ (TIA™)

Tractor-Implement Automation™ (TIA™)

CAUTION: Although phrases "transfer control" and "disengage control" are terms commonly used with TIA™ equipment, at NO time is implement in total control of an operation. Operator ALWAYS has ability to override TIA™ implement. It is operator's responsibility to make sure implement operation does not damage equipment, or pose danger of injury or death to operator or others close by.

Tractor Implement Automation™ must not be put in operation when driving on public roads or when other persons are close by.

For ISO-compliant tractors, TIA™-compatible implements have ability to control certain individual tractor functions. See your implement operator's manual or contact your John Deere dealer with any questions regarding TIA™ compatible implements.

AK08008,0000039-19-15NOV19

Activate Tractor-Implement Automation™ Equipment

Response Codes, Text Descriptions, and Corrective Actions		
Common Response Codes	Text Displayed	Corrective Action
0	Code Accepted	None Required
4	Implement Not Available to Deactivate	Implement already deactivated
5	Implement Already Activated	None Required, implement should work as expected
6 and 11	Space Unavailable for Activation	Contact your dealer for assistance
17	Demonstration Activation Replaced With Permanent Activation	None Required

NOTE: To obtain tractor serial number, see *Product Identification Number in Identification Numbers section of this Operator's Manual.*

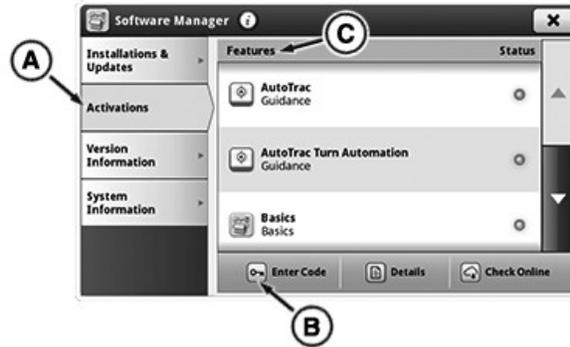
An activation code is required to allow TIA™ to function. Contact your John Deere dealer with tractor serial number and implement make, model, and serial number. Dealer obtains activation code through John Deere StellarSupport™.



RXA0166970—UN—08MAR19

1. Select Menu.

2. Select System tab.
3. Select Software Manager icon.



RXA0166931—UN—08MAR19

4. Select Activations tab (A).
5. When Activations page displays, press Enter Code (B). Keyboard appears.

NOTE: Some tractor automation activation page keyboard characters are grayed out and are not used in activation codes. If provided activation code includes any characters that are grayed out on tractor automation activation page keyboard, request dealers reconfirm activation code.

6. Using keyboard, enter activation code, then select OK.
7. If activation code is entered correctly, confirmation code appears in the enter activation overlay and message is displayed. Code Accepted indicates that activation is complete.
8. If message other than Code Accepted appears, see Response Codes, Text Descriptions, and Corrective Actions table. If message not listed appears, check and reenter code. If problem persists, contact your John Deere dealer.

Up to 20 implement names can be viewed on Activations page at any given time. When a new entry shows up in Features list (C), that entry is labeled Unknown Implement. The text Unknown Implement should change to a real name after first time connecting the implement.

AK08008,000003A-19-15NOV19

TIA is a trademark of Deere & Company
Tractor Implement Automation a trademark of Deere & Company

Tractor-Implement Automation™ — Status Page



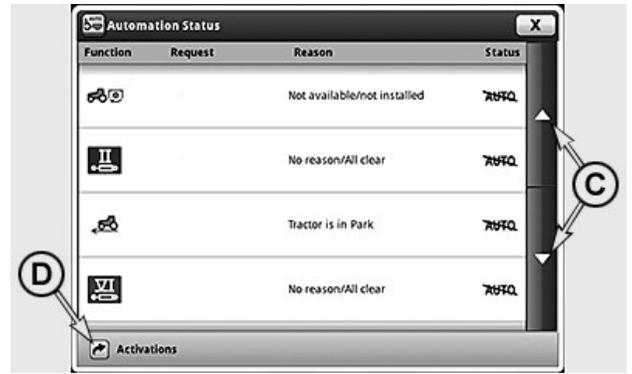
LX1057101—UN—23JUL13

Access CommandCenter™ Menu and select tab (A).

Press Automation Status icon (B) and access automation status page.

On the status page, the status of all the functions available for TIA™ are displayed.

If no TIA™-capable implement is connected, only a text message appears on the display.



LX1057102—UN—23JUL13

If there are too many functions to display on one status page, use scroll bar (C) to move to next or previous pages.

To activate the implements, press activating TIA™ button (D) and access the page for activating the implements. See also Activate Tractor-Implement Automation™ Equipment in this section of this Operator's Manual.

The status page has four columns:

Function	Request	Reason	Status
All functions available for TIA™ displayed	<ul style="list-style-type: none"> •Current command from implement appears on display if function is in auto mode and implement is commanding function. 	<ul style="list-style-type: none"> •No Reason/All clear - function is fault-free and can be automated by implement. •Brief text - function is not ready to perform commands from implement. 	<ul style="list-style-type: none"> •AUTO -function is currently commanded and has no threshold. •AUTO -function is currently not controlled by implement or cannot be controlled by it. Operator has control, or must enable function. •!AUTO! -function currently has a fault. Cause is displayed in a brief text in second column. •AUTO ↑ -function has an upper threshold. Command from implement is too high. •AUTO ↓ -function has a lower threshold. Command from implement is too low.

AK08008,000003B-19-15NOV19

Operate Tractor-Implement Automation™

IMPORTANT: For TIA to function correctly, the tractor and implements must meet various requirements. See requirements information in this Operator's Manual section and the implement operator's manual sections.

1. Connect TIA equipment to tractor using ISO connection. See Connecting Compatible Electronic Equipment in Accessories section of this Operator's Manual.
2. Select AutoTrac™ Resume (AUTO) button on CommandARM™. For button location, see CommandARM™ Controls—Left Side in CommandARM™ Controls section of this Operator's Manual.

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3. Follow implement operator's manual instructions to operate implement.

AK08008,00004A5-19-26AUG20

PTO Requirements [Ag]

Before transferring control to implement, prepare implement as indicated in implement Operator's Manual. Transfer control using AutoTrac™ resume button as described in implement Operator's Manual.

Following conditions must be met before transferring control to implement:

- Operator in seat.
- Functional PTO system.
- PTO remote control off.

TIA is a trademark of Deere & Company
AutoTrac is a trademark of Deere & Company

- PTO engaged (PTO switch On).

NOTE: Implement cannot engage PTO when tractor is stopped unless it is authorized to do so. However, implement can disengage PTO at any time including when tractor is stopped.

While operating and depending on PTO system capabilities, implement has ability to engage/disengage PTO, change PTO gear or adjust PTO speed.

To disengage control, turn PTO switch off.

AK08008,000003D-19-15NOV19

SCV Requirements

Before transferring control to implement, prepare implement as indicated in implement operator's manual. Transfer control using AutoTrac™ resume button as described in implement operator's manual.

Following conditions must be met before transferring control to implement:

- Operator in seat.
- SCVs are functional.
- SCV control levers in neutral position.
- SCV levers are not locked.

NOTE: Set maximum SCV flow limit which cannot be exceeded by implement.

NOTE: Implement cannot adjust SCV flow when tractor is stopped unless it is authorized to do so. However, implement can stop SCV flow at any time including when tractor is stopped.

While operating, implement has ability to:

- Control SCVs during operations.
- Change SCV flow rate up to set limit.

To disengage control, perform any of the following:

- Actuate specific SCV lever.
- Lock SCV lever.
- Actuate remote control switch on fender.

AK08008,000003E-19-15NOV19

PowerShift™ Transmission Requirements

Before transferring control to implement, prepare implement as indicated in implement operator's manual. Transfer control using AutoTrac™ resume button as presented in the implement operator's manual.

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NOTE: The implement cannot exceed ground speed set by the operator.

Following conditions must be met before transferring control to implement:

- Operator in seat.
- No malfunctions present in transmission.
- Shift lever in forward.

NOTE: When transferring control to the implement, Efficiency Manager™ mode will engage.

Speed may always be reduced.

Set speed limit may be increased within 2 seconds after engaging travel speed auto mode. Current travel speed can be limited by other processes (e.g. iTEC™). This limit will be observed; however, the limit will not be considered as an intervention by operator.

To disengage control using the shift lever:

- During driving: Shift up or down manually.
- Increasing the speed will end the auto mode. The implement has all information to inform the operator that this intervention will end the travel speed auto mode. See implement operator's manual.

AK08008,000003F-19-15NOV19

AutoTrac™ Guidance Requirements

Before transferring control to implement, prepare implement as indicated in implement operator's manual. Transfer control using AutoTrac™ resume button as presented in implement operator's manual.

Following guidelines must be met before transferring control to implement.

- Operator in seat.
- Steering system functional.
- AutoTrac™ is off.
- Steering wheel stationary.
- Vehicle speed below maximum automated speed.
- Transmission not in PARK.

While operating, implement has ability to automatically steer tractor.

To disengage control:

- Turn steering wheel.
- Place tractor in PARK.

AK08008,0000040-19-15NOV19

*Efficiency Manager is a trademark of Deere & Company
iTEC is a trademark of Deere & Company*

Rear Hitch Requirements [Ag]

Before transferring control to implement, prepare implement as indicated in implement operator's manual. Transfer control using AutoTrac™ resume button as presented in implement operator's manual.

Implement can automatically control hitch depth.

Set raise limit using CommandCenter™.

IMPORTANT: Implement cannot exceed limit.

Following guidelines must be met before transferring control to implement:

- Operator in seat.
- Functional hitch system.
- Hitch control lever in neutral position.
- Hitch unlocked.

NOTE: Unless implement is authorized to adjust hitch depth when tractor is at a standstill, tractor will prevent hitch depth adjustments when at a standstill.

To disengage control:

- Move hitch control lever.
- Lock hitch.
- Activate fender mounted hitch switch (if equipped).

AK08008,0000041-19-15NOV19

Drive Strategy Requirements

Before transferring control to implement, prepare implement as indicated in implement operator's manual. Transfer control using AutoTrac™ resume button as presented in implement operator's manual.

Following guidelines must be met before transferring control to implement:

- Operator in seat.
- No malfunctions present in transmission.
- Transmission not in PARK.

To disengage control:

- Manually select a drive strategy.
- Place transmission in PARK.

AK08008,0000042-19-15NOV19

Drivetrain

Drivetrain Overview

Tractor drivetrain consists of:

- Transmission: e18™ PowerShift™
- Front Axle: Suspended HydraCushion™
- Differential: Differential, differential lock, final drives, and axles
- Brakes: Rear or front and rear
- Mechanical, electronic, and hydraulic control systems

AK08008,0000043-19-15NOV19

Differential Lock

IMPORTANT: Engage differential lock before entering situation where wheel slippage may occur or when all wheels appear to be turning at same speed. If engaged after wheels begin to spin, damage to differential could result.

Differential lock latches front and rear wheel axles at the same time to provide best traction possible for slippery field conditions.

Engage differential lock by selecting either of the two operating positions:



RXA0141547—UN—12MAY14

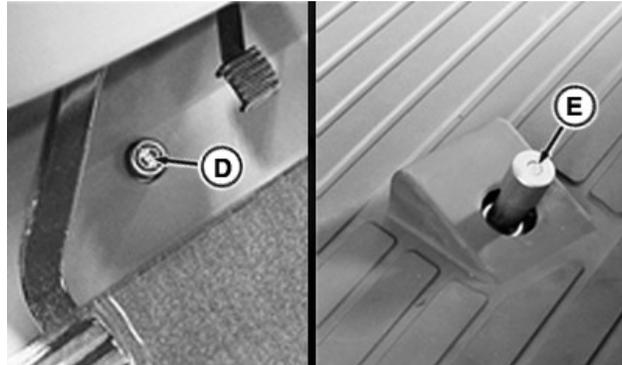


RXA0160878—UN—06SEP17
Ag Corner Post Display Shown

Auto Lock — Enter auto lock by pressing AUTO lock switch (A) on CommandARM™. When in auto lock,

AUTO lock switch and differential lock indicator (C) are illuminated. Differential lock indicator turns on or off depending on engagement state of differential lock.

- Differential lock disengages when any of the following conditions are met:
 - At startup
 - Wheel speed is more than 23 km/h (14 mph)
 - Brake pedal is depressed



RXA0150427—UN—10NOV15

- Foot decelerator (E) is depressed
- Steering angle greater than selected value

Differential lock disengagement steering angle may be user selected. See Change Differential Lock Disengagement Steering Angle in this Operator's Manual section.

- Engages when all the following conditions are met:
 - Wheel speed falls below 19 km/h (12 mph)
 - Steering angle less than selected value
 - Brakes are released

Manual Lock — Enter manual lock by pressing either manual lock switch (B) on CommandARM™ or differential lock floor switch (D). Differential lock will return to previous operating state if manual lock switch or differential lock floor switch are pressed again. When in manual mode, manual lock switch and differential lock indicator are illuminated. When in manual lock mode differential lock disengages when brake pedal is depressed or floor switch is pressed again.

AK08008,0000044-19-15NOV19

Change Differential Lock Disengagement Steering Angle

Higher disengage steering angles require operator to turn steering wheel further before differential lock disengages. Use in high slip field conditions that require large steering corrections to maintain desired path. Differential lock remains engaged while making steering corrections across field, but automatically disengages on headland turns.

Moderate disengage steering angles are useful in loader situations. Differential lock remains engaged when entering into a pile, but quickly disengages while turning.

Lower disengage steering angles allow differential lock to disengage sooner (less movement of the steering wheel), which is useful in high traction (example: paved surface) conditions. Differential lock remains engaged during straight-line work, while minimizing tractor jerk when disengaged or reengaged during turns.

Steering angle is factory set at 4°. Any custom settings are maintained until readjusted.

Adjust steering angle to disengage differential lock:



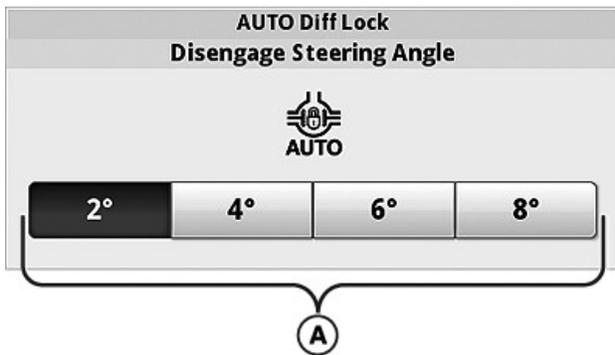
RXA0133712—UN—16JUL13

1. Select Transmission Shortcut button on Navigation Bar.



RXA0130326—UN—11JAN13

2. Select Advanced Settings icon.
3. Select Settings tab.



RXA0138557—UN—12FEB14

4. Select desired steering angle to disengage differential lock using Steering Angle toggle bar (A).

AK08008.0000045-19-15NOV19

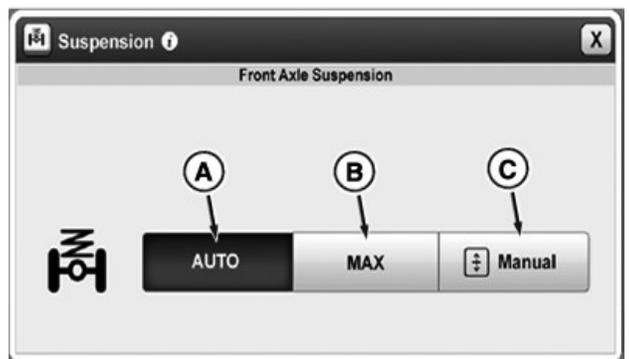
Operate HydraCushion™ Front Axle Suspension



RXA0147938—UN—13APR15

1. Select **Menu**.
2. Select **Machine Settings** tab.
3. Select **Suspension** icon.
4. Select desired front axle and cab suspension setting.

HydraCushion™ Front Axle Suspension

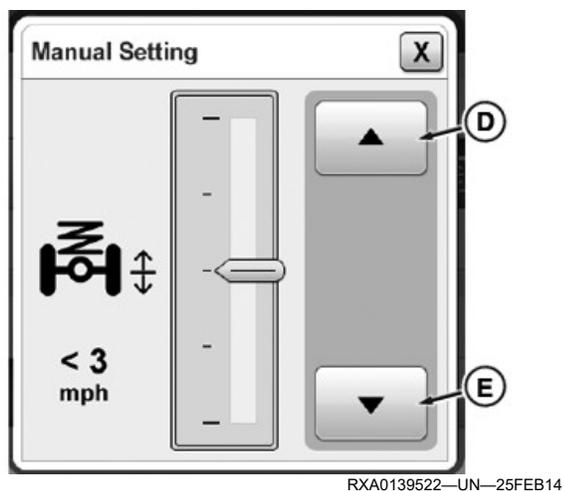


RXA0143564—UN—10JUL14

HydraCushion™ Front Axle Suspension can be set to two different firmness levels and a manual position option: “AUTO” (A), “MAX” (B), and “Manual” (C).

Suspended front axle engages whenever tractor travel speed exceeds 0.5 km/h (0.3 mph). Control after tractor begins moving is delayed. Suspension is active anytime tractor is not in park.

- If “AUTO” is selected, suspension reacts in response to surrounding conditions and events. Provides best possible comfort by looking at inputs such as travel speed, surface characteristics, implement weight, implement usage, and braking activity.
- If “MAX” is selected, suspension is set to maximum hardness (example: for operation with a front-mounted dozer blade). When travel speed exceeds 30 km/h (18 mph), “MAX” setting is deactivated. When travel speed drops below 20 km/h (12 mph), “MAX” setting is reactivated.



- Front end can settle when tractor is parked. Keep front end of tractor away from equipment or other items.

AK08008,0000046-19-15NOV19

Drivetrain Protection

NOTE: When tractor is operated under heavy load and low engine rpm, transmission may default to NEUTRAL. PARK engages once wheel speed drops below 1.75 km/h (1.0 mph) for vehicle protection.

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

A TIP Diagnostic Trouble Code (DTC) is and displayed when default to PARK condition occurs.

Drivetrain protection system is gear-sensitive and is not apparent in most situations. It does not affect load starting and only affects operations in gears with maximum operating speeds below 7 km/h (4.4 mph). Full engine horsepower, plus 10 percent power bulge is available in all other gears. With proper ballast, tractor is traction limited not power limited, at slow ground speeds.

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

- Air Filter Restriction Warning DTC is activated (CCU 000107.00). Engine performance is reduced. Service engine air filter immediately. See Engine Primary and Secondary Air Filters in Service - Change section of this Operator's Manual.
- Fuel filters become plugged resulting in a loss of power due to a reduction in delivered fuel. Service engine fuel filter immediately. See Fuel Filters in Service - Change section of this Operator's Manual.
- See your John Deere dealer.

Seeding Hydraulic Intelligent Power Management (IPM)

IPM provides controlled power boost of up to 18 kW (25 hp) and additional power in derate situations up to 55 kW (75 hp) to tractor when, at least one SCV numbered V to VIII is:

- Set to continuous flow
- Set to 50% or greater flow rate
- Detent activated

Power increase is only provided when required by system.

Adjust transmission settings for IPM maximum

- If "Manual" is selected, operator is able to adjust chassis height by pressing raise button (D) or lower button (E). Manual setting is overridden when travel speed exceeds 5 km/h (3 mph). When overridden, system returns to previously active mode.

Start Up Mode

- HydraCushion™ suspension does not move until placed into either forward or reverse gear.
- HydraCushion™ suspension flexes when transmission shift lever is placed in NEUTRAL or any forward or reverse gear.
- If tractor has settled, HydraCushion™ Suspension may rise about 25 mm (1 in) seeking to center.
- Leveling is completed when tractor wheel speed is above 0.5 km/h (0.3 mph).

HydraCushion™ Suspension in Locked Conditions (Restricted Mode)

- Operator activates hitch raise/lower switch [Ag]
- Transmission shift lever placed in PARK
- Wheel speed less than 0.5 km/h (0.3 mph)
- Correcting for unlevel condition
- Operator applies both brake pedals

Hitch [Ag]

- Control units limit suspension response when hitch is raised or lowered with load sense front weight changes
- Depressing clutch and moving transmission shift lever into gear for four seconds and then back to NEUTRAL adjusts suspension toward mid-point. This can be repeated until tractor levels when attaching and detaching implements.

Parking Tractor

IMPORTANT: Prevent possible damage. Do not park tractor with equipment or items under front end of tractor.

efficiency. Suggested settings may increase shift occurrences, but allows engine to stay in the desired boosted power range.

1. Select transmission custom mode page. See e18™ Transmission Settings—Custom in e18™ PowerShift™ Transmission section of this Operator's Manual.
2. Select Engine Speed Droop PTO ON module.

3. Adjust droop percentage to 15%.
4. Select Engine Speed Droop PTO OFF module.
5. Adjust droop percentage to 15%.

IPM is available as a factory- or dealer-installed option. See your John Deere dealer.

Gear	Power hp (kW)					
	9470R [Ag]	9520R	9570R	9620R		
				Without IPM	Base with SCV ^a	With Seeding Hydraulic IPM [Ag]
1	397 (292)	520 (382)	518 (381)	520 (382)	545 (401)	595 (438)
2	397 (292)	520 (382)	518 (381)	520 (382)	545 (401)	595 (438)
3	397 (292)	520 (382)	544 (400)	545 (401)	570 (419)	620 (456)
4	420 (309)	520 (382)	570 (419)	570 (419)	595 (438)	645 (474)
5	445 (327)	520 (382)	570 (419)	595 (438)	620 (456)	645 (474)
6	470 (346)	520 (382)	570 (419)	620 (456)	620 (456)	645 (474)
7	470 (346)	520 (382)	570 (419)	620 (456)	620 (456)	645 (474)

^aIf equipped with Hi-Flow hydraulics system.

Brakes

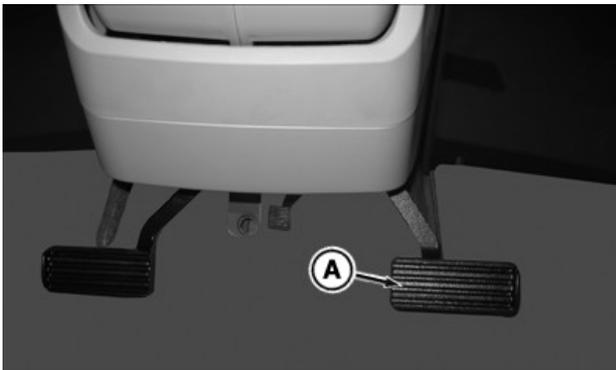
Brake Use

CAUTION: Avoid possible personal injury. Reduce speed if towed load weighs more than tractor or transporting loads under adverse conditions. Avoid hard braking applications, see implement manual and Transport Section.

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

NOTE: Brake life can be extended when stopping large loads by using a combination of engine motoring and service brake torque to slow the vehicle. This can be achieved by downshifting and then using service brakes to further slow vehicle and bring engine speed to idle.

Test brakes with engine stopped to be sure manual brake system is functioning, see Service - Check section of this Operator's Manual.



RXA0135769—UN—26SEP13

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

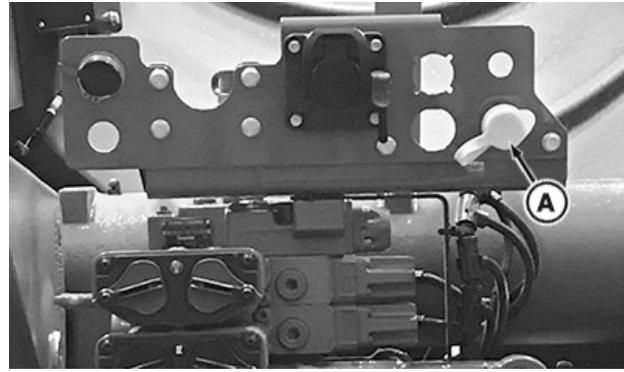
Maintain at least 1800 engine rpm during aggressive braking events to ensure adequate cooling oil flow is directed to vehicle brakes. Do not over speed engine as it may cause damage to engine or transmission components.

AK08008,0000048-19-15NOV19

Hydraulic Trailer Brakes (If Equipped)

CAUTION: Avoid possible injury from losing control of tractor when operating on downhill slopes. Tractor wheels may lock and skid on steep or slippery downhill slopes.

IMPORTANT: Operating tractor with three scrapers requires tractor and all scraper pans be equipped with hydraulic trailer brakes. Reference Towed Loads and Transport with Ballast in Transport section of this Operator's Manual.



RXA0160202—UN—12JUL17

Remove cap from trailer brake coupler (A). Ensure the hose coupler is clean before connecting to trailer brake coupler.

Depress brake pedal to operate hydraulic trailer brake. Braking effect depends on pressure applied to brake pedal.

IMPORTANT: Recommendations to reduce brake wear:

- Make sure pressure hose is connected.
- Select same gear for both downhill and uphill driving.
- Check hydraulic trailer brake regularly for proper operation.

AK08008,0000049-19-15NOV19

Trailer Brake System Settings—Access

Access Application Through Display:



Menu

RXA0167075—UN—20MAR19

1. Menu



Machine Settings

RXA0167076—UN—20MAR19

2. Machine Settings tab



RXA0177626—UN—28APR20
Trailer Brake System

3. Trailer Brake System

KD34109,00005EF-19-28APR20

Trailer Brake System Settings

The Trailer Brake System application is used to access and adjust trailer brake settings.

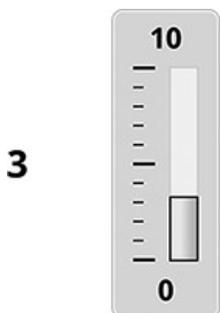


RXA0177625—UN—28APR20
Trailer Brake System Example

Items Accessible on the Trailer Brake System Main Page:

NOTE: Some items only display if machine is equipped with the associated option. If the trailer brake adjustability settings do not display and assistance is needed to improve tractor-trailer compatibility, see your John Deere dealer.

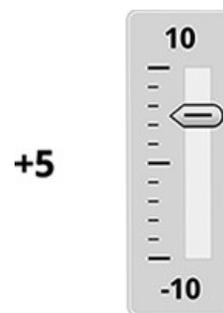
Trailer Brake Gain Items:



RXA0177620—UN—28APR20
Gain Value and Status

Gain — select to adjust the aggressiveness of the trailer brakes. See Trailer Brake System Settings—Brake Gain in this Operator's Manual section.

Trailer Pre-Brake Items:



RXA0177621—UN—28APR20
Pre-Brake Value and Status

Pre-Brake — select to adjust the trailer brake initiation timing. See Trailer Brake System Settings—Pre-Brake Offset in this Operator's Manual section.

Trailer Brake Test Controls and Settings Items:



RXA0177627—UN—28APR20
Trailer Brake Test Controls

Trailer Brake Test Controls — select to access the test to confirm that the park brake will hold both the tractor and the trailer. See Trailer Brake System Settings—Trailer Brake Test in this Operator's Manual section.



RXA0167071—UN—21MAR19
Advanced Settings

Advanced Settings — access further adjustments and less common settings. See Trailer Brake System Settings—Advanced in this Operator's Manual section.

KD34109,00005F0-19-13MAY20

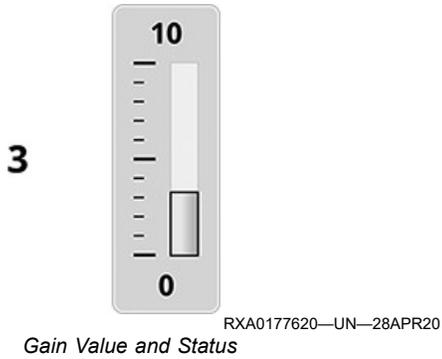
Trailer Brake System Settings—Brake Gain

The Brake Gain adjustment allows the operator to adjust the braking aggressiveness to match the trailer requirements.

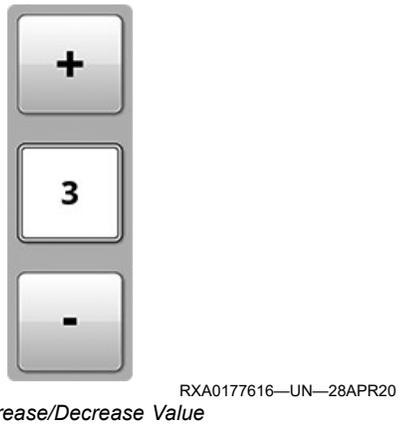
Modify When:

- The trailer is slow to stop.
- The trailer wheels lock up when the brakes are applied.

Procedure to Modify:



1. Select the Gain value.



2. Select (+) to increase or (-) to decrease the value. The value is shown in the display box.

- Maximum: 10
- Minimum: 0
- Increment: 1



3. Select to close.

KD34109,00005F1-19-13MAY20

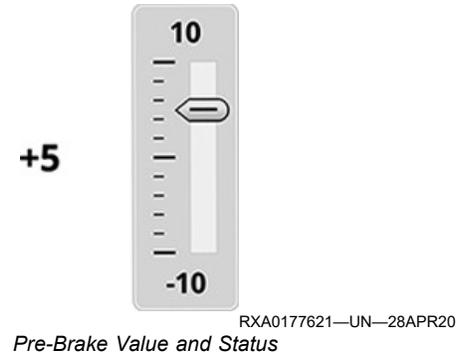
Trailer Brake System Settings—Pre-Brake Offset

Pre-Brake Offset allows the operator to change the timing of the trailer brake initiation. The trailer brake initiation may need to be adjusted to prevent the trailer from pushing the tractor forward.

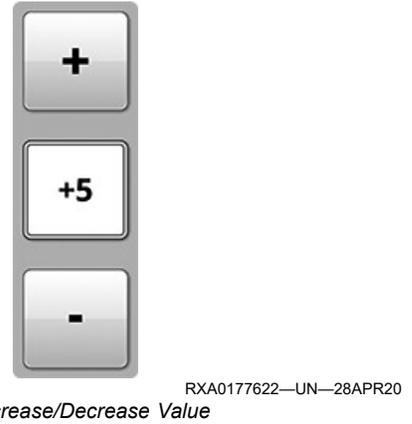
Modify When:

- Connecting the trailer to the tractor.

Procedure to Modify:



1. Select the Pre-Brake value.



2. Select (+) to increase or (-) to decrease the value. The value is shown in the display box.

- Maximum: 10
- Minimum: -10
- Increment: 1



3. Select to close.

KD34109,00005F2-19-28APR20

Trailer Brake System Settings—Trailer Brake Test

Use the Trailer Brake Test to confirm that the tractor park brake will hold both the tractor and the trailer. This condition is necessary when the tractor is parked and the trailer brakes are released. The test overrides the default park state and forces the trailer brakes to release.

NOTE: Available on tractors equipped with dual-line hydraulic trailer brakes.

Test When:

- Verifying park brake performance.
- Attaching a different trailer.

The tractor must be in PARK and the trailer brakes must be engaged to perform the trailer brake test. If these conditions are not met, the Release Trailer Brakes key is grayed out. The statuses of these conditions are displayed on the page.

Prerequisite — one of the following statuses is displayed next to Machine must be in park:



Check Mark

RXA0177617—UN—28APR20

- The check mark indicates that the machine is in PARK.



Fault

RXA0177619—UN—28APR20

- The fault icon indicates that the machine is not in PARK.

Brake Control — one of the following statuses is displayed regarding the trailer brake:

- (---) is displayed when the trailer brake is not engaged.
- Brakes Engaged is displayed when the trailer brake is engaged.
- Brakes Released is displayed when the Release Trailer Brakes key is held.
- Fault Present and the fault icon are displayed when a fault is present in the brake control.

Procedure to Modify:

1. Place the tractor in PARK.



Trailer Brake Test Controls

RXA0177627—UN—28APR20

2. Select Trailer Brake Test Controls.



Release Trailer Brakes

RXA0177623—UN—28APR20

3. Select and hold Release Trailer Brakes long enough to ensure that the tractor and trailer do not move.



Done

RXA0177618—UN—28APR20

4. Press Done to close.

KD34109,00005F3-19-12MAY20

Trailer Brake System Settings—Advanced

Advanced settings allow you to access further adjustments and less common settings.

Items Accessible on Advanced Settings Page:



Reset

RXA0177624—UN—28APR20

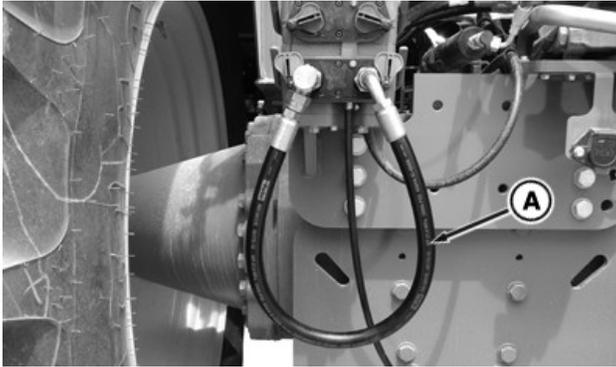
Reset to Default — select Reset to return the trailer brake settings to factory default values. When selected, a page displays to verify the selection. Select OK to continue or Cancel to return to the previous page without resetting the values.

KD34109,00005F4-19-28APR20

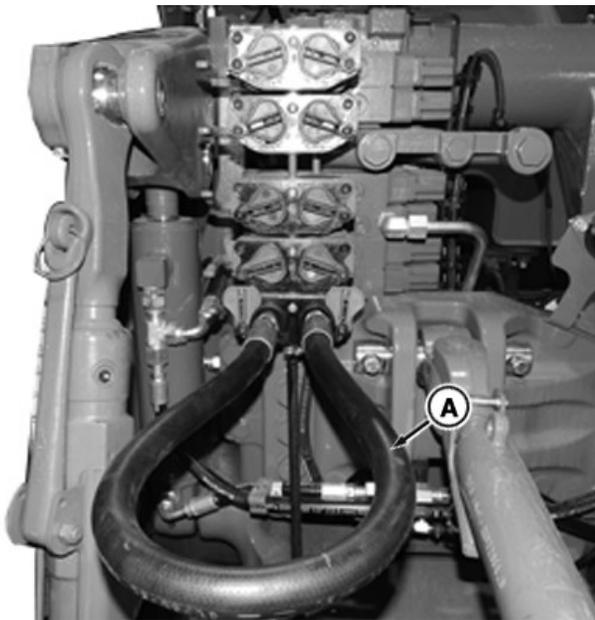
Transmission—General Information

Warm-Up Transmission-Hydraulic System

IMPORTANT: Avoid machine damage. Do not operate tractor under load until transmission-hydraulic system has warmed up. Tractor-hydraulic warm-up procedure is recommended when temperature is at or below -5°C (23°F).



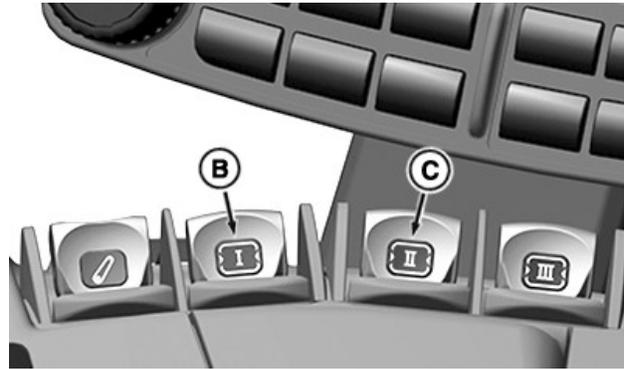
RXA0142310—UN—10JUN14
Jumper Hose Install to SCV Coupler [Scraper]



RXA0148290—UN—29MAY15
Jumper Hose Install to SCV Coupler [Ag]

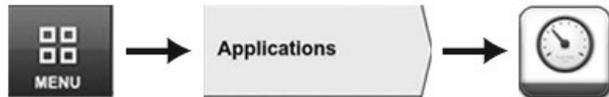
1. Install jumper hose (A) into SCV I couplers.
2. Place transmission lever in PARK position.
3. Turn key switch to start position.
4. Press SCV shortcut button on navigation bar.
5. Select SCV I module.
6. Set detent Time to C (continuous). See Configure SCV - Standard Mode in Selective Control Valves section of this Operator's Manual.
7. Set detent Flow to 8.00 or above. See Configure SCV - Standard Mode in Selective Control Valves section of this Operator's Manual.

8. Select SCV II module and repeat steps 6 and 7.



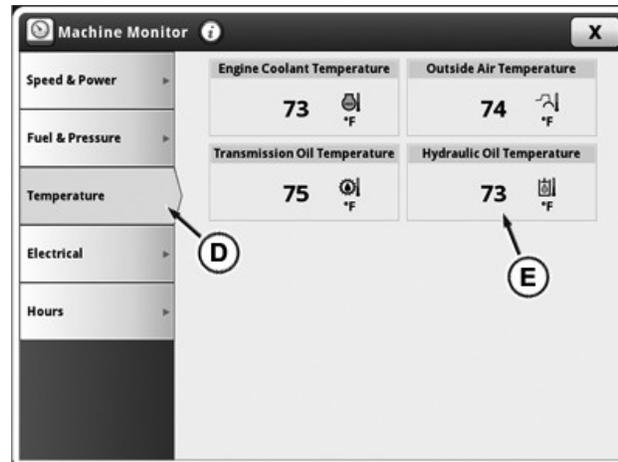
RXA0166860—UN—06MAR19

9. Pull SCV I (B) and SCV II (C) levers to extend detent. See SCV Control Lever—Extend Detent and Retract Detent Position in Selective Control Valves section of this Operator's Manual.
10. Operate engine at 1400 rpm.
11. Monitor Hydraulic Oil Temperature until it reaches 38°C (100°F).



RXA0126813—UN—12JUN12

- a. Select Menu.
- b. Select Applications tab.
- c. Select Machine Monitor icon.



RXA0166885—UN—06MAR19

- d. Select Temperature tab (D).
- e. Select Hydraulic Oil Temperature reading (E).
12. Return SCV levers I and II to neutral position.
13. Disconnect jumper hose and return to normal operation.

AK08008,000004D-19-15NOV19

Backup Alarm

The backup alarm is located on rear of machine. It is standard on scraper machines and is available as a factory or field installed option on agricultural machines. Backup alarm emits an audible sound to alert anyone nearby when key switch is on and machine is in reverse gear. For information on how to enable/disable alarm, see Transmission Advanced Settings in this Operator's Manual section.

Adjust Volume



RXA0171844—UN—31OCT19

Volume can be adjusted using switch (A) on back of alarm.

Volume settings:

- High (left-hand position)
- Low (middle position)
- Medium (right-hand position)

AK08008,00004B9-19-25MAR20

Access Transmission Advanced Settings

Access Through Display:



Menu

RXA0167075—UN—20MAR19

1. Menu



Machine Settings

RXA0167076—UN—20MAR19

2. Machine Settings tab



Transmission

RXA0167077—UN—20MAR19

3. Transmission



Advanced Settings

RXA0167071—UN—21MAR19

4. Advanced Settings

Access Through Navigation Bar:



Transmission

RXA0167078—UN—20MAR19

1. Press transmission button on navigation bar below display.



Advanced Settings

RXA0167071—UN—21MAR19

2. Select advanced settings.

AK08008,0000050-19-15NOV19

Transmission Advanced Settings

Advanced Settings allows you to access further adjustments and less common settings.

NOTE: Some items only display if machine is equipped with the associated option.

Items Accessible on Advanced Settings Page:



Selection Box

RXA0167133—UN—21MAR19

True Ground Speed Input — allows you to choose either Radar or GPS as your ground speed source. Touch selection box to display selection list. If speed source is changed, perform radar calibration, then slip calibration. For information on calibrations, see Radar

Calibrations and Slip Calibrations in CommandCenter™ section of this Operator's Manual.

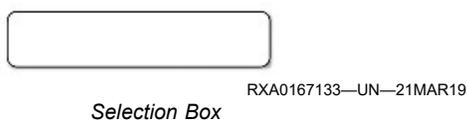


NOTE: *IVT™ without CommandPRO™ joystick and e23™ only.*

AutoClutch Sensitivity — allows you to select OFF (to disable) or select the level of sensitivity for AutoClutch. If set to OFF and key is cycled, setting reverts to last LOW, MED, or HIGH setting.

Sensitivity levels:

- LOW - recommended for driving in extremely hilly terrain with implements (drawn or attached), particularly if driving conditions are slippery.
- MED - recommended for driving in moderately hilly terrain with implements (drawn or attached).
- HIGH - recommended for driving without an implement or with an implement in flat terrain.



Start Gears — choose which gear transmission starts in. Touch selection box next to desired setting to be adjusted. A gear list displays. Select desired gear from list.

Options displayed depend on transmission:



Forward Start Gear
RXA0172259—UN—18NOV19

- Some transmissions have a setting for a forward start gear.



Reverse Start Gear
RXA0172260—UN—18NOV19

- Some transmissions have a setting for a reverse start gear.



Multiple Start Gears
RXA0172261—UN—18NOV19

- Some transmissions have settings for multiple forward start gears.



Selection Box
RXA0167136—UN—22MAR19

Reverse/Forward Ratio — select the ratio for reverse and forward Set Speeds. Reverse Set Speed will automatically set to forward Set Speed times selected setting. For example, if Fx0.3 is selected, reverse Set Speed will be 30% of what forward Set Speed is set to. If set to Independent, reverse and forward Set Speeds function independent of each other and are set separately. Maximum reverse speed is 20 km/h (12 mph) regardless of ratio.



ON/OFF
RXA0167187—UN—22MAR19

Backup Alarm (If Equipped) — select ON to enable or OFF to disable alarm that sounds when in reverse. See Backup Alarm in this Operator's Manual section.



AUTO MFWD Toggle
RXA0167137—UN—22MAR19

NOTE: *Machines configured with Mechanical Front-Wheel Drive only.*

AUTO MFWD — MFWD disengages to enable tighter turning radius or to reduce ground disturbance in area of turn. Select desired steering angle to disengage MFWD or disable by selecting OFF. Disabling steering angle to disengage MFWD switches MFWD into AUTO mode. See Mechanical Front-Wheel Drive (MFWD) in Drivetrain section of this Operator's Manual.



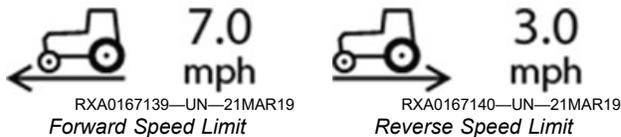
AUTO Diff Lock Example
RXA0167138—UN—22MAR19

*NOTE: Machines configured with Differential Lock only.
Options displayed depend on machine.*

AUTO Diff Lock — higher disengage steering angles require operator to turn steering wheel further before differential lock disengages. Use in high slip field conditions that require large steering corrections to maintain desired path. Differential lock remains engaged while making steering corrections across field but automatically disengages on headland turns. Select desired steering angle to disengage differential lock.

- Moderate disengage steering angles are useful in loader situations. Differential lock remains engaged when entering into a pile, but quickly disengages while turning.
- Lower disengage steering angles allow differential lock to disengage sooner (less movement of the steering wheel), which is useful in high traction conditions (example: paved surface). Differential lock remains engaged during straight-line work, while minimizing tractor jerk when disengaged or re-engaged during turns.

See Differential Lock in Drivetrain section of this Operator's Manual.



NOTE: Machines equipped with CommandPRO™ joystick only.

Speed Limits — adjust maximum allowed speed in both forward and reverse directions. See CommandPRO™ Transmission Settings—Speed Limits in IVT™-AutoPowr™ Transmission with CommandPRO™ Joystick section of this Operator's Manual.

AK08008,00004BB-19-16JUN20

e18™ PowerShift™ Transmission

Operate Transmission—e18™

IMPORTANT: Avoid machine damage from overspeed. If overspeed occurs, a diagnostic trouble code (DTC) appears, indicating transmission speed is extremely high and should be reduced. For more information on DTCs, see Troubleshooting—Diagnostic Trouble Codes (DTC) section of this Operator's Manual.

IMPORTANT: Prevent transmission or clutch damage:

- Never depress clutch pedal while tractor is rolling downhill or coasting. Overspeed can cause serious damage to transmission.
- Never attempt to start tractor by towing or pushing.
- Shift lever can be moved to PARK position at any time. However, park brake will not engage until ground speed is below 1.75 km/h (1.0 mph).
- Avoid excessive ballast.
- Avoid continuous operation under full throttle and full load conditions below 1800 rpm.
- Fully depress clutch pedal to completely disengage clutch.

CAUTION: Avoid possible injury from losing control of tractor while operating on a downhill slope. Observe following precautions:

- Select Manual mode on CommandCenter™ Transmission page.
- Adjust Set Speed to safe downhill operating speed.
- Do not make major speed reductions with right-hand reverser.

NOTE: When machine load is causing below idle speed:

- Transmission can default to NEUTRAL for power train protection.
- Park brake engages when wheel speed drops below 1.75 km/h (1.0 mph).
- Diagnostic trouble code displays.

To re-engage transmission, move lever to PARK, reduce load, and shift into desired operating gear.

NOTE: Operator presence sensor prevents initiation of movement with operator out of seat. See Operator Presence Sensor in Seats section of this Operator's Manual.



Speed Adjustment Wheel
RXA0171366—UN—10OCT19

Speed Adjustment Wheel — turn wheel clockwise to increase or counterclockwise to decrease speed.



Right-Hand Reverser
RXA0171324—UN—10OCT19

NOTE: The engine will start with the shift lever in any position. However, the tractor will not move until the lever is moved into and out of NEUTRAL or PARK.

Right-Hand Reverser — lever on CommandARM™ used to shift transmission. For information on shifting, see Shift Transmission—e18™ in this Operator's Manual section.

With right-hand reverser:

- Transmission can be shifted into forward or reverse without use of clutch pedal.
- Clutch pedal is used when selecting forward or reverse for more precise movement (such as connecting implements).
- Gear information displays on corner post display. See Corner Post Display in Corner Post Display section of this Operator's Manual.
- Bump the lever (move and release) to increase (+) or decrease (-) forward and reverse gears.

KD34109.000055F-19-21APR21

Shift Transmission—e18™

IMPORTANT: Avoid damage to park brake. Repeated engagement of park brake while machine is moving may damage the park brake. Shift lever can be moved to PARK position at any time. However, park brake will not engage until ground speed is below 1.75 km/h (1.0 mph).

Command Gears:

NOTE: Optimum engine speed is 1800—2200 rpm in full load conditions. Using higher gear and lower engine speed for light load operation saves fuel and reduces wear.

Each time transmission is placed in forward or reverse, transmission starts in commanded gear when clutch pedal is released. Commanded gear displays on corner post display. Commanded gear temporarily changes to the last gear used when shuttling between forward and reverse or shifting from gear to NEUTRAL.

Startup commanded gear defaults are 7F and 2R. To change startup gears, see Transmission Advanced Settings in Transmission—General Information section of this Operator's Manual.

Manually Preselect Gears:

- Forward — depress clutch pedal, put reverser lever in forward position, and bump gear up or down until desired command gear (between F1 and F13) displays.
- Reverse — depress clutch pedal, put reverser lever in reverse position, and bump gear up or down until desired command gear (between R1 and R5) displays.

Cold Weather Starting:

When temperature is -10°C (14°F) or lower, it can take up to 1 minute to release the park brake and shift transmission lever in gear (with operator in the seat). Several shifts between PARK and NEUTRAL can be required to release park brake in extremely cold conditions.

When temperature is above -10°C (14°F), it can take up to 3 seconds to release park brake with operator in seat.

When reverser lever is moved to NEUTRAL, corner post display shows N for 3 seconds. If park brake does not release, N changes back to P. Move reverser lever back to PARK, then back to NEUTRAL until N displays for more than 3 seconds.

Transmission will not shift above F13 until normal operating temperature has been reached. Delayed shift, slow hydraulic operation, hard steering, and limited engine rpm can also be noticeable until operating temperature is obtained.

Transport Shift:

When tractor is in light load condition, transmission can shift faster by rapidly bumping lever until desired transport speed is reached. To reach transport speed quickly from a stop, depress clutch and bump lever to desired gear. When clutch pedal is released, transmission shifts directly to selected gear.

Shuttle Shift (Direction Change):

Move reverser lever between forward and reverse positions to modulate directly to opposite direction of travel without clutching or braking. Shuttle shift occurs between last commanded forward and reverse gears.

Ground Speed Matching:

CAUTION: Avoid possible accident and injury from loss of vehicle control. Never allow machine to coast downhill.

NOTE: Custom and Full AUTO modes only.

If clutch pedal is released while machine is traveling above default startup gear speed, transmission automatically shifts gears to match speed. However, if clutch pedal is released while machine is traveling below default startup gear speed, transmission will stay at startup gear, even if machine stops.

Right-Hand Reverser Positions:

PARK Position

RXA0171316—UN—10OCT19

PARK — park brake is applied when lever is placed in position next to P.



NEUTRAL Position

RXA0171315—UN—10OCT19

NEUTRAL — park brake releases when lever is placed anywhere in right-hand gate.



RXA0171317—UN—10OCT19

Reverse Position

Reverse — machine moves in reverse when placed in gate labeled with an R.



RXA0171314—UN—10OCT19

Forward Position

Forward — machine moves forward when placed in gate labeled with an F.

KD34109,0000560-19-16APR21

e18™ Set Speeds and Efficiency Manager™

Efficiency Manager™:

- Controls transmission gearshift and engine speed to maintain desired ground speed (Set Speed).
- Will not shift gears if clutch pedal is partially depressed.
- Selects startup gear and may reduce engine speed if clutch pedal is fully depressed and machine is stationary.
- Selects startup gear speed if clutch pedal is fully depressed and machine is moving below startup gear speed.
- Selects a gear and engine speed to match ground speed if clutch pedal is fully depressed and machine is moving above startup gear speed.
- Selects startup gear when shifting from NEUTRAL or PARK to gear.
- Is always running when in Full AUTO and Custom modes.
- Runs in Manual mode when Set Speed buttons are active.

Engine throttle should be fully forward for maximum rpm:

- To reach Set Speeds.
- In high load applications.

Shift decisions are based on load conditions, throttle command, and operator settings. However, transmission may shift gears if hand throttle or speed control pedal are adjusted.

NOTE: Efficiency Manager™ Set Speeds can be programmed in iTEC™ application. See Intelligent Total Equipment Control (iTEC™) section of this Operator's Manual.



RXA0171325—UN—10OCT19

Set Speed 1 Button

Set Speed 1 Button — select to activate Set Speed one. Select again to disengage.



RXA0171326—UN—10OCT19

Set Speed 2 Button

Set Speed 2 Button — select to activate Set Speed two. Select again to disengage.



RXA0171366—UN—10OCT19

Speed Adjustment Wheel

Speed Adjustment Wheel — while Set Speed is active, turn wheel clockwise to increase or counterclockwise to decrease setting.

In Full AUTO and Custom Modes:

- It is recommended that the hand throttle is placed in full forward position at all times.
- On corner post display, Set Speed value and automatic shifting indicator always display. However, Set Speed number displays only when Set Speed is active. See Corner Post Display in Corner Post Display section of this Operator's Manual.
- Bumping right-hand reverser or drive lever increases Set Speed value. However, Set Speed disengages, and adjusted speed is not stored.

In Manual Mode:

- On corner post display, automatic shifting indicator and Set Speed information display only when Set Speeds are active. See Corner Post Display in Corner Post Display section of this Operator's Manual.
- Bumping right-hand reverser or drive lever disengages Set Speed.

KD34109,0000561-19-22NOV19

e18™ Transmission Settings—Access

Access Application Through Display:



Menu

RXA0167075—UN—20MAR19

1. Menu



Machine Settings

RXA0167076—UN—20MAR19

2. Machine Settings tab



Transmission

RXA0167077—UN—20MAR19

3. Transmission

Access Application Through Navigation Bar:



Transmission

RXA0167078—UN—20MAR19

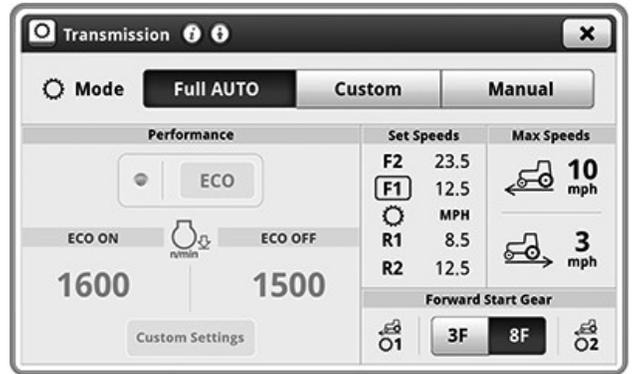
Press transmission button on navigation bar below display.

KD34109,0000562-19-21OCT19

e18™ Transmission Settings

Transmission application is used to display transmission information and adjust settings.

NOTE: Some items only display if machine is equipped with the associated option.



Transmission

RXA0171369—UN—17OCT19

Items Accessible on e18™ Transmission Main Page:



Transmission Mode

RXA0171377—UN—14OCT19

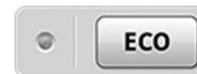
Mode — select desired transmission mode. See e18™ Transmission Settings—Mode in this Operator's Manual section.



Custom Settings

RXA0171389—UN—11OCT19

Custom Settings — adjust engine power settings for PTO, hitch, and SCV. See e18™ Transmission Settings—Custom in this Operator's Manual section.

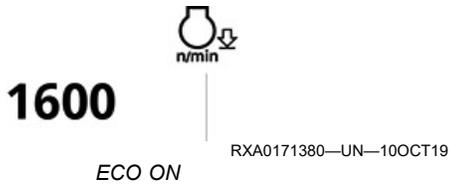


ECO

RXA0171378—UN—10OCT19

NOTE: Only available in Custom mode.

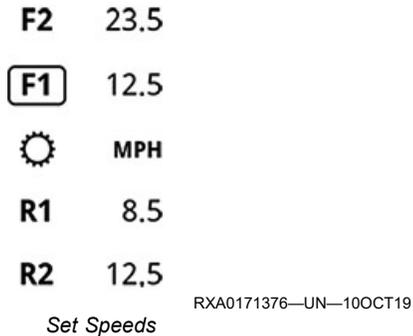
Performance — select ECO to enable/disable reduced fuel consumption for light loads. Indicator is illuminated orange when enabled. For ECO button information, see CommandARM™ Controls—Left Side in CommandARM™ Controls section of this Operator's Manual.



ECO ON — adjust Minimum Engine Speed setting when ECO is enabled. See e18™ Transmission Settings—ECO in this Operator's Manual section.



ECO OFF — adjust Minimum Engine Speed setting when ECO is disabled. See e18™ Transmission Settings—ECO in this Operator's Manual section.



Set Speeds — displays current forward and reverse Set Speeds. A box displays around active Set Speed. See e18™ Set Speeds and Efficiency Manager™ in this Operator's Manual section.



Forward Max Speed — adjust setting for maximum speed in forward gear. See e18™ Transmission Settings—Max Speeds in this Operator's Manual section.



Reverse Max Speed — adjust setting for maximum speed in reverse gear. See e18™ Transmission Settings—Max Speeds in this Operator's Manual section.



Forward Start Gear — toggle between selected forward start gears 1 or 2. Gears are selected in Advanced Settings.

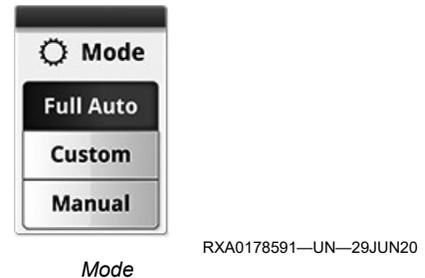


Advanced Settings — access further adjustments and less common settings. See Transmission Advanced Settings in Transmission—General Information section of this Operator's Manual.

Run Page Modules

Add modules for this application to run pages using Layout Manager. See the Generation 4 Display operator's manual.

Example:



NOTE: Different modules may be available for your application.

Mode — quick access to adjust the Transmission Mode.

Shortcut Keys

Add shortcut keys for this application to the shortcut bar using Layout Manager. See the Generation 4 Display operator's manual.

Example:



NOTE: Different shortcut keys may be available for your application.

Backup Alarm — quick access to enable/disable the Backup Alarm.

KD34109,0000563-19-16APR21

e18™ Transmission Settings—Mode



Full AUTO

RXA0171357—UN—10OCT19

Full AUTO Mode

Full AUTO — adjusts Minimum Engine Speed automatically to maximize fuel economy under light loads. Load Anticipation responds to operation of rear hitch, SCVs, and PTOs. Engine speed Droop is maintained at maximum tractor power.



Custom

RXA0171356—UN—10OCT19

Custom Mode

Custom — customize settings for engine speed Droop, Minimum Engine Speed, and Load Anticipation reaction. See e18™ Transmission Settings—Custom in this Operator's Manual section.



Manual

RXA0171358—UN—10OCT19

Manual Mode

Manual — all fuel economy and load control functions are manual.

KD34109,0000564-19-13NOV19

e18™ Transmission Settings—Custom

Custom Settings are only available when transmission mode is set to Custom. See e18™ Transmission Settings—Mode in this Operator's Manual section. Settings allow for increased efficiency depending on current operation.

NOTE: Some items only display if machine is equipped with the associated option.

Procedure to modify:



RXA0167122—UN—25MAR19
PTO On



RXA0167123—UN—25MAR19
PTO Off

Droop — percentage of maximum engine rpm change before transmission shifts down. See e18™

Transmission Settings—Droop in this Operator's Manual section.



PTO ON/OFF

RXA0167125—UN—21MAR19

Load Anticipation (PTO) — when enabled and PTO is in use, engine speed increases to obtain the desired PTO speed. Select ON to enable or OFF to disable.



Hitch ON/OFF

RXA0167126—UN—21MAR19

Load Anticipation (Hitch) — when enabled and hitch is lowered, engine speed increases as needed to reduce ground speed fluctuations. Select ON to enable or OFF to disable.



SCV ON/OFF

RXA0167127—UN—21MAR19

Load Anticipation (SCV) — when enabled, engages if flow rate is 25% or greater and/or SCV is set to continuous time detent. Engine speed increases as needed to reduce ground speed fluctuations or to provide desired hydraulic flow. Select ON to enable or OFF to disable.



Close

RXA0167129—UN—25MAR19

Select to close.

KD34109,0000565-19-18FEB20

e18™ Transmission Settings—Droop

Adjust percentage of engine rpm drop before transmission downshifts. Lower percentage causes transmission downshifts earlier and to shift more. Higher percentage causes transmission downshifts later and to shift less.

NOTE: PTO On adjustments do not affect transmission operation for machines without PTO.

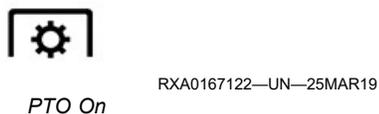
PTO On — use when operating PTO driven equipment to maintain a consistent rpm. Selection results in reduced rpm change before a transmission downshift.

PTO Off — use for implements that do not require a

consistent rpm range, such as pulling ground engaging equipment.

Procedure to Modify:

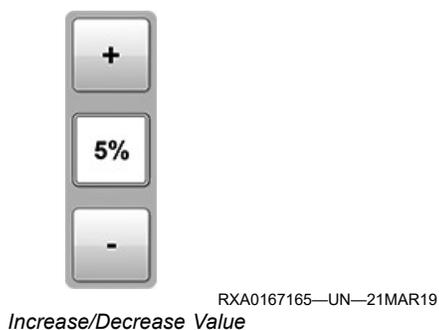
1. Select desired setting icon:



a. PTO On



b. PTO Off



2. Select (+) to increase or (-) to decrease value.



3. Select to close.

KD34109,0000566-19-20NOV19

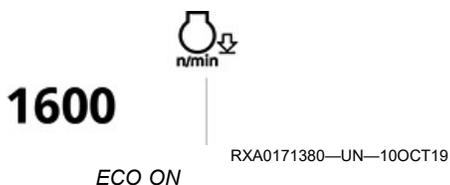
e18™ Transmission Settings—ECO

ECO ON — adjust Minimum Engine Speed setting when ECO is enabled.

ECO OFF — adjust Minimum Engine Speed setting when ECO is disabled.

Procedure to Modify:

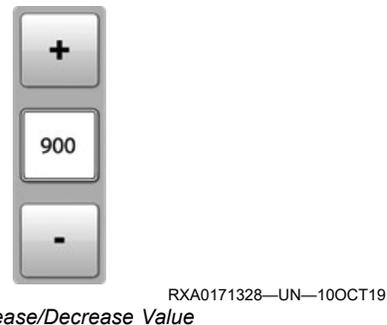
1. Select desired setting:



a. ECO ON



b. ECO OFF



2. Select (+) to increase or (-) to decrease value.



3. Select to close.

KD34109,0000567-19-30OCT19

e18™ Transmission Settings—Max Speeds

Adjust settings for maximum speed in forward and reverse gears. Set Speed setting cannot exceed this setting and will automatically adjust accordingly.

Procedure to Modify:

1. Select desired setting icon:



a. Forward Max Speed



b. Reverse Max Speed



RXA0171354—UN—10OCT19

Increase/Decrease Value

2. Select (+) to increase or (-) to decrease value.



RXA0167129—UN—25MAR19

Close

3. Select to close.

KD34109,0000568-19-13NOV19

PTO [Ag], Hitch [Ag], and Drawbar

Scraper Tractor Drawbar [Scraper]

Scraper tractors are only equipped with a drawbar. There is no hitch or PTO option for a scraper tractor.

AK08008,000005C-19-15NOV19

Attach PTO-Driven Implement [Ag]

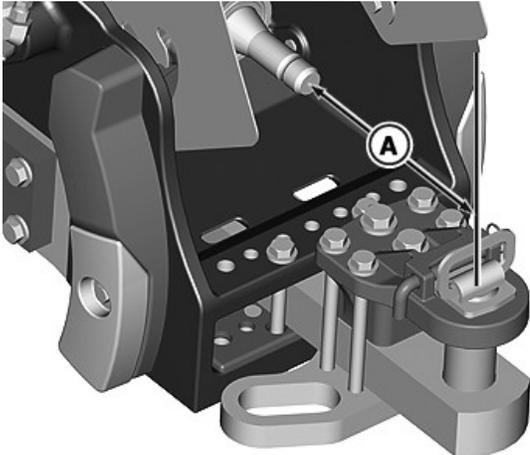


TS1644—UN—22AUG95

⚠ CAUTION: Entanglement in rotating driveline can cause serious injury or death.

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

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



RXA0142225—UN—09JUN14

PTO Shaft	PTO Shaft End to Hitch Pin Hole (A) mm (in)
1000 rpm - 20 Splines ^a	508 (20)

^a45 mm (1-3/4 in) Shaft Diameter

1. Lock drawbar in center position.
2. Remove clevis assembly.

3. Attach implement to drawbar before connecting PTO driveline. If implement will be connected to quick-hitch, be sure drawbar will not interfere.
4. Connect drive line to PTO shaft. Turn shaft slightly by hand to line up splines. Be sure yoke is in correct position and firmly locked.
5. Move PTO shield into position for PTO shaft size being used

AK08008,000005D-19-15NOV19

PTO - General Information [Ag]

PTO Settings—Access

Access Application Through Display:



Menu

RXA0167075—UN—20MAR19

1. Menu



Machine Settings

RXA0167076—UN—20MAR19

2. Machine Settings



PTO

RXA0167685—UN—30APR19

3. PTO

Access Application Through Navigation Bar:



PTO

RXA0167686—UN—30APR19

Press PTO button on navigation bar below display.

AK08008,00004C8-19-15NOV19

PTO Settings

The PTO application is used to access and adjust PTO settings.

NOTE: Some items are only displayed if machine is equipped with the associated option.



RXA0169840—UN—06AUG19

PTO Example

Items Accessible on PTO Main Page:

0



Front PTO

RXA0167687—UN—30APR19

Front PTO (If Equipped) — view current speed of front PTO. Operate PTO using front PTO lever and correct engine speed. See Operate PTOs in this Operator's Manual section.

0



Rear PTO

RXA0167688—UN—30APR19

Rear PTO — view current speed of rear PTO. Operate PTO using rear PTO lever and correct engine speed. See Operate PTOs in this Operator's Manual section.

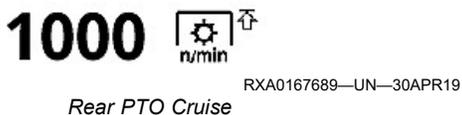


ON/OFF

RXA0167628—UN—26APR19

NOTE: To allow override of shutdown when operator is out of seat, toggle displays even if machine is not equipped with external PTO switches.

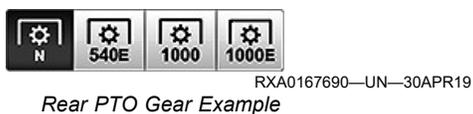
Remote PTO Toggle — select ON to enable or OFF to disable external PTO switches (if equipped). See External PTO Switches (If Equipped) in this Operator's Manual section.



Rear PTO Cruise Speed — adjust speed of rear PTO at maximum throttle. See PTO Settings—Rear PTO Cruise in this Operator’s Manual section.



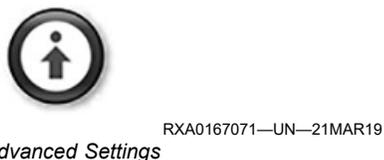
Rear PTO Cruise Toggle — select ON to enable or OFF to disable Rear PTO Cruise Speed setting.



IMPORTANT: Incorrect PTO speed could result in severe damage to implement. Before engaging PTO, make sure that selected PTO gear is correct for attached implement.

NOTE: Gears displayed vary by machine.

Rear PTO Gear — select rear PTO gear for current operation.



Advanced Settings — access further adjustments and less common settings. See PTO Settings—Advanced in this Operator’s Manual section.

Run Page Modules

Add modules for this application to run pages using Layout Manager. See the Generation 4 Display operator’s manual.

Example:



NOTE: Different modules may be available for your application.

PTO Remote — quick access to enable/disable external PTO switches.

Shortcut Keys

Add shortcut keys for this application to the shortcut bar using Layout Manager. See the Generation 4 Display operator’s manual.

Example:



NOTE: Different shortcut keys may be available for your application.

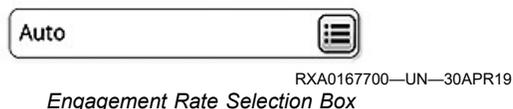
PTO Gear — quick access to enable/disable PTO gear.

AK08008,00004C9-19-16JUN20

PTO Settings—Advanced

Advanced settings allows you to access further adjustments and less common settings.

Items Accessible on Advanced Settings Page:



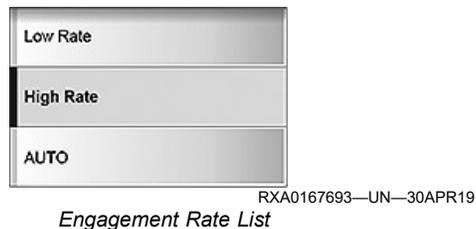
PTO Engagement Rate — select Rear or Front (if equipped) PTO Engagement Rate selection box to adjust rate at which PTO engages. See PTO Settings—Engagement Rate in this Operator’s Manual section.

AK08008,00004CA-19-15NOV19

PTO Settings—Engagement Rate

PTO Engagement Rate page allows you to adjust the rate at which the PTO engages.

Procedure to Modify:



Select best rate for current operation.

- Low Rate is used when gradual PTO start-up is

required or if AUTO engagement is too aggressive or inconsistent.

- High Rate is used for applications where PTO clutch engagement must be aggressive.

IMPORTANT: Avoid power train damage. If operator is experiencing problems with PTO clutch engagement in AUTO setting, change setting to High Rate.

- AUTO is used for most implements and is factory setting in CommandCenter™. This setting provides software logic to determine engagement rate for PTO clutch, based on PTO speed sensor feedback. If PTO does not turn fast enough during initial PTO clutch engagement, engagement rate is automatically increased to avoid clutch slip and PTO shutdown.



RXA0167694—UN—30APR19

OK

Select OK to exit and save changes.



RXA0167695—UN—30APR19

Cancel

Select Cancel to exit without saving changes.

AK08008,00004CB-19-15NOV19

PTO Settings—Rear PTO Cruise

Rear PTO Cruise allows you to adjust speed of rear PTO at maximum throttle. When enabled, engine speed is also limited in relation to PTO speed. If max engine speed is also enabled, lower limit applies.

NOTE: Only available on machines equipped with an electronic shift PTO.

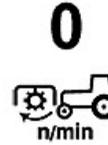
Procedure to Modify:



RXA0167699—UN—30APR19

Adjust Rear PTO Cruise

Select (+) to increase or (-) to decrease setting. Value is shown in display box.



RXA0167687—UN—30APR19

Front PTO Speed

View current front PTO speed (if equipped).



RXA0167688—UN—30APR19

Rear PTO Speed

View current rear PTO speed.



RXA0167129—UN—25MAR19

Close

Select to close.

AK08008,00004CC-19-15NOV19

PTO Settings—Auto Disengage

PTO Auto Disengage allows operator easy access to enable remote PTO switches when leaving the seat. When operator leaves seat, page displays, an audible warning sounds, and service alert indicator on corner post display flashes. If page is ignored, PTO will automatically disengage after 7 seconds.

NOTE: Page does not display if Enable PTO Remote is already turned ON.

Procedure to Modify:



RXA0167701—UN—30APR19

Enable PTO Remote

Select Enable PTO Remote to enable external PTO switches after exiting seat.



Close

RXA0167129—UN—25MAR19

Select close to allow PTO to disengage.

AK08008,00004CD-19-10JUL20

Operate PTOs

PTOs are engaged using CommandARM™ PTO control levers. See CommandARM™ PTO Control Lever in CommandARM™ Controls section of this Operator's Manual. Once engaged for use with machine in motion, use correct engine speed listed in this Operator's Manual.

CAUTION: Avoid personal injury. Stop engine and PTO driveline before adjustment or connections are made, or before cleaning PTO-driven equipment. Always disengage PTO when not in use.

IMPORTANT: Avoid PTO clutch damage. If operating PTO with excessive load, PTO automatically disengages. Wait 15 seconds before attempting to re-engage. If problem occurs during re-engagement, try decreasing PTO speed.

If PTO disengages during start-up in cold-weather operation, wait 5 minutes before re-engaging.

Stationary operation allowed if:

- Wheel speed is less than 0.5 km/h (0.3 mph).

Stationary operation not allowed if:

- Wheel speed is greater than 0.5 km/h (0.3 mph).
- Operator leaves seat for 7 or more seconds, unless using external PTO switches (if equipped). If operator leaves seat and Remote PTO is disabled, PTO Auto Disengage page displays. See PTO Settings—Auto Disengage in this Operator's Manual section.

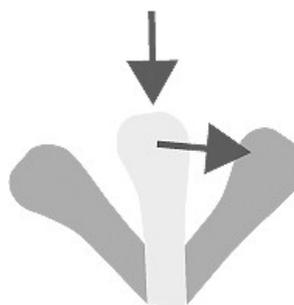
NOTE: PTO automatically disengages if:

- Clutch slip is greater than 40% for more than 1 second.

For information on corner post display indicators, see Corner Post Display in Corner Post Display section of this Operator's Manual.

NOTE: If engine is stopped while PTO is running, PTO will not operate when engine is restarted. Disengage and then re-engage PTO lever.

Lever Adjustments:



Engage PTO

RXA0167697—UN—30APR19

Push lever down and forward to engage PTO. Lever will return to center.



Disengage PTO

RXA0167696—UN—30APR19

Pull lever back to disengage PTO. Lever will return to center.

AK08008,00004CE-19-10JUL20

External PTO Switches (If Equipped)

External PTO switches allow you to operate PTOs from outside the cab. Front PTO external switches are on the front of the machine. Rear PTO external switches are on the rear of the machine.

Procedure to Modify:



ON/OFF

RXA0167628—UN—26APR19

1. Select ON to enable remote PTO switches on PTO main page (an audible warning sounds and hazard warning lights flash).



Remote PTO Switch

RXA0167698—UN—30APR19

2. Press and hold remote PTO switch. PTO starts slowly.

NOTE: If equipped with front and rear PTO and only one PTO is started with the remote PTO switch, hazard warning sound/lights continue. Enabling external PTO switches enables both front and rear PTO and the system recognizes that one of the PTOs has not started.

- If held for at least 4 seconds, hazard warning sound/lights turn off and PTO continues to operate.
- If released within 4 seconds, PTO slowly stops and hazard warning sound/lights continue.

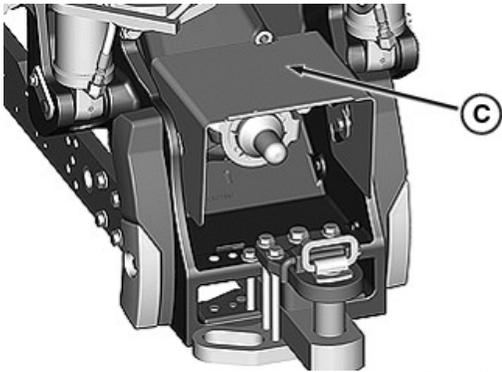
To turn off PTO, press remote PTO switch (an audible warning sounds and hazard warning lights flash) or pull back PTO control lever inside cab.

To return PTO control lever back to normal function, disable remote PTO.

AK08008,00004CF-19-05MAY20

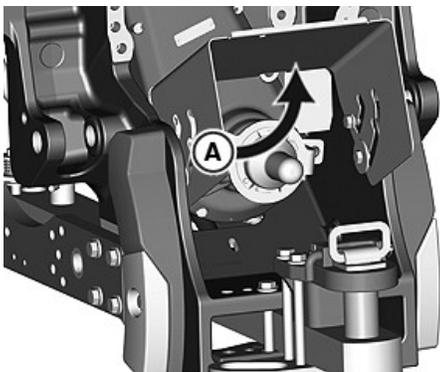
Rear PTO [Ag]

Use PTO Master Shield (If Equipped)



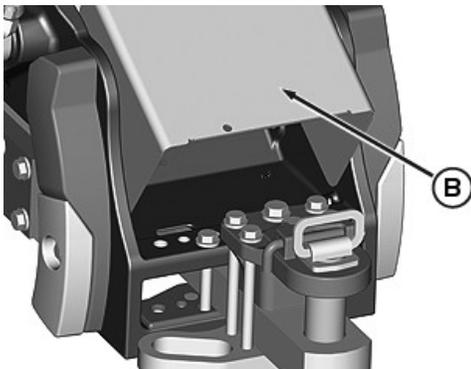
RXA0142441—UN—11JUN14
PTO Master Shield (Standard Position)

CAUTION: Avoid possible injury. Tractor master shield should be in place at all times except for special applications as directed in the implement operator's manual. Do not use shield as a step.



RXA0142439—UN—11JUN14

Master shield can be tipped up in raised position (A) to provide clearance while connecting PTO shaft. **DO NOT** operate PTO with shield in raised position.



RXA0142440—UN—11JUN14

Master shield can be lowered (B) to improve drawbar visibility, when drawbar is being used without PTO.

AK08008,0000066-19-15NOV19

PTO Engine Speed



RXA0153163—UN—04AUG16
Corner Post Display

A—Tachometer
B—PTO Indicator

Correct engine speed is very important. Run engine at 1895 engine rpm for 1000 rpm PTO speed operation with 45 mm (1-3/4 in) 20 spline shaft.

AK08008,0000067-19-15NOV19

Rear Hitch [Ag]

Rear Hitch Settings—Access Access Application Through Display:



Menu

RXA0167075—UN—20MAR19

1. Menu



Machine Settings

RXA0167076—UN—20MAR19

2. Machine Settings tab



Rear Hitch

RXA0169204—UN—26JUN19

3. Rear Hitch

Access Application Through Navigation Bar:



Rear Hitch

RXA0169205—UN—26JUN19

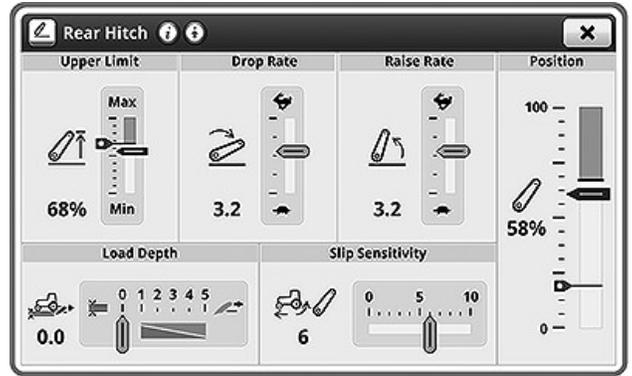
Press rear hitch button on navigation bar below display.

AK08008,0000068-19-15NOV19

Rear Hitch Settings

Rear Hitch application is used to access and adjust rear hitch settings.

NOTE: Some items are only displayed if machine is equipped with the associated option.



RXA0169346—UN—27JUN19

Rear Hitch Example

Items Accessible on Rear Hitch Main Page:



Upper Limit

RXA0169206—UN—25JUN19

Upper Limit — upper set point that cannot be exceeded unless using external switches. See Rear Hitch Settings—Upper Limit in this Operator's Manual section.



Drop Rate

RXA0169207—UN—25JUN19

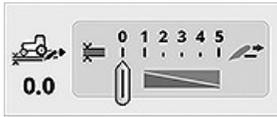
Drop Rate — speed at which the rear hitch is lowered. See Rear Hitch Settings—Drop Rate in this Operator's Manual section.



Raise Rate

RXA0169208—UN—25JUN19

Raise Rate — speed at which the rear hitch is raised. See Rear Hitch Settings—Raise Rate in this Operator's Manual section.



Load Depth

RXA0169209—UN—26JUN19

Load Depth — sensitivity to changing terrain or soil conditions. See Rear Hitch Settings—Load Depth in this Operator's Manual section.

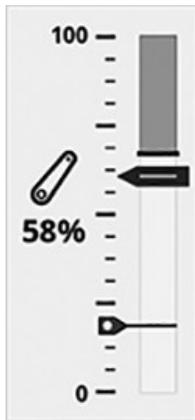


Slip Sensitivity

RXA0169210—UN—26JUN19

NOTE: Only available if equipped with radar and Load Depth is set to draft control mode.

Slip Sensitivity — how much the hitch reacts to wheel slip. See Rear Hitch Settings—Slip Sensitivity in this Operator's Manual section.



Position

RXA0169211—UN—25JUN19

Position — displays information for current rear hitch settings. See Rear Hitch Settings—Position in this Operator's Manual section. For hitch position adjustments, see Hitch Control Lever Adjustments in this Operator's Manual section.



Advanced Settings

RXA0167071—UN—21MAR19

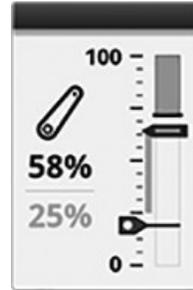
Advanced Settings — access further adjustments and

less common settings. See Rear Hitch Settings—Advanced in this Operator's Manual section.

Run Page Modules

Add modules for this application to run pages using Layout Manager. See the Generation 4 Display operator's manual.

Example:



Position

RXA0169212—UN—25JUN19

NOTE: Different modules may be available for your application.

Position — quick access to position module.

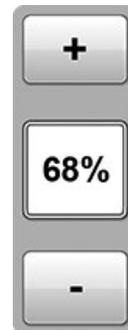
AK08008,00004D5-19-16JUN20

Rear Hitch Settings—Upper Limit

Upper Limit page allows you to adjust Upper Limit setting and view current hitch settings. Rear hitch will only move above Upper Limit setting using external switches.

NOTE: Fully down position is 0% and fully raised position is 100%.

Procedure to Modify:



Adjust Upper Limit

RXA0169139—UN—25JUN19

Select (+) to increase or (-) to decrease Upper Limit set point. Value is shown in display box.



Position Indicator

RXA0169140—UN—25JUN19

Indicates current position of rear hitch on slider.



Upper Limit Indicator

RXA0169141—UN—25JUN19

Indicates position of Upper Limit on slider.



Close

RXA0167129—UN—25MAR19

Select to close.

Alternative Method to Modify:

Upper Limit Hitch Dial (If Equipped) — dial on CommandARM™ to adjust Upper Limit setting. A drop-down will display on CommandCenter™ to view adjustment. See CommandARM™ Hitch Controls in CommandARM™ Controls section of this Operator's Manual.

AK08008,000006A-19-15NOV19

Rear Hitch Settings—Drop Rate

Drop Rate page allows you to adjust the speed at which the rear hitch is dropped and view current hitch settings.

CAUTION: Avoid injury or machine damage. Do not lower implement too quickly. Fully lowering implement should take at least 2 seconds.

Procedure to Modify:



Adjust Drop Rate

RXA0169142—UN—25JUN19

Select (+) to increase or (-) to decrease Drop Rate. Value is shown in display box.



Drop Rate Indicator

RXA0169143—UN—25JUN19

Indicates setting on slider.



Close

RXA0167129—UN—25MAR19

Select to close.

Alternative Method to Modify:

Drop Rate Hitch Dial (If Equipped) — dial on CommandARM™ to adjust Drop Rate setting. A drop-down will display on CommandCenter™ to view adjustment. See CommandARM™ Hitch Controls in CommandARM™ Controls section of this Operator's Manual.

AK08008,000006B-19-15NOV19

Rear Hitch Settings—Raise Rate

Raise Rate page allows you to adjust the speed at which the rear hitch is raised and view current hitch settings.

Procedure to Modify:



Adjust Raise Rate

RXA0169142—UN—25JUN19

Select (+) to increase or (-) to decrease Raise Rate. Value is shown in display box.



Raise Rate Indicator

RXA0169143—UN—25JUN19

Indicates setting on slider.



Close

RXA0167129—UN—25MAR19

Select to close.

AK08008,000006C-19-15NOV19

Rear Hitch Settings—Load Depth

Load Depth control (draft response) allows control of movement of hitch while working. The higher the value, the larger the range of movement (more draft response). The lower the value, the smaller the range of movement (less draft response). Correct adjustment provides better control of implement depth and operating efficiency.

Procedure to Modify:



RXA0169213—UN—26JUN19
Adjust Load Depth

Select (+) to increase or (-) to decrease Load Depth setting. Value is shown in display box.

- For position control only, set Load Depth to 0.0. See Rear Hitch Settings—Position Control in this Operator's Manual section.
- Higher settings are used for draft control. See Rear Hitch Settings—Draft Control in this Operator's Manual section.



RXA0169214—UN—26JUN19
Load Depth Indicator

Indicates setting on slider.



RXA0167129—UN—25MAR19
Close

Select to close.

Alternative Method to Modify:

Load Depth Hitch Dial (If Equipped) — dial on CommandARM™ to adjust Load Depth setting. A drop-down will display on CommandCenter™ to view adjustment. See CommandARM™ Hitch Controls in CommandARM™ Controls section of this Operator's Manual.

AK08008,000006D-19-15NOV19

Rear Hitch Settings—Slip Sensitivity

Slip Sensitivity page allows you to adjust how much the hitch reacts to wheel slip. The higher the setting, the more the hitch reacts. Slip Sensitivity setting only adjusts hitch up and takes priority over draft control setting, which adjusts hitch down. See Rear Hitch Settings—Draft Control in this Operator's Manual

section. After wheel slip goes below slip setting, hitch will resume normal draft control. Appropriate setting depends on implement type, soil conditions, and tractor setup.

NOTE: Only available if equipped with radar and Load Depth is set to draft control mode.

Procedure to Modify:



RXA0169215—UN—26JUN19
Adjust Slip Sensitivity

Select (+) to increase or (-) to decrease setting. Value is shown in display box.



RXA0169214—UN—26JUN19
Slip Sensitivity Indicator

Indicates setting on slider.



RXA0167129—UN—25MAR19
Close

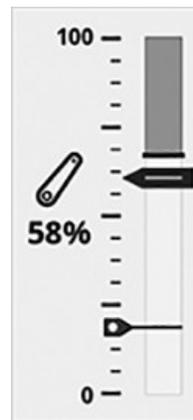
Select to close.

AK08008,000006E-19-15NOV19

Rear Hitch Settings—Position

Position allows you to view current rear hitch information.

Items Accessible on Position Module:



RXA0169211—UN—25JUN19
Position

Position Example — items may change based on status.



Upper Limit Setting

RXA0169222—UN—25JUN19

Upper Limit Setting — line indicates position of upper limit. Shaded area at the top indicates amount out of range (above upper limit).



Hitch Depth Indicator

RXA0169223—UN—26JUN19

Hitch Depth Indicator — indicates stored operating depth. See Hitch Depth Set Point in this Operator's Manual section.

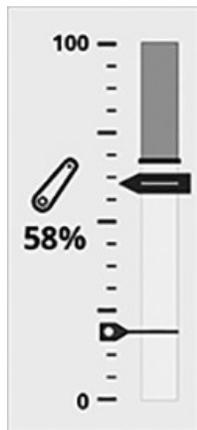


Position Indicator

RXA0169140—UN—25JUN19

Position Indicator — indicates current position of rear hitch on slider. Use hitch control lever or adjustment dial to adjust hitch position. See Hitch Control Lever Adjustments in this Operator's Manual section.

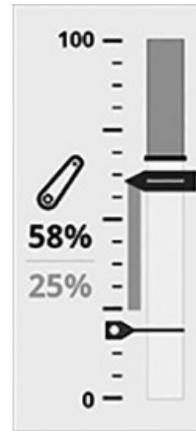
Rear Hitch Position Statuses:



At Rest

RXA0169224—UN—25JUN19

Hitch at rest.



Commanded to Position

RXA0169225—UN—25JUN19

Hitch commanded to 25% position. Green value is commanded position and green line indicates distance between current hitch position and commanded position.



Float

RXA0169226—UN—25JUN19

Hitch set to float position. Icon displays above current hitch position value.



Float Unavailable

RXA0169227—UN—25JUN19

Float unavailable. Icon displays above current hitch position value.



Locked

RXA0169149—UN—25JUN19

Hitch locked. Icon displays below current hitch position value. See CommandARM™ Hitch Controls in CommandARM™ Controls section of this Operator's Manual.



Lock Damping

RXA0169228—UN—25JUN19

Lock damping enabled. Icon displays below current hitch position value.



RXA0169229—UN—25JUN19

Return to Lower Set Point Unavailable

Return to lower set point unavailable. Icon displays below current hitch position value.



RXA0169230—UN—25JUN19

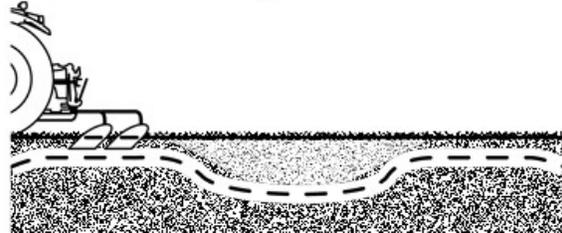
Fast Lower

Hitch set to fast lower. Icon displays below current hitch position value.

AK08008,000006F-19-15NOV19

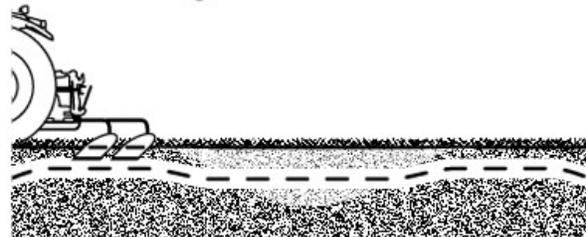
button or performing lower detent with control lever. See CommandARM™ Hitch Controls in CommandARM™ Controls section of this Operator's Manual.

Examples of Load Depth Settings:



RXA0163993—UN—18JUL18

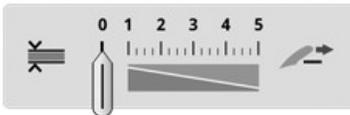
If soil varies, high value causes more depth variation.



RXA0163994—UN—18JUL18

If soil varies, middle value causes less depth variation.

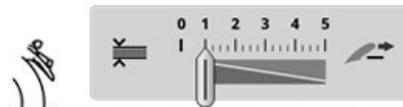
Rear Hitch Settings—Position Control



RXA0163992—UN—18JUL18

Use position control to operate non-ground engaging implements and implements that fully rest on gauge wheels to control depth. Set Load Depth to 0 for position control.

AK08008,0000070-19-15NOV19



RXA0163995—UN—18JUL18

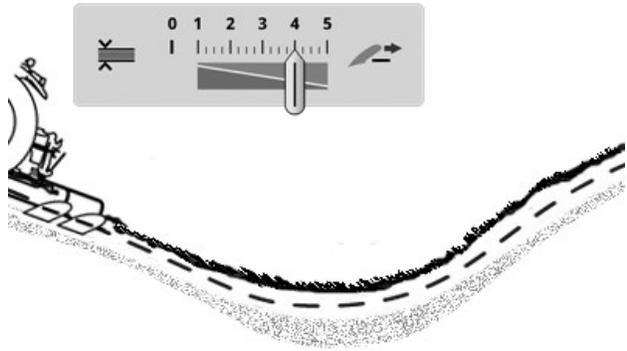
In rolling terrain, low value causes more depth variation.

Rear Hitch Settings—Draft Control

Draft control helps to maintain operating depth of non-floating tillage equipment in rolling terrain. Draft control also helps if tractor altitude/pitch and rear wheel sinkage force implement deeper than desired. Higher Load Depth values respond better to rolling terrain but are more sensitive to soil density variation. Lower values stay more consistent with field soil changes but are less responsive to hills. Ideal setting depends on implement type and field conditions.

While in draft control mode, hitch can move above and below setting based on soil type and/or terrain. If setting is causing implement to go lower than desired, set to 1 and increase Slip Sensitivity.

Control or change operating depth by pressing resume



RXA0163996—UN—18JUL18

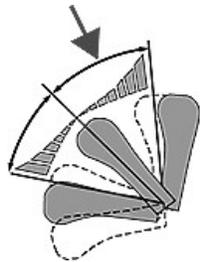
In rolling terrain, high value causes less depth variation.

AK08008,0000071-19-15NOV19

Hitch Control Lever Adjustments

Hitch control levers on the CommandARM™ allow you to adjust the hitch position. Levers will not raise hitch above upper limit.

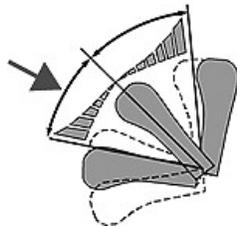
Hitch Control Lever Adjustments:



RXA0169216—UN—26JUN19

Raise Proportionally

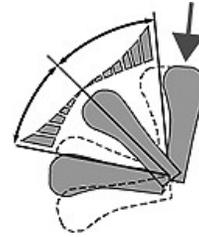
Raise Proportionally — moving lever within this range will raise hitch. Rate of movement depends on how far lever is from center position.



RXA0169217—UN—26JUN19

Lower Proportionally

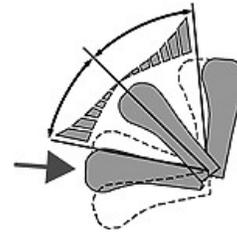
Lower Proportionally — moving lever within this range will lower hitch. Rate of movement depends on how far lever is from center position.



RXA0169218—UN—26JUN19

Raise Detent

Raise Detent — moving lever to this position and releasing will raise hitch to Upper Limit set point.

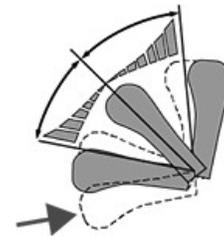


RXA0169219—UN—26JUN19

Lower Detent

NOTE: If machine is moving during this operation, hitch will also raise to lower set point.

Lower Detent — moving lever to this position and releasing will lower hitch to hitch depth set point. See Hitch Depth Set Point in this Operator's Manual section.



RXA0169220—UN—26JUN19

Float

Float — moving lever to this position allows hitch to move freely and is useful when detaching implement. See Float Operation in this Operator's Manual section.

Alternative Method to Modify:

Hitch Depth Adjust Dial — dial on CommandARM™ to raise and lower hitch. Dial will not raise hitch above Upper Limit. See CommandARM™ Hitch Controls in CommandARM™ Controls section of this Operator's Manual.

AK08008,0000072-19-15NOV19

Hitch Depth Set Point

Hitch depth set point (lower set point) is a frequently used operating depth that can be set and recalled. Controls used to adjust setting are found on CommandARM™.

Procedure to Modify:

1. Move hitch to desired position using hitch control lever or adjustment dial. See Hitch Control Lever Adjustments in this Operator’s Manual section.



SET

RXA0168026—UN—17MAY19

2. Select SET button to store set point.



Resume

RXA0168028—UN—17MAY19

NOTE: If hitch is below set point, resume will only engage if the tractor is moving.

3. Select resume button when wanting to return to set point position. Lower detent on control lever can also be used to recall set point.

AK08008,0000073-19-15NOV19

Float Operation

Implements that fully rest on depth gauge wheels for depth control require hitch to float following ground contour.

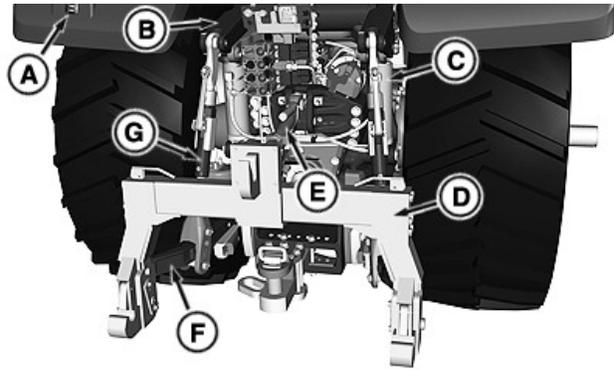
Put hitch control lever in float position. Lift links can be adjusted for lateral float. See Adjust Lateral Float in this Operator’s Manual section.

Forced Float

When hitch is commanded to lower set point but is unable to reach it, hitch enters forced float mode. While in this mode, hitch acts as though control lever is in float position. If hitch reaches lower set point while in forced float mode, the hitch returns to mode lever is set to.

AK08008,0000074-19-15NOV19

Hitch Components



RXA0141370—UN—08MAY14

Hitch Components

- A—Remote Raise/Lower Switch
- B—Lift Arms
- C—Lift Cylinders
- D—Quick-Hitch
- E—Center Link
- F—Draft Links
- G—Lift Links

AK08008,0000075-19-15NOV19

Hitch External Switches

CAUTION: To prevent injury or damage caused by tractor movement, be sure transmission is in **PARK** position before using remote raise/lower switches. Stay clear of interference points when using remote raise/lower switches.

Rear hitch external raise/lower switches are located on left rear fender.

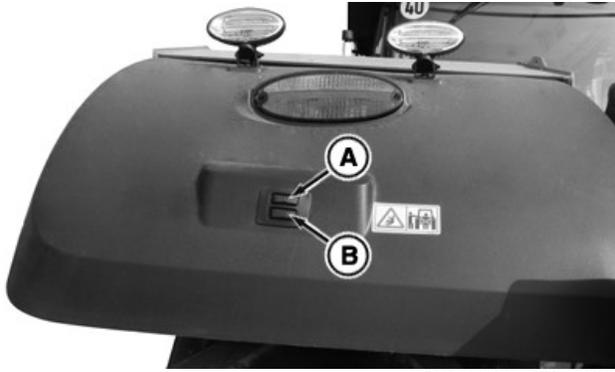
NOTE: Hitch moves at slower speed when using external raise/lower switches.



RXA0158415—UN—28MAR17

CommandARM™ hitch control lever (C) cannot be used simultaneously with external raise/lower switches.

CommandARM is a trademark of Deere & Company



RXA0141911—UN—04JUN14

Push on top external switch (A) to raise hitch.

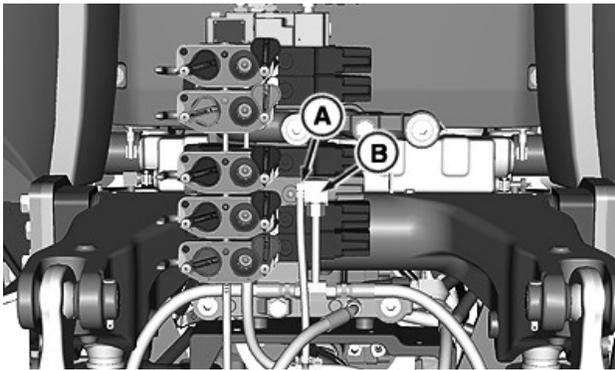
Push on bottom external switch (B) to lower hitch.

AK08008,0000076-19-15NOV19

Hitch Manual Lowering

CAUTION: Avoid personal injury or death. Do not disconnect any hitch sensors, solenoids, or connectors from hitch control valve when engine is operating or key switch is ON. Unexpected hitch movement can occur. Stay clear of hitch area when starting engine or manually lowering hitch.

Hitch manual lowering is possible when hydraulic pressure and/or electrical power is not available.



RXA0142710—UN—24JUN14

Hitch manual lowering drain valve (A) is located on lower right-hand side lift cylinder.

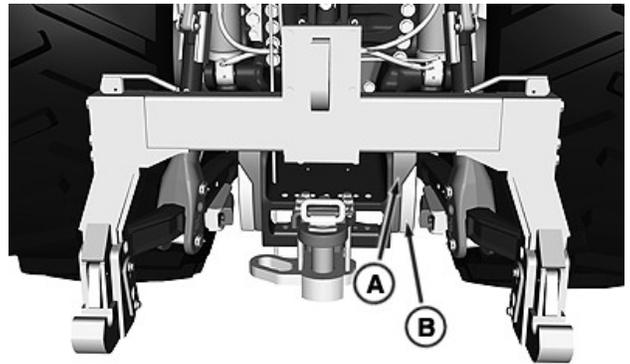
Remove plastic plug (B) to access valve. Turn valve counterclockwise to lower hitch.

NOTE: Hitch cannot be raised mechanically. Both hydraulic and electrical power are required to raise hitch.

Turn valve clockwise and install plug after hitch has been lowered.

AK08008,0000077-19-15NOV19

Sway Blocks



RXA0141372—UN—08MAY14

Install sway blocks (B) with thick end toward frame, to minimize hitch movement.

Tighten attaching bolts to 230 N·m (170 lb·ft).

IMPORTANT: Prevent interference of draft links with tires. Be sure that distance between tires is at least 1168 mm (46 in) with equal distance from middle of tractor. If distance between tires must be less than 1168 mm (46 in), sway is limited. (See Observing Tread Width Limitations in Wheels, Tires, and Treads Section of this Operator's Manual.)

Move each sway block to opposite side of tractor to allow sway when hitch is lowered. Install sway blocks with tapered sides (A) outward from frame.

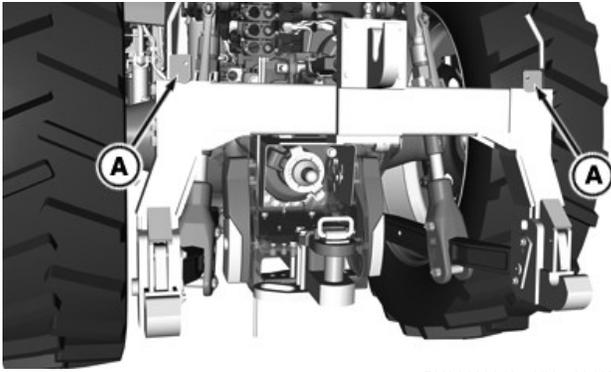
AK08008,0000078-19-15NOV19

Attaching Implement to Quick-Hitch

CAUTION: To avoid bodily injury or machine damage:

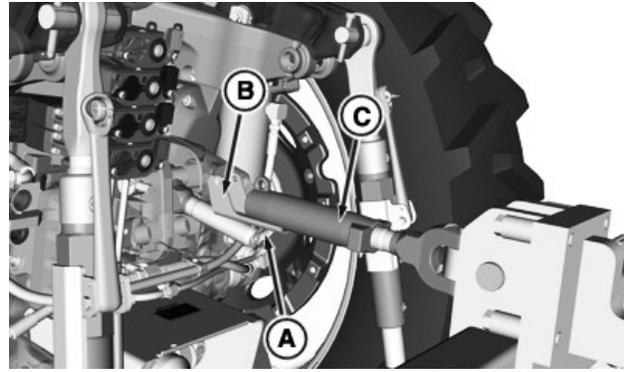
- Put transmission in PARK position and check full range of hitch for interference, binding, or PTO separation whenever an implement is attached.
- Make sure implement is correctly attached. Incorrect attachment can allow implement to be pulled over tractor wheel and onto operator station.
- Do not stand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

Rear Hitch [Ag]



RXA0129849—UN—28JAN13

1. Pull up on coupler latch handles (A).



RXA0130672—UN—28JAN13

2. Remove lock ring (A). Disengage handle (B) and rotate center portion (C) to lengthen or shorten center link to 747—868 mm (29.5—34.3 in).

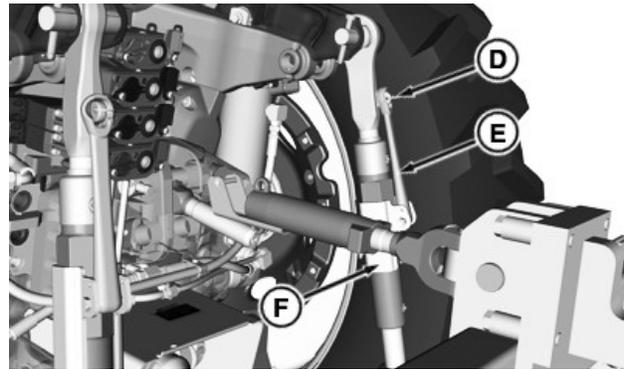
3. Push handle down and install lock ring to hold center link in position. Measure between centers of attaching pins.



RXA0158417—UN—28MAR17

2. Lower hitch control lever (B) until quick-hitch hooks are lower than implement hitch pins.
3. Back up tractor to implement.
4. Raise hitch enough to engage implement pins in hooks.
5. Push coupler latch handles down to lock implement to quick-hitch.
6. Connect hydraulic hoses and electrical connections.
7. Slowly pull hitch control lever to raise implement. Lower implement to ground and adjust upper height limit control if necessary.

AK08008.0000079-19-15NOV19



RXA0160208—UN—13JUL17

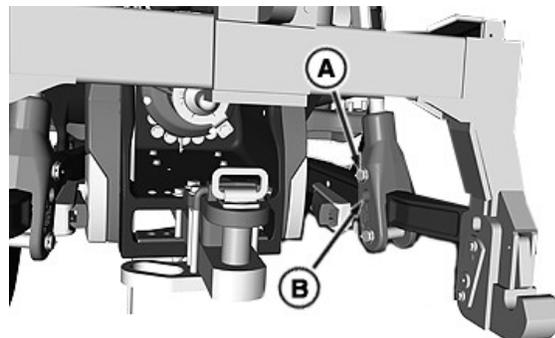
4. Adjust either lift link to level implement side-to-side. Remove lock ring (D) to release lift link sleeve handle (E). Position sleeve on lift link hex to rotate center portion (F) with handle.
5. Measure between centers of lift link attaching pins. Adjustment length is 1030—1150 mm (40.5—45.3 in).

AK08008.000007A-19-15NOV19

Adjusting Implement Level

1. Adjust center link to level implement front-to-rear.

Lateral Float



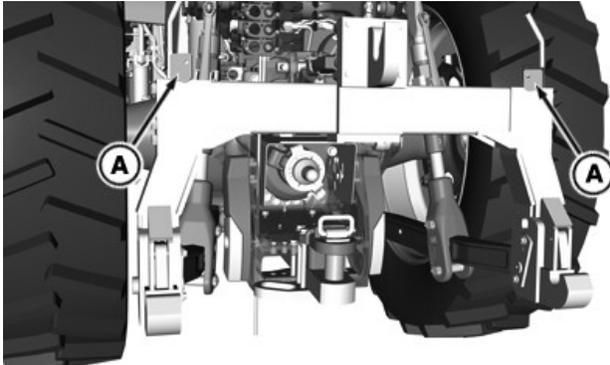
RXA0141373—UN—16JUN14

Place lateral float pins in lower holes (B) to hold implement rigid.

Put lateral float pins in draft arms upper holes (A) for float position. The draft links raise slightly as implement follows ground surface.

AK08008,000007B-19-15NOV19

Detaching Implement From Quick-Hitch



RXA0129849—UN—28JAN13

1. Raise both coupler latch levers (A) with implement raised.
2. Disconnect hydraulic hoses and electrical connections.
3. Lower implement to ground. Continue lowering quick-hitch until hook clears implement hitch pins.
4. Carefully drive tractor away from implement.

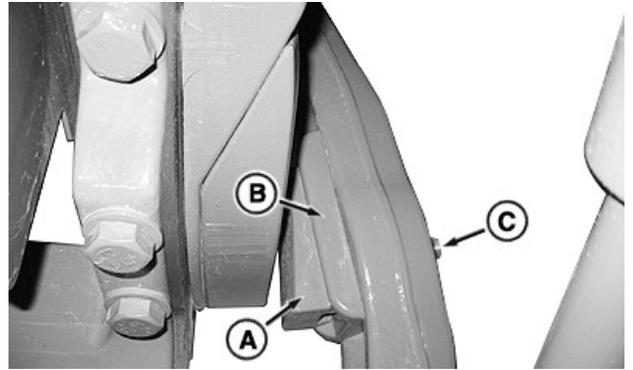
AK08008,000007C-19-15NOV19

Hitch Conversion—Category 4/4N/3 Convertible Quick-Hitch

Quick-hitch is convertible to Category 4, 4N, or 3. Use Category 4 whenever possible, especially for heavy loads. Greater width gives more strength.

NOTE: See your John Deere dealer for Category 3 hook required for Category 3 configuration.

To convert quick-hitch:



RXA0164019—UN—20JUL18

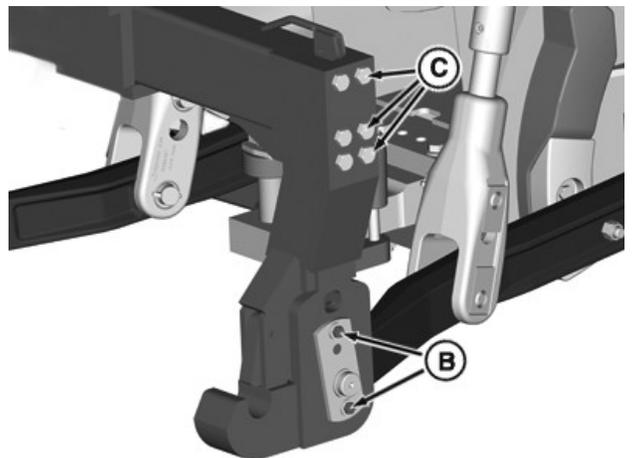
1. Adjust bumper (A) and spacer (B) placement for desired configuration:
 - Category 4: bumper and spacer on inside of hitch arm
 - Category 3/4N: bumper on inside of hitch arm and spacer on outside of hitch arm

To adjust bumper and spacer:

- a. Remove cap screw and nut (C).
- b. Position spacer on inside or outside of hitch arm to achieve desired configuration.
- c. Position bumper on inside of hitch arm.
- d. Install cap screw and nut. Tighten to 230 N·m (170 lb·ft).
- e. Repeat procedure on opposite side.
- f. Cycle hitch switch to ensure there is no interference between hitch and sway blocks.

CAUTION: Use proper lifting device when converting coupler. Failure to do so may result in personal injury.

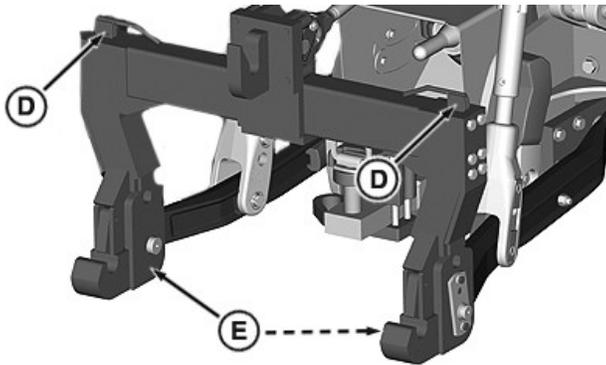
2. Support center of quick-hitch.



RXA0164012—UN—19JUL18

3. Remove pin retaining bolts (B) and pins from draft link.

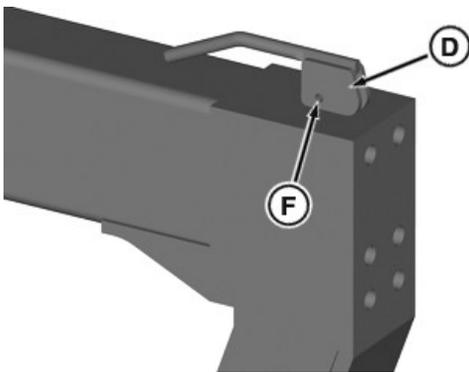
- Remove side member cap screws (C).



RXA0164013—UN—19JUL18
Quick-Hitch Shown In Category 4N Configuration

- Swap quick-hitch side members (E) to configure as wide (Category 4) or narrow (Category 4N). Tighten cap screws to 490 N·m (360 lb·ft).

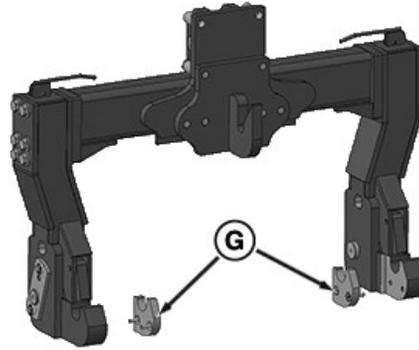
IMPORTANT: Before removing roll pin, keep pressure under lower coupler hook to hold lock rod in place.



RXA0160170—UN—07JUL17

- Flip latch handle around by removing roll pin (F).
- Turn coupler latch handle inward (D) and reinstall roll pin.
- Flip handle down in lock position.

NOTE: See your John Deere dealer for Category 3 hook required for Category 3 configuration.



RXA0164014—UN—19JUL18
Quick-Hitch With Category 3 Hook Shown

- Category 3 conversion only: remove shims (G). Replace shims when converting from Category 3 to Category 4/4N.

AK08008,000007D-19-15NOV19

Converting Category 4N/3 Convertible Quick-Hitch Lower Hooks

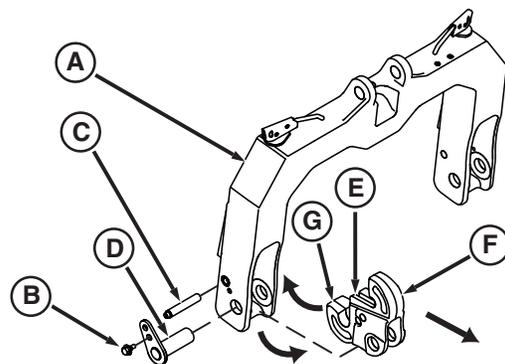
CAUTION: Use proper lifting device when converting coupler. Failure to do so can result in personal injury.

NOTE: Use Category 4N whenever possible.

A second person is recommended to align components during conversion.

If category 4 lower hooks are to be used on category 3 implements, bushings are needed over the category 3 pins; these bushings can be purchased through your John Deere dealer.

NOTE: Lower hooks are not marked for left-hand or right-hand side. Do not move lower hooks from one side to the other.



RXA0091394—UN—07NOV06

- Support quick-hitch frame (A).
- Remove cap screw (B).

NOTE: Because lower hook (E) has a category 3 hook (F) on one end and a category 4N hook (G) on the opposite end, it is used for both category 3 and 4N simply by turning it end for end.

3. Remove pin (D), then pin (C).
4. Remove lower hook by rotating it down and to the rear of the coupler, then sliding it out at the front of the coupler.
5. Install lower hook, with desired end facing out. Using a reverse motion of removal, rotate it up and in.
6. Install pin, retainer and cap screw.

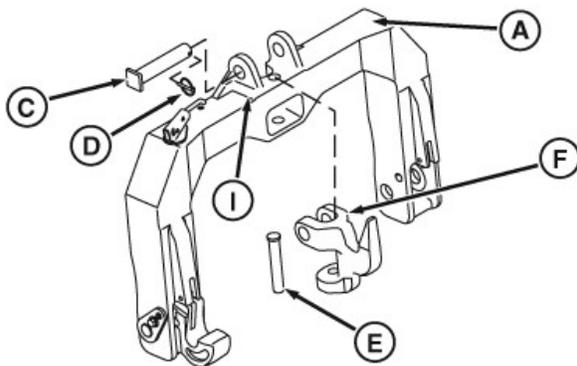
AK08008,000007E-19-15NOV19

Converting Category 4N/3 Convertible Quick-Hitch Upper Hook

CAUTION: Use proper lifting device when converting coupler. Failure to do so can result in personal injury.

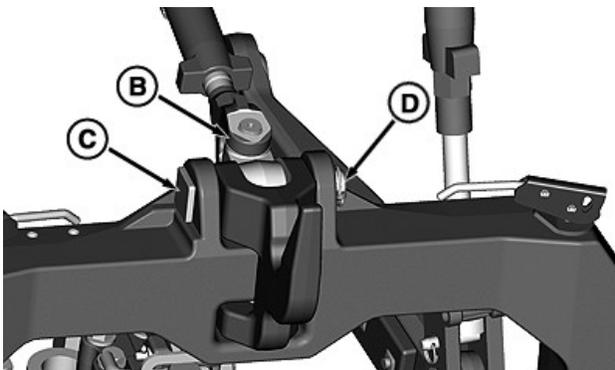
NOTE: A second person is recommended to align components during conversion.

It is recommended to use Category 4 upper hook if implement set up allows. The Category 3 upper hook may be overloaded with very high draft loads.



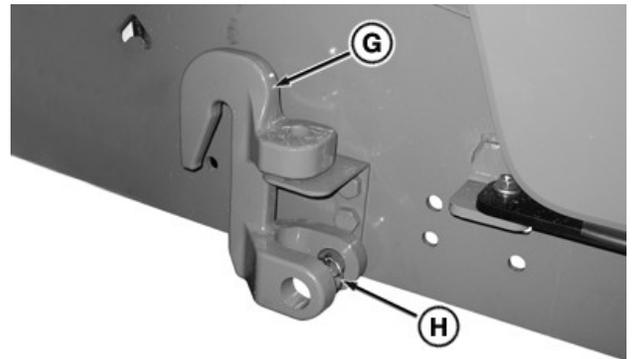
RXA0142708—UN—17JUN14

1. Support quick-hitch frame (A).



RXA0142706—UN—17JUN14

2. Remove quick lock pin (D) and pin (C) to release center link (B).
3. Remove pin (E) and upper hook (F).



RXA0147950—UN—29APR15

4. Remove pin (H) to remove stored upper hook (G) and replace with upper hook previously removed from quick-hitch.

NOTE: Pin (C) must be installed left to right. Shoulder (I) will keep retaining pin (B) from being installed if pin (C) is installed incorrectly.

5. Use reverse sequence of steps to remove upper hook from quick-hitch. Install previously stored upper hook into quick-hitch.

AK08008,000007F-19-15NOV19

Rear Hitch [Ag]

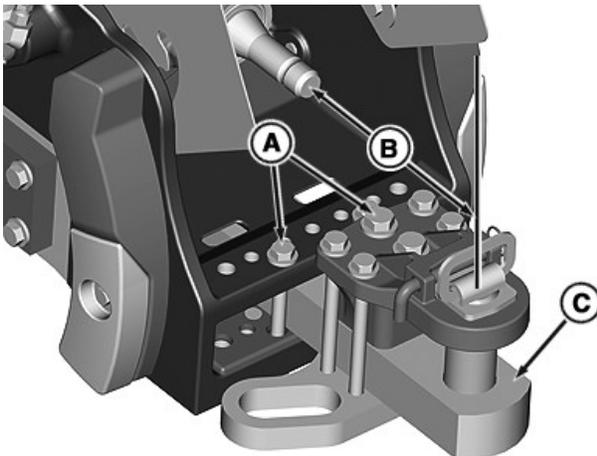
Drawbar Load Limitations (Agricultural Tractors)

IMPORTANT: Avoid damage to tractor and attachments. Certain heavy equipment can place excessive strain on drawbar. Speed and rough ground greatly increased strain.

Never exceed maximum static vertical load limit or drawbar and PTO position limitations.

Tighten drawbar locking bolts (A) with shims to 435 N·m (322 lb·ft) and drive slowly, if heavier loads are expected.

If a John Deere manufactured scraper is fitted to tractor, use Drawbar Load Limits table. If the scraper is not John Deere manufactured, use procedure to calculate actual vertical drawbar static load and actual vertical load distance behind rear axle. See Non-John Deere Scrapers Drawbar Load Limits in this Operator's Manual section.



RXA0141867—UN—30MAY14

Drawbar Load Limits Based on Drawbar Position and Length				
Drawbar			End of PTO Shaft to Drawbar Pin Hole Distance (B) mm (in)	Maximum Vertical Static Load kg (lb)
Category	Support	Position		
4 ^{ab}	Standard	Short	358 (14)	2470 (5450)
		Regular (PTO)	508 (20)	2270 (5000)
	Heavy Duty	Short	358 (14)	2470 (5450)
		Regular (PTO)	508 (20)	2270 (5000)
Heavy Duty and Reinforcement Kit	Short	358 (14)	4900 (11000)	
	Regular (PTO)	508 (20)	4080 (9000)	
4 Heavy Duty ^{ab}	Heavy Duty	Short	358 (14)	4900 (11000)
5 ^{cd}		Regular (PTO)	508 (20)	4080 (9000)
		Short	358 (14)	5440 (12000)
		Regular (PTO)	508 (20)	4080 (9000)

^a51 mm (2 in) diameter pin

^bCategory 4 drawbar is not available on tractors with engine power greater than 470 hp (300 PTO kW) per ISO 6489-3.

^c70 mm (2.75 in) diameter pin

^dIf equipped with Category 4 conversion pin, pin diameter is 51 mm (2 in)

AK08008,0000080-19-05MAR20

Scraper Applications

IMPORTANT: Avoid tractor damage. This tractor is designed solely for use in agricultural or similar operations. The warranty period is limited to 90 days if heavy-duty land-leveling use exceeds:

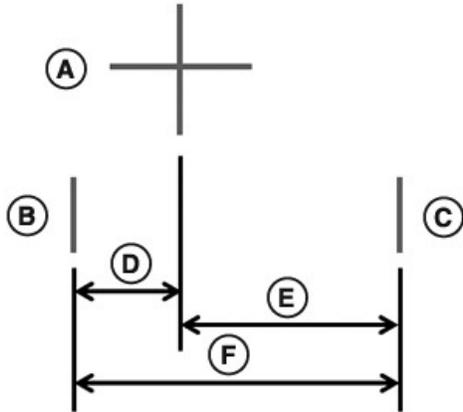
- The maximum drawbar vertical load.
- 150 hours per year.

See your John Deere dealer if the:

- Drawbar is not John Deere approved.

- Drawbar vertical load or distance behind the rear axle exceeds the following table values.

Calculate Vertical Drawbar Load Distance Behind Rear Axle



RXA0179306—UN—21AUG20

- A—Rear Axle Center Line
- B—Front Drawbar Pin Center Line
- C—Rear Drawbar Pin Center Line
- D—Front Drawbar Pin Distance in Front of Rear Axle
- E—Vertical Load Distance Behind Rear Axle
- F—Drawbar Length

Maximum Vertical Load kg (lb)	Maximum Vertical Load Distance Behind Rear Axle (E) mm (in)	Front Drawbar Pin Distance in Front of Rear Axle (D) mm (in)
8359 (18500)	980 (38.6)	426 (16.8)

For load and distance measurement procedures, see Calculate Static Vertical Drawbar Load and Calculate Vertical Drawbar Load Distance Behind Rear Axle in this Operator's Manual section.

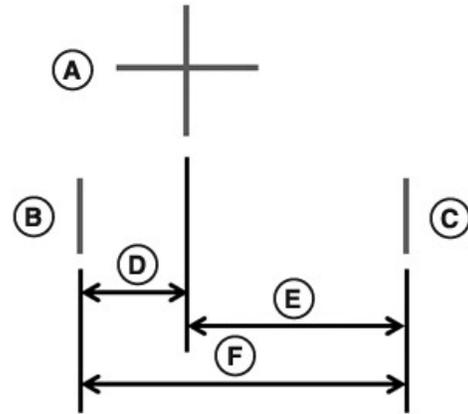
KD34109,00008A3-19-18MAR21

Calculate Static Vertical Drawbar Load

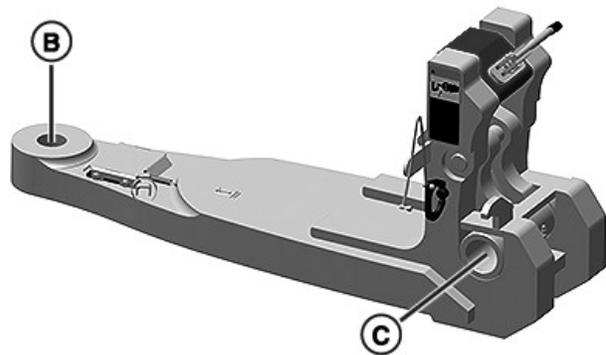
For static vertical drawbar load:

1. Measure and record front and rear axle weights of tractor without implement connected.
2. Add front and rear axle weights together for total bare tractor weight.
3. Measure and record front and rear axle weights of tractor with loaded implement connected.
4. Add front and rear axle weights together for total loaded tractor weight.
5. Subtract total bare tractor weight (step 2) from total loaded tractor weight (step 4).

KD34109,00008A4-19-18MAR21



RXA0179306—UN—21AUG20



RXA0179874—UN—23SEP20

For vertical drawbar load distance behind rear axle (E):

1. Measure the length of the drawbar (F) from the front drawbar pin center line (B) to the rear drawbar pin center line (C).
2. Determine the rear axle center line (A). Subtract the front drawbar pin distance in front of rear axle (D) from the drawbar length (F). For front drawbar pin distance in front of rear axle (D), see the table in Scraper Applications in this Operator's Manual section.

NOTE: If the front drawbar pin distance in front of rear axle value provided is negative, subtracting a negative will provide a distance longer than the measured drawbar length.

KD34109,00008A5-19-18MAR21

Category 4 Heavy-Duty Drawbar Reinforcement Kit Load Limitations

IMPORTANT: Heavy implements together with rough terrain and speed can place excessive strain on drawbar.

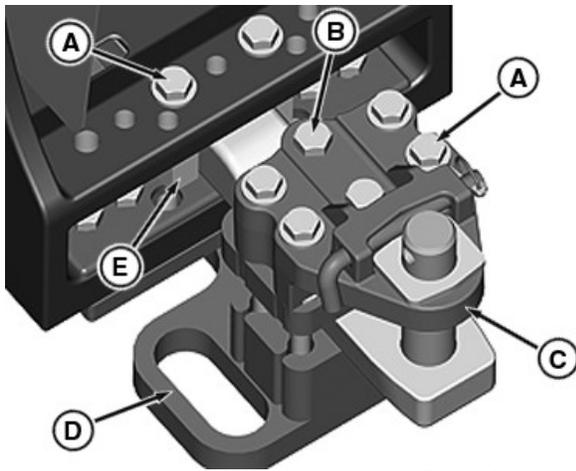
Do not exceed maximum static vertical load for given drawbar length/position.

Heavy duty drawbar support must be used when maximum static vertical load exceeds 2043 kg (4500 lb).

Special cap screws are used on drawbars. See your John Deere dealer if cap screws must be replaced.

IMPORTANT: Heavy Duty Drawbar Kit must be installed when maximum static vertical load on category 4 drawbar exceed 2470 kg (5450 lb) in short position or 2268 kg (5000 lb) in long position.

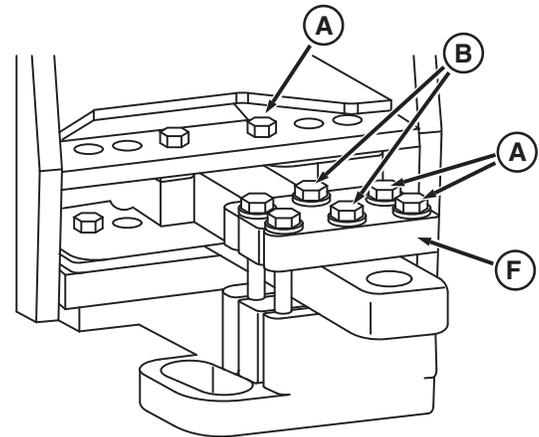
Kit is available from your John Deere dealer.



RXA0141868—UN—30MAY14
Heavy Duty Drawbar Support

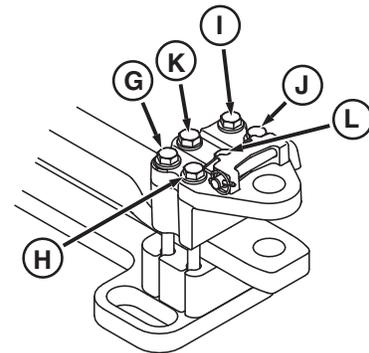
Attach drawbar brace (D), hammerstrap (C), and spacer block (E) using cap screws (A) and (B).

IMPORTANT: Clamp plate must be installed to retain category 4 drawbar brace when hammerstrap is not used.



RXA0160210—UN—13JUL17
Heavy Duty Hammerstrap

Install clamp plate (F) using cap screws (A) and (B). Torque cap screws in according to following sequence:



1. Tighten to 610 N·m (450 lb·ft): (G), (J), (H), then (I). Repeat.
2. Tighten to 750 N·m (550 lb·ft): (K) then (L). Repeat.

RXA0160211—UN—13JUL17
AK08008,00004EE-19-30MAR20

Category 5 Heavy-Duty Drawbar Support Load Limitations

IMPORTANT: Heavy duty drawbar support must be used when maximum static vertical load exceeds 2043 kg (4500 lb).

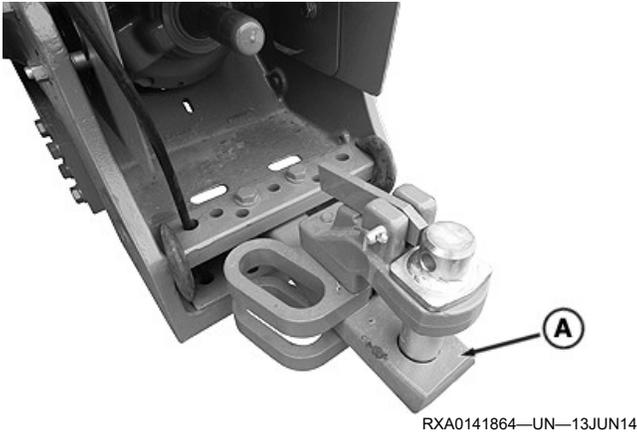
Drive slowly when moving heavy draft loads.

For maximum vertical static drawbar loads, see Drawbar Load Limitations in this Operator's Manual section.

AK08008,00006B8-19-24SEP20

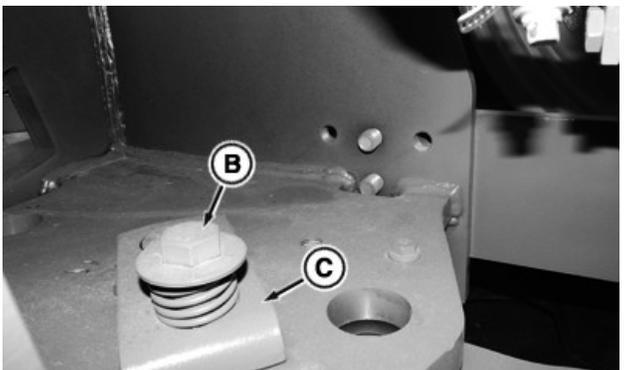
Selecting Drawbar Position

IMPORTANT: Drawbar must be positioned, as instructed in Attach PTO-Driven Implement in PTO, Hitch, and Drawbar section of this Operator's Manual, for PTO-driven implement.



Drawbar (A) length can be extended:

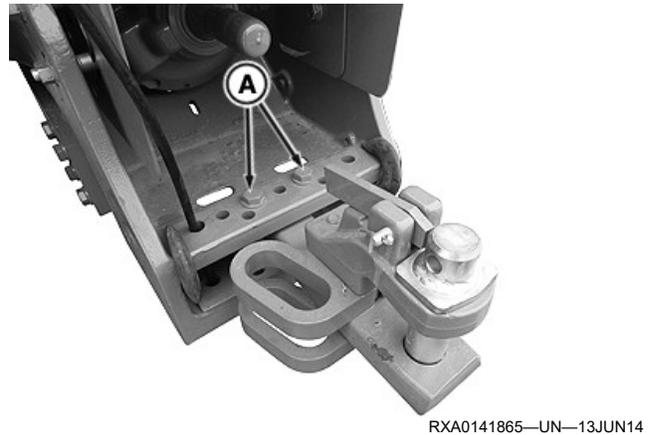
1. Loosen drawbar locking bolts.



2. Remove front pivot pin retainer cap screws, washers, and spacers (B). Remove pivot pin retainer (C).
3. Slide drawbar to desired position.
4. Install pivot pin retainer, spacers, washers, and cap screws. Tighten cap screws to 435 N·m (322 lb·ft).
5. Install and tighten drawbar locking bolts to 435 N·m (322 lb·ft).

AK08008,0000084-19-15NOV19

Adjusting Drawbar Side-to-Side

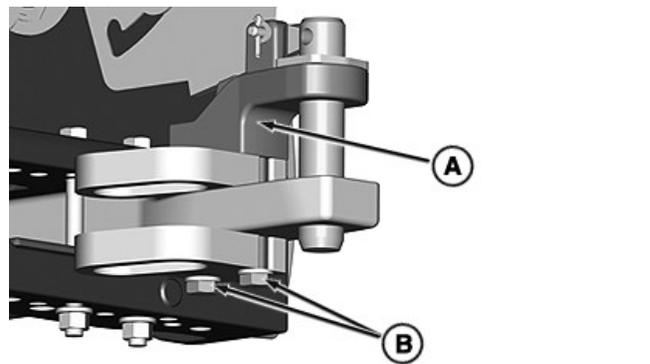


1. Remove drawbar locking bolts (A).
2. Slide drawbar to desired position.
3. Install a locking bolt against each side of drawbar. Tighten to 435 N·m (322 lb·ft).

AK08008,0000085-19-15NOV19

Install Clevis Assembly—Category 4 Drawbar

IMPORTANT: Avoid equipment damage: correctly attach clevis assembly.

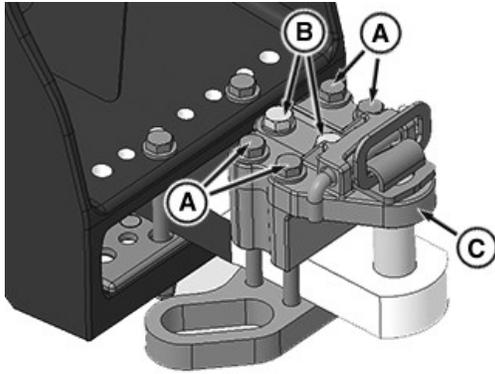


1. Attach clevis assembly (A) on top of drawbar.
2. Tighten two cap screws (B) to 750 N·m (553 lb·ft).

AK08008,00004F2-19-05MAR20

Install Clevis Assembly—Category 4 Heavy-Duty Drawbar

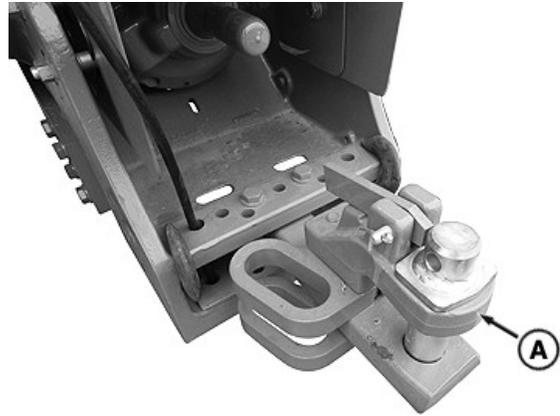
IMPORTANT: Avoid equipment damage. Attach clevis assembly correctly.



RXA0175888—UN—05MAR20

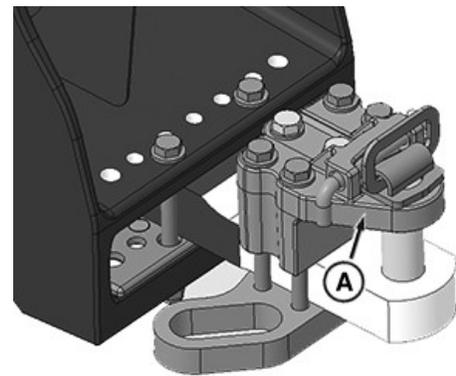
1. Attach clevis assembly (C) to top of drawbar.
2. Tighten two center M22 cap screws (B) to 750 N·m (553 lb·ft).
3. Tighten four outer M20 cap screws (A) to 610 N·m (450 lb·ft).

KD34109,00008A6-19-18MAR21



RXA0141866—UN—13JUN14

Category 4

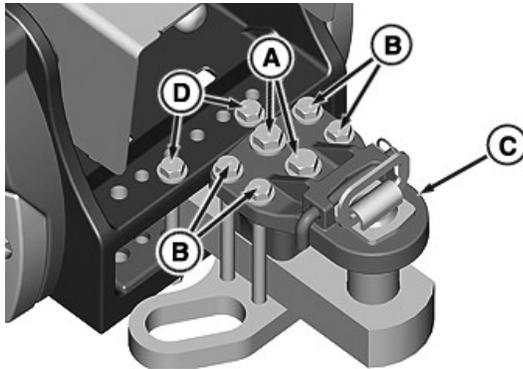


RXA0175889—UN—05MAR20

Category 4 Heavy-Duty

Install Clevis Assembly—Category 5 Drawbar

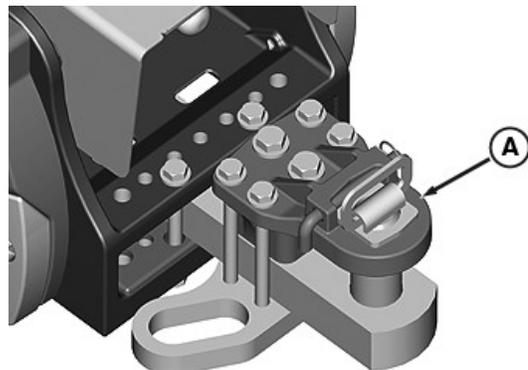
IMPORTANT: Avoid equipment damage: correctly attach clevis assembly.



RXA0176518—UN—18MAR20

1. Attach clevis assembly (C) to top of drawbar.
2. Tighten two center M24 cap screws (A) to 750 N·m (553 lb·ft).
3. Tighten four outer M20 cap screws (B) to 610 N·m (450 lb·ft).
4. Tighten two M20 cap screws (D) to 610 N·m (450 lb·ft).

AK08008,00004F4-19-18MAR20



RXA0111485—UN—27OCT10

Category 5

Clevis assembly (A) must be attached *only* to the top of the drawbar.

If towed implement also has a clevis assembly, insert pin only through tractor drawbar. **DO NOT** insert pin through all four members.

AK08008,00004F3-19-05MAR20

Clevis Assembly Use

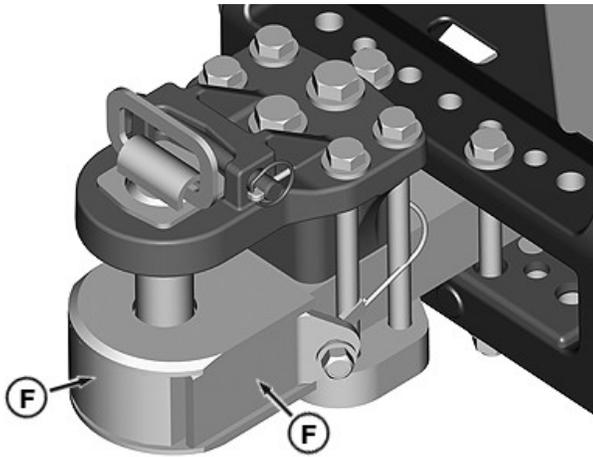
IMPORTANT: When PTO shaft may cause interference, remove clevis assembly.

Use Correct Drawbar Pin—Category 5 to 4

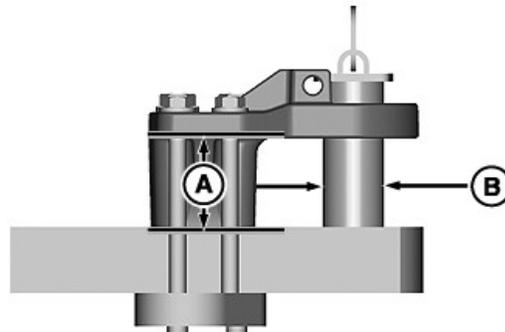
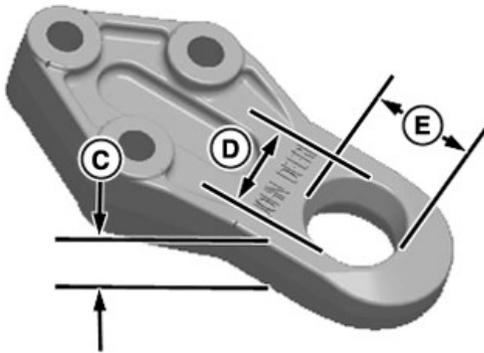
IMPORTANT: Use Category 5 drawbar pin for implements that produce drawbar loads requiring more than 348 kW (467 HP) engine power level rating or 300kW (400 HP) PTO power level rating for proper operation. Contact implement manufacturer for information on how to properly convert implement to accept Category 5 drawbar pin.

See your John Deere dealer to purchase an Adapter Kit (F) for tractors equipped with a Category 5 drawbar when attaching to implements equipped with a Category 4 hitch link if approved by implement manufacturer.

Use Category 5 drawbar pin furnished with tractor to attach implements that have a Category 5 hitch link. See table for dimensions. Consult implement Operator's Manual or manufacturer to determine proper size of drawbar pin for implement attaching system. Operating tractor and implements with drawbar category combinations which are improperly sized for implement power requirements could result in premature wear or failure of hitch components.



RXA0141903—UN—05JUN14



RXA0160175—UN—10JUL17

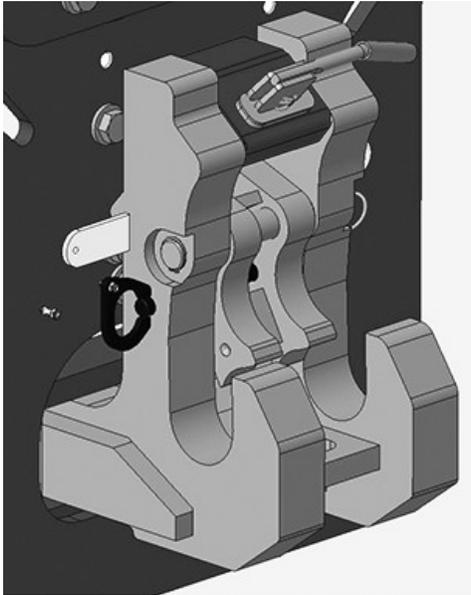
Category	Hitch Link Dimensions mm (in)				
	Tractor Drawbar		Implement Hitch Link		
	Hitch Pin Diameter (B)	Drawbar Opening Height (A)	Slot Length (E)	Slot Width (D) (Minimum)	Link Thickness (C)
4	50 (1.97)	90 (3.54)	55 — 70 (2.17 — 2.75)	55 (2.17)	50 (1.97)
5	70 (2.76)	100 (3.94)	73 — 85 (2.87 — 3.35)	73 (2.87)	60 (2.36)

Drawbar [Ag]

Drawbar Load Limitations (Scraper Tractors)

IMPORTANT: Avoid damage to tractor and attachments. Certain heavy equipment can place excessive strain on drawbar. Speed and rough ground greatly increased strain.

Never exceed maximum static vertical load limit.



RXA0175813—UN—04MAR20

Short Scraper Drawbar

If a John Deere manufactured scraper is fitted to tractor, use Drawbar Load Limits table. If the scraper is not John Deere manufactured, use procedure to calculate actual vertical drawbar static load and actual vertical load distance behind rear axle. See Non-John Deere Scrapers Drawbar Load Limits in Drawbar [Ag] section of this Operator's Manual.

Scraper Drawbar Category	Support	Maximum Vertical Static Load kg (lb)
Short	Scraper	10200 (22500)
Long (Ag)	Agricultural	8400 (18500)

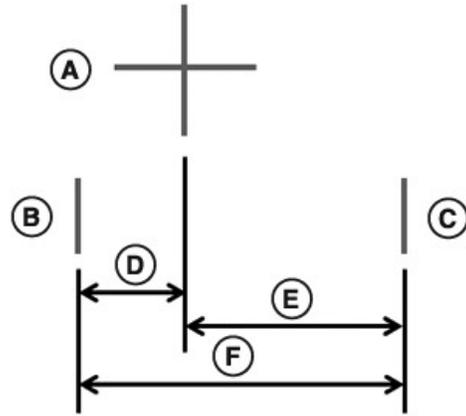
KD34109,00008A7-19-18MAR21

Scraper Applications

IMPORTANT: Avoid tractor damage. Never exceed the maximum drawbar vertical load.

See your John Deere dealer if the:

- Drawbar is not John Deere approved.
- Drawbar vertical load or distance behind the rear axle exceeds the following table values.



RXA0179306—UN—21AUG20

- A—Rear Axle Center Line
- B—Front Drawbar Pin Center Line
- C—Rear Drawbar Pin Center Line
- D—Front Drawbar Pin Distance in Front of Rear Axle
- E—Vertical Load Distance Behind Rear Axle
- F—Drawbar Length

Maximum Vertical Load kg (lb)	Maximum Vertical Load Distance Behind Rear Axle (E) mm (in)	Front Drawbar Pin Distance in Front of Rear Axle (D) mm (in)
10194 (22500)	482 (19.0)	426 (16.8)

For load and distance measurement procedures, see Calculate Static Vertical Drawbar Load and Calculate Vertical Drawbar Load Distance Behind Rear Axle in this Operator's Manual section.

KD34109,00008A8-19-18MAR21

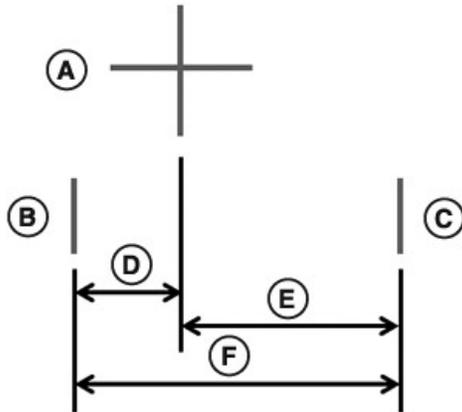
Calculate Static Vertical Drawbar Load

For static vertical drawbar load:

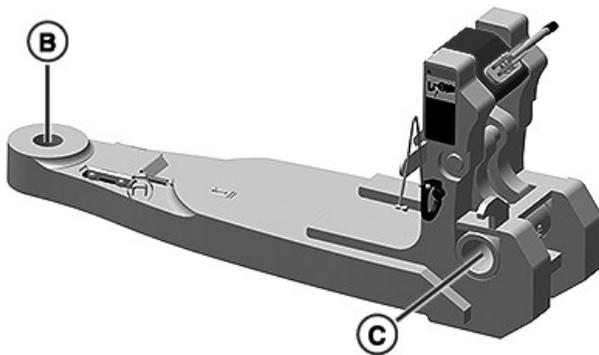
1. Measure and record front and rear axle weights of tractor without implement connected.
2. Add front and rear axle weights together for total bare tractor weight.
3. Measure and record front and rear axle weights of tractor with loaded implement connected.
4. Add front and rear axle weights together for total loaded tractor weight.
5. Subtract total bare tractor weight (step 2) from total loaded tractor weight (step 4).

KD34109,00008A4-19-18MAR21

Calculate Vertical Drawbar Load Distance Behind Rear Axle



RXA0179306—UN—21AUG20



RXA0179874—UN—23SEP20

For vertical drawbar load distance behind rear axle (E):

1. Measure the length of the drawbar (F) from the front drawbar pin center line (B) to the rear drawbar pin center line (C).
2. Determine the rear axle center line (A). Subtract the front drawbar pin distance in front of rear axle (D) from the drawbar length (F). For front drawbar pin distance in front of rear axle (D), see the table in Scraper Applications in this Operator's Manual section.

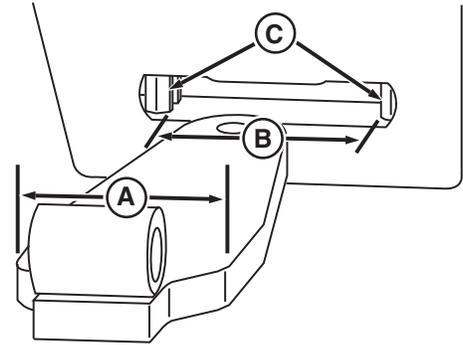
NOTE: If the front drawbar pin distance in front of rear axle value provided is negative, subtracting a negative will provide a distance longer than the measured drawbar length.

KD34109,00008A5-19-18MAR21

Install Drawbar or Quick-Attach in Short Drawbar Support

Use scraper drawbar when scraper tongue weight exceeds design specifications of agricultural tractor drawbar. The scraper drawbar is shorter which

minimizes weight transfer to rear axle. Follow scraper recommendations for drawbar installation.

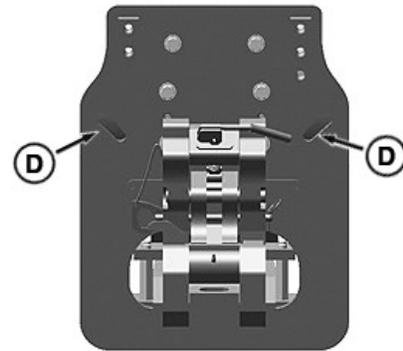


RXA0064878—UN—23JAN03

IMPORTANT: Adjust hex bushings (C) when installing scraper drawbar.

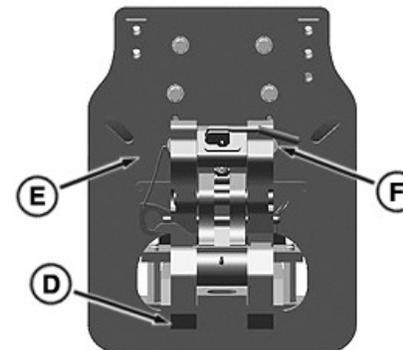
NOTE: All four (4) locking bolts should be kept clean to maintain maximum torque.

1. Loosen drawbar locking bolts and bushings, underside of support.
2. Measure width of drawbar area (A) resting on drawbar support.
3. Rotate bushings so distance (B) between bushings is as close to drawbar width as possible.



RXA0142716—UN—21JUL14

Scraper Drawbar Support



RXA0148253—UN—29MAY15

Quick-Attach Drawbar

4. Slide short drawbar or quick-attach drawbar (D) into support.
5. Install front drawbar pin.
6. Tighten drawbar locking bolts to 430 N·m (320 lb-ft).
7. Remove locking pin (E) and lift handle (F) to operate quick-attach drawbar.

IMPORTANT: Recheck Locking Bolt Torque Specification.

8. Check and retighten drawbar support bolts after first 10, 50, and 100 hours of scraper operation.

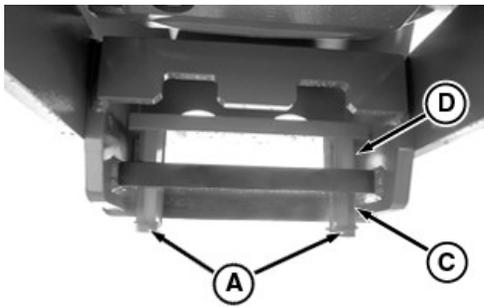
AK08008,000008B-19-15NOV19

Short Scraper Drawbar Conversion

Scraper drawbar support is designed to accept a larger drawbar and can be converted for use with smaller scraper drawbar. Follow scraper recommendations for drawbar installation.



RXA0082032—UN—05JUL05

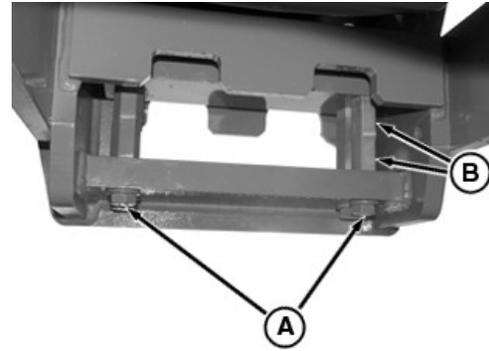


RXA0082012—UN—05JUL05

Smaller Scraper Drawbar Support Setup

IMPORTANT: Adjust hex bushings (C) when installing scraper drawbar.

NOTE: All four locking bolts must be kept clean to maintain maximum torque.



RXA0082010—UN—05JUL05

Larger Scraper Drawbar Support Setup

1. Loosen and remove drawbar support cap screws (A) and bushings (B).
2. Place lower bushings on cap screws with lock washers.
3. Reinstall cap screws with lower bushings and upper bushings (D) to drawbar support.
4. Measure width of drawbar area with drawbar resting on drawbar support.
5. Rotate bushings so distance between bushings is as close to drawbar width as possible.
6. Slide drawbar into support.
7. Install front drawbar pin.
8. Tighten drawbar locking bolts to 430 N·m (320 lb-ft).

IMPORTANT: Recheck Locking Bolt Torque Specification.

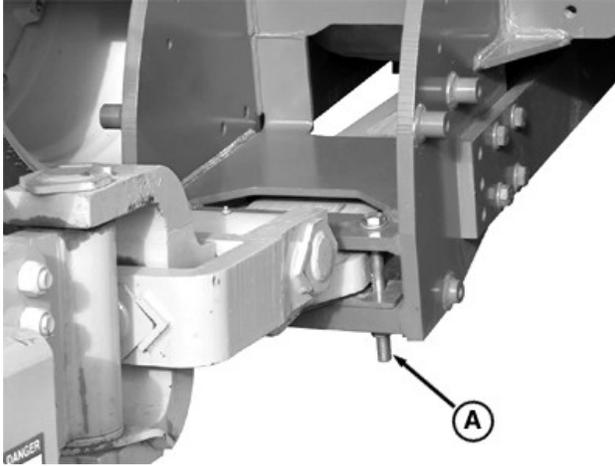
9. Check and retorque drawbar support bolts after first 10, 50, and 100 hours of scraper operation.

AK08008,000008C-19-15NOV19

Long Drawbar Support Load Limitations

IMPORTANT: If tractor drawbar was installed, certain heavy equipment can place excessive strain on drawbar. Speed and rough ground increases strain on drawbar. Use the heavy-duty drawbar support if the vertical load exceeds 2043 kg (4500 lb).

Drive slowly when moving heavy draft loads.



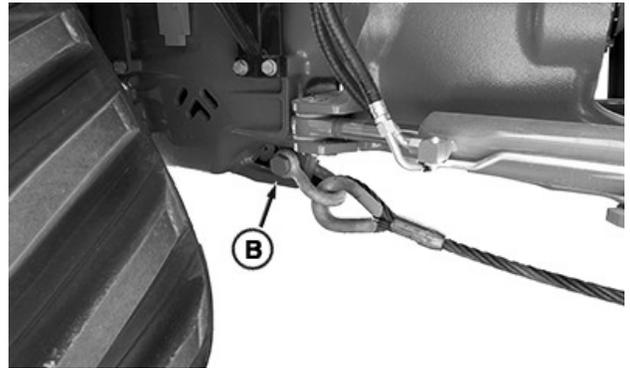
RXA0066212—UN—13MAR03

Tighten drawbar shims and locking bolts (A) to 850 N·m (627 lb·ft).

For scraper drawbar load limitations, see Scraper Applications in this Operator's Manual section.

KD34109,00008A9-19-18MAR21

Use tow cable (A) to pull tractor or tractor with scraper from soft or wet soil conditions.



RXA0169740—UN—24JUL19

Attach tow cable to drawbar support (B).

NOTE: Keep cable tight to limit cable side movement and interference with right front tire.

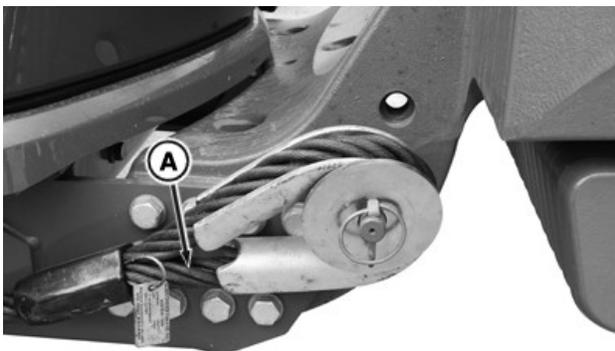
IMPORTANT: Correctly use tow cable by pulling from front of tractor in straight forward direction.

AK08008,000008E-19-15NOV19

Tow Cable

IMPORTANT: Failure to do the following can damage tractor:

1. **Correctly use tow cable by pulling from front of tractor in straight forward direction. Failure to do so can damage tractor.**
2. **Keep cable tight to limit cable side movement and interference with right front track.**
3. **Do not use tow cable to hook tractors in tandem to pull draft load.**
4. **Pulling tractor with loaded equipment can cause excessive strain on drawbar support and is greatly increased by speed and rough ground conditions.**
5. **Inspect tow cable and/or drawbar pin for wear and replace when necessary.**
6. **Attach tow cable to storage bracket and keep tight, when not in use.**



RXA0142715—UN—24JUN14

Hydraulics - General Information

Hydraulic System Overview

Hydraulics system provides lubrication, power and control to many tractor subsystems. Transmission, steering, brakes, and hitch [Ag] are covered in other sections of this Operator's Manual. The next several sections deal with selective control valves, including adjustment, function, and connections as well as special control systems.

AK08008,000008F-19-15NOV19

Selective Control Valves

SCV Settings—Access

Access Application Through Display:



Menu

RXA0167075—UN—20MAR19

1. Menu



Machine Settings

RXA0167076—UN—20MAR19

2. Machine Settings tab



SCV

RXA0173516—UN—03JAN20

3. SCV

Access Application Through Navigation Bar:



SCV

RXA0173515—UN—03JAN20

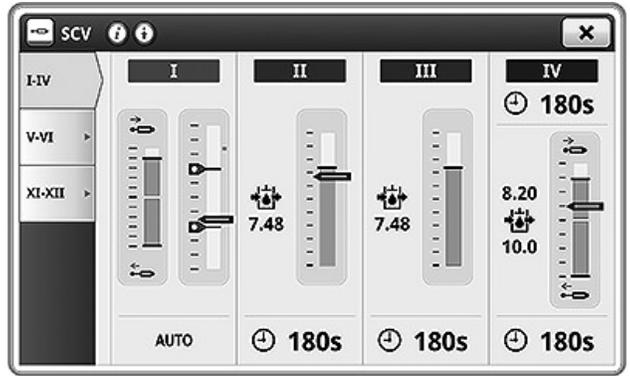
Press SCV button on navigation bar below display.

KD34109.0000595-19-04FEB20

SCV Settings

SCV application is used to access and adjust SCV modes and settings for equipped SCVs.

NOTE: Display will depend on current mode of SVC and number of SCVs available.



RXA0178901—UN—23JUL20

SCV Example

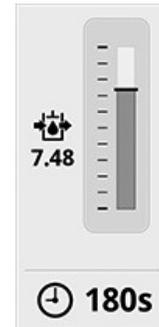
Items Accessible on SCV Main Page:



SCV Tab Example

RXA0173519—UN—06JAN20

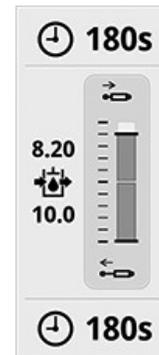
SCV Tabs — tabs display when there are more than four SCVs. Only available SCVs display.



RXA0173523—UN—02JAN20

Standard Mode Example

Standard Mode — set one detent time value and one detent flow value for both extend and retract. See SCV Settings—Standard Mode in this Operator's Manual section.



RXA0173504—UN—03JAN20

Independent Mode Example

Independent Mode — set different detent time and flow

values for extend and retract. See SCV Settings—Independent Mode in this Operator’s Manual section.



Feature Mode Example
RXA0173490—UN—02JAN20

Feature Mode — detent time is controlled by implement. To enable, connect implement using optional connector before turning on vehicle. See SCV Settings—Feature Mode in this Operator’s Manual section.



Hydraulic Flow Indicator
RXA0173500—UN—03JAN20

Hydraulic Flow Indicator — indicates current flow and displays when SCV is selected, active, and oil is flowing.



Advanced Settings
RXA0167071—UN—21MAR19

Advanced Settings — access further adjustments and less common settings. See SCV Settings—Advanced in this Operator’s Manual section.

Operate SCVs:



SCV I Lever
RXA0173518—UN—06JAN20

SCV Control Lever Adjustments — SCV levers on the CommandARM™ are used to adjust SCV flow. See SCV Control Lever Adjustments in this Operator’s Manual section.

Other SCV Statuses:



Flow Active Example
RXA0173494—UN—02JAN20

Flow Active — indicator will move with flow level. Fill area between 0 point and indicator displays green.



Time Active Example
RXA0173525—UN—02JAN20

Time Active — yellow box displays during time adjustment and when it is active.



Float
RXA0173768—UN—13JAN20

Float — cylinder is free to extend or retract, letting implement follow ground contour.



Float Disabled
RXA0173492—UN—02JAN20

Float Disabled — if lever is in float position at engine start-up, float function will be disabled until lever is cycled to neutral.



Locked
RXA0173506—UN—03JAN20

Locked — SCV is locked.



AUTO
RXA0173483—UN—02JAN20

AUTO — AUTO mode is enabled and active.



AUTO Disabled
RXA0173484—UN—02JAN20

AUTO Disabled — AUTO mode is ON but not active.

Run Page Modules

Add modules for this application to run pages using

Layout Manager. See the Generation 4 Display operator's manual.

NOTE: SCV assignment for module can be changed if accessing settings this way. See SCV Settings—Assignment in this Operator's Manual section.

Example:



Standard Mode

RXA0173524—UN—02JAN20

NOTE: Different modules may be available for your application.

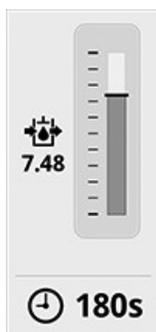
Standard Mode — quick access to standard mode module.

KD34109,0000596-19-23JUL20

SCV Settings—Standard Mode

Set one detent time value and one detent flow value for both extend and retract.

Items Accessible in Standard Mode:



Standard Mode Example

RXA0173523—UN—02JAN20

Standard Mode Example — items may change based on status.



Time Tab

RXA0173530—UN—02JAN20

Time — select to adjust detent time value for extend and retract. See SCV Settings—Time Adjustment in this Operator's Manual section.



Flow Tab

RXA0173503—UN—03JAN20

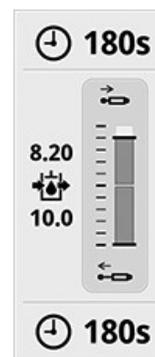
Flow — select to adjust detent flow value for extend and retract. See SCV Settings—Flow Adjustment in this Operator's Manual section.

KD34109,0000597-19-04FEB20

SCV Settings—Independent Mode

Set different detent time and flow values for extend and retract. Enable independent mode in advanced settings. See SCV Settings—Advanced in this Operator's Manual section.

Items Accessible in Independent Mode:



Independent Mode Example

RXA0173504—UN—03JAN20

Independent Mode Example — items may change based on status.



Time Retract Tab

RXA0173529—UN—02JAN20

Time Retract — select to adjust detent time retract value. See SCV Settings—Time Adjustment in this Operator's Manual section.



Flow Retract Tab

RXA0173502—UN—03JAN20

Flow Retract — select to adjust detent flow retract value. See SCV Settings—Flow Adjustment in this Operator's Manual section.



Flow Extend Tab

RXA0173501—UN—03JAN20

Flow Extend — select to adjust detent flow extend value. See SCV Settings—Flow Adjustment in this Operator’s Manual section.



Time Extend Tab

RXA0173528—UN—02JAN20

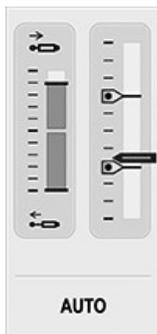
Time Extend — select to adjust detent time extend value. See SCV Settings—Time Adjustment in this Operator’s Manual section.

KD34109.0000598-19-04FEB20

SCV Settings—Feature Mode

Feature mode allows the implement to control the application. To enable, connect feature mode compatible implement using optional connector before turning on vehicle. When connected through ISOBUS or implement connector, SCVs automatically enter feature mode and page displays with feature options.

Items Accessible in Feature Mode:

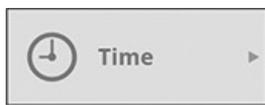


Feature Mode Example

RXA0173490—UN—02JAN20

Feature Mode Example — items may change based on status.

NOTE: Tab appearance and quantity will vary since feature mode is used in combination with standard and independent modes.



Time Tab Example

RXA0173527—UN—02JAN20

Time — controlled by implement and will be grayed out since no adjustments can be made.



Flow Tab Example

RXA0173503—UN—03JAN20

Flow — select to adjust detent flow value for extend and retract. See SCV Settings—Flow Adjustment in this Operator’s Manual section.



Automation Tab

RXA0173485—UN—02JAN20

NOTE: Not available for AutoLoad™.

Automation — enable/disable feature mode. See SCV Settings—Automation in this Operator’s Manual section.

KD34109.0000599-19-04FEB20

SCV Settings—Flow Adjustment

Adjust amount of SCV flow based on demand. For information on approximate SCV flow output settings and available pump flow, see Total SCV Flow in this Operator’s Manual section.

Procedure to Modify:

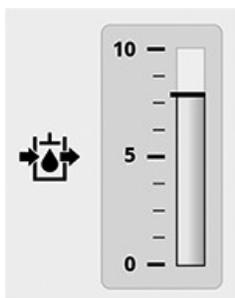


Adjust Flow

RXA0173495—UN—02JAN20

NOTE: Flow adjustment is from 0.04 to 10. Selecting (+) increases flow in increments of 0.04 and (++) increases flow in increments of 1.00. Selecting (-) or (--) decreases flow by the same increments.

Select (+/++) to increase or (-/--) to decrease flow. Value is shown in display box.



Flow Gauge

RXA0173499—UN—03JAN20

Flow setting also displays on flow gauge.



Adjust Time

RXA0173526—UN—02JAN20



Close

RXA0167129—UN—25MAR19

Select to close.

Items Accessible for TouchSet™ Depth Control:



Set Upper Point

RXA0173522—UN—06JAN20



Set Point Indicator

RXA0173521—UN—06JAN20

Upper Set Point — select upper SET key to set a frequently used height that can be recalled. Set point is displayed by upper yellow indicator.



Set Lower Point

RXA0173520—UN—06JAN20



Set Point Indicator

RXA0173521—UN—06JAN20

Lower Set Point — select lower SET key to set a frequently used depth that can be recalled. Set point is displayed by lower yellow indicator.



Position Indicator

RXA0173500—UN—03JAN20

Position Indicator — displays current implement position.

KD34109.000059A-19-04FEB20

NOTE: Time adjustment is from 0 seconds to C for continuous flow. Time increases by 1 second increments up to 10 seconds, then in 2 second increments up to 20, then 5 second increments up to 30, then 10 second increments up to 60, then 30 second increments up to 120, then by 60 second increments up to C.

Select (+) to increase or (-) to decrease time. Value is shown in display box.



Time Setting

RXA0173525—UN—02JAN20

Time setting also displays under flow gauge. Yellow box displays around time while being adjusted.



Close

RXA0167129—UN—25MAR19

Select to close.

KD34109.000059B-19-04FEB20

SCV Settings—Advanced

Advanced settings allow you to access further adjustments and less common settings.

NOTE: Some items only display if machine is equipped with the associated options.

Items Accessible on Advanced Settings Page:

SCV Settings—Time Adjustment

Adjust amount of time operation of attached implement will run.

Procedure to Modify:



RXA0173517—UN—03JAN20
SCV Independent Mode Example

SCV Independent Mode — turn independent mode ON or OFF for each SCV. See SCV Settings—Activating Independent Mode in this Operator’s Manual section.



RXA0173496—UN—02JAN20
Flow Adjustment Sensitivity

Flow Adjustment Sensitivity — select the desired flow response curve for the SCV control lever and joystick. See SCV Settings—Flow Adjustment Sensitivity in this Operator’s Manual section.



RXA0167187—UN—22MAR19
ON/OFF

Loader Mode — prevents unwanted loader movement by ignoring the SCV flow and time settings. Select ON to enable or OFF to disable.



RXA0167187—UN—22MAR19
ON/OFF

Flow Sharing — reduces flow to non-critical functions, ensuring priority flow to critical functions. Select ON to enable or OFF to disable. See Flow Sharing in this Operator’s Manual section.

KD34109,000059C-19-04FEB20

SCV Settings—Activating Independent Mode

Allows you the ability to set different detent time and flow values for extend and retract. Independent mode is enabled/disabled for each SCV separately.

NOTE: Only available SCVs display.

Procedure to Modify:



RXA0167187—UN—22MAR19
ON/OFF

Independent Mode — Select ON to enable or OFF to disable.

KD34109,000059D-19-04FEB20

SCV Settings—Automation

Automation allows you to enable/disable SCV adjustments in feature mode. When disabled, SCV displays adjustments for either standard mode or independent mode, whichever the SCV is set to.

Procedure to Modify:



RXA0167187—UN—22MAR19
ON/OFF

Auto Mode — select ON to enable or OFF to disable.

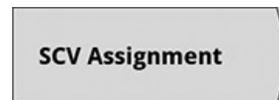
KD34109,000059E-19-04FEB20

SCV Settings—Assignment

Reassign an SCV run page module to a different SCV.

NOTE: Only accessible from run page module.

Procedure to Modify:



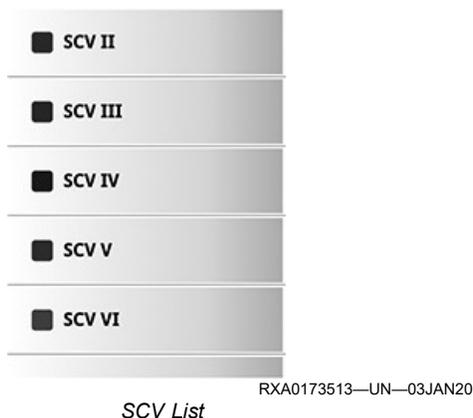
RXA0173514—UN—03JAN20
SCV Assignment Tab

1. Select SCV Assignment tab.



RXA0173512—UN—03JAN20
Assigned SCV Box

2. Select Assigned SCV box.



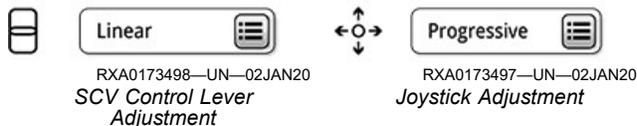
3. Select desired SCV from list.



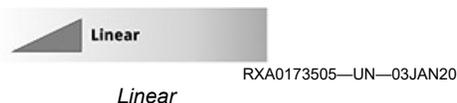
4. Select to close.

KD34109,000059F-19-04FEB20

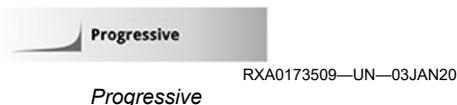
SCV Settings—Flow Adjustment Sensitivity Procedure to Modify:



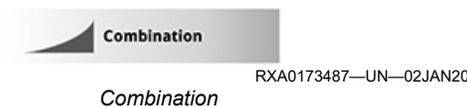
1. Select the box to set the desired response curve for the SCV control lever or the joystick.
2. Select one of the following response curves:



- **Linear** — the flow rate of the SCV corresponds to the distance traveled by the SCV control lever/ joystick lever.



- **Progressive** — initially, the flow rate of the SCV is less than that traveled by the SCV control lever/ joystick lever (giving a more sensitive start to the movement).



- **Combination** — an intermediate stage between linear and progressive.



Select OK to exit and save changes.



Select Cancel to exit without saving changes.

KD34109,00005A0-19-04FEB20

SCV Control Lever Adjustments

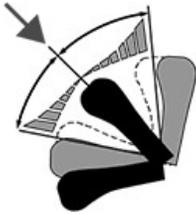
CAUTION: Avoid personal injury or machine damage:

- Ensure that hoses are not reversed. If hoses are reversed, cylinder extends when it should retract.
- To prevent unintentional implement movement, shut off engine, move SCV control levers to neutral position, and press SCV lock button before attaching implement. For lock button identification, see **CommandARM™ Controls—Left Side in CommandARM™ Controls** section of this Operator's Manual.
- SCV does not disengage when operator leaves seat. For more information, see **Operator Presence Sensor in Seats** section of this Operator's Manual.

SCV control levers on the CommandARM™ allow you to make adjustments to the SCV flow. For more information on SCV levers, see **CommandARM™ SCV Control Levers** in **CommandARM™ Controls** section of this Operator's Manual.

*NOTE: SCV control levers can be reconfigured to control tractor functions and implements. See **Controls Setup in CommandCenter™** section of this Operator's Manual.*

SCV Control Lever Adjustments:

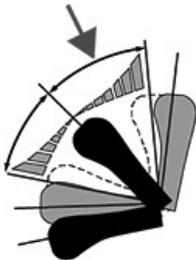


Neutral

RXA0173507—UN—03JAN20

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

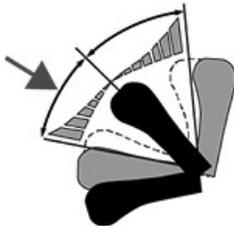
Neutral — flow continues until timed detent expires. If no timed detent is commanded, flow is turned off.



Extend

RXA0173488—UN—02JAN20

Extend — operator controlled variable flow to extend cylinder. Oil flows at a rate that varies depending on how far lever is moved. Slowest oil flow is when lever is closest to neutral position. Lever is returned to neutral position when released.



Retract

RXA0173510—UN—03JAN20

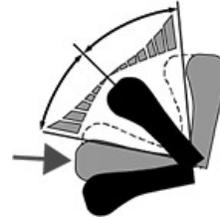
Retract — operator controlled variable flow to retract cylinder. Oil flows at a rate that varies depending on how far lever is moved. Slowest oil flow is when lever is closest to neutral position. Lever is returned to neutral position when released.



Extend Detent

RXA0173489—UN—02JAN20

Extend Detent — timed flow to extend cylinder based on time and flow detent settings. Lever returns to neutral position, but flow continues at flow detent setting rate until detent time setting has elapsed.



Retract Detent

RXA0173511—UN—03JAN20

Retract Detent — timed flow to retract cylinder based on time and flow detent settings. Lever returns to neutral position, but flow continues at flow detent setting rate until detent time setting has elapsed.



Float

RXA0173491—UN—02JAN20

NOTE: If lever is in float position at engine start-up, float function will be disabled until lever is cycled to neutral.

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

Float — SCV opens to allow free flow of oil from head-to-rod end of implement hydraulic cylinder, allowing implement to follow ground contour. Lever and SCV remain in float position until lever is manually returned to neutral. Cycle cylinder fully in both directions after being used in float position to ensure that cylinder is filled with oil. Float can be used to allow hydraulic cylinders to coast when shutting down implement.

KD34109,00005A1-19-06MAY20

Total SCV Flow

1. Check flow setting for each function independently. For correct motor flow settings, refer to the implement Operator's Manual.

The following may cause pump to operate at high pressure:

- Down pressure systems (drills, air seeders, disks) — can be considered to be zero flow demand after completion of raise or lower cycle. For more information, see implement connection examples

in Hydraulic Connections section of this Operator's Manual.

- Auxiliary flow control valves (vacuum flow control) — open implement flow control valve and adjust tractor flow rate to desired setting. For more information, see implement connection examples in Hydraulic Connections section of this Operator's Manual.
 - Cylinder functions where line or orifice restrictions control flow — adjust tractor flow control to point where function speed begins to decrease.
 - Auxiliary control valves (implement stack valves, row guidance) — adjust tractor flow control to lowest setting that results in correct operation.
2. Determine total flow demand by adding flow requirements for each SCV using settings determined in Step 1. Include hitch and power beyond flow requirements, if applicable (refer to SCV flow chart for settings based on approximate flow output).
 3. Determine if flow demand exceeds available pump flow (refer to SCV pump flow chart for approximate available pump flow).

If flow demand:

- Is less than available pump flow but has performance concern, see your John Deere dealer.
- Exceeds pump flow:
 - Increase engine rpm if possible.
 - Decrease flow setting on noncritical functions.
 - Convert implement open center valves to closed center operation, if equipped.

NOTE: Flow measurements made without steering or hitch being used.

SCV Pump Flow (Approximate) L/min (gal/min)		
Engine rpm	Pump	
	90 cc	90 cc and 85 cc
1000	106.4 (28)	207.3 (55)
1500	159.5 (42)	310.9 (82)
2000	212.7 (56)	414.6 (110)
2100	220.0 (58)	435.0 (115)

SCV Flow (Approximate) ^a L/min (gal/min)		
SCV Flow Settings	Standard-Flow SCV 1/2-Inch Coupler ^b	High-Flow SCV 3/4-Inch Coupler ^c
0.04 ^d	—	—
1.0	1.9 (0.5) ^e	4.3 (1.1)
2.0	6.1 (1.6)	11.3 (3.0)

SCV Flow (Approximate) ^a L/min (gal/min)		
SCV Flow Settings	Standard-Flow SCV 1/2-Inch Coupler ^b	High-Flow SCV 3/4-Inch Coupler ^c
3.0	13.6 (3.6)	19.4 (5.1)
4.0	20.4 (5.4)	27.6 (7.3)
5.0	28.0 (7.4)	35.2 (9.3)
6.0	40.9 (10.8)	49.9 (12.4)
7.0	62.1 (16.4)	72.0 (19.0)
8.0	81.4 (21.5)	95.3 (25.2)
9.0	107.1 (28.3)	118.6 (31.4)
10.0	132.0 (35.0)	159.0 (42.0)

^aAt 2000 rpm and 454 kg (1000 lb) of load at point-of-use.

^b90 cc pump.

^c90 cc and 85 cc pumps.

^dMinimum flow setting.

^eObserved under no load.

Hitch Cylinder Diameter mm	Hitch Flow [Ag] L/min (gal/min)
90/100	71 (18.7)
120/120	88 (23.2)

KD34109,00008AA-19-18MAR21

Flow Sharing

To maintain productivity, hydraulic flow sharing reduces flow to non-critical SCV functions, ensuring priority flow to critical SCV functions. To enable or disable flow sharing, see SCV Settings—Advanced in this Operator's Manual section.

NOTE: Continuous setting receives priority over timed detent. If all SCVs are set to C (continuous) and requested flow is exceeded, flow is equally reduced to all SCVs to ensure that all functions are still active.

For Maximum Performance:

- Properly connect SCVs and implement according to implement operator's manual.
- If implement operator's manual is unavailable, refer to appropriate hydraulic connection example in Hydraulic Connections section of this Operator's Manual. On agricultural tractors equipped with high-flow hydraulics, SCVs can be supplied by different pumps. For more information, see Connecting Implements to High-Flow Hydraulic SCVs [AG] in Hydraulic Connections section of this Operator's Manual.
- Make sure SCV flow settings match flow requirements for function. For more information, see Total Rear SCV Flow in this Operator's Manual section.
- Setting detent time (recommendation in implement operator's manual) slightly longer than needed is

preferred. However, setting time much longer than necessary or to C (continuous) could result in activation of flow sharing and excess fuel burn.

If implement functions operate slower than expected, perform flow sharing diagnostic procedure.

Flow Sharing Diagnostic Procedure:

1. Check all connections for proper hookup. Whenever possible, connect return connections to SCV return ports or power beyond return port.
2. For every SCV set to C (continuous) flow, adjust the flow rate to be the lowest rate possible for optimal implement operation. Not all functions require continuous flow, and timed SCVs set too long can lead to flow sharing if they overlap with continuous flow SCVs.
3. Hydraulic flow is engine speed dependent. If a function is slow, increase engine rpm to increase flow.
4. Adjust flow first and then timed detent SCVs (as necessary from observation) to provide proper implement function.
5. On high-flow hydraulic system equipped tractors, try to balance hydraulic loading between the two circuits.
6. If implement functions remain slow, see your John Deere dealer.

KD34109,00005A3-19-04FEB20

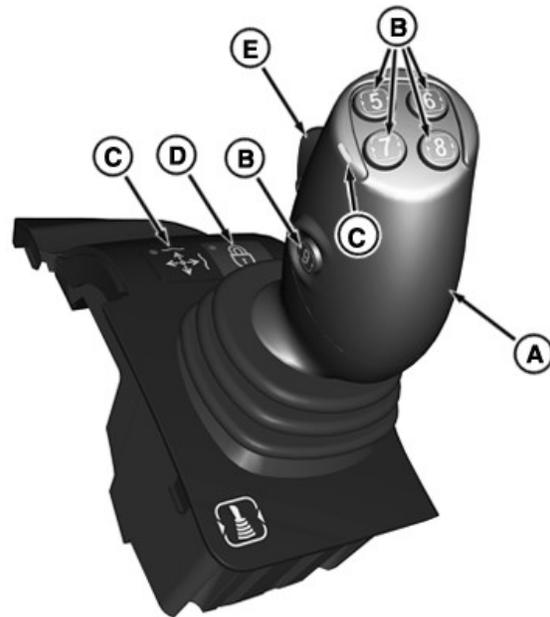
Operate SCVs with CommandARM™ Joystick

To use joystick after restarting machine, operator will need to unlock. Joystick is always locked on start-up to prevent unintended movement.



RXA0133735—UN—17JUL13

- The Control Setup icon appears around controls that may be assigned to control other functions. Review the Controls Setup page to verify the function of each control. For more information on joystick assignments, see Controls Setup in CommandCenter™ section of this Operator's Manual.

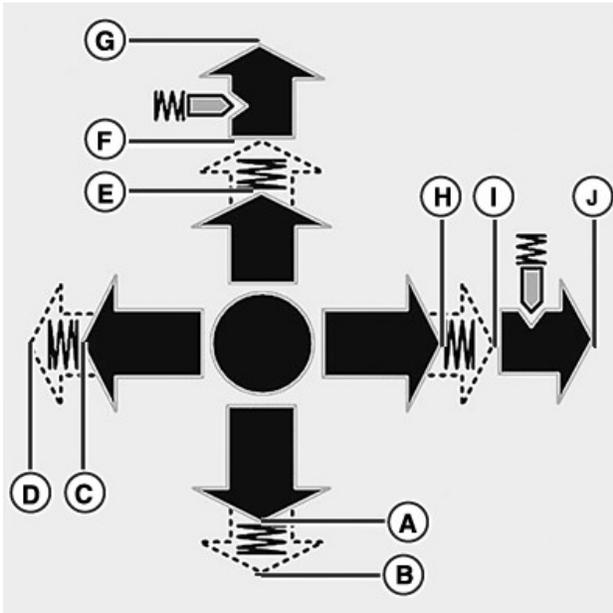


RXA0133920—UN—11NOV13

- The axis of the joystick (A) operates combinations of programmed SCV functions.
- For tractors equipped with e23™ and e18™ transmissions, operator can select transmission gear upshifts using button 5 (B) and downshifts using button 7 (B).
- Joystick activation indicator lights (C) are illuminated when joystick is active.
- Joystick lock (D) locks out electrohydraulic functions for SCVs assigned to joystick.
- Rocker switch (E) operates combinations of programmed SCV functions.
- When joystick Loader Mode setting is ON, operator can activate the bucket shake function. Move joystick to the right twice in brief succession beyond the point of resistance and hold it there. To enable/disable Loader Mode, see SCV Settings—Advanced in this Operator's Manual section.
- Push the joystick all the way forward and engage in detent to activate the float position. Joystick remains in detent until it is pulled back. Detent does not function in Loader Mode.
- In Loader Mode, time detents for SCVs assigned to the joystick axis cannot be adjusted. Only SCV flow can be adjusted for those SCVs.

KD34109,00005A4-19-04FEB20

CommandARM™ Joystick—Layout and Joystick Lever Functions



RXA0155031—UN—18OCT16

- F**—Push joystick forward beyond the point of detectable resistance to retract detent.
 - G**—Push joystick all the way forward and engage in detent to activate the float position.
 - H**—Move joystick to the right to retract.
 - I**—Move joystick to the right beyond the point of detectable resistance to retract detent. For bucket shake function, move the joystick to the right twice in brief succession beyond the point of resistance and hold it there.
 - J**—Move joystick all the way to the right and engage in detent to activate the float position.
 - K**—Select up on rocker switch beyond the point of detectable resistance for extend detent.
 - L**—Select down on rocker switch beyond the point of detectable resistance for retract detent.
- Operator can set any SCV on any axis or rocker switch of the joystick.

KD34109.00005A5-19-04FEB20



RXA0155032—UN—18OCT16

NOTE: Joystick movement descriptions are based on proper hose connection.

Some functions shown may not be available depending on what options tractor is equipped with.

- A**—Pull joystick back to extend.
- B**—Pull joystick back beyond the point of detectable resistance to extend detent.
- C**—Move joystick to the left to extend.
- D**—Move joystick to the left beyond the point of detectable resistance to extend detent.
- E**—Push joystick forward to retract.

Hydraulic Connections

Connect/Disconnect Hydraulic Hoses

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

- Avoid injury, always:
 - Protect the hands and body from high-pressure fluids.
 - Inspect hydraulic hoses periodically – at least once per year – for damage. Signs of wear or damage include, but are not limited to, leakage, kinking, cuts, cracks, abrasion, blisters, corrosion, and exposed wire braid.

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

- Tighten all connections before applying pressure.
- Ensure that all connected lines are as straight as possible.
- Search for leaks with a piece of cardboard.
- Relieve pressure from the hydraulic system before disconnecting a hydraulic line or other lines.
- If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene can result. Doctors unfamiliar with this type of injury 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.

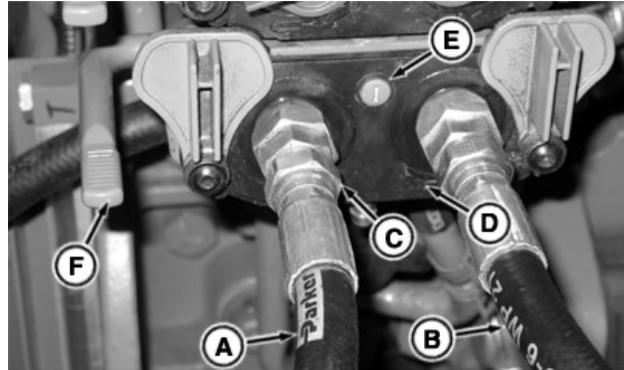
Unintentional implement movement can cause injury. To avoid injury, before attaching or detaching hydraulic hoses, always engage the:

- SCV control lever lock. See CommandARM™ SCV Control Levers in the CommandARM™ Controls section of this Operator's Manual.
- Joystick lock (If Equipped). See Operate SCVs with CommandARM™ Joystick in the Selective Control Valves section of this Operator's Manual.

IMPORTANT: Dirt, dust, or other foreign material can damage the hydraulic system. Avoid damage to the hydraulic system and thoroughly clean hydraulic hoses and hose ends, and SCVs before connecting an implement.

Steam cleaning or using a high pressure washer in the area around the SCV connections and electronics can damage equipment. Keep a minimum distance of 200 mm (8 in) between the pressure washer nozzle and hydraulic connections for any pressure washer exceeding 6895 kPa (69 bar) (1000 psi).

SCV Coupler Component Identification and Location



RXA0177992—UN—22JUN20

- A—Extend Port
- B—Retract Port
- C—Coupler Identification Plate—Extend Port
- D—Coupler Identification Plate—Retract Port
- E—Remote Cylinder Coupler Identification
- F—SCV Hydraulic Hose Release Lever

NOTE: Remote cylinder couplers are designated I through VIII (E) with I being the bottom coupler.

Verify that the remote hydraulic hoses are connected to the correct SCV couplers to ensure desired system control operation.

Connect Hydraulic Hoses

1. From within the cab, lock out the SCV controls.
2. From outside the cab:
 - a. Before connecting the hydraulic hoses, determine:
 1. If the symbols on the coupler identification plate (C) or (D) indicating cylinder movement, match the desired cylinder travel direction.
 2. The desired SCV connection based on whether the implement uses single-acting or double-acting cylinders. For:
 - Single-acting cylinders, use the extend (A) port.
 - Double-acting cylinders, use the extend (A) and retract (B) ports.
 - b. To connect the hydraulic hose to the SCV:
 1. Clean the dust covers/caps.
 2. Rotate up or remove the dust covers to expose the SCV couplers.

3. Push the hydraulic coupler sleeve forward. (If Equipped)
4. Push the hydraulic hose firmly into the SCV coupler.
5. Pull the hydraulic coupler sleeve backward to lock the hose coupler into the receptacle. (If Equipped)

4. Recheck the oil level when the implement is removed.
5. Add or remove hydraulic oil as necessary. If the oil must be drained, see Transmission-Hydraulic Oil and Filters in the Service—Change section of this Operator's Manual.

KD34109,00008AC-19-18MAR21

Disconnect Hydraulic Hoses

1. From within the cab:
 - a. Start the tractor.
 - b. Use the appropriate SCV lever to lower the implement to the ground.
 - c. Relieve the hydraulic pressure in hoses by moving the SCV control lever or joystick (If Equipped) to the float position for a few seconds.
 - d. Lock out the SCV controls.
 - e. Shut off the tractor.
2. From outside the cab:
 - a. Push the SCV hose release lever (F) down slightly to relieve any pressure buildup of trapped oil.
 - b. Remove the hoses from the SCV couplers.
 - c. Clean the SCV coupler area.
 - d. Rotate down or replace the dust covers to protect the SCV couplers.

KD34109,00008AB-19-18MAR21

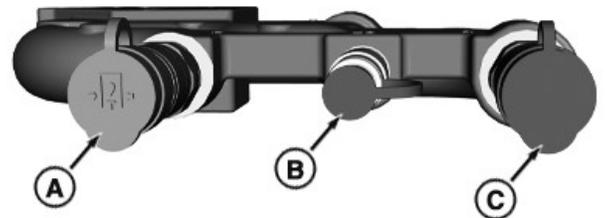
Using Load-Sensing Hydraulic System—Power-Beyond

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

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

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

Component Identification



RXA0177993—UN—20MAY20

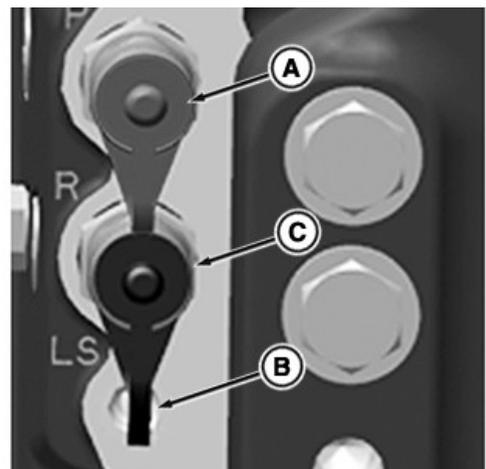
Power-Beyond Coupler—Mid/Upper

Implements Requiring Large Volumes of Hydraulic Oil

IMPORTANT: Avoid damage to the hydraulic system:

- Lower the implement to the ground to return most of the oil to the reservoir during the checking procedure.
- Never add hydraulic oil to reservoir with engine running as doing so can cause the hydraulic reservoir to overflow.
- Do not overfill the hydraulic reservoir.

1. Cycle all the implement cylinders after starting the tractor.
2. Lower the implement to the ground to return the most oil to the reservoir.
3. Check the hydraulic oil level at the transmission-hydraulic oil sight gauge. See Transmission-Hydraulic Oil Level in the Service—Check section of this Operator's Manual.



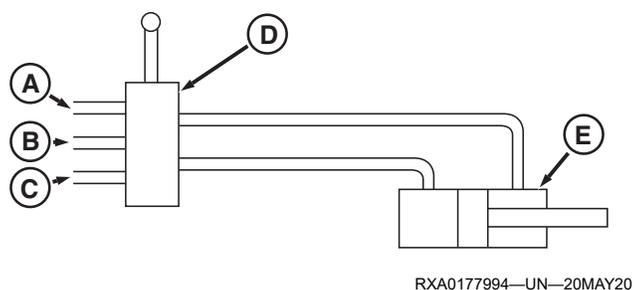
RXA0179032—UN—06AUG20

Power-Beyond Coupler—Hitch Casting

- A— Pressure Coupler
- B— Load Sense Coupler
- C— Return Coupler (Motor Return)

Example 1

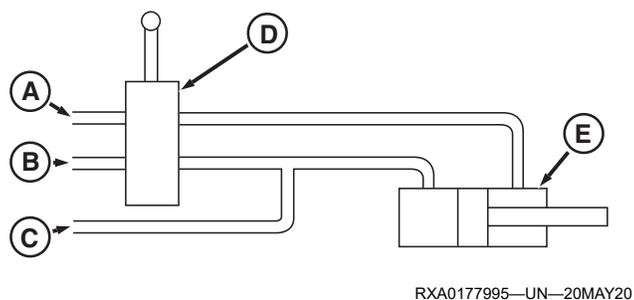
NOTE: Example 1 is the preferred practice.



- A— Pressure Coupler
- B— Load Sense Coupler
- C— Return Coupler (Motor Return)
- D— Control Valve
- E— Cylinder

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

Example 2

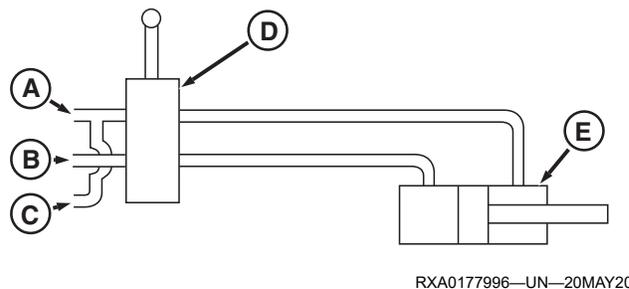


- A— Pressure Coupler
- B— Load Sense Coupler
- C— Return Coupler (Motor Return)
- D— Control Valve
- E— Cylinder

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

Control valve directs oil into extend or retract circuits. Connect load-sense line to circuit requiring pressure. An example is a wagon lift cylinder with load supported by mechanical stops in full down position. Load-sense signals pump when increased pressure is needed. Pressure remains low when load is supported by mechanical stops.

Example 3

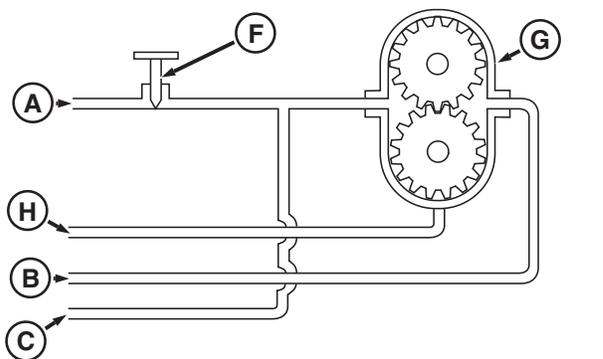


- A— Pressure Coupler
- B— Load Sense Coupler
- C— Return Coupler (Motor Return)
- D— Control Valve
- E— Cylinder

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

Control valve directs oil into extend or retract circuits, either requiring high pressure. Connect load-sense line to pressure line before control valve. An example is a folding implement, where pressure is needed to extend or retract cylinders.

Example 4



- A— Pressure Line
- B— Return Line
- C— Load-Sense Line
- F— Pressure-Compensated Flow Valve
- G— Hydraulic Motor
- H— Motor Case Drain (Sump Line)

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

For Ag high flow, it is recommended that the hydraulic motor be connected to the top SCVs (85 cc high flow pump).

High-flow scraper hydraulics is not recommended for motor application.

Pressure-compensated flow control valve is used to

regulate hydraulic motor speed. Connect load-sense line to pressure line after control valve.

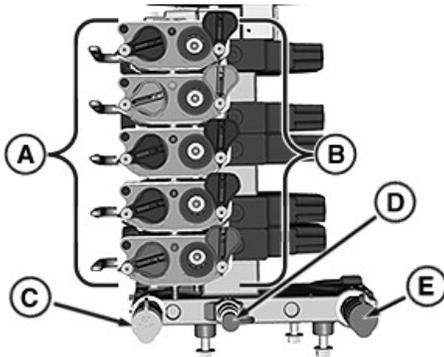
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Component Identification and Location [Ag]

SCVs are color coded for easier identification. Hose identification kits are available from your John Deere dealer.

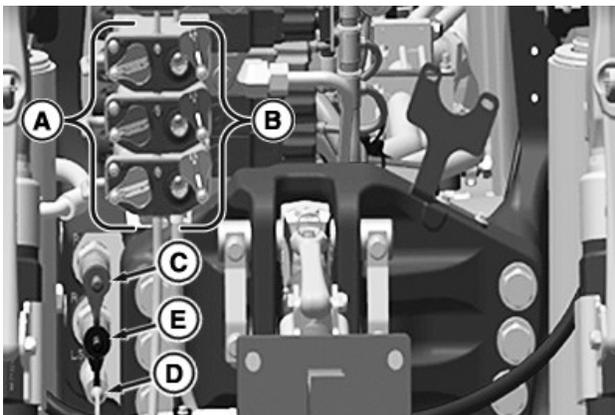
SCV Numbers and Corresponding Colors	
SCV	
Number	Color
I	Green
II	Blue
III	Brown
IV	Black
V	Violet
VI	Gray
VII	White
VIII	Light Green

Standard Flow Hydraulics



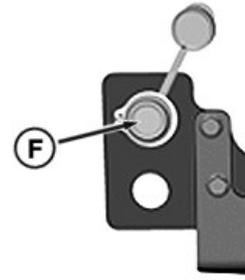
RXA0177997—UN—20MAY20

Component Identification and Location [Ag]—Standard Flow with Power-Beyond in Upper Location



RXA0178744—UN—16JUL20

Component Identification and Location [Ag]—Standard Flow with Power-Beyond in Hitch Casting



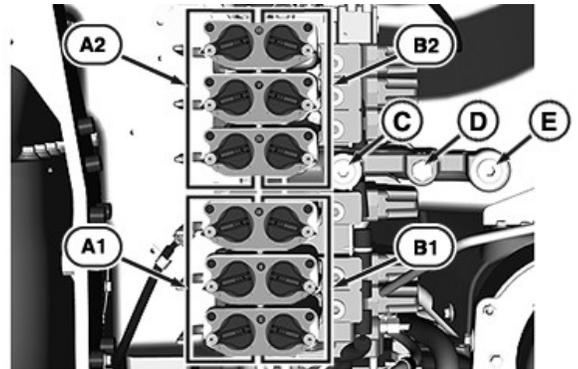
RXA0177998—UN—20MAY20

Component Identification and Location [Ag]—Standard Flow: (F) Sump Coupler—Motor Case Drain

- A—Extend Couplers
- B—Retract Couplers
- C—Power-Beyond: Pressure Coupler
- D—Power-Beyond: Load Sense Coupler
- E—Power-Beyond: Return Coupler (Motor Return)
- F—Sump Coupler (Motor Case Drain)

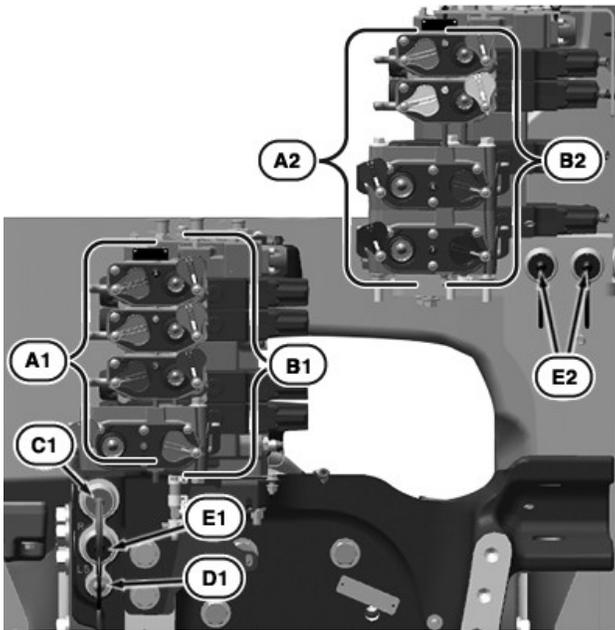
1/2 inch SCVs VII and VIII are only available as field installation kits.

High-Flow Hydraulics



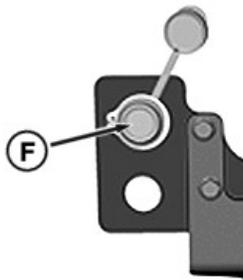
RXA0178141—UN—10JUN20

High-Flow SCV with Couplers I—VI



RXA0178746—UN—17NOV20

High-Flow SCV with Couplers I-VIII



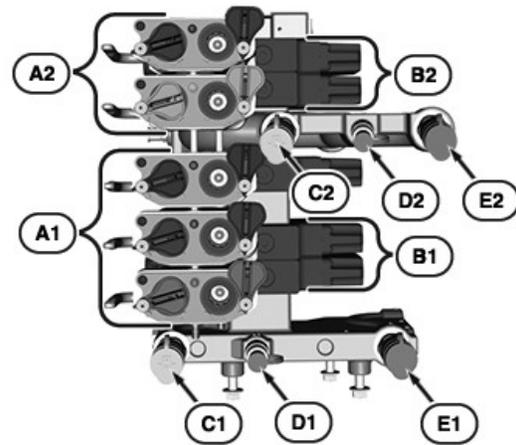
RXA0177998—UN—20MAY20

Component Identification and Location [Ag]—High-Flow Hydraulics: (F) Sump Coupler—Motor Case Drain

• Eight SCVs:

- I-IV (A1, B1) are supplied by the primary pump.
- V-VIII (A2, B2) are supplied by the secondary pump. These SCVs are recommended for an orbital motor or air seeder use.
- VII—VIII. A tractor equipped with SCVs VII and VIII is also equipped with Intelligent Power Management (IPM). If an air seeder is connected to SCV VI—VIII, follow the guidelines found in the air seeder operators manual (example: John Deere 1870 or 1895 Air Seeder). See Drivetrain Protection in the Drivetrain section of this Operator's Manual.

Connecting Implements to High-Flow Hydraulics SCVs



RXA0178144—UN—17JUN20

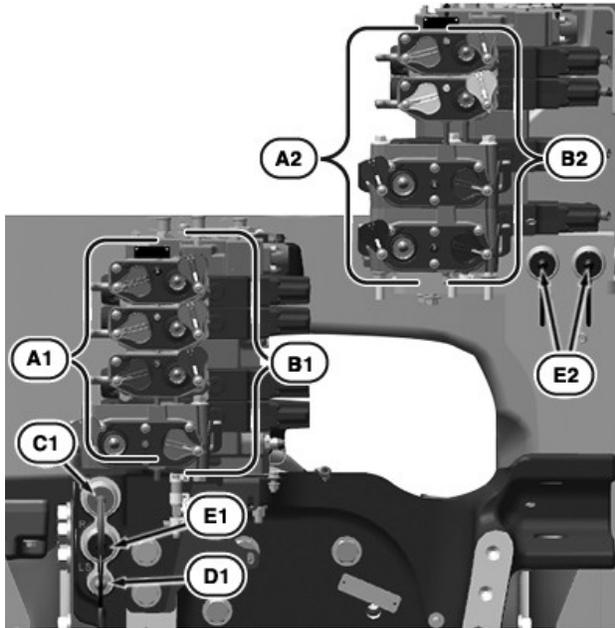
High Flow Hydraulic SCV Stack—Five SCVs with Power-Beyond in Upper Location

- A1—Extend Couplers (Primary Hydraulic Pump)
- A2—Extend Couplers (Secondary Hydraulic Pump)
- B1—Retract Couplers (Primary Hydraulic Pump)
- B2—Retract Couplers (Secondary Hydraulic Pump)
- C—Power-Beyond: Pressure Coupler
- C1—Power-Beyond: Pressure Coupler (Primary Hydraulic Pump)
- C2—Power-Beyond: Pressure Coupler (Secondary Hydraulic Pump)
- D—Power-Beyond: Load Sense Coupler
- D1—Power-Beyond: Load Sense Coupler (Primary Hydraulic Pump)
- D2—Power-Beyond: Load Sense Coupler (Secondary Hydraulic Pump)
- E—Power-Beyond: Return Coupler (Motor Return)
- E1—Power-Beyond: Return Coupler (Motor Return) (Primary Hydraulic Pump)
- E2—Power-Beyond: Return Coupler (Motor Return) (Secondary Hydraulic Pump)

For high-flow hydraulic systems with:

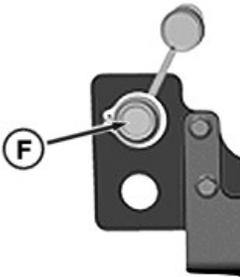
• Six SCVs:

- I—III (A1, B1) are supplied by the primary pump.
- IV—VI (A2, B2) (If Equipped) are supplied by the secondary pump. These SCVs are recommended for orbital motor use.



RXA0178746—UN—17NOV20

High Flow Hydraulic SCV Stack—Eight SCVs with Power-Beyond in Hitch Casting



RXA0177998—UN—20MAY20

Component Identification and Location [Ag]—High-Flow Hydraulics: (F) Sump Coupler—Motor Case Drain

- A1—Extend Couplers (Primary Hydraulic Pump)
- A2—Extend Couplers (Secondary Hydraulic Pump)
- B1—Retract Couplers (Primary Hydraulic Pump)
- B2—Retract Couplers (Secondary Hydraulic Pump)
- C1—Power-Beyond: Pressure Coupler (Primary Hydraulic Pump)
- C2—Power-Beyond: Pressure Coupler (Secondary Hydraulic Pump)
- D1—Power-Beyond: Load Sense Coupler (Primary Hydraulic Pump)
- D2—Power-Beyond: Load Sense Coupler (Secondary Hydraulic Pump)
- E1—Power-Beyond: Return Coupler (Motor Return) (Primary Hydraulic Pump)
- E2—Power-Beyond: Return Coupler (Motor Return) (Secondary Hydraulic Pump)
- F—Sump Coupler (Motor Case Drain)

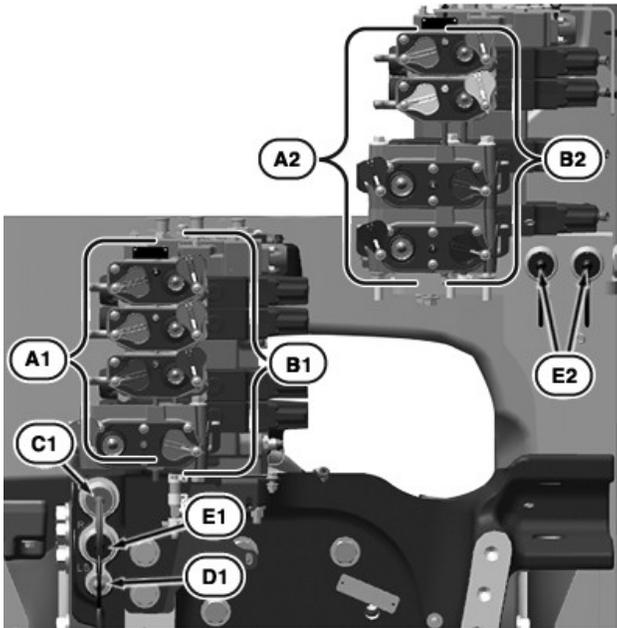
IMPORTANT: Avoid damage to the hydraulic and cooling systems due to overheating. Ensure that the implement is properly connected to the hydraulic system.

This system is not recommended for high-flow scraper hydraulics.

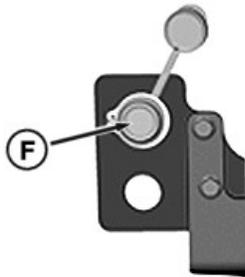
The high-flow hydraulic system utilizes two pumps. The pumps consist of a:

1. Primary hydraulic pump supplying SCVs (A1) and (B1). The primary pump is recommended for high pressure and low flow functions, such as air seeders, large cylinders, and active down force systems.
2. Secondary hydraulic pump supplying SCVs (A2) and (B2). Secondary hydraulic pump is recommended for low pressure and high flow functions. Most hydraulic motors use 19—26.5 L/min (5—7 gal/min) per motor and a pressure of around 1450 psi (100 bar) to operate. The secondary hydraulic pump can:
 - a. Operate hydraulic motors such as air seeders, sprayers, and vacuum planters. Using the secondary hydraulic pump when operating hydraulic motors:
 - Can improve fuel economy, reduce power loss, and reduce heating of hydraulic oil.
 - Reduces hydraulic system interactions with steering, brakes, raise, lower, active down force, and so forth.
 - b. Provide high pressure to the same functions as the primary hydraulic pump, however:
 - The benefits of the improved fuel economy and reduced power loss disappear.
 - There is an increased chance of system interactions with hydraulic motors being on the same pump as other hydraulic functions which typically means increased vacuum level or blower motor speed fluctuations.
 - Under some conditions, more heat can be generated which places increased load on the cooling system.

Connecting Implements to Air Seeder Special High-Flow Hydraulics SCVs



RXA0178746—UN—17NOV20
High-Flow Hydraulic SCV Stack



RXA0177998—UN—20MAY20
Component Identification and Location [Ag]—High-Flow Hydraulics: (F) Sump Coupler—Motor Case Drain

- A1—Extend Couplers (Primary Hydraulic Pump)
- A2—Extend Couplers (Secondary Hydraulic Pump)
- B1—Retract Couplers (Primary Hydraulic Pump)
- B2—Retract Couplers (Secondary Hydraulic Pump)
- C1—Power-Beyond: Pressure Coupler (Primary Hydraulic Pump)
- D1—Power-Beyond: Load Sense Coupler (Primary Hydraulic Pump)
- E1—Power-Beyond: Return Coupler (Motor Return) (Primary Hydraulic Pump)
- E2—Power-Beyond: Return Coupler (Motor Return) (Secondary Hydraulic Pump)
- F—Sump Coupler (Motor Case Drain)

IMPORTANT: Avoid hydraulic and cooling system overheating. Ensure that the implement is correctly connected to the hydraulic system.

- Recommended setup for high-flow agriculture applications, connect the:
 - Hydraulic motor supply to the secondary hydraulic pump SCVs (A2) and (B2).
 - Hydraulic motor return coupler to a Power-Beyond return coupler connection (E2).

- It is not recommended to connect scraper hydraulic systems to the high-flow SCVs.

The high-flow hydraulic system utilizes two pumps:

- Primary hydraulic pump supplying SCVs (A1) and (B1).
- Secondary hydraulic pump supplying SCVs (A2) and (B2).

Primary Hydraulic Pumps SCVs

Use these SCVs for high pressure and low flow functions, such as large cylinders and active down force systems.

Secondary Hydraulic Pump SCVs

Use these SCVs for low pressure and high flow functions, such as hydraulic motor operation associated with air seeders, sprayers, and vacuum planters.

Operating hydraulic motors through the secondary hydraulic pump:

- Reduces hydraulic system interactions with steering and brakes, raise and lower functions, and active down force.
- Improves fuel economy, decreases power loss, and reduces heating of hydraulic oil.

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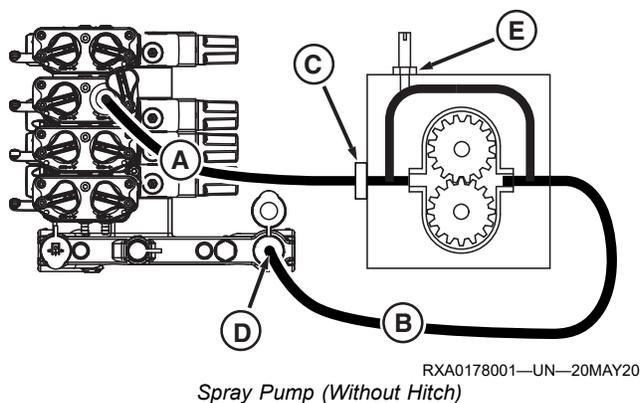
Using Hydraulic Spray Pumps [Ag]

IMPORTANT: For motors using the SCV pressure and return couplers, avoid damage to the hydraulic system pump seals due to high-pressure oil trapped between the SCV and the pump. To stop the pump:

- Always move the SCV lever to the float position, which allows the motor to coast to a stop.
- Never move the SCV lever to the neutral position as this action can cause the motor to stop abruptly.

NOTE: Connecting the hydraulic motor to the 85 cc high-flow pump is the preferred method of connection.

1. Follow the recommendations provided by the spray pump manufacturer for pump model selection, setup, and operation.



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

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

In general:

- Select the smallest displacement motor recommended for multiple hydraulic function operation. The smaller displacement lowers total hydraulic flow demand and improve overall system performance.

- Use SCV:
 - III, IV, or V for a standard hydraulic system.
 - III or IV for a high-flow hydraulic system with a hitch.
 - IV or V for a high-flow hydraulic system without a hitch.

3. Connect the return line to the Power-Beyond return coupler.

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

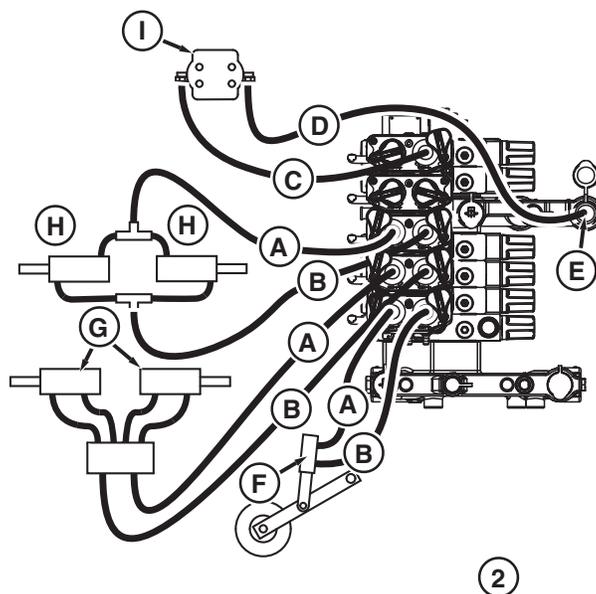
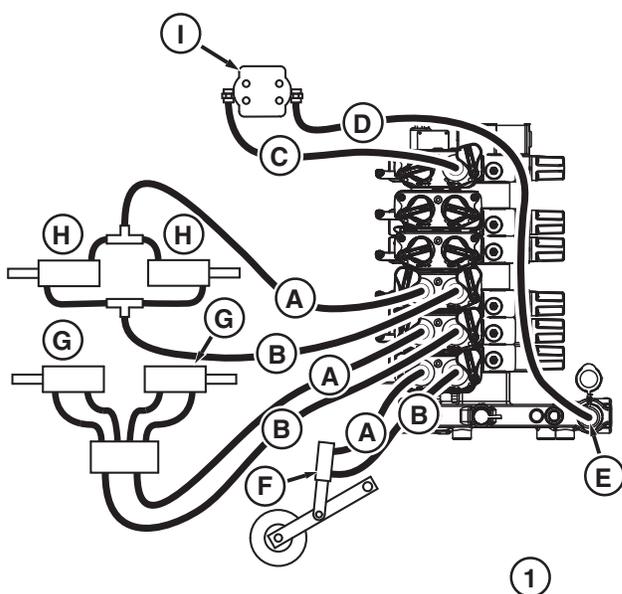
4. Activate the SCV by:

- a. Moving the SCV lever forward to the retract detent position.
- b. Adjusting the hydraulic flow rate to the pump manufacturers guidelines.

5. Shut off the spray pump by moving the SCV control lever to the float position (full forward and down).

KD34109,00008AF-19-18MAR21

Implement Connection Example [Ag]: Closed Center Valve and Pump at High Pressure—Less Hitch



RXA0178002—UN—08JUL20

- 1—Standard-Flow Hydraulics
- 2—High-Flow Hydraulics
- A—Extend Coupler Line
- B—Retract Coupler Line
- C—Pressure Line
- D—Return Line

- E—Power-Beyond Return Coupler—Motor Return
- F—Raise/Lower Cylinder
- G—Markers
- H—Fold
- I—Hydraulic Motor

IMPORTANT: To avoid damage to the hydraulic system seals due to the incorrect positioning of the SCV levers after the hydraulic motor is shutoff:

- Always move the SCV lever to the float position, which allows the motor to coast to a stop.
- Never move the SCV lever to the neutral position as this action can cause the motor to stop abruptly.

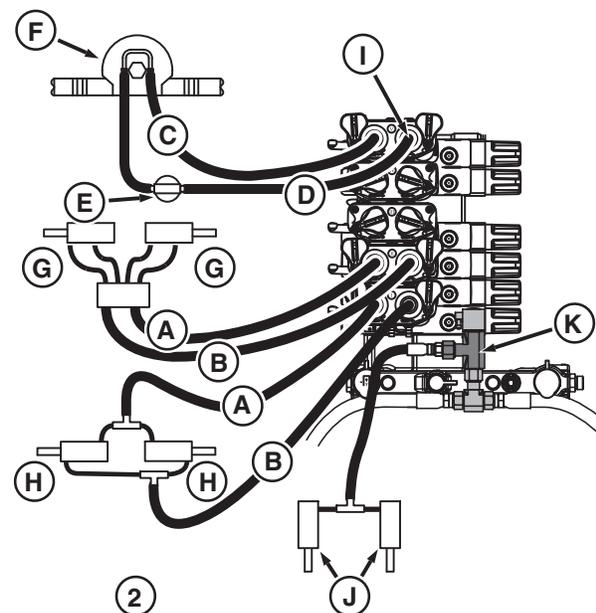
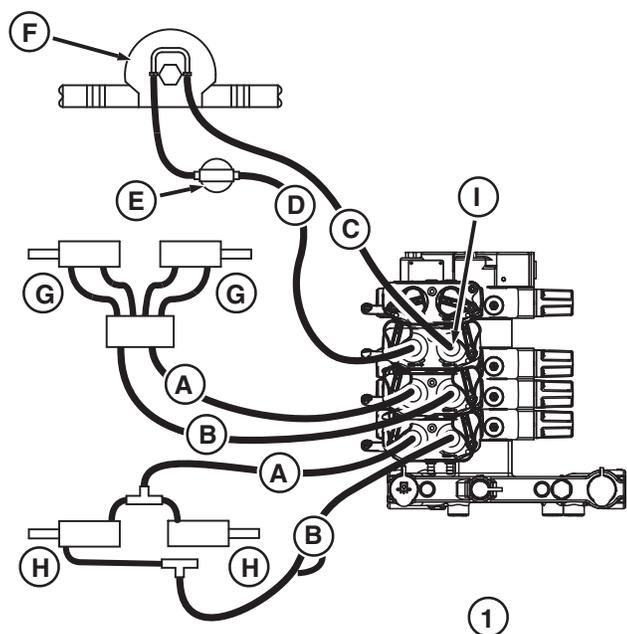
NOTE: Connecting the hydraulic motor to the secondary high-flow pump is the preferred method of connection.

In this application:

- The hydraulic return coupler is routed to the Power-Beyond return port.
- The hydraulic motor receives pressure oil from the SCV retract port.
- If the hydraulic oil return hose is:
 - Connected to the Power-Beyond port, a special return hose tip is not required.
 - Not connected to the Power-Beyond port, use a special return hose tip to connect the hydraulic oil return to any of the left-hand side SCV couplers.

KD34109,00008B0-19-18MAR21

Implement Connection Example [Ag]: Planter with Vacuum Motor and Return Line to SCV Using Motor Return Tip



- 1—Standard-Flow Hydraulics
- 2—High-Flow Hydraulics
- A—Extend Coupler Line
- B—Retract Coupler Line
- C—Pressure Line
- D—Return Line
- E—Flow Control Valve

- F—Vacuum Motor
- G—Marker
- H—Fold
- I—Special Hose Tip
- J—Implement Lift Assist
- K—T-fitting and Hydraulic Hose

RXA0178003—UN—17JUN20

IMPORTANT: Avoid damage to the hydraulic oil. If the ambient air temperature is high, hydraulic oil can overheat when the hydraulic pump operates at maximum pressure.

- Flow control valve controls the flow with standard-flow hydraulics.
- Valve is used to control the oil flow with high-flow hydraulics.

Avoid damage to the hydraulic system seals due to the incorrect positioning of the SCV levers after the hydraulic motor is shutoff:

- Always move the SCV lever to the float position, which allows the motor to coast to a stop.
- Never move the SCV lever to the neutral position as this action can cause the motor to stop abruptly.

Avoid damage to the hydraulic system seals due to high-pressure hydraulic return oil moving back toward the motor through the SCV connection. The installation of a special return hose tip with a check valve is required.

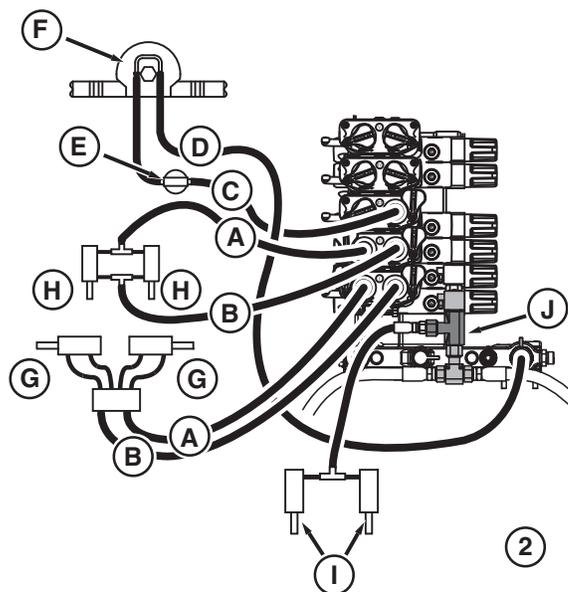
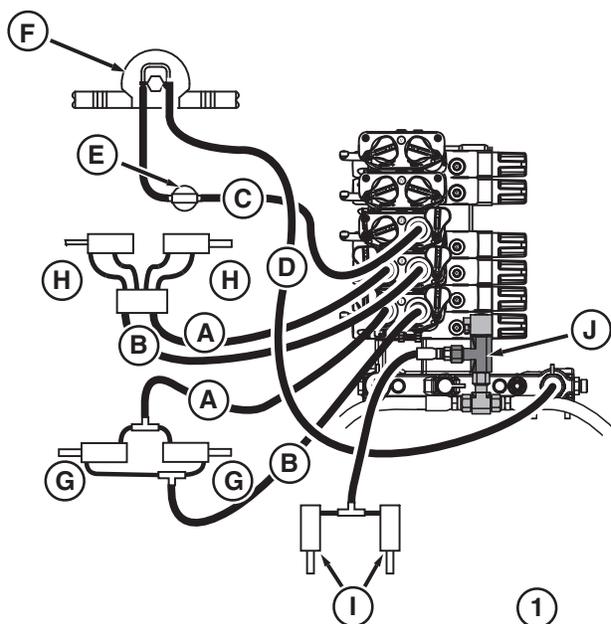
NOTE: Connecting the hydraulic motor to the secondary high-flow pump is the preferred method of connection.

In this application:

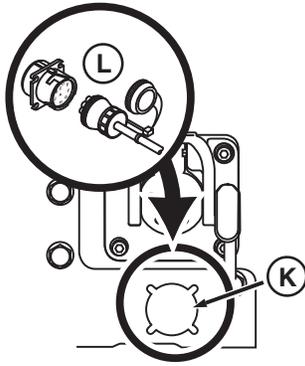
- A vacuum motor, similar to a planter blower, receives pressure oil from the SCV retract coupler.
- If using an SCV to control the flow to the vacuum motor, use the SCV panel for standard-flow or high-flow hydraulics. If the planter is equipped with a flow control valve on the vacuum motor it needs to be in the wide-open position.
- Connect the lift assist cylinders with a T-fitting and a hydraulic hose to the hitch-lowering valve. The hitch lever controls the lift assist cylinders.

KD34109,00008B1-19-18MAR21

Implement Connection Example [Ag]: Planter with Vacuum Motor and Return Line to Motor Return—With Hitch and Implement Lift Assist



RXA0178004—UN—17JUN20



RXA0178005—UN—20MAY20

- 1—Standard-Flow Hydraulics
- 2—High-Flow Hydraulics
- A—Extend Coupler Line
- B—Retract Coupler Line
- C—Pressure Line
- D—Return Line (Power-Beyond Return Coupler—Motor Return)
- E—Flow Control Valve
- F—Vacuum Motor
- G—Markers
- H—Fold
- I—Implement Lift Assist
- J—T-Fitting and Hydraulic Hose
- K—9-Pin Implement Connector
- L—9-Pin Connector for TouchSet™ Depth Control

IMPORTANT: Avoid damage to the hydraulic oil. If the ambient air temperature is high, hydraulic oil can overheat when the hydraulic pump operates at maximum pressure.

- Flow control valve controls the flow with standard-flow hydraulics.
- Valve is used to control the oil flow with high-flow hydraulics.

Avoid damage to the hydraulic system seals due to the incorrect positioning of the SCV levers after the hydraulic motor is shutoff:

- Always move the SCV lever to the float position, which allows the motor to coast to a stop.
- Never move the SCV lever to the neutral

position as this action can cause the motor to stop abruptly.

Avoid damage to the hydraulic system seals due to high-pressure hydraulic return oil moving back toward the motor through the SCV connection. The installation of a special return hose tip with a check valve is required.

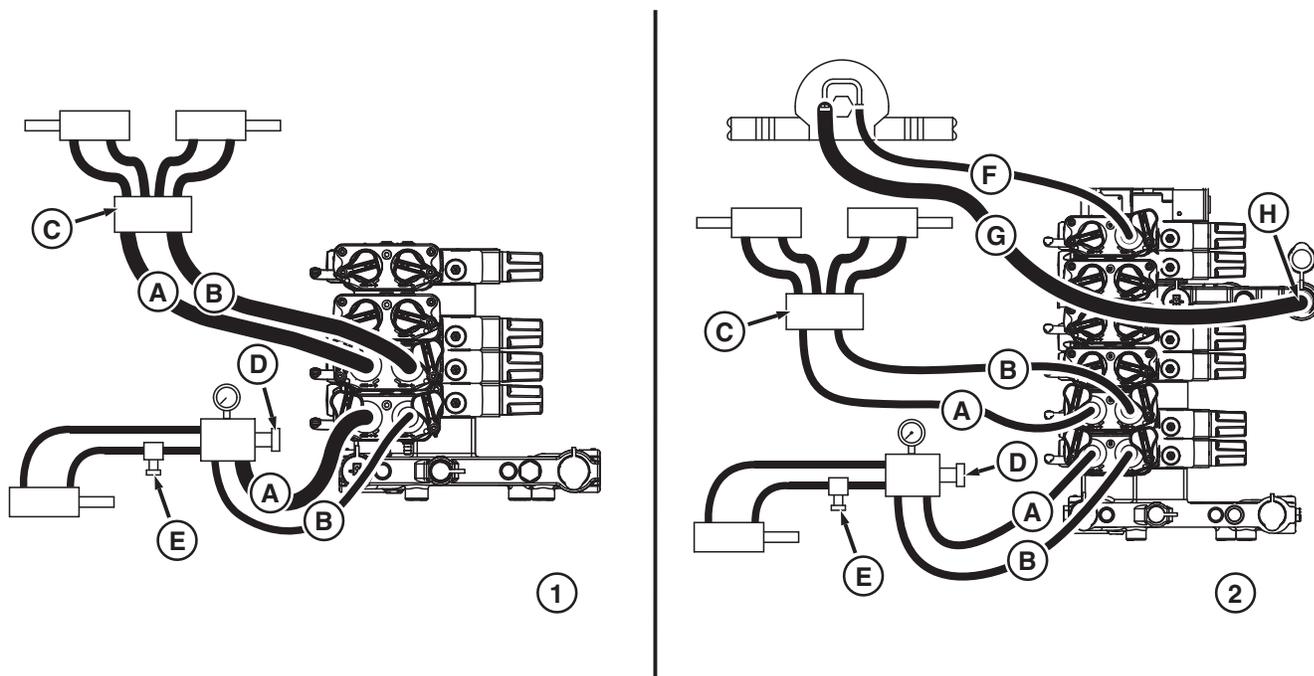
NOTE: Connecting the hydraulic motor to the secondary high-flow pump is the preferred method of connection.

In this application, the:

- Vacuum motor receives pressure oil from the SCV retract coupler.
- Flow control valve is:
 - Set in a wide-open position.
 - Controlled by the tractor panel.
- Return oil is routed to the Power-Beyond return port.
- Return hose can be connected directly to the left-hand side of coupler three. For:
 - Standard-flow hydraulics equipped with a special return hose tip.
 - High-flow hydraulics equipped with a special planter return hose tip.
- Implement lift assist cylinders are connected to the hitch-lowering valve using a T-fitting and a hydraulic hose.
 - The hitch lever controls the implement lift assist cylinders when activating the hitch valve.
 - SCV I is used to control both the hitch valve and the implement lift assist.
 - The 9-pin implement connector harness contains a loop circuit that disables the tractor hitch control unit when it is connected to the 9-pin connector for TouchSet™ depth control that is wired into tractor main electrical harness.

KD34109,00008B2-19-18MAR21

Implement Connection Example [Ag]: Pressure Control Valve Applications—Less Hitch (Grain Drills or Air Seeders with Constant Down-Pressure System)



- 1—Standard-Flow Hydraulics
- 2—High-Flow Hydraulics
- A—Extend Coupler Line
- B—Retract Coupler Line
- C—Selector Valve

- D—Pressure Control Valve
- E—Transport Lock Valve
- F—Pressure Line
- G—Return Line (Power-Beyond Return Coupler—Motor Return)
- H—Special Hose Tip

RXA0178006—UN—20MAY20

IMPORTANT: Avoid damage to the hydraulic oil. Using more than one implement requiring the use of active downforce can damage the hydraulic system due to overheated hydraulic oil when:

- The ambient air temperature is high.
- The hydraulic pump is set to operate at maximum pressure.

If the ambient air temperature is high do not use more than one implement at any given time.

Avoid damage to the hydraulic system seals due to the incorrect positioning of the SCV levers after the hydraulic motor is shutoff. After the hydraulic motor is shutoff:

- Always move the SCV lever to the float position, which allows the motor to coast to a stop.
- Never move the SCV lever to the neutral position as this action can cause the motor to stop abruptly.

Avoid damage to the hydraulic system seals due to high-pressure hydraulic return oil moving back toward the motor through the SCV connection: Route the return oil to the:

- Extend port of the SCV. This option requires the installation of a special return hose tip.
- Power-Beyond return port. This option does not require the installation of a special return hose tip.

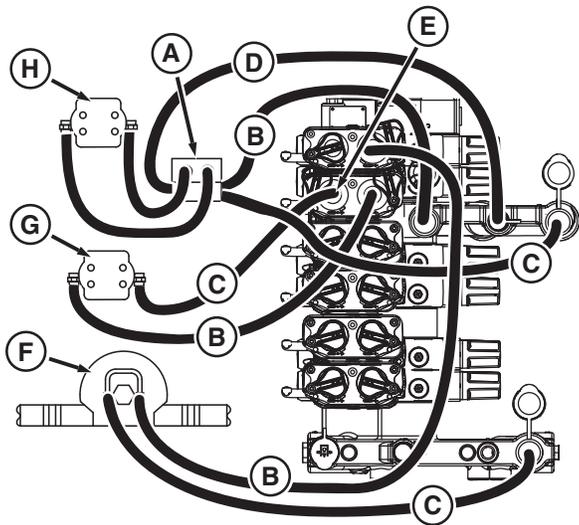
NOTE: Connecting the hydraulic motor to the secondary high-flow pump is the preferred method of connection.

In this application:

- The vacuum motor receives pressure oil from the retract port of SCV.
- When using implements requiring active down force, set the hydraulic pump to operate at maximum pressure by:
 - Setting the flow control to continuous.
 - Move the SCV lever to the detent position.

KD34109,00008B3-19-18MAR21

Implement Connection Example—High-Flow Hydraulics [Ag]: Implement Control Valves—Less Hitch



RXA0179073—UN—21AUG20

- A—Pressure Line
- B—Return Line (Power-Beyond Return Coupler—Motor Return)
- C—Variable Rate Drive (Power-Beyond Pressure Coupler)
- D—Power-Beyond Load Sense Line
- E—Return Hose Tip
- F—Vacuum Motor
- G—Hydraulic Motor
- H—Hydraulic Motor

IMPORTANT: Avoid damage to the hydraulic system seals due to the incorrect positioning of the SCV levers after the hydraulic motor is shutoff:

- Always move the SCV lever to the float position, which allows the motor to coast to a stop.
- Never move the SCV lever to the neutral position as this action can cause the motor to stop abruptly.

Avoid damage to the hydraulic system seals due to the high-pressure hydraulic return oil moving back toward the motor through the SCV connection. Routing the return oil to the:

- Extend port of the SCV requires the installation of a special return hose tip.
- Power-Beyond return port does not require the installation of a special return hose tip.

NOTE: Connecting the hydraulic motor to the secondary high-flow pump is the preferred method of connection.

In this application, the:

- Secondary hydraulic pump operates the:

- Hydraulic motors.
- Vacuum motor.
- Return oil is routed to the high-flow Power-Beyond return port. If the return hose is equipped with a special return hose tip, it can be connected directly to left-hand side of coupler.
- Hydraulic motor (G) receives pressure oil from the retract port of SCV. Since the return oil is routed to the extend port of an SCV, a special return hose tip is required.
- Hydraulic motor (H):
 - Receives pressure oil from the Power-Beyond port.
 - Return oil is routed to the Power-Beyond return port.

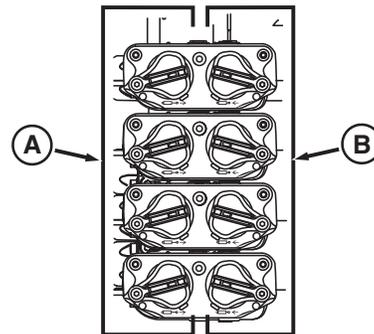
KD34109,00008B4-19-18MAR21

Component Identification and Location [Scraper]

SCV covers are color coded for easy identification.

SCV Numbers and Corresponding Colors	
SCV	
Number	Color
I	Green
II	Blue
III	Brown
IV	Black
V	Violet
VI	Gray

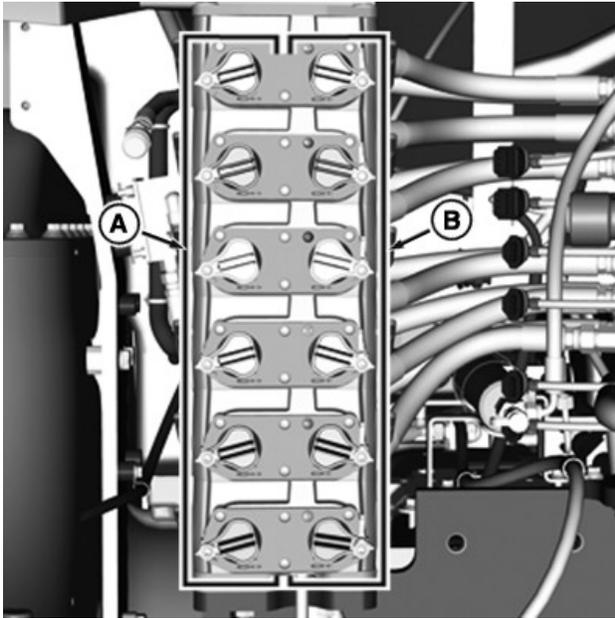
Standard-Flow Hydraulics



RXA0179031—UN—11AUG20

- A—Extend Ports
- B—Retract Ports

High-Flow Hydraulics (Premium)



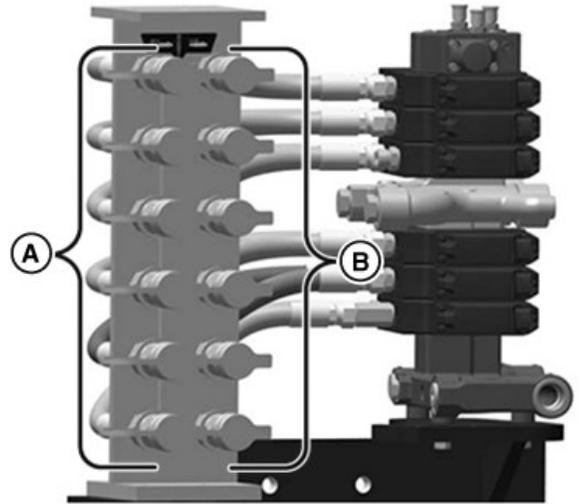
RXA0178008—UN—20MAY20

A—Extend Ports
B—Retract Ports

Both the primary hydraulic pump and the secondary hydraulic pump supply hydraulic oil to all six SCVs.

Features	SCV Coupler Option
	Premium
3/4" Connection	Yes
Float	Yes
Couple/Decouple Under Pressure	Yes
Breakaway Capability	Yes

Select SCV Coupler



RXA0178009—UN—20MAY20

A— Extend Ports
B— Retract Ports

Features	SCV Coupler Option
	Select
3/4" Connection	Yes
Float	Yes
Couple/Decouple Under Pressure	No
Breakaway Capability	No

KD34109,00008B5-19-18MAR21

Scraper Hydraulic Hose Tips [Scraper]

Recommended John Deere scraper hydraulic hose tips for hoses with flat face O-ring seal connectors and couplers with O-ring boss ports.

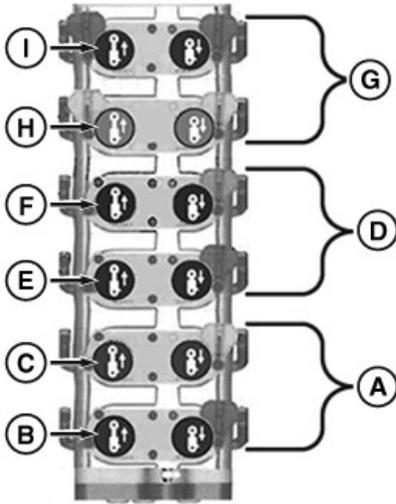
Size			Part Number	
Hydraulic Hose		SCV Coupler mm (in)	Hose Tip	Hose-to-Coupler Adapter
Dash Number	Inner Diameter mm (in)			
-8	12.5 (0.50)	12 (0.5)	AR94522 ^a	38H1161
-12	19 (0.75)		AN233013	
		19 (0.75)	AT117365 ^b	38H1163

^aStandard Ag Coupler

^bHigh Flow Coupler

KD34109,00008B6-19-18MAR21

**Implement Connection Example [Scraper]:
Pulling 1, 2, and 3 Scrapers**



RXA0178010—UN—20MAY20

Pull Scraper Connection Examples

- A—Scraper 1
- B—SCV 1 (Lift Cylinders)
- C—SCV 2 (Gate/Dump Cylinders)
- D—Scraper 2
- E—SCV 3 (Lift Cylinders)
- F—SCV 4 (Gate/Dump Cylinders)
- G—Scraper 3
- H—SCV 5 (Lift Cylinders)
- I—SCV 6 (Gate/Dump Cylinders)

KD34109,00008B7-19-18MAR21

TouchSet™ Depth Control

TouchSet™ Depth Control Settings and Adjustments

⚠ CAUTION: Avoid personal injury or death. Do not attempt to install depth control sensors on implements not intended for this system. See implement operator's manual.

Moving implement control unit, sensor, connectors, or linkages, when engine is running, can cause unexpected movement. Stay clear of implement when starting engine.

TouchSet™ depth control allows a frequently used height and depth to be set and easily recalled. To use TouchSet™ depth control, SCV I must be properly connected and set to feature mode.

For more information on:

- Proper connection, see Connect/Disconnect the Implement Position Connector in this Operator's Manual section.
- Feature mode, see SCV Settings—Feature Mode in Selective Control Valves section of this Operator's Manual.
- Height and depth settings, see SCV Settings—Flow Adjustment in Selective Control Valves section of this Operator's Manual.

Set points are recalled using the following SCV lever adjustments:

- To move implement to upper or lower set point, briefly hold SCV lever in extend detent or retract detent positions.
- To adjust implement position up or down by a fixed amount, tap SCV lever into extend or retract positions.

For more information on SCV lever positions, see SCV Control Lever Adjustments in Selective Control Valves section of this Operator's Manual.

KD34109,00008B8-19-18MAR21

Connect/Disconnect the Implement Position Connector

⚠ CAUTION: Prevent possible personal injury. To prevent implement movement, before connecting/disconnecting implements, always:

1. Shut off the engine.
2. Move the SCV lever to the neutral position.
3. Lock out the SCV controls.

IMPORTANT: Always shut off the engine before connecting or disconnecting the implement position connector. Connecting or disconnecting the implement position connector with the engine running can cause:

- The implement not to respond to commands.
- Diagnostic Trouble Codes (DTC) to appear.

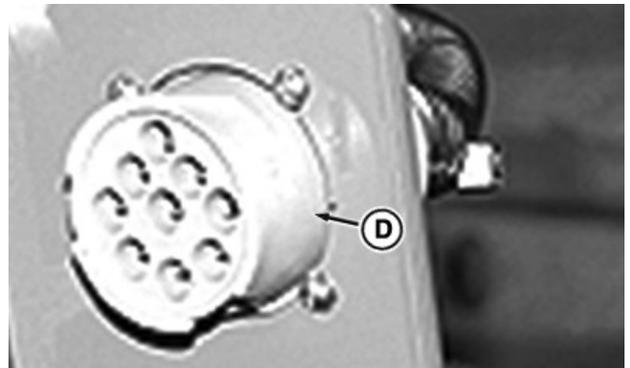
If a DTC appears or the implement fails to respond to commands, reset the implement position connector. See Reset the Implement Position Connector in this block.

Connect the Implement Position Connector

1. Position the rear of the tractor at the front of the implement.
2. Shut off the engine.

⚠ CAUTION: Prevent personal injury and equipment damage. Always set the hitch pin into the locked position.

3. Attach the implement to the drawbar.
4. Connect the implement hydraulic hoses. See Connect/Disconnect Hydraulic Hoses in the Hydraulic Connections section of this Operator's Manual.



RXA0179273—UN—20AUG20

Tractor Wiring Harness Connector (D) is on a Bracket to the Right of the SCV Stack

5. Install the implement position connector to the tractor wiring harness connector (D).

Disconnect the Implement Position Connector

1. Shut off the engine.
2. Uninstall the implement position connector from the tractor wiring harness connector.
3. Disconnect the implement hydraulic hoses.
4. Detach the implement from the drawbar.

Reset the Implement Position Connector

To reset the implement connection:

1. Shut off the engine and allow the CommandCenter™ to shut down completely.
2. Disconnect the implement harness from the implement connector.
3. Start the tractor and allow the CommandCenter™ to start completely.
4. Shut off the engine and allow the CommandCenter™ to shut down completely.
5. Connect the implement harness to the implement connector.
6. Start the engine and allow the CommandCenter™ to start completely.
7. Operate the implement. If a DTC appears or the implement fails to respond to commands, see your John Deere dealer.

KD34109,00008B9-19-18MAR21

Laser Scraper Control [Ag]

Laser Scraper—for Scrapers Equipped with Scraper Control Unit

⚠ CAUTION: Avoid personal injury or death. Moving scraper control unit, connectors, or linkages, when engine is running, may cause unexpected movement. Stay clear of implement when starting engine.

NOTE: Used primarily in areas requiring automated laser guidance system for scraper applications.

Automatic scraper control system allows raising, lowering, and setting of implement depth electronically without leaving cab.

Setup

1. Connect implement to tractor using SCV I or III.
2. Set connected SCV to AUTO. See SCV Settings—Feature Mode in Selective Control Valves section of this Operator's Manual.
3. Set flow for connected SCV. See SCV Settings—Flow Adjustment in Selective Control Valves section of this Operator's Manual.

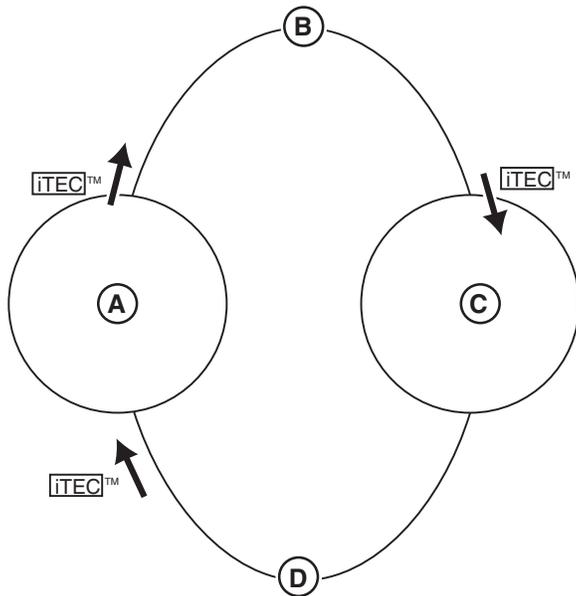
Activate

To activate automatic scraper control system, briefly move corresponding SCV lever to extend detent or retract detent position. For more information on SCV lever positions, see SCV Control Lever Adjustments in Selective Control Valves section of this Operator's Manual.

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Scraper Information [Scraper]

Scraper Operation Cycle



RXA0179362—UN—26AUG20
Scraper Cycle Diagram

A—Dig Area
B—Transport—Loaded
C—Dump Area
D—Transport—Unloaded

IMPORTANT: Operating tractor with three scrapers requires tractor and all scraper pans be equipped with hydraulic trailer brakes. Reference Towed Loads and Transport with Ballast in Transport Section of this Operator's Manual.

Never exceed:

- Maximum tractor ballast of 24494 kg (54000 lb) with 65% on the front axle.
- 10206 kg (22500 lb) maximum scraper tongue load with short scraper drawbar.
- 8391 kg (18500 lb) maximum for scraper tractors with regular long scraper (Ag) drawbar support.

Towed Scrapers:

Scraper Tractor Application Guidelines	
Trailer Brakes	Maximum Towed Load
Without	1.5 times tractor weight ^a
With	4.5 times tractor weight.

^aLimited to 32 km/h (20 mph) without trailer brakes

Follow manufacturer's Scraper Operation Recommendations and instruction in attaching and using scraper:

NOTE: Following these operating guidelines could result in extended tractor and scraper life as well as increased production.

- Limit depth of cut to maintain a loading speed higher than 6.4 km/h (4 mph). For maximum power performance operate in 6th forward gear.
- Maintain minimum engine rpm of 1850 or higher in the cut.
- Ballast tractor correctly to maintain optimum wheel slip of 8-12%.
- Shallow cuts at higher speeds will extend drivetrain life and increase overall productivity.
- Use iTEC™ (Intelligent Total Equipment Control) to combine downshifts/upshifts, raise/lower scrapers or other functions when returning to dig area or to/from transport part of cycle. (See Intelligent Total Equipment Control (iTEC™) Section.)
- Drawbar height should be set so scraper cutting edge hits the ground before the scraper bottom. See Scraper Operator's Manual.
- Load downhill and/or towards the fill area when conditions allow.
- Set scraper(s) on ground before top loading.
- Activate differential lock before loading, disengage before turning.
- Use of differential lock should be limited to tough and wet areas or during the cut.
- Do not downshift below ground speeds of 6.4 km/h (4 mph) when under load.
- Reduce speed and shift down before descending a hill.
- When possible load in 6th gear or above and target 1900-2150 rpm.
- Minimize all steering input during scraper loading.
- Avoid high speed dynamic maneuvers especially when loaded. (Sudden turns, transitions from slopes to flat surfaces, or heavy or sudden braking maneuvers.)
- Do not load in a turn.
- Do not turn tires or tracks into the tongue of the scraper.
- Maintain a smooth haul road and fill area.
- See operators manual for operating/service instructions and AutoLoad™ setup if equipped.

Efficiency Manager™ Recommendations

NOTE: When using AutoLoad™ will also exit Efficiency Manager™

- Use Transmission Efficiency Manager™ for transport.
- Use both Efficiency Manager™ speed settings for transport. One speed setting at transport speed and the other at digging speed. Use the second Efficiency

Manager™ speed setting to downshift tractor and bring ground speed closer to dig speed before switching to manual mode.

Example:

- Use set speed 2 for transport, set speed 1 for approaching loading and unloading area.
- Disengage efficiency manager before entering the cut.

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Weight Transfer Limits

IMPORTANT: Do not exceed 10206 kg (22500 lb) maximum scraper tongue load transfer to short scraper drawbar and 8391 kg (18500 lb) maximum scraper tongue load transfer to long scraper drawbar. Excess weight transferred to tractor may cause structural or drivetrain damage.

When pulling a direct mounted scraper a portion of scraper and payload weight will be transferred to tractor. This additional weight on tractor can significantly improve productivity during the load cycle, especially when pulling two scrapers in tandem. After first scraper is loaded, tractor will have more pulling capability and will be able to load second bowl much faster, resulting in significantly reduced cycle times.

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Scraper/Tractor Attachment

IMPORTANT: Failure to observe operating limits and follow proper operating procedures may reduce life of tractor and cause premature chassis, drivetrain and track system failures.

Proper machine operation is important to extend life of tracks, drivetrain and undercarriage, avoid downtime, and maximize operating efficiency.

Tongue Height

Height of scraper tongue determines angle of cutting edge relative to ground. If tongue is too low, bottom of scraper bowl will drag in cut. If tongue is too high, scraper will be difficult to control in cut. Optimum height for tongue is 46 to 53 cm (18 to 21 in) from ground. Adjust tongue up or down through assemblies of hitch and yoke. When operating in soft conditions raising tongue height may improve ground clearance during transport. Tongue of rear scraper should be set at same height as front. See scraper operator's manual.

Drawbar Height

Drawbar height should be set so scraper cutting edge

hits the ground before scraper bottom. See scraper operator's manual.

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Loading Techniques

Loading Methods

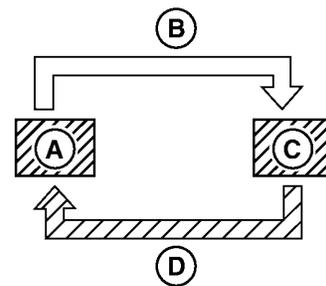
There are three common loading techniques.

- Pull Loading - tractor pulling scraper(s) is preferred loading method. Generally the most economical method for loading scrapers.
- Push Loading - uses separate vehicle to push scraper. Only push load a scraper which is designed to be push loaded (i.e. ejector models). It is critical that push vehicle speed not exceed pull tractor speed or track overrun and slippage on drive wheels can result.

IMPORTANT: To prevent excessive shock loading into tractor through drawbar and hydraulic system during loading sequence when top loading, always lower scraper to ground before beginning loading cycle.

- Top Loading (i.e. excavator) - uses scraper as a haul unit loaded by an excavator.

Working Cycle Automation



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Working Cycle Automation

- A— Dig Area
- B— Loaded Transport
- C— Dump Area
- D— Unloaded Transport

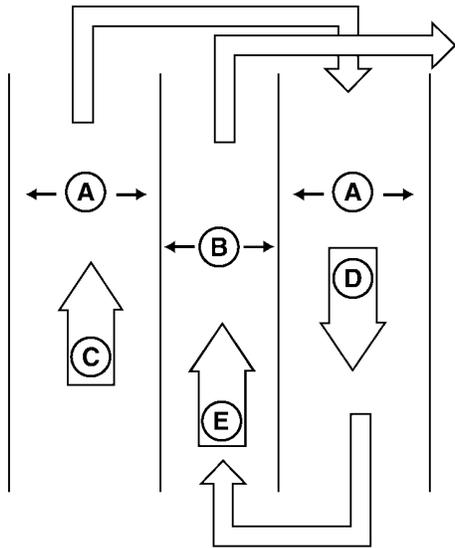
Use iTEC™ (Intelligent Total Equipment Control) to combine downshifts and upshifts, raise or lower scrapers or automate other functions when returning to dig area (A) or entering loaded (B) or unloaded transport (D) parts of cycle. See Intelligent Total Equipment Control (iTEC™) section of this Operator's Manual.

Use Efficiency Manager™ for transport portions of cycle, not during loading operations. See e18™ Set Speeds and Efficiency Manager™ in e18™

PowerShift™ Transmission section of this Operator's Manual.

Limit depth of cut to maintain a loading speed higher than 6.4 km/h (4 mph)

Loading Sequence



RXA0119629—UN—09AUG11

- A— Scraper Width
- B— Less Than Scraper Width
- C— First Cut
- D— Second Cut
- E— Third Cut

After making first cut (C), make second cut (D) parallel to first at a distance from first cut that is less than scraper width (B). On third pass (E) pick up material between first two cuts.

When loading a direct mounted scraper in tandem with another scraper it is most efficient to load front scraper bowl first.

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Connect AutoLoad™ Harness

1. Shut off the engine.



RXA0179346—UN—24AUG20

AutoLoad™ Harness Connector Outlet is Above the SCV Stack

2. Connect the AutoLoad™ harness from the scraper to the tractor AutoLoad™ harness connector outlet (A).

IMPORTANT

SCRAPER OPERATION

1. When possible load in 6th gear or above and target 1900-2150 rpm.
2. Engage Efficiency Manager during transport when possible.
3. Reduce speed and shift down before descending a hill.
4. Activate differential lock before loading, disengage before turning.
5. Load downhill and/or towards the fill area when conditions allow.
6. Do not load in a turn.
7. Do not turn tires or tracks into the tongue of the scraper.
8. Set scraper(s) on ground before top loading.
9. Maintain a smooth haul road and fill area.
10. See operators manual for operating/service instructions and AutoLoad setup if equipped.

Note: Following these operating guidelines could result in extended tractor and scraper life as well as increased production.

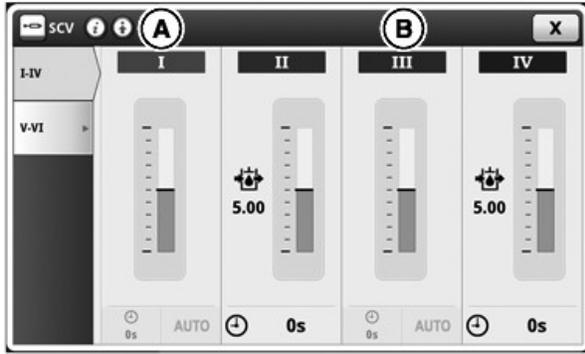
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3. Refer to the Scraper Operation label for proper scraper operation or Scraper Information section.

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AutoLoad™ Displays
Main SCV Page



RXA0141182—UN—28APR14

When an AutoLoad™ scraper is attached to the tractor, the main SCV page will display AutoLoad™ specific information for each AutoLoad™ related SCV as shown for SCV I (A) and SCV III (B).

The SCV flow rate is available to be edited for AutoLoad™ controlled SCVs. Timed detents are not available for AutoLoad™ controlled SCVs.

The AutoLoad™ status text is used to inform the operator if an AutoLoad™ related issue has occurred. The display will show one of the following.

AUTO AutoLoad™ system working normally

AUTO AutoLoad™ stalled. Hydraulics unable to move scraper, increase flow rate to attempt recovery.

!AUTO! AutoLoad™ related fault exists. AutoLoad™ feature disabled.

Accessing AutoLoad™ Page



RXA0168458—UN—30MAY19

Press **AutoLoad™** shortcut button on Navigation Bar or follow alternative path:

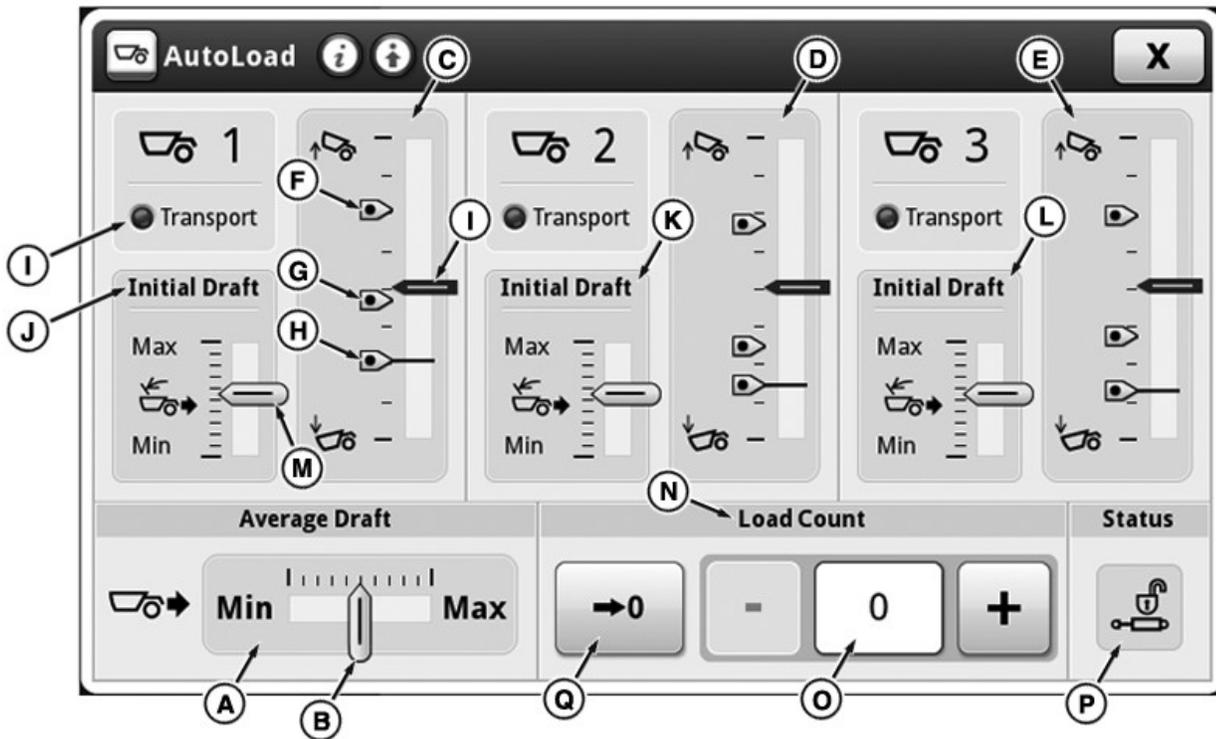


RXA0160862—UN—31AUG17

1. Select **Menu**.
2. Select **Machine Settings** tab.
3. Select **AutoLoad™** icon.

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Scraper Control Panel Reference



RXA0141183—UN—29APR14

SDU Display

- A— Average Draft Region
- B— Average Draft Indicator
- C— Scraper 1 Position Region
- D— Scraper 2 Position Region
- E— Scraper 3 Position Region
- F— Upper “Transport” Height
- G— Lower “Ready” (Dump) Height
- H— Ground Level “Loading” (Entering the Cut) Height
- I— Position Indicator
- J— Scraper 1 Initial Draft Setting
- K— Scraper 2 Initial Draft Setting
- L— Scraper 3 Initial Draft Setting
- M— Initial Draft Indicator
- N— Load Counter Region
- O— Load Count Value
- P— Hydraulic Cylinder Lock/Unlock
- Q— Reset Load Count

The AutoLoad™ page provides information regarding the setup and status of the AutoLoad™ System.

Region (A) is the average draft adjustment. Average draft is the working load the system will try to maintain after fully entering the cut. The current average draft setting is represented by the indicator (B). The draft indicator is to the left for a lighter cut and to the right for a more aggressive cut.

Regions (C), (D), and (E) display scraper position information for the first, second and third scrapers if they are AutoLoad™ compatible. If the scraper or scrapers are not attached, the region will not be displayed. Three setpoints are depicted in each scraper: upper “Transport” height (F), lower “Ready” (dump) height (G), and ground level “Loading” entering the cut height (H). Ground level “Loading” entering the cut height includes

a black horizontal bar. The position indicator (I) is the current position of the scraper relative to the setpoints. The position indicator (I) is the current position of the scraper relative to the setpoints. The AutoLoad™ scraper state will change color depending on the current phase of the digging process. Refer to the **Scraper State Color Scheme Table** shown on next page.

Regions (J), (K) and (L) display the initial draft setting information for the first, second and third scrapers, if they are AutoLoad™ compatible. If not the scraper will not be displayed. Initial draft is the work load the system will try to achieve when entering the cut. The indicator (M) represents the initial draft setting for that scraper. The further up is the lighter cut and further down is a more aggressive cut.

Region (N) is the load counter (O) and (Q) is the load count reset. This feature allows the operator to keep a record of the number of scraper loads hauled. If

AutoLoad™ is enabled, the load counter can be set to automatically increment every time a scraper exits the cut. The operator can also manually increment or decrement the value as desired. See AutoLoad™ Settings Section.

Scraper Status Color Scheme Table

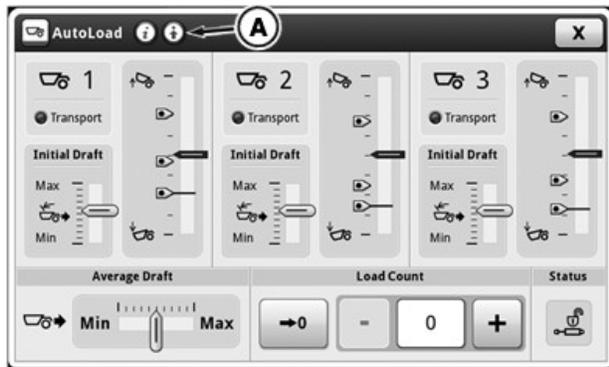
The status indicator will change color in relation to the current status of the AutoLoad™ system.

AutoLoad™ Faulted	Silver
AutoLoad™ Entering Cut (Initial Draft)	Green
AutoLoad™ Ready	Orange
AutoLoad™ Loading	Blue
AutoLoad™ Transport Mode	Black

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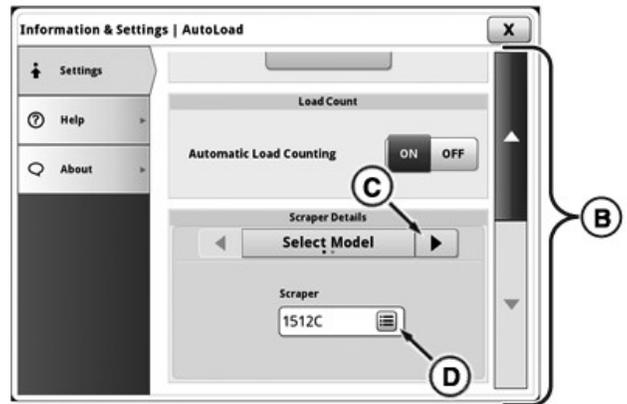
AutoLoad™ Settings - Setting Auto Dimensions

The following procedure explains how to enter scraper information, set AutoLoad™ options.

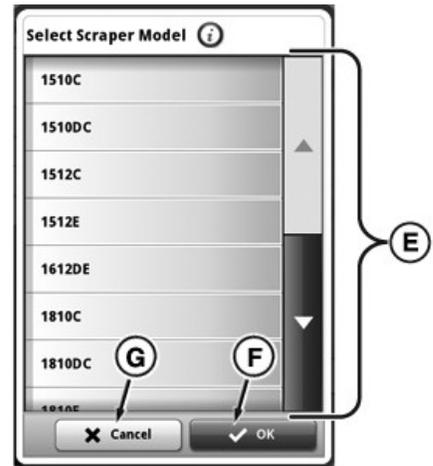


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Press the advanced settings button (A) to access AutoLoad™ Setup.



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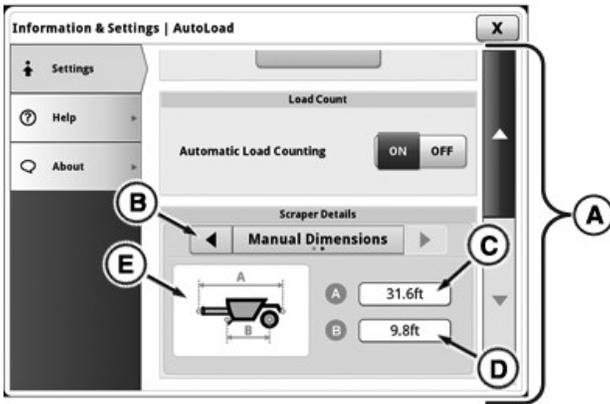


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The scraper dimensions can be entered either manually or from a list of John Deere scraper models by scrolling up or down arrows (B) and pressing Select Model right arrow button (C). Press (D) to select model of scraper. Scrolling with up or down arrows (E), then press the model from a list John Deere model of scrapers. After model has been selected press OK button (F) or cancel button (G).

Manual Dimensions

NOTE: Scraper dimensions can only be entered if the tractor, drawbar, and scraper(s) are equipped the AutoLoad™ components.



RXA0140744—UN—28APR14

Scraper Dimension Chart		
Scraper Model	Scraper Tongue Pin to Rear Pin Length (ft) (C)	Scraper Blade to Rear Axle Length (ft) (D)
2010DE Two Tire	31.2	10.5
1814E	26.3	7.8
2014DE	26.3	7.8
2112E	31.6	9.8
2412DE	32.8	9.8
2412DE Two Tire	33.9	10.5

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Scroll up or down using arrows (A) and pressing Manual Dimensions arrow button (B). Enter two measurements under manual dimensions - enter the scraper length (C), and cutting blade-to-axle (D) dimensions shown. After dimension (C) or (D) is pressed, a number pad will pop up for entering dimensions. Reference (E) is used by the AutoLoad™ software to improve system performance. Scraper length (C) is the distance between the scraper front tongue pin and the rear pin connecting a tandem scraper. The blade-to-axle (D) is the distance from the shallowest cutting blade tip to the rear axle. The dimensions for John Deere scrapers are listed in scraper dimension chart below.

NOTE: AutoLoad™ will increment the load count each time the automated cut is deactivated; either by manually taking over scraper control or by detenting to the upper set position.

If the automated cut is stopped and restarted, the load count increments twice. The load count needs to be manually corrected, if desired.

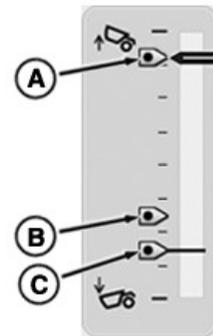
AutoLoad™ counts each individual scraper(s) load, NOT the number of cycles.

Using AutoLoad™

IMPORTANT: Perform drawbar sensor calibration annually. See Drawbar Sensor Calibration in Service—Check section of this Operator's Manual.

Set Height Positions

In order to operate AutoLoad™, three stored position set points for each scraper need to be set: the upper "Transport", lower "Ready" (dump), and ground level "Loading" (entering the cut) heights. The upper and lower set points allow the scraper(s) to be quickly returned to preset positions by detenting the SCV lever associated with that scraper's lift cylinder. Ground level "Loading" (entering the cut) is the position at which the scraper begins the cut. These position set points are set using the Scraper setup panel.



RXA0141637—UN—21MAY14

Scraper Position Display

Scraper Dimension Chart		
Scraper Model	Scraper Tongue Pin to Rear Pin Length (ft) (C)	Scraper Blade to Rear Axle Length (ft) (D)
1510C	24.3	8.3
1510DC	24.3	8.3
1512C	23.3	7.6
1810C	27.0	9.3
1810DC	27.0	9.3
1812C	24.3	8.3
1812DC	24.3	8.3
1814C	24.6	7.6
1814DC	24.6	7.6
2112C	29.2	9.6
2112DC	29.2	9.6
1512E	27.7	7.8
1612DE	27.7	7.8
1810E	29.2	9.3
2010DE	29.2	9.3

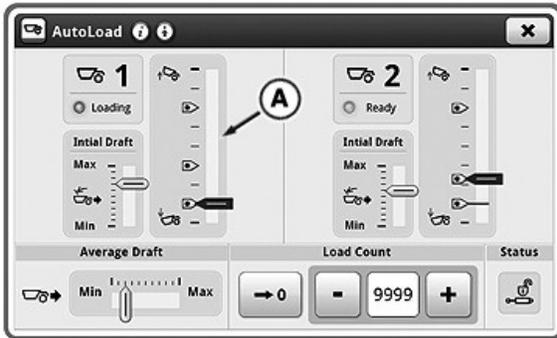
The upper "Transport" (A) height is the highest desired scraper position (example: transport height). To raise the scraper to the upper set point, the AutoLoad™ enabled SCV lever is detented rearward (extend detent).

The lower "Ready" (B) height is the lowest desired scraper position (example: dump height). To lower the scraper to the lower set point, the AutoLoad™ enabled SCV lever is detented forward (retract detent).

Ground level “Loading” (C) height is the position at which the scraper begins to fully enter the cut. This value is required by AutoLoad™ algorithm but not available as a quick return position by SCV lever detent.

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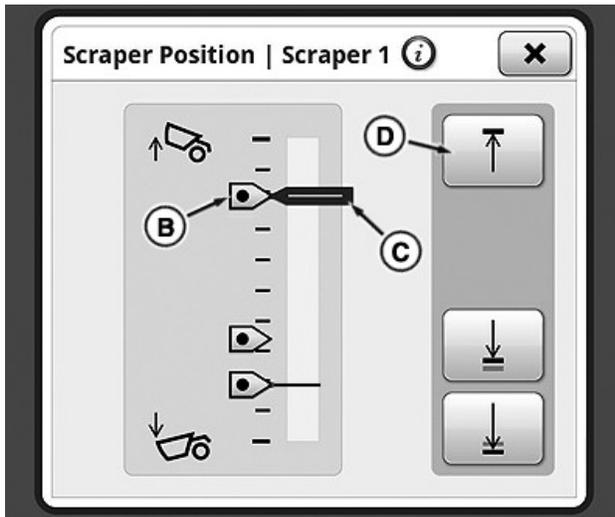
Set Scraper “Transport” Height



RXA0140921—UN—08APR14

Scraper Position

Touch scraper position overlay (A).



RXA0140923—UN—28APR14

Transport Height

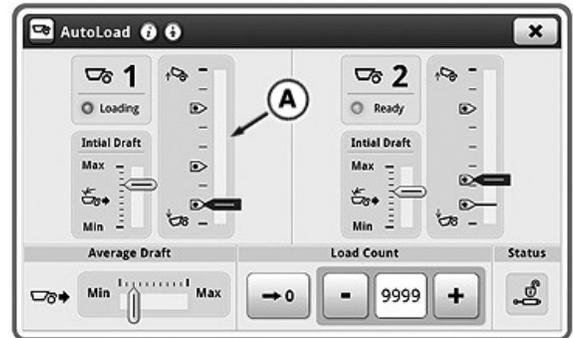
Raise the scraper to the desired upper transport set height position (B), the scraper position indicator (C) will reflect accordingly. With the blade correctly positioned, save the upper transport height by pressing the upper limit set button (D).

Once Complete, the upper transport point is ready to use.

The upper transport height point can be changed at any time by repeating the above procedure.

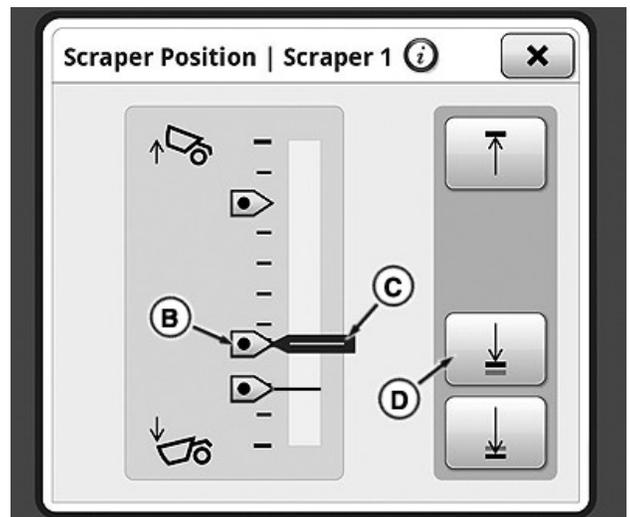
AK08008,00000C8-19-15NOV19

Set Scraper “Ready” (Dump) Height



RXA0140921—UN—08APR14

Touch scraper position overlay (A).



RXA0140924—UN—28APR14

Lower the scraper to the desired lower “Ready” (or Dump) set point (B) position for dumping, the scraper position indicator (C) will reflect accordingly. Save the lower limit (dump) set point by pressing the press lower limit Set button (D).

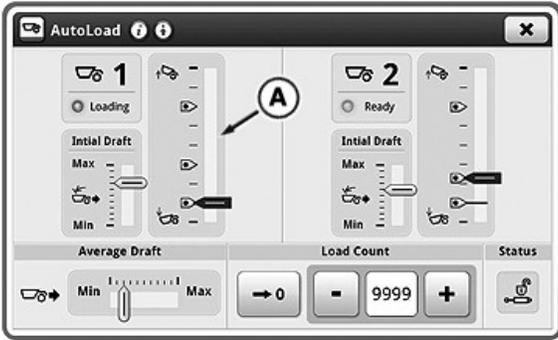
Once complete, the new lower set point is ready to use.

The ready (dump height) set point can be changed at any time by repeating the above procedure.

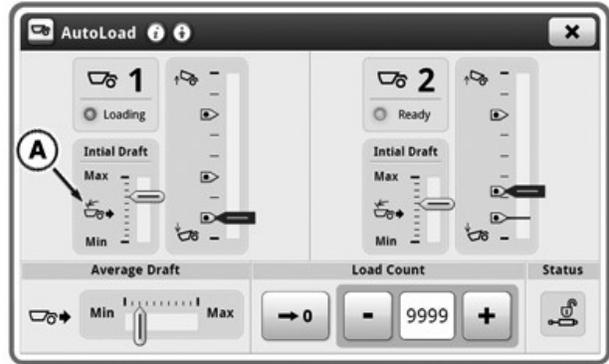
AK08008,00000C9-19-15NOV19

Set Scraper Ground “Loading” Entering the Cut Height

NOTE: John Deere™ recommends that the drop center blades be lowered to penetrate the ground, allowing outer blades to touch the ground when setting ground level loading (entering the cut) position.

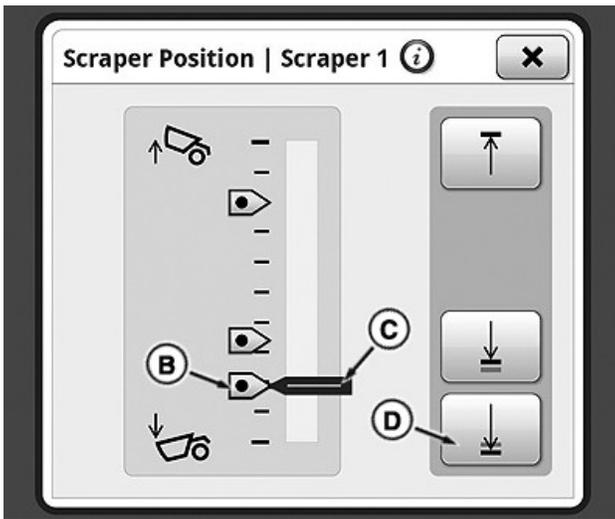


RXA0140921—UN—08APR14



RXA0140925—UN—09APR14

Touch scraper position overlay (A).



RXA0140922—UN—08APR14

Lower the scraper to the desired ground level loading position (B), the scraper position indicator (C) will reflect accordingly. With the blade correctly positioned, save the ground level set point by pressing the ground level loading set button (D).

Once complete, the ground level loading set height is ready to use.

The ground level loading set point can be changed at any time by repeating the above procedure.

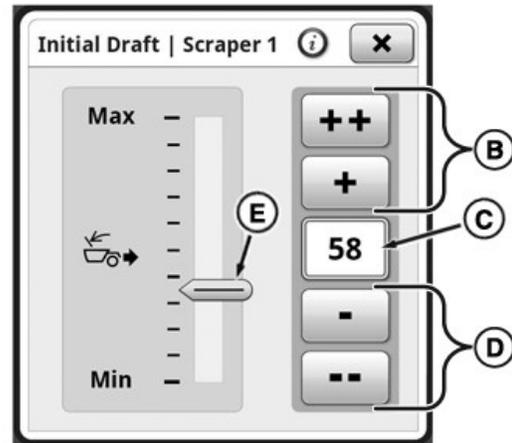
AK08008,00000CA-19-15NOV19

AutoLoad™ Operation

Setting Initial Draft Load Setting

NOTE: When making a lighter cut the indicator is to the left and in a more aggressive cut the indicator is to the right.

The Initial draft setting is the means by which the operator can tune the work load of the system when entering the cut. The initial draft setting is affective for roughly the first half of the cut.



RXA0140939—UN—09APR14



RXA0168445—UN—30MAY19

Adjustment Dial on Navigation Bar

- A— Initial Draft
- B— Increase Initial Draft Buttons
- C— Input Box
- D— Decrease Initial Draft Buttons
- E— Initial Draft Display Region

The initial draft setting can be accessed by pressing the initial draft button (A). When pressed, the corresponding initial draft display (e.g. region (E) as shown) will become highlighted. The current draft setting (E) is then increased by pressing the increase initial draft buttons (+, ++ (B) or decrease initial draft (-, -- (D). Also turning adjustment dial can be used to increase or decrease initial draft.

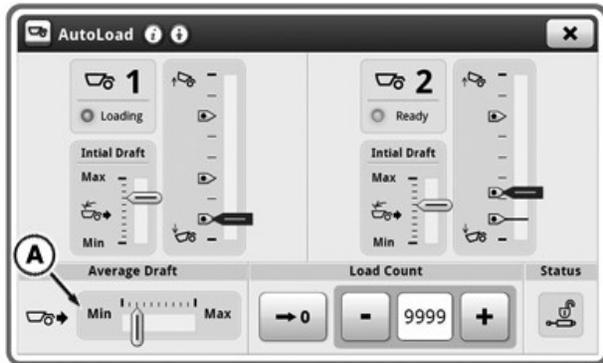
If after the blade enters the cut and the working load is too light (i.e. cut too light and high engine RPM), try increasing the initial draft load setting.

If after the blade enters the cut and the working load is too great (i.e. cut too deep making an initial “scoop” cut and engine lugs too low before recovering), try decreasing the initial draft load setting.

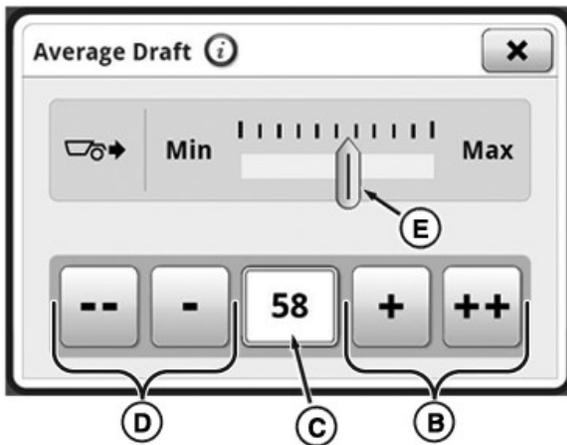
NOTE: Draft is displayed in increments of 1 beginning at 0 through 250 located in input box (E). Pressing (+) will increase draft by 1, pressing (++) increases draft by 10, and by pressing (-) and (- -) will decrease draft by the same increments.

Average Draft Load

The average draft setting is the means by which the operator can tune the work load of the system after fully entering the cut. The average draft setting is affective for roughly the last half of the cut. This setting is the same for all scrapers and only set in one location.



RXA0140940—UN—09APR14



RXA0140955—UN—10APR14



RXA0168445—UN—30MAY19

Adjustment Dial on Navigation Bar

- A— Average Draft
- B— Increase Average Draft Buttons
- C— Input Box
- D— Decrease Average Draft Buttons
- E— Average Draft Display Region

The average draft setting can be accessed by pressing the average draft button (A). When pressed, the corresponding average draft display (e.g. region (E) as

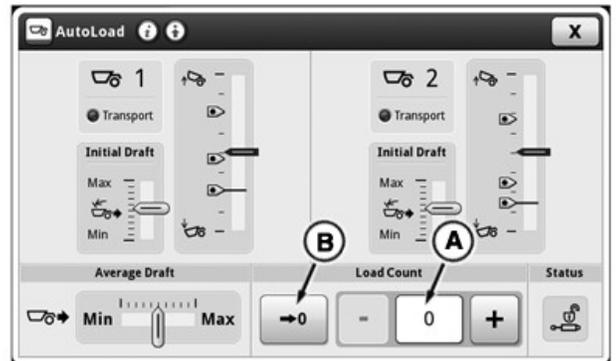
shown) will become highlighted. The average draft setting is then increased by pressing the increase average draft buttons (+, + +) (B) or decreased by pressing the decreasing average draft buttons (-, - -) (D). Also turning adjustment dial can be used to increase or decrease average draft.

NOTE: Draft is displayed in increments of 1 beginning at 0 through 250 located in input box (E). Pressing (+) will increase draft by 1, pressing (++) increases draft by 10, and by pressing (-) and (- -) will decrease draft by the same increments.

NOTE: If the working load consistently becomes too light in the latter part of a scraper's cut (i.e. depth too shallow and/or engine RPM higher then desired), try increasing the average draft load setting before the next dig cycle.

Load Counter

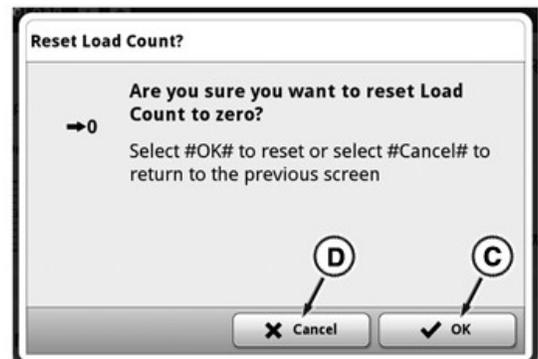
NOTE: Maximum Load Counter value is 9999 loads, then goes back to zero.



RXA0141186—UN—28APR14

Load counter (A) allows operator to keep a record of the number of scraper loads hauled. If AutoLoad™ is enabled, the load counter can be set to automatically increment each time a specific scraper exits the cut.

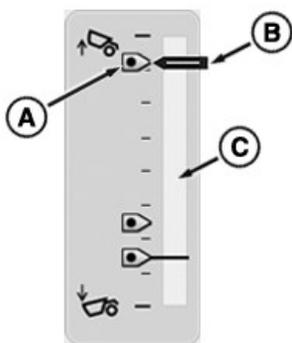
The operator can also manually increment or decrement the value as desired by pressing the + or - buttons.



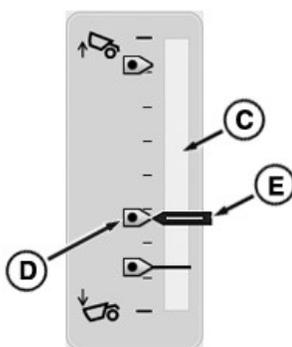
RXA0141185—UN—28APR14

To reset (or zero out) load count press (B), then confirm reset by pressing OK button (C) or press cancel button (D) to retain load count number.

Using the Transport and Ready Set Height Positions



RXA0141290—UN—07MAY14



RXA0141291—UN—07MAY14

AutoLoad™ can store two scraper positions called set height positions for each scraper: the transport height set position (A) and lower ready (dump) set position (D). The set height positions can be used to quickly return the scrapers to these known locations by SCV detents.

To return the scraper at the transport height set position (A), detent the associated SCV lever rearward (extend). The scraper will then rise to and maintain position at the transport set height.

NOTE: Returning to the transport height is dependent on the position before detent.

- If position is below the transport height, a detent rearward will raise the scraper to the transport height set position.
- If position is above the transport height, a detent rearward will have no effect.

When at the transport height set position (A), the scraper position indicator (B) will point to the top edge of the set point region (C) in the position display region for the related scraper.

To return the scraper to the lower ready (dump) height set position (D), detent the associated SCV lever forward (retract). The scraper will then lower and

maintain position at the lower ready (dump) height set position.

NOTE: Returning to the lower ready (dump) height is dependent on the position before detent.

- If position is above the lower ready (dump) height set position, a detent forward will lower the scraper to the lower ready (dump) set position.
- If position is below the lower ready (dump) height set position, a detent forward will have no effect.

When at the lower ready (dump) height set position (D), the scraper position indicator (E) will point to the bottom area of the rectangle (C) in the position display region for the related scraper.

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AutoLoad™ Set Up Wizard

Accessing Set Up Wizard

The set up wizard is for those operators new to setting up the AutoLoad™ system. For those familiar with AutoLoad™, the set points can be set and modified without using the wizard if desired. It is provided for convenience and training.

The wizard will go through the steps required to set the three set points (upper “Transport”, lower “Ready” (dump) and ground level “Loading”(entering the cut)) for each AutoLoad™ scraper currently connected to the tractor.

The AutoLoad™ set up wizard can be accessed from AutoLoad™ settings page. See *AutoLoad™ Settings* in this Section.

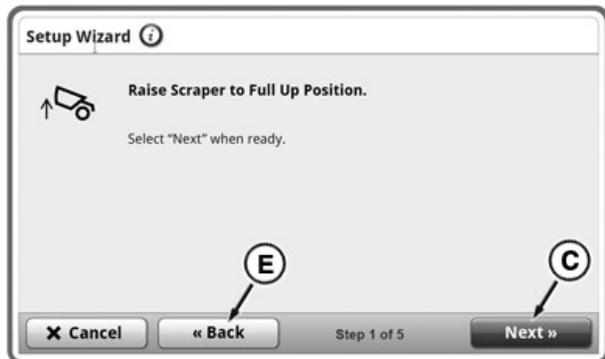
Set Up Wizard



RXA0140836—UN—02APR14



RXA0140830—UN—02APR14



RXA0140831—UN—02APR14

- A— Setup Wizard Button
- B— Setup Overview
- C— Next Button
- D— Cancel Button
- E— Back Button

Preparing The System

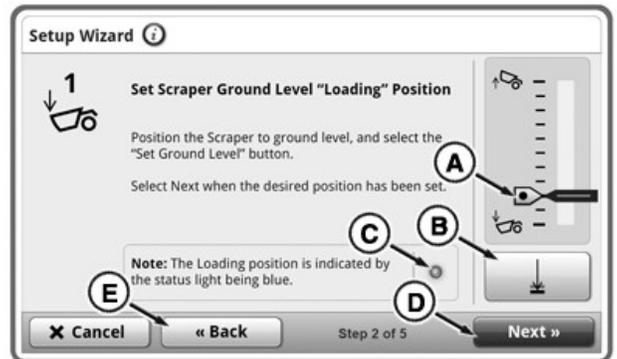
1. To start the setup wizard, press Setup Wizard button (A).
2. Read through the setup overview (B) then press next

button (C) to proceed or cancel button (D) to cancel setup.

3. Before storing the set points, raise all the scrapers to the full up position. This will keep scrapers from inadvertently contacting the ground during the process. When complete, advance to the next page by selecting the next button (C).

The wizard will go through the steps required to set the three set points (upper Transport height, lower Ready (dump) height, and ground level Loading entering the cut height) for each AutoLoad™ scraper currently connected to the tractor.

Set Scraper Ground Level Set Point



RXA0140832—UN—02APR14

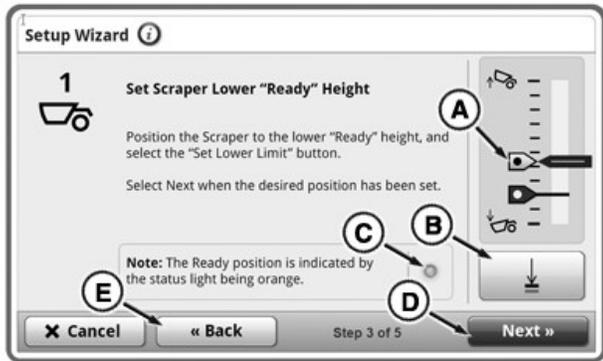
- A— Scraper Ground Level Position Indicator
- B— Ground Level Loading (entering the cut) Set Button
- C— Status Light
- D— Next Button
- E— Back Button

1. Lower the front scraper to desired location of the ground level loading height (indicator A). See *Position The Scraper For Ground Level Loading (entering the cut) Height* in this Section.

NOTE: The Loading position is indicated by the status light (C) being blue.

2. After positioning the scraper, save the set point by pressing the Set Ground Level Loading set button (B) to store ground level.

Set Scraper Lower “Ready” Height



RXA0140833—UN—03APR14

- A— Scraper “Ready” (or Dump) Height
- B— Set Lower Ready Set Button
- C— Status Light
- D— Next Button
- E— Back Button

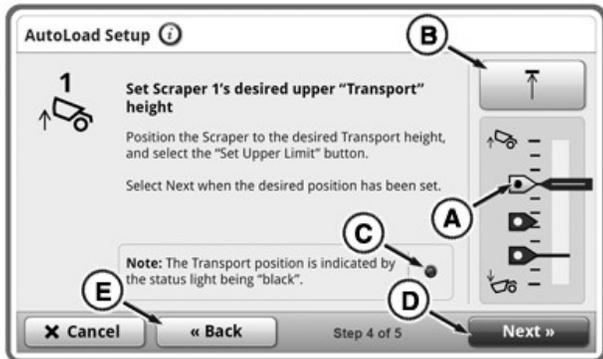
1. Raise scraper to the desired ready or dump height. Save the set point by pressing set lower limit button (B) to store the ready (dump) height.

NOTE: The “Ready” (or Dump) position is indicated by the status light (C) being orange.

2. Once complete, the ready (or dump) height is ready to use.

The ready (dump) height set point can be changed at any time by repeating the above procedure.

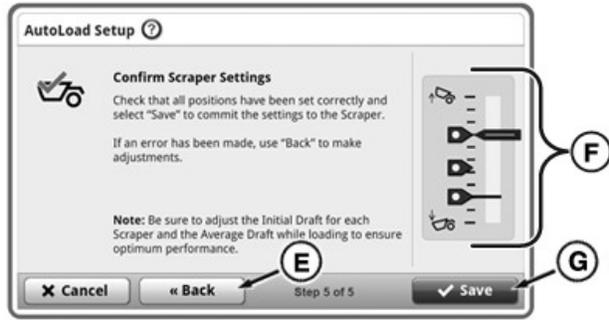
Set Scraper Transport Height



RXA0140834—UN—02APR14

1. Position scraper to desired Transport height (Upper Limit) (A), and select the “Upper Limit” button (B).

NOTE: The Transport position is indicated by the status light (C) being black.



RXA0140835—UN—02APR14

- A— Scraper Transport (Upper Limit) Indicator
- B— Set Upper Limit button
- C— Status Light
- D— Next Button
- E— Back Button
- F— Set Positions
- G— Save Button

2. Press Next button (D) when desired position has been set or press Back button (E).

Once complete, the transport height is ready to use. The transport height set point can be changed at any time by repeating the above procedure.

3. Check that all set positions (F) have been set correctly and press “Save” button (G) to commit the settings to the scraper. If an error has been made, use Back button (E) to make adjustments.

NOTE: Be sure to adjust the Initial Draft for each Scraper and the Average Draft while loading to ensure optimum performance.

AK08008,00000CC-19-15NOV19

Wheels and Tires - General Information

Tire Group Sizes

NOTE: If tire group change is desired, see your John Deere dealer.

Section Width	RCI Group Size	
	47	48
480 [Ag]	480/80R46	480/80R50 IF480/80R50
520 [Ag]	520/85R42	520/85R46
620	620/70R42	620/70R46
650	—	650/85R38 IF650/85R38
710	710/70R38 IF710/70R38	710/70R42 IF710/70R42
800 [Ag]	—	800/70R38 IF800/70R38 LSW800/55R46

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Change Tire Size

IMPORTANT: Before changing size of tire, see **Select Tire Combinations in Wheels and Tires - General Information** section of this Operator's Manual.

See your John Deere dealer to recalibrate for tire size.

Perform wheel slip calibration (see Slip Calibrations in CommandCenter™ section of this Operator's Manual).

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Using Correct Tire Combinations

CAUTION: Prevent possible injury. High-speed transport with outer duals removed can cause loss of steering control and reduce vehicle stability. Reduce speed immediately if loss of steering control occurs.

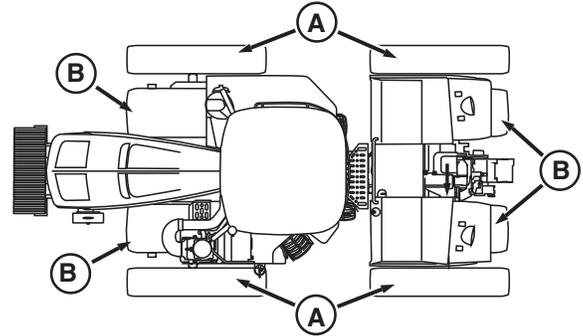
If outer duals must be removed, adjust wheels to wider tread and travel at slow speeds.

[Ag] Do not operate with single wheels except if equipped with 800/70R38, IF800/70R38, OR LSW800/55R46 tires.

Load Index	Maximum Load per Tire ^a			Load Index	Maximum Load per Tire ^a		
	Singles kg (lb)	Duals kg (lb)	Triples [Ag] kg (lb)		Singles kg (lb)	Duals kg (lb)	Triples [Ag] kg (lb)
137	2300 (5071)	2024 (4462)	1886 (4158)	164	5000 (11023)	4400 (9700)	4100 (9039)
138	2360 (5203)	2077 (4579)	1935 (4266)	165	5150 (11354)	4532 (9991)	4223 (9310)
139	2430 (5357)	2138 (4714)	1993 (4393)	166	5300 (11684)	4664 (10282)	4346 (9581)
140	2500 (5512)	2200 (4850)	2050 (4519)	167	5450 (12015)	4796 (10573)	4469 (9852)
141	2575 (5677)	2266 (4996)	2112 (4655)	168	5600 (12346)	4928 (10864)	4592 (10124)
142	2650 (5842)	2332 (5141)	2173 (4791)	169	5800 (12787)	5104 (11252)	4756 (10485)

[Scraper] Never operate with single wheels and tires.

IMPORTANT: Avoid excessive drivetrain wear or possible reduction in performance. Do not mix worn and new tires, bias and radial, or tires of different diameters. Do not use R2 tires in combination with R1.



RXA0142585—UN—16JUN14

When radial-ply tires are used as inner dual (B), outer dual (A) may be bias-ply tires.

Any other mixing of radial-ply and bias-ply tires is not recommended.

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Tire Load Index

IMPORTANT: Tire load capacity may exceed allowable axle loading. Tractor should be ballasted according to engine power and weight split guidelines. See Performance Ballasting Section in this Operator's Manual for more information.

Tire industry uses a number called "load index" to define load rating of a tire. This chart lists, for a given load index, maximum amount of weight that can be supported by each tire at manufacturer's maximum rated pressure.

Load carrying capacity per tire is reduced for tractors equipped with duals and triple.

Wheels and Tires - General Information

Load Index	Maximum Load per Tire ^a			Load Index	Maximum Load per Tire ^a		
	Singles kg (lb)	Duals kg (lb)	Triples [Ag] kg (lb)		Singles kg (lb)	Duals kg (lb)	Triples [Ag] kg (lb)
143	2725 (6008)	2398 (5287)	2235 (4926)	170	6000 (13228)	5280 (11640)	4920 (10847)
144	2800 (6173)	2464 (5432)	2296 (5062)	171	6150 (13558)	5412 (11931)	5043 (11118)
145	2900 (6393)	2552 (5626)	2378 (5243)	172	6300 (13889)	5544 (12222)	5166 (11389)
146	3000 (6614)	2640 (5820)	2460 (5423)	173	6500 (14330)	5720 (12610)	5330 (11751)
147	3075 (6779)	2706 (5966)	2522 (5559)	174	6700 (14771)	5896 (12998)	5494 (12112)
148	3150 (6945)	2772 (6111)	2583 (5695)	175	6900 (15212)	6072 (13386)	5658 (12474)
149	3250 (7165)	2860 (6305)	2665 (5875)	176	7100 (15653)	6248 (13774)	5822 (12835)
150	3350 (7385)	2948 (6499)	2747 (6056)	177	7300 (16094)	6424 (14162)	5986 (13197)
151	3450 (7606)	3036 (6693)	2829 (6237)	178	7500 (16535)	6600 (14550)	6150 (13558)
152	3550 (7826)	3124 (6887)	2911 (6418)	179	7750 (17086)	6820 (15036)	6355 (14010)
153	3650 (8047)	3212 (7081)	2993 (6598)	180	8000 (17637)	7040 (15521)	6560 (14462)
154	3750 (8267)	3300 (7275)	3075 (6779)	181	8250 (18188)	7260 (16005)	6765 (14914)
155	3875 (8543)	3410 (7518)	3178 (7005)	182	8500 (18739)	7480 (16490)	6970 (15366)
156	4000 (8818)	3520 (7760)	3280 (7231)	183	8750 (19290)	7700 (16975)	7175 (15818)
157	4125 (9094)	3630 (8003)	3383 (7457)	184	9000 (19841)	7920 (17460)	7380 (16270)
158	4250 (9370)	3740 (8245)	3485 (7683)	185	9250 (20393)	8140 (17945)	7585 (16722)
159	4375 (9645)	3850 (8488)	3588 (7909)	186	9500 (20944)	8360 (18430)	7790 (17174)
160	4500 (9921)	3960 (8730)	3690 (8135)	187	9750 (21495)	8580 (18915)	7995 (17626)
161	4625 (10196)	4070 (8973)	3793 (8361)	188	10000 (22046)	8800 (19400)	8200 (18078)
162	4750 (10472)	4180 (9215)	3895 (8587)	189	10300 (22707)	9064 (19982)	8446 (18620)
163	4875 (10748)	4290 (9458)	3998 (8813)	190	10600 (23369)	9328 (20565)	8692 (19162)

^aAt manufacturer's maximum rated pressure.

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Tire Sidewall Information

Displayed on tire sidewalls is information useful in selecting and working with tires.

520 / 85 R 42 158 A8

(A)
(B)
(C)
(D)
(E)
(F)

RXA0149658—UN—13AUG15

- A**—Tire section width—Width in millimeters.
- B**—Aspect ratio—Ratio of height to tire section width.
- C**—Construction type—R = Radial, B = Bias.
- D**—Rim diameter—Diameter in inches (not total tire height or group size).
- E**—Load index—Numerical code indicates tire load-carrying capacity. Higher load index number designates higher load capacity. See Tire Load Index chart in this Operator's Manual section.
- F**—Speed rating—Maximum speed tire is designed to travel.

Additional information that may be displayed on sidewall.

- **Tread pattern** - Indicates tread design and tire usage. Designs offered are all lug- or bar-type tires and are separated into one of three specifications: R1, R1W, or R2.
- **Direction of rotation** - Icon (usually an arrow or group of arrows) indicating tire rotation direction.
- **Manufacturer name** - Name of tire manufacturer.
- **Max load and pressure information** - Maximum load a tire is permitted to carry under specified pressure and operating conditions. See Recommended Pressures charts in Wheels, Tires, and Treads section of this Operator's Manual.
- **Safety warnings** - Important information provided by tire manufacturer.

AK08008.00000D1-19-17MAR20

Tire Inflation Pressure Guidelines

Check tire inflation pressure *at least* every two weeks, while tires are cool using an accurate dial or stick-type gauge having 10 kPa (0.1 bar) (1 psi) graduations.

NOTE: Use a special air-water gauge and measure with valve stem at bottom if tires contain liquid ballast.

Checking inflation pressures of inner wheels is much easier, if valve stems of inner and outer tires are aligned at time outer wheel is installed.

Correctly inflated radial tires show a deflection of sidewall. This is normal and does not harm tire.

Inflation pressures less than 80 kPa (0.8 bar) (12 psi) should be monitored frequently because of increased risk of low pressure air leaks.

NOTE: Bead slip can be experienced in high-traction conditions, with single tire usage. Increasing inflation pressure will help but will reduce traction.

Maximum tire pressure is specified on tire sidewall.

Determine correct tire pressure by weighing tractor using following procedure:

- Front axle weight with implement lowered
- Rear axle weight with implement raised

Set tire inflation pressures according to weight measured. *Ballasting and tire inflation pressure may need to be adjusted when operating conditions change.* Use inflation tire charts on following pages.

NOTE: If tractor is equipped with front-mounted implement, raise implement when determining front axle weight and lower implement when determining rear axle weight. If tractor is equipped with both a front and rear-mounted implement, raise both implements.

IMPORTANT: Inflation pressures exceeding heavy ballast guidelines of 76 kg/kW (125 lb/hp) are not recommended. Tractor efficiency will be decreased. Use larger dual or triple wheels.

Managing Tire Inflation Pressures

IMPORTANT: Integral implements transfer significant weight to rear axle. Include this added weight when determining correct inflation pressures. (See Performance Ballasting section in this Operator's Manual.)

Tractors operating on steep side slopes or furrow plowing should increase rear tire pressures 30 kPa (0.3 bar) (4 psi) above values listed for base pressures 80 kPa (0.8 bar) (12 psi) and above to compensate for lateral weight transfer, however, never exceed maximum tire pressure as specified on tire sidewall. For base pressures below 80 kPa (0.8 bar) (12 psi), pressure should be increased by 30 percent.

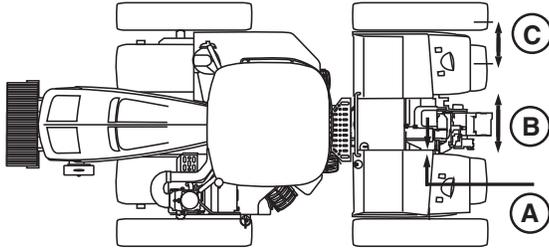
NOTE: All tires on an axle must have same inflation pressure.

[Ag] Tractors with heavy hitch-mounted implements require increased rear tire inflation pressures to carry increased weight during transport.

AK08008,00000D2-19-15NOV19

Wheels and Tires

Observe Tread Width Limitations



RXA0160097—UN—06JUL17

IMPORTANT: Tires must have at least 25 mm (1 in) clearance (A) with fenders. Clearance (B) between tires must be at least 1041 mm (41 in), with tires equal distance from center line.

[Ag] Clearance between tires must be at least 1179 mm (46.4 in) for Category 4 hitch, 1041 mm (41 in) for Category 4N, and 1047 mm (41.2 in) for Category 3 hitch, when no side sway is permitted on mounted implements. With sway allowed, check tire clearance before using equipment.

[Ag] Shims further reduce hitch side sway. Lengthening lift links to maximum length provides more clearance for "row cropping" at 762 mm (30 in) treads. See your John Deere dealer.

Steering stops may be required for some tread settings.

Extremely wide wheel spacings provide higher loads for axle bearings and shafts. Try to minimize overall tread width.

For Agricultural land leveling operations, never use tires wider than 710 mm. Maximum outer tread spacing is 3690.6 mm (145.3 in).¹

Maximum Mean Tread Width by Implement Type		
Implement Type	Maximum Mean Tread Width mm (in)	
	[Ag]	[Scraper]
Hitch-Mounted	2800 (110)	—
Towed	3130 (123)	3455 (136)

Tire Section mm (in)	Tire Centerline	
	Minimum Spacing mm (in)	
	[Ag]	[Scraper]
480 (18.9)	626 (24.6)	—
520 (20.5)	670 (26.4)	—
620 (24.5)	801 (31.5)	801 (31.5)
650 (25.5)	825 (31.5)	825 (31.5)
710 (28.8)	890 (35.0)	890 (35.0)
800 (30.5)	1008 (39.7)	—

AK08008,00000D3-19-17MAR20

Tread Widths

IMPORTANT: Use of clamp-on dual wheels is not allowed. A separate hub is required for each dual or triple tire.

For agricultural land leveling operations, never use tires wider than 710 mm. Maximum outer tread spacing is 3690.6 mm (145.3 in). See Agricultural Heavy-Duty Land Leveling Package in Specifications section of this Operator's Manual.

NOTE: See Observe Tread Width Limitations in this Operator's Manual section.

Tread width is measured between center of tires. Approximate tread ranges for each tire size and configuration are shown in the following charts.

[Ag] Tread Width—Single Wheels	
Tire Size	Tire Range Minimum—Maximum mm (in)
	Inner
710/70R38	1832—2477 (72.1—97.5)
710/70R42	
800/70R38	1921—2630 (75.6—103.5)

[Ag] Tread Width—Dual Wheels		
Tire Size	Tire Range Minimum—Maximum mm (in)	
	Inner	Outer
18.4R46 ^a		
480/80R46 ^a	1576 ^b —1910 (62.1—75.2)	2968—3348 (116.9—131.8)
480/80R50 ^a		
20.8R42 ^a		
520/85R42 ^a	1616—2063 (63.6—81.2)	2987—3450 (117.6—135.8)
520/85R46 ^a		
620/70R42 ^a	1734—2063 (68.3—81.2)	3336—3615 (131.4—142.3)
620/70R46 ^a		

¹ See Agricultural Heavy-Duty Land Leveling Package in Specifications section of this Operator's Manual.

Wheels and Tires

[Ag] Tread Width—Dual Wheels		
Tire Size	Tire Range Minimum—Maximum mm (in)	
	Inner	Outer
650/85R38 ^a	1756—1966 (69.2—77.4)	3406—3648 (134.1—143.6)
710/70R38 ^a	1832—1844 (72.1—72.6)	3612—3624 (142.2—142.7)
710/70R42 ^a	1832—1911 (72.1—75.2)	3612—3691 (142.2—145.3)
800/70R38 ^a	1921—2188 (75.6—86.0)	3937—4077 (155.0—160.5)

^aCast/Steel

^bFor tractors without HydraCushion suspension the minimum can be 1530 mm (60 in)

**IMPORTANT: Avoid damage to tires and tractor.
Steering stops required on all triple tread.**

Additional spacings can be obtained by slight adjustment of inner and dual wheels.

[Ag] Tread Width—Triple Wheels			
Tire Size	Tread Width mm (in)		
	Inner	Dual	Triple
18.4R46 ^a	1500 (59.0)	2828 (111.3)	4090 (161.0)
480/80R46 ^a			
20.8R42	1616 (63.6)	2987 (117.6)	4374 (172.2)
520/85R42			
480/80R50	1576 ^b (62.1)	2828 (111.3)	4090 (161.0)
520/85R46	1616 (63.6)	2978 (117.2)	4356 (171.5)

^a18.4R46 and 480/80R46 triples are not compatible with HydraCushion suspension system

^bFor tractors without HydraCushion suspension the minimum can be 1543 mm (60.8 in)

[Sc] Tread Width—Single Wheels	
Tire Size	Tire Range Minimum—Maximum mm (in)
	Inner
76x50.00-B32 Flotation 23- Degree Logger	2400 (94.5)

[Sc] Tread Width—Dual Wheels		
Tire Size	Tire Range Minimum—Maximum mm (in)	
	Inner	Outer
620/70R42 ^a	1734—2063 (68.3—81.2)	3336—3615 (131.4—142.3)
620/70R46 ^a		
650/85R38 ^a	1756—1966 (69.2—77.4)	3406—3648 (134.1—143.6)
710/70R38 ^a	1832—1844 (72.1—72.6)	3612—3624 (142.2—142.7)
710/70R42 ^a	1832—1911 (72.1—75.2)	3612—3691 (142.2—145.3)

^aCast/Steel

AK08008,00000D4-19-15NOV19

Dual Tire Use

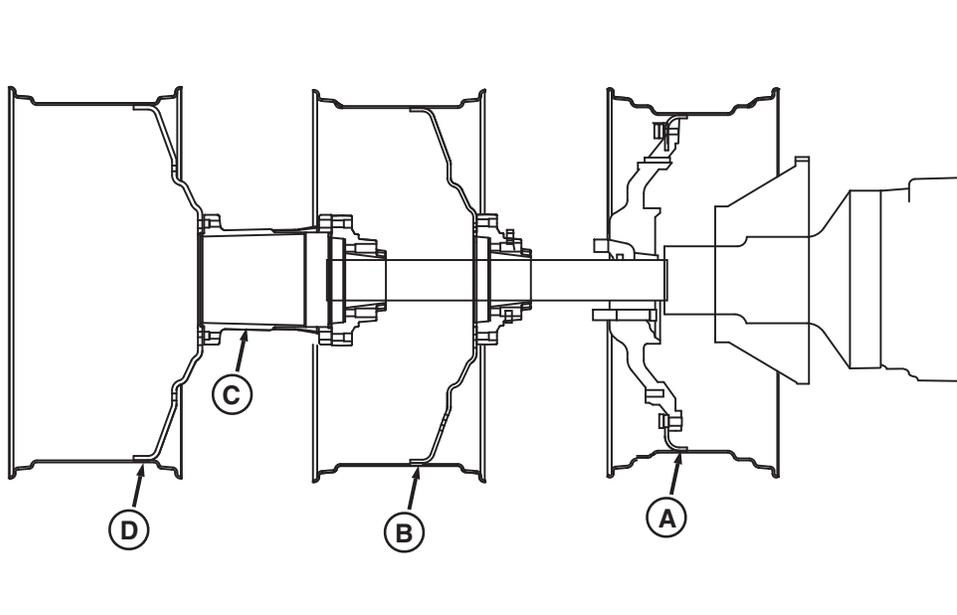
IMPORTANT: Installation of dual tires wider than 800 mm (31.5 in) can cause damage to the axles from overloading.

Never use clamp-on dual wheels. Each dual or triple tire require a separate hub.

For agricultural land leveling operations, never use tires larger than 710 mm. Maximum outer tread spacing is 3690.6 mm (145.3 in). See Agricultural Heavy-Duty Land Leveling Package in Specifications section of this Operator's Manual.

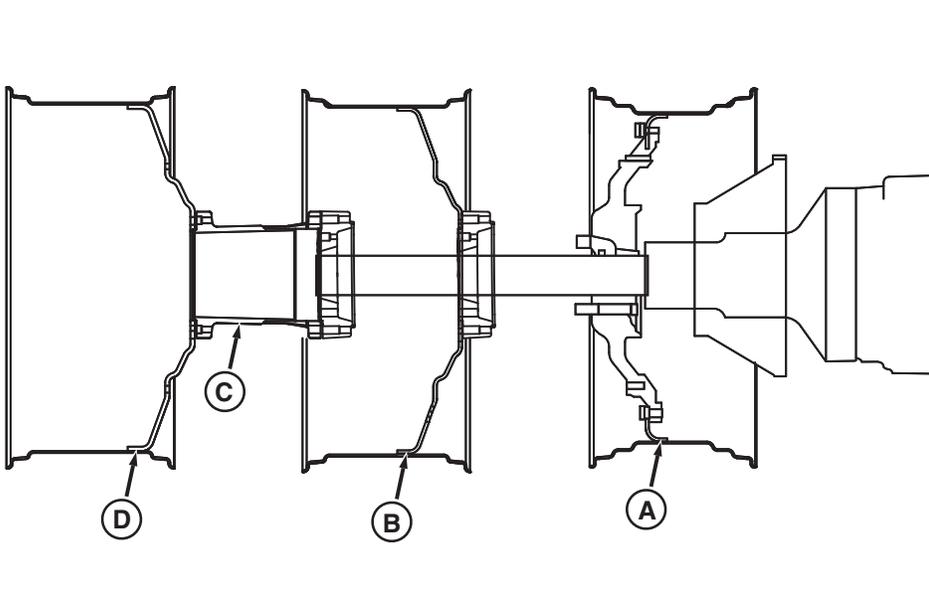
AK08008,00000D5-19-15NOV19

Triple Wheels [Ag]



Standard Wheel Hubs

RXA0161140—UN—24OCT17



Heavy-Duty Wheel Hubs

RXA0161141—UN—24OCT17

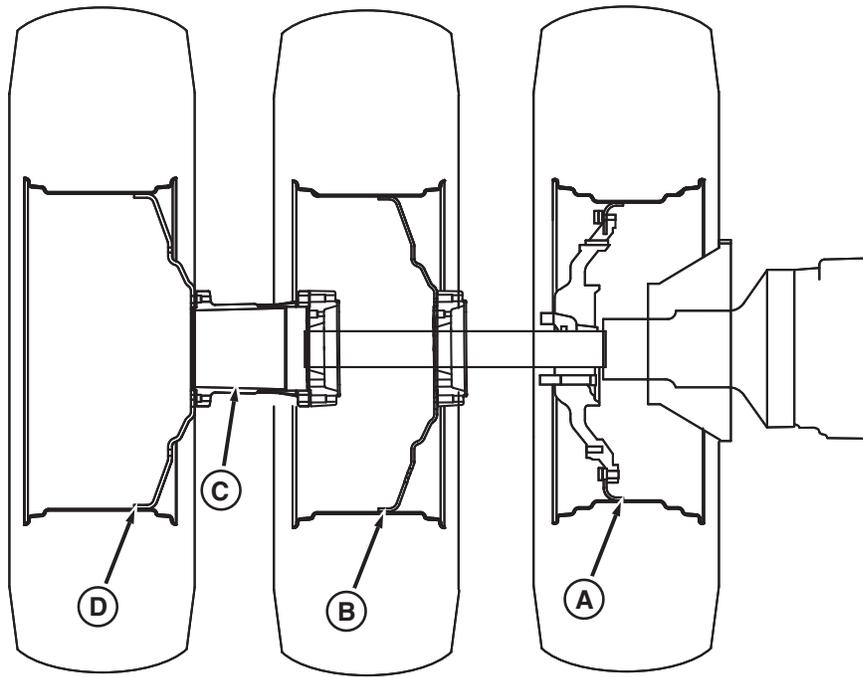
A—Inner Wheel
B—Dual Wheel

C—Hub Extension
D—Outer Wheel

See following pages for instructions on installing wheel hardware and torque specifications.

AK08008,00000D6-19-15NOV19

Triple Wheels (Heavy Duty Wheel Hubs)



Triple Wheels (Heavy Duty Wheel Hubs)

RXA0073454—UN—13FEB04

A—Inner Wheel
B—Dual Wheel

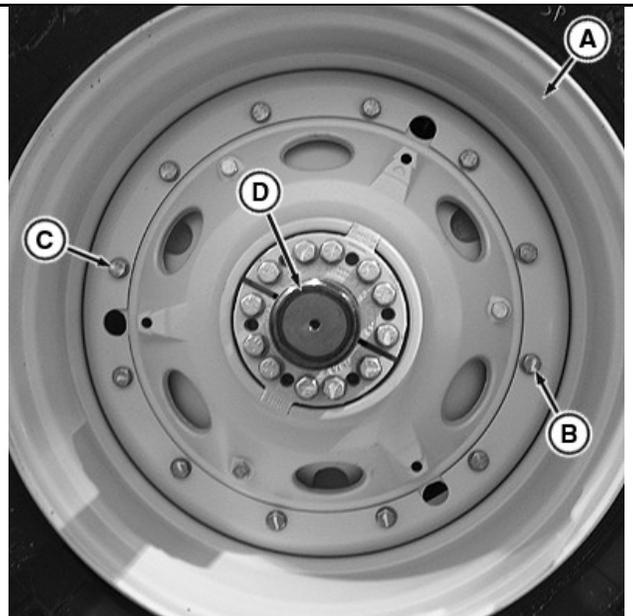
C—Hub Extension
D—Outer Wheel

See following pages for instructions on installing wheel hardware and torque specifications.

AK08008,00000D7-19-15NOV19

Install Wheel Rim to Cast Wheel

⚠ CAUTION: Avoid personal injury and equipment damage. Completely follow torque sequence and procedure. Never operate tractor with loose wheel bolts. Wheel bolts are critical and require retightening.



RXA0110877—UN—22SEP10

NOTE: For improved centering, wheel rim (A) has one tight-fit (B) hole and one slot-fit hole (C) hole is 180° from the tight-fit hole.

Ensure the wheel retaining snap ring (D) is properly seated in the axle groove.

1. Install and hand-tighten bolt in tight-fit hole.
2. Install and hand-tighten bolt in slot-fit hole.
3. Install and hand-tighten remaining bolts.
4. Tighten all bolts to 610 N·m (450 lb·ft).
5. Drive tractor 100 meters (100 yd) and retighten bolts.
6. Tighten bolts after working 3 hours, 10 hours, and daily for first week of operation and every 500 hours thereafter.

NOTE: For continual heavy draft load operation, like scrapers, tighten every two hours during the first week of operation.

AK08008,00000D8-19-15NOV19

Use Wheel Tightening Stand



RXA0104284—UN—11AUG09

Wheel tightening stand (A) may be used to support the torque wrench (B) when tightening cap screws at different heights.

See your John Deere dealer to order or information on how to build your own.

AK08008,00000D9-19-15NOV19

Wheel Weight Holding Wrench—JDG10958



RXA0100328—UN—03FEB09

JDG10958 Wheel Weight Holding Wrench



RXA0100329—UN—03FEB09

Outer Wheel Weight



RXA0100330—UN—03FEB09

Inner Wheel Weight

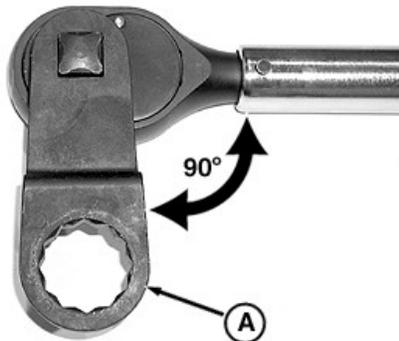
JDG10958 Holding Wrench (A) can be used when multiple inner and outer wheel weights are stacked on tractor wheel.

Holding Wrench is designed to hold M20 wheel weight cap screws in limited access areas while tightening cap screws to 610 N·m (450 lb·ft).

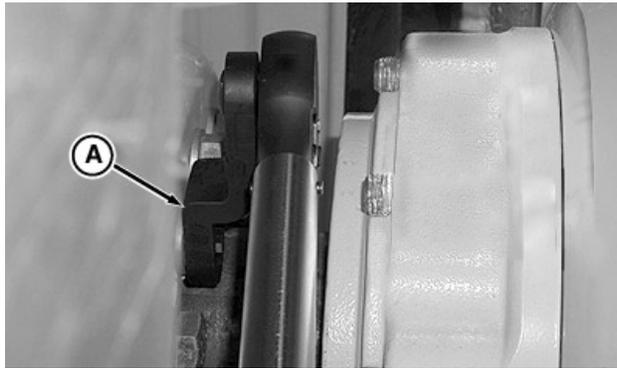
Wrench is available from your John Deere Dealer.

AK08008,00000DA-19-15NOV19

Use Wheel Torque Wrench Adapter



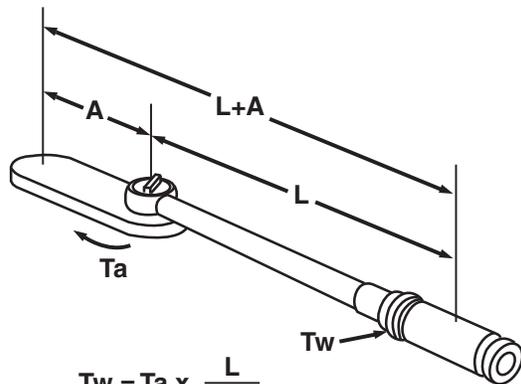
RXA0086802—UN—15FEB06



RXA0086804—UN—15FEB06

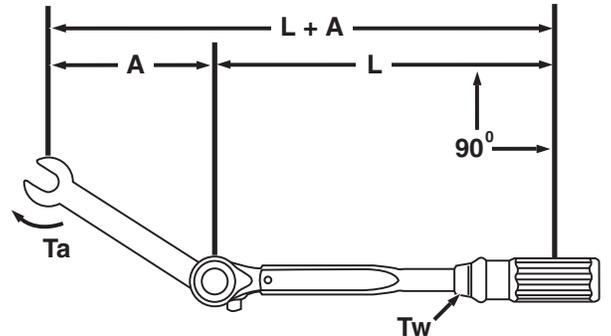
Install JDG679 Torque Wrench Adapter (A) [32 mm (3/4 in) drive] to allow easy access to sleeve bolts on inner cast wheels with outside duals in place. Purchase from your John Deere dealer.

Install adapter at 90° angle from torque wrench shaft to assure correct cap screw torque specification of 610 N·m (450 lb·ft).



$$Tw = Ta \times \frac{L}{L+A}$$

RXA0061214—UN—19JUN02



RXA0062101—UN—15AUG02

- Tw** —Torque setting on torque wrench
- Ta** —Torque actually being applied to bolt
- L** —Length from point of force (center of the wrench handle) to center of head of torque wrench
- A** —Application distance from center of torque wrench head to center of adapter [95 mm (3.75 in)]

When unable to use adapter at 90° angle from torque wrench shaft, use formula to calculate correct torque wrench setting (Tw) to obtain desired final torque on bolts. Example: Torque wrench length = 0.91 m (36 in), wrench adapter = 0.1 m (4 in), Value Tw for torque wrench setting is 549 N·m (405 lb·ft).

AK08008,00000DB-19-15NOV19

Adjust and Tighten—Standard Drive Wheel and Standard Dual Hubs [Ag]

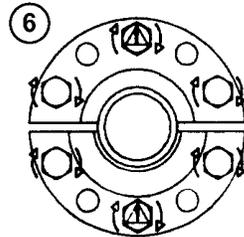
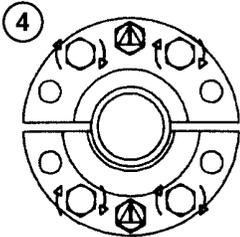
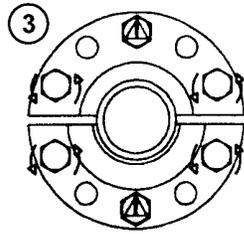
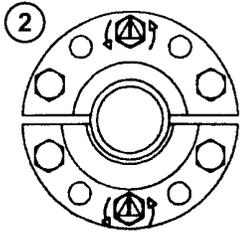
⚠ CAUTION: Avoid personal injury. Never operate engine with transmission in gear when adjusting wheels. Wheels on ground could pull supported wheels off jack stands.

Never operate tractor with a loose rim, wheel, or hub.

IMPORTANT: Carefully follow procedure. Failure to do so could lead to wheel hub damage.

Clean any paint, grease, film, rust or debris from axle shafts prior to positioning and installing wheel hubs and sleeves. Never apply any lubricant to cap screws or threads.

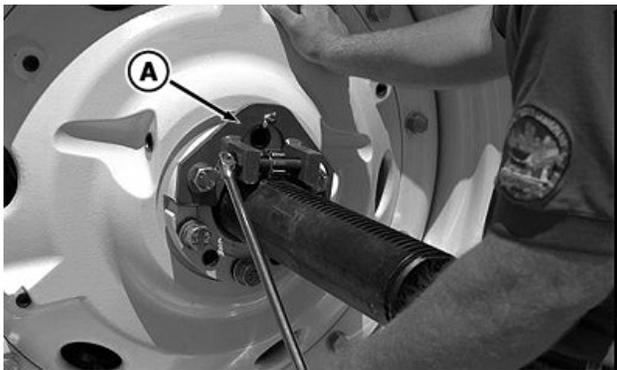
1. Raise tractor on level ground and turn wheel so rack on axle is upward.



RW26331—UN—24JUN99

2. Loosen lower hub center bolt against retaining nut. Loosen outer hub sleeve bolts.
3. Tighten inner jack screws on upper and lower hub sleeves to loosen sleeves. Tighten jack screws up to 500-600 N·m (370-440 lb·ft) if necessary.

NOTE: Strike end of axle with a heavy hammer and use penetrating oil if sleeves are difficult to break loose.



RXA0072370—UN—05DEC03

4. Remove jack screws from upper hub sleeve and install JDG667A (A) for 100 mm axle and JDG668A for 110 mm axle Wheel Adjusting Tool (A) (available from your John Deere Dealer) using sleeve bolts. Move wheel to desired position. Observe tread width limitations.
5. Remove adjusting tool and jack screws.

IMPORTANT: Keep the face of hub sleeves even to prevent hub breakage or bolt loosening.

6. Tighten hub sleeve bolts to 204 N·m (150 lb·ft) beginning with center bolt in lower sleeve, then criss-crossing other bolts.

7. Retighten bolts to 410 N·m (300 lb·ft) using same sequence.
8. Drive tractor a minimum of 100 meters (100 yd) and tighten bolts to 600 N·m (445 lb·ft).
9. Tighten bolts after working 3 hours, 10 hours, and daily for first week of operation and every 500 hours thereafter.

IMPORTANT: If tractor is operated with wheel sleeve loose for 4-5 hours, it is necessary to replace sleeves.

AK08008,00000DC-19-15NOV19

Adjust and Tighten—Drive (Inner) Wheel Hubs

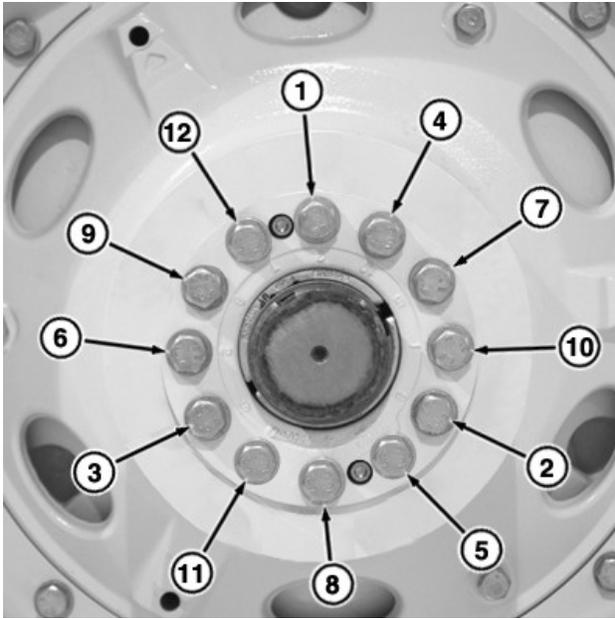
CAUTION: Avoid personal injury. Never run the engine with transmission in gear when adjusting wheels. Wheels on the ground could pull supported wheels off jackstands.

Never operate tractor with a loose rim, wheel or hub.

IMPORTANT: Carefully follow procedure. Failure to do so could damage the sleeve or the cast wheel.

Clean any paint, grease, film, rust or debris from axle shafts, cap screws, and threads prior to positioning and installing wheel sleeves and cast wheel. Never apply any lubricant to cap screws, threads, wheel or axle.

1. Raise the tractor on level ground and support tractor with jackstands.



RXA0090157—UN—08AUG06

Torque sequence: Double-taper heavy-duty drive wheel hub assembly



RXA0178134—UN—28MAY20

Torque sequence: Double-flat heavy-duty drive wheel hub assembly

- Loosen (without removing) sleeve bolts (1-12) just enough to move wheel.

IMPORTANT: Do not loosen or remove the hex-head screws as this could damage the wheel or cause the wheel to jam during installation.

CAUTION: Use a hoist, wheel dolly or proper lifting equipment to safely slide and adjust wheels on axles and avoid possibility of personal injury.

Failure to follow torquing sequence and procedure will result in damage to wheel sleeves and may result in personal injury. Wheel bolt torques are critical and require repeated tightening.

- Move wheel to desired position.
- Tighten bolts (1-12) in numerical order to 410 N·m (300 lb·ft). Make sure wheel is perpendicular to axle.
- Tighten bolts (1-12) in numerical order to 610 N·m (450 lb·ft).

IMPORTANT: Some sleeve bolts may loosen as the sleeve is tightened. Repeat the numbered order torquing pattern until all sleeve bolts maintain the proper torque. Failure to follow procedure could result in damage to equipment and may result in personal injury.

- Drive tractor unloaded in a large figure-8 pattern a minimum of four times and tighten bolts in numerical order until bolts maintain final torque of 610 N·m (450 lb·ft).

IMPORTANT: Keep wheel sleeve cap screws tightened to specification. If tractor is operated with loose wheel sleeves or under-torqued cap screws it may be necessary to replace sleeves and cast wheels.

- Tighten bolts after working 3 hours, 10 hours, and daily for the first week of operation or until the bolts do not move when re-torquing, and every 500 hours thereafter.

NOTE: Continue to check torque a minimum of weekly if used for normal scraper operations.

AK08008,0000548-19-04NOV20

Adjust and Tighten—Dual Wheel Hubs

CAUTION: Avoid personal injury. Never run the engine with transmission in gear when adjusting wheels. Wheels on the ground could pull supported wheels off jackstands.

Never operate tractor with a loose rim, wheel, or hub.

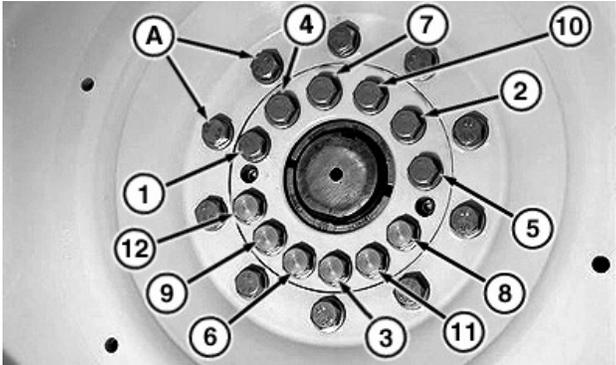
IMPORTANT: Tractors are equipped with 12 bolt heavy-duty wheels and 12 bolt hubs. Numbers indicating proper torquing sequence are cast into wheel hub.

Carefully follow procedure. Failure to do so could lead to wheel hub damage.

Clean any paint, grease, film, rust or debris from axle shafts prior to positioning and installing wheel hubs and sleeves. Never apply any lubricant to cap screws or threads.

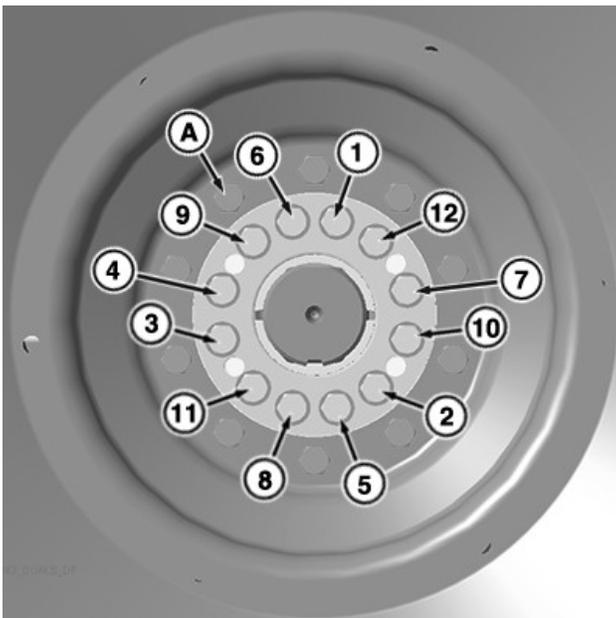
NOTE: Adjusting tool is not compatible with heavy-duty wheel hub.

1. Raise the tractor on level ground and support tractor with jackstands.



RXA0093173—UN—27MAR07

Torque sequence: Double-taper heavy-duty dual wheel hub assembly



RXA0178135—UN—28MAY20

Torque sequence: Double-flat heavy-duty dual wheel hub assembly

2. Loosen (without removing) sleeve bolts (1-12) just enough to move wheel.

IMPORTANT: Do not loosen or remove the two hex-head screws. Doing so could result in wheel jamming or damage.

3. Move wheel to desired position.
4. Tighten bolts (1-12) in numerical order until bolts

maintain torque of 405 N·m (300 lb·ft). Make sure wheel is perpendicular to axle.

5. Tighten bolts (1-12) in numerical order until bolts maintain torque of 610 N·m (450 lb·ft).
6. Using a star-shaped pattern, tighten all wheel to hub cap screws (A) to 725 N·m (540 lb·ft) as needed to maintain torque.

IMPORTANT: Repeat torquing pattern until ALL bolts maintain the proper torque. Failure to follow procedure could result in damage to equipment and may result in personal injury.

7. Drive tractor a minimum of 100 meters (110 yd) and tighten bolts in numerical order until bolts maintain torque of 610 N·m (450 lb·ft).

IMPORTANT: If tractor is operated with wheel sleeve loose for 4-5 hours, it is necessary to replace sleeves.

8. Tighten again at 3 hours, 10 hours, and daily for the first week of operation and every 500 hours thereafter.

NOTE: Continue to check torque a minimum of weekly if used for normal scraper operations.

AK08008,0000549-19-04NOV20

Install 76x50.00 B-32 Flotation Wheel and Tire Assembly [Scraper]

CAUTION: Avoid personal injury. Never run the engine with transmission in gear when adjusting wheels. Wheels on the ground could pull supported wheels off jackstands.

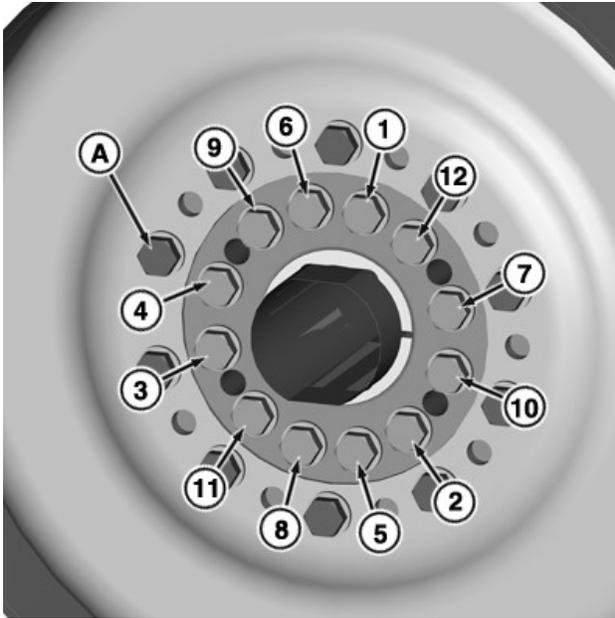
Never operate tractor with a loose rim, wheel, or hub.

IMPORTANT: Carefully follow procedure. Failure to do so could lead to wheel hub damage.

Clean any paint, grease, film, rust or debris from axle shafts prior to position and installing wheel hubs and sleeves. Never apply any lubricant to cap screws or threads.

NOTE: All wheel and rim components with the contoured disk assembly design will be handled through John Deere Service Parts and Warranty.

1. Raise tractor on level ground and support with jackstands.



RXA0112038—UN—10NOV10

2. Install wheel and tire assembly to inner hub, using a washer on each M22 x 120 mm cap screw (A).

NOTE: Use Torque Multiplier Wrench for heavy-duty fasteners. See your John Deere Dealer.

Torque multiplier wrenches available for purchase are:

- JT05706 - Capacity - 1360 N·m (1000 lb·ft)
- D05125ST - Capacity - 2720 N·m (2000 lb·ft)

3. Tighten cap screws (A) to 610 N·m (450 lb·ft) in crisscross pattern.
4. Loosen (without removing) sleeve bolts.

IMPORTANT: Do not loosen or remove the two allen head screws. Doing so could result in wheel jamming or damage.

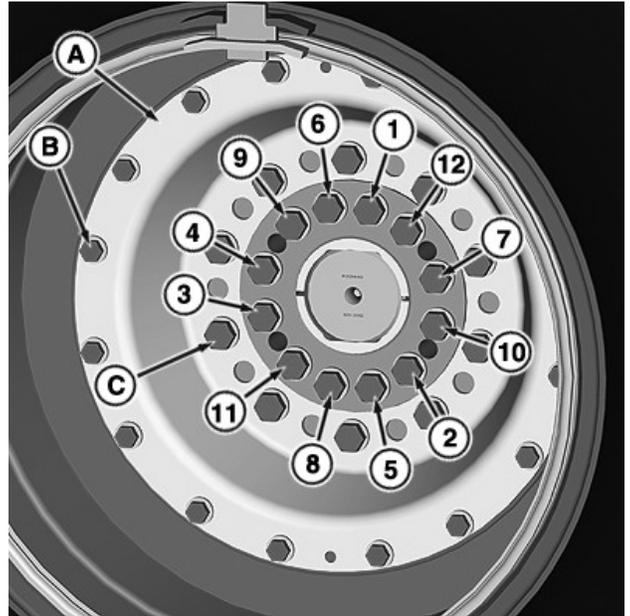
5. Adjust tread spacing between 2302 mm (90.5 in) minimum and 2617 mm (103 in) maximum.
6. Tighten bolts in numerical order to 405 N·m (300 lb·ft).
7. Tighten bolts in numerical order 610 N·m (450 lb·ft).
8. Drive tractor in a “figure 8” pattern over four laps.

IMPORTANT: Insure inner hub and wheel bolts hold torque before installing outer hub and disk. This may take several drive and torque sequences.

9. Repeat drive and torque procedure a minimum of three times until all hardware holds torque.
10. Install outer wheel hub on axle.

IMPORTANT: Place side of disk with primer paint (flat yellow) against wheel hub.

Clean any paint, grease, film, rust or debris from axle shafts and disk mounting surfaces prior to positioning and installing wheel hubs and sleeves. Never apply any lubricant to cap screws or threads.



RXA0120702—UN—20SEP11

11. Install disk (A) to wheel hub using washers and M22 x 120 mm cap screws (C). Tighten cap screws to 600 N·m (450 lb·ft).

12. Install disk to wheel using M16 cap screws (B). Tighten cap screws to 235 N·m (173 lb·ft).

NOTE: M16 8.8 cap screw torque pattern is stamped on wheel hub.

13. Tighten bolts 1-12 in numerical order to 405 N·m (300 lb·ft).
14. Tighten bolts 1-12 in numerical order to 610 N·m (450 lb·ft).
15. Drive tractor in a “figure 8” pattern over four laps.

IMPORTANT: Insure hub and wheel bolts hold torque. This may take several drive and torque sequences.

16. Repeat drive and torque procedure a minimum of three times until all hardware holds torque.

IMPORTANT: Keep wheel sleeve cap screws tightened to specification. If tractor is operated with loose wheel sleeves or under-torqued cap screws it may be necessary to replace sleeves and cast wheels.

Wheels and Tires

17. Torque bolts after working 3 hours, 10 hours, daily during the first week of operation, and then every 500 hours thereafter.

NOTE: Continue to check torque a minimum of weekly if used for normal scraper operations.

AK08008.00000DF-19-15NOV19

Recommended Inflation Pressures—Group 47

Group	47										
Size	480/80R46		520/85R42				620/70R42		710/70R38		IF710/ 70R38
Load Index	158		157		162		160	166	166	171	178
Use	[Ag]		[Ag]		[Ag]			[Ag]		[Ag]	
Speed Rating	A8 / B / D		A8 / B		A8 / B		A8 / B / D	A8 / B	A8 / D	A8 / B / D	A8 / B
	Dual ^{ab}	Triple	Dual	Triple	Dual	Triple	Dual	Dual	Dual	Dual	Dual
Axle Load kg (lb)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)
3855 (8500)	41 ^{a, b} (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	83 (0.8)(12)	83 (0.8)(12)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)
4082 (9000)	41 ^{a, b} (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	83 (0.8)(12)	83 (0.8)(12)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)
4308 (9500)	41 ^{a, b} (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	83 (0.8)(12)	83 (0.8)(12)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)
4535 (10000)	41 ^{a, b} (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	83 (0.8)(12)	83 (0.8)(12)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)
4762 (10500)	41 ^{a, b} (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	83 (0.8)(12)	83 (0.8)(12)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)
4989 (11000)	41 ^{a, b} (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	83 (0.8)(12)	83 (0.8)(12)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)
5215 (11500)	41 ^{a, b} (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	83 (0.8)(12)	83 (0.8)(12)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)
5442 (12000)	41 ^{a, b} (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	83 (0.8)(12)	83 (0.8)(12)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)
5669 (12500)	41 ^{a, b} (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	83 (0.8)(12)	83 (0.8)(12)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)
5900 (13000)	41 ^{a, b} (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	83 (0.8)(12)	83 (0.8)(12)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)
6120 (13500)	48 ^{a, b} (0.5)(7)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	83 (0.8)(12)	83 (0.8)(12)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)
6350 (14000)	48 ^{a, b} (0.5)(7)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	83 (0.8)(12)	83 (0.8)(12)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)
6580 (14500)	55 ^{a, b} (0.6)(8)	41 (0.4)(6)	48 (0.5)(7)	41 (0.4)(6)	83 (0.8)(12)	83 (0.8)(12)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)
6800 (15000)	62 ^{a, b} (0.6)(9)	41 (0.4)(6)	48 (0.5)(7)	41 (0.4)(6)	83 (0.8)(12)	83 (0.8)(12)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)
7030 (15500)	62 ^b (0.6)(9)	41 (0.4)(6)	55 (0.6)(8)	41 (0.4)(6)	83 (0.8)(12)	83 (0.8)(12)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)
7260 (16000)	69 ^b (0.7)(10)	41 (0.4)(6)	55 (0.6)(8)	41 (0.4)(6)	83 (0.8)(12)	83 (0.8)(12)	48 (0.5)(7)	48 (0.5)(7)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)
7480 (16500)	69 ^b (0.7)(10)	41 (0.4)(6)	62 (0.6)(9)	41 (0.4)(6)	83 (0.8)(12)	83 (0.8)(12)	48 (0.5)(7)	48 (0.5)(7)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)
7720 (17000)	76 ^b (0.8)(11)	41 (0.4)(6)	62 (0.6)(9)	41 (0.4)(6)	83 (0.8)(12)	83 (0.8)(12)	55 (0.6)(8)	55 (0.6)(8)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)
7950 (17500)	83 ^b (0.8)(12)	41 (0.4)(6)	69 (0.7)(10)	41 (0.4)(6)	83 (0.8)(12)	83 (0.8)(12)	55 (0.6)(8)	55 (0.6)(8)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)
8170 (18000)	83 ^b (0.8)(12)	41 (0.4)(6)	69 (0.7)(10)	41 (0.4)(6)	83 (0.8)(12)	83 (0.8)(12)	62 (0.6)(9)	62 (0.6)(9)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)
8400 (18500)	90 ^b (0.9)(13)	48 (0.5)(7)	76 (0.8)(11)	41 (0.4)(6)	83 (0.8)(12)	83 (0.8)(12)	62 (0.6)(9)	62 (0.6)(9)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)

Wheels and Tires

Group	47										
Size	480/80R46		520/85R42				620/70R42		710/70R38		IF710/ 70R38
Load Index	158		157		162		160	166	166	171	178
Use	[Ag]		[Ag]		[Ag]			[Ag]		[Ag]	
Speed Rating	A8 / B / D		A8 / B		A8 / B		A8 / B / D	A8 / B	A8 / D	A8 / B / D	A8 / B
	Dual ^{ab}	Triple	Dual	Triple	Dual	Triple	Dual	Dual	Dual	Dual	Dual
Axle Load kg (lb)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)
8630 (19000)	90 ^b (0.9)(13)	48 (0.5)(7)	76 (0.8)(11)	41 (0.4)(6)	83 (0.8)(12)	83 (0.8)(12)	69 (0.7)(10)	69 (0.7)(10)	48 (0.5)(7)	41 (0.4)(6)	48 (0.5)(7)
8850 (19500)	97 ^b (1.0)(14)	55 (0.6)(8)	83 (0.8)(12)	41 (0.4)(6)	83 (0.8)(12)	83 (0.8)(12)	69 (0.7)(10)	69 (0.7)(10)	48 (0.5)(7)	41 (0.4)(6)	48 (0.5)(7)
9080 (20000)	103 ^b (1.0)(15)	55 (0.6)(8)	90 (0.9)(13)	41 (0.4)(6)	83 (0.8)(12)	83 (0.8)(12)	69 (0.7)(10)	69 (0.7)(10)	48 (0.5)(7)	41 (0.4)(6)	48 (0.5)(7)
9530 (21000)	110 (1.1)(16)	55 (0.6)(8)	90 (0.9)(13)	48 (0.5)(7)	83 (0.8)(12)	83 (0.8)(12)	76 (0.8)(11)	76 (0.8)(11)	55 (0.6)(8)	48 (0.5)(7)	48 (0.5)(7)
9990 (22000)	110 (1.1)(16)	62 (0.6)(9)	97 (1.0)(14)	55 (0.6)(8)	83 (0.8)(12)	83 (0.8)(12)	83 (0.8)(12)	83 (0.8)(12)	62 (0.6)(9)	48 (0.5)(7)	55 (0.6)(8)
10440 (23000)	117 (1.2)(17)	69 (0.7)(10)	103 (1.0)(15)	62 (0.6)(9)	83 (0.8)(12)	83 (0.8)(12)	90 (0.9)(13)	90 (0.9)(13)	69 (0.7)(10)	55 (0.6)(8)	55 (0.6)(8)
10900 (24000)	124 (1.2)(18)	76 (0.8)(11)	110 (1.1)(16)	62 (0.6)(9)	90 (0.9)(13)	83 (0.8)(12)	97 (1.0)(14)	97 (1.0)(14)	76 (0.8)(11)	62 (0.6)(9)	55 (0.6)(8)
11350 (25000)	131 (1.3)(19)	83 (0.8)(12)	117 (1.2)(17)	69 (0.7)(10)	103 (1.0)(15)	83 (0.8)(12)	103 (1.0)(15)	103 (1.0)(15)	83 (0.8)(12)	69 (0.7)(10)	62 (0.6)(9)
11800 (26000)	138 (1.4)(20)	90 (0.9)(13)	117 (1.2)(17)	76 (0.8)(11)	110 (1.1)(16)	83 (0.8)(12)	110 (1.1)(16)	110 (1.1)(16)	83 (0.8)(12)	69 (0.7)(10)	62 (0.6)(9)
12260 (27000)	152 (1.5)(22)	97 (1.0)(14)	124 (1.2)(18)	83 (0.8)(12)	117 (1.2)(17)	83 (0.8)(12)	117 (1.2)(17)	117 (1.2)(17)	90 (0.9)(13)	76 (0.8)(11)	69 (0.7)(10)
12701 (28000)	159 (1.6)(23)	103 (1.0)(15)	131 (1.3)(19)	90 (0.9)(13)	124 (1.2)(18)	83 (0.8)(12)	117 (1.2)(17)	117 (1.2)(17)	97 (1.0)(14)	83 (0.8)(12)	69 (0.7)(10)
13154 (29000)	165 (1.7)(24)	110 (1.1)(16)	138 (1.4)(20)	90 (0.9)(13)	131 (1.3)(19)	83 (0.8)(12)	124 (1.2)(18)	124 (1.2)(18)	103 (1.0)(15)	90 (0.9)(13)	76 (0.8)(11)
13608 (30000)	179 (1.8)(26)	110 (1.1)(16)	145 (1.4)(21)	97 (1.0)(14)	145 (1.4)(21)	83 (0.8)(12)	131 (1.3)(19)	131 (1.3)(19)	103 (1.0)(15)	90 (0.9)(13)	83 (0.8)(12)
14061 (31000)	200 (2.0)(29)	117 (1.2)(17)	152 (1.5)(22)	103 (1.0)(15)	152 (1.5)(22)	83 (0.8)(12)	138 (1.4)(20)	138 (1.4)(20)	110 (1.1)(16)	97 (1.0)(14)	90 (0.9)(13)
14515 (32000)	214 (2.1)(31)	117 (1.2)(17)	159 (1.6)(23)	103 (1.0)(15)	165 (1.7)(24)	83 (0.8)(12)	138 (1.4)(20)	138 (1.4)(20)	110 (1.1)(16)	97 (1.0)(14)	90 (0.9)(13)
14969 (33000)	234 (2.3)(34)	124 (1.2)(18)	—	110 (1.1)(16)	179 (1.8)(26)	90 (0.9)(13)	152 (1.5)(22)	152 (1.5)(22)	117 (1.2)(17)	103 (1.0)(15)	97 (1.0)(14)
15422 (34000)	—	131 (1.3)(19)	—	110 (1.1)(16)	193 (1.9)(28)	97 (1.0)(14)	159 (1.6)(23)	159 (1.6)(23)	124 (1.2)(18)	110 (1.1)(16)	97 (1.0)(14)
15873 (35000)	—	138 (1.4)(20)	—	117 (1.2)(17)	200 (2.0)(29)	103 (1.0)(15)	—	165 (1.7)(24)	124 (1.2)(18)	110 (1.1)(16)	103 (1.0)(15)
16326 (36000)	—	138 (1.4)(20)	—	117 (1.2)(17)	228 (2.3)(33)	110 (1.1)(16)	—	172 (1.8)(26)	131 (1.3)(19)	117 (1.2)(17)	110 (1.1)(16)
16780 (37000)	—	145 (1.4)(21)	—	124 (1.2)(18)	—	110 (1.1)(16)	—	186 (1.9)(27)	138 (1.4)(20)	117 (1.2)(17)	110 (1.1)(16)
17233 (38000)	—	152 (1.5)(22)	—	131 (1.3)(19)	—	117 (1.2)(17)	—	193 (1.9)(28)	145 (1.4)(21)	124 (1.2)(18)	110 (1.1)(16)
17687 (39000)	—	159 (1.6)(23)	—	131 (1.3)(19)	—	124 (1.2)(18)	—	207 (2.1)(30)	152 (1.5)(22)	131 (1.3)(19)	117 (1.2)(17)
18140 (40000)	—	165 (1.7)(24)	—	138 (1.4)(20)	—	131 (1.3)(19)	—	228 (2.3)(33)	152 (1.5)(22)	138 (1.4)(20)	117 (1.2)(17)
18594 (41000)	—	179 (1.8)(26)	—	145 (1.4)(21)	—	138 (1.4)(20)	—	241 (2.4)(35)	159 (1.6)(23)	138 (1.4)(20)	124 (1.2)(18)
19047 (42000)	—	186 (1.9)(27)	—	152 (1.5)(22)	—	145 (1.4)(21)	—	—	—	145 (1.4)(21)	131 (1.3)(19)

Wheels and Tires

Group	47										
Size	480/80R46		520/85R42				620/70R42		710/70R38		IF710/70R38
Load Index	158		157		162		160	166	166	171	178
Use	[Ag]		[Ag]		[Ag]			[Ag]		[Ag]	
Speed Rating	A8 / B / D		A8 / B		A8 / B		A8 / B / D	A8 / B	A8 / D	A8 / B / D	A8 / B
	Dual ^{ab}	Triple	Dual	Triple	Dual	Triple	Dual	Dual	Dual	Dual	Dual
Axle Load kg (lb)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)
19501 (43000)	—	200 (2.0)(29)	—	152 (1.5)(22)	—	152 (1.5)(22)	—	—	—	152 (1.5)(22)	131 (1.3)(19)
19954 (44000)	—	214 (2.1)(31)	—	159 (1.6)(23)	—	159 (1.6)(23)	—	—	—	159 (1.6)(23)	138 (1.4)(20)
20408 (45000)	—	221 (2.2)(32)	—	—	—	165 (1.7)(24)	—	—	—	159 (1.6)(23)	138 (1.4)(20)
20861 (46000)	—	234 (2.3)(34)	—	—	—	179 (1.8)(26)	—	—	—	172 (1.7)(25)	145 (1.4)(21)
21315 (47000)	—	241 (2.4)(35)	—	—	—	186 (1.9)(27)	—	—	—	186 (1.9)(27)	152 (1.5)(22)
21768 (48000)	—	—	—	—	—	193 (1.9)(28)	—	—	—	193 (1.9)(28)	159 (1.6)(23)
22222 (49000)	—	—	—	—	—	200 (2.0)(29)	—	—	—	207 (2.1)(30)	165 (1.7)(24)
22675 (50000)	—	—	—	—	—	221 (2.2)(32)	—	—	—	221 (2.2)(32)	172 (1.7)(25)
23129 (51000)	—	—	—	—	—	234 (2.3)(34)	—	—	—	228 (2.3)(33)	172 (1.7)(25)
23582 (52000)	—	—	—	—	—	—	—	—	—	241 (2.4)(35)	179 (1.8)(26)
24036 (53000)	—	—	—	—	—	—	—	—	—	—	193 (1.9)(28)
24489 (54000)	—	—	—	—	—	—	—	—	—	—	207 (2.1)(30)
24943 (55000)	—	—	—	—	—	—	—	—	—	—	214 (2.1)(31)
25396 (56000)	—	—	—	—	—	—	—	—	—	—	228 (2.3)(33)
25850 (57000)	—	—	—	—	—	—	—	—	—	—	234 (2.3)(34)
26303 (58000)	—	—	—	—	—	—	—	—	—	—	241 (2.4)(35)

^aFor Michelin dual tire option, recommended pressure is 62 kPa (0.6 bar) (9 psi) up to axle load of 6803 kg (15000 lb).

^bFor Mitas dual tire option, recommended pressure is 103 kPa (1.0 bar) (15 psi) up to axle load of 9070 kg (20000 lb).

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Recommended Inflation Pressures—Group 48

Group	48								
Size	480/80R50		IF480/80R50		520/85R46		620/70R46	650/85R38	IF650/85R38
Load Index	159		166		158		167	173	179
Use	[Ag]		[Ag]		[Ag]				
Speed Rating	A8 / B / D		A8 / B		A8 / B / D		A8 / B	A8 / B / D	D
	Dual	Triple	Dual	Triple	Dual ^a	Triple ^b	Dual	Dual ^{cd}	Dual
Axle	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)

Wheels and Tires

Group	48								
Size	480/80R50		IF480/80R50		520/85R46		620/70R46	650/85R38	IF650/85R38
Load Index	159		166		158		167	173	179
Use	[Ag]		[Ag]		[Ag]				
Speed Rating	A8 / B / D		A8 / B		A8 / B / D		A8 / B	A8 / B / D	D
	Dual	Triple	Dual	Triple	Dual ^a	Triple ^b	Dual	Dual ^{cd}	Dual
Axle Load kg (lb)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)				
Load kg (lb)									
3855 (8500)	62 (0.6)(9)	62 (0.6)(9)	41 (0.4)(6)	41 (0.4)(6)	41 ^a (0.4)(6)	41 ^b (0.4)(6)	41 (0.4)(6)	41 ^{c, d} (0.4)(6)	41 (0.4)(6)
4082 (9000)	62 (0.6)(9)	62 (0.6)(9)	41 (0.4)(6)	41 (0.4)(6)	41 ^a (0.4)(6)	41 ^b (0.4)(6)	41 (0.4)(6)	41 ^{c, d} (0.4)(6)	41 (0.4)(6)
4308 (9500)	62 (0.6)(9)	62 (0.6)(9)	41 (0.4)(6)	41 (0.4)(6)	41 ^a (0.4)(6)	41 ^b (0.4)(6)	41 (0.4)(6)	41 ^{c, d} (0.4)(6)	41 (0.4)(6)
4535 (10000)	62 (0.6)(9)	62 (0.6)(9)	41 (0.4)(6)	41 (0.4)(6)	41 ^a (0.4)(6)	41 ^b (0.4)(6)	41 (0.4)(6)	41 ^{c, d} (0.4)(6)	41 (0.4)(6)
4762 (10500)	62 (0.6)(9)	62 (0.6)(9)	41 (0.4)(6)	41 (0.4)(6)	41 ^a (0.4)(6)	41 ^b (0.4)(6)	41 (0.4)(6)	41 ^{c, d} (0.4)(6)	41 (0.4)(6)
4989 (11000)	62 (0.6)(9)	62 (0.6)(9)	41 (0.4)(6)	41 (0.4)(6)	41 ^a (0.4)(6)	41 ^b (0.4)(6)	41 (0.4)(6)	41 ^{c, d} (0.4)(6)	41 (0.4)(6)
5215 (11500)	62 (0.6)(9)	62 (0.6)(9)	41 (0.4)(6)	41 (0.4)(6)	41 ^a (0.4)(6)	41 ^b (0.4)(6)	41 (0.4)(6)	41 ^{c, d} (0.4)(6)	41 (0.4)(6)
5442 (12000)	62 (0.6)(9)	62 (0.6)(9)	41 (0.4)(6)	41 (0.4)(6)	41 ^a (0.4)(6)	41 ^b (0.4)(6)	41 (0.4)(6)	41 ^{c, d} (0.4)(6)	41 (0.4)(6)
5670 (12500)	62 (0.6)(9)	62 (0.6)(9)	41 (0.4)(6)	41 (0.4)(6)	41 ^a (0.4)(6)	41 ^b (0.4)(6)	41 (0.4)(6)	41 ^{c, d} (0.4)(6)	41 (0.4)(6)
5900 (13000)	62 (0.6)(9)	62 (0.6)(9)	41 (0.4)(6)	41 (0.4)(6)	41 ^a (0.4)(6)	41 ^b (0.4)(6)	41 (0.4)(6)	41 ^{c, d} (0.4)(6)	41 (0.4)(6)
6120 (13500)	62 (0.6)(9)	62 (0.6)(9)	48 (0.5)(7)	41 (0.4)(6)	41 ^a (0.4)(6)	41 ^b (0.4)(6)	41 (0.4)(6)	41 ^{c, d} (0.4)(6)	41 (0.4)(6)
6350 (14000)	62 (0.6)(9)	62 (0.6)(9)	48 (0.5)(7)	41 (0.4)(6)	41 ^a (0.4)(6)	41 ^b (0.4)(6)	41 (0.4)(6)	41 ^{c, d} (0.4)(6)	41 (0.4)(6)
6580 (14500)	62 (0.6)(9)	62 (0.6)(9)	48 (0.5)(7)	41 (0.4)(6)	41 ^a (0.4)(6)	41 ^b (0.4)(6)	41 (0.4)(6)	41 ^{c, d} (0.4)(6)	41 (0.4)(6)
6800 (15000)	62 (0.6)(9)	62 (0.6)(9)	48 (0.5)(7)	41 (0.4)(6)	41 ^a (0.4)(6)	41 ^b (0.4)(6)	41 (0.4)(6)	41 ^{c, d} (0.4)(6)	41 (0.4)(6)
7030 (15500)	62 (0.6)(9)	62 (0.6)(9)	55 (0.6)(8)	41 (0.4)(6)	48 ^a (0.5)(7)	41 ^b (0.4)(6)	41 (0.4)(6)	41 ^{c, d} (0.4)(6)	41 (0.4)(6)
7260 (16000)	69 (0.7)(10)	62 (0.6)(9)	55 (0.6)(8)	41 (0.4)(6)	48 ^a (0.5)(7)	41 ^b (0.4)(6)	41 (0.4)(6)	41 ^{c, d} (0.4)(6)	41 (0.4)(6)
7480 (16500)	69 (0.7)(10)	62 (0.6)(9)	55 (0.6)(8)	41 (0.4)(6)	55 ^a (0.6)(8)	41 ^b (0.4)(6)	48 (0.5)(7)	41 ^{c, d} (0.4)(6)	41 (0.4)(6)
7720 (17000)	76 (0.8)(11)	62 (0.6)(9)	62 (0.6)(9)	41 (0.4)(6)	62 ^a (0.6)(9)	41 ^b (0.4)(6)	48 (0.5)(7)	41 ^{c, d} (0.4)(6)	41 (0.4)(6)
7950 (17500)	76 (0.8)(11)	62 (0.6)(9)	62 (0.6)(9)	41 (0.4)(6)	62 ^a (0.6)(9)	41 ^b (0.4)(6)	48 (0.5)(7)	41 ^{c, d} (0.4)(6)	41 (0.4)(6)
8170 (18000)	83 (0.8)(12)	62 (0.6)(9)	62 (0.6)(9)	41 (0.4)(6)	69 ^a (0.7)(10)	41 ^b (0.4)(6)	55 (0.6)(8)	41 ^{c, d} (0.4)(6)	41 (0.4)(6)
8400 (18500)	90 (0.9)(13)	62 (0.6)(9)	62 (0.6)(9)	41 (0.4)(6)	69 ^a (0.7)(10)	41 ^b (0.4)(6)	55 (0.6)(8)	41 ^{c, d} (0.4)(6)	41 (0.4)(6)
8630 (19000)	90 (0.9)(13)	62 (0.6)(9)	69 (0.7)(10)	41 (0.4)(6)	76 ^a (0.8)(11)	41 ^b (0.4)(6)	62 (0.6)(9)	41 ^{c, d} (0.4)(6)	41 (0.4)(6)
8850 (19500)	97 (1.0)(14)	62 (0.6)(9)	69 (0.7)(10)	41 (0.4)(6)	76 ^a (0.8)(11)	41 ^b (0.4)(6)	62 (0.6)(9)	48 ^{c, d} (0.5)(7)	41 (0.4)(6)
9080 (20000)	97 (1.0)(14)	62 (0.6)(9)	69 (0.7)(10)	41 (0.4)(6)	76 ^a (0.8)(11)	41 ^b (0.4)(6)	69 (0.7)(10)	48 ^{c, d} (0.5)(7)	41 (0.4)(6)

Wheels and Tires

Group	48								
Size	480/80R50		IF480/80R50		520/85R46		620/70R46	650/85R38	IF650/85R38
Load Index	159		166		158		167	173	179
Use	[Ag]		[Ag]		[Ag]				
Speed Rating	A8 / B / D		A8 / B		A8 / B / D		A8 / B	A8 / B / D	D
Axle Load kg (lb)	Dual	Triple	Dual	Triple	Dual ^a	Triple ^b	Dual	Dual ^{cd}	Dual
	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)
9530 (21000)	103 (1.0)(15)	62 (0.6)(9)	76 (0.8)(11)	41 (0.4)(6)	83 ^a (0.8)(12)	41 ^b (0.4)(6)	69 (0.7)(10)	55 ^{cd} (0.6)(8)	41 (0.4)(6)
9990 (22000)	110 (1.1)(16)	62 (0.6)(9)	83 (0.8)(12)	41 (0.4)(6)	90 ^a (0.9)(13)	48 ^b (0.5)(7)	76 (0.8)(11)	62 ^{cd} (0.6)(9)	41 (0.4)(6)
10440 (23000)	117 (1.2)(17)	69 (0.7)(10)	90 (0.9)(13)	48 (0.5)(7)	103 ^a (1.0)(15)	55 ^b (0.6)(8)	83 (0.8)(12)	62 ^{cd} (0.6)(9)	41 (0.4)(6)
10900 (24000)	124 (1.2)(18)	76 (0.8)(11)	97 (1.0)(14)	55 (0.6)(8)	110 ^a (1.1)(16)	62 ^b (0.6)(9)	90 (0.9)(13)	69 ^{cd} (0.7)(10)	48 (0.5)(7)
11350 (25000)	131 (1.3)(19)	83 (0.8)(12)	103 (1.0)(15)	55 (0.6)(8)	110 (1.1)(16)	69 ^b (0.7)(10)	97 (1.0)(14)	76 ^{cd} (0.8)(11)	55 (0.6)(8)
11800 (26000)	138 (1.4)(20)	90 (0.9)(13)	110 (1.1)(16)	62 (0.6)(9)	117 (1.2)(17)	69 ^b (0.7)(10)	103 (1.0)(15)	76 ^{cd} (0.8)(11)	55 (0.6)(8)
12260 (27000)	145 (1.4)(21)	97 (1.0)(14)	117 (1.2)(17)	62 (0.6)(9)	124 (1.2)(18)	76 ^b (0.8)(11)	110 (1.1)(16)	83 ^{cd} (0.8)(12)	62 (0.6)(9)
12710 (28000)	152 (1.5)(22)	97 (1.0)(14)	117 (1.2)(17)	69 (0.7)(10)	131 (1.3)(19)	76 ^b (0.8)(11)	110 (1.1)(16)	90 ^{cd} (0.9)(13)	62 (0.6)(9)
13170 (29000)	159 (1.6)(23)	103 (1.0)(15)	124 (1.2)(18)	76 (0.8)(11)	138 (1.4)(20)	83 ^b (0.8)(12)	117 (1.2)(17)	97 ^{cd} (1.0)(14)	69 (0.7)(10)
13605 (30000)	179 (1.8)(26)	110 (1.1)(16)	131 (1.3)(19)	76 (0.8)(11)	138 (1.4)(20)	90 ^b (0.9)(13)	117 (1.2)(17)	103 ^d (1.0)(15)	76 (0.8)(11)
14060 (31000)	193 (1.9)(28)	110 (1.1)(16)	138 (1.4)(20)	83 (0.8)(12)	—	97 ^b (1.0)(14)	124 (1.2)(18)	110 ^d (1.1)(16)	76 (0.8)(11)
14510 (32000)	207 (2.1)(30)	117 (1.2)(17)	138 (1.4)(20)	90 (0.9)(13)	—	97 ^b (1.0)(14)	138 (1.4)(20)	110 ^d (1.1)(16)	83 (0.8)(12)
14970 (33000)	228 (2.3)(33)	117 (1.2)(17)	152 (1.5)(22)	90 (0.9)(13)	—	103 ^b (1.0)(15)	145 (1.4)(21)	117 ^d (1.2)(17)	90 (0.9)(13)
15420 (34000)	—	124 (1.2)(18)	159 (1.6)(23)	97 (1.0)(14)	—	110 ^b (1.1)(16)	145 (1.4)(21)	117 ^d (1.2)(17)	90 (0.9)(13)
15875 (35000)	—	131 (1.3)(19)	165 (1.7)(24)	103 (1.0)(15)	—	110 (1.1)(16)	152 (1.5)(22)	124 (1.2)(18)	97 (1.0)(14)
16326 (36000)	—	138 (1.4)(20)	172 (1.7)(25)	103 (1.0)(15)	—	117 (1.2)(17)	159 (1.6)(23)	124 (1.2)(18)	97 (1.0)(14)
16780 (37000)	—	138 (1.4)(20)	186 (1.9)(27)	110 (1.1)(16)	—	117 (1.2)(17)	165 (1.7)(24)	131 (1.3)(19)	103 (1.0)(15)
17233 (38000)	—	145 (1.4)(21)	207 (2.1)(30)	110 (1.1)(16)	—	124 (1.2)(18)	172 (1.7)(25)	138 (1.4)(20)	110 (1.1)(16)
17687 (39000)	—	152 (1.5)(22)	221 (2.2)(32)	117 (1.2)(17)	—	131 (1.3)(19)	186 (1.9)(27)	145 (1.4)(21)	110 (1.1)(16)
18140 (40000)	—	159 (1.6)(23)	228 (2.3)(33)	117 (1.2)(17)	—	131 (1.3)(19)	200 (2.0)(29)	152 (1.5)(22)	117 (1.2)(17)
18594 (41000)	—	165 (1.7)(24)	241 (2.4)(35)	124 (1.2)(18)	—	138 (1.4)(20)	221 (2.2)(32)	152 (1.5)(22)	117 (1.2)(17)
19047 (42000)	—	179 (1.8)(26)	—	131 (1.3)(19)	—	138 (1.4)(20)	241 (2.4)(35)	159 (1.6)(23)	117 (1.2)(17)
19501 (43000)	—	193 (1.9)(28)	—	131 (1.3)(19)	—	—	—	165 (1.7)(24)	124 (1.2)(18)
19954 (44000)	—	200 (2.0)(29)	—	138 (1.4)(20)	—	—	—	172 (1.7)(25)	131 (1.3)(19)
20408 (45000)	—	207 (2.1)(30)	—	138 (1.4)(20)	—	—	—	179 (1.8)(26)	131 (1.3)(19)

Wheels and Tires

Group	48									
Size	480/80R50		IF480/80R50		520/85R46		620/70R46	650/85R38	IF650/85R38	
Load Index	159		166		158		167	173	179	
Use	[Ag]		[Ag]		[Ag]					
Speed Rating	A8 / B / D		A8 / B		A8 / B / D		A8 / B	A8 / B / D	D	
	Dual	Triple	Dual	Triple	Dual ^a	Triple ^b	Dual	Dual ^{cd}	Dual	
Axle Load kg (lb)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)
20861 (46000)	—	221 (2.2)(32)	—	145 (1.4)(21)	—	—	—	200 (2.0)(29)	138 (1.4)(20)	
21315 (47000)	—	234 (2.3)(34)	—	152 (1.5)(22)	—	—	—	207 (2.1)(30)	138 (1.4)(20)	
21768 (48000)	—	—	—	152 (1.5)(22)	—	—	—	221 (2.2)(32)	145 (1.4)(21)	
22222 (49000)	—	—	—	159 (1.6)(23)	—	—	—	228 (2.3)(33)	152 (1.5)(22)	
22675 (50000)	—	—	—	159 (1.6)(23)	—	—	—	241 (2.4)(35)	152 (1.5)(22)	
23129 (51000)	—	—	—	—	—	—	—	—	159 (1.6)(23)	
23583 (52000)	—	—	—	—	—	—	—	—	165 (1.7)(24)	
24036 (53000)	—	—	—	—	—	—	—	—	172 (1.7)(25)	
24490 (54000)	—	—	—	—	—	—	—	—	179 (1.8)(26)	
24943 (55000)	—	—	—	—	—	—	—	—	186 (1.9)(27)	
25397 (56000)	—	—	—	—	—	—	—	—	200 (2.0)(29)	
25850 (57000)	—	—	—	—	—	—	—	—	207 (2.1)(30)	
26304 (58000)	—	—	—	—	—	—	—	—	221 (2.2)(32)	
26757 (59000)	—	—	—	—	—	—	—	—	234 (2.3)(34)	
27216 (60000)	—	—	—	—	—	—	—	—	241 (2.4)(35)	

^aFor Mitas dual tire option, recommended pressure is 83 kPa (0.8 bar) (12 psi) up to axle load of 10900 kg (24000 lb).

^bFor Mitas triple tire option, recommended pressure is 83 kPa (0.8 bar) (12 psi) up to axle load of 15195 kg (33500 lb).

^cFor Trelleborg dual tire option, recommended pressure is 97 kPa (1.0 bar) (14 psi) up to axle load of 13152 kg (29000 lb).

^dFor Michelin & Mitas dual tire option, recommended pressure is 103 kPa (1.0 bar) (15 psi) up to axle load of 15420 kg (34000 lb).

Group	48										
Size	710/70R42		IF710/ 70R42	LSW800/55R46		800/70R38		IF800/70R38			
Load Index	168	173	179	178		173		175	178	179	
Use				[Ag]		[Ag]				[Ag]	
Speed Rating	A8 / B / D	A8 / B / D	A8 / B / D	B / D	D	A8 / B / D		E	D	A8 / B	D
	Dual	Dual ^{ab}	Duals	Single	Duals	Single ^c	Dual ^{de}	Single	Single	Single	Duals
Axle Load kg (lb)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)
5670 (12500)	41 (0.4)(6)	41 ^{a, b} (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 ^c (0.4)(6)	41 ^{d, e} (0.4)(6)	62 (0.6)(9)	41 (0.4)(6)	41 (0.4)(6)	
5896 (13000)	41 (0.4)(6)	41 ^{a, b} (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	48 ^c (0.5)(7)	41 ^{d, e} (0.4)(6)	62 (0.6)(9)	48 (0.5)(7)	41 (0.4)(6)	

Wheels and Tires

Group	48										
	710/70R42		IF710/ 70R42	LSW800/55R46		800/70R38			IF800/70R38		
Load Index	168	173	179	178		173		175	178	179	
Use				[Ag]		[Ag]				[Ag]	
Speed Rating	A8 / B / D	A8 / B / D	A8 / B / D	B / D	D	A8 / B / D		E	D	A8 / B	D
	Dual	Dual ^{ab}	Duals	Single	Duals	Single ^c	Dual ^{de}	Single	Single	Duals	
Axle Load kg (lb)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	
6123 (13500)	41 (0.4)(6)	41 ^{a, b} (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	48 ^c (0.5)(7)	41 ^{d, e} (0.4)(6)	62 (0.6)(9)	48 (0.5)(7)	41 (0.4)(6)	
6350 (14000)	41 (0.4)(6)	41 ^{a, b} (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	55 ^c (0.6)(8)	41 ^{d, e} (0.4)(6)	62 (0.6)(9)	48 (0.5)(7)	41 (0.4)(6)	
6577 (14500)	41 (0.4)(6)	41 ^{a, b} (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	41 (0.4)(6)	62 ^c (0.6)(9)	41 ^{d, e} (0.4)(6)	62 (0.6)(9)	48 (0.5)(7)	41 (0.4)(6)	
6803 (15000)	41 (0.4)(6)	41 ^{a, b} (0.4)(6)	41 (0.4)(6)	48 (0.5)(7)	41 (0.4)(6)	62 ^c (0.6)(9)	41 ^{d, e} (0.4)(6)	62 (0.6)(9)	55 (0.6)(8)	41 (0.4)(6)	
7030 (15500)	41 (0.4)(6)	41 ^{a, b} (0.4)(6)	41 (0.4)(6)	48 (0.5)(7)	41 (0.4)(6)	69 (0.7)(10)	41 ^{d, e} (0.4)(6)	62 (0.6)(9)	55 (0.6)(8)	41 (0.4)(6)	
7257 (16000)	41 (0.4)(6)	41 ^{a, b} (0.4)(6)	41 (0.4)(6)	55 (0.6)(8)	41 (0.4)(6)	69 (0.7)(10)	41 ^{d, e} (0.4)(6)	62 (0.6)(9)	55 (0.6)(8)	41 (0.4)(6)	
7484 (16500)	41 (0.4)(6)	41 ^{a, b} (0.4)(6)	41 (0.4)(6)	55 (0.6)(8)	41 (0.4)(6)	76 (0.8)(11)	41 ^{d, e} (0.4)(6)	62 (0.6)(9)	55 (0.6)(8)	41 (0.4)(6)	
7711 (17000)	41 (0.4)(6)	41 ^{a, b} (0.4)(6)	41 (0.4)(6)	55 (0.6)(8)	41 (0.4)(6)	76 (0.8)(11)	41 ^{d, e} (0.4)(6)	69 (0.7)(10)	62 (0.6)(9)	41 (0.4)(6)	
7937 (17500)	41 (0.4)(6)	41 ^{a, b} (0.4)(6)	41 (0.4)(6)	62 (0.6)(9)	41 (0.4)(6)	83 (0.8)(12)	41 ^{d, e} (0.4)(6)	69 (0.7)(10)	62 (0.6)(9)	41 (0.4)(6)	
8164 (18000)	41 (0.4)(6)	41 ^{a, b} (0.4)(6)	41 (0.4)(6)	62 (0.6)(9)	41 (0.4)(6)	83 (0.8)(12)	41 ^{d, e} (0.4)(6)	76 (0.8)(11)	62 (0.6)(9)	41 (0.4)(6)	
8391 (18500)	41 (0.4)(6)	41 ^{a, b} (0.4)(6)	41 (0.4)(6)	69 (0.7)(10)	41 (0.4)(6)	90 (0.9)(13)	41 ^{d, e} (0.4)(6)	83 (0.8)(12)	69 (0.7)(10)	41 (0.4)(6)	
8618 (19000)	41 (0.4)(6)	41 ^{a, b} (0.4)(6)	41 (0.4)(6)	69 (0.7)(10)	41 (0.4)(6)	97 (1.0)(14)	41 ^{d, e} (0.4)(6)	83 (0.8)(12)	69 (0.7)(10)	41 (0.4)(6)	
8845 (19500)	48 (0.5)(7)	48 ^{a, b} (0.5)(7)	48 (0.5)(7)	76 (0.8)(11)	41 (0.4)(6)	97 (1.0)(14)	41 ^{d, e} (0.4)(6)	90 (0.9)(13)	76 (0.8)(11)	41 (0.4)(6)	
9072 (20000)	48 (0.5)(7)	48 ^{a, b} (0.5)(7)	48 (0.5)(7)	76 (0.8)(11)	41 (0.4)(6)	103 (1.0)(15)	41 ^{d, e} (0.4)(6)	90 (0.9)(13)	76 (0.8)(11)	41 (0.4)(6)	
9525 (21000)	55 (0.6)(8)	55 ^{a, b} (0.6)(8)	48 (0.5)(7)	83 (0.8)(12)	41 (0.4)(6)	110 (1.1)(16)	41 ^{d, e} (0.4)(6)	97 (1.0)(14)	83 (0.8)(12)	41 (0.4)(6)	
9979 (22000)	62 (0.6)(9)	62 ^{a, b} (0.6)(9)	48 (0.5)(7)	90 (0.9)(13)	41 (0.4)(6)	117 (1.2)(17)	41 ^{d, e} (0.4)(6)	103 (1.0)(15)	90 (0.9)(13)	41 (0.4)(6)	
10432 (23000)	62 (0.6)(9)	62 ^{a, b} (0.6)(9)	55 (0.6)(8)	97 (1.0)(14)	41 (0.4)(6)	117 (1.2)(17)	48 ^{d, e} (0.5)(7)	110 (1.1)(16)	97 (1.0)(14)	48 (0.5)(7)	
10886 (24000)	69 (0.7)(10)	69 ^b (0.7)(10)	55 (0.6)(8)	103 (1.0)(15)	41 (0.4)(6)	124 (1.2)(18)	55 ^{d, e} (0.6)(8)	117 (1.2)(17)	103 (1.0)(15)	48 (0.5)(7)	
11340 (25000)	76 (0.8)(11)	76 ^b (0.8)(11)	55 (0.6)(8)	110 (1.1)(16)	41 (0.4)(6)	138 (1.4)(20)	55 ^{d, e} (0.6)(8)	124 (1.2)(18)	110 (1.1)(16)	48 (0.5)(7)	
11793 (26000)	76 (0.8)(11)	76 ^b (0.8)(11)	62 (0.6)(9)	117 (1.2)(17)	41 (0.4)(6)	145 (1.4)(21)	62 ^{d, e} (0.6)(9)	131 (1.3)(19)	110 (1.1)(16)	55 (0.6)(8)	
12247 (27000)	83 (0.8)(12)	83 ^b (0.8)(12)	62 (0.6)(9)	117 (1.2)(17)	48 (0.5)(7)	152 (1.5)(22)	69 ^e (0.7)(10)	138 (1.4)(20)	117 (1.2)(17)	55 (0.6)(8)	
12700 (28000)	90 (0.9)(13)	90 (0.9)(13)	69 (0.7)(10)	124 (1.2)(18)	48 (0.5)(7)	159 (1.6)(23)	69 ^e (0.7)(10)	145 (1.4)(21)	124 (1.2)(18)	55 (0.6)(8)	
13154 (29000)	97 (1.0)(14)	97 (1.0)(14)	69 (0.7)(10)	138 (1.4)(20)	55 (0.6)(8)	—	76 ^e (0.8)(11)	152 (1.5)(22)	131 (1.3)(19)	55 (0.6)(8)	
13607 (30000)	103 (1.0)(15)	103 (1.0)(15)	76 (0.8)(11)	145 (1.4)(21)	55 (0.6)(8)	—	76 ^e (0.8)(11)	159 (1.6)(23)	138 (1.4)(20)	62 (0.6)(9)	
14061 (31000)	110 (1.1)(16)	110 (1.1)(16)	83 (0.8)(12)	152 (1.5)(22)	62 (0.6)(9)	—	83 ^e (0.8)(12)	172 (1.7)(25)	145 (1.4)(21)	62 (0.6)(9)	

Wheels and Tires

Group	48										
Size	710/70R42		IF710/ 70R42	LSW800/55R46		800/70R38			IF800/70R38		
Load Index	168	173	179	178		173		175	178	179	
Use				[Ag]		[Ag]					[Ag]
Speed Rating	A8 / B / D	A8 / B / D	A8 / B / D	B / D	D	A8 / B / D		E	D	A8 / B	D
	Dual	Dual ^{ab}	Duals	Single	Duals	Single ^c	Dual ^{de}	Single	Single	Duals	
Axle Load kg (lb)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)
14514 (32000)	110 (1.1)(16)	110 (1.1)(16)	83 (0.8)(12)	159 (1.6)(23)	62 (0.6)(9)	—	83 (0.8)(12)	186 (1.9)(27)	152 (1.5)(22)	62 (0.6)(9)	
14968 (33000)	117 (1.2)(17)	117 (1.2)(17)	90 (0.9)(13)	159 (1.6)(23)	69 (0.7)(10)	—	90 (0.9)(13)	193 (1.9)(28)	159 (1.6)(23)	69 (0.7)(10)	
15422 (34000)	117 (1.2)(17)	117 (1.2)(17)	90 (0.9)(13)	—	76 (0.8)(11)	—	97 (1.0)(14)	207 (2.1)(30)	159 (1.6)(23)	69 (0.7)(10)	
15875 (35000)	124 (1.2)(18)	124 (1.2)(18)	97 (1.0)(14)	—	76 (0.8)(11)	—	103 (1.0)(15)	228 (2.3)(33)	—	76 (0.8)(11)	
16326 (36000)	124 (1.2)(18)	124 (1.2)(18)	97 (1.0)(14)	—	83 (0.8)(12)	—	110 (1.1)(16)	241 (2.4)(35)	—	76 (0.8)(11)	
16780 (37000)	131 (1.3)(19)	131 (1.3)(19)	103 (1.0)(15)	—	90 (0.9)(13)	—	110 (1.1)(16)	—	—	83 (0.8)(12)	
17233 (38000)	138 (1.4)(20)	138 (1.4)(20)	110 (1.1)(16)	—	90 (0.9)(13)	—	110 (1.1)(16)	—	—	90 (0.9)(13)	
17687 (39000)	145 (1.4)(21)	145 (1.4)(21)	110 (1.1)(16)	—	97 (1.0)(14)	—	117 (1.2)(17)	—	—	90 (0.9)(13)	
18140 (40000)	145 (1.4)(21)	145 (1.4)(21)	117 (1.2)(17)	—	97 (1.0)(14)	—	117 (1.2)(17)	—	—	97 (1.0)(14)	
18594 (41000)	152 (1.5)(22)	152 (1.5)(22)	117 (1.2)(17)	—	103 (1.0)(15)	—	117 (1.2)(17)	—	—	97 (1.0)(14)	
19047 (42000)	159 (1.6)(23)	159 (1.6)(23)	117 (1.2)(17)	—	103 (1.0)(15)	—	124 (1.2)(18)	—	—	103 (1.0)(15)	
19501 (43000)	159 (1.6)(23)	159 (1.6)(23)	124 (1.2)(18)	—	110 (1.1)(16)	—	131 (1.3)(19)	—	—	103 (1.0)(15)	
19954 (44000)	—	172 (1.7)(25)	131 (1.3)(19)	—	110 (1.1)(16)	—	138 (1.4)(20)	—	—	110 (1.1)(16)	
20408 (45000)	—	179 (1.8)(26)	131 (1.3)(19)	—	110 (1.1)(16)	—	138 (1.4)(20)	—	—	110 (1.1)(16)	
20861 (46000)	—	193 (1.9)(28)	138 (1.4)(20)	—	117 (1.2)(17)	—	145 (1.4)(21)	—	—	110 (1.1)(16)	
21315 (47000)	—	200 (2.0)(29)	145 (1.4)(21)	—	117 (1.2)(17)	—	152 (1.5)(22)	—	—	117 (1.2)(17)	
21768 (48000)	—	207 (2.1)(30)	145 (1.4)(21)	—	124 (1.2)(18)	—	152 (1.5)(22)	—	—	117 (1.2)(17)	
22222 (49000)	—	221 (2.2)(32)	152 (1.5)(22)	—	124 (1.2)(18)	—	159 (1.6)(23)	—	—	124 (1.2)(18)	
22675 (50000)	—	241 (2.4)(35)	152 (1.5)(22)	—	131 (1.3)(19)	—	159 (1.6)(23)	—	—	124 (1.2)(18)	
23129 (51000)	—	—	159 (1.6)(23)	—	138 (1.4)(20)	—	—	—	—	131 (1.3)(19)	
23582 (52000)	—	—	165 (1.7)(24)	—	138 (1.4)(20)	—	—	—	—	138 (1.4)(20)	
24036 (53000)	—	—	172 (1.7)(25)	—	145 (1.4)(21)	—	—	—	—	138 (1.4)(20)	
24489 (54000)	—	—	186 (1.9)(27)	—	145 (1.4)(21)	—	—	—	—	145 (1.4)(21)	
24943 (55000)	—	—	193 (1.9)(28)	—	152 (1.5)(22)	—	—	—	—	145 (1.4)(21)	
25396 (56000)	—	—	207 (2.1)(30)	—	152 (1.5)(22)	—	—	—	—	152 (1.5)(22)	

Wheels and Tires

Group	48										
Size	710/70R42		IF710/ 70R42	LSW800/55R46		800/70R38			IF800/70R38		
Load Index	168	173	179	178		173		175	178	179	
Use				[Ag]		[Ag]				[Ag]	
Speed Rating	A8 / B / D	A8 / B / D	A8 / B / D	B / D	D	A8 / B / D		E	D	A8 / B	D
	Dual	Dual ^{ab}	Duals	Single	Duals	Single ^c	Dual ^{de}	Single	Single	Duals	
Axle Load kg (lb)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	kPa (bar)(psi)	
25850 (57000)	—	—	214 (2.1)(31)	—	159 (1.6)(23)	—	—	—	—	152 (1.5)(22)	
26303 (58000)	—	—	228 (2.3)(33)	—	159 (1.6)(23)	—	—	—	—	159 (1.6)(23)	
26757 (59000)	—	—	234 (2.3)(34)	—	—	—	—	—	—	159 (1.6)(23)	
27216 (60000)	—	—	241 (2.4)(35)	—	—	—	—	—	—	159 (1.6)(23)	

^aFor Michelin dual tire option, recommended pressure is 62 kPa (0.6 bar) (9 psi) up to axle load of 10431 kg (23000 lb).

^bFor Mitas dual tire option, recommended pressure is 83 kPa (0.8 bar) (12 psi) up to axle load of 12245 kg (27000 lb).

^cFor Michelin single tire option, recommended pressure is 62 kPa (0.6 bar) (9 psi) up to axle load of 6803 kg (15000 lb).

^dFor Michelin dual tire option, recommended pressure is 62 kPa (0.6 bar) (9 psi) up to axle load of 11791 kg (26000 lb).

^eFor Mitas dual tire option, recommended pressure is 83 kPa (0.8 bar) (12 psi) up to axle load of 14059 kg (31000 lb).

AK08008.0000716-19-17MAR20

**Recommended Inflation Pressures—
Flotation Logger [Scraper]**

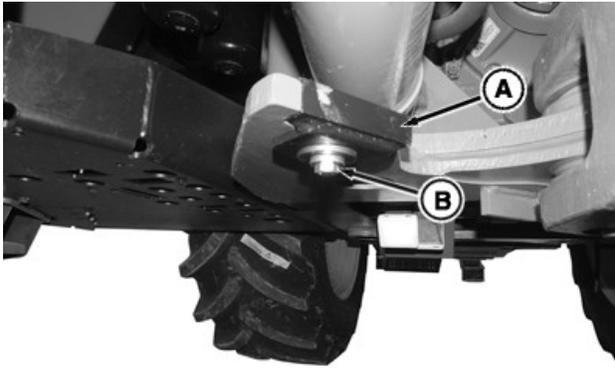
76x50.00-B32 16 Ply Rating	
Axle Load kg (lb)	kPa (bar)(psi)
9070 (20000)	110 (1.1)(16)
9524 (21000)	117 (1.2)(17)
9977 (22000)	131 (1.3)(19)
10431 (23000)	138 (1.4)(20)
10884 (24000)	145 (1.4)(21)
11338 (25000)	159 (1.6)(23)
11791 (26000)	172 (1.7)(25)
12245 (27000)	179 (1.8)(26)
12698 (28000)	193 (1.9)(28)
13152 (29000)	207 (2.1)(30)
13605 (30000)	214 (2.1)(31)
14059 (31000)	228 (2.3)(33)

76x50.00-B32 16 Ply Rating	
Axle Load kg (lb)	kPa (bar)(psi)
14512 (32000)	241 (2.4)(35)

AK08008.00000E2-19-15NOV19

Steering Stop and Tread Settings

Using Steering Stops



RXA0142711—UN—24JUN14

IMPORTANT: Steering stops (A) must be installed if tractor is equipped with dual tires when:

- Outer tire treads are greater than 3343 mm (131.6 in).
- [Ag] Equipped with triple tires.

After installing steering stops and adjusting wheel treads, check clearance. Turning steering wheel to full left-hand side and full right-hand side. If interference is seen, adjust as necessary and recheck positions.

Steering stops of 36° and 38° are available through your John Deere dealer. Correct steering stops are installed at factory with tire option ordered.

Tighten steering stop retaining cap screw (B) to 90 N·m (66 lb·ft).

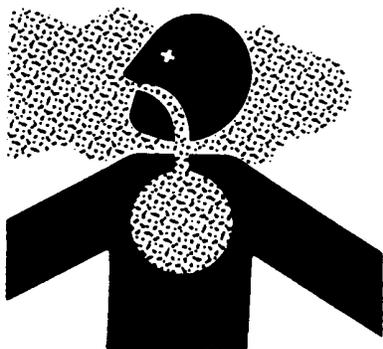
[Ag]					
Tire		Steering Stop Settings °	Tire Tread Spacing Range mm (in)		
Size	Option		Inner	Outer	Triple
18.4R46 and 480/80R46	Duals	38	1524-1910 (60-75)	2969-3348 (117-131.8)	—
	Triples		1500 (59)	2752 (108.4)	4106 (161.6)
480/80R50	Duals	36	1524-1910 (60-75)	2969-3348 (117-131.8)	—
	Triples		1500 (59)	2752 (108.4)	4106 (161.6)
20.8R42 and 520/85R42	Duals	38	1600-2062 (63-81)	2985-2453 (117.6-136)	—
	Triples		1600 (63)	2987 (117.6)	4374 (172)
520/85R46	Duals	36	1600-2062 (63-81)	2985-2453 (117.6-136)	—
	Triples		1600 (63)	2987 (117.6)	4374 (172)
620/70R42	Duals	38	1689-2062 (66.5-81)	3241-3614 (127.6-142)	—
620/70R46	Duals	36	1689-2062 (66.5-81)	3241-3614 (127.6-142)	—
650/85R38	Duals	36	1722-1966 (67.8-77.4)	3372-3648 (132.8-143.6)	—
710/70R38	Duals	38	1783-1935 (70-76)	3472-3625 (137-143)	—
710/70R42	Duals	36	1783-1935 (70-76)	3472-3625 (137-143)	—
800/70R38	Duals	36	1876-2188 (74-86)	3763-4075 (148-160)	—

[Scraper]					
Tire		Steering Stop Settings °	Tire Tread Spacing Range mm (in)		
Size	Option		Inner	Outer	
76x50B32		36°	—	—	
620/70R42	Duals	38°	1689-2062 (66.5-81)	3241-3614 (127.6-142)	
620/70R46	Duals	38°	1689-2062 (66.5-81)	3241-3614 (127.6-142)	
650/85R38		36°	—	—	
710/70R38	Duals	38°	1783-1935 (70-76)	3472-3625 (137-143)	
710/70R42	Duals	36°	1783-1935 (70-76)	3472-3625 (137-143)	

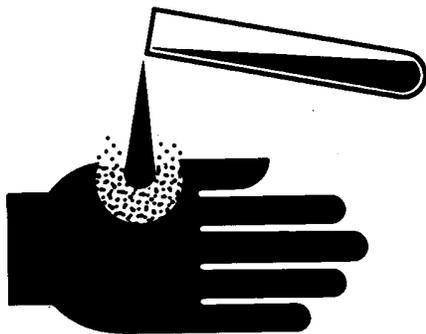
AK08008,00000E3-19-15NOV19

Operator's Station - General Information

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.

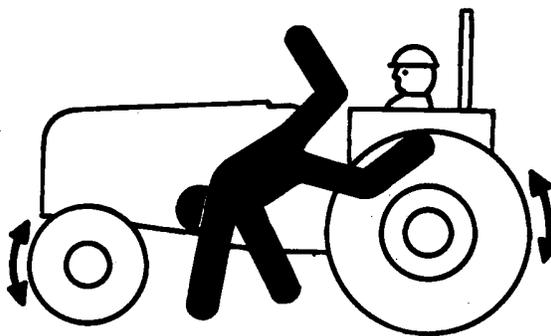
Clean your shoes or boots to remove soil or other contaminated particles prior to entering the cab.

DX,CABS-19-25MAR09

3. Wash entire exterior of vehicle.
4. Dispose of any wash water with hazardous concentrations of active or non-active ingredients according to published regulations or directives.

DX,CABS2-19-24JUL01

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

Keep Operator Station Window and Door Closed

⚠ CAUTION: Avoid undue exposure to noise and debris. Keep window and door closed during machine operation.

Properly close and latch door and rear window to prevent noise and debris from entering operator station.

AK08008,00001E9-19-15NOV19

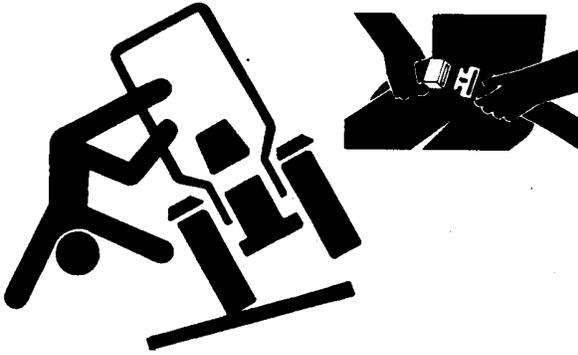
Clean Vehicle of Hazardous Pesticides

⚠ CAUTION: During application of hazardous pesticides, pesticide residue can build up on the inside or outside of the vehicle. Clean vehicle according to use instructions of hazardous pesticides.

When exposed to hazardous pesticides, clean exterior and interior of vehicle daily to keep free of the accumulation of visible dirt and contamination.

1. Sweep or vacuum the floor of cab.
2. Clean headliners and inside cowlings of cab.

Use Seat Belts



TS205—UN—23AUG88



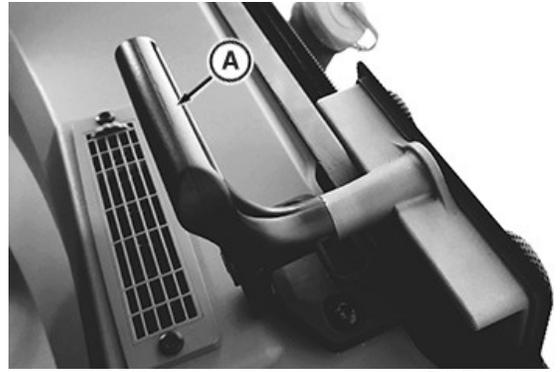
RXA0167507—UN—16APR19

⚠ CAUTION: Minimize chance of possible injury from accident. Use seat belts (A) when operating tractor.

Instructional seat is provided only for training operators or diagnosing machine problems. Keep all other riders off tractor and equipment. Always wear seat belt.

Inspect seat belts and mounting hardware annually, see Seat Belts in Service - Check section of this Operator's Manual.

AK08008,00001EA-19-15NOV19



RXA0167506—UN—16APR19

To open window, lift lever (A) and push out glass.

AK08008,00001EB-19-15NOV19

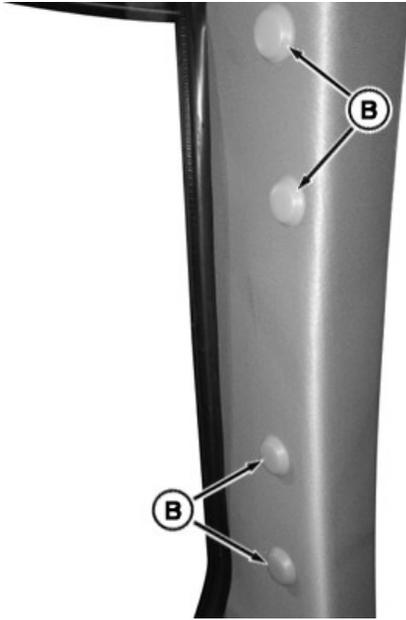
Monitor Bracket Mounts



RXA0147009—UN—10MAR15

Use Emergency Exit

Removable rear cab window provides large exit path if cab door is blocked in emergency situation.



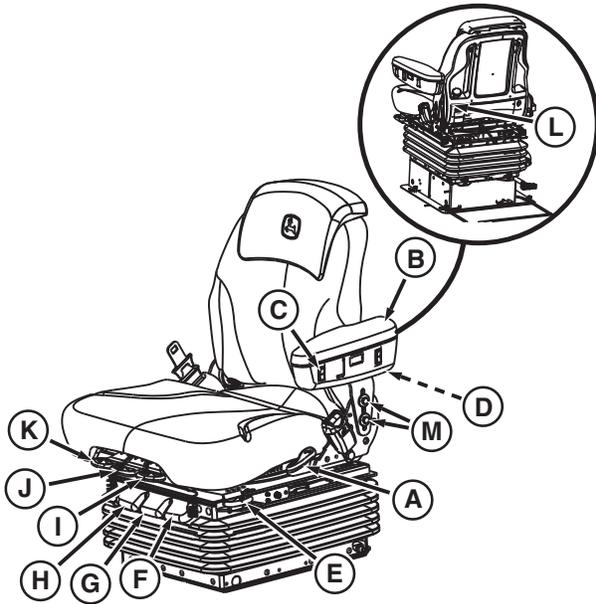
RXA0147010—UN—10MAR15

Front corner post mounting points (A) and rear corner post mounting points (B) are used to connect implement monitors to cab using M10 cap screws. See your John Deere dealer for brackets that utilize these mounting points.

AK08008,00001EC-19-15NOV19

Seat

Adjust ComfortCommand™ Seat



RXA0151480—UN—17FEB16

NOTE: [Scraper] Scraper tractors are equipped with a 3 inch (76.2 mm) seat belt to meet MSHA and OSHA standards.

- A—Backrest Tilt Handle** - Allows seat back to tilt.
- B—Flip Up Armrest** - Can be flipped up out of the way.
- C—Height Adjustment Switch** - Turn key to “ON”. Press lower portion of switch to lower seat or press upper portion of switch to raise seat.
- D—Armrest Tilt Adjustment Knob** - Turn knob to adjust armrest angle.
- E—Fore/Aft Seat Adjustment Handle** - Lift up on handle, move seat forward or backward, press handle back down to lock into place.
- F—Fore/Aft Isolation Handle** - Adjust lever to back setting, lock into place with locking lever. Seat will absorb shock impacts while tractor is in motion. Seat won't move farther than 25 mm (1 in) in any direction.
- G—Lateral Isolation Handle** - Allows side to side movement of seat. Push down on handle to unlock lateral seat suspension. Pull up on handle to lock seat in position (seat must be centered).
- H—Adjustment Damper Handle** - Air suspension seat only. Controls amount of bounce operator feels while driving. Can be adjusted firmer to reduce amount of bounce.
- I—Cushion Height Adjustment** - Pull to adjust height of cushion up or down.
- J—Seat Swivel Handle** - Lift on handle to allow seat to swivel. Push down on handle to lock seat in position.

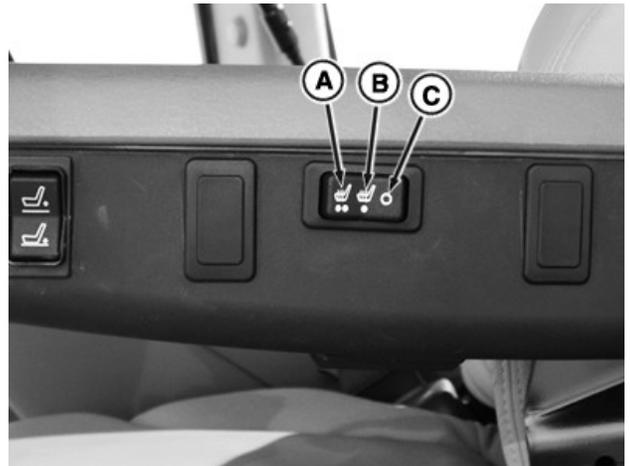
K—Fore/Aft Cushion Adjustment - Pull to adjust cushion forwards or backwards.

L—Lumbar Adjustment Knob - Turn knob clockwise to add support to lower back. Turn counterclockwise to lessen resistance to lower back.

M—Arm Rest Adjustment Cap Screws - Loosen cap screws to slide arm rest up or down. Retighten cap screws.

AK08008,00000E4-19-15NOV19

Adjust Heated Leather Seat



RXA0136445—UN—30OCT13

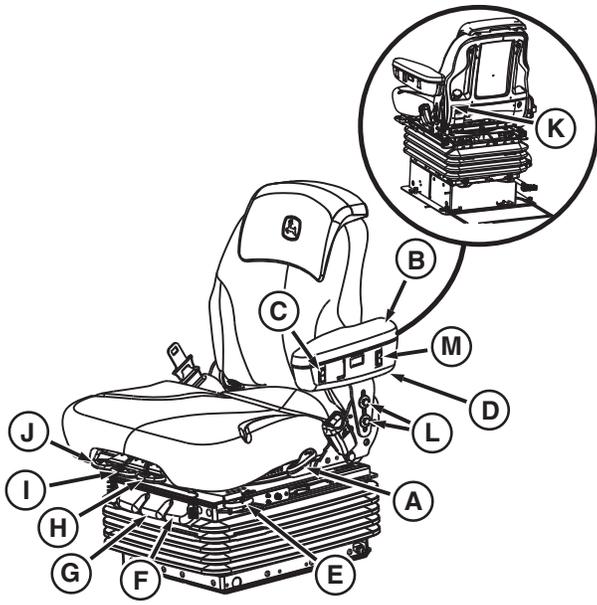
Heated seat provides increased comfort during cold days. Heat is controlled by left armrest switch. Three settings are available: Off (C), High (A), and Low (B). When tractor is shut off, seat also turns off, or after one hour of use heater automatically turns off.

AK08008,00000E5-19-15NOV19

Adjust ActiveSeat™

Ride Zone Protection (RZP) - ActiveSeat™ has built-in buffer at high and low end of vertical seat travel, resulting in smoother ride. Adjust seat to operator height and weight prior to operating tractor to receive maximum benefit from RZP system. Seat automatically adjusts back into protected zone when operator adjusts seat height position at or near vertical seat travel limits.

ActiveSeat is a trademark of Deere & Company



RXA0144154—UN—30SEP15

NOTE: [Scraper] Scraper tractors are equipped with a 3 inch (76.2 mm) seat belt to meet MSHA and OSHA standards.

- A—Back Tilt Handle** - Allows seat back to tilt.
- B—Flip Up Armrest** - Can be flipped up out of the way.
- C—Height Adjustment Switch** - Turn key to “ON”. Press lower portion of switch to lower seat or press upper portion of switch to raise seat.
- D—Armrest Tilt Adjustment Knob** - Turn knob to adjust armrest angle.
- E—Fore/Aft Seat Adjustment Handle** - Lift up handle, move seat forward or backward, press handle back down to lock into place.
- F—Fore/Aft Isolation Handle** - Adjust lever to back setting, lock into place with locking lever. Seat will absorb shock impacts while tractor is in motion. Seat won't move farther than 25 mm in any direction.
- G—Lateral Isolation Handle** - Push down on handle to unlock lateral seat suspension. Pull up on handle to lock seat in position.
- H—Cushion Height Adjustment** - Pull to adjust height of cushion up or down.
- I—Seat Swivel Handle** - Lift on handle to allow seat to swivel. Push down on handle to lock seat in position.
- J—Fore/Aft Cushion Adjustment** - Pull to adjust cushion forwards or backwards.
- K—Lumbar Adjustment Knob** - Turn clockwise to add support to lower back. Turn counterclockwise to lessen resistance to lower back.
- L—Armrest Adjustment Cap Screws** - Loosen cap

screws to slide arm rest up or down. Retighten cap screws.

M—Firmness Adjustment - Provides three different levels of seat suspension performance. Press upper (+) portion of switch for the firmest ride or lower (-) portion for the softest ride.

AK08008,00000E6-19-15NOV19

Adjust CommandARM™ Position



RXA0167304—UN—02APR19

CommandARM™ Adjustment

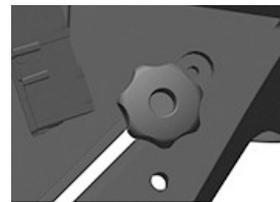
NOTE: Both adjustment knobs must be loosened to adjust height.



RXA0167305—UN—02APR19

Height Only Adjustment

Adjustment Knob (Height Only) — turn adjustment knob counterclockwise to loosen. Move CommandARM™ to desired position and tighten by turning knob clockwise.



RXA0167306—UN—02APR19

Height and Tilt Adjustment

Adjustment Knob (Height and Tilt) — turn adjustment knob counterclockwise to loosen. Move CommandARM™ to desired position and tighten by turning knob clockwise. If adjusting tilt but not height, only this knob is needed.

AK08008,00000E7-19-15NOV19

Adjust Instructional Seat

⚠ CAUTION: Keep all other riders off tractor and equipment to avoid injury. Instructional seat is provided only for training operators or diagnosing machine problems. Always wear seat belt.



RXA0167301—UN—02APR19

Instructional Seat



RXA0167302—UN—02APR19

Backrest Down

Seat Backrest — push backrest forward to use as a writing surface.



RXA0167303—UN—02APR19

Cushion Up

Seat Cushion — push seat cushion up to allow more room for entering and exiting cab.

AK08008,00000E8-19-15NOV19

Operator Presence Sensor (If Equipped)

⚠ CAUTION: Neither PTO [Ag] nor SCV automatically disengage when system senses operator is out of seat.

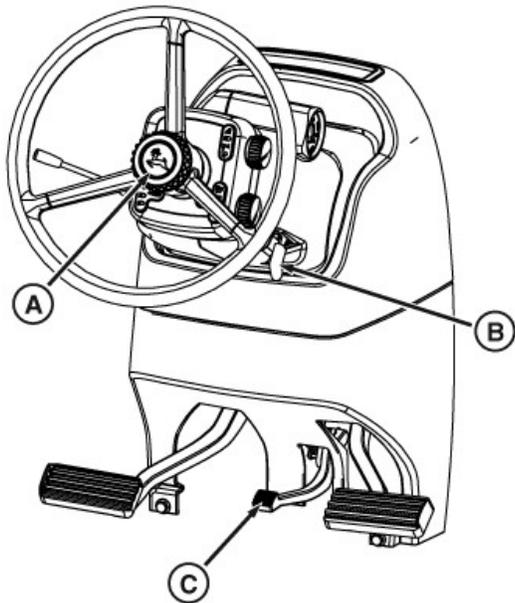
Audible warning sounds if operator leaves the seat with transmission in NEUTRAL position, PTO engaged [Ag], or SCV left in detent flow position. After 5 seconds, audible warning sounds will stop.

AK08008,00000E9-19-15NOV19

Steering Column

Adjust Steering Wheel and Column

Steering wheel can be adjusted in or out, up or down to provide comfortable driving position. For improved entry or egress, entire steering column can be pivoted up, then returned to previously set position with single control.



RXA0133769—UN—29JUL13

Telescope: Rotate telescope knob (A) counterclockwise. Extend or retract steering wheel to desired position. Rotate knob clockwise to lock.

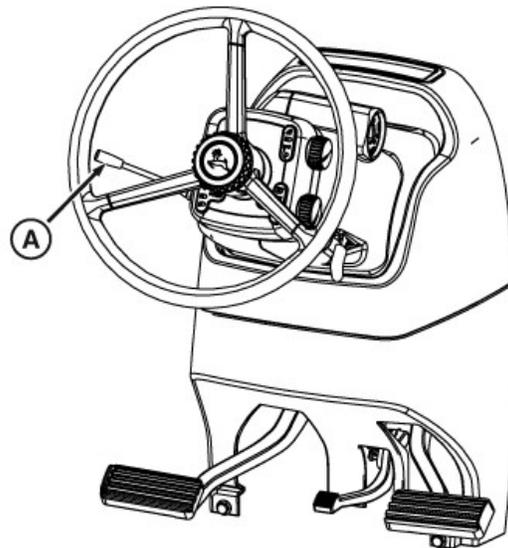
Memory: Push down on column pedal (C). Fully raise steering column. Release pedal to latch column at top of travel.

Push down on column pedal, latch releases. Lower steering wheel to previous tilt setting.

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

AK08008,00000EA-19-15NOV19

Operate Horn



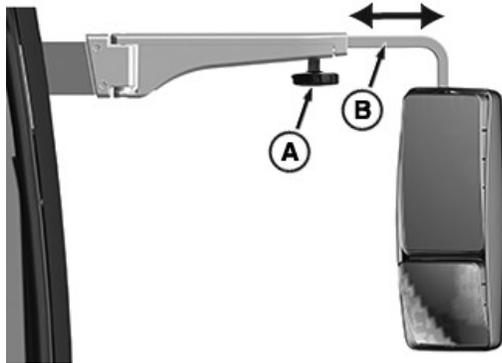
RXA0134346—UN—29JUL13

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

AK08008,00000EB-19-15NOV19

Mirrors

Manual Mirror



RXA0156208—UN—15DEC16

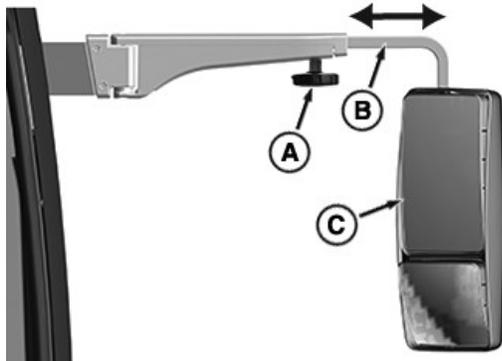
Right-Hand Manual Mirror

Loosen mirror arm locking knob (A) and slide mirror arm (B) to desired position. Securely tighten locking knob when adjustment is complete. Push on mirror to move surface into desired position.

After adjustment, use soft cloth to wipe any smudges off mirror face.

AK08008,00000EC-19-15NOV19

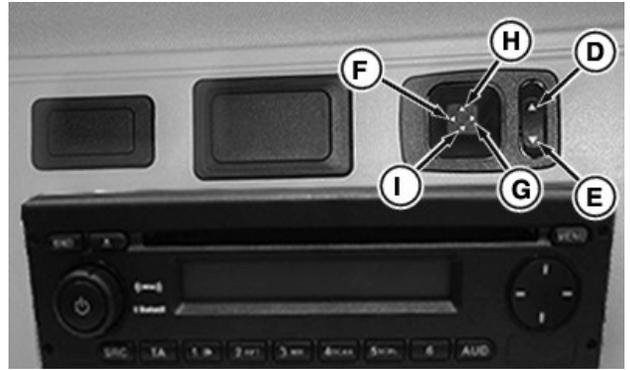
Electric Mirror



RXA0156209—UN—15DEC16

Right-Hand Electric Rear-view Mirror

1. Loosen mirror arm adjustment knob (A).
2. Slide mirror arm (B) to desired position.
3. Tighten mirror arm adjustment knob.

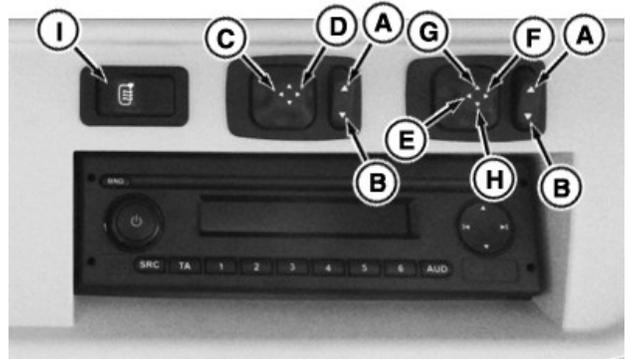


RXA0142296—UN—08JUL14

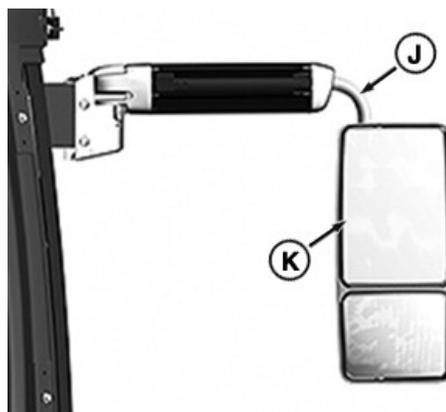
4. Select right (D) or left (E) mirror.
5. Push adjustment switch to angle mirror (C) left (F) or right (G).
6. Push adjustment switch to tilt mirror up (H) or down (I).

AK08008,00000ED-19-15NOV19

Telescoping Heated Electric Mirror



RXA0142300—UN—09JUN14



RXA0156210—UN—15DEC16

Right-Hand Telescoping Electric Rear-view Mirror

1. Select right (A) or left (B) mirror (K).
2. Push adjustment switch to extend (C) or retract (D) telescoping arm (J).

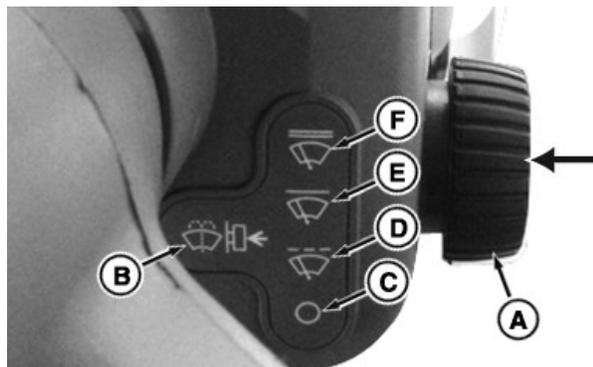
3. Push adjustment switch to tilt mirror up (G) or down (H).
4. Push adjustment switch to angle mirror left (E) or right (F).

Press heating switch (I) to turn mirror heating on or off. When heat is on, switch is illuminated. Heating will continue until it is switched off or key switch is turned OFF. If heating switch is not manually turned off, mirror heating will restart when key switch is turned to accessory or ON position.

AK08008,00000EE-19-15NOV19

Wiper Washer

Operate Front Windshield Wiper and Washer



RXA0142299—UN—09JUN14

- A—Windshield Wiper/Washer Knob
- B—Washer Icon
- C—Off
- D—Intermittent Speed
- E—Slow Speed
- F—Fast Speed

Wiper/washer knob (A) has four positions:

- OFF
- Intermittent Operation
- Slow Speed
- Fast Speed

Push knob in to operate front windshield washer.



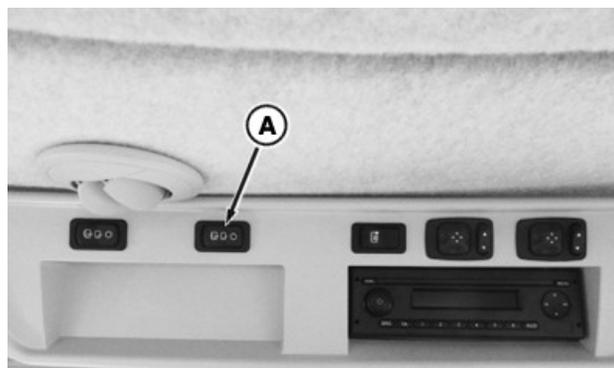
RXA0142303—UN—09JUN14

Windshield washer reservoir (G) is on left-hand side of the gudgeon, above the hydraulic filters.

Fill reservoir with non-freezing windshield washer fluid.

AK08008,00000EF-19-15NOV19

Operate Rear Wiper and Washer



RXA0142297—UN—09JUN14

Switch (A) has three positions:

Right—OFF position.

Center—ON position. Rear wiper is activated.

Left—Rear window washer ON when switch is held. Release switch to turn OFF rear window washer.

AK08008,00000F0-19-15NOV19

Operate Right-Hand Wiper and Washer



RXA0142353—UN—09JUN14

Switch (A) has three positions:

Right—OFF position.

Center—ON position. Right-hand wiper is activated.

Left—Right-hand window washer ON when switch is held. Release switch to turn OFF right-hand window washer.

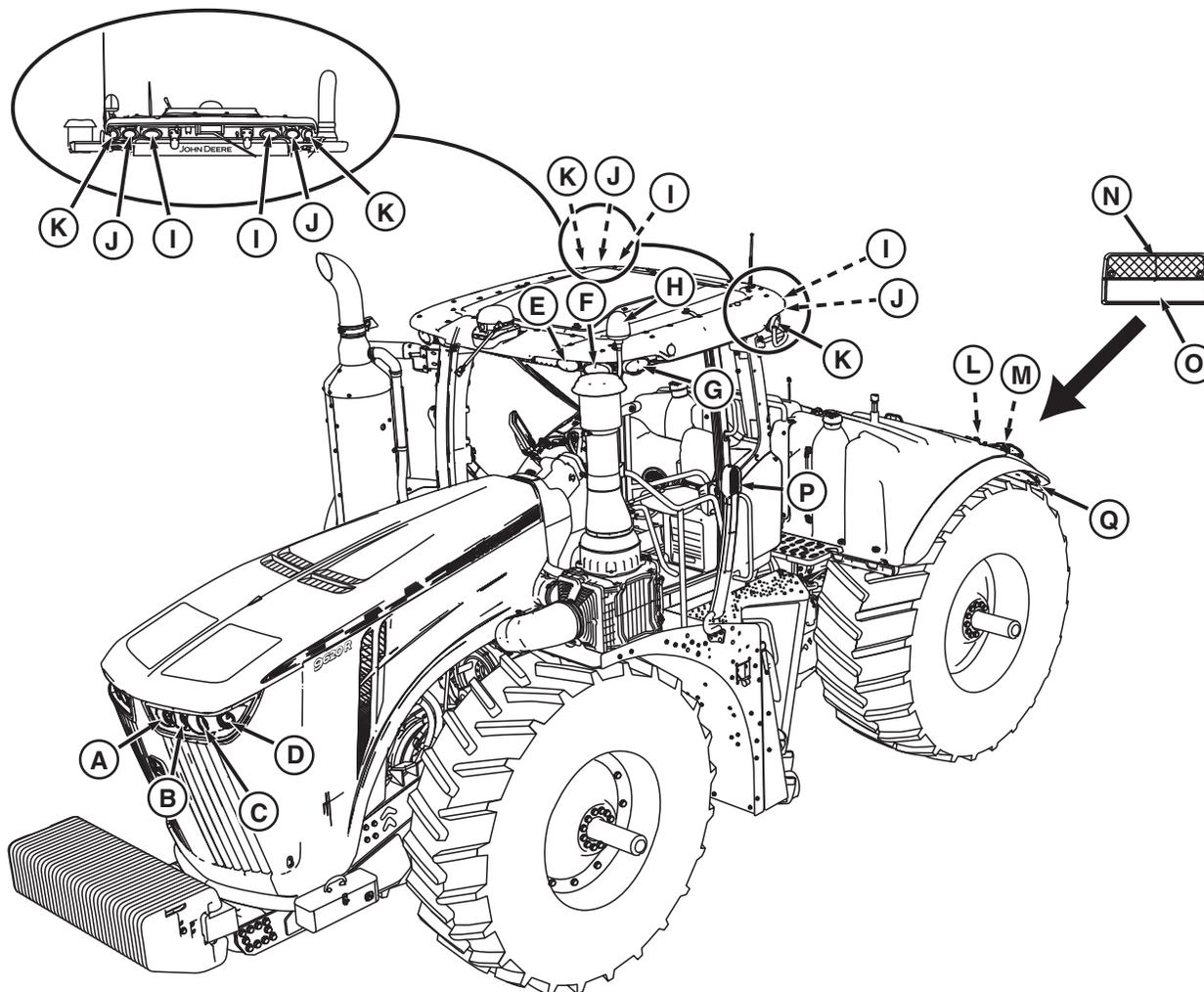
AK08008,00000F1-19-15NOV19

Lights

Light Identification

All lights are same on both sides of tractor, except rotary beacon (H) in Deluxe and Premium lighting packages and grill mounted center work lights (A) in Premium

lighting package. In Premium lighting package, right grill mounted center work light is Halogen or LED (depending on option).



- A—Inner Hood Lights
- B—Low Beam Hood Lights
- C—High Beam Hood Lights
- D—Outer Hood Lights
- E—Front Inner Roof Lights
- F—Front Outer Roof Indicator Lights
- G—Front Side Roof Lights
- H—Rotary Beacon Lights (If Equipped)
- I—Rear Inner Roof Lights

- J—Rear Outer Roof Indicator Lights
- K—Rear Side Roof Lights
- L—Rear Inner Fender Lights
- M—Rear Outer Fender Lights
- N—Amber Indicator Lights
- O—Red Lens
- P—Extremity Indicator Lights
- Q—Rear Fender Tail/Brake/Indicator Lights

RXA0161291—UN—26JUN18

AK08008.00000F2-19-15NOV19

Configurable Lights

⚠ CAUTION: Avoid injury or death caused by a collision with another vehicle. Follow local laws and regulations for equipment lighting and marking. Comply with all traffic regulations.

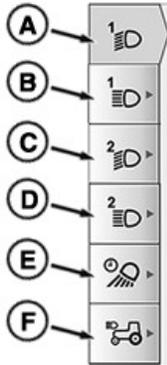
Dim road lights to low-beam for oncoming vehicles. Avoid using worklights on public roadways or highways which could temporarily blind or confuse other drivers.

Promptly replace or repair damaged or lost lighting devices. See your John Deere dealer.



RXA0133717—UN—16JUL13

To access Lights page, press **Lights Shortcut Button on Navigation Bar**.

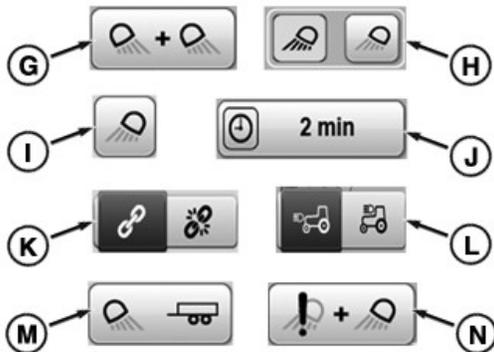


RXA0137115—UN—05DEC13

- A—Field 1 Low Beam
- B—Field 1 High Beam
- C—Field 2 Low Beam
- D—Field 2 High Beam
- E—Exit Lighting
- F—Hood/Belt Line Light (If Equipped)

When page is displayed, operator can select left side tabs (A-F).

NOTE: Page temporarily shows when selector knob transitions from OFF position to road lights or field lights position.



RXA0137114—UN—05DEC13

Light configuration buttons:

- G—Linked Lights:** Lights linked or paired together that can be unlinked.
- H—Unlinked Lights:** Unlinked light pair that can be linked.
- I—Paired Lights:** Light pair that is always linked.
- J—Exit Light Time-out:** Allows operator to select how long selected lights remain ON after light selector knob is turned to OFF position.
- K—Link/Unlink:** Press toggle to link and unlink lights

on all pages.

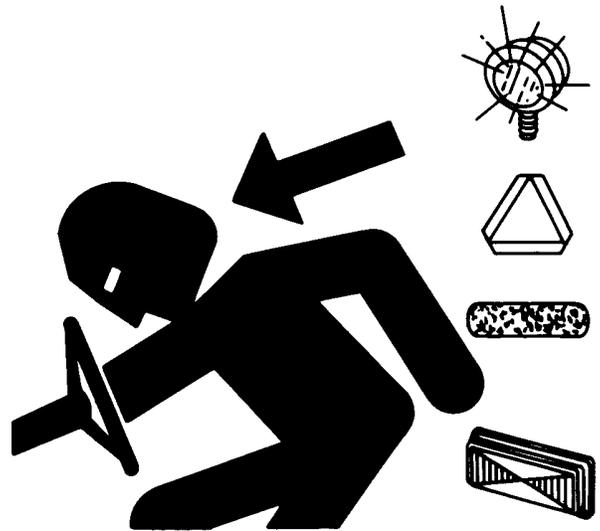
L—Hood/Loader Road Light Toggle: Press to toggle road lights between hood and loader lights position. Feature is only available when light knob is in road mode and tractor is equipped with hood/beltline lights.

M—Implement Lights: Press to activate implement lights. Implement light button only available if there are no fender work lights. If there are fender work lights, implement lights are controlled by fender work lights button.

N—Light with Fault: Exclamation point indicates that light is in error. (for example: light bulb is burnt out).

AK08008,00000F3-19-15NOV19

Steering Column Light Controls

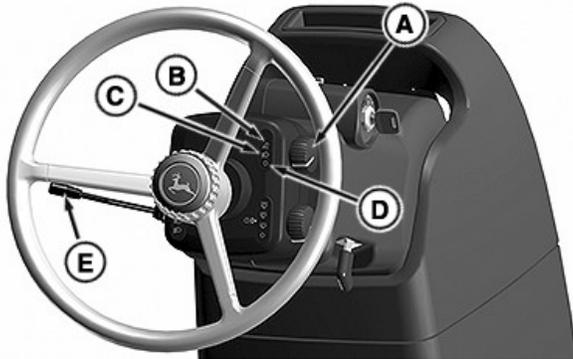


TS951—UN—12APR90

CAUTION: Avoid injury or death caused by collision with another vehicle. Follow local laws and regulations for equipment lighting and marking. Comply with all traffic regulations.

Use headlights and turn signals day and night. Dim road lights to low-beam for oncoming vehicles. Avoid using field lights on public roadways or highways which could temporarily blind or confuse other drivers. Frequently check for traffic from rear, especially in turns. Keep lighting and marking visible, clean and in good working order. Promptly replace or repair damaged or lost lighting devices. See your John Deere dealer.

Light Selector Knob



RXA0155918—UN—23NOV16

Control lights using light selector knob (A) on steering column. Display indicates selected lighting mode:

- Field Lights Position (B).
- Road Lights Position (C).
- OFF Position (D).

Turn Signal

Pull lever (E) up for right turn or down for left turn. Return lever to center position after completing turn.

A short audible chirping sound is heard when turn signal is activated.

High-Low Beam

Push lever (E) forward to activate high beam headlights; high beam indicator comes on. Dim lights to low beam for oncoming vehicles. Return lever to center position to operate low beam. Pull lever rearward and release to momentarily activate high beams.

AK08008,00000F4-19-15NOV19

Exit Lights

Programming delay lighting allows operator to select which lights will remain on and for how long they will remain on after light selector knob is turned to OFF position.

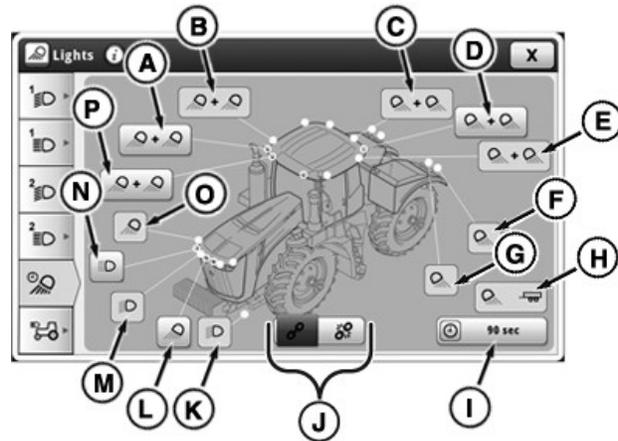
Field exit lighting is all lights chosen on exit lighting page and will be activated for time selected for Exit Timeout. Field exit lighting will be enabled when light switch has been in “Field” position for at least 10 seconds during the current key switch cycle. Field exit lighting will then be activated when light switch and key switch are turned off. The order which the light switch and key switch are turned off do not matter.

Road exit lighting is all lights chosen on exit lighting page and will be activated for time selected for Exit Timeout. Road exit lighting will be enabled when light switch has been in “Road” position for at least 10 seconds during the current key switch cycle. Road exit lighting will then be activated when light switch and key switch are turned off. The order which the light switch and key switch are turned off do not matter.



RXA0147935—UN—13APR15

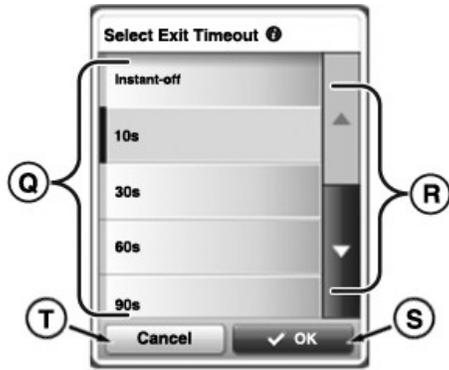
1. Select **Menu**.
2. Select **Machine Settings** tab.
3. Select **Lighting** icon.
4. Select **Exit Lighting** tab



RXA0142960—UN—08JUL14

- A—Front Outer Roof Lights Button
- B—Front Side Roof Lights Button
- C—Rear Inner Roof Lights Button
- D—Rear Outer Roof Lights Button
- E—Rear Side Roof Lights Button
- F—Rear Outside Fender Lights Button
- G—Rear Inner Fender Lights Button
- H—Implement Lights Button
- I—Exit Light Timeout Button
- J—Link/Unlink Toggle
- K—Road (Low and High Beam)/Clearance Lights Button
(European tractors only)
- L—Inner Hood Lights Button
- M—Low Beam Hood Lights Button
- N—High Beam Hood Lights Button
- O—Outer Hood Lights Button
- P—Front Inner Roof Lights Button

5. Select desired lights and deselect unwanted lights. Use Link/Unlink Toggle (J) if operator wishes to select a set (link) or only select the right or left light in a set (unlink) where applicable. Lights F-G and K-O are always linked and will always select both the left and right lights.
6. Select Exit Light Timeout button (I).



RXA0142961—UN—25JUN14

- Q—Time Selection Interval List
- R—Scroll Bar
- S—OK Button
- T—Cancel Button

7. When options appear, select desired time intervals (Q) before lights automatically turn OFF and select OK button (S).

AK08008,00000F5-19-15NOV19

NOTE: When turn signal is activated, a short audible chirping sound will be heard.

Turn Signals:



RXA0135292—UN—04SEP13

Push Turn Signal Lever (A) up for right turn, or pull down for left turn. Audible chirping sound will start. Return lever to center position after completing turn, chirping sound will stop when lever is returned to position.

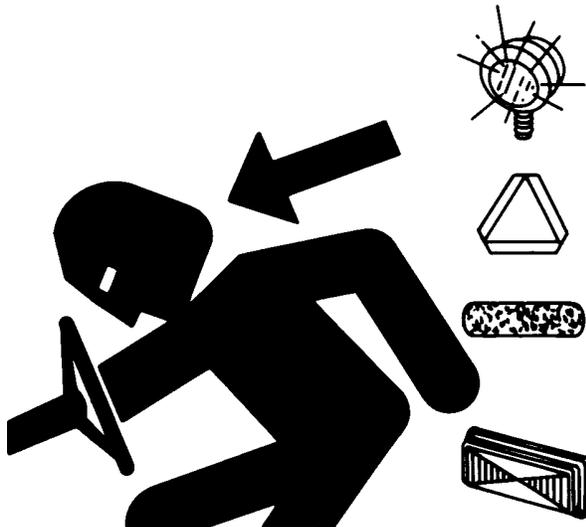
High/Low Beam:

Push lever (A) forward to activate high beam headlights; high beam indicator comes on. Pull lever into center position to operate low beam. Pull lever rearward and release to momentarily activate high beams.

Dim Road Lights to low beam for oncoming vehicles.

AK08008,00000F6-19-15NOV19

Operate Turn Signals and High/Low Beam

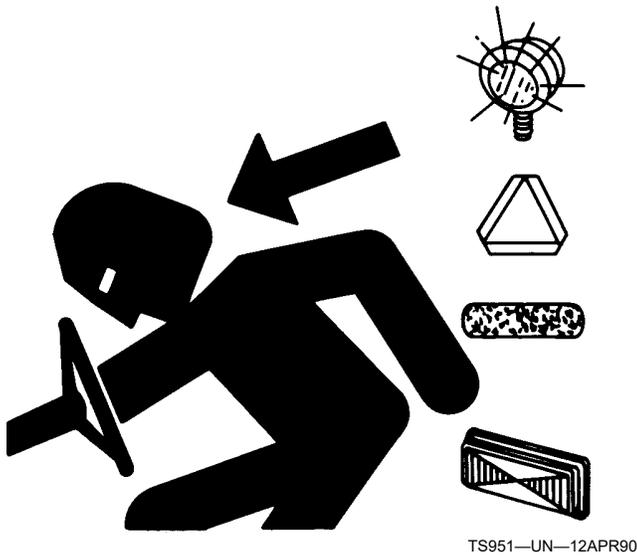


TS951—UN—12APR90

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

Use headlights 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. See your John Deere dealer.

Safety Lights and Devices



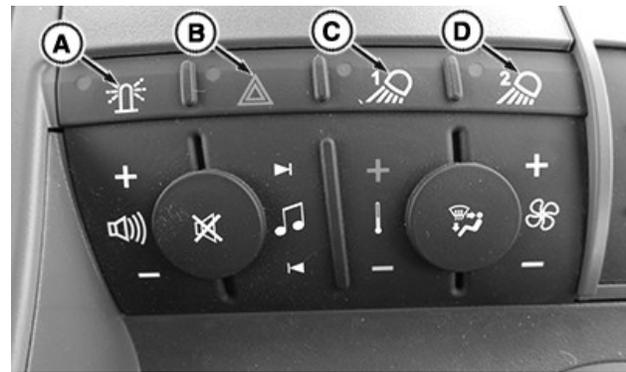
CAUTION: Avoid injury or death caused by collision with another vehicle. Follow local laws and regulations for equipment lighting and marking. Comply with all traffic regulations.

While operating tractor on public roadways or highways, day or night:

- Make sure Slow Moving Vehicle (SMV) emblem is installed and visible.
- Switch on flashing warning lights, except where prohibited by law.
- Use road lighting.
- Dim headlights for oncoming vehicles.
- Use turn signals when turning.
- Use extremity warning lights when tractor width exceeds 3.7 m (12 ft).
- Frequently check for traffic approaching from rear.
- Make sure that all lighting and marking devices are functional and clean.
- Promptly replace or repair damaged or lost lighting devices. Implement lighting kit is available from your John Deere dealer.

AK08008,00000F7-19-15NOV19

CommandARM™ Light Buttons

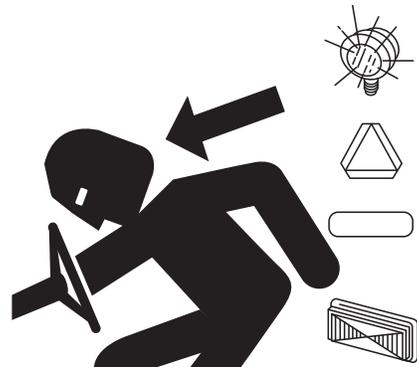


NOTE: Field Lights must be adjusted using the Generation 4 CommandCenter™ display.

Control beacon lights (A), hazard lights (B), and field lights (C or D) from the CommandARM™ rather than from display screens. When lights are on, an appropriate indicator is illuminated.

AK08008,00000F8-19-15NOV19

Hazard Lights and Extremity Warning Lights



CAUTION: To prevent possible personal injury, always operate flashing lights when traveling on highway or public roads, except where prohibited by law.

Extremity Warning lights are needed when tractor width exceeds 3.7 m (12 ft). Always use road lights and transport warning lights when operating tractor on road or highway at night OR during the day. Extremity Warning Lights alert other vehicles of your extended width. Use flashing warning lights and turn signals day and night. Follow local laws and regulations for equipment lighting and marking.

CommandCenter is a trademark of Deere & Company
CommandARM is a trademark of Deere & Company

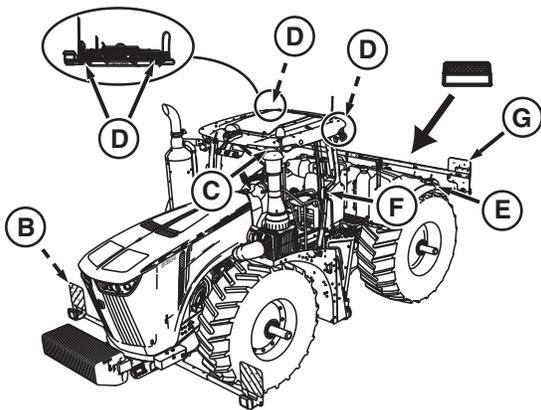


RXA0156107—UN—09DEC16



RXA0156108—UN—09DEC16

Push beacon light button (A) to activate rotary beacon light.



RXA0153370—UN—26FEB18

- A—Hazard Light Button
- B—Road (Low and High Beam)/Indicator/Clearance (Equipped with Amber Lens) Lights
- C—Front Outer Roof Indicator Lights
- D—Rear Outer Roof Indicator Lights
- E—Rear Fender Indicator Lights
- F—Extremity Warning Lights
- G—Red Tail/Brake Light

Push Hazard Light button (A) to activate flashing amber hazard lights (B, C, D, E, F and G).

NOTE: Depending on region and installed equipment lights (B, C, D, E, F and G) may not all be available as indicator lights when Hazard Switch is activated.

IMPORTANT: To avoid damage, Extremity Warning lights may be retracted when parking tractor in storage building.

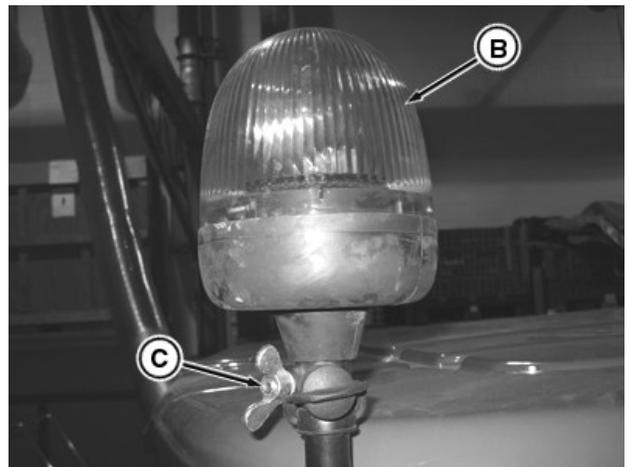
Extremity Warning lights operate with Hazard Light button "ON".

Adjust Extremity Warning lights no more than 400 mm (16 in.) from widest point of tractor.

AK08008,00000F9-19-15NOV19

Rotary Beacon Light

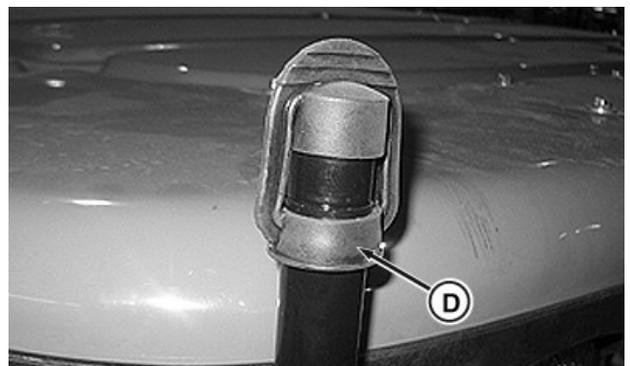
NOTE: If Rotary Beacon light is not installed and Rotary Beacon switch is activated, a Rotary Beacon Diagnostic Trouble Code (DTC) will be generated.



RXA0109218—UN—29JUL10

When not used for extended periods of time, remove and safely store Rotary Beacon light (B):

1. Loosen nut (C) and remove light assembly.



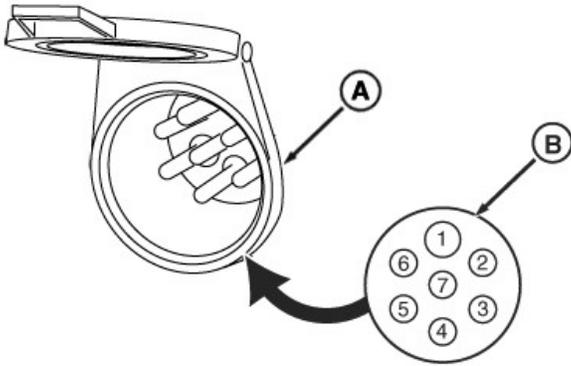
RXA0100494—UN—11FEB09

2. Install rubber protective cap (D) on connector.

AK08008,00000FA-19-15NOV19

7-Pin Outlet

CAUTION: Avoid accidents. Always use auxiliary light on towed implement when tractor rear signals and other lights are obscured.



RXA0126196—UN—05JUN12

Rear-mounted 7-pin outlet (A) is used to connect lights, turn signals and other remote trailer or implement electrical equipment to tractor electrical system. Chart and image identify connector pin numbers and circuits associated with them. Matching 7-pin plug is available through your John Deere dealer.

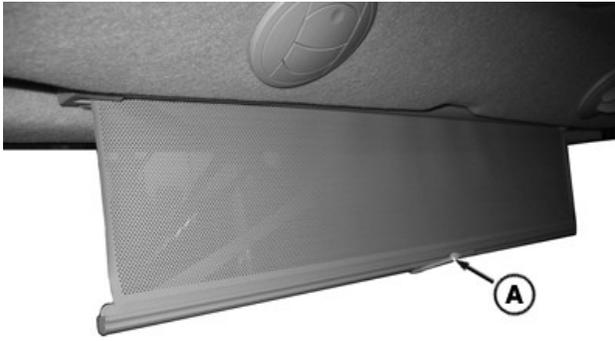
Terminal Numbers (B)	Function	
	Rear Connection	Front Connection
1	Ground	
2	Flood (Implement Lights)	
3	Left Turn Signal	
4	Brake Lights	Not Used
5	Right Turn Signal	
6	Tail Light	
7	Accessory	Not Used

Contact your John Deere dealer for information regarding methods to connect tractor light switch with 7-pin connector accessory wires.

AK08008,00000FB-19-15NOV19

Accessories

Pull-Down Sunshade



RXA0133298—UN—25JUN13

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

AK08008,00000FC-19-15NOV19

Install Business Band or Citizens Band (CB) Radio and Antenna



RXA0119185—UN—27JUL11

Antenna Coaxial Cable And Business Band Radio Power/ Ground Plug Coiled Behind Right Rear Corner Post Cover

B—Antenna Coaxial Cable

C—Business Band Radio Power/Ground Cable

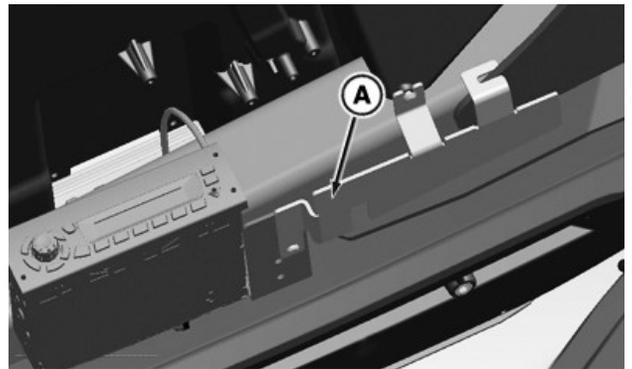
CAUTION: Never mount business band radio antenna to rear of cab. Never route antenna cable (B) near harness for electrical system controllers or operator controls. Failure to follow these precautions could expose operator to radio frequency energy levels higher than recommended by American National Standards Institute (ANSI) and/or could cause undesirable performance of electronically controlled systems.

Avoid personal injury. Disconnect battery ground cable before any electrical repair.

IMPORTANT: Prevent damage to tractor emissions system. Battery disconnect switch with indicator light: Tractor is equipped with an engine which uses a Selective Catalytic Reduction (SCR) system. Light is illuminated during Diesel Exhaust Fluid (DEF) purge from system. Do not turn disconnect switch off until light goes out.

Battery disconnect switch without indicator light: Engine not equipped with SCR system. No waiting period is required before turning off switch.

See Battery Disconnect Switch in Engine Operation section of this Operator's Manual.



RXA0119184—UN—27JUL11

Business Band Radio Bracket—Headliner Removed To Show Location

NOTE: Only tractors equipped with Business Band Radio Mounting and Wiring Option from factory have business band bracket (A) behind headliner and antenna cables behind right rear corner post cover. See your John Deere dealer for Business Band Radio and Antenna Installation Instructions.

Custom Installation

Custom CB or Business Band radio installation requires special tools and skills to tune antenna for lowest possible VSWR (Voltage Standing Wave Ratio). Qualified professional should be employed or consulted before attempting installation. Contact your John Deere dealer for recommendations. Following specifications are useful to installer.

Specifications for Factory Installed Radio Installation Kit

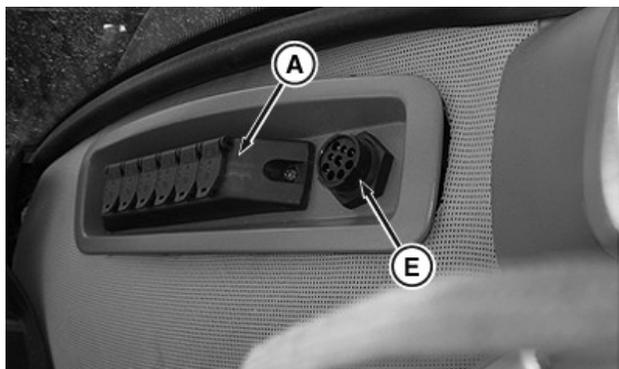
- Roof Antenna Mount: NMO type.
- Cable Specifications: Cable length is 3.6 m (11.8 ft) from antenna mount to PL-259 radio connector. RG-58/U cable has 50 ohms intrinsic impedance.
- Roof Ground Plane: Grounded large antenna counterpoise foil under green cab roof allows installation of either 1/4 or 1/2 wave antenna.
- CB Antenna: Normal CB antenna can be attached to factory installed NMO antenna mount through use of

an appropriate adapter. Special CB antenna already equipped with NMO base may alternatively be used.

AK08008,00000FD-19-15NOV19

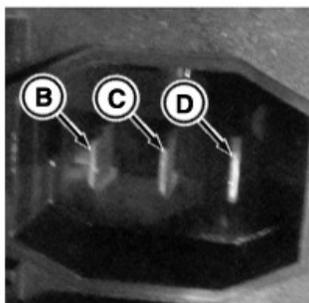
Auxiliary Power Strip Use

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



RXA0099078—UN—25FEB09

A—Auxiliary Power Strip
E—Diagnostic Connector (DEALER USE ONLY)



RXA0131998—UN—06MAY13

B—Battery (Unswitched)
C—Ground
D—Battery (Switched)

Power strip (A) provides six 12 volt grounded power outlets for use connecting auxiliary equipment. This power is 30 amp switched and 30 amp unswitched. Outlets are protected by a 30 amp fuse.

Various adapters are available from your John Deere dealer.

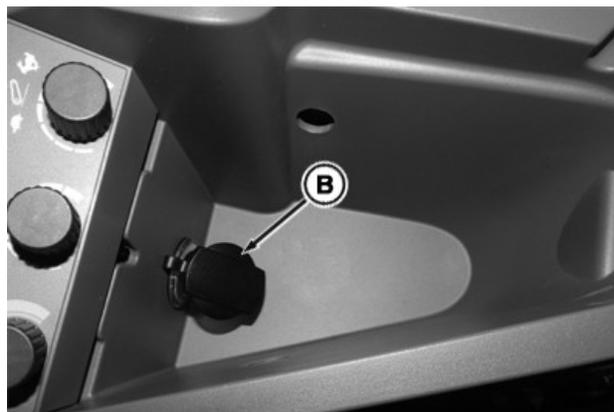
Adapters plug directly into power strip. To change to switched power on adapter, remove small tab at end of slot on plug and rotate plug 180°.

AK08008,00000FE-19-15NOV19

Accessory Electrical Outlet Use

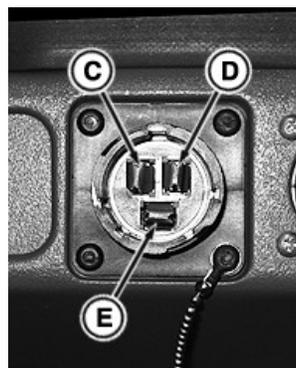


RXA0159796—UN—13JUN17



RXA0141390—UN—02MAY14

12 volt accessory outlets (A) located on right-hand console or outlet (B) in storage box are used when connecting auxiliary equipment.



RXA0141391—UN—02MAY14

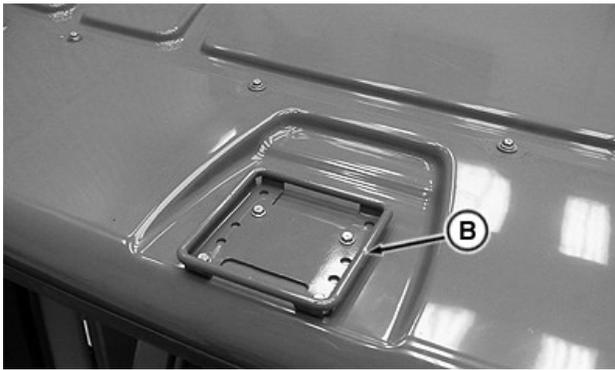
Pin (D) provides battery power (hot), pin (C) provides (key) switched power and pin (E) provides ground. For additional information on connections, see appropriate auxiliary equipment installation instructions or your John Deere dealer.

AK08008,00000FF-19-15NOV19

Mount StarFire™ Receiver



RXA0153451—UN—18AUG16



RXA0107027—UN—31MAR10

Mount StarFire™ receiver (A) on StarFire™ receiver bracket (B).

NOTE: Refer to your John Deere dealer or to StarFire™ receiver installation instructions for compatibility.

See your John Deere dealer for compatible adapter harnesses.

AK08008,0000100-19-15NOV19

Connect Compatible Electronic Equipment

IMPORTANT: Use ISO 11783 connector only with ISO 11783 compliant components. Other uses could damage tractor electronic components.



RXA0134922—UN—06SEP13



RXA0177689—UN—04MAY20

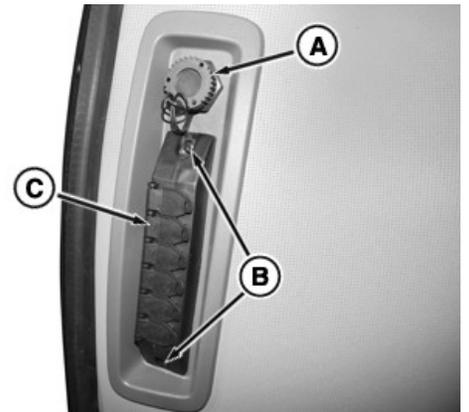
The tractor is ISOBUS ready and offers connections for implements conforming to both ISO 11786 and 11783 (C) standards. ISO 11786 connector (A) provides a radar or GPS speed signal. See Configure Tractor for GPS or Radar in this Operator's Manual section.

GreenStar™ corner post connector (B) allows any GreenStar™ display connection. See your John Deere dealer for compatible adapter harnesses.

AK08008,000056C-19-04MAY20

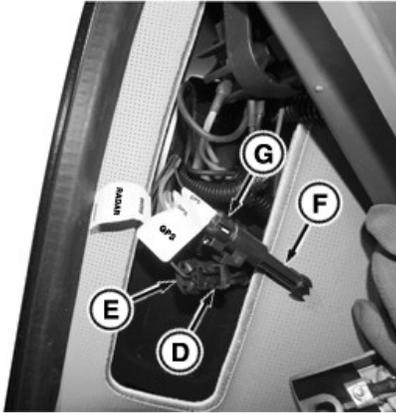
Configure Tractor for GPS or Radar

Tractor comes from factory configured to use radar as ground speed input. To reconfigure tractor to use GPS as the true ground speed input:

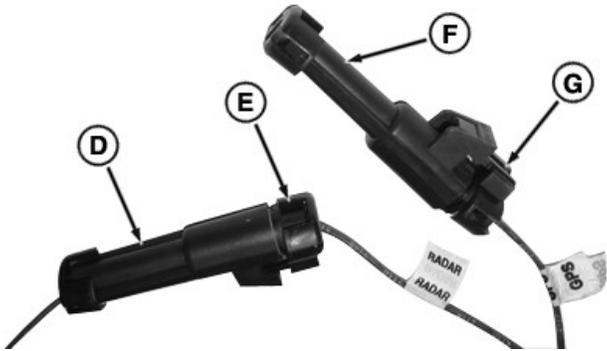


RXA0140811—UN—31MAR14

1. Remove diagnostic connector cap (A) and retaining nut.
2. Remove retaining screws (B) and remove auxiliary power strip (C) (if equipped) with cover plate.
3. Inside right-hand console locate one wire lead marked radar and one marked GPS.



RXA0140812—UN—31MAR14



RXA0140813—UN—31MAR14

4. On tractors equipped with radar, disconnect tractor harness connector (D) from radar connector (E). Then, proceed to step 6.
5. On tractors not equipped with radar, locate wire lead marked GPS and proceed to step 6.
6. Remove dust cap (F) from GPS connector (G).
7. Attach GPS connector to tractor harness connector.
8. Install (or leave installed) dust cap on radar connector.
9. Reinstall auxiliary power strip with cover plate.
10. Reinstall diagnostic connector through cover, install cap tether and tighten nut.
11. Reinstall power strip cover retaining screws and attach diagnostic connector cap.

To connect from GPS to radar input, disconnect GPS connector and reconnect radar connector. To perform

radar calibration, see Maintenance & Calibrations in CommandCenter™ section of this Operator's Manual.

AK08008,0000102-19-15NOV19

Refrigerator or Storage Space



RXA0134926—UN—15AUG13

Refrigerator (A) only works when key switch is in RUN or accessory position.



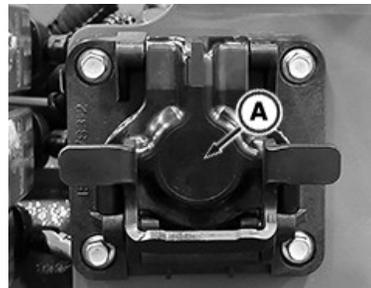
RXA0134923—UN—14AUG13

Adjust refrigerator temperature with control knob (B). Settings are from off to 5, with 5 being the coldest temperature possible.

If refrigerator is not installed, a covered storage space is available.

AK08008,0000103-19-15NOV19

Implement Connector



RXA0169781—UN—30JUL19

CommandCenter is a trademark of Deere & Company

Implement connector (A) is on the rear of the tractor above the SCV stack.

KD34109,00008BB-19-18MAR21

AutoLoad™ Harness Connector [Scraper]



RXA0177640—UN—29APR20

AutoLoad™ harness connector (A) is on the rear of the tractor above the SCV stack.

KD34109,00008BC-19-18MAR21

HVAC

HVAC Settings—Access

Access Application Through Display:



Menu

RXA0167075—UN—20MAR19

1. Menu



Machine Settings

RXA0167076—UN—20MAR19

2. Machine Settings tab



HVAC

RXA0167626—UN—26APR19

3. HVAC

Access Application Through Navigation Bar:



HVAC

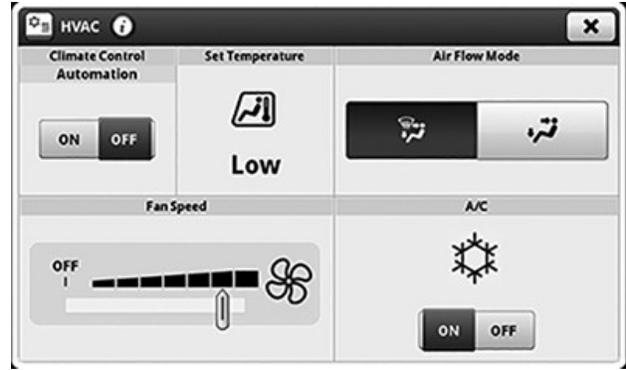
RXA0167627—UN—26APR19

Press HVAC button on navigation bar below display.

AK08008,0000106-19-15NOV19

HVAC Settings

HVAC application is used to adjust the temperature, fan speed, and air flow mode inside the cab.



RXA0169839—UN—06AUG19

HVAC Example

Items Accessible on HVAC Main Page:



ON/OFF

RXA0167628—UN—26APR19

Climate Control Automation — enable or disable automatic control of Fan Speed, Air Flow Mode, and A/C. See HVAC Settings—Climate Control Automation in this Operator's Manual section.



75° F

Set Temperature

RXA0167629—UN—26APR19

Set Temperature — set desired temperature inside cab. See HVAC Settings—Set Temperature in this Operator's Manual section.



Air Flow Mode

RXA0167630—UN—26APR19

Air Flow Mode — adjust distribution of air flow inside cab. See HVAC Settings—Air Flow Mode in this Operator's Manual section.



Fan Speed

RXA0167631—UN—26APR19

Fan Speed — control fan speed inside cab. See HVAC Settings—Fan Speed in this Operator's Manual section.



A/C

RXA0167632—UN—26APR19

Air Conditioning (A/C) — enable or disable air conditioning. See HVAC Settings—Air Conditioning in this Operator’s Manual section.

Run Page Modules

Add modules for this application to run pages using Layout Manager. See the Generation 4 Display operator’s manual.

Example:



A/C

RXA0167633—UN—26APR19

NOTE: Different modules may be available for your application.

A/C — toggle gives you direct access to enable/disable the A/C.

Shortcut Keys

Add shortcut keys for this application to the shortcut bar using Layout Manager. See the Generation 4 Display operator’s manual.

Example:



ON

RXA0167634—UN—26APR19

NOTE: Different shortcut keys may be available for your application.

A/C — quick access to turn air conditioning ON and OFF.

AK08008,0000572-19-16JUN20

HVAC Settings—Climate Control Automation

Climate Control Automation automatically controls Fan Speed, Air Flow Mode, and A/C based on Set Temperature.

When enabled, the following conditions apply:

- Changing Set Temperature does not disable AUTO mode.
- Selecting Fan Speed, Air Flow Mode, or A/C overrides and disables AUTO mode.
- Pressing Fan Speed or Air Flow Mode buttons on CommandARM™ overrides and disables AUTO mode.



ON/OFF

RXA0167628—UN—26APR19

Select ON to enable or OFF to disable.

AK08008,0000108-19-15NOV19

HVAC Settings—Set Temperature

Use Set Temperature to select a desired cab temperature.

Procedure to Modify:



75° F

Set Temperature

RXA0167629—UN—26APR19

1. Select Set Temperature module to display Set Temperature page.



Adjust Set Temperature

RXA0167639—UN—26APR19

2. Select (+) to increase or (-) to decrease value.



Close

RXA0167129—UN—25MAR19

3. Select to close.

Alternate Procedure to Modify:

Temperature Button — button on CommandARM™ to adjust temperature. See CommandARM™ Climate, Radio, and Lighting Controls in CommandARM™ Controls section of this Operator’s Manual.

AK08008,0000109-19-15NOV19

HVAC Settings—Air Flow Mode

Air Flow Mode is used to adjust distribution of air flow inside the cab.

NOTE: Air conditioning automatically turns on when defrost air flow mode is selected.

Procedure to Modify:



Air Flow Mode
RXA0167630—UN—26APR19

Select desired air flow mode on toggle bar.



AUTO
RXA0169349—UN—28JUN19

If Climate Control Automation is enabled, toggle bar changes to AUTO. If selected, Climate Control Automation is overridden and disabled.



Defrost/Operator/Floor
RXA0167636—UN—26APR19

Defrost, Operator, and Floor — directs air flow at operator and floor, and defrosts the windshield.



Operator/Floor
RXA0167637—UN—26APR19

Operator and Floor — directs air flow at operator and floor.

Alternate Procedure to Modify

Air Flow Mode Button — button on CommandARM™ to select mode of air flow. See CommandARM™ Climate, Radio, and Lighting Controls in CommandARM™ Controls section of this Operator’s Manual.

AK08008,000010A-19-15NOV19

HVAC Settings—Fan Speed

Fan Speed page allows control of the fan speed inside the cab.

Procedure to Modify:



Fan Speed
RXA0167641—UN—26APR19

1. Select Fan Speed module to display Fan Speed page.



Adjust Fan Speed
RXA0167642—UN—26APR19

2. Select (-) to decrease or (+) to increase speed setting.



Close
RXA0167129—UN—25MAR19

3. Select to close.



AUTO
RXA0167643—UN—26APR19

If Climate Control Automation is enabled, setting display changes to AUTO. If selected, Climate Control Automation is overridden and disabled.

Alternate Procedure to Modify:

Fan Speed Button — button on CommandARM™ to adjust fan speed. See CommandARM™ Climate, Radio, and Lighting Controls in CommandARM™ Controls section of this Operator’s Manual.

AK08008,000010B-19-15NOV19

HVAC Settings—Air Conditioning

IMPORTANT: To avoid possible compressor damage, turn air conditioning OFF if system is not cooling properly.

NOTE: Air conditioning turns ON when defrost air flow mode is selected.

Procedure to Modify:



ON/OFF

RXA0167628—UN—26APR19

Select ON to enable or OFF to disable air conditioning.



AUTO

RXA0167645—UN—26APR19

If Climate Control Automation is enabled, toggle bar changes to AUTO. If selected, Climate Control Automation is overridden and disabled.

AK08008,000010C-19-15NOV19

Performance Ballasting [Ag]

General Performance Guidelines

Attaining Optimum Performance

Before adding ballast to your tractor, consider these important factors to attain optimum performance:

- Total tractor weight and static weight split (percent of static weight on front and rear axles)
- Type of ballast used (cast weight or liquid)
- Tire inflation pressures

Recommended Weight Split

Weigh tractor to determine amount and type of ballast. Distribute weight depending on how tractor is equipped as well as operating conditions.

Implement Type/ Use	Weight Split %	
	Front	Rear
Towed	51—55	49—45
Hitch-Mounted	55—60	45—40
High Load Transfer	65—70	35—30
Agricultural Land Leveling ^a	65—70	35—30

^aSee Agricultural Heavy-Duty Land Leveling Package in Specifications section of this Operator's Manual.

NOTE: Use 60—65 weight split on front when operating with heavy draft implements causing extreme weight transfer from front to rear.

Correct Ballast

Use no more ballast than necessary, and adjust ballast as tractor use changes.

For correct ballast, measure amount of travel reduction (% slip) of drive wheels. Under normal field conditions, travel reduction should be 8—12 percent. Add more weight to drive wheels if slip is excessive. If there is less than minimum percent slip, ballast should be removed, unless needed for stability.

Correct ballast allows for most efficient use of tractor's available power and will not make up for an implement which is too big for tractor. Adding ballast will not improve performance, if engine speed falls below rated speed and/or wheel slip is beyond the recommended range.

Correct Inflation Pressure

Inflate tires to correct pressure to carry load on each axle for optimum tractive performance.

Selecting Ballast Carefully

Factors determining amount of ballast:

- Soil surface—Loose or firm
- Type of implement—Integral/semi-integral or towed
- Travel speed—Slow or fast

- Tractor power output—Partial or full load
- Tires—Single, dual, or triple, small or large

Pulling lighter load at a higher speed is more economical and more efficient than pulling heavier loads at a lower speed.

Too Little Ballast	Too Much Ballast
Excessive wheel spin	Soil compaction
Power loss	Power loss
Tire wear	Increased load
Fuel waste	Fuel waste
Lower productivity	Lower productivity

Ballast Limitations

IMPORTANT: Tractor weight exceeding heavy ballast limits should be avoided and can void the warranty due to "overload" conditions.

Ballast should be limited by lowest of either tire capacity or tractor capacity.

Carrying capacity of each tire should not be exceeded. If greater amount of weight is needed, larger duals or triples should be considered.

AK08008,000010D-19-15NOV19

Determining Maximum Ballast

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

NOTE: For tractors with dual or triple tires, maximum ballast is not normally limited by tire carrying capacity.

Use appropriate ballast for a particular operating condition. Tractors should have only enough ballast to maintain safe steering control.

Adjust ballast as tractor use changes. For example, adjust ballast when changing from mounted to towed implements.

IMPORTANT: To extend drivetrain life and avoid excessive soil compaction and rolling resistance, avoid adding too much ballast. Never add ballast that results in continuous full-power loads below 6.6 km/h (4.1 mph).

Remove ballast if tractor engine labors when pulling heavy loads below 6.6 km/h (4.1 mph).

AK08008,000010E-19-15NOV19

Ballasting for Engine Horsepower

A guide to ballasting tractors is to use engine horsepower combined with necessary ballast for a particular job—light, medium, or heavy. Start process with lightest ballast that can handle job. Then add ballast as necessary to get performance desired.

NOTE: Correct weight split must be maintained when adding or removing ballast. Cast weight is preferred to get best tractive performance.

More or less weight is necessary when different travel speeds are used. Higher speeds do not require as much weight. Final indication of correct ballast is wheel slip measured in field.

NOTE: Radar is recommended to monitor wheel slip. Checking wheel slip manually is possible but can only show slip in one area of field. Knowing correct average wheel slip is necessary to maintain optimum tractive performance.

Add more weight if slip is excessive. Remove weight if there is less than minimum percent slip.

If implement pull at full load is 8.8 km/h (5.5 mph) or more, tractor can operate without ballast. Medium ballast is a better choice when operating at full load between 7.2 and 8.8 km/h (4.5 and 5.5 mph). Heavy ballast can only be used for few implements (such as deep rippers) which require full load traction below 7.2 km/h (4.5 mph).

IMPORTANT: Never add ballast that results in continuous full power loads below 6.6 km/h (4.1 mph). Continued operation below 6.6 km/h (4.1 mph) can shorten power train life.

Tractor	Engine kW (hp)	kg/kW (lb/hp)	Total kg (lb)
9370R	272 (370)	71 (116) ^{ab}	22105 (48700)
9420R	309 (420)		
9470R	346 (470)		
9520R	382 (520)	65 (105) ^{ab}	24721 (54500)
9570R	419 (570)		
9620R	456 (620)		60 (97) ^{ab}

^aMaximum ballast for 9520R, 9570R, and 9620R is 27216 kg (60000 lb)

^bMaximum ballast for 9520R, 9570R, and 9620R for agricultural land leveling operations is 24494 kg (54000 lb). See Agricultural Heavy-Duty Land Leveling Package in Specifications section of this Operator's Manual.

Ballast	Ground Speed km/h (mph)	kg/kW (lb/hp)
Light	Above 8.9 (5.5)	60 (97) or Less
Medium	7.4-8.6 (4.6-5.5)	62-65 (101-106)

Ballast	Ground Speed km/h (mph)	kg/kW (lb/hp)
Heavy	7.2 (4.5) or Less	68-71 (111-116) ^a

^aMaximum ballast is 71 kg/kW (116 lb/hp)

AK08008,000010F-19-23MAR20

Control Power Hop

Power hop is a condition where tractor exhibits severe bounce and/or jump at field working speeds under 16 km/h (10 mph). Power hop is associated with tractors pulling towed implements at medium to high draft loads in loose, dry soil on top of a firm base and/or when climbing hills. As a result, tractor cannot maintain pull due to loss of traction, rough ride, or both.

Ballast tractor so no more than 55% of total tractor weight is on front axle for best power hop control. If liquid ballast is used in tires then fill level should not exceed 40% fill.

Adjust inflation pressures only after following performance guidelines (recommended weight split, correct ballast, and correct inflation pressures):

NOTE: HydraCushion™ suspension system must be properly set and turned ON to help control power hop.

1. Increase rear tire pressure in 2 psi increments up to maximum tire pressure as marked on tire sidewall.
2. If power hop remains a problem, remove any liquid ballast from tires and replace with cast weight equivalent.

NOTE: Liquid ballast has a stiffening effect which causes a rough ride.

3. If power hop remains a problem, reduce front tire pressure to rated pressure for front axle load. Then increase front tire pressure in 2 psi increments up to maximum tire pressure as marked on tire sidewall.
4. If power hop remains a problem, see your John Deere dealer.

AK08008,0000110-19-15NOV19

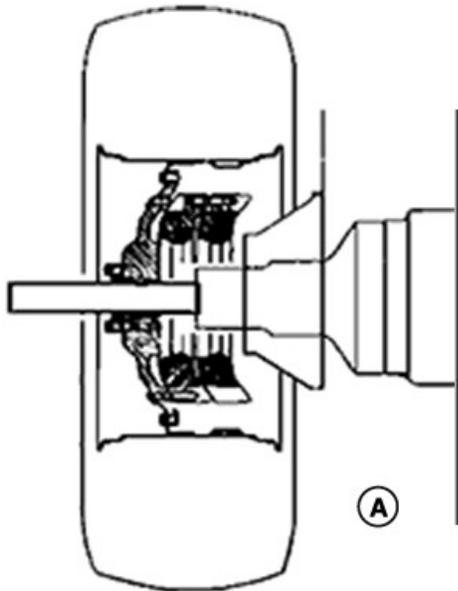
Rear Wheel Weight Use

CAUTION: When installing weights, use appropriate equipment or see your John Deere Dealer.

IMPORTANT: Inside wheel weight must have at least 25 mm (1 in) clearance between weight and tractor components.

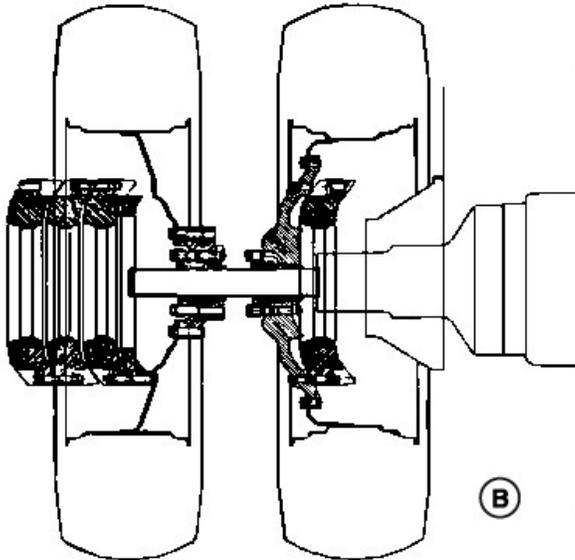
HydraCushion is a trademark of Deere & Company

Never stack more than 690 kg (1520 lb) of weights together—three 205 kg (452 lb) weights and one 72 kg (159 lb) weight.



RXA0160098—UN—06JUL17

Cast Hub Wheel Weights - Single Wheel (110 mm Axle)



RXA0160099—UN—06JUL17

Cast Hub Wheel Weights - Dual Wheels (110 and 120 mm Axle)

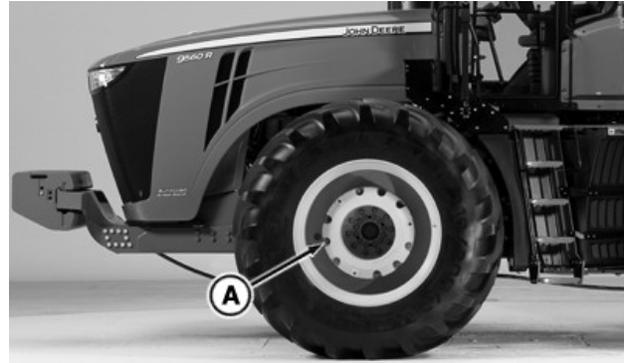
Weights kg (lb)	Wheel Weight Type and Location		
	Cast		Steel
	Inner		Outer Dual
	Inside	Outside	Outside
205 (452)	Yes	Yes ^{ca}	Yes ^{cb}

^aNot compatible with duals.

^bNot compatible with triples.

^cMust be mounted to 72 kg (159 lb) starter weight.

Install cast weights on wheel.



RXA0119716—UN—11AUG11

For additional weights, install cap screws in previous weight. Rotate alternate weight to align cap screws with mounting holes (A).

Tighten cap screws and then retighten after driving approximately 100 m (109 yd).

Tighten cap screws after working 3 hours, 10 hours, and every 250 hours thereafter.

Cap Screw Torque Specification	
Cap Screw	Torque Specification N·m (lb·ft)
M16	310 (228)
M20	610 (450)

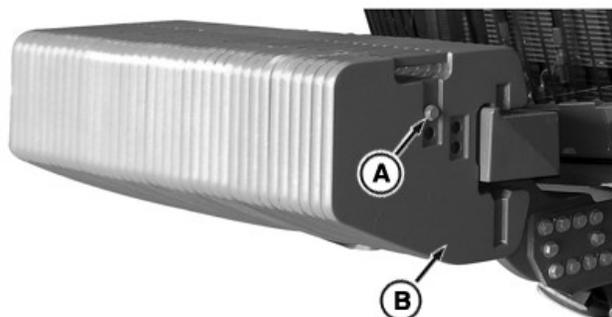
AK08008,0000111-19-15NOV19

Front Weight Frame

IMPORTANT: Front frame weight support is not intended to be used for pushing other tractors or implements and should not be used for securing chains or cables as tow points.

A field installed tow cable kit is available through John Deere™ Parts. If tow cable kit is installed on a tractor without front weight support, then support should also be ordered through service parts to attach cable onto front of tractor frame.

Weights kg (lb)	Wheel Weight Type and Location		
	Cast		Steel
	Inner		Outer Dual
	Inside	Outside	Outside
625 (1378)	Yes	—	—
72 (159)	Yes	Yes ^a	Yes ^b



RXA0141895—UN—05JUN14

Front weights (B) are secured on support by a center pin, retainers, and long cap screws (A).

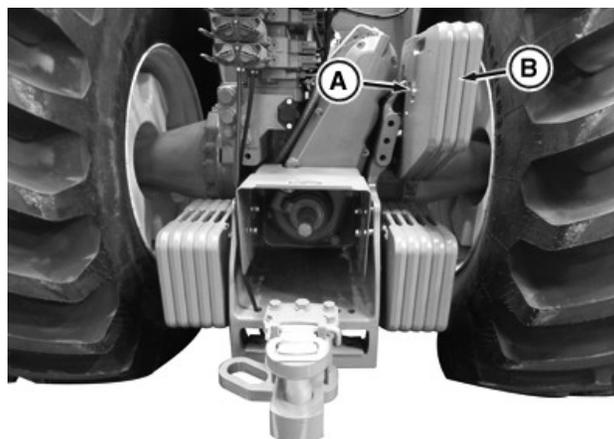
Front weight support extends out in front of tractor and has following effect on front axle weight and rear axle weight because of weight transfer effect:

	Weight kg (lb)		
	Actual	Transfer to Front Axle	Reduced From Rear Axle
Front Weight Support	390 (860)	+207 (+456)	-69 (-152)
26 Weights and Support	1308 (2884)	+2058 (+4538)	-879 (-1938)
Total	1507 (3744)	+2265 (+4994)	-948 (-2090)

	Weight kg (lb)		
	Actual	Transfer to Front Axle	Reduced From Rear Axle
Front Weight Support	385 (850)	+612 (+1350)	-227 (-500)
36 Weights and Support	1933 (4262)	+3420 (+7540)	-1406 (-3100)
Total	2318 (5112)	+4032 (+8890)	-1621 (-3600)

AK08008,0000113-19-15NOV19

Rear Weight Frame



RXA0147072—UN—28JAN15

Rear suitcase weights (B) are secured on support by long cap screws (A).

Rear weight support affects both axles due to weight transfer effect.

AK08008,0000113-19-15NOV19

Implement Guidelines

Front-Mounted Implements:

Front frame reinforcement is recommended whenever tractor has front-mounted dozer blades or spray tanks, is used in scraper applications, or is equipped with front frame ballast.

Reinforcement attaches to underside of front axle and to outside of front frame behind front axle. See your John Deere dealer for parts and assistance.

Towed Scrapers:

IMPORTANT: Under scraper or severe applications, tighten wheel bolts every 2 hours until all cap screws remain at 610 N·m (450 lb·ft).

Follow manufacturers instruction in attaching and using scraper.

Non-Approved Uses

- **Spray Tanks** - Mounted forward of grille screen
- **Spray Tanks** - Unbalanced
- **Scrapers** - Without proper tractor/scraper drawbar and frame/axle supports (9470R, 9520R, 9570R and 9620R)
- **Front Hitches** - Are not approved
- **Tiling Plows** - Are not approved
- **Fully Mounted Hitch Implements** - Center of gravity greater than 609 mm (24 in) beyond hitch points

- **Fully Mounted Hitch Implements** - Total weight exceeds 6350 kg (14000 lb) - Category 4 (Without additional implement mounted lift assist)
- **Fully Mounted Hitch Implements** - Total weight exceeds 6123 kg (13500 lb) - Category 3 (Without additional implement mounted lift assist)
- **9470R, 9520R, 9570R, and 9620R with Category 3 Hitch** - Deep ripping/plowing applications using full horsepower (Use Category 4 hitch)
- **Extreme Draft Loads** - Requiring two tractors hooked in tandem
- **Tow Hooks** - Adding tow hooks is not an option

AK08008.0000114-19-15NOV19

4. At working speed, go back with implement raised. Count revolutions between same two marks.
5. Use second count and chart to determine slippage. Remember 8—12 percent is ideal.

Wheel Slippage Chart		
Wheel Revolutions (Step 4)	Percent of Slip	Result
10	0	Remove Ballast
9-1/2	5	
9-1/3	8	Proper Ballast
8-3/4	12	
8	20	Add Ballast
7-1/2	25	
7	30	

Measuring Wheel Slip (Manually)

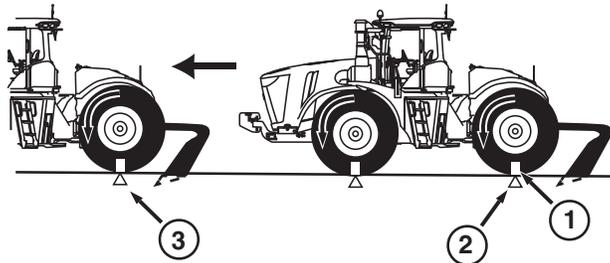
NOTE: Wheel slip can be easily determined, automatically, with Performance Monitor, if equipped with optional radar unit. (See Configure Tractor for GPS/Radar in Accessories section in this Operator's Manual.)

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

6. Adjust ballast or load to give 8—12 percent slippage at 4.1 mph (6.6 km/h), without exceeding maximum ballast level.

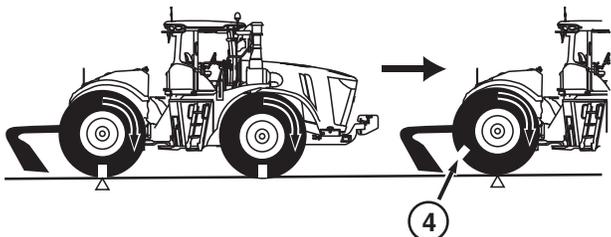
NOTE: Available horsepower is greatly reduced when wheel slip drops below eight percent.

AK08008.0000115-19-15NOV19



RXA0142586—UN—16JUN14

1. Mark a tire.
2. With tractor working, mark starting point on ground.
3. Follow tractor and mark ground again where tire completes 10 full revolutions.



RXA0142587—UN—16JUN14

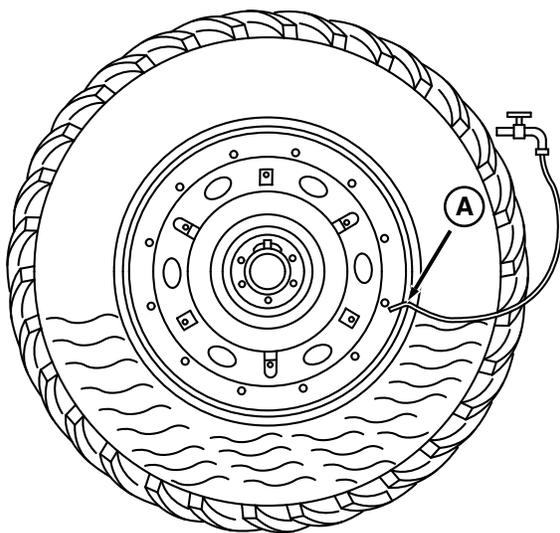
Using Liquid Ballast

CAUTION: Avoid possible injury. Installing liquid ballast requires special equipment and training. See your John Deere Dealer or a tire service store.

IMPORTANT: Liquid ballast is not preferred. Liquid weight greatly increases tire stiffness at lower operating pressures, and greatly reduces ride performance. If liquid ballast is used, maximum liquid fill of 40 percent is recommended for better tractor performance.

- Use of alcohol as liquid ballast is not recommended.
- In areas where freezing is not a problem and water is used as a ballast, multiply weight shown in table by 0.8.
- In areas where freezing is a problem use calcium chloride to prevent water from freezing. A mixture of 3.5 lb per gallon (0.42 kg per liter) of calcium chloride will not freeze solid above -50°F (-45°C).

IMPORTANT: A maximum liquid fill of 40 percent is recommended for better tractor performance.



RW71542—UN—05SEP00

Position valve (A) at 4 o'clock position to fill to 40% full. Position valve at 12 o'clock (top) position to fill to 75% full. 75% fill is the maximum allowed. Make sure all tires on the same axle have the same amount of liquid fill.

With liquid fill the volume of air creating pressure is low, so it is essential to regularly check the tire pressure. Check tire pressure at least once a month.

Tire Size	Liquid Weight per Tire kg (lb)	
	40% Fill	75% Fill
18.4R46	301 (664)	595 (1312)
480/80R46	274 (604)	548 (1208)
480/80R50 IF480/80R50	288 (635)	575 (1268)
520/85R42	325 (717)	655 (1444)
520/85R46	351 (774)	703 (1550)
20.8R42	340 (748)	682 (1504)
620/70R42	390 (859)	779 (1717)
650/85R38 IF650/85R38	561 (1237)	597 (1316)
710/70R38 IF710/70R38	462 (1019)	924 (2037)
710/70R42 IF710/70R42	523 (1154)	1047 (2308)
800/70R38 IF800/70R38	650 (1433)	1270 (2800)
850/60R38	477 (1052)	954 (2103)
900/50R42	532 (1173)	1065 (2348)

AK08008,0000116-19-15NOV19

Worksheet to Calculate Ballast Changes

IMPORTANT: Ballast must not exceed weight required to result in recommended percent slip at 6.6 km/h (4.1 mph) MINIMUM.

recommendations. Ballast should be adjusted to match field and operation conditions. Complete worksheet prior to changing ballast and tire air pressures to help achieve optimal tractor performance.

Completed worksheet provides suggested initial ballast

1. Determine desired weight of tractor. See General Performance Guidelines in this section of this Operator's Manual. _____ % Front

2. Record desired weight of tractor. See Ballasting for Engine Horsepower in this section of this Operator's Manual. _____

	Front	Rear	Total
3. Percent of Weight Split from Step 1 multiplied by Step 2 (Desired Weight) results in Total Front Weight. For Rear Weight, subtract front weight from Total Weight. This determines weight on each axle.	_____	_____	_____

4. Weight of tractor as determined from the Unballasted Tractor Weight Chart, in this section of this Operator's Manual, or weight from scale.	_____	_____	_____
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5. Ballast needed (subtract tractor weight in Step 4 from desired weight in Step 3).	_____	_____	
--	-------	-------	--

6. Add front ballast.	_____	_____	
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7. Determine weight removed from rear axle when ballasting front axle, if using suitcase weights and add weight to Step 5.	_____	_____	_____
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8. Add ballast from Step 7 to weights from Step 5.	_____	_____	
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9. Set tire pressure for operating conditions using weights from Step 7 (see appropriate inflation pressure table in the Wheels, Tires, and Treads section in this Operator's Manual).		_____	
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NOTE: Wheel slippage can now be tested. See Measuring Wheel Slip, in this section of this Operator's Manual.

Unballasted Tractor Weight Chart (9370R)

Divide weight in pounds by 2.2 to obtain kg.

NOTE: Unballasted weights are calculated by averaging and are figured based on tractor with a full tank of fuel. Each tractor will be different. Have your tractor weighed for exact weight splits.

Group 47

480/80R46 - Triples - Cast/Steel/Steel					
Model		9370R			
Hitch/PTO Option		No/No	Yes/No	Yes/No	Yes/Yes
Weight kg (lb)	Front	24820	24566	24480	24224
	Rear	18887	20955	20150	22223
	Total	43707	45521	44630	46447
kg/kW/hr (lb/hp)		118	123	121	126
Weight Split (%)		57 / 43	54 / 46	55 / 45	53 / 47

520/85R42 - Triples - Cast/Steel/Steel					
Model		9370R			
Hitch/PTO Option		No/No	Yes/No	Yes/No	Yes/Yes
Weight kg (lb)	Front	25075	24822	24736	24480
	Rear	19143	21211	20406	22478
	Total	44218	46032	45142	46958
lb/hp		120	124	122	127
Weight Split (%)		57 / 43	54 / 46	55 / 45	52 / 48

620/70R42 - Duals - Cast/Steel					
Model		9370R			
Hitch/PTO Option		No/No	Yes/No	Yes/No	Yes/Yes
Weight kg (lb)	Front	23620	23367	23281	23025
	Rear	17688	19756	18951	21023
	Total	41308	43122	42232	44048
lb/hp		112	117	114	119
Weight Split (%)		57 / 43	54 / 46	55 / 45	52 / 48

710/70R38 - Duals - Cast/Steel					
Model		9370R			
Hitch/PTO Option		No/No	Yes/No	Yes/No	Yes/Yes
Weight kg (lb)	Front	24127	23874	23788	23532
	Rear	18195	20263	19458	21530
	Total	42322	44136	43246	45062
lb/hp		114	119	117	122
Weight Split (%)		57 / 43	54 / 46	55 / 45	52 / 48

Performance Ballasting [Ag]

IF710/70R38 - Duals - Cast/Steel					
Model		9370R			
Hitch/PTO Option		No/No	Yes/No	Yes/No	Yes/Yes
Weight kg (lb)	Front	24196	23942	23856	23603
	Rear	18263	20333	19526	21596
	Total	42459	44275	43383	45199
lb/hp		115	120	117	122
Weight Split (%)		57 / 43	54 / 46	55 / 45	52 / 48

Group 48

480/80R50 - Duals - Cast/Steel					
Model		9370R			
Hitch/PTO Option		No/No	Yes/No	Yes/No	Yes/Yes
Weight kg (lb)	Front	23466	23212	23126	22871
	Rear	17533	19601	18797	20869
	Total	40999	42814	41923	43740
lb/hp		111	116	113	118
Weight Split (%)		57 / 43	54 / 46	55 / 45	52 / 48

480/80R50 - Triples - Cast/Steel/Steel					
Model		9370R			
Hitch/PTO Option		No/No	Yes/No	Yes/No	Yes/Yes
Weight kg (lb)	Front	25847	25593	25507	25252
	Rear	19914	21982	21178	23250
	Total	45761	47576	46685	48502
lb/hp		131	129	126	131
Weight Split (%)		57 / 43	54 / 46	55 / 45	52 / 48

IF480/80R50 - Duals - Cast/Steel					
Model		9370R			
Hitch/PTO Option		No/No	Yes/No	Yes/No	Yes/Yes
Weight kg (lb)	Front	23951	23697	23611	23356
	Rear	18018	20086	19282	21354
	Total	41969	43784	42893	44710
lb/hp		113	118	116	120
Weight Split (%)		57 / 43	54 / 46	55 / 45	52 / 48

IF480/80R50 - Triples - Cast/Steel/Steel					
Model		9370R			
Hitch/PTO Option		No/No	Yes/No	Yes/No	Yes/Yes
Weight kg (lb)	Front	26552	26299	26213	25957
	Rear	20620	22688	21883	23955
	Total	47172	48987	48096	49913
lb/hp		127	132	130	135
Weight Split (%)		56 / 44	54 / 46	55 / 45	52 / 48

Performance Ballasting [Ag]

520/85R46 - Triples - Cast/Steel/Steel					
Model		9370R			
Hitch/PTO Option		No/No	Yes/No	Yes/No	Yes/Yes
Weight kg (lb)	Front	26067	25814	25728	25472
	Rear	20135	22203	21398	23470
	Total	46202	48017	47126	48943
lb/hp		125	130	127	132
Weight Split (%)		56 / 44	54 / 46	55 / 45	52 / 48

620/70R46 - Duals - Cast/Steel					
Model		9370R			
Hitch/PTO Option		No/No	Yes/No	Yes/No	Yes/Yes
Weight kg (lb)	Front	23775	23521	23435	23179
	Rear	17842	19910	19105	21178
	Total	41617	43431	42540	44357
lb/hp		112	117	115	120
Weight Split (%)		57 / 43	54 / 46	55 / 45	52 / 48

650/85R38 - Duals - Cast/Steel					
Model		9370R			
Hitch/PTO Option		No/No	Yes/No	Yes/No	Yes/Yes
Weight kg (lb)	Front	23973	23720	23634	23378
	Rear	18040	20111	19583	21376
	Total	42013	43830	42937	44754
lb/hp		114	118	116	121
Weight Split (%)		57 / 43	54 / 46	55 / 45	52 / 48

IF650/85R38 - Duals - Cast/Steel					
Model		9370R			
Hitch/PTO Option		No/No	Yes/No	Yes/No	Yes/Yes
Weight kg (lb)	Front	24674	24249	24163	23907
	Rear	18570	20637	19833	21905
	Total	43072	44886	43995	45812
lb/hp		119	121	119	124
Weight Split (%)		55 / 45	54 / 46	55 / 45	52 / 48

Group 48

710/70R42 - Duals - Cast/Steel					
Model		9370R			
Hitch/PTO Option		No/No	Yes/No	Yes/No	Yes/Yes
Weight kg (lb)	Front	24568	24315	24229	23973
	Rear	18636	20704	19899	22110
	Total	43204	45018	44128	45944
lb/hp		117	122	119	124
Weight Split (%)		57 / 43	54 / 46	55 / 46	52 / 48

Performance Ballasting [Ag]

IF710/70R42 - Duals - Cast/Steel					
Model		9370R			
Hitch/PTO Option		No/No	Yes/No	Yes/No	Yes/Yes
Weight kg (lb)	Front	24877	24623	24537	24282
	Rear	18944	21012	20208	22280
	Total	43821	45636	44745	46562
lb/hp		118	123	121	126
Weight Split (%)		57 / 43	54 / 46	55 / 45	52 / 48

800/70R38 - Duals - Cast/Steel					
Model		9370R			
Hitch/PTO Option		No/No	Yes/No	Yes/No	Yes/Yes
Weight kg (lb)	Front	24866	24866	24919	24634
	Rear	21255	21255	20111	22213
	Total	44306	46121	45030	46847
lb/hp		120	125	122	127
Weight Split (%)		54 / 46	54 / 46	55 / 45	53 / 47

IF800/70R38 - Duals - Cast/Steel					
Model		9370R			
Hitch/PTO Option		No/No	Yes/No	Yes/No	Yes/Yes
Weight kg (lb)	Front	24943	24690	24604	24348
	Rear	19010	21078	20274	22346
	Total	43954	45768	44877	46694
lb/hp		119	124	121	126
Weight Split (%)		57 / 43	54 / 46	55 / 45	52 / 48

LSW800/55R46 - Duals - Cast/Steel					
Model		9370R			
Hitch/PTO Option		No/No	Yes/No	Yes/No	Yes/Yes
Weight kg (lb)	Front	25062	24809	24723	24467
	Rear	19129	21197	20393	22465
	Total	44192	46006	45115	46932
lb/hp		119	124	121	126
Weight Split (%)		57 / 43	54 / 46	55 / 45	52 / 48

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Unballasted Tractor Weight Chart (9420R, 9470R, and 9520R)

Divide weight in pounds by 2.2 to obtain kg.

NOTE: Unballasted weights are calculated by averaging and are figured based on tractor with a full tank of fuel. Each tractor will be different. Have your tractor weighed for exact weight splits.

Performance Ballasting [Ag]

Group 47

480/80R46 - Triples - Cast/Steel/Steel					
Model		9420R, 9470R, and 9520R			
Option	Hitch	No	Yes	Yes	Yes
	PTO	No	No	No	Yes
Weight kg (lb)	Front	25918	25662	25576	25322
	Rear	19775	21848	21043	23111
	Total	45693	47510	46619	48433
lb/hp		88	91	90	93
Weight Split (%)		57 / 43	54 / 46	55 / 45	52 / 48

520/85R42 - Triples - Cast/Steel/Steel					
Model		9420R, 9470R, and 9520R			
Option	Hitch	No	Yes	Yes	Yes
	PTO	No	No	No	Yes
Weight kg (lb)	Front	26173	25918	25832	25578
	Rear	20031	22104	21299	23367
	Total	46204	48021	47130	48945
lb/hp		89	92	91	94
Weight Split (%)		57 / 43	54 / 46	55 / 45	52 / 48

620/70R42 - Duals - Cast/Steel					
Model		9420R, 9470R, and 9520R			
Option	Hitch	No	Yes	Yes	Yes
	PTO	No	No	No	Yes
Weight kg (lb)	Front	24718	24462	24376	24123
	Rear	18576	20648	19844	21912
	Total	43294	45111	44220	46035
lb/hp		83	87	85	89
Weight Split (%)		57 / 43	54 / 46	55 / 45	52 / 48

710/70R38 - Duals - Cast/Steel					
Model		9420R, 9470R, and 9520R			
Option	Hitch	No	Yes	Yes	Yes
	PTO	No	No	No	Yes
Weight kg (lb)	Front	25225	24970	24884	24630
	Rear	19083	21156	20351	22419
	Total	44308	46125	45234	47049
lb/hp		85	89	87	90
Weight Split (%)		57 / 43	54 / 46	55 / 45	52 / 48

IF710/70R38 - Duals - Cast/Steel					
Model		9420R, 9470R, and 9520R			
Option	Hitch	No	Yes	Yes	Yes
	PTO	No	No	No	Yes
Weight kg (lb)	Front	25294	25040	24954	24698

Performance Ballasting [Ag]

IF710/70R38 - Duals - Cast/Steel					
Model		9420R, 9470R, and 9520R			
Option	Hitch	No	Yes	Yes	Yes
	PTO	No	No	No	Yes
Weight kg (lb)	Front	19154	21222	20417	22489
	Rear	44447	46262	45371	47188
	Total				
lb/hp		85	89	87	91
Weight Split (%)		57 / 43	54 / 46	55 / 45	52 / 48

Group 48

IF480/80R50 - Duals - Cast/Steel					
Model		9420R, 9470R, and 9520R			
Option	Hitch	No	Yes	Yes	Yes
	PTO	No	No	No	Yes
Weight kg (lb)	Front	25049	24793	24707	24454
	Rear	18907	20979	20174	22242
	Total	43956	45772	44882	46696
lb/hp		85	88	86	90
Weight Split (%)		57 / 43	54 / 46	55 / 45	52 / 48

520/85R46 - Triples - Cast/Steel/Steel					
Model		9420R, 9470R, and 9520R			
Option	Hitch	No	Yes	Yes	Yes
	PTO	No	No	No	Yes
Weight kg (lb)	Front	27165	26910	26824	26570
	Rear	21023	23096	22291	24359
	Total	48189	50005	49115	50929
lb/hp		93	96	94	98
Weight Split (%)		56 / 44	55 / 45	55 / 45	52 / 48

620/70R46 - Duals - Cast/Steel					
Model		9420R, 9470R, and 9520R			
Option	Hitch	No	Yes	Yes	Yes
	PTO	No	No	No	Yes
Weight kg (lb)	Front	24873	24617	24531	24277
	Rear	18730	20803	19998	22066
	Total	43603	45420	44529	46343
lb/hp		84	87	86	89
Weight Split (%)		57 / 43	54 / 46	55 / 45	52 / 48

650/85R38 - Duals - Cast/Steel					
Model		9420R, 9470R, and 9520R			
Option	Hitch	No	Yes	Yes	Yes
	PTO	No	No	No	Yes
Weight kg (lb)	Front	25071	24815	24729	24476
	Rear	18929	21001	20197	22264
	Total	44000	45816	44926	46740
lb/hp		85	88	86	90

Performance Ballasting [Ag]

650/85R38 - Duals - Cast/Steel					
Model		9420R, 9470R, and 9520R			
Option	Hitch	No	Yes	Yes	Yes
	PTO	No	No	No	Yes
Weight Split (%)		57 / 43	55 / 45	55 / 45	52 / 48

IF650/85R38 - Duals - Cast/Steel					
Model		9420R, 9470R, and 9520R			
Option	Hitch	No	Yes	Yes	Yes
	PTO	No	No	No	Yes
Weight kg (lb)	Front	25600	25344	25258	25005
	Rear	19458	21530	20726	22794
	Total	45058	46875	45984	47798
lb/hp		87	90	88	95
Weight Split (%)		57 / 43	54 / 46	55 / 45	53 / 47

710/70R42 - Duals - Cast/Steel					
Model		9420R, 9470R, and 9520R			
Option	Hitch	No	Yes	Yes	Yes
	PTO	No	No	No	Yes
Weight kg (lb)	Front	25666	25410	25324	25071
	Rear	19524	21596	20792	22860
	Total	45190	47007	46116	47931
lb/hp		87	90	89	92
Weight Split (%)		57 / 43	54 / 46	55 / 45	52 / 48

IF710/70R42 - Duals - Cast/Steel					
Model		9420R, 9470R, and 9520R			
Option	Hitch	No	Yes	Yes	Yes
	PTO	No	No	No	Yes
Weight kg (lb)	Front	25975	25719	25633	25380
	Rear	19833	21905	21100	23168
	Total	45808	47624	46734	48548
lb/hp		88	92	90	93
Weight Split (%)		57 / 43	54 / 46	55 / 45	52 / 48

800/70R38 - Duals - Cast/Steel					
Model		9420R, 9470R, and 9520R			
Option	Hitch	No	Yes	Yes	Yes
	PTO	No	No	No	Yes
Weight kg (lb)	Front	26217	25962	25876	25622
	Rear	20075	22148	21343	23411
	Total	46293	48109	47219	49033
lb/hp		89	93	91	94
Weight Split (%)		57 / 43	54 / 46	55 / 45	52 / 48

Performance Ballasting [Ag]

IF800/70R38 - Duals - Cast/Steel					
Model		9420R, 9470R, and 9520R			
Option	Hitch	No	Yes	Yes	Yes
	PTO	No	No	No	Yes
Weight kg (lb)	Front	26041	25785	25699	25446
	Rear	19899	21971	22214	23234
	Total	45940	47756	46866	48680
lb/hp		88	92	90	94
Weight Split (%)		57 / 43	54 / 46	55 / 45	52 / 48

LSW800/55R46 - Duals - Cast/Steel					
Model		9420R, 9470R, and 9520R			
Option	Hitch	No	Yes	Yes	Yes
	PTO	No	No	No	Yes
Weight kg (lb)	Front	26160	25904	25818	25565
	Rear	20018	22090	22333	23353
	Total	46178	47994	47104	48918
lb/hp		89	92	91	94
Weight Split (%)		56 / 44	54 / 46	55 / 45	52 / 48

480/80R50 - Triples - Cast/Steel/Steel					
Model		9420R, 9470R, and 9520R			
Option	Hitch	No	Yes	Yes	Yes
	PTO	No	No	No	Yes
Weight kg (lb)	Front	26945	26689	26603	26350
	Rear	20803	22875	22070	24138
	Total	47748	49564	48674	50488
lb/hp		92	95	94	97
Weight Split (%)		56 / 44	54 / 46	55 / 45	52 / 48

IF480/80R50 - Triples - Cast/Steel/Steel					
Model		9420R, 9470R, and 9520R			
Option	Hitch	No	Yes	Yes	Yes
	PTO	No	No	No	Yes
Weight kg (lb)	Front	27650	27395	27309	27055
	Rear	21508	23581	22776	24844
	Total	49159	50975	50085	51899
lb/hp		95	98	96	100
Weight Split (%)		56 / 44	54 / 46	55 / 45	52 / 48

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Unballasted Tractor Weight Chart (9570R and 9620R)

NOTE: Unballasted weights are calculated by averaging and are figured based on tractor with a full tank of fuel. Each tractor will be different. Have your tractor weighed for exact weight splits.

All values for 9570R and 9620R are the same except for lb/hp. This is shown as 9570R value first, followed by 9620R value.

Divide weight in pounds by 2.2 to obtain kg.

Performance Ballasting [Ag]

Tractor	9570R and 9620R OPTIONS							
	NO HITCH NO PTO	HITCH - NO PTO	PTO - NO HITCH	HITCH and PTO	NO HITCH NO PTO	HITCH - NO PTO	PTO - NO HITCH	HITCH and PTO
480/80R46 - Triples - Cast/Steel/Steel				520/85R42 - Triples - Cast/Steel/Steel				
FRONT	27452	27376	27112	26859	25975	25721	25635	25382
REAR	21665	22931	22928	24998	20188	22258	21451	23521
TOTAL	49117	50933	50040	51857	46163	47979	47086	48903
Lb/hp	86,79	89,82	88,81	84,91	81,74	84,77	76,83	86,79
FRONT	56%	54%	54%	53%	54%	54%	54%	52%
REAR	44%	46%	46%	47%	46%	46%	46%	48%
620/70R42 - Duals - Cast/Steel				710/70R38 - Duals - Cast/Steel				
FRONT	24520	24266	24180	23927	25027	24773	24687	24434
REAR	18733	20803	19996	22066	19240	21310	20503	22573
TOTAL	43252	45069	44176	45993	44267	46083	45190	47007
Lb/hp	76,70	79,73	78,71	81,74	78,71	81,74	79,73	82,76
FRONT	57%	54%	55%	52%	57%	54%	55%	52%
REAR	43%	46%	45%	48%	43%	46%	45%	48%
IF710/70R38 - Duals - Cast/Steel				520/85R46 - Triples - Cast/Steel/Steel				
FRONT	25097	24842	24756	24502	26967	26713	26627	26374
REAR	19306	21378	22283	22641	21180	23250	22443	24513
TOTAL	44403	46220	45329	47144	48147	49963	49070	50887
Lb/hp	78,72	81,75	78,72	83,76	84,78	88,81	86,79	89,82
FRONT	57%	54%	57%	52%	56%	54%	54%	53%
REAR	43%	46%	43%	48%	44%	46%	46%	47%
620/70R46 - Duals - Cast/Steel				650/85R38 - Duals - Cast/Steel				
FRONT	24674	24421	24335	24081	24873	24619	24533	24279
REAR	18887	20957	20150	22220	19085	21156	20349	22419
TOTAL	43561	45378	44485	46301	43958	45775	44482	46698
Lb/hp	76,70	80,73	78,72	81,75	77,71	80,74	79,72	82,75
FRONT	57%	54%	55%	52%	57%	54%	55%	52%
REAR	43%	46%	45%	48%	43%	46%	45%	48%
IF650/85R38 - Duals - Cast/Steel				710/70R42 - Duals - Cast/Steel				
FRONT	25402	25148	25062	25402	25468	25214	25128	24875
REAR	19615	21685	20878	19615	19681	21751	20944	23014
TOTAL	45016	46833	45940	45016	45148	46965	46072	47889
Lb/hp	73,79	82,76	81,74	79,73	73,73	82,76	81,74	84,77
FRONT	56%	54%	55%	56%	56%	54%	55%	52%
REAR	44%	46%	45%	44%	44%	46%	45%	48%

Tractor	9570R and 9620R OPTIONS							
	NO HITCH NO PTO	HITCH - NO PTO	PTO - NO HITCH	HITCH and PTO	NO HITCH NO PTO	HITCH - NO PTO	PTO - NO HITCH	HITCH and PTO
IF710/70R42 - Duals - Cast/Steel				800/70R38 - Duals - Cast/Steel				
FRONT	25776	25523	25437	25183	26019	25765	25679	25426
REAR	19989	22059	21253	23323	20232	22302	21495	23565
TOTAL	45766	47582	46689	48506	46251	48067	47174	48991
Lb/hp	80,74	83,77	82,75	85,78	81,75	84,78	83,76	86,79

Performance Ballasting [Ag]

Tractor	9570R and 9620R OPTIONS							
	NO HITCH NO PTO	HITCH - NO PTO	PTO - NO HITCH	HITCH and PTO	NO HITCH NO PTO	HITCH - NO PTO	PTO - NO HITCH	HITCH and PTO
FRONT	56%	54%	55%	52%	56%	54%	54%	52%
REAR	44%	46%	45%	48%	44%	46%	46%	48%
IF800/70R38 - Duals - Cast/Steel				LSW800/55R46 - Duals - Cast/Steel				
FRONT	25843	25589	25503	25250	25962	25708	25622	25369
REAR	20055	22126	21319	23389	20174	22245	21438	23508
TOTAL	45898	47715	46822	48638	46136	47953	47060	48877
Lb/hp	81,74	84,77	82,76	85,78	81,74	84,77	83,74	86,79
FRONT	56%	54%	55%	52%	56%	54%	54%	52%
REAR	44%	46%	45%	48%	44%	46%	46%	48%
480/80R50 - Triples - Cast/Steel/Steel				IF480/80R50 - Triples - Cast/Steel/Steel				
FRONT	26746	26493	26407	26153	27452	27198	27112	28772
REAR	20959	23029	22223	24293	21665	23735	22928	25784
TOTAL	47706	49522	48630	50446	51814	50933	50040	51857
Lb/hp	77,84	87,80	85,78	81,89	86,79	89,82	88,81	91,84
FRONT	56%	54%	54%	52%	56%	54%	56%	52%
REAR	44%	46%	46%	48%	44%	46%	46%	48%

AK08008,000011A-19-25MAR21

Performance Ballasting [Scraper]

General Performance Guidelines

Attaining Optimum Performance

Before adding ballast to your tractor, consider these important factors to attain optimum performance:

- Total tractor weight and static weight split (percent of static weight on front and rear axles)
- Type of ballast used (cast weight or liquid)
- Tire inflation pressures

Recommended Weight Split

Tractor should be weighed to accurately determine amount and type of ballast. Weight should be distributed depending on how tractor is equipped and the operating conditions.

Recommended weight splits (percent):

Implement	Weight Split %	
	Front	Rear
Towed Implement and Dolly-Wheel Scrapers	51—55	49—45
High Load Transfer Implement (Scrapers without Dolly-Wheel)	65—70	35—30

Correct Ballast

Use no more ballast than necessary, and adjust ballast as tractor use changes.

For correct ballast, measure amount of travel reduction (% slip) of the drive wheels. Under normal field conditions, travel reduction should be 8—12 percent. Add more weight to drive wheels if slip is excessive. If there is less than minimum percent slip, ballast should be removed, unless needed for stability.

Correct ballast allows for most efficient use of tractor's available power and will not make up for an implement which is too big for the tractor. Adding ballast will not improve performance, if engine speed falls below rated speed and/or wheel slip is beyond the recommended range.

Correct Inflation Pressure

Inflate tires to correct pressure to carry load on each axle for optimum tractive performance.

Selecting Ballast Carefully

Factors determining amount of ballast:

- Soil surface—Loose or firm
- Type of implement—Integral/semi-integral or towed
- Travel speed—Slow or fast
- Tractor power output—Partial or full load
- Tires—Single or dual; small or large

Pulling a lighter load at a higher speed is more

economical and more efficient than pulling heavier loads at a lower speed.

Too Little Ballast	Too Much Ballast
Excessive wheel spin	Soil compaction
Power loss	Power loss
Tire wear	Increased load
Fuel waste	Fuel waste
Lower productivity	Lower productivity

Ballast Limitations

IMPORTANT: Tractor weight exceeding heavy ballast limits should be avoided and can void the warranty due to "overload" conditions.

Ballast should be limited by the lowest of either tire capacity or tractor capacity.

Carrying capacity of each tire should not be exceeded. If a greater amount of weight is needed, larger duals should be considered.

AK08008,000011B-19-15NOV19

Determining Maximum Ballast

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

To extend drivetrain life and avoid excessive soil compaction and rolling resistance, avoid adding too much ballast. Never add ballast that results in continuous full-power loads below 6.6 km/h (4.1 mph).

NOTE: For tractors with duals, maximum ballast is not normally limited by tire carrying capacity.

Use appropriate ballast for a particular operating condition. Tractors should have only enough ballast to maintain safe steering control.

Adjust ballast as tractor use changes. For example, adjust ballast when changing from mounted to towed implements.

Remove ballast if tractor engine labors when pulling heavy loads below 6.6 km/h (4.1 mph).

AK08008,000011C-19-15NOV19

Ballasting for Engine Horsepower

IMPORTANT: Never add ballast that results in continuous full-power loads below 6.6 km/h (4.1 mph). Continued operation below 6.6 km/h (4.1 mph) at full load shortens drivetrain life.

Do not ballast 9470R, 9520R, 9570R, or 9620R tractors over 24494 kg (54000 lb) or total load capacity of tires, whichever is least.

NOTE: Radar is recommended for continual wheel slip monitoring. Wheel slip can be manually checked, but can only show slip in one area of field. Knowing correct average wheel slip is necessary to maintain optimum tractive performance.

Correct weight split for application being performed must be maintained when adding or removing ballast (See General Performance Guidelines in this section of this Operator's Manual). Cast weight is preferred to achieve best tractive performance.

Use engine horsepower combined with ballast needed for a particular job—light, medium, or heavy as a guide when ballasting tractors. Start process with lightest ballast that can do the job. Then add ballast for desired performance.

More or less weight is necessary when different travel speeds are used. Higher speeds do not require as much weight. Final indication of correct ballast is wheel slip measured in field.

Add more weight if slip is excessive. Remove weight if there is less than minimum percent slip.

If implement pull at full load is 8.8 km/h (5.5 mph) or more, tractor can operate unballasted. Medium ballast is a better choice, when operating at full load between 7.2 and 8.8 km/h (4.5 and 5.5 mph). Heavy ballast can only be used for few implements (such as deep rippers) which require full-load traction below 7.2 km/h (4.5 mph).

Tractor	Engine kW (hp)	kg/kW (lb/hp) ^a	Total kg (lb) ^b
9470R	346 (470)	51—73 (84—120)	17540—24494 (38669—54000)
9520R	382 (520)	51—73 (84—120)	17540—24494 (38669—54000)
9570R	419 (570)	46—65 (76—113)	17540—24494 (38669—54000)
9620R	456 (620)	46—65 (76—113)	17540—24494 (38669—54000)

^aMinimum kg/kW (lb/hp) is calculated using unballasted tractor weight, base wheels, tires, and no fuel. A full tank of fuel for 9470R, 9520R, 9570R, and 9620R 1552 L (400 gal) weighs 1288 kg (2840 lb).

^bMaximum ballast for 9470R, 9520R, 9570R, and 9620R is 24494 kg (54000 lb).

working speeds under 16 km/h (10 mph). Power hop occurs when tractors pulling towed implements at medium to high draft loads in loose, dry soil on top of a firm base, and/or when climbing hills. As a result, tractor cannot maintain pull due to loss of traction, rough ride, or both.

Adjust inflation pressures *only* after following the performance guidelines (recommended weight split, correct ballast, and correct inflation pressures):

1. A) Increase **FRONT** tire pressure by 41—55 kPa (0.4—0.6 bar) (6—8 psi) in 2 psi increments over rated pressure for axle load. Follow steps 2 and 3.
 - B) If power hop persists, reduce front tire pressure to rated pressure. Then raise **REAR** tire inflation pressure by 41-55 kPa (0.4-0.6 bar) (6-8 psi) in 2 psi increments above rated pressure for axle load. Follow steps 2, 3, and 4.

NOTE: Raising front or rear inflation pressure depends on weight splits, operating conditions (steep slopes), or travel speeds. On steep slopes and operating speeds above 8.8 km/h (5.5 mph) raising rear tire pressure is recommended.

*Tires on one of two axles **must** remain at rated pressure.*

Ballast tractor so no more than 55 percent of total tractor weight is on front, for best power hop control.

2. Remove any liquid ballast and replace with cast weight equivalent, if power hop remains a problem.
3. Liquid ballast has a stiffening effect that causes a rough ride. If liquid ballast is used in rear tires, *all tires on axle must be filled to same level* which must not exceed 40 percent fill.

IMPORTANT: Do not use liquid ballast in scraper REAR tires, unless used with dolly wheels.

4. If power hop remains a problem, see your John Deere Dealer TM.

NOTE: Recommendations to control power hop for tractors used in tillage application where front weight split desired is 55%. For scraper use without dolly wheels, tractor requires 65—75% front weight split. Tire pressure adjustments must take into account tractor load, as well as scraper added drawbar load.

Controlling Power Hop

Power hop is a condition where tractor bounces at field

Calculating Ballast—Without Dolly on Drawbar Hitch

Tractors pulling non-dolly wheel scrapers must be ballasted so that 65-70% of total static weight of tractor

is on front axle. No rear ballast is recommended, as loading of scraper provides all rear axle weight required. Add enough weight to front axle to achieve desired weight split. Chart illustrates how weight splits between front and rear axle are affected as front axle weight is increased. Starting weight split is that for a base weight (standard) 4WD tractor. Then, to increase total weight per engine horsepower, add weight to front axle only.

Add to Front Axle kg (lb)	Weight Split - F/R %
No Extra Weight	59 / 41
454 (1000)	60 / 40
907 (2000)	61 / 39
1361 (3000)	62 / 38
1814 (4000)	63 / 37
2268 (5000)	64 / 36
2722 (6000)	65 / 35
4082 (9000)	72 / 28

Cast Weights Required for Ballast Recommendation	
Ballast Recommendation kg (lb)	Cast Weights
964 (2126)	one 72 kg (159 lb) plus two 205 kg (452 lb) weights on each dual wheel
1250 (2756)	one 625 kg (1378 lb) weight each inner wheel
1784 (3934)	one 205 kg (452 lb) installed on each inside/inner and one 72 kg (159 lb) plus three 205 kg (452 lb) weights on each front
2624 (5786)	one 625 kg (1378 lb) installed on each inside/inner and one 72 kg (159 lb) plus three 205 kg (452 lb) weights on each dual
3962 (8734)	2644 kg (5830 lb) weight listed in chart plus one front weight support/frame and 22 Quik-Tatch™ weights. ^a

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^aSupport and front weights add weight to front axle and remove weight from rear axle due to leveraging.

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Calculating Ballast—With Dolly - Wheel Scrapers or Drawn Tillage Implements

Add enough weight to rear axle to achieve desired weight split. Chart below illustrates how weight splits between front and rear axle are affected as rear axle weight is increased. Starting weight split is that for a base weight (standard) 4WD tractor.

Add to Rear Axle kg (lb)	Weight Split %
No Extra Weight	59 / 41
453 (1000)	58 / 42
907 (2000)	57 / 43

Add to Rear Axle kg (lb)	Weight Split %
1361 (3000)	55 / 45
1814 (4000)	54 / 46
2268 (5000)	53 / 47
2723 (6000)	52 / 48
3629 (8000)	49 / 51

Cast Weights Required for Ballast Recommendation	
Ballast Recommendation kg (lb)	Cast Weights Required
554 (1222)	one 72 kg (159 lb) plus one 205 kg (452 lb) weights on each dual wheel
964 (2126)	one 72 kg (159 lb) plus two 205 kg (452 lb) weights on each dual wheel
1250 (2756)	one 625 kg (1378 lb) weight on each inner wheel
1784 (3934)	one 205 kg (452 lb) installed on each inside/inner and one 72 kg (159 lb) plus three 205 kg (452 lb) weights on each dual
2624 (5786)	one 625 kg (1378 lb) installed on each inside/inner and one 72 kg (159 lb) plus three 205 kg (452 lb) weights on each dual
3627 (7997)	2624 kg (5786 lb) weight listed above plus one rear fender weight support and 20 Quik-Tatch weights Quik-Tatch™

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Recommended Ballast—76x50.00B32 and Logger Tires-Singles

NOTE: Weight listed are based on full tank of fuel. These are good starting weight combinations and can be adjusted up/down depending upon application, conditions, etc.

Tractors for scraper (without dolly wheels) application must be ballasted between 65 to 75% Front Weight Split. Chart lists factory recommended ballast and resulting weight split.

Cast Weights Required for Ballast Recommendation kg (lb)	
Ballast Recommendation kg (lb)	Cast Weights Required
1111 (2450)	1 Front weight support/frame and 16 Quik-Tatch™ weights
2014 (4440)	1 Front weight support/frame and 36 Quik-Tatch™ weights
4309 (9500)	Additional weight could be obtained if needed by adding 75% liquid ballast in front tires

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Performance Ballasting [Scraper]

Factory Recommendation for Overall Best Performance kg (lb)					
Model	No Front Weights Added kg (lb)	Front Weight kg (lb)	Rear Weight kg (lb)	Weight Split %	kg/kW (lb/HP)
9470R	0 (0)	11177 (24641)	6958 (15340)	62 / 38	53 (87)
9520R	0 (0)	11177 (24641)	6958 (15340)	62 / 38	47 (78)
9570R	0 (0)	11177 (24641)	6958 (15340)	62 / 38	43 (71)
9620R	0 (0)	11177 (24641)	6958 (15340)	62 / 38	43 (71)

Factory Recommendation for Overall Best Performance kg (lb)					
Model	16 Front Weights Added kg (lb)	Front Weight kg (lb)	Rear Weight kg (lb)	Weight Split %	kg/kW (lb/HP)
9470R	1111 (2450)	13037 (28741)	6210 (13690)	68 / 32	56 (92)
9520R	1111 (2450)	13037 (28741)	6210 (13690)	68 / 32	50 (83)
9570R	1111 (2450)	13037 (28741)	6210 (13690)	68 / 32	46 (76)
9620R	1111 (2450)	13037 (28741)	6210 (13690)	68 / 32	46 (76)

Factory Recommendation for Overall Best Performance kg (lb)					
Model	36 Front Weights Added kg (lb)	Front Weight kg (lb)	Rear Weight kg (lb)	Weight Split %	kg/kW (Lb./HP)
9470R	2014 (4440)	14597 (32181)	5552 (12240)	72 / 28	59 (97)
9520R	2014 (4440)	14597 (32181)	5552 (12240)	72 / 28	53 (87)
9570R	2014 (4440)	14597 (32181)	5552 (12240)	72 / 28	48 (79)
9620R	2014 (4440)	14597 (32181)	5552 (12240)	72 / 28	48 (79)
Any Model	Additional 4309 (9500)	Additional 4309 (9500)	0 (0)	73 / 27	60 to 74 (98 to 122)

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Recommended Ballast—Dual Radial Tires

Tractors for scraper (without dolly wheels) application should be ballasted between 65 to 75% Front Weight Split. Chart below lists factory recommended ballast and resulting weight split. These are good starting weight combinations and may be adjusted up/down depending upon application, conditions, etc. Weight estimates based on 710/70R38 tires and full tank of fuel. Add additional 639 kg (1408 lb) total to tractor if equipped with 710/70R42 tires.

Factory Recommendation for Overall Best Performance				
Model	Weight Split %	kg/kW (lb/HP)	Ballast Added kg (lb)	
			Front	Rear
9470R	63 / 37	59 (97)	1250 (2756)	0 (0)
9520R	65 / 35	57 (94)	2624 (5786)	0 (0)

Factory Recommendation for Overall Best Performance				
Model	Weight Split %	kg/kW (lb/HP)	Ballast Added kg (lb)	
			Front	Rear
9570R	65 / 35	51 (84)	2624 (5786)	0 (0)
9620R	72 / 28	54 (89)	3962 (8734)	0 (0)

Cast Weights Required for Ballast Recommendation kg (lb)	
Ballast Recommendation kg (lb)	Cast Weights Required
954 (2126)	one 72 kg (159 lb) plus two 205 kg (452 lb) weights on each dual wheel
1250 (2756)	one 625 kg (1378 lb) weight each inner wheel
1784 (3934)	one 205 kg (452 lb) installed on each inside/inner and one 72 kg (159 lb) plus three 205 kg (452 lb) weights on each front

Performance Ballasting [Scraper]

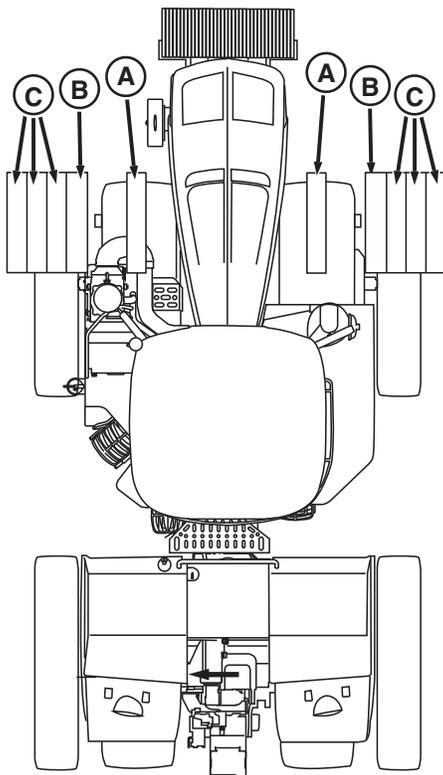
Cast Weights Required for Ballast Recommendation kg (lb)	
Ballast Recommendation kg (lb)	Cast Weights Required
2624 (5786)	one 625 kg (1378 lb) installed on each inside/inner and one 72 kg (159 lb) plus three 205 kg (452 lb) weights on each dual
3942 (8734)	2624 kg (5786 lb) weight listed above plus one front weight support and 22 Quik-Tatch™ weights

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Scraper Ballast Package with Duals

For applications where additional front axle ballast is required.



RXA0160300—UN—25JUL17

This ballast package includes:

- two 625 kg (1378 lb) weights (A) to inside of inner wheel on front axle,
- two 72 kg (159 lb) starter weights (B), and
- six 205 kg (452 lb) weights (C) on outside dual wheels on front axle.

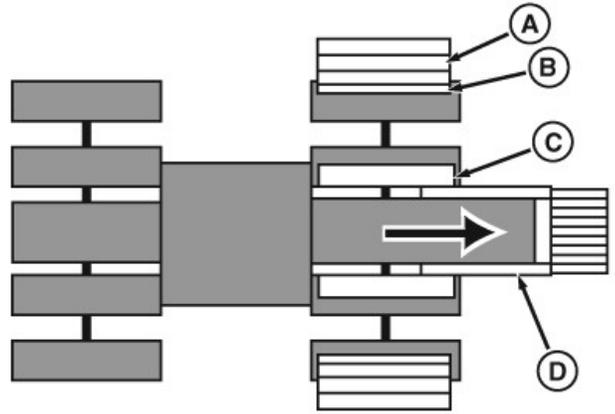
This combination adds 2624 kg (5786 lb) to total weight of tractor.

Approximately 65% front 35% rear weight split.

lb/hp of the tractor varies depending on model of tractor.

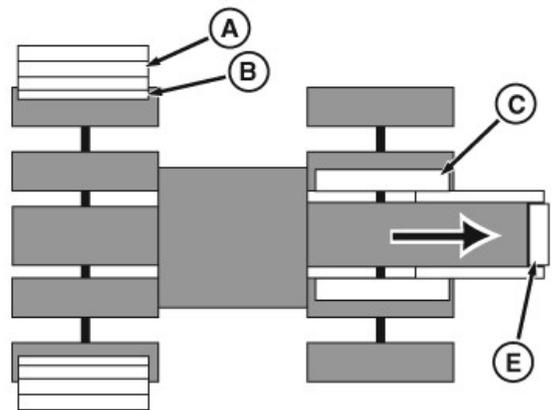
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Recommended Ballast—Scraper/Ag Combination Tractor With Radial Tires



RXA0143889—UN—22JUL14

Scraper Version



RXA0143890—UN—22JUL14

Agricultural Version

- A—Three 205 kg (452 lb) Outer Dual Weights (Each Side)
- B—One 72 kg (159 lb) Starter Dual Weight (Each Side)
- C—One 625 kg (1378 lb) Inner Drive Weight (Each Side)
- D—One Frame Weight Bracket and Front Weight Support with 22 Quik-Tatch Weights Quik-Tatch™
- E—Front Weight Support (Less Front Weights)

NOTE: Weights listed are based on 710/70R42 dual tires and full tank of fuel.

Tractors for scraper (without dolly wheels) application should be ballasted between 65 to 75% Front Weight Split.

Tractors for agricultural (drawn tillage or scraper with

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dolly wheels) application should be ballasted at 55% Front Weight Split.

Agriculture tractor application requires switching front outside duals with rear outside duals.

Dual Purpose Tractor Diagram		
Tractor Application	Approximate Weight kg (lb)	Front/Rear Weight Split %
Scraper	21681 (47798)	71 / 29
Agricultural	21590 (47598)	57 / 43

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Install weights on wheel. Tighten M16 bolts to 310 N·m (230 lb·ft) or M20 bolts to 610 N·m (450 lb·ft).

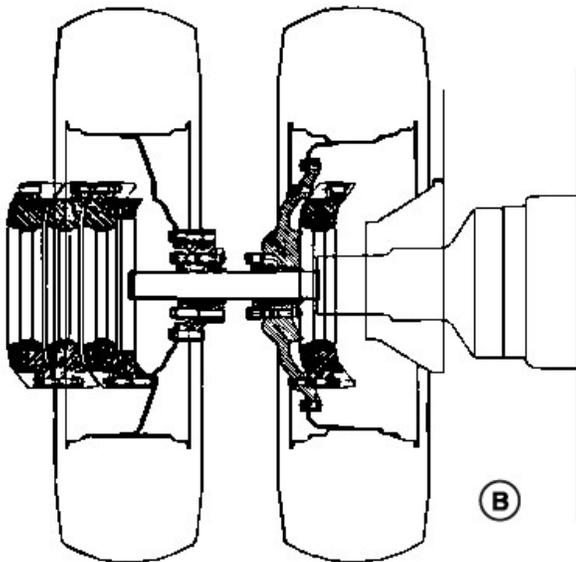
For additional weights, install bolts in previous weight. Rotate alternate weight to align bolts with weight holes.

Tighten bolts and then retighten after driving approximately 100 m (109 yd).

Retighten bolts after working 3 hours, 10 hours, and 250 hours.

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Using Cast Hub Wheel Weights



A—Dual Wheels (120 mm Axle)

RXA0160099—UN—06JUL17

CAUTION: When installing weights, use appropriate equipment or see your John Deere Dealer.

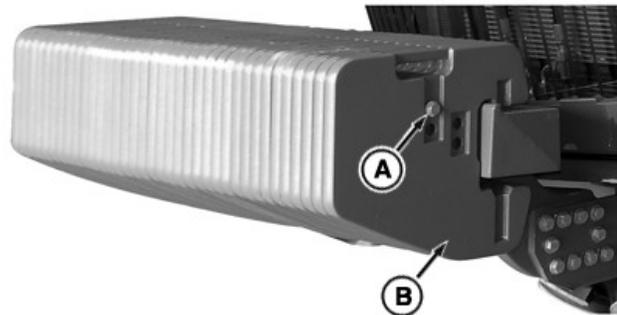
IMPORTANT: Inside wheel weight must have at least 25 mm (1 in) clearance between weight and tractor components. Do NOT stack more than 690 kg (1520 lb) of weights together—three 205 kg (452 lb) weights and one 72 kg (159 lb) weight.

Cast iron weights of 72 kg (159 lb), 205 kg (452 lb), or 625 kg (1378 lb) are available for cast or steel wheels. Weights can be installed on inside or outside of wheel. Also 625 kg (1378 lb) cast weights are available to be installed on inside of cast wheel. Use diagrams showing placement of weights or see your John Deere dealer.

Front Weight Frame

IMPORTANT: Front frame weight support is not intended to be used for pushing other tractors or implements and should not be used for securing chains or cables as tow points.

A field installed tow cable kit is available through John Deere Parts. If tow cable kit is installed on a tractor without front weight support, then support should also be ordered through service parts to attach cable onto front of tractor frame.



RXA0141895—UN—05JUN14

Front weights (B) are secured on support by a center pin, retainers, and long cap screws (A).

Front weight support extends out in front of tractor and has following effect on front axle weight and rear axle weight because of weight transfer effect:

	Weight kg (lb)		
	Actual	Transfer to Front Axle	Reduced From Rear Axle
Front Weight Support	389 (858)	+261 (+575)	-128 (-282)
26 Suitcase Weights	1118 (2465)	+1669 (+4538)	-879 (-1938)
Total	1507 (2904)	+2319 (+5113)	-948 (-2090)

	Weight kg (lb)		
	Actual	Transfer to Front Axle	Reduced From Rear Axle
Front Weight Support	389 (858)	+261 (+575)	-227 (-500)
36 Suitcase Weights	1548 (3413)	+3420 (+7540)	-1406 (-3100)
Total	1937 (4270)	+3681 (+8115)	-1633 (-3600)

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Implement and Scraper Size Guidelines

IMPORTANT: Operating tractor with three scrapers requires tractor be equipped with hydraulic trailer brakes. Reference Towed Loads and Transport with Ballast in Transport section of this Operator's Manual.

IMPORTANT: Under scraper or severe applications, tighten wheel bolts every 2 HOURS until all cap screws turn less than 1/4 turn. Then recheck torque daily until caps screws turn less than 1/8 turn and remain at 600 N·m (445 lb·ft). Single 76 x 50 B32 tires refer to Wheels, Tires, and Treads section of this Operator's Manual for proper torque procedure.

Towed Scrapers:

Follow manufacturers instruction in attaching and using scraper.

9R Tractor/Scraper Application Guidelines		
Scraper Size	Without Hydraulic Trailer Brakes	With Hydraulic Trailer Brakes
21 Yard	1	2
18 Yard and Smaller	2	3
Mixed Capacity Maximum Total	36 Yards	54 Yards

Front-Mounted Implements:

Non-Approved Uses	
Scrapers	Without proper tractor/scraper drawbar and frame/axle supports
Tiling Plows	Are not approved
Extreme Draft Loads	Requiring two tractors hooked in tandem
Tow Hooks	Adding tow hooks is not an option

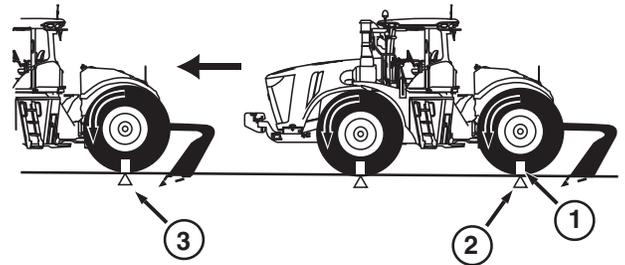
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Measure Wheel Slip—Manually

NOTE: Wheel slip can be easily determined, automatically, with Performance Monitor, if equipped with optional radar unit (see Controls and Instruments section of this Operator's Manual).

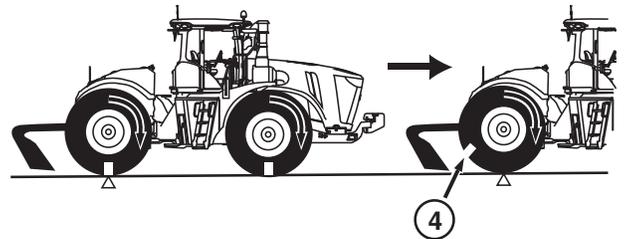
Available horsepower is greatly reduced when wheel slip drops below eight percent.

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



RXA0142586—UN—16JUN14

1. Mark a tire.
2. With tractor working, mark a starting point on ground.
3. Follow tractor and mark ground again where tire completes ten full revolutions.



RXA0142587—UN—16JUN14

4. At working speed, go back with implement raised. Count revolutions between same two marks.
5. Use second count and chart to determine slippage. Remember 8—12 percent is ideal.

Wheel Slippage Chart		
Wheel Revolutions (Step 4)	Percent of Slip	Result
10	0	Remove Ballast
9-1/2	5	
9-1/3	8	Proper Ballast
8-3/4	12	
8	20	Add Ballast

Wheel Slippage Chart		
Wheel Revolutions (Step 4)	Percent of Slip	Result
7-1/2	25	
7	30	

6. Adjust ballast or load to give 8—12 percent slippage at 6.6 km/h (4.1 mph), without exceeding maximum ballast level.

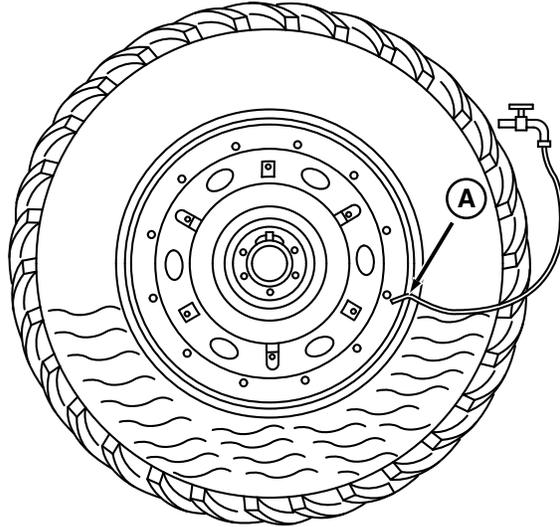
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Using Liquid Ballast

CAUTION: Avoid possible injury. Installing liquid ballast requires special equipment and training. See your John Deere dealer or a tire service store.

IMPORTANT: Liquid ballast is not preferred. Liquid weight greatly increases tire stiffness at lower operating pressures, and greatly reduces ride performance. If liquid ballast is used, maximum liquid fill of 40 percent is recommended for better tractor performance.

- Use of alcohol as liquid ballast is not recommended.
- In areas where freezing is not a problem and water is used as a ballast, multiply weight shown in table by 0.8.
- In areas where freezing is a problem use calcium chloride to prevent water from freezing. A mixture of 3.5 lb per gallon (0.42 kg per liter) of calcium chloride will not freeze solid above -50°F (-45°C).



RW71542—UN—05SEP00

Position valve (A) at 4 o'clock position to fill to 40% full. Position valve at 12 o'clock (top) position to fill to 75% full. 75% fill is the maximum allowed. Make sure all tires on the same axle have the same amount of liquid fill.

With liquid fill the volume of air creating pressure is low, so it is essential to regularly check the tire pressure. Check tire pressure at least once a month.

Tire Size	Liquid Weight per Tire kg (lb)	
	40% Fill	75% Fill
76x50.00B32 Singles	1165 (2717)	2184 (4815)
620/70R42	390 (859)	779 (1716)
620/70R46	422 (929)	843 (1858)
650/85R38 IF650/85R38	561 (1237)	597 (1316)
710/70R38 IF710/70R38	465 (1024)	929 (2048)
710/70R42 IF710/70R42	523 (1154)	1047 (2308)

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Worksheet to Calculate Ballast Changes

NOTE: Complete this entire worksheet before adding or changing any ballast, or air pressures.

IMPORTANT: Ballast must not exceed weight required to result in recommended percent slip at 6.6 km/h (4.1 mph) MINIMUM.

1. Determine desired weight split for your operation.

_____ % Front

2. Record desired weight of tractor (See Ballasting Guide).

3. Percent of Weight Split from step 1 multiplied by step 2 (Desired Weight) results in Total Front Weight. For Rear Weight, subtract front weight from Total Weight.

Front

Rear

Total

4. Weight of tractor as determined from Unballasted Tractor Weight Chart in this section of this Operator's Manual, or weight from scale.

5. Ballast needed (subtract tractor weight in step 4 from desired weight in step 3).

6. Add ballast.

7. Add ballast from step 6 to weights from step 4.

8. Set tire pressure for operating conditions using weights from step 7. (See appropriate inflation pressure table in Wheels, Tires, and Treads Section in this Operator's Manual).

NOTE: To test for wheel slippage see Measure Wheel Slip—Manually in this section of this Operator's Manual.

Unballasted Tractor Weight Chart (9470R and 9520R)

Weights in table use short drawbar support. For long drawbar support, add 183 kg (403 lb).

NOTE: Unballasted weights are figured on tractor with a full tank of fuel. Each tractor will be different. Have your tractor weighed for exact weight splits.

Model		9470R			9520R		
Tires		76x50-32 Singles ^a	620/70R42 Duals ^b	620/70R46 Duals ^b	76x50-32 Singles ^a	620/70R42 Duals ^b	620/70R46 Duals ^b
Weight kg (lb)	Front	12788 (28193)	12549 (27666)	12619 (27820)	12800 (28219)	12561 (27692)	12631 (27847)
	Rear	7434 (16389)	7195 (15862)	7265 (16017)	7438 (16398)	7200 (15873)	7270 (16028)
	Total	20222 (44582)	19744 (43528)	19884 (43837)	20238 (44617)	19761 (43565)	19901 (43874)
kg/kW (lb/hp)		43 (95)	42 (93)	42 (93)	39 (86)	38 (84)	38 (84)
Weight Split (%)		63 / 37	64 / 36	64 / 36	63 / 37	64 / 36	64 / 36

^aCast

^bCast/Steel

Model		9470R			9520R		
Tires		650/85R38 Duals ^a	IF650/85R38 Duals ^a	710/70R38 Duals ^a	650/85R38 Duals ^a	IF650/85R38 Duals ^a	710/70R38 Duals ^a
Weight kg (lb)	Front	12709 (28019)	12949 (28548)	12779 (28173)	12721 (28045)	12791 (28199)	12791 (28199)
	Rear	7356 (16217)	7596 (16746)	7425 (16369)	7360 (16226)	7600 (16755)	7430 (16380)
	Total	20065 (44236)	20545 (45294)	20204 (44542)	20081 (44271)	20561 (45329)	20221 (44580)
kg/kW (lb/hp)		42 (94)	43 (96)	43 (95)	38 (85)	39 (87)	39 (86)
Weight Split (%)		63 / 37	63 / 37	63 / 37	63 / 37	63 / 37	64 / 37

^aCast/Steel

Model		9470R			9520R		
Tires		IF710/70R38 Duals ^a	710/70R42 Duals ^a	IF710/70R42 Duals ^a	IF710/70R38 Duals ^a	710/70R42 Duals ^a	IF710/70R42 Duals ^a
Weight kg (lb)	Front	12811 (28243)	12979 (28614)	13119 (28922)	12823 (28270)	12991 (28640)	13131 (28949)
	Rear	7456 (16438)	7626 (16812)	7765 (17119)	7460 (16446)	7630 (16821)	7770 (17130)
	Total	20267 (44681)	20605 (45426)	20884 (46041)	20283 (44716)	20621 (45461)	20901 (46079)
kg/kW (lb/hp)		43 (95)	43 (97)	44 (98)	39 (86)	39 (87)	40 (89)
Weight Split (%)		63 / 37	63 / 37	63 / 37	63 / 37	63 / 37	64 / 37

^aCast/Steel

Unballasted Tractor Weight Chart (9570R and 9620R)

Weights given consider short drawbar support. For long drawbar support, add 183 kg (403 lb).

NOTE: Unballasted weights are calculated by averaging and are figured based on tractor with a full tank of fuel. Each tractor will be different. Have your tractor weighed for exact weight splits. All values for 9570R and 9620R are the same, except where indicated.

Model		9570R and 9620R				
Tires		76x50-32 Singles ^a	620/70R42 Duals ^b	620/70R46 Duals ^b	650/85R38 Duals ^b	IF650/85R38 Duals ^b
Weight kg (lb)	Front	1265 (27888)	12411 (27362)	12481 (27516)	12571 (27714)	12811 (28243)
	Rear	7569 (16687)	7330 (16160)	7400 (16314)	7491 (16515)	7731 (17044)
	Total	20219 (44575)	19741 (43521)	19881 (43830)	20062 (44229)	20542 (45287)
kg/kW (lb/hp)	9570R	35 (78)	34 (76)	34 (77)	35 (78)	35 (79)
	9620R	32 (72)	32 (72)	32 (71)	32 (71)	32 (71)
Weight Split (%)		63 / 37	63 / 37	63 / 37	63 / 37	62 / 38

^aCast

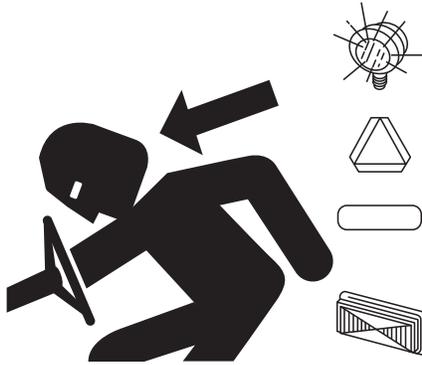
^bCast/Steel

Model		9570R and 9620R				
Tires		710/70R38 Duals ^a	IF710/70R38 Duals ^a	710/70R42 Duals ^a	IF710/70R42 Duals ^a	—
Weight kg (lb)	Front	12641 (27869)	12672 (27937)	12841 (28310)	12981 (28618)	—
	Rear	7560 (16667)	7592 (16737)	7761 (17110)	7900 (17416)	
	Total	20201 (44536)	20264 (44674)	20602 (45420)	20881 (46035)	
kg/kW (lb/hp)	9570R	35 (78)	35 (78)	36 (80)	36 (81)	—
	9620R	32 (72)	32 (72)	33 (73)	33 (74)	
Weight Split (%)		63 / 37	63 / 37	62 / 38	62 / 38	

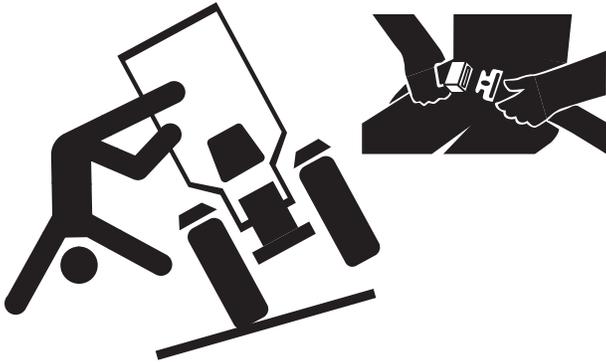
^aCast/Steel

Transport

Driving Tractor on Roads



RXA0161723—UN—15JAN18



RXA0161724—UN—15JAN18

CAUTION: Avoid personal injury or death from losing control of tractor. When driving tractor on roads:

- Wear Seat belts.
- Reduce speed when driving on icy, wet, or graveled surfaces.
- Ballast tractor correctly (See Performance Ballasting section in this Operator's Manual).
- Prevent wheels from locking and skidding on tractors transporting heavy loads.
- Avoid holes, ditches, sharp turns, hillsides and obstructions which may cause tractor to roll over.
- Frequently check for traffic from rear, especially in turns, and use turn signal lights.
- Always operate flashing lights when traveling on a highway or public roads, except where prohibited by law.

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

Brakes—Tap brake pedal to ensure differential lock is NOT engaged. Avoid hard application of brakes.

Remote Cylinders—Position transport lock switch(es) to eliminate possibility of lowering an implement during transport by inadvertently bumping extend/retract lever (s). (See procedure in Six Position SCV Control Levers in Selective Control Valves section of this Operator's Manual.)

[Ag] Rear Hitch—Position or lock hitch in transport position to eliminate possibility of lowering an implement during transport by inadvertently bumping control lever. (See procedure in Hitch section of this Operator's Manual.)

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Towed Loads and Transport with Ballast

CAUTION: Avoid possible injury from losing control while towing a load. Stopping distance increases with speed and weight of towed loads, and on slopes.

Tractor wheels may lock and skid on slippery downhill slopes when tractors are transporting heavy loads.

Never exceed implement's maximum transport speed. Before transporting a towed implement, refer to the implement operator's manual and implement decals to determine the maximum transport speed. This tractor is capable of operating at transport speeds which exceed maximum allowable transport speed for most towed implements. For John Deere implements use implements codes found in implements operators manual. For non-John Deere implements see Implement and Tractor Codes in Performance Ballasting section of this Operator's Manual. Failure to adhere to the implement's maximum transport speed or to have correct ballast can result in:

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

Guidelines for Towing Equipment without Brakes:

- Do not transport at speeds greater than 32 km/h (20 mph).
- Must weigh less than 1.5 times the ballasted tractor weight.

Guidelines for Towing Equipment with Brakes:

- If manufacturer does not specify a maximum transport speed, do not transport at speeds above 40 km/h (25 mph).

- When transporting at speeds up to 40 km/h (25 mph) fully loaded implement must weigh less than 4.5 times tractor weight.
- When transporting at speeds between 40 km/h (25 mph) and 50 km/h (31 mph), fully loaded implement must weigh less than 3 times the tractor weight.

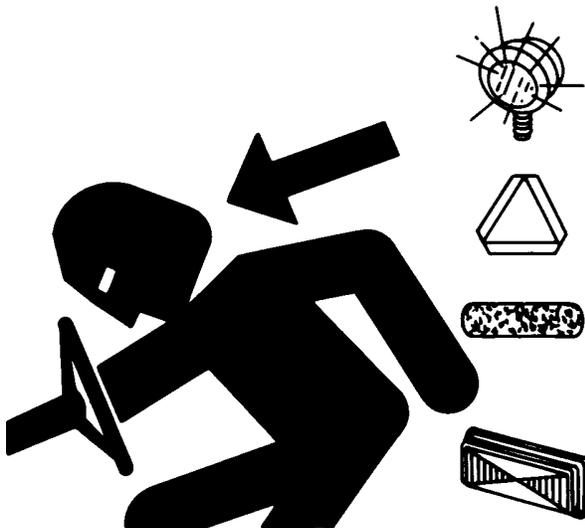
The tractor must be heavy and powerful enough with adequate braking power for the towed load. Add ballast to tractor or lighten implement load.

Drive slowly enough to maintain safe control. Be alert for skids. Shift to a lower gear for hillsides, rough ground, and sharp turns, especially when transporting heavy equipment.

Never operate with transmission in neutral position or with clutch disengaged.

AK08008,000012E-19-15NOV19

Use Safety Lights and Devices



TS951—UN—12APR90

- ⚠ **CAUTION:** Prevent collisions between other road users, slow moving tractors with attachments or towed equipment, and self-propelled machines on public roads. Frequently check for traffic from 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.

AK08008,000012F-19-15NOV19

Transport Rear Mounted Implements with Ballast

- ⚠ **CAUTION:** Avoid possible injury when transporting heavy rear-mounted implements. Drive slowly over rough ground, regardless of how much ballast used.

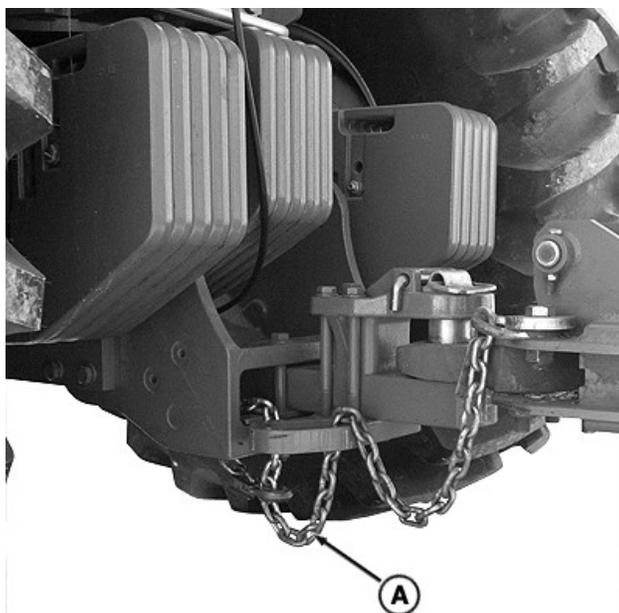
Add weight if needed for stability. Add enough ballast to maintain steering control.

AK08008,0000130-19-15NOV19

Safety Chain Use

- ⚠ **CAUTION:** Avoid possible accident and injury by using safety chain on drawn equipment. Use safety chain with strength rating equal to or greater than gross weight of equipment. Provide only enough slack in chain to permit turning.

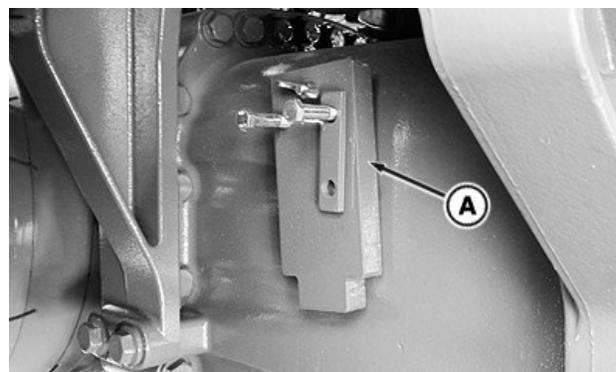
IMPORTANT: Never use safety chain for towing. Damage to tractor, implement, and drawbar may result. Safety chain is provided for transport only.



Route safety chain (A) through loop and attach to the drawbar support.

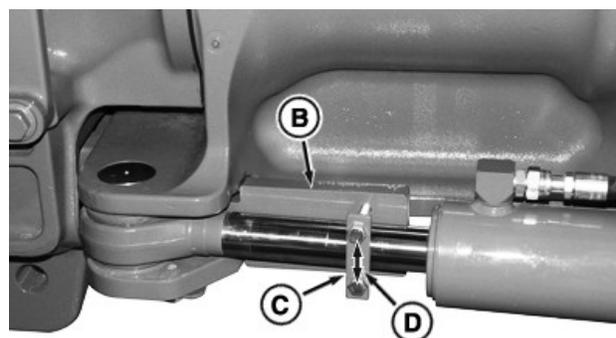
RXA0119965—UN—30AUG11

AK08008,0000131-19-15NOV19



RXA0142230—UN—24JUN14

Remove left and right-hand hinge locks (A) from tractor frame storage location.



RXA0160225—UN—17JUL17

Install lock (B) behind cylinder and secure with retaining plate (C) and cap screws (D). Tighten cap screws to hold in place.

Chain tractor to trailer securely and drive slowly.

IMPORTANT: Remove hinge lock from hinge area before operating tractor.

Remove hinge locks before unloading tractor.

Replace locks on tractor frame storage location as shown.

HydraCushion™ Suspension System (If Equipped)

IMPORTANT: When transporting 9R Series tractor on trailer, hydraulic pressure must be released from HydraCushion™ suspension system to facilitate proper tie down stability when shipping.

15 L engine equipped tractor: avoid equipment damage, remove exhaust tip before transport.

CAUTION: To avoid accident or injury, securely chain tractor to carrier. Drive carefully.

Stay clear of moving suspension components when releasing hydraulic pressure from solenoid valves.

HydraCushion is a trademark of Deere & Company

Carrier Transport



RW13091—UN—07DEC88

Transport on Carrier Safely

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

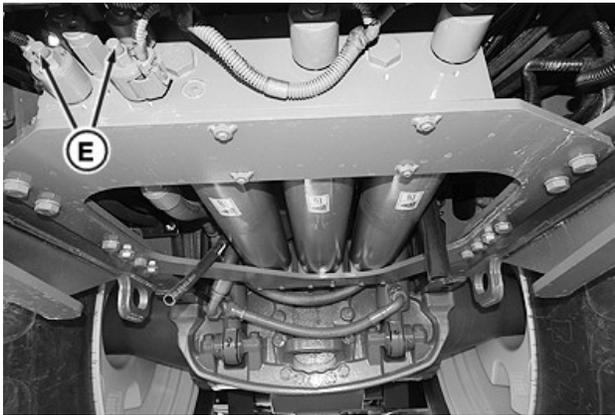
CAUTION: Shift transmission lever into PARK, stop engine and remove key before working in hinge area.

IMPORTANT: Install hinge lock, originally equipped with tractor, on hinge cylinders before transporting tractor.

15 L engine equipped tractor: avoid equipment damage, remove exhaust tip before transport.

Steer tractor straight ahead, shift transmission lever into PARK and turn OFF engine.

1. Engage PARK position.



RXA0160220—UN—17JUL17

Hydraulic Solenoid Valves (Located Under Front Frame)

2. Push in and turn knobs in hydraulic solenoid valves (E) counterclockwise until knob pops out. This releases hydraulic pressure from HydraCushion™ suspension system. Tractor can now be tied down.
3. Push in and turn knobs in hydraulic solenoid valves clockwise until knob pops out. This allows HydraCushion™ suspension system to pressurize and refill with hydraulic oil with when tractor is driven.

NOTE: For HydraCushion™ Suspension System operating instructions, see Operate HydraCushion™ Front Axle Suspension (If Equipped) in Drivetrain section of this Operator's Manual.

“T” Hook Locations

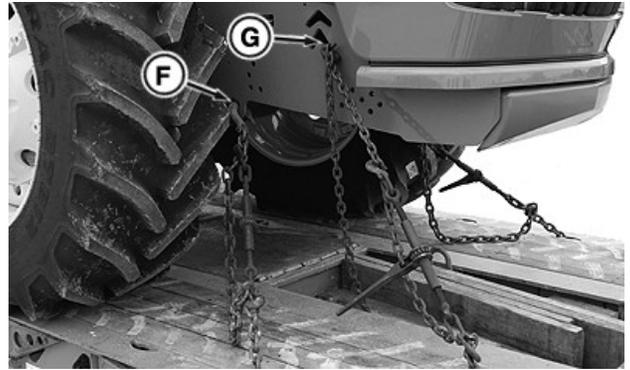
CAUTION: To avoid accident or injury, securely chain tractor to carrier. Drive carefully.

IMPORTANT: Attach tie downs only to frame “T” hook slots and drawbar support when securing tractor on a carrier.

15 L engine equipped tractor: avoid equipment damage, remove exhaust tip before transport.

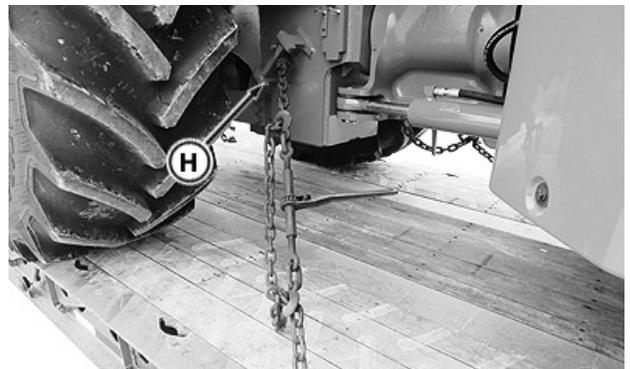
Transport a disabled tractor on a flat bed trailer.

1. Engage PARK position.



RXA0160221—UN—17JUL17

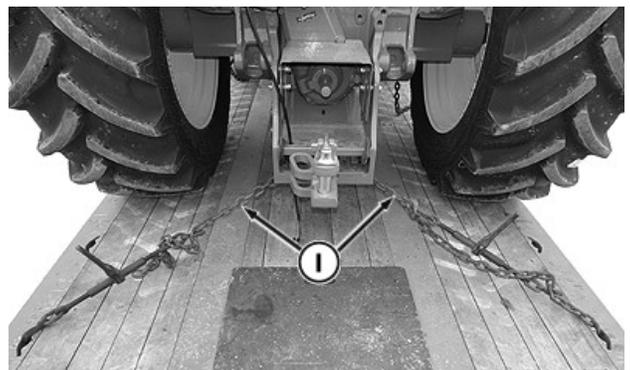
2. Attach chain using left and right-hand side front tie down loops (F) and/or left and right-hand side “T” hook slots (G) and tension chains forward and down to trailer frame.



RXA0160222—UN—17JUL17

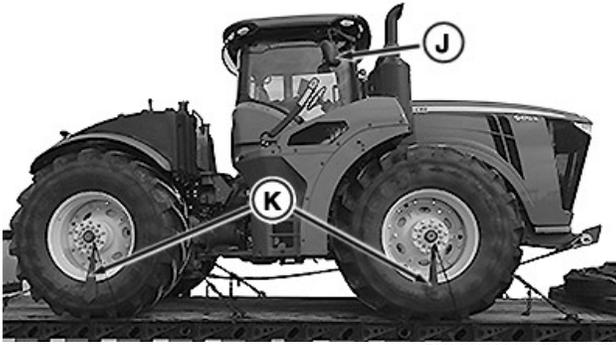
3. Attach chain to rear tie down loop (H) on left and right-hand side of frame and tension chains forward and down to trailer frame.

NOTE: Use a rubber or protective material to prevent paint damage to drawbar support.



RXA0160223—UN—17JUL17

4. Attach chains to each side of rear drawbar support (I) to secure tractor to carrier.



RXA0160224—UN—17JUL17

5. Fold left and right-hand side mirrors (J) forward.
6. Fold left and right-hand extremity lights forward, if equipped.

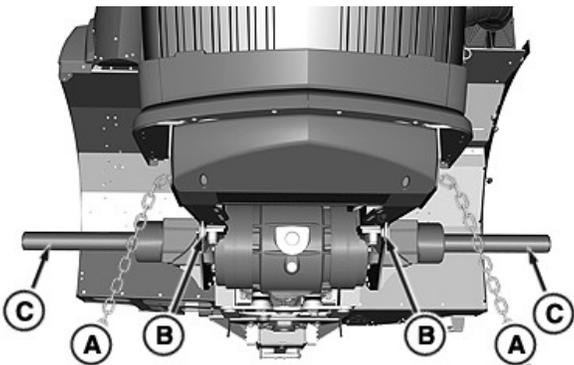
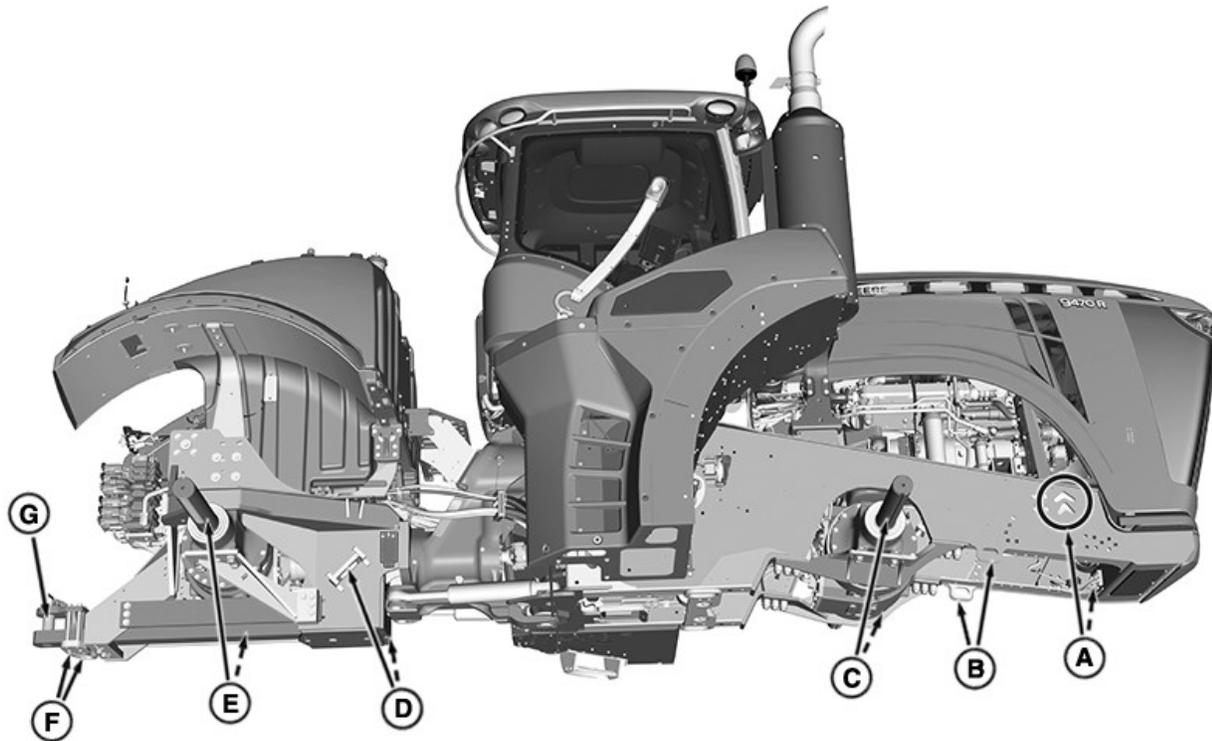
7. Remove beacon light, if equipped.
8. Attach over dimension flags (K) to axles.
9. After traveling a short distance, check load shift to ensure tie downs are secure.

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Tie Down on Transport Carrier

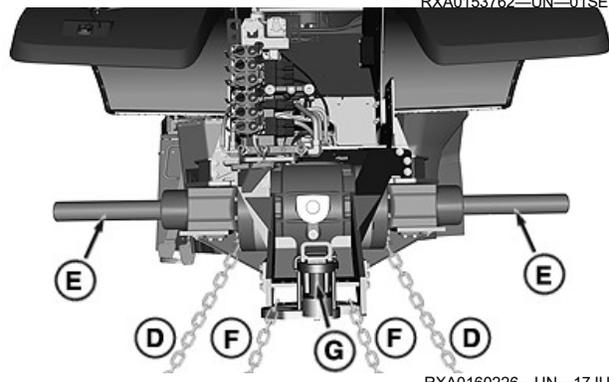
Tie Down for Tractors with Single Reduction Axles [Ag]

IMPORTANT: Transport Regulations vary - contact your local transportation officials for your local transportation requirements.



RXA0143571—UN—16JUL14

Front View Single Reduction Axle



RXA0153762—UN—01SEP16

RXA0160226—UN—17JUL17

Drawbar Support and Drawbar Pin Area

Attach tie-down devices to front frame t-hook slots (A), front frame tie-down loops (B), front axles (C), rear frame tie-down loops (D), rear axles (E), drawbar support (F), and drawbar pin (G) as required per local regulations.

CAUTION: To avoid accident or injury, use tie-down devices to secure tractor to carrier. Drive carefully.

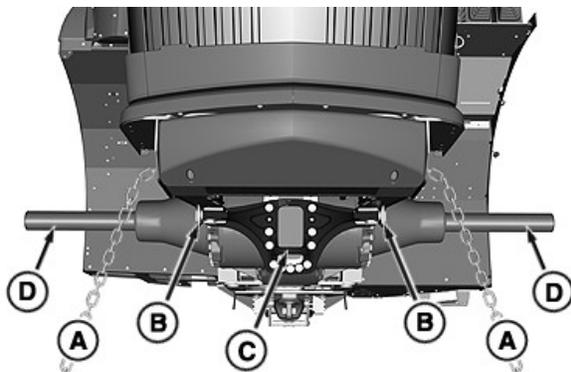
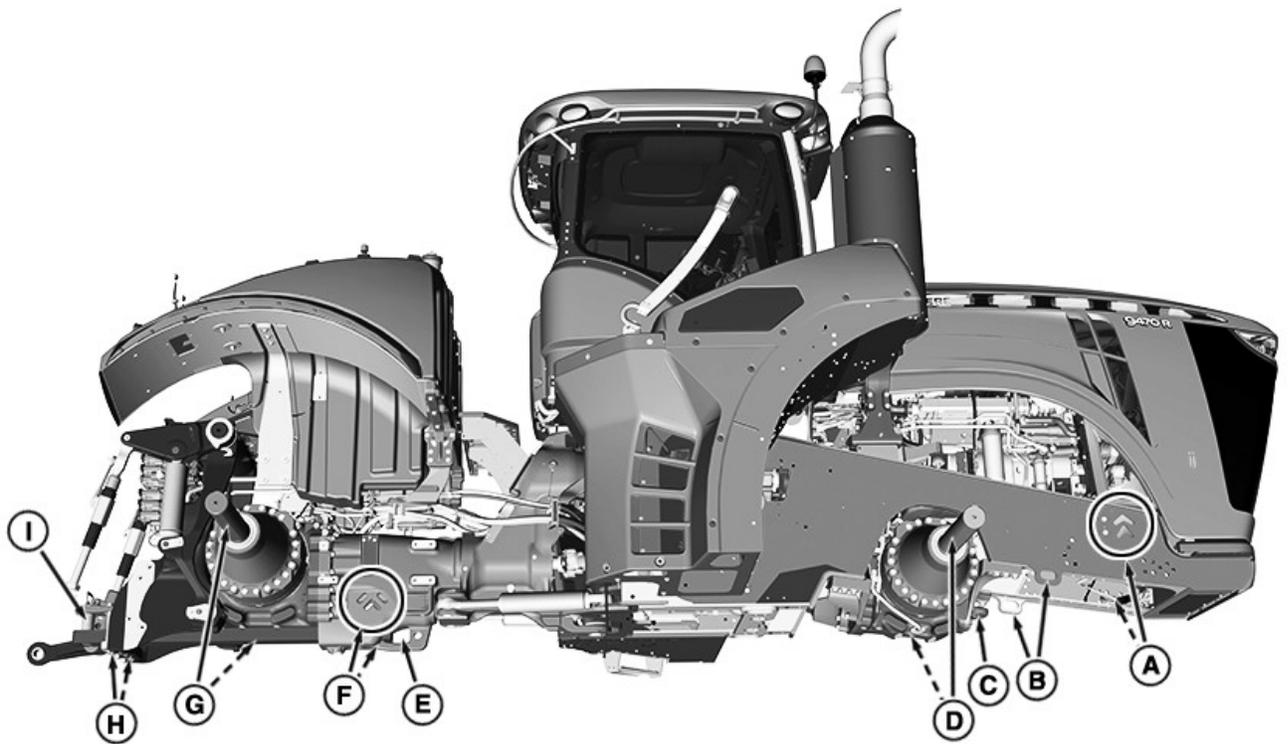
IMPORTANT: A disabled tractor should be hauled on a flat-bed carrier.

Tie Down for Tractors with Double Reduction Axles [Ag]

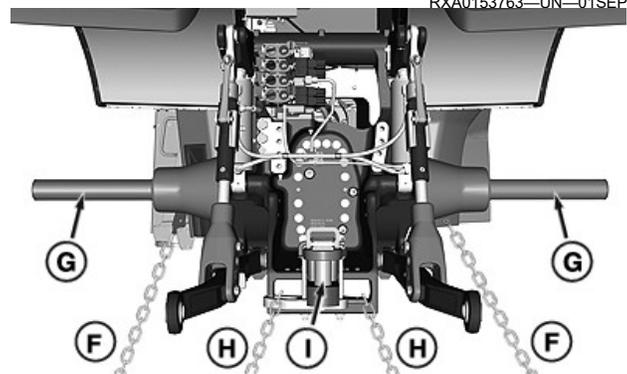
IMPORTANT: Transport Regulations vary - contact your local transportation officials for your local transportation requirements.

CAUTION: To avoid accident or injury, use tie-down devices to secure tractor to carrier. Drive carefully.

IMPORTANT: A disabled tractor should be hauled on a flat-bed carrier.



RXA0160227—UN—17JUL17
Front View Double Reduction Axle



RXA0160228—UN—17JUL17
Drawbar Support and Drawbar Pin Area

Attach tie-down devices to front frame t-hook slots (A), front frame tie-down loops (B), front axle tie-down loop (C), front axles (D), rear frame tie-down loop (E), rear

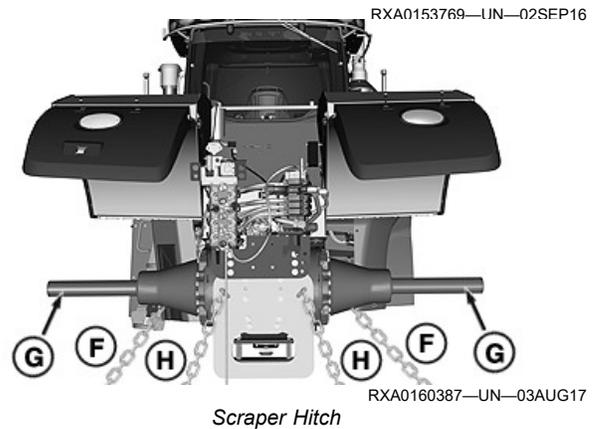
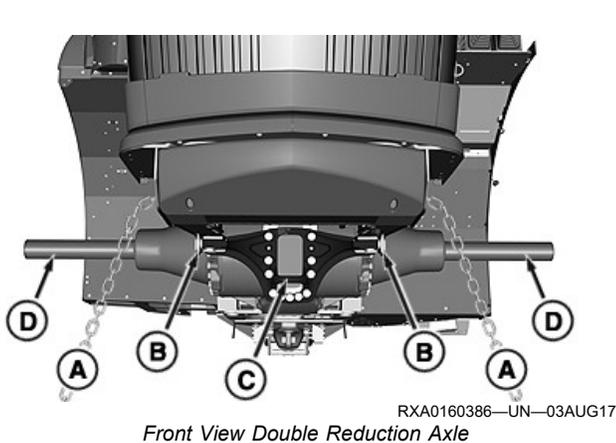
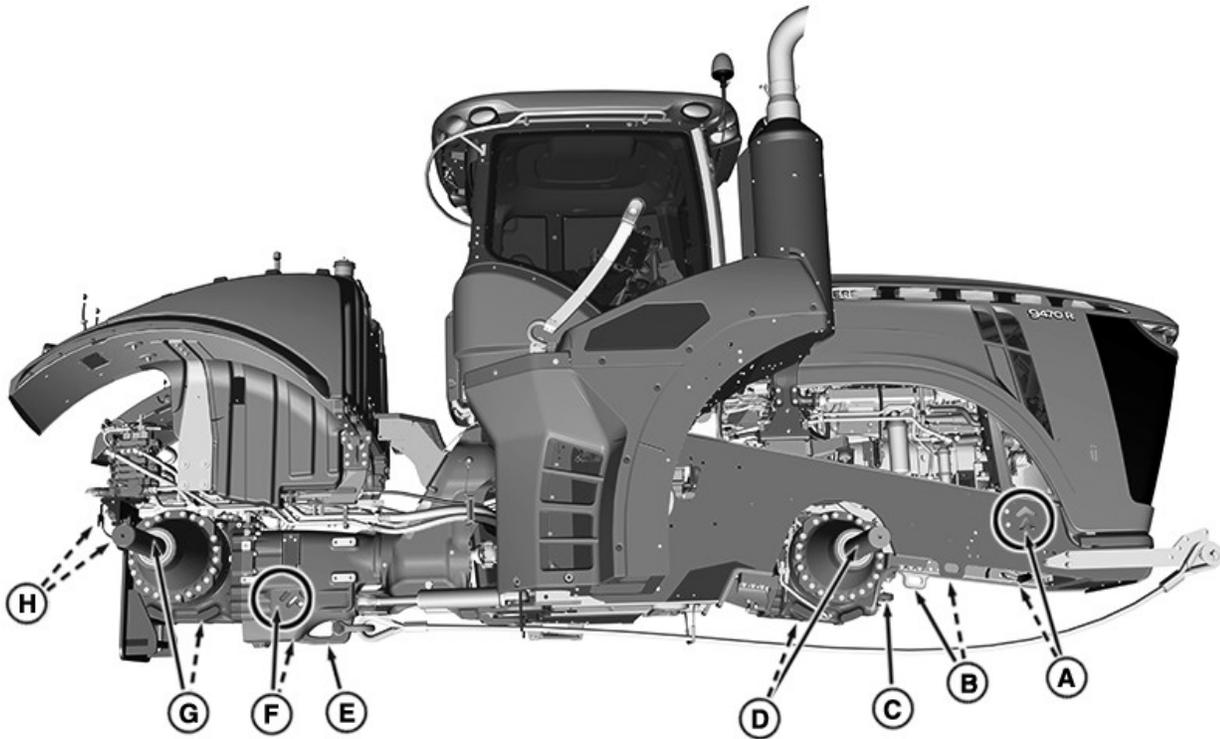
frame t-hook slots (F), rear axles (G), drawbar support (H), and drawbar pin (I) as required per local regulations.

Tie Down for Tractors with Double Reduction Axles [Scraper]

IMPORTANT: Transport Regulations vary - contact your local transportation officials for your local transportation requirements.

⚠ CAUTION: To avoid accident or injury, use tie-down devices to secure tractor to carrier. Drive carefully.

IMPORTANT: A disabled tractor should be hauled on a flat-bed carrier.



Attach tie-down devices to front frame t-hook slots (A), front frame tie-down loops (B), front axle tie-down loop (C), front axles (D), rear frame tie-down loop (E), rear

frame t-hook slots (F), rear axles (G), and scraper hitch (H) as required per local regulations.

KD34109,00005D2-19-19MAR20

Tow Mode—Engine Will Start

IMPORTANT: Avoid damage to transmission and hydraulic systems:

- Operate engine above 1250 rpm (provides adequate system lubrication).
- Verify all pressure indicator lights are off.
- Never tow machine faster than 8 km/h (5 mph) for a maximum distance of 8 km (5 miles).

1. Verify hydraulic oil reservoir level is within normal operation range. See Transmission-Hydraulic Oil Level in Service - Check section of this Operator's Manual.
2. Attach tow bar to drawbar.
3. With transmission in PARK, start machine.
4. Operate engine above 1250 rpm.
5. Place shift lever in NEUTRAL.
6. Steer and brake machine while being towed.
7. After towing is complete, place shift lever in PARK.

AK08008,0000134-19-15NOV19

Tow Mode—Engine Will Not Start

CAUTION: Avoid injury. If hydraulic oil temperature is less than -10°C (14°F), backup pump will not turn on and brakes or steering will not function. If machine still must be moved, contact your John Deere dealer.

IMPORTANT: Avoid machine damage:

- Never attempt to start machine by towing.
- Never tow machine faster than 8 km/h (5 mph) for a maximum distance of 8 km (5 miles).
- Never tow machine without releasing park brake.
- Never operate or tow machine with a filter restriction code. If lube or filter STOP or Warning code displays, change appropriate filter. See Service - Change section of this Operator's Manual.

NOTE: Special tools are required to release park brake. See you John Deere dealer.



RXA0169804—UN—01AUG19

1. Ensure hydraulic oil reservoir level in sight gauge is between FULL COLD (A) and MIN COLD (B) marks. If level is below MIN COLD mark, remove cap (C) and add hydraulic oil.
2. Attach tow bar to drawbar.

IMPORTANT: If machine has no electrical power, a 100 Amp electrical source must be connected. See Battery Booster or Charger in Engine Operation section of this Operator's Manual.

3. Open load center behind seat. See Access Load Center Fuses in Service - Electrical section of this Operator's manual.
4. Remove fuse 32 (10 Amp) and fuse:

NOTE: For engine identification, see Engine Serial Number in Identification Numbers section of this Operator's Manual.

- fuse 25 (10 Amp) – machines equipped with 9.0 L [Ag] or 13.5 L engine.
 - fuse 29 (30 Amp) – machines equipped with 15 L engine.
5. Install removed fuses into correct locations fuse 18 (10 Amp) and fuse 22 (10 Amp or 30 Amp).
 6. Install appropriate park brake release hand pump kit components.
 7. Turn key switch to on position.
 8. Follow kit instructions to manually release spring-applied park brake.
 9. Enable backup steering in Diagnostic Addresses on Controller Diagnostics tab. See Diagnostic Center in CommandCenter™ section of this Operator's Manual.
 10. Select correct control unit:
 - TSB – two-track machines
 - XSB – wheel and four-track machines equipped with ACS™ (ActiveCommand Steering)

- XSC – wheel and four-track machines equipped with AutoTrac™

⚠ CAUTION: Avoid injury. Brakes are not part of hydraulic backup system. Braking will be manual and require extra force.

NOTE: When Back Up Mode is enabled, turning steering wheel activates backup pump.

11. Go to address 025 and select Back Up Mode ON.
12. Press Accept.
13. Go to PTP 055 to monitor park brake pressure.
14. Pump power pack to displayed target value of 1800 kPa (18 bar) (261 psi).
15. Press X to close diagnostic windows.
16. Place shift lever in NEUTRAL and verify on corner post display.
17. Steer and brake machine while being towed.
18. After towing is complete, place shift lever in PARK.
19. Cycle key switch on and off to return address 025 to Back Up Mode Off.
20. Return all removed fuses to original locations.

AK08008,0000135-19-15NOV19

Freeing a Mired Tractor

⚠ CAUTION: Freeing a mired tractor can involve safety hazards. Avoid physical injury, tractor damage, or property damage:

- Verify that the tractor surroundings are clear of people and other hazards before attempting to free a mired tractor.
- A tow chain or tow bar could fail and recoil from a stretched condition.
- A mired tractor could tip rearward.
- The towing machine could overturn.

IMPORTANT: Avoid tractor damage or property damage:

- Never:
 - Use the front weight support as a tow point or to push other tractors or implements.
 - Use the front suspended axle to tow the tractor.
 - Attempt to start the tractor by towing.
 - Attempt to clear excess soil material by driving the tractor after the mired tractor is freed.
- Always:
 - Have an operator steer and brake the mired tractor. If possible, maintain a minimum of

1250 engine rpm to provide power for lubrication, steering, and brakes.

- Tow the tractor in as straight a line as possible. Pulling at an angle causes heavy side loads and can damage the suspended axle or frame.
- Stop immediately if the tracks are spinning and begin to dig below the surface level of soil. Track damage can occur due to material ingestion between the track and drive system components.
- Remove excess material from the undercarriage and drive system components of the freed tractor before driving the tractor under its own power.

To Free a Mired Tractor

1. Unhitch and move any towed implements.
2. Attach a tow chain or tow bar to the mired tractor. If the mired tractor is to be pulled:
 - Forward: Use the tow cable (preferred if equipped with a tow cable) or attach at the tow point.
 - Rearward: Attach at the drawbar (preferred if not equipped with a tow cable).
3. Pull the mired tractor.

AK08008,0000137-19-15NOV19

Fuel, Lubricants, and Coolant - General Information

Determine Tractor Engine Type

IMPORTANT: To determine tractor engine type, see Engine Serial Number in Identification Numbers section of this Operator's Manual.

Correct engine oil specification and oil change interval is determined by a number of factors. One important consideration is type of engine aftertreatment installed. To determine engine type, see Engine Serial Number in Identification Numbers section of this Operator's Manual.

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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

Oil Filters

Filtration of oils is critically important for proper operation and lubrication. John Deere brand oil filters have been designed and produced specifically for John Deere applications.

John Deere filters adhere to engineering specifications for quality of the filter media, filter efficiency rating, strength of the bond between the filter media and the element end cap, fatigue life of the canister (if applicable), and pressure capability of the filter seal. Non-John Deere branded oil filters might not meet these key John Deere specifications.

Always change oil filters regularly as specified in this manual.

DX,FILT1-19-11APR11

Fuel

Diesel Fuel

Consult your local fuel distributor for properties of the diesel fuel available in your area.

In general, diesel fuels are blended to satisfy the low temperature requirements of the geographical area in which they are marketed.

Diesel fuels specified to EN 590 or ASTM D975 are recommended. Renewable diesel fuel produced by hydrotreating animal fats and vegetable oils is basically identical to petroleum diesel fuel. Renewable diesel that meets EN 590, ASTM D975, or EN 15940 is acceptable for use at all percentage mixture levels.

Required Fuel Properties

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

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

Cloud Point should be below the expected lowest ambient temperature or **Cold Filter Plugging Point** (CFPP) should be a maximum 10°C (18°F) below the fuel cloud point.

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

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

Materials such as copper, lead, zinc, tin, brass and bronze should be avoided in fuel handling, distribution and storage equipment as these metals can catalyze fuel oxidation reactions which can lead to fuel system deposits and plugged fuel filters.

E-Diesel fuel

DO NOT use E-Diesel (Diesel fuel and ethanol blend). Use of E-Diesel fuel in any John Deere machine may void the machine warranty.

 **CAUTION: Avoid severe injury or death due to the fire and explosion risk from using E-Diesel fuel.**

Sulfur Content for Interim Tier 4, Final Tier 4, Stage III A and B, Stage IV, and Stage V Engines Above 560 kW

- Use ONLY diesel fuel with a maximum of 500 mg/kg (500 ppm) sulfur content.

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

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

Sulfur Content for Tier 3 and Stage III A Engines

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

Sulfur Content for Tier 2 and Stage II Engines

- Use of diesel fuel with sulfur content less than 2000 mg/kg (2000 ppm) is RECOMMENDED.
- Use of diesel fuel with sulfur content 2000—5000 mg/kg (2000—5000 ppm) REDUCES the oil and filter change interval.¹
- BEFORE using diesel fuel with sulfur content greater than 5000 mg/kg (5000 ppm), contact your John Deere dealer.

Sulfur Content for Other Engines

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

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

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

DX,FUEL1-19-13JUL20

Supplemental Diesel Fuel Additives

Diesel fuel can be the source of performance or other operational problems for many reasons. Some causes include poor lubricity, contaminants, low cetane number, and a variety of properties that cause fuel system deposits. These and others are referenced in other sections of this Operator's Manual.

To optimize engine performance and reliability, closely follow recommendations on fuel quality, storage, and handling, which are found elsewhere in this Operator's Manual.

To further aid in maintaining performance and reliability of the engine's fuel system, John Deere has developed a family of fuel additive products for most global markets. The primary products include Fuel-Protect Diesel Fuel Conditioner (full feature conditioner in winter

¹ See DX,ENOIL12,OEM, DX,ENOIL12,T2,STD, or DX,ENOIL12,T2,EXT for more information on Engine Oil and Filter Service Intervals.

and summer formulas) and Fuel-Protect Keep Clean (fuel injector deposit removal and prevention). Availability of these and other products varies by market. See your local John Deere dealer for availability and additional information about fuel additives that might be right for your needs.

DX,FUEL13-19-07FEB14

Biodiesel Fuel

Biodiesel fuel is comprised of monoalkyl esters of long chain fatty acids derived from vegetable oils or animal fats. Biodiesel blends are biodiesel mixed with petroleum diesel fuel on a volume basis.

Before using fuel containing biodiesel, review the Biodiesel Use Requirements and Recommendations in this Operator's Manual.

Environmental laws and regulations can encourage or prohibit the use of biofuels. Operators should consult with appropriate governmental authorities prior to using biofuels.

John Deere and Cummins® Stage V Engines Operating in the European Union

Where the engine is to be operated within the Union on diesel or non-road gas-oil, a fuel with a FAME content not greater than 8% volume/volume (B8) shall be used.

John Deere and Cummins® Engines with Exhaust Filter Except Stage V Engines Operating in the European Union

Biodiesel blends up to B20 can be used ONLY if the biodiesel (100% biodiesel or B100) meets ASTM D6751, EN 14214, or equivalent specification. Expect a 2% reduction in power and a 3% reduction in fuel economy when using B20.

Biodiesel concentrations above B20 can harm the engine's emission control systems and should not be used. Risks include, but are not limited to, more frequent stationary regeneration, soot accumulation, and increased intervals for ash removal.

John Deere Fuel conditioners or equivalent, which contain detergent and dispersant additives, are required when using biodiesel blends from B10 to B20, and are recommended when using lower biodiesel blends.

John Deere Engines Without Exhaust Filter

Biodiesel blends up to B20 can be used ONLY if the biodiesel (100% biodiesel or B100) meets ASTM D6751, EN 14214, or equivalent specification. Expect a 2% reduction in power and a 3% reduction in fuel economy when using B20.

These John Deere engines can operate on biodiesel blends above B20 (up to 100% biodiesel). Operate at levels above B20 ONLY if the biodiesel is permitted by

law and meets the EN 14214 specification (primarily available in Europe). Engines operating on biodiesel blends above B20 might not fully comply with or be permitted by all applicable emissions regulations. Expect up to a 12% reduction in power and an 18% reduction in fuel economy when using 100% biodiesel.

John Deere fuel conditioners or equivalent, which contain detergent and dispersant additives, are required when using biodiesel blends from B10 to B100, and are recommended when using lower biodiesel blends.

Biodiesel Use Requirements and Recommendations

The petroleum diesel portion of all biodiesel blends must meet the requirements of ASTM D975 (US) or EN 590 (EU) commercial standard.

Biodiesel users in the U.S. are strongly encouraged to purchase biodiesel blends from a BQ-9000 Certified Marketer and sourced from a BQ-9000 Accredited Producer (as certified by the National Biodiesel Board). Certified Marketers and Accredited Producers can be found at the following website: <http://www.bq9000.org>.

Biodiesel contains residual ash. Ash levels exceeding the maximums allowed in either ASTM D6751 or EN14214 can result in more rapid ash loading and require more frequent cleaning of the Exhaust Filter (if present).

The fuel filter can require more frequent replacement when using biodiesel fuel, particularly if switching from diesel. Check engine oil level daily prior to starting engine. A rising oil level can indicate fuel dilution of the engine oil. Biodiesel blends up to B20 must be used within 90 days of the date of biodiesel manufacture. Biodiesel blends above B20 must be used within 45 days from the date of biodiesel manufacture.

When using biodiesel blends up to B20, the following must be considered:

- Cold-weather flow degradation
- Stability and storage issues (moisture absorption, microbial growth)
- Possible filter restriction and plugging (usually a problem when first switching to biodiesel on used engines)
- Possible fuel leakage through seals and hoses (primarily an issue with older engines)
- Possible reduction of service life of engine components

Request a certificate of analysis from your fuel distributor to ensure that the fuel is compliant with the specifications provided in this Operator's Manual.

Consult your John Deere dealer for John Deere fuel products to improve storage and performance with biodiesel fuels.

The following must also be considered if using biodiesel blends above B20:

- Possible coking or blocked injector nozzles, resulting in power loss and engine misfire if John Deere fuel additives and conditioners or equivalent containing detergent/dispersants are not used
- Possible crankcase oil dilution (requiring more frequent oil changes)
- Possible lacquering or seizure of internal components
- Possible formation of sludge and sediments
- Possible thermal oxidation of fuel at elevated temperatures
- Possible compatibility issues with other materials (including copper, lead, zinc, tin, brass, and bronze) used in fuel handling, distribution, and storage equipment
- Possible reduction in water separator efficiency
- Possible damage to paint if exposed to biodiesel
- Possible corrosion of fuel injection equipment
- Possible elastomeric seal and gasket material degradation (primarily an issue with older engines)
- Possible high acid levels within fuel system
- Because biodiesel blends above B20 contain more ash, using blends above B20 can result in more rapid ash loading and require more frequent cleaning of the Exhaust Filter (if present)

IMPORTANT: Raw pressed vegetable oils are NOT acceptable for use as fuel in any concentration in John Deere engines. Their use could cause engine failure.

AK08008,00001EE-19-15NOV19

Lubricity of Diesel Fuel

Most diesel fuels manufactured in the United States, Canada, and the European Union have adequate lubricity to ensure proper operation and durability of fuel injection system components. However, diesel fuels manufactured in some areas of the world may lack the necessary lubricity.

IMPORTANT: Make sure the diesel fuel used in your machine demonstrates good lubricity characteristics.

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

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

Lubricity of BioDiesel Fuel

Fuel lubricity can improve significantly with BioDiesel

blends up to B20 (20% BioDiesel). Further increase in lubricity is limited for BioDiesel blends greater than B20.

DX,FUEL5-19-07FEB14

Handling and Storing Diesel Fuel

⚠ CAUTION: Reduce the risk of fire. Handle fuel carefully. DO NOT fill the fuel tank when engine is running. DO NOT smoke while you fill the fuel tank or service the fuel system.

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

Keep all storage tanks as full as practical to minimize condensation.

Ensure that all fuel tank caps and covers are installed properly to prevent moisture from entering. Monitor water content of the fuel regularly.

When using biodiesel fuel, the fuel filter may require more frequent replacement due to premature plugging.

Check engine oil level daily prior to starting engine. A rising oil level may indicate fuel dilution of the engine oil.

IMPORTANT: The fuel tank is vented through the filler cap. If a new filler cap is required, always replace it with an original vented cap.

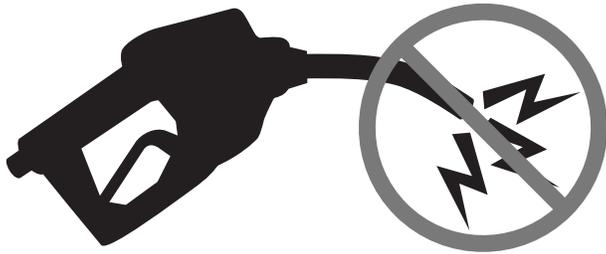
When fuel is stored for an extended period or if there is a slow turnover of fuel, add a fuel conditioner to stabilize the fuel. Keeping the free water drained and treating the bulk fuel storage tank quarterly with a maintenance dose of a biocide will prevent microbial growth. Contact your fuel supplier or John Deere dealer for recommendations.

DX,FUEL4-19-13JAN18

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

Fill Fuel Tank



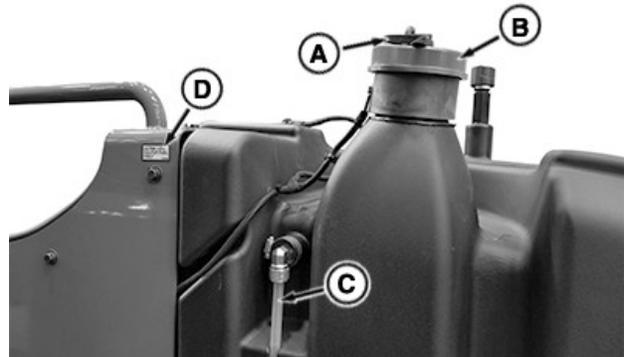
TS202—UN—23AUG88

CAUTION: Avoid possible personal injury or fire:

- Fuel is highly flammable, handle it with care.
- Do not refuel while smoking or when near open flame or sparks.
- Stop engine when refueling.
- Clean up spilled fuel.

- Fill fuel tank outdoors.
- Keep machine clean of accumulated trash, grease, and debris.

IMPORTANT: Prevent damage to tractor fuel injection system, emissions system, and other components. Never put Diesel Exhaust Fluid (DEF) into fuel tank or fuel system. If DEF is introduced into the fuel tank, see your John Deere dealer.



RXA0162569—UN—21MAR18

IMPORTANT: Prevent damage to engine and emissions system components. If tractor is equipped with Final Tier 4/Stage V engine, use only ultra low sulfur fuel as prescribed by decal (D). Tractors with other emissions specifications may use other fuels. See Diesel Fuel in this Operator's Manual section.

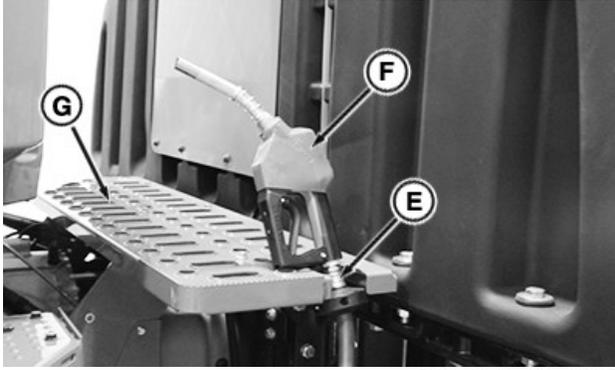
To determine which engine your tractor is equipped with, see Engine Serial Number in Identification Numbers section of this Operator's Manual.

NOTE: Final Tier 4/Stage V engine equipped tractors require DEF to operate. It is suggested that DEF tank is filled each time tractor is refueled. See Fill DEF Tank - FT4/Stage V Engine in Diesel Exhaust Fluid (DEF) section of this Operator's Manual.

IMPORTANT: Each fuel tank is vented through filter at top of each tank. See Fuel Tank Vent Filters in Service - Change section of this Operator's Manual.

NOTE: When digital display fuel gauge flashes, approximately 20 to 25 gallons of fuel remains.

Approximately 132 L (35 gal) of fuel remains when the fuel level is at the bottom of sight tube (C).



RXA0162581—UN—23MAR18

1. Place fuel nozzle (F) in fuel nozzle holder (E) before climbing steps.
2. Stand on platform (G).
3. Raise fuel cap lock lever (A) and rotate fuel cap (B) counterclockwise.
4. Remove fuel cap and fill fuel tanks. Filling fuel tanks at end of each day prevents condensation in tank.
5. Place fuel nozzle back in fuel nozzle holder and replace and lock cap before climbing down from platform.

AK08008,00001EF-19-15NOV19

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

Fuel Filters

The importance of fuel filtration cannot be overemphasized with modern fuel systems. The combination of increasingly restrictive emission regulations and more efficient engines requires fuel system to operate at much higher pressures. Higher pressures can only be achieved using fuel injection components with very close tolerances. These close manufacturing tolerances have significantly reduced capacities for debris and water.

John Deere brand fuel filters have been designed and produced specifically for John Deere engines.

To protect the engine from debris and water, always change engine fuel filters as specified in this manual.

DX,FILT2-19-14APR11

Diesel Exhaust Fluid (DEF)

Diesel Exhaust Fluid (DEF) — Use in Selective Catalytic Reduction (SCR) Equipped Engines

In order to maintain the emissions performance of the engine, it is essential to use and refill DEF in accordance with the specification.

Diesel exhaust fluid (DEF) is a high purity liquid that is injected into the exhaust system of engines equipped with selective catalytic reduction (SCR) systems. Maintaining the purity of DEF is important to avoid malfunctions in the SCR system. Engines requiring DEF shall use a product that meets the requirements for aqueous urea solution 32 (AUS 32) according to ISO 22241-1.

The use of John Deere Diesel Exhaust Fluid is recommended. John Deere Diesel Exhaust Fluid is available at your John Deere dealer in a variety of package sizes to suit your operational needs.

If John Deere Diesel Exhaust Fluid is not available, use DEF that is certified by the American Petroleum Institute (API) Diesel Exhaust Fluid Certification Program or by the AdBlue™ Diesel Exhaust Fluid Certification Program. Look for the API certification symbol or the AdBlue™ name on the container.



RG30211—UN—08MAR18

In some cases, DEF is referred to by one or more of these names:

- Urea
- Aqueous Urea Solution 32
- AUS 32
- AdBlue™
- NOx Reduction Agent
- Catalyst Solution

DX,DEF-19-13JAN18

Storing Diesel Exhaust Fluid (DEF)

⚠ CAUTION: Avoid contact with eyes. In case of contact, immediately flush eyes with large amounts of water for a minimum of 15 minutes. Reference the Materials Safety Data Sheet (MSDS) for additional information.

Do not ingest DEF. In the event DEF is ingested, contact a physician immediately. Reference the Materials Safety Data Sheet (MSDS) for additional information.

IMPORTANT: It is unlawful to tamper with or remove any component of the aftertreatment system. Do not use DEF that does not meet the required specifications or operate the engine with no DEF.

Never attempt to create DEF by mixing agricultural grade urea with water. Agricultural grade urea does not meet the necessary specifications and can damage the aftertreatment system.

Do not add any chemicals or additives to DEF in an effort to prevent freezing. Any chemicals or additives added to DEF can damage the aftertreatment system.

Never add water or any other fluid in place of, or in addition to DEF. Operating with a modified DEF or using an unapproved DEF can damage the aftertreatment system.

Storage information provided below is for reference and is to be used as a guideline only.

It is preferred to store DEF out of extreme ambient temperatures. DEF freezes at -11°C (12°F). Exposure to temperatures greater than 30°C (86°F) can degrade DEF over time. Do not store DEF in direct sunlight.

Dedicated DEF storage containers must be sealed between uses to prevent evaporation and contamination. Containers made of polyethylene, polypropylene, or stainless steel are recommended to transport and store DEF.

Ideal conditions for storage of DEF are:

- Store at temperatures between -5°C and 30°C (23°F and 86°F)
- Store in dedicated containers sealed to avoid contamination and evaporation

Under these conditions, DEF is expected to remain useable for a minimum of 18 months. Storing DEF at higher temperatures can reduce its useful life by approximately 6 months for every 5°C (9°F) temperature above 30°C (86°F).

If unsure how long or under what conditions DEF has been stored, test DEF. See Testing Diesel Exhaust Fluid (DEF).

Long-term storage in the DEF tank (over 12 months) is not recommended. If long-term storage is necessary, test DEF prior to operating engine. See Testing Diesel Exhaust Fluid (DEF).

AdBlue is a trademark of VDA, the German Association of the Automotive Industry.

It is recommended to purchase DEF in quantities that will be consumed within 12 months.

DX,DEF,STORE-19-15JUL20

Refilling Diesel Exhaust Fluid (DEF) Tank



TS1731—UN—23AUG13

CAUTION: Avoid contact with eyes. In case of contact, immediately flush eyes with large amounts of water for a minimum of 15 minutes. Reference the Materials Safety Data Sheet (MSDS) for additional information.

Do not ingest DEF. In the event DEF is ingested, contact a physician immediately. Reference the Materials Safety Data Sheet (MSDS) for additional information.

IMPORTANT: Use only distilled water to rinse components that are used to deliver DEF. Tap water can contaminate DEF. If distilled water is not available, rinse with clean tap water, then thoroughly rinse with ample amounts of DEF.

If DEF is spilled or contacts any surface other than the storage tank, immediately clean the surface with clear water. DEF is corrosive to painted and unpainted metallic surfaces and can distort some plastic and rubber components.

If DEF is filled into engine fuel tank or other fluid compartment, do not operate engine until system is properly purged of DEF. Contact your John Deere dealer immediately to determine how to clean and purge the system.

Reasonable care should be taken when refilling the DEF tank. Ensure that the DEF tank cap area is free of debris before removing the cap. Seal containers of DEF between use to prevent contamination and evaporation.

Avoid splashing DEF and do not allow DEF to come into contact with skin, eyes, or mouth.

DEF is not harmful to handle, but DEF can be corrosive to materials such as steel, iron, zinc, nickel, copper, aluminum, and magnesium. Use suitable containers to transport and store DEF. Containers made of polyethylene, polypropylene, or stainless steel are recommended.

Avoid prolonged contact with skin. In case of accidental contact, wash skin immediately with soap and water.

Keep anything used to store or dispense DEF clean of dirt and dust. Wash and rinse containers or funnels thoroughly with distilled water to remove contaminants.

If an unapproved fluid, such as diesel fuel or coolant is added to the DEF tank, contact your John Deere dealer immediately to determine how to clean and purge the system.

If water has been added to the DEF tank, a tank cleaning is necessary. See Cleaning DEF Tank in this manual. After refilling the tank, check the DEF concentration. See Testing Diesel Exhaust Fluid (DEF).

The operator must maintain appropriate DEF levels at all times. Check the DEF level daily and refill the tank as needed. The filling port is identified by a blue colored cap embossed with the following DEF symbol.

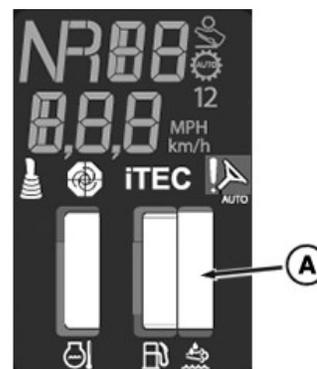
DX,DEF,REFILL-19-15JUL20

Fill DEF Tank - FT4/Stage V Engine

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

IMPORTANT: To determine tractor engine type, see Engine Serial Number in Identification Numbers section of this Operator's Manual.

IMPORTANT: Never put DEF in diesel fuel tank, or diesel fuel in DEF tank.



RXA0152790—UN—13JUL16

To avoid drastic changes in tractor performance, always keep DEF level above topmost red mark on corner post display (A). Monitor DEF level on cornerpost display and refill as necessary. Refill DEF tank every time tractor is refueled, see Diesel Exhaust Fluid (DEF) — Use in

Selective Catalytic Reduction (SCR) Equipped Engines in this Operator's Manual section.

IMPORTANT: If DEF is spilled or contacts any surface other than the storage tank, immediately clean the surface with clear water. DEF is corrosive to painted and unpainted metallic surfaces and may distort some plastic and rubber components.

To fill DEF tank:

1. Before using containers, funnels, etc. to dispense DEF, wash and rinse items thoroughly with distilled water to remove contaminants.



RXA0167615—UN—23APR19

2. Wipe DEF tank filler cap (B), area around cap and filler neck to reduce chance of contaminating DEF.
3. Lift DEF tank cap latch lever and turn cap 90° counterclockwise.
4. Lift cap from filler neck.

IMPORTANT: Avoid overfilling DEF tank.

Completely filling DEF tank at lower temperatures can cause a blockage in filler neck. If temperatures are expected to reach below -11°C (12°F), do not fill DEF tank more than half way according to DEF level display on corner post. Observe temperature guidelines to assure ability to refill tank.

5. Using funnel, carefully fill DEF tank. DO NOT over fill DEF tank. Best final fill level is determined by ambient air temperature guide:
 - Ambient air temperature at or above -11°C (12°F): Completely fill tank.
 - Ambient air temperature below -11°C (12°F): Keep fill tank level below the filler neck. Although main portion of DEF tank is heated to keep DEF from freezing, filler neck is not heated. Fluid in neck may freeze, preventing refill DEF tank until fluid melts.
6. Replace and securely latch DEF tank cap. Cap can be locked with a padlock.
7. Carefully clean any spills, using clean (preferably distilled) water.

If an unapproved fluid, such as diesel fuel, or engine coolant is added to vehicle DEF tank, see Diesel Exhaust Fluid (DEF) Tank in Service - Clean section of this Operator's Manual.

AK08008,00001F0-19-15NOV19

Testing Diesel Exhaust Fluid (DEF)

IMPORTANT: Using DEF with the correct concentration is critical to engine and aftertreatment system performance. Extended storage and other conditions can adversely alter the DEF concentration.

If DEF quality is questionable, draw a sample out of the DEF tank or storage tank into a clear container. DEF must be crystal clear with a light ammonia smell. If DEF appears cloudy, has a colored tint, or has a profound ammonia smell, it is likely not within specification. DEF in this condition should not be used. Drain tank, flush with distilled water and refill with new or good DEF. After refilling the tank, check the DEF concentration.

If the DEF passes the visual and smell test, check the DEF concentration with a handheld refractometer calibrated to measure DEF.

DEF concentration should be checked when the engine has been stored for extended periods, or if there is suspicion the engine or packaged DEF fluid has been contaminated with water.

Two approved tools are available through your John Deere dealer:

- JDG11594 Digital DEF Refractometer—A digital tool providing an easy to read concentration measurement
- JDG11684 DEF Refractometer—Low-cost alternative tool providing an analog reading

Follow instructions included with either tool to obtain the measurement.

The correct DEF concentration is 31.8—33.2% urea. If the DEF concentration is not within specification, drain the DEF tank, flush with distilled water and fill with new or good DEF. If packaged DEF is not within specification, dispose of DEF packages and replace with new or good DEF.

DX,DEF,TEST-19-13JUN13

Disposal of Diesel Exhaust Fluid (DEF)

Although there is little issue with minor spillage of DEF on the ground, large amounts of DEF should be contained. If large spills occur, contact local environmental authorities for assistance with clean-up.

If a substantial quantity of DEF is not within

Diesel Exhaust Fluid (DEF)

specification, contact the DEF supplier for assistance with disposal. Do not dump substantial quantities of DEF onto the ground or send DEF to wastewater treatment facilities.

DX,DEF,DISPOSE-19-13JUN13

Engine Oil

Diesel Engine Oil Service Interval for Operation at High Altitude

To avoid excessive oil degradation and potential engine damage, reduce oil and filter service intervals to 50% of the original recommended values when operating engines at altitudes above **1675 m (5500 ft)**.

Oil analysis may allow longer service intervals.

Use only approved oil types.

Example of Original Hours	Corresponding High Altitude Hours
125	60
150	75
175	85
200	100
250	125
275	135
300	150
350	175
375	185
400	200
500	250

DX,ENOIL,SERV,HIALT-19-11NOV14

John Deere Break-In Plus™ Engine Oil — Final Tier 4/Stage V 9.0 L [Ag] and 13.5 L Engine

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

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

During the initial operation of a new or rebuilt engine, change the oil and filter between a minimum of 100 hours and maximum equal to the interval specified for John Deere Plus-50™ II oil.

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

If John Deere Break-In Plus™ Engine Oil is not available, use an SAE 10W-30 viscosity grade diesel engine oil meeting one of the following:

- API Service Category CK-4
- API Service Category CJ-4
- ACEA Oil Sequence E9
- ACEA Oil Sequence E6

If one of these oils is used during the initial operation of

a new or rebuilt engine, change the oil and filter between a minimum of 100 hours and a maximum of 250 hours.

IMPORTANT: Do not use any other engine oils during the initial break-in of a new or rebuilt engine.

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

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

AK08008,00001F1-19-15NOV19

Break-In Engine Oil Use — Final Tier 4/ Stage V 15 L Engines

IMPORTANT: Special "break-in" engine oils (including John Deere Break-In or Break-In Plus™ Oil) are not recommended for new or rebuilt 15 L engines. Use the same lubricating oil that will be used during normal operation, see Diesel Engine Oil - Interim Tier 4, Final Tier 4, Stage IIIB, and Stage V in this Operator's Manual section.

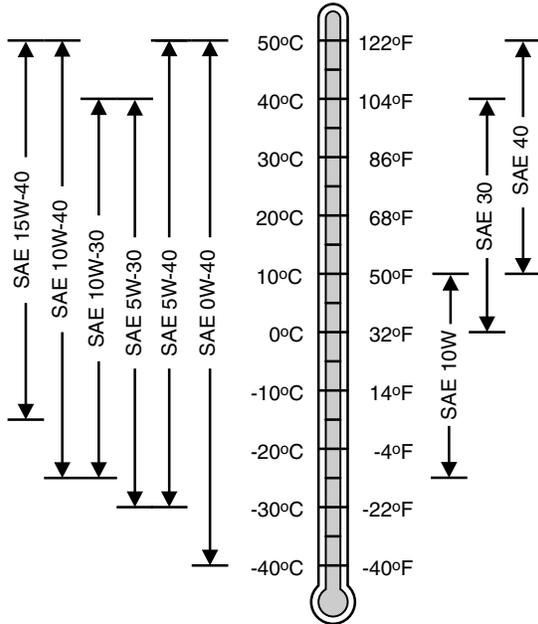
15 L engines are not shipped from the factory with break-in oil installed. Use recommended diesel engine oils. Do not use break-in oils.

AK08008,00001F2-19-15NOV19

Break-In Plus is a trademark of Deere & Company

Plus-50 is a trademark of Deere & Company.

Diesel Engine Oil — Interim Tier 4, Final Tier 4, Stage IIIB, Stage IV, and Stage V



TS1743—UN—25APR19
Oil Viscosities for Air Temperature Ranges

Failure to follow applicable oil standards and drain intervals can result in severe engine damage that might not be covered under warranty. Warranties, including the emissions warranty, are not conditioned on the use of John Deere oils, parts, or service.

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

John Deere Plus-50™ II is the recommended engine oil.

Extended service intervals may apply when John Deere Plus-50™ II engine oil is used. Refer to the engine oil drain interval table and consult your John Deere dealer for more information.

If John Deere Plus-50™ II engine oil is not available, engine oil meeting one or more of the following may be used:

- API Service Category CK-4
- API Service Category CJ-4
- ACEA Oil Sequence E9
- ACEA Oil Sequence E6

DO NOT use engine oil containing more than 1.0% sulfated ash, 0.12% phosphorus, or 0.4% sulfur.

Multi-viscosity diesel engine oils are preferred.

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

Plus-50 is a trademark of Deere & Company

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

DX,ENOIL14-19-23APR19

Engine Oil and Filter Service Intervals — Final Tier 4/Stage V - 9.0 L [Ag] and 13.5 L Engines

Recommended oil and filter service intervals are based on a combination of oil pan capacity, type of engine oil and filter used, and sulfur content of the diesel fuel. Actual service intervals also depend on operation and maintenance practices.

Use oil analysis to evaluate the condition of the oil and to aid in selection of the proper oil and filter service interval. Contact your John Deere dealer for more information on engine oil analysis.

Change the oil and oil filter at least once every 12 months even if the hours of operation are fewer than the otherwise recommended service interval.

Diesel fuel sulfur content affects engine oil and filter service intervals. Higher fuel sulfur levels reduce oil and filter service intervals.

Use of diesel fuel with sulfur content less than 15 mg/kg (15 ppm) is **REQUIRED**.

IMPORTANT: To avoid engine damage:

- **Reduce oil and filter service intervals by 50% when using BioDiesel blends greater than B20. Oil analysis may allow longer service intervals.**
- **Use only approved oil types.**

Approved Oil Types:

- John Deere Plus-50™ II
- “Other Oils” include API CK-4, CJ-4, ACEA E9, and ACEA E6

NOTE: The 500 hour extended oil and filter change interval is only allowed if all of the following conditions are met:

- *Use of diesel fuel with sulfur content less than 15 mg/kg (15 ppm)*
- *Use of John Deere Plus-50™ II oil*
- *Use of an approved John Deere oil filter*

Engine Oil and Filter Service Intervals	
John Deere Plus-50™ II	500 hours
Other Oils	250 hours

Engine Oil and Filter Service Intervals	
Oil analysis may extend the service interval of "Other Oils" to a maximum not to exceed the interval of Plus-50™ II oils.	

AK08008,00001F3-19-15NOV19

Engine Oil and Filter Service Intervals

Recommended oil and filter service intervals are based on a combination of oil pan capacity, type of engine oil and filter used, and sulfur content of the diesel fuel. Actual service intervals also depend on operation and maintenance practices.

Use oil analysis to evaluate the condition of the oil and to aid in selection of the proper oil and filter service interval. Contact your John Deere dealer for more information on engine oil analysis.

Change the oil and oil filter at least once every 12 months even if the hours of operation are fewer than the otherwise recommended service interval.

Diesel fuel sulfur content affects engine oil and filter service intervals. Higher fuel sulfur levels reduce oil and filter service intervals.

Use of diesel fuel with sulfur content less than 15 mg/kg (15 ppm) is **REQUIRED**.

IMPORTANT: To avoid engine damage:

- **BioDiesel blends greater than B20 are not recommended in 15 L engines. Oil analysis may allow longer service intervals.**
- **Use only approved oil types.**

Approved Oil Types:

- John Deere Plus-50™ II.
- "Other Oils" include API, CK-4, CJ-4, ACEA E9, and ACEA E6.

NOTE: The 400 hour extended oil and filter change interval is only allowed if all of the following conditions are met:

- *Use of diesel fuel with sulfur content less than 15 mg/kg (15 ppm).*
- *Use of John Deere Plus-50™ II oil.*
- *Use of an approved John Deere oil filter.*

Engine Oil and Filter Service Intervals	
John Deere Plus-50™ II	400 hours
Other Oils	250 hours
Oil analysis may extend the service interval of "Other Oils" to a maximum not to exceed the interval of Plus-50™ II oils.	

AK08008,00001F4-19-15NOV19

Plus-50 is a trademark of Deere & Company

Engine Coolant

Diesel Engine Coolant (engine with wet sleeve cylinder liners)

Failure to follow applicable coolant standards and drain intervals can result in severe engine damage that may not be covered under warranty. Warranties, including the emissions warranty, are not conditioned on the use of John Deere coolants, parts, or service.

Preferred Coolants

The following pre-mix engine coolants are preferred:

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

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

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

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

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

Additional Recommended Coolants

The following engine coolant is also recommended:

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

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

Other Coolants

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

- Pre-mix coolant meeting ASTM D6210 requirements
- Is formulated with a 2-ethylhexanoic acid (2-EHA) free additive package
- Coolant concentrate meeting ASTM D6210 requirements in a 40—60% mixture of concentrate with quality water

COOL-GARD is a trademark of Deere & Company

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

- Provides cylinder liner cavitation protection according to either the John Deere Cavitation Test Method or a fleet study run at or above 60% load capacity
- Is formulated with a nitrite-free additive package
- Is formulated with a 2-ethylhexanoic acid (2-EHA) free additive package
- Protects the cooling system metals (cast iron, aluminum alloys, and copper alloys such as brass) from corrosion

Water Quality

Water quality is important to the performance of the cooling system. Deionized or demineralized water is recommended for mixing with ethylene glycol and propylene glycol base engine coolant concentrate.

Coolant Drain Intervals

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

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

If a coolant other than COOL-GARD II or COOL-GARD II PG is used, reduce the drain interval to 2 years or 2000 hours of operation.¹

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

Do not mix ethylene glycol and propylene glycol base coolants.

Do not use coolants that contain nitrites.

DX,COOL3-19-25AUG20

John Deere COOL-GARD™ II Coolant Extender

Some coolant additives gradually deplete during engine operation. For COOL-GARD™ II pre-mix and COOL-GARD II Concentrate, replenish coolant additives between drain intervals by adding COOL-GARD II Coolant Extender.

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¹ Coolant analysis may extend the service interval of other "Coolants" to a maximum not to exceed the interval of Cool-Gard II coolants. Coolant analysis means taking a series of coolant samples at 1000 hour increments beyond the normal service interval until either the data indicate the end of useful coolant life or the maximum service interval of Cool-Gard II is reached.

COOL-GARD II Coolant Extender should not be added unless indicated by COOL-GARD II Test Strips. These test strips provide a simple, effective method to check the freeze point, additive levels, and pH of your engine coolant.

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

IMPORTANT: Do not use COOL-GARD II Test Strips with COOL-GARD II PG.

COOL-GARD II Coolant Extender is a chemically matched additive system for use with all COOL-GARD II coolants. COOL-GARD II Coolant Extender is not intended for use with nitrite-containing coolants.

IMPORTANT: Do not add a supplemental coolant additive when the cooling system is drained and refilled with any of the following:

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

The use of non-recommended supplemental coolant additives can result in additive drop-out, gelation of the coolant, or corrosion of cooling system components.

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

DX,COOL16-19-15MAY13

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

Water Quality for Mixing with Coolant Concentrate

Engine coolants are a combination of three chemical

components: ethylene glycol (EG) or propylene glycol (PG) antifreeze, inhibiting coolant additives, and quality water.

Water quality is important to the performance of the cooling system. Deionized or demineralized water is recommended for mixing with ethylene glycol and propylene glycol base engine coolant concentrate.

All water used in the cooling system should meet the following minimum specifications for quality:

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

IMPORTANT: Do not use bottled drinking water because it often contains higher concentrations of total dissolved solids.

Freeze Protection

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

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

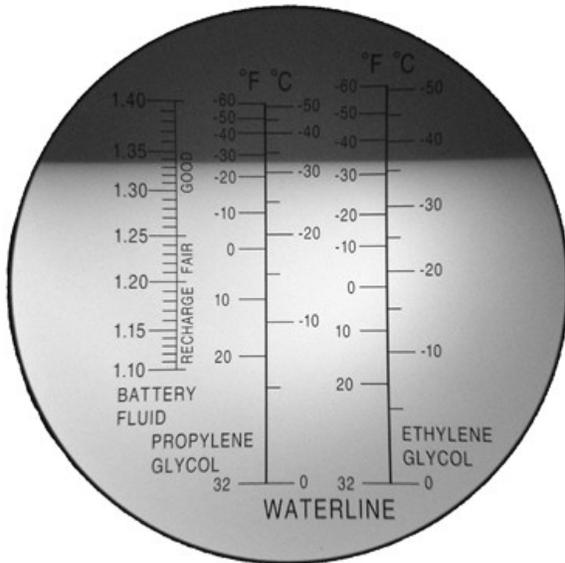
DO NOT use a coolant-water mixture greater than 60% ethylene glycol or 60% propylene glycol.

DX,COOL19-19-13JAN18

Testing Coolant Freeze Point



TS1732—UN—04SEP13
SERVICEGARD™ Part Number 75240



TS1733—UN—04SEP13

Image with a Drop of 50/50 Coolant Placed on the Refractometer Window

The use of a handheld coolant refractometer is the quickest, easiest, and most accurate method to determine coolant freeze point. This method is more accurate than a test strip or a float-type hydrometer which can produce poor results.

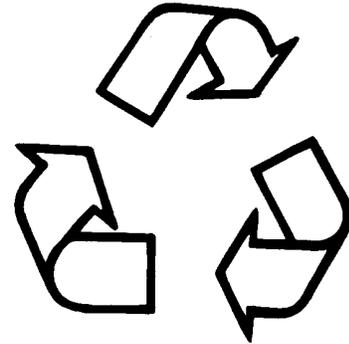
A coolant refractometer is available through your John Deere dealer under the SERVICEGARD™ tool program. Part number 75240 provides an economical solution to accurate freeze point determination in the field.

To use this tool:

1. Allow cooling system to cool to ambient temperatures.
2. Open radiator cap to expose coolant.
3. With the included dropper, collect a small coolant sample.
4. Open the lid of the refractometer, place one drop of coolant on the window and close the lid.
5. Look through the eyepiece and focus as necessary.
6. Record the listed freeze point for the type of coolant (ethylene glycol coolant or propylene glycol) being tested.

DX.COOL.TEST-19-13JUN13

Disposing of Coolant



TS1133—UN—15APR13

Recycle Waste

Improperly disposing of engine coolant can threaten the environment and ecology.

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

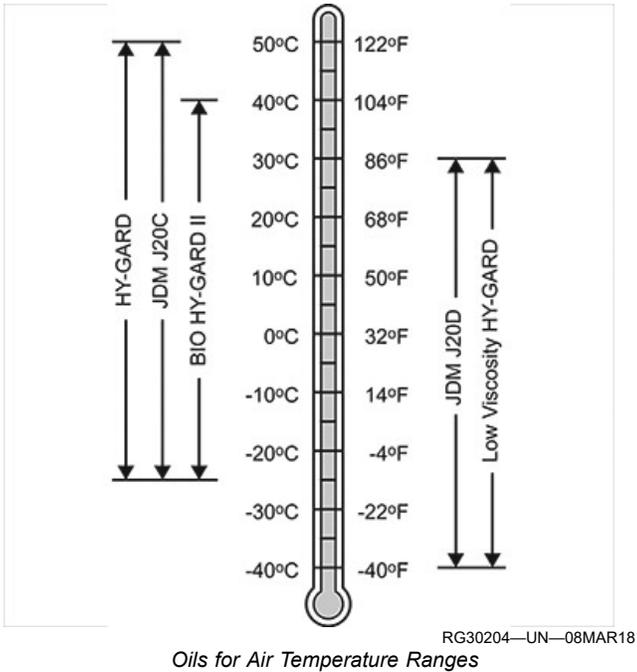
Do not pour waste onto the ground, down a drain, or into any water source.

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

AK08008,00001F5-19-15NOV19

Other Lubricants

Transmission and Hydraulic Oil



IMPORTANT: To ensure proper shift quality, an oil meeting Hy-Gard™ or JDM J20C specifications must be used.

Shift quality problems and/or drivetrain damage may occur if the Hy-Gard™ or JDM J20C specifications are not followed.

Tractor transmission/axle and hydraulic reservoir is factory filled with John Deere Hy-Gard™ JDM J20C oil.

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

The following oils are preferred:

- John Deere Hy-Gard™
- John Deere Low Viscosity Hy-Gard™

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

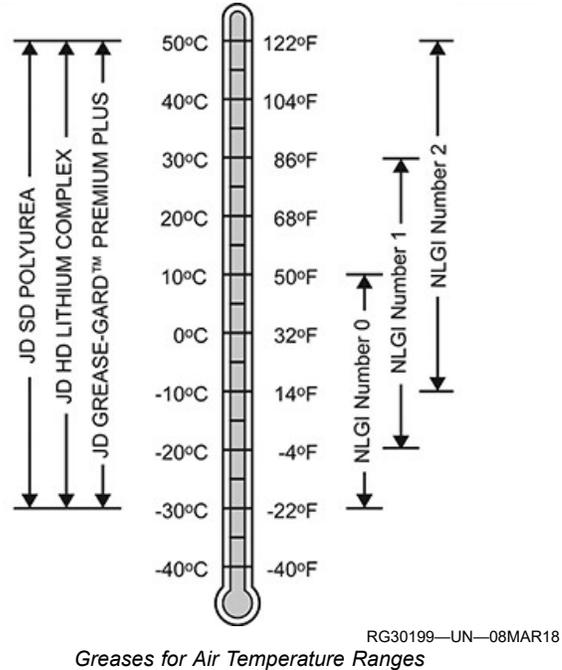
- John Deere Standard JDM J20C
- John Deere Standard JDM J20D

Use John Deere Bio Hy-Gard™ II oil when a biodegradable fluid is required.¹

AK08008,00001F6-19-15NOV19

Multipurpose Extreme Pressure (EP) Grease

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



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

John Deere SD Polyurea Grease is preferred.

The following greases are also recommended:

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

Other greases may be used if they meet the following:

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

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

DX,GREA1-19-13JAN18

Hy-Gard is a trademark of Deere & Company
Bio Hy-Gard is a trademark of Deere & Company

¹ Bio Hy-Gard II meets or exceeds the minimum biodegradability of 80% within 21 days according to CEC-L-33-T-82 test method. Bio Hy-Gard II should not be mixed with mineral oils, because this reduces the biodegradability and makes proper oil recycling impossible.

Grease-Gard is a trademark of Deere & Company

Lubricant Storage

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

Use clean containers to handle all lubricants.

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

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

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

DX,LUBST-19-11APR11

Mixing of Lubricants

In general, avoid mixing different brands or types of oil. Oil manufacturers blend additives in their oils to meet certain specifications and performance requirements.

Mixing different oils can interfere with the proper functioning of these additives and degrade lubricant performance.

Consult your John Deere dealer to obtain specific information and recommendations.

DX,LUBMIX-19-18MAR96

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

Service - General Information

Service Sections Overview

⚠ CAUTION: Avoid personal injury. After completing any service procedure, reinstall any shields or covers that have been removed and close and securely latch hood.

IMPORTANT: This publication is not a detailed service manual. Procedures shown cover routine maintenance and service. For more detailed service information, purchase a Technical Manual through your John Deere dealer.

IMPORTANT: Recommended service intervals are for average conditions. Service more often if tractor is operated under adverse conditions.

Service sections provide information on service processes and procedures.

Fuel, Lubrication, and Coolants Sections:

Information on approved fluids for operation and service. Also included are guides to selection of correct service intervals for such procedures as engine oil refill.

Break-In Service: Perform listed services during first 100 hours of operation.

Engine Oil and Filter Change: Acceptable engine oils based on emissions configuration of tractor engine. Indicate which oil was used for refill and complete data block at each service.

Annual Service: Services listed are performed annually or at some multiple of years. Complete service and data block.

As Required Service: Complete records for services and repairs that are performed at other than regular service intervals.

Daily or 10 Hour and 50 Hour Services: Perform these services every day or every 10 hours and every 50 hours. Forms do not include check boxes. All services listed for these intervals are included on hourly service interval charts.

Hourly Interval Services: Charts are provided based on standard service intervals. Tasks on charts match organization of service procedure sections (example: Service – Clean). Individual service procedures are grouped within these sections (example: Dual Beam Radar Sensor).

When listed operating hours have elapsed, stop tractor as soon as practical and complete all listed services. Check off services as completed.

Engine hour meter can be used to signal time to perform these services. The hour meter operates whenever the engine is running and shows the accumulated hours of engine operation. Engine hour meter is factory set to 250 hours, but can be reset to any desired elapsed time.

See Service Intervals in CommandCenter™ section of this Operator's Manual.

Master charts are provided for service interval of up to 6000 hours. An additional set of charts allow recording services beyond 6000 hours.

Service Procedure Sections: Various scheduled and unscheduled service procedures are organized by procedure type within six sections. Appropriate Service sections and task names are referenced in Service Record Charts (example: Change: Engine Oil and Filter). Electrical section includes all service information for lighting, fuses, and relays.

Troubleshooting Sections: Procedural troubleshooting is provided, as well as information on dealing with Diagnostic Trouble Codes (DTCs) that may display on the CommandCenter™.

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Service Tasks Performed As Required

IMPORTANT: Perform service tasks when instruments or tractor function indicates that they are required, even if at a time other than specified in Service Interval charts.

Occasionally, operating conditions may require a scheduled service to be performed sooner than indicated on Service Interval charts (for example, air filters). When such a task is performed, record its completion in an As Required Service chart.

AK08008,00001F8-19-15NOV19

Identify Tractor Engine Emissions Status

IMPORTANT: To determine tractor engine type, see Engine Serial Number in Identification Number Section of this Operator's Manual.

Some service procedures differ depending upon emissions equipment with which tractor engine is equipped.

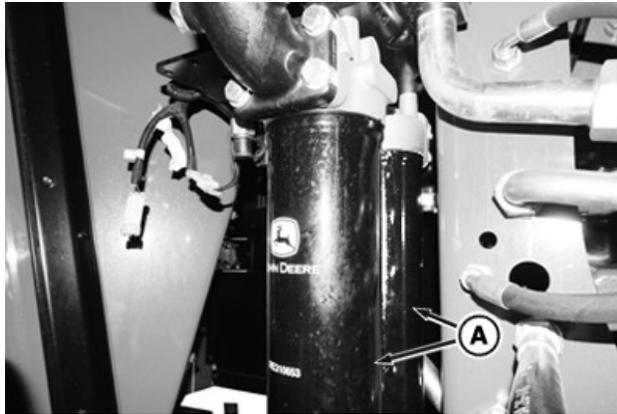
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Single or Double Reduction Axle Identification

Higher power tractors are equipped with double reduction front and rear axles to allow transfer of this power from the transmission to the ground.

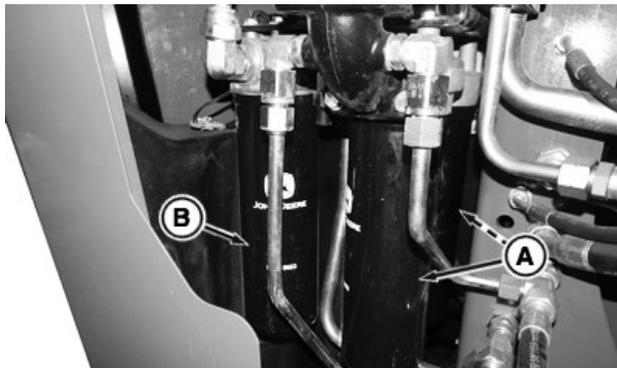
IMPORTANT: Identification of type of axle may be necessary for some procedures in this Operator's Manual.

In some situations, it is important to know whether a tractor is single or double reduction axle equipped. A list of tractors and the axle type is available in Transmission and Power Train in Specifications section of this Operator's Manual.



RXA0142114—UN—06JUN14

Single Reduction Axle



RXA0142105—UN—06JUN14

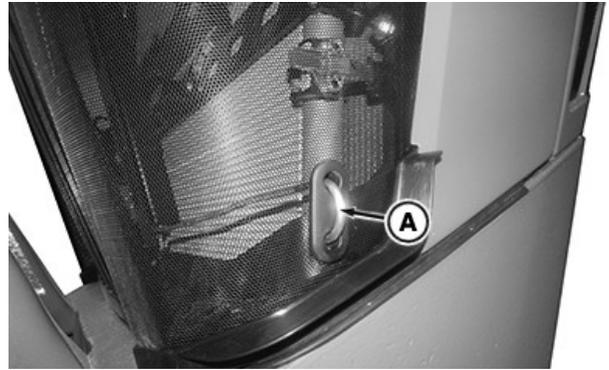
Double Reduction Axle

Additionally, a difference in components allow quick identification of axle type. All tractors are equipped with dual hydraulic oil filters (A) on left-hand side of gudgeon. But, double reduction axle equipped tractors are also equipped with a double reduction axle oil filter (B).

KD34109,00005C9-19-17MAR20

Open Hood

⚠ CAUTION: Avoid injury. Close and latch hood securely before starting engine.



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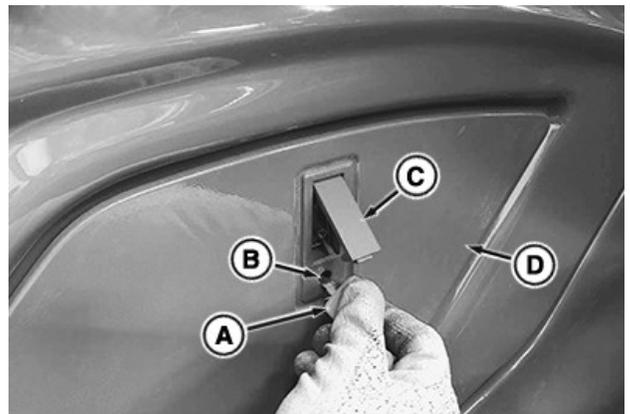
1. Pull hood release (A).
2. Raise hood.

AK08008,00001FB-19-15NOV19

Remove Engine Access Panel

⚠ CAUTION: Avoid physical injury and equipment damage:

- Never start engine with shields removed or hood open.
- Always close and securely latch hood.



RXA0166820—UN—05MAR19

1. Insert key (A) into the panel lock (B).
2. Panel latch (C) opens.
3. Remove engine access panel (D).

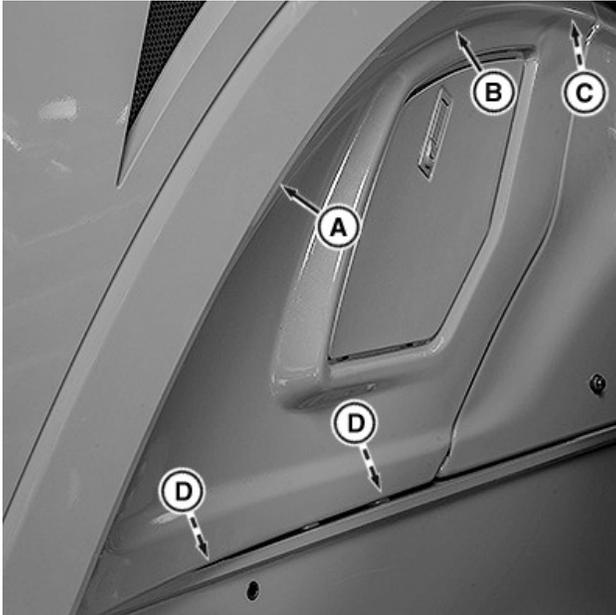
AK08008,00001FC-19-15NOV19

Remove Front Engine Side Shield

⚠ CAUTION: Avoid physical injury and equipment damage:

- Never start engine with shields removed or hood open.
- Always close and securely latch hood.

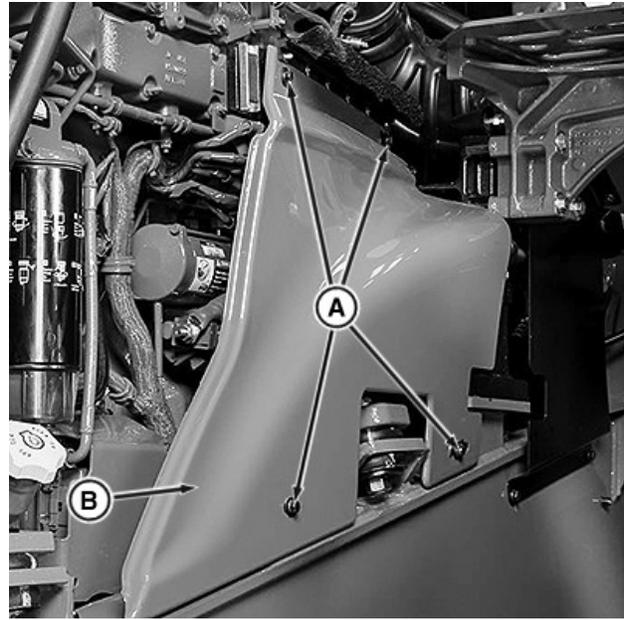
1. Open hood. See Open Hood in this Operators Manual section.



RXA0163065—UN—26APR18

2. Push latch (A).
3. Remove top of engine side shield (B) from magnet (C).
4. Lift engine side shield from alignment posts (D).

AK08008,00001FD-19-15NOV19



RXA0163066—UN—26APR18

3. Remove cap screws (A).
4. Remove rear engine side shield (B).
5. When reinstalling rear engine side shield torque bolts to 40 N·m (30 lb·ft).

AK08008,00001FE-19-15NOV19

Remove Rear Engine Side Shield

CAUTION: Avoid physical injury and equipment damage:

- Never start engine with shields removed or hood open.
- Always close and securely latch hood.

1. Open hood. See Open Hood in this Operator's Manual section.
2. Remove front engine side shield. See Remove Front Engine Side Shield in the Operator's Manual section.

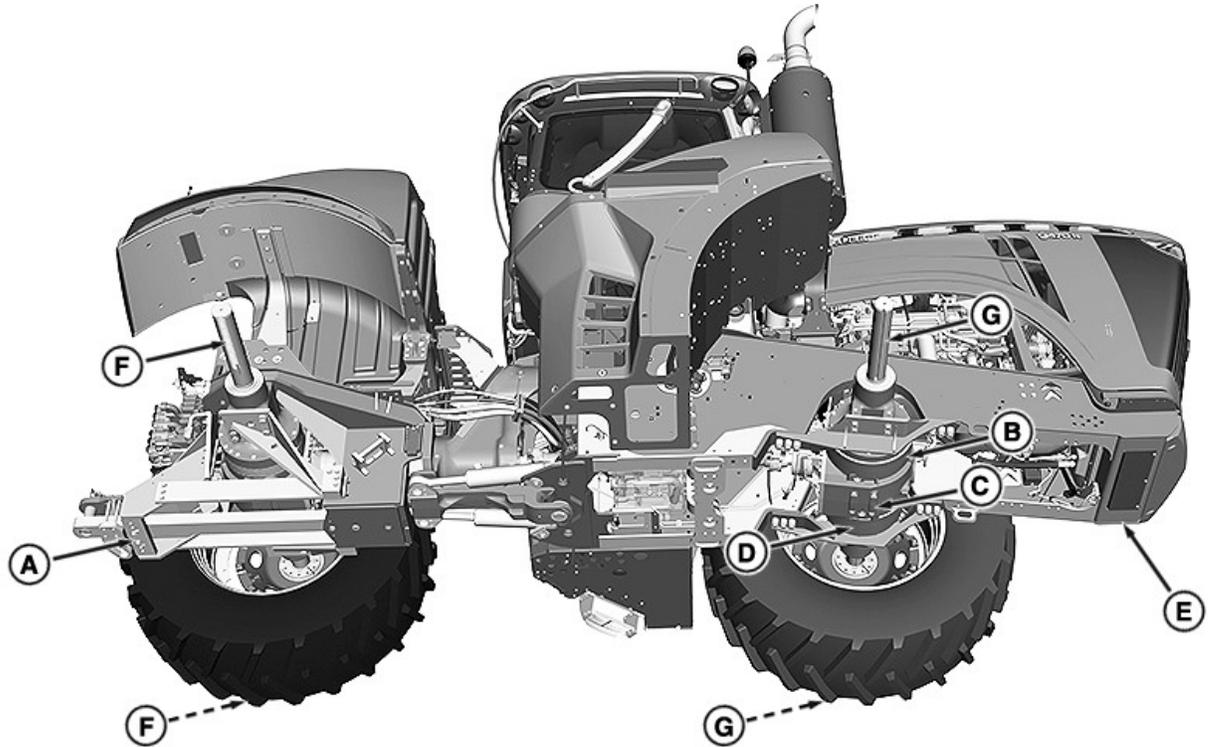
Jack Up Tractor - Lifting Points and Support Stand Placement (EU 1322/2014)

CAUTION: Use approved lifting equipment only. Install oscillation stop (K) to prevent oscillation during axle removal. Failure to do so may result in injury.

Jack up tractor on firm, level ground only. Before doing any further work on tractor, secure it using suitable support stands.

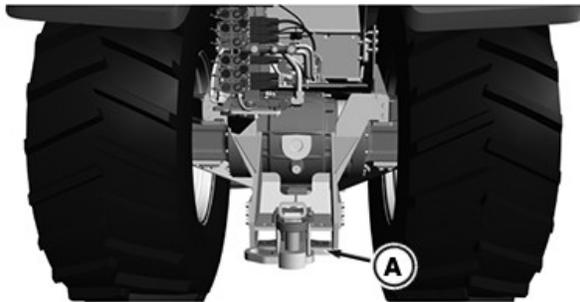
Special John Deere tools shown can be used for this purpose. Support stands are available from your John Deere dealer.

Recommended lifting points for jacking up tractor. Use appropriate and suitable lifting device.

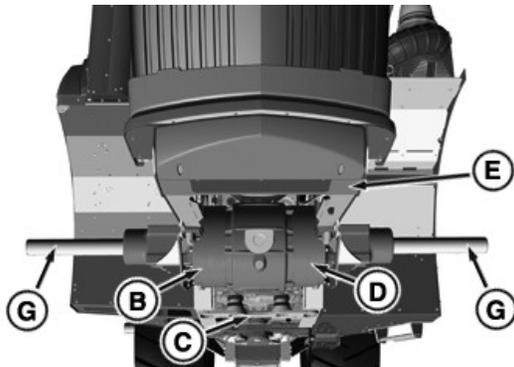


Underside, Lifting Points

RXA0153764—UN—01SEP16



RXA0160309—UN—27JUL17



RXA0162454—UN—08MAR18

Jack up the Front End of Tractor

A— Raise rear of tractor (example: to remove rear wheels)

B— Raise right-hand end of front differential (example: to remove right-hand front wheel)

C— Raise center of front differential housing

D— Raise left-hand side of front differential (example: to remove left-hand front wheel)

⚠ CAUTION: Never attempt to lift tractor using front weights, front weight support, or the cooling package cleanout cover.

E— Raise front end of tractor under the frame

F— Rear axle support stand placement

G— Front axle support stand placement

1. Disconnect battery ground cable. See Service Batteries and Connectors in Service - Electrical section of this Operator's Manual.

⚠ CAUTION: Avoid personal injury. Always use appropriate equipment to install, change, or uninstall weights. If appropriate equipment is not available, have job performed by your John Deere dealer.

2. Remove front weights.

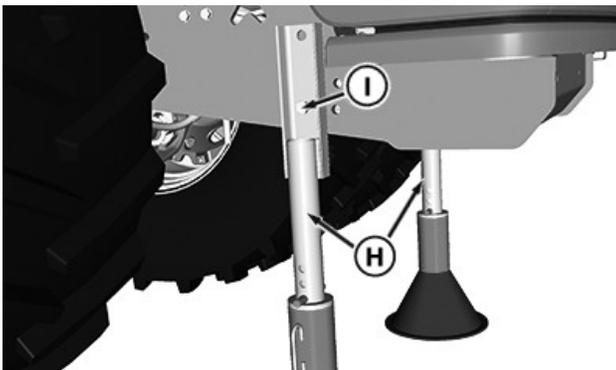
3. Install front support stands:

NOTE: Grease fitting may need removed to allow for tool access.



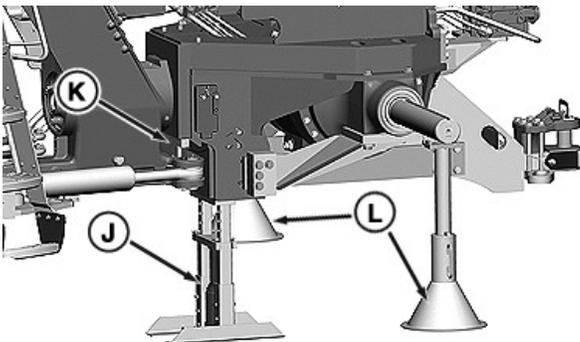
RXA0162441—UN—07MAR18

- a. Install DFRW254—Gudgeon Oscillation Stop—DR Axle (K) to keep frame from oscillating.



RXA0162396—UN—01MAR18

- b. Install JDG1277A support stands (H) and attach each side of frame using cap screws (I).



RXA0162397—UN—01MAR18

Oscillation Stop and Support Stands

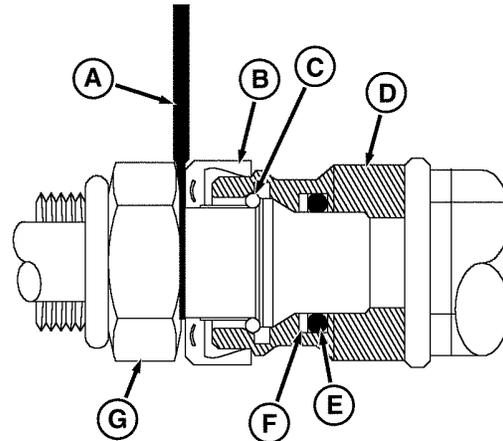
- c. Remove wheels and place JT07211 support stands (L) under axles.
4. Install rear support stands:
- NOTE: Grease fitting may need removed to allow for tool access.*
- a. Install DFRW254—Gudgeon Oscillation Stop—DR Axle (K) to keep frame from oscillating.
- b. Install JT05725 universal support stand (J).

- c. Remove wheels and place JT07211 support stands (L) under axles.

AK08008,00001FF-19-19MAR20

Service and Connect STC® (Snap-to-Connect) Fittings

⚠ CAUTION: Do not disconnect STC® (Snap-to-Connect) fitting when under pressure. Failure to relieve pressure before disconnecting fitting may result in personal injury, damage to equipment or both.



RXA0080095—UN—31MAR05

STC® fittings are used on steel lines, hose connections and come in a variety of sizes. JDG1885 STC® tool (A) is designed as a spacer to move release ring (B) inward which releases retaining ring (C). Purchase tool from your John Deere dealer.

IMPORTANT: Do not use tool to pry fittings apart. Prying with tool may damage fitting and tool.

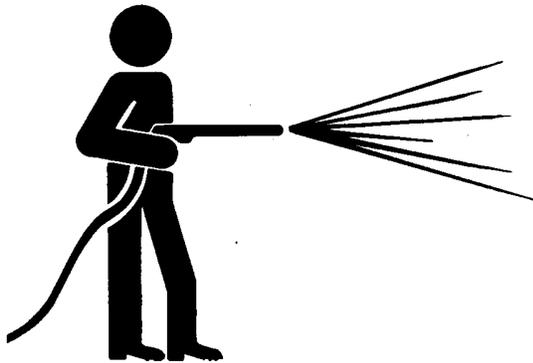
NOTE: If retaining ring, back up ring (F) or O-ring (E) are damaged. See your John Deere dealer for replacement kit, and replace all three parts.

1. Insert correct STC® tool between release ring and fitting.
2. Remove hose or line from connector.
3. Before connecting STC® fitting and mating check surfaces for:
 - Nicks
 - Scratches
 - Flat spots
4. Check for wear or damage:
 - O-ring
 - Back up ring
 - Retaining ring

5. Check for contaminants:
 - Female end (D)
 - Male end (G)
6. Place release ring on male end fitting.
7. Push fitting halves together until a definite snap and solid stop is felt.
8. Pull back on hose to make sure that fitting halves are locked together.

AK08008,0000200-19-15NOV19

High-Pressure Washer Use



T6642EJ—UN—18OCT88

IMPORTANT: Avoid damage to components. Always use reduced pressure and spray at a 45—90° angle. Never spray pressurized water directly at:

- Electronic/electrical components and connectors.
- Bearings and hydraulic seals.
- Fuel injection pumps.
- Exhaust outlet.
- Engine air intake.
- Fluid tanks' fill openings and breathers.
- Any sensitive parts and components.

AK08008,0000201-19-15NOV19

Transmission Calibration

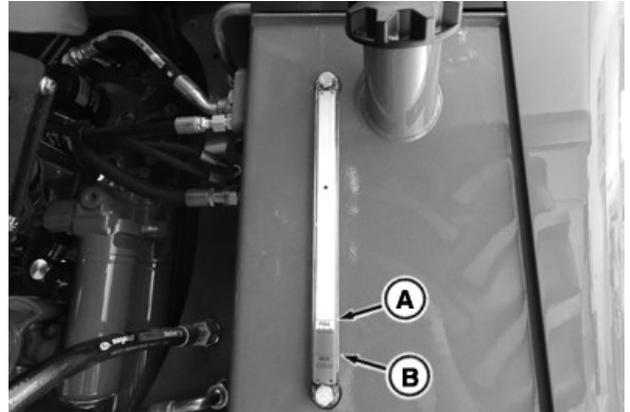
When to Calibrate

Transmission calibration is recommended when:

- A clutch solenoid or valve is replaced.
- Shift quality has degraded.
- Transmission filters are replaced.
- Transmission hydraulic fluid is changed.
- Transmission system control unit (PTP) is replaced.

- Transmission is removed for maintenance or replaced for any reason.

Check Oil Level and Warm-Up Procedure Before Calibration



RXA0142195—UN—10JUN14

1. Check oil level sight gauge in hydraulic oil reservoir. Oil level should be between Full Cold (A) and Min. Cold (B) marks.

NOTE: Only calibrate transmission if shift characteristics change after transmission oil and filter change.

Do not perform oil check soon after transporting tractor in 15th or a higher gear.

IMPORTANT: Poor shift quality or transmission damage may occur if incorrect transmission-hydraulic oil is used, see Transmission and Hydraulic Oil in Other Lubricants section of this Operator's Manual.

2. Heat hydraulic oil, see Warm-Up Transmission-Hydraulic System in Transmission—General Information section of this Operator's Manual.
3. When oil is at desired temperature, drive to a level surface.

NOTE: DO NOT depress brake pedal during this portion of oil warming procedure. If brake pedal is depressed, additional oil will flow to axles and result in inaccurate oil level reading.

4. Shift transmission lever to PARK. Set engine speed at 1800 rpm and run for 5 minutes.

IMPORTANT: Do not operate tractor if oil level is below "Min Cold" mark (B) in sight gauge with engine off.

NOTE: Reduce engine speed to slow idle, shut engine OFF, and wait 5 minutes for oil to stabilize.

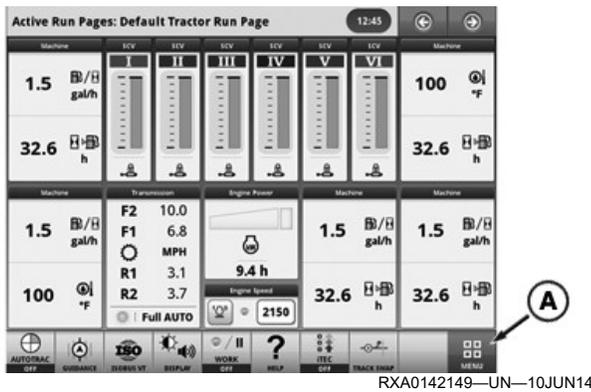
CAUTION: Perform transmission calibration with tractor in an open, outdoor area on flat ground. Do not permit others near tractor during procedure.

Verify park brake is functioning properly.

While calibrating, remain in the operator's seat. Depending on transmission-hydraulic oil temperature at start of procedure, calibration typically takes 12-15 minutes.

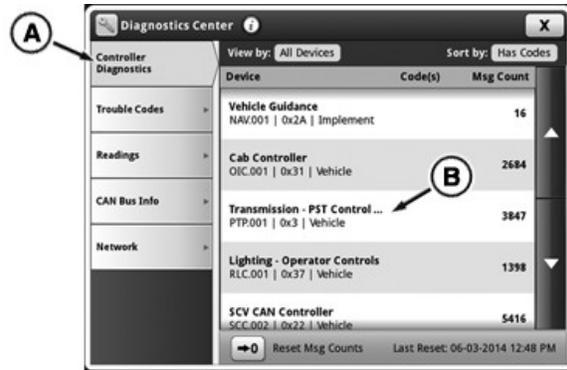
IMPORTANT: Serious damage to transmission may result if oil level is inadequate.

5. Make sure Efficiency Manager™ is disabled.



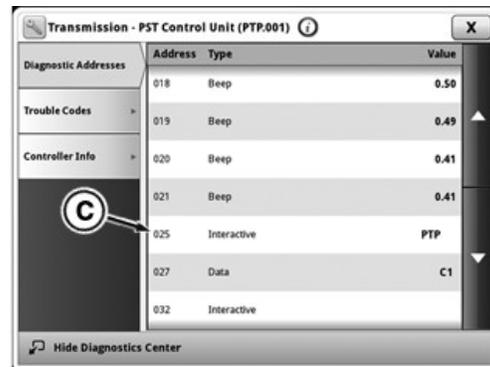
6. Press the Menu button (A) and select System Tab (B).

7. Select Diagnostic Center Icon (C).



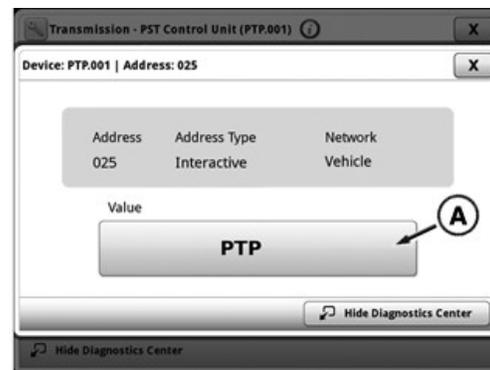
8. Select Controller Diagnostics Tab (A).

9. Select Transmission-PST Control (PTP.001) (B) from list.



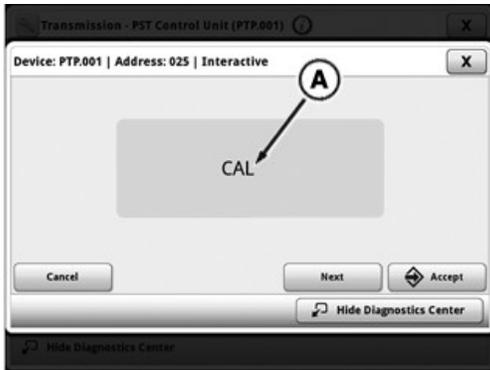
10. Select Address 025 (C) in drop down menu.

CAUTION: Leave shift lever in PARK. Placing shift lever in F or R results in tractor movement.

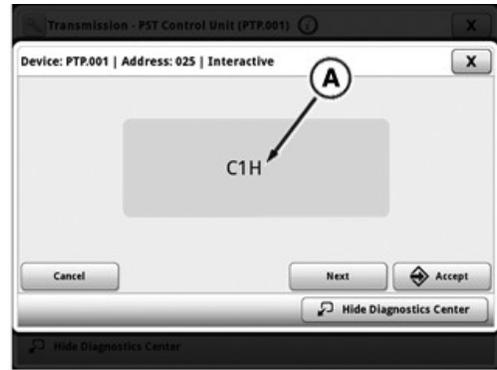


11. PTP should appear on Secondary Display Unit display. Press PTP button (A).

IMPORTANT: Do not leave seat. Operator presence must be detected in this step to allow calibration to continue.



RXA0142154—UN—10JUN14



RXA0142193—UN—10JUN14

12. When CAL (A) appears on Secondary Display Unit display, transmission calibration is ready to begin.
13. Adjust throttle to 1650 engine rpm.

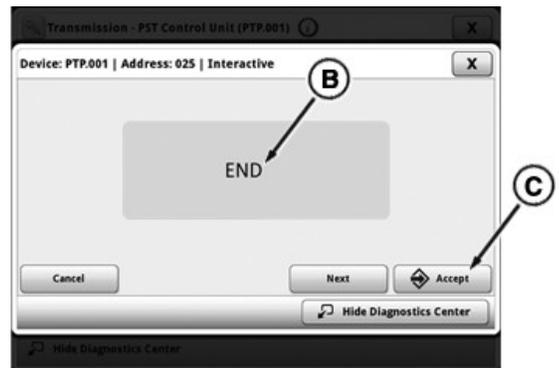
CAUTION: If “P” is NOT displayed on corner post display, do not proceed with calibration. Leave shift lever in PARK. Lever movement to F position will result in unintended tractor movement. Return to Step 2.

14. Move shift lever to N position. P should be displayed on the corner post PDU display.
15. Move shift lever to F position to start calibration.
16. If CLD appears, transmission oil temperature has dropped to less than 50°C (122°F) PTP will halt calibration until temperature has increased sufficiently to allow calibration to restart. If oil temperature (available in PTP Address 33) is more than a few degrees below 50°C (122°F), manually heat oil.

NOTE: Once calibration begins, do not manually change throttle position, move shift lever, or depress clutch pedal. Calibration will be aborted.

NOTE: If calibration aborts due to a fault (for example: no engine or transmission activity is heard for a period of 30 seconds or longer), a three-letter fault message is displayed. Record code. Another calibration attempt may be made if desired, see Abort Transmission Calibration in this section of this Operator’s Manual.

17. When calibration starts, C1H (A) appears. C1H indicates Clutch 1 Hold calibration is in progress. As calibration continues, clutch hold calculations for clutches C2, CR, CA, CB, CC, CL, CM, and CH follows. Display indicates which step is being performed during process.
18. When all nine clutch hold stage calibrations are complete, C1F displays as next phase of calibration begins. C1F indicates that Clutch 1 Fill time calibration is in progress. As calibration continues, clutch fill calculations for clutches C2, CR, CA, CB, CC, CM, and CH follows. Display indicates which step is being performed during process.



RXA0142194—UN—10JUN14

19. When END (B) appears, calibration is complete.
- NOTE:* Use correct calibration exit procedure to avoid generating unnecessary Diagnostic Trouble Codes (DTCs).

20. Move shift lever from F to PARK.
21. Throttle down.
22. Press Accept button (C) to save and exit calibration

NOTE: Display shows instructions for operator and malfunctions that have occurred. If a malfunction is displayed during calibration, new data is not stored.

23. Turn off the engine. PTP will store new calibration.

Service - General Information

Calibration Fault	Meaning	Instruction
CLD	Transmission oil is below 50°C (122°F). Automatic warm-up is in progress.	No action required. Wait for automatic warm-up to warm oil to 50°C (122°F). Calibration begins automatically once temperature is reached.
OIL	Transmission oil temperature is below minimum temperature of 10°C (50°F) to begin automatic warm-up.	Manually heat hydraulic oil to 50°C (122°F), see manual Warm-up for Calibration at beginning of this section.
SPD	Engine speed is not within required range of 1600-1700 rpm to begin or continue calibration.	Set engine speed to 1650 rpm.
CLU	Clutch pedal is not UP or was depressed by operator during calibration.	Make sure that clutch pedal is fully UP, and do not depress during calibration.
NOP	Operator is not in seat when calibration is initiated.	Remain seated during transmission calibration.
FLT	Transmission oil filters are restricted.	Replace transmission filters. Retry calibration after filter replacement.

AK08008,0000205-19-16APR21

Abort Transmission Calibration

PTP aborts calibration, and makes no changes to stored calibration values from last complete calibration if:

- Significant tractor motion is detected
- Address number is incremented or decremented by operator
- System detects problem during calibration
- Shift lever is moved out of gear
- Engine speed moves above or below calibration limits

If calibration aborts, transmission system reverts to last good calibration. If recalibration is still required, a new calibration procedure must be started. Calibration cannot be restarted from point at which it stopped.

AK08008,0000206-19-15NOV19

Do Not Modify Fuel System

IMPORTANT: Increasing horsepower, or altering any aspect of fuel and air delivery on emissions certified engines beyond factory rating, causes emission levels beyond what is approved by United States Environmental Protection Agency (EPA) or equivalent agency. Violations of regulations may result in substantial fines to persons or companies committing such violations.

Tractor warranty is void if power level is changed from factory specifications.

Do not attempt to service injection pump or fuel injectors yourself. Special training and special tools are required. See your John Deere dealer.

AK08008,0000207-19-15NOV19

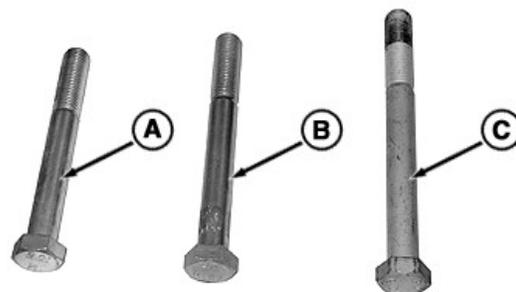
Bleed Fuel System

If Diagnostic Trouble Code (DTC) indicates fuel system problem, and fuel system and filters are found to be correct - or if (even without a DTC present) tractor does not run correctly or fails to start, fuel injection system may need to be bled of air.

1. Turn key switch to run position. Electric fuel pump starts and bleeds air from the fuel system.
2. Allow pump to run for 30 seconds to 1 minute before attempting to restart engine. If the problem persists, see your John Deere dealer.

AK08008,0000208-19-15NOV19

Identify Zinc-Flake Coated Fasteners



RXA0073812—UN—03MAR04

Standard cap screws (A) are of a reflective silver color.

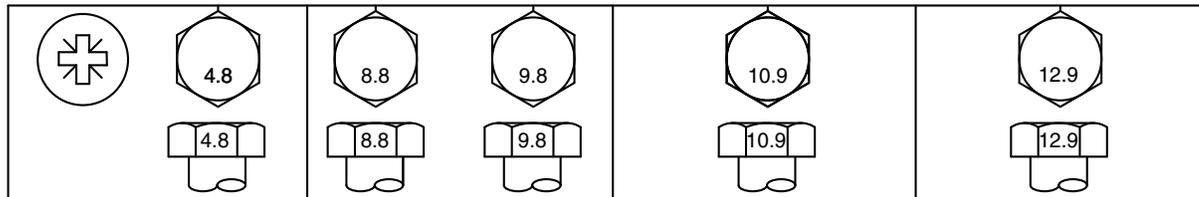
Zinc Plated cap screws (B) are of a reflective bright silver or gold color.

Zinc-Flake Coated cap screws (C) are of a dull silver or gold color.

NOTE: Zinc-Flake Coated fasteners are tightened to lubricated specifications, unless otherwise noted. See Torque Value Charts in this Operator's Manual section.

AK08008,0000209-19-15NOV19

Metric Bolt and Screw Torque Values



TS1742—UN—31MAY18

Bolt or Screw Size	Class 4.8				Class 8.8 or 9.8				Class 10.9				Class 12.9			
	Hex Head ^a		Flange Head ^b		Hex Head ^a		Flange Head ^b		Hex Head ^a		Flange Head ^b		Hex Head ^a		Flange Head ^b	
	N·m	lb·in	N·m	lb·in												
M6	3.6	31.9	3.9	34.5	6.7	59.3	7.3	64.6	9.8	86.7	10.8	95.6	11.5	102	12.6	112
									N·m	lb·ft	N·m	lb·ft	N·m	lb·ft	N·m	lb·ft
M8	8.6	76.1	9.4	83.2	16.2	143	17.6	156	23.8	17.6	25.9	19.1	27.8	20.5	30.3	22.3
			N·m	lb·ft	N·m	lb·ft	N·m	lb·ft								
M10	16.9	150	18.4	13.6	31.9	23.5	34.7	25.6	46.8	34.5	51	37.6	55	40.6	60	44.3
	N·m	lb·ft														
M12	—	—	—	—	55	40.6	61	45	81	59.7	89	65.6	95	70.1	105	77.4
M14	—	—	—	—	87	64.2	96	70.8	128	94.4	141	104	150	111	165	122
M16	—	—	—	—	135	99.6	149	110	198	146	219	162	232	171	257	190
M18	—	—	—	—	193	142	214	158	275	203	304	224	322	245	356	263
M20	—	—	—	—	272	201	301	222	387	285	428	316	453	334	501	370
M22	—	—	—	—	365	263	405	299	520	384	576	425	608	448	674	497
M24	—	—	—	—	468	345	518	382	666	491	738	544	780	575	864	637
M27	—	—	—	—	683	504	758	559	973	718	1080	797	1139	840	1263	932
M30	—	—	—	—	932	687	1029	759	1327	979	1466	1081	1553	1145	1715	1265
M33	—	—	—	—	1258	928	1398	1031	1788	1319	1986	1465	2092	1543	2324	1714
M36	—	—	—	—	1617	1193	1789	1319	2303	1699	2548	1879	2695	1988	2982	2199

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

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

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

Service - General Information

Bolt or Screw Size	Class 4.8		Class 8.8 or 9.8		Class 10.9		Class 12.9	
	Hex Head ^a	Flange Head ^b						

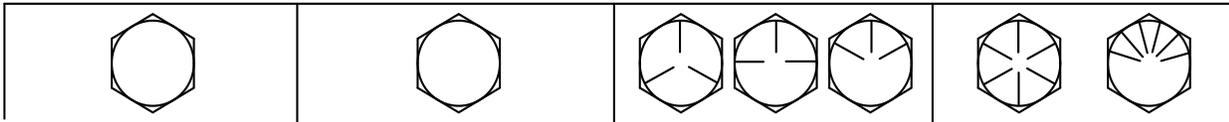
TS1741—UN—22MAY18

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

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

DX,TORQ2-19-30MAY18

Unified Inch Bolt and Screw Torque Values



TS1671—UN—01MAY03

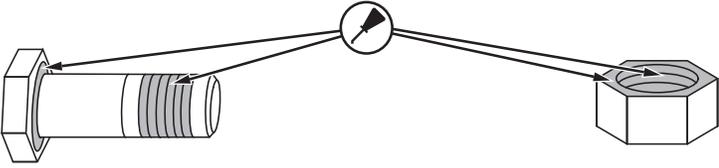
Bolt or Screw Size	SAE Grade 1 ^a				SAE Grade 2 ^b				SAE Grade 5, 5.1 or 5.2				SAE Grade 8 or 8.2			
	Hex Head ^c		Flange Head ^d		Hex Head ^c		Flange Head ^d		Hex Head ^c		Flange Head ^d		Hex Head ^c		Flange Head ^d	
	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in
1/4	3.1	27.3	3.2	28.4	5.1	45.5	5.3	47.3	7.9	70.2	8.3	73.1	11.2	99.2	11.6	103
													N·m	lb·ft	N·m	lb·ft
5/16	6.1	54.1	6.5	57.7	10.2	90.2	10.9	96.2	15.7	139	16.8	149	22.2	16.4	23.7	17.5
									N·m	lb·ft	N·m	lb·ft				
3/8	10.5	93.6	11.5	102	17.6	156	19.2	170	27.3	20.1	29.7	21.9	38.5	28.4	41.9	30.9
					N·m	lb·ft	N·m	lb·ft								
7/16	16.7	148	18.4	163	27.8	20.5	30.6	22.6	43	31.7	47.3	34.9	60.6	44.7	66.8	49.3
	N·m	lb·ft	N·m	lb·ft												
1/2	25.9	19.1	28.2	20.8	43.1	31.8	47	34.7	66.6	49.1	72.8	53.7	94	69.3	103	75.8
9/16	36.7	27.1	40.5	29.9	61.1	45.1	67.5	49.8	94.6	69.8	104	77	134	98.5	148	109
5/8	51	37.6	55.9	41.2	85	62.7	93.1	68.7	131	96.9	144	106	186	137	203	150
3/4	89.5	66	98	72.3	149	110	164	121	230	170	252	186	325	240	357	263
7/8	144	106	157	116	144	106	157	116	370	273	405	299	522	385	572	422
1	216	159	236	174	216	159	236	174	556	410	609	449	785	579	860	634
1-1/8	305	225	335	247	305	225	335	247	685	505	751	554	1110	819	1218	898
1-1/4	427	315	469	346	427	315	469	346	957	706	1051	775	1552	1145	1703	1256
1-3/8	564	416	618	456	564	416	618	456	1264	932	1386	1022	2050	1512	2248	1658
1-1/2	743	548	815	601	743	548	815	601	1665	1228	1826	1347	2699	1991	2962	2185

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

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

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

Service - General Information

Bolt or Screw Size	SAE Grade 1 ^a		SAE Grade 2 ^b		SAE Grade 5, 5.1 or 5.2		SAE Grade 8 or 8.2	
	Hex Head ^c	Flange Head ^d	Hex Head ^c	Flange Head ^d	Hex Head ^c	Flange Head ^d	Hex Head ^c	Flange Head ^d
								

TS1741—UN—22MAY18

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

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

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

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

DX,TORQ1-19-30MAY18

Break-In Service (100 Hours or Less)

Perform Break-In Services

IMPORTANT: To confirm which engine your tractor is equipped with, see Engine Serial Number in Identification Numbers section of this Operator's Manual.

IMPORTANT: Avoid drivetrain damage. Operate tractor at low speeds (below 10 mph (16 km/h)) for first 6 hours.

IMPORTANT: Special "break-in" engine oils (including John Deere™ Break-In or Break-In Plus™ Oil) are not recommended for new or rebuilt 15 L engines. Use the same lubricating oil that is used during normal operation. See Diesel Engine Oil in Engine Oil section of this Operator's Manual. Maximum service interval is the same as service interval recommended for your engine listed in Engine Oil and Filter Service Intervals for your engine. For subsequent oil changes, see Engine Oil and Filter Service Intervals in Engine Oil section of this Operator's Manual.

IMPORTANT: Initial break-in service interval of a new or rebuilt wet sleeve engine with John Deere™ Break-In Plus™ must last at least 100 hours to assure surface mating of rings and liners has had an opportunity to occur. 100 hour minimum applies to all new or rebuilt John Deere™ engines. Maximum service interval is the same as service interval recommended for your engine listed in Engine Oil and Filter Service Intervals for your engine. For subsequent oil changes, see Engine Oil and Filter Service Intervals for your engine located in Engine Oil section of this Operator's Manual.

IMPORTANT: Performance problems and cab and component damage may occur if correct exhaust tip is not installed. If correct tip is not installed, see your John Deere dealer.



RXA0142925—UN—25JUN14

Install exhaust tip (A) with outlet facing forward.

Engine is ready for normal operation. During first 100 hours of operation:

- Operate engine at heavy loads without reaching sustained maximum load
- Avoid idling engine longer than 5 min. If engine idles longer than 5 min., stop engine
- Closely observe coolant temperature during operation
- Check engine air intake system hoses and clamps. See Service - Check section of this Operator's Manual.
- Check for fluid leaks
- Tighten wheel, wheel weight and axle bolts after 3 hours, after 10 hours and daily for first week of operation. See Service - Tighten section of this Operator's Manual.
- Tractors equipped with 15 L engines will automatically perform an initial engine regeneration after at least **4 hours** of operation. This procedure may have occurred prior to tractor delivery. If regeneration begins, allow full completion of process. See Parked Exhaust Filter Cleaning in Emissions Equipment section of this Operator's Manual.

Daily or 10 Hours Service

Perform normal daily or 10 hours services, see 10 Hour or Daily Service in Service - Record Charts section of this Operator's Manual.

For first 100 hours of tractor operation, also perform these additional services daily or every 10 hours:

- Drain water separator. See Water Separator in Service - Check section of this Operator's Manual.
- Check coolant level. See Service - Check section of this Operator's Manual.
- Lubricate hitch (if equipped) components. See Service - Lubricate section of this Operator's Manual.
- Inspect tires to make sure there are no cuts or punctures. See Tires in Service - Check section of this Operator's Manual.
- After service is performed, reset appropriate service interval hours display to zero. See the Generation 4 Display operator's manual.
- After the break-in period, use John Deere Plus-50™ II or other diesel engine oil as recommended in this manual.

AK08008.00005A4-19-16JUN20

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

Service - Record Charts

Service Record Chart Overview

The service record chart is provided to:

- Record when services have been performed.
- Document additional service details as needed.

Suggested Documentation

- Engine Oil and Filter Change: Indicate which oil was used for refill and record date and hours of operation at each service.
- As Required Service: Record services and repairs that are performed at other than regular service intervals.
- Annual Service: The listed service tasks are performed annually or at some multiple of years. Record service date and hours.

10-hour (Daily) and 50-hour Service Tasks

It is not recommended to record 10-hour (daily) and 50-hour service tasks on the service record chart. If desired, record the completion of these services in a separate notebook.

JL41210,0000A75-19-01APR20

Service - Record Charts

Service Interval Chart

Charts show which service tasks must be completed at what engine operating hours or years. Record service tasks when completed on the Service Record Chart found in this section of this Operator's Manual.

First word of each task title (For example: CHECK or LUBRICATE) direct person performing service to the appropriate Service Procedure section in this Operator's Manual. When a particular set of service tasks are completed at a certain number of operating hours, other

hourly level tasks that may need to be performed at the same time.

NOTE: Use the engine hour meter display to determine when service must be performed. The hour meter operates whenever the engine is running and shows the accumulated hours of engine operation. Although the hour meter is factory set to 250 hours, it can be reset to any desired elapsed time. See Service Intervals in CommandCenter™ section of this Operator's Manual.

Service Task	Operating Hours or Interval												
	Daily or 10	50	250	400	500	1000	An- nual	1500	2000	2250	3000	6000	
CHECK engine oil level	•												
CHECK transmission-hydraulic and axle oil levels	•												
CLEAN optional fuel water separator	•												
CHECK hydraulic accumulator [Scraper]	•												
LUBRICATE lower drive line bearings ^a	•												
LUBRICATE HydraCushion™ front axle suspension ^b	•												
CHECK tires		•											
LUBRICATE hinge pins		•											
LUBRICATE steering pins		•											
LUBRICATE rear hitch ^c		•											
LUBRICATE heavy duty lift link pins [Ag] ^d		•											
LUBRICATE hose support bracket [Scraper]		•											
CHECK secondary brake			•										
CHECK NEUTRAL start system			•										
CHECK transmission PARK system			•										
LUBRICATE heavy-duty gudgeon bearings			•										
LUBRICATE PTO drive shaft [Ag]			•										
CHANGE engine oil and filter ^{efg}				•									
CHANGE fuel filters ^{eh}				•									
LUBRICATE rear hitch [Ag]				•									
CHANGE engine oil and filter ^{ijg}					•								
CHANGE fuel filters ^{ijk}					•								
CHANGE optional fuel water separator					•								
CHECK Vari-Cool™ fan drive and belt—Final Tier 4/ Stage V engine ^{jl}					•		•						
TIGHTEN wheel and wheel weight bolts					•								
TIGHTEN drawbar support cap screws					•								
LUBRICATE Vari-Cool™ fan drive—Final Tier 4/ Stage V engine ^j					•								
LUBRICATE telescoping drive shaft					•								
CLEAN dual beam radar sensor						•							
CHECK engine coolant freeze point ^{mn}						•	•						
CHANGE cab recirculation air filter ⁿ						•	•						
CHANGE cab fresh air filter ⁿ						•	•						
CHANGE engine primary and secondary air filters ⁿ						•	•						
CHECK HydraCushion™ suspended front axle accumulator charge pressure ^o							•	•					
CHECK auxiliary drive belt and drive belt tensioner								•					
CLEAN aftertreatment fuel injector ^{eo}								•					
CHANGE engine cooling system radiator cap ^e								•					
CHECK axle end play ^o								•					

Service - Record Charts

Service Task	Operating Hours or Interval												
	Daily or 10	50	250	400	500	1000	An-nual	1500	2000	2250	3000	6000	
CHANGE DEF tank vent filter—Final Tier 4/Stage V engine ^p								.					
CHANGE DEF dosing unit filter—Final Tier 4/Stage V engine								.					
CHANGE DEF supply module ^q								.					
CHANGE Vari-Cool fan drive bushings and seals—Final Tier 4/Stage V engine ^l										.			
CHANGE transmission driveshaft damper ^o												.	
CHECK engine valve clearance—Final Tier 4/Stage V engine ^o												.	
CHANGE engine crankcase breather filter element ^g												.	
CHANGE in-line DEF filter—Final Tier 4/Stage V engine ^s												.	
CHANGE engine coolant ^t													.

^aNormal lubrication is every 250 operating hours. If used in extremely wet conditions, lubricate daily or every 10 operating hours.

^bNormal lubrication is every 500 operating hours. If used in extremely wet conditions, lubricate daily or every 10 operating hours.

^cNormal lubrication is every 250 operating hours. If used daily, lubricate every 50 operating hours.

^dIf hitch is in use.

^e15 L engine

^fService in accordance with information in appropriate Diesel Oil and Filter Service Intervals topic in Engine Oil section of this Operator's Manual. Record oil used in Service - Record Charts - Engine Oil and Filter.

^gChange at least once per year.

^hChange every 400 hours or as indicated, whichever occurs first.

ⁱ13.5 L engine.

^j9.0 L engine

^kChange every 500 hours or as indicated, whichever occurs first.

^lCheck annually or every 500 operating hours, whichever occurs first.

^mCheck Annually or every 1000 operating hours, whichever occurs first.

ⁿChange Annually or every 1000 operating hours, whichever occurs first.

^oSee your John Deere dealer.

^pChange after first year or first 1500 operating hours, whichever occurs first. After initial service, change every 3 years or 4500 operating hours, whichever occurs first.

^qChange every 1500 hours or every 3 years, whichever occurs first.

^rNormal duty service is every 4500 operating hours. If used in heavy duty operations (such as scraper applications), change every 3000 operating hours.

^sChange every 3000 hours or every 3 years, whichever occurs first.

^tINITIAL change interval is 6 years or 6000 operating hours, provided cooling system is topped off using only John Deere Cool-Gard™ II and premix. SCHEDULED interval (2 years or 2000 operating hours) can be extended up to 6 years and 6000 operating hours, depending upon coolant being used. See Drain Intervals for Diesel Engine Coolant in Engine Coolant section of this Operator's Manual.

JL41210,0000A76-19-20MAY21

Service Record Chart

Record details of service intervals in the space provided. If more space is required, use a separate notebook.

Date	Hours	Notes

Date	Hours	Notes

Service - Clean

Cleaning Diesel Exhaust Fluid (DEF) Tank

⚠ CAUTION: Avoid contact with eyes. In case of contact, immediately flush eyes with large amounts of water for a minimum of 15 minutes. Reference the Materials Safety Data Sheet (MSDS) for additional information.

IMPORTANT: If DEF is spilled or contacts any surface other than the storage tank, immediately clean the surface with clear water. DEF is corrosive to painted and unpainted metallic surfaces and can distort some plastic and rubber components.

Spilled DEF, if left to dry or if only wiped away with a cloth, leaves a white residue. Improperly cleaned DEF spill can interfere with diagnosis of Selective Catalytic Reduction (SCR) system leakage problems.

If foreign material or fluid has been added to the DEF tank, drain the DEF tank, flush, and fill with new DEF.

If DEF quality is in question, pull a sample out of the DEF tank and place into a clear container. DEF should be crystal clear with a light ammonia smell. If DEF appears cloudy, has a colored tint, or has a profound ammonia smell, it is likely not within specification. DEF in this condition should not be used.

1. Remove drain plug (if equipped), and drain or siphon bad DEF from DEF tank.

NOTE: Cleaning can take place with DEF tank installed or removed.

2. Clean DEF tank with new DEF.

DEF must pass visual, smell, and concentration checks before running the engine. See Diesel Exhaust Fluid (DEF) – For Use In Selective Catalytic Reduction (SCR) Equipped Engines in the Fuels, Lubricants, and Coolants Section for more information.

3. Drain or siphon DEF tank.

NOTE: Repeat steps 2—3 until DEF tank has been cleaned.

4. **Early version:** Change DEF dosing unit filter and DEF tank header suction screen.

Later version: Change DEF dosing unit filter and DEF inline filter.

5. If removed, install DEF tank drain plug.

6. If removed, install DEF tank.

7. Fill DEF tank with new DEF.

8. Check DEF concentration with DEF refractometer, such as JDG11594 or JDG11684. The correct DEF

concentration is 31.8% — 33.2%. See your authorized dealer for more information.

9. If DEF is not within specification, does not appear clear, or does not have a slight ammonia smell, contact your authorized dealer.

DX,DEF,CLEANTANK-19-18SEP19

DEF Tank Filler Neck Filter

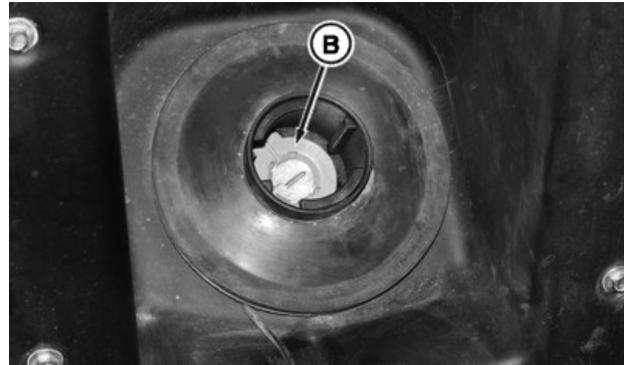
If DEF fill slows, clean tank filler neck filter.

1. Place transmission in Park and shut off engine.



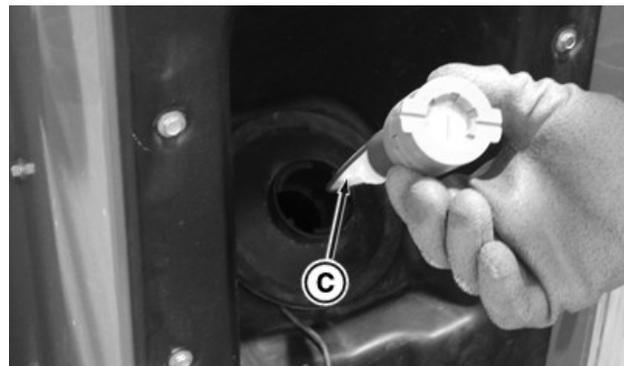
RXA0140510—UN—27MAY14

2. Open DEF tank cap (A).



RXA0140511—UN—27MAY14

3. Turn filter retainer (B) counterclockwise until it unlocks, then pull straight out of DEF tank.



RXA0140512—UN—27MAY14

4. Clean filler neck filter (C) with warm water to remove any debris.

5. Install in reverse order.

AK08008,0000210-19-15NOV19

Tractor Exterior

IMPORTANT: Avoid damage to the engine, components, and tractor exterior.

- **Never direct liquid spray to the engine air intake area. If water is sprayed into the engine air intake, drain filter housing and allow housing and filter to dry before starting engine.**
- **For high-pressure washer use: always use reduced pressure and spray at a 45—90° angle. Never spray pressurized water directly at:**
 - **Electronic/electrical components and connectors.**
 - **Bearings and hydraulic seals.**
 - **Fuel injection pumps.**
 - **Exhaust outlet.**
 - **Engine air intake.**
 - **Fluid tanks' fill openings and breathers.**
 - **Any sensitive parts and components.**
- **Never use strong soaps, chemical detergents, or cleaning agents containing acids, caustics, or abrasives. It is best to use commercially available non-detergent car wash products which will not remove protective wax, and which may be applied to paint finish.**
- Wash tractor regularly, particularly if it has been exposed to herbicides, pesticides, road salt, or other chemical agents.
- Never wash the tractor in direct sunlight.
- Rinse all cleaning agents away promptly. Never allow them to dry on the painted surface.
- Waxing tractor occasionally is recommended to remove residue from and further protect paint finish. Never use waxes containing abrasive compounds.
- Inspect paint surface during washing or waxing for chips and scratches. Repaint any areas where paint has been damaged.

See your John Deere dealer for cleaners, waxes, and touch-up paints to help enhance paint finishes and which are compatible with your equipment.

AK08008,000020A-19-15NOV19

Clean Display

IMPORTANT: Always clean display screen with power off. Cleaning screen while operating could result in unintended button selections.

To clean display, power down and wipe screen with a soft cloth sprayed with a non-ammonia based cleaner, such as John Deere glass or multipurpose cleaner.

DX,PC,CLEAN_DISP-19-21OCT16

Engine Cooling System—9.0 or 13.5 L Engine

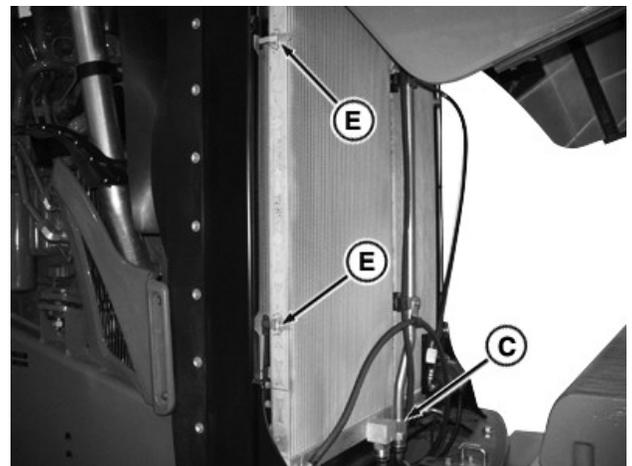
Turn engine off.



RXA0141833—UN—02JUN14

Clean grille screen (A) using a brush or compressed air.

Clean trash from engine compartment shields.



RXA0160457—UN—10AUG17

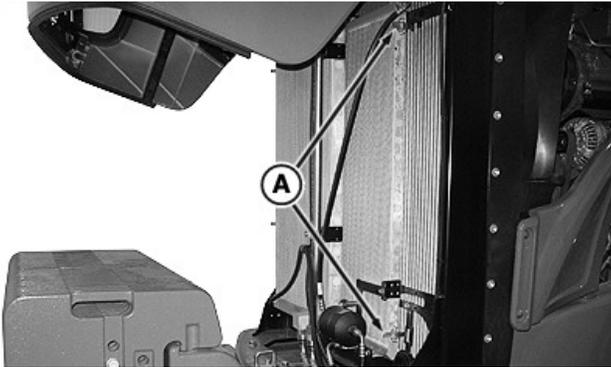
IMPORTANT: Use caution when oil-fuel cooler is opened. Steel cooler line may contact air conditioner line when cooler is at a 30° angle. Steel line fitting (C) does not rotate and can cause damage to the line fitting if extended too far.

Close air conditioning condenser and oil-fuel cooler and lock the retaining clips.

Gently lower hood and firmly close until hood latch is locked.

AK08008,000020E-19-15NOV19

Release hood latch and raise hood.



RXA0118336—UN—23JUN11

Release air conditioning condenser retaining clips (A) to swing condenser forward for better cleaning access.



RXA0118338—UN—23JUN11

Use compressed air to clean air conditioning condenser (B) using compressed air.



RXA0118333—UN—23JUN11

Release oil-fuel cooler retaining clips (E) to swing cooler (D) forward.

Use compressed air to clean radiator. Straighten any bent radiator fins.

Engine Cooling System—15 L Engine

Turn engine off.



RXA0141833—UN—02JUN14

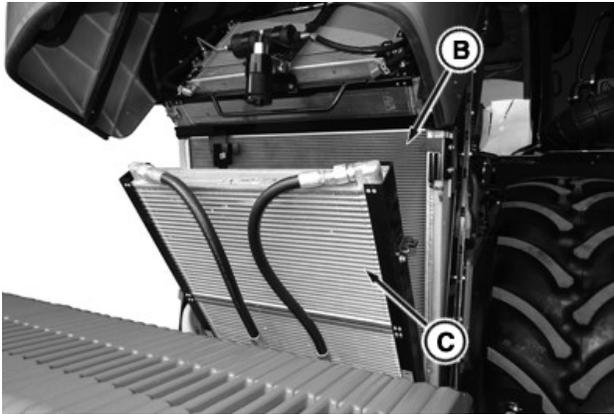
Clean grille screen (A) using a brush or compressed air.

Clean trash from engine compartment shields.

Release hood latch and raise hood.



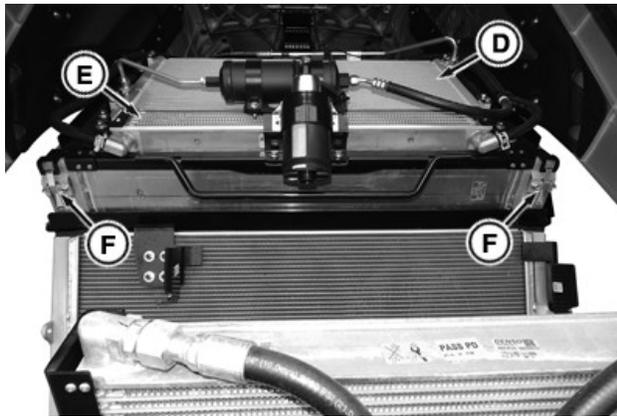
RXA0141759—UN—02JUN14



RXA0141760—UN—02JUN14

Release oil cooler (C) retaining pins (A) to lower oil cooler forward carefully for easier cleaning access.

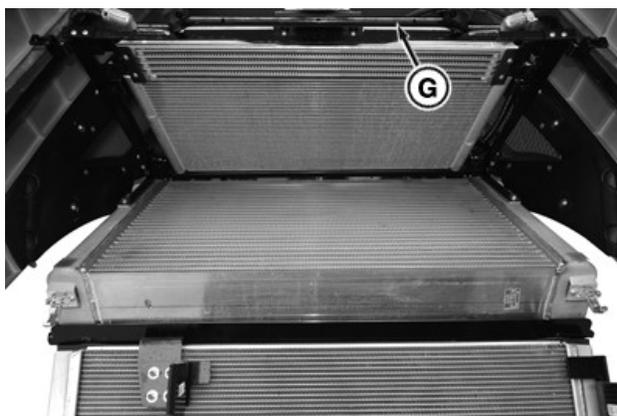
Use compressed air to clean oil cooler and radiator (B).



RXA0141818—UN—02JUN14

Release retaining pins (F) and lift air conditioning condenser (D) and fuel cooler (E) up for easier cleaning access.

Use compressed air to clean air conditioning condenser and fuel cooler.



RXA0141819—UN—02JUN14

Close air conditioning condenser and oil-fuel cooler using handle (G). Pull air conditioning condenser and fuel cooler out to unlock and lower carefully. Lock retaining pins.

Lift oil cooler up and lock retaining pins.

Gently lower hood and firmly close until hood latch is locked.

AK08008,000020F-19-15NOV19

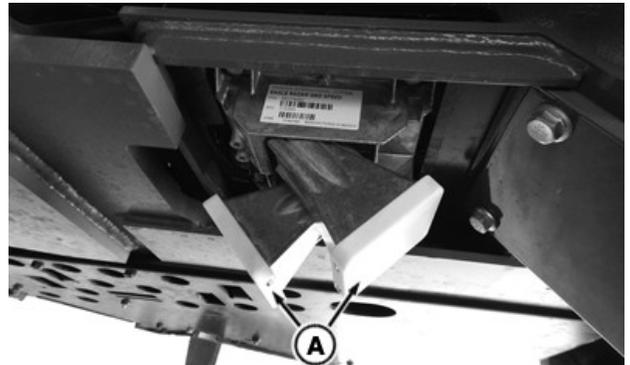
Dual Beam Radar Sensor

IMPORTANT: Inspect radar sensor horns for dirt or debris build up, which affects accuracy performance.

Avoid use of high-pressure washer nozzle pointed directly at radar.

Avoid damage to radar and wiring harness when using sharp tools to remove dirt or packed mud around radar.

1. Check radar sensor for damage.



RXA0141826—UN—02JUN14

2. Clean radar sensor horns (A) with warm water and mild soap.
3. Dry with clean soft cloth.

AK08008,0000211-19-15NOV19

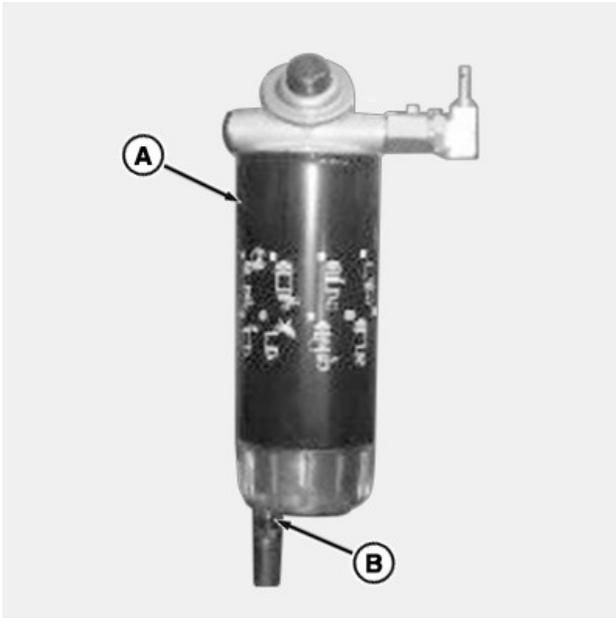
Aftertreatment Fuel Injector—15 L Engine

See your John Deere dealer to perform this service.

AK08008,0000212-19-15NOV19

Optional Fuel Water Separator—13.5 L Engine

1. Park machine on a flat, level surface.
2. Lower equipment to ground.
3. Shut off engine.



RXA0168512—UN—03JUN19

Priming button cap may differ

4. Thoroughly clean the exterior of the fuel filter and water separator assembly (A) and surrounding area.
5. Place a suitable container under the drain hose.
6. Open drain valve (B).
7. Allow water and sediment to drain into a suitable container.
8. Close drain valve.
9. Dispose of waste properly.
10. Bleed fuel system. See Bleed Fuel System in the Service - General Information section of this Operator's Manual.

AK08008,0000213-19-21MAY20

Service - Check

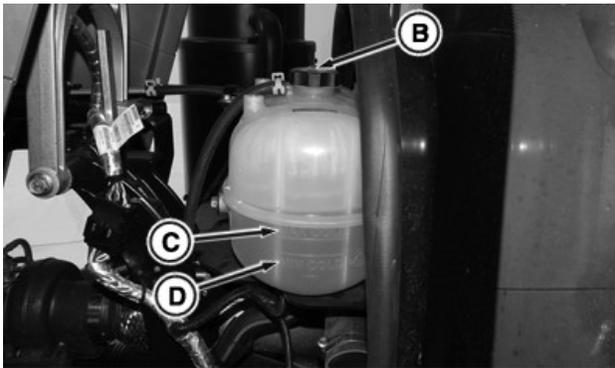
Engine Coolant Level

Coolant level is monitored electrically. When coolant is low a diagnostic trouble code will appear on the CommandCenter™.



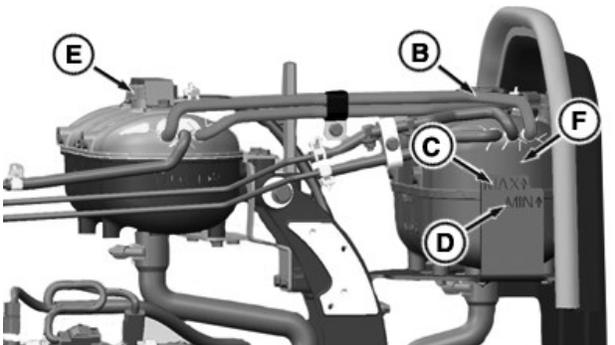
RXA0141758—UN—30MAY14

1. Pull hood release (A) and raise hood.



RXA0141827—UN—30MAY14

13.5 L Engine



RXA0143415—UN—14JUL14

15 L Engine (Left-Hand Side)

2. Check coolant level on side of de-aeration tank. Level should be at or above MIN COLD line (D). If level is low, before adding coolant check for any signs of leakage. Repair if necessary.

IMPORTANT: Do not open de-aeration tank cap (B) when engine is warm. Doing so will add air to coolant system.

NOTE: If coolant level is low, but there is no sign of an external leak, there may be an internal coolant leak. Contact your John Deere dealer.

NOTE: 15 L engine, fill rear coolant tank (F) through de-aeration tank cap (B).

Radiator pressure cap (E) controls pressure in coolant tanks and for water pump.

3. Wait until engine is cool. Remove de-aeration tank cap (B) and add coolant as specified in Engine Coolant section of this Operator's Manual. Do not fill above MAX COLD line (C). Reinstall de-aeration tank cap.
4. Lower and secure hood.

AK08008,0000167-19-15NOV19

Engine Coolant Freeze Point

IMPORTANT: Test coolant system and add coolant conditioner every 1000 hours, or annually - whichever comes first.

1. Open hood.



TS281—UN—15APR13

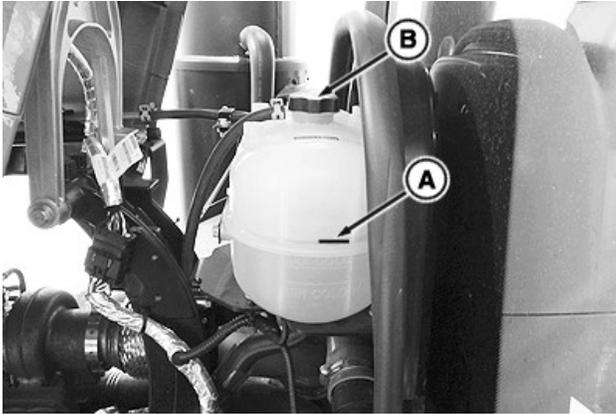
CAUTION: Explosive release of fluids from pressurized cooling system can cause serious burns.

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

CAUTION: Avoid personal injury. Do not remove fill cap when engine is hot. Stop engine and wait until engine has cooled.

IMPORTANT: Do not open de-aeration tank cap when engine is warm. Doing so will add air to coolant system.

NOTE: De-aeration tank will not be full of coolant when cap is removed. When looking in tank, if coolant tank is at least half full, do not add additional coolant.



13.5 L Engine

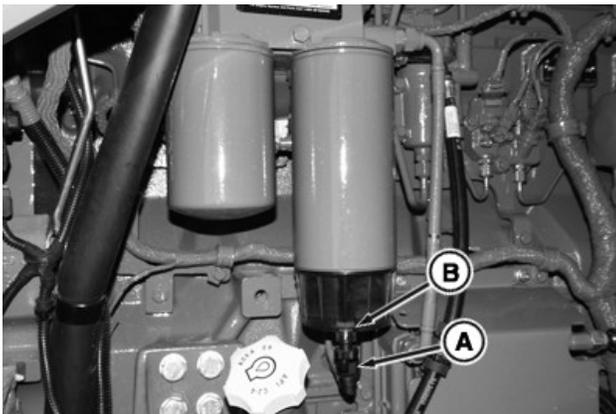
RXA0141939—UN—02JUL15

2. Slowly turn de-aeration tank cap (A) to relieve pressure. Remove cap (B).
3. Test coolant. A more precise test device is available from your John Deere dealer, see Testing Coolant Freeze Point in Engine Coolant section of this Operator's Manual.
4. Visually inspect tank cap gasket for sealing effectiveness. No apparent scratches or leak paths should be seen. Replace cap if problem is observed.
5. Install de-aeration tank cap and lower hood.

AK08008,0000168-19-15NOV19

Water Separator—15 L Engine

IMPORTANT: Water can damage fuel systems. If excessive water is found, draining fuel tanks may be required, see Fuel Tank Sump in this section of this Operator's Manual.

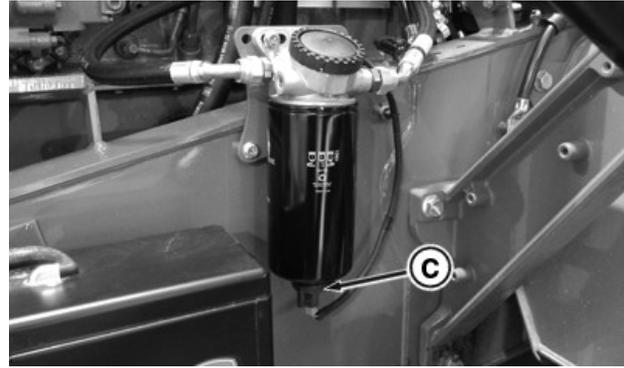


13.5 L Engine

RXA0141831—UN—30MAY14

13.5 L engine: In addition to a Fuel Water Separator, water can also be drained from fuel system through fuel filters. Turn drain valve nut (A) to release water from fuel filters.

On some filters, tabs (B) are visible and will drop when drain valve nut is opened. Turn drain valve nut completely counterclockwise to drain water.



15 L Engine

RXA0142726—UN—20JUN14

15 L engine without fuel water separator: Fuel filter is located on gudgeon step. Turn drain valve (C) to drain water.

AK08008,0000BC5-19-22MAY20

Engine and Exhaust Compartments

IMPORTANT: Accumulated crop residue inside engine compartment can reduce engine and cooling system performance. If tractor has been operated in field conditions which might have caused debris accumulation, inspect and clean engine compartment as necessary.

Directing pressurized water at electronic/electrical components, connectors, bearings and hydraulic seals, fuel injection pump or other sensitive parts and components may cause product malfunctions. Reduce pressure, and spray at a 45° to 90° angle.

Directing pressurized air at electronic/electrical components or connectors, may cause buildup of static electricity and product malfunctions.

Never steam clean or pour cold water on an injection pump that is operating or hot. Pump could seize.

1. Shut off engine and allow time for engine to cool.
2. Remove front and rear engine side shield. See Remove Front Engine Side Shield and Remove Rear Engine Side Shield in Service-General Information section of this Operator's Manual.
3. Remove any crop or debris within engine and

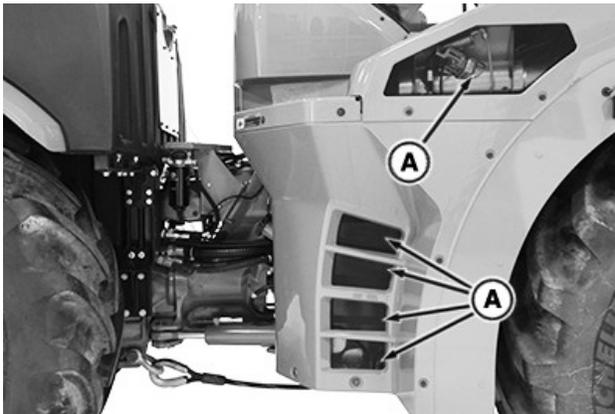
exhaust compartments, especially around turbocharger, exhaust manifold, and exhaust aftertreatment system.

4. Reinstall all engine side shields.
5. Close and securely latch hood.

AK08008,000016B-19-15NOV19

Outer Exhaust Screens

IMPORTANT: Reduce possibility of damage to SCR system. Keep screen unrestricted.



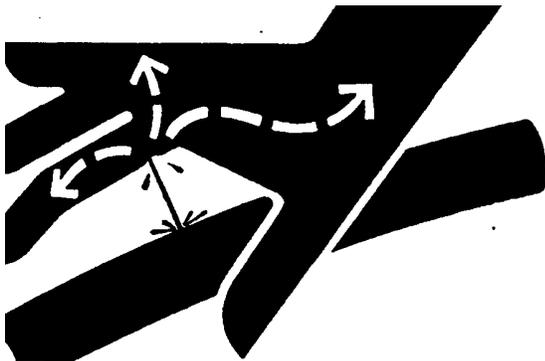
RXA0152654—UN—05JUL16

Right-Hand Panel

Inspect outer exhaust screens (A). Clean out debris as necessary.

AK08008,000016C-19-15NOV19

Air Conditioning System



X9811—UN—23AUG88

CAUTION: Avoid possible injury. Improper servicing may cause refrigerant to penetrate eyes and skin or cause burns.

IMPORTANT: R-134a refrigerant must be used in air conditioning system. Service requires special equipment and procedures. See your John Deere dealer.

NOTE: Some oil seepage from compressor shaft seal is normal.

Perform following checks if air conditioning system does not cool, or cooling is intermittent:

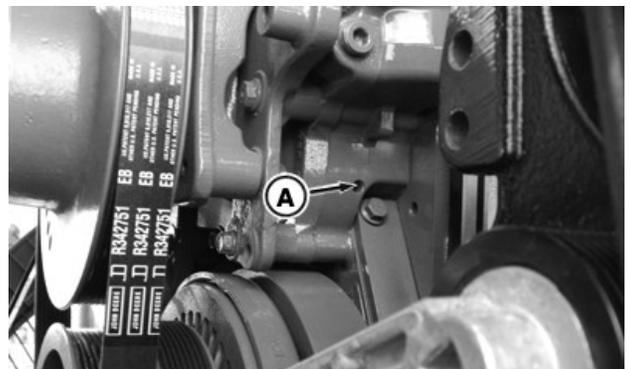
- Confirm that system does not function correctly. Access HVAC page on CommandCenter™. Set fan speed to highest setting and temperature to coldest setting. See HVAC Settings—Fan Speed in HVAC section of this Operator's Manual. Operate engine at 2000 rpm. Check air vents to confirm that cold air is not present.
- Inspect and clean cab air filters. Replace filters if necessary. See Cab Recirculation Air Filter in Service - Change section of this Operator's Manual.
- Clean grille and radiator. See Engine Cooling System in Service - Clean section of this Operator's Manual.
- Check air vents for cold air flow.

If problems persist, see your John Deere dealer.

AK08008,000016D-19-15NOV19

Engine Water Pump Weep Hole—9.0 L Engine

1. Remove left-hand side shield.



RXA0142742—UN—19JUN14

2. Inspect weep hole (A) for oil or coolant leakage.
 - Oil leakage indicates a damaged rear seal.
 - Coolant leakage indicates a damaged front seal.

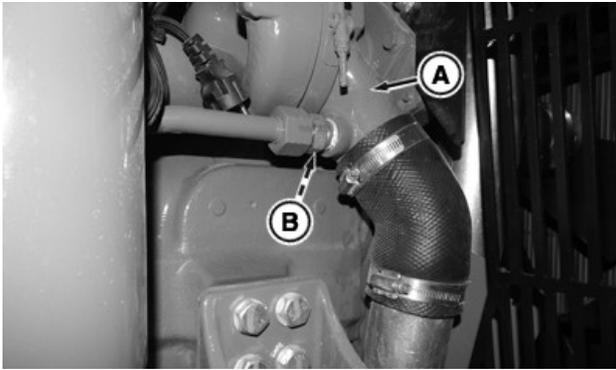
If leakage is detected, see your John Deere dealer.

3. Replace left-hand side shield.

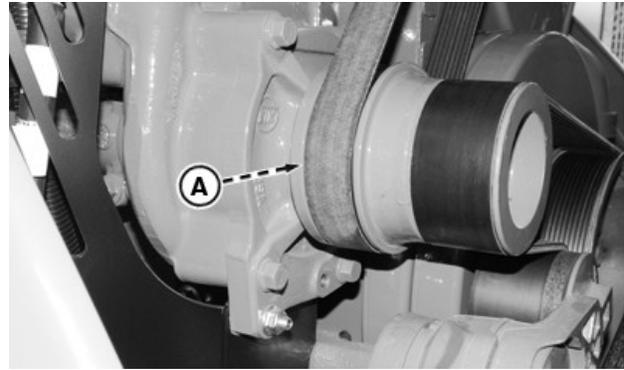
AK08008,000016E-19-15NOV19

Engine Water Pump Weep Hole—13.5 L Engine

1. Remove front engine side shield, see Remove Front Engine Side Shield in Service - General Information section of this Operator's Manual.



RXA0142743—UN—19JUN14



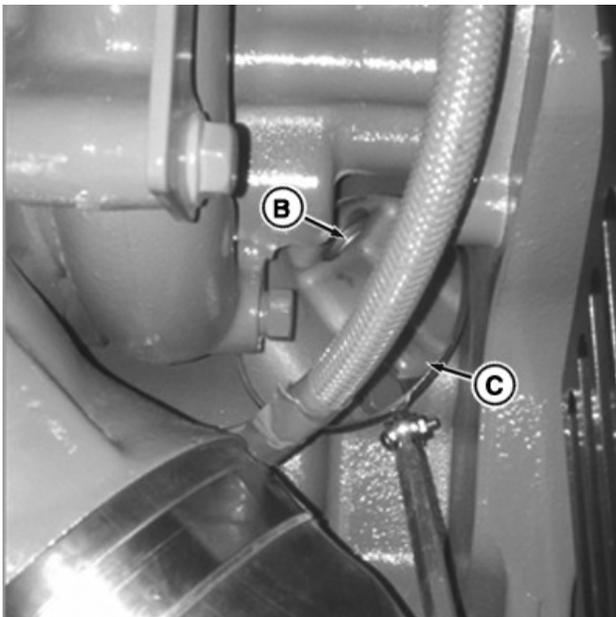
RXA0141838—UN—02JUN14

2. Visually inspect engine, especially around water pump (A), and ground below engine for any leaks or puddles.

If leakage is detected, see your John Deere dealer.

3. Install front engine side shield and close hood.

AK08008,0000170-19-15NOV19



RXA0142744—UN—19JUN14

2. Inspect weep hole (B) on under side of water pump (A) for oil or coolant leakage. Use mirror (C) to assist in locating weep hole.

- Oil leakage indicates a damaged water pump seal.
- Coolant leakage indicates a damaged front seal.

If leakage is detected, see your John Deere dealer.

3. Install front engine side shield, close and secure hood.

AK08008,000016F-19-15NOV19

Engine Water Pump Seal—15 L Engine

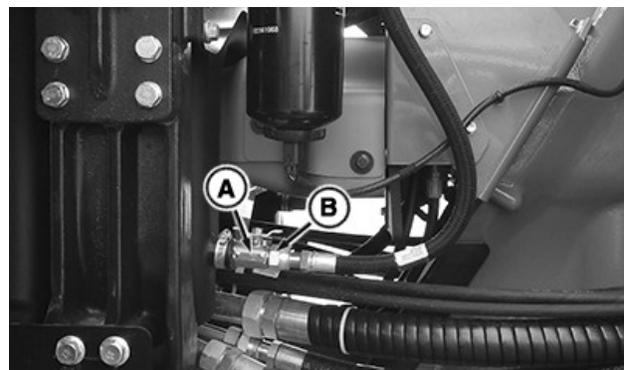
1. Remove front engine side shield, see Remove Front Engine Side Shield in Service - General Information section of this Operator's Manual..

Fuel Tank Sump

NOTE: Drain fuel tank sump if fuel filters are replaced frequently or water in the fuel tank. Service may be required more often under some conditions.

1. Place a catch pan under the drain tee.

IMPORTANT: Use wrench to hold drain fitting while opening or closing tee or damage to tank threads can occur.



RXA0153716—UN—30AUG16

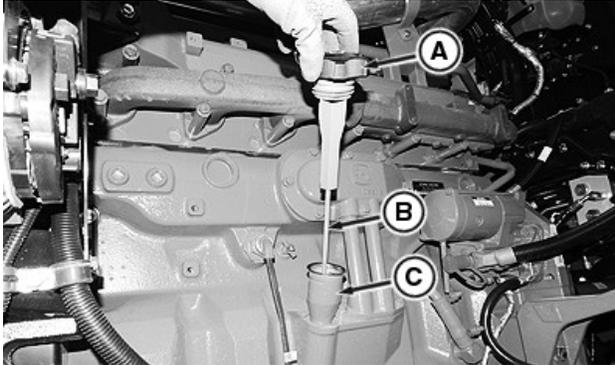
2. Remove drain cap (B).
3. Turn drain tree (A) by hand. Drain fuel until clean, water free fuel appears.
4. Tighten drain tree by hand to close.
5. Attach drain cap and tighten.

AK08008,0000171-19-15NOV19

Engine Oil Level—9.0 L Engine

IMPORTANT: Do not operate engine with oil level below the “ADD” mark on dipstick

NOTE: Most reliable oil level is determined prior to starting engine, after tractor has been parked on level ground for several hours or overnight.



RXA0141840—UN—02JUN14



RXA0141918—UN—02JUN14

Loosen fill cap (A) and check oil level on dipstick (B) with tractor on level ground before starting tractor. Oil level anywhere within cross-hatched area (D) on dipstick is considered FULL. If oil is below crosshatched area on dipstick, add oil.

If oil is required, remove fill cap and add oil through fill tube (C). See Diesel Engine Oil in Engine Oil section of this Operator's Manual.

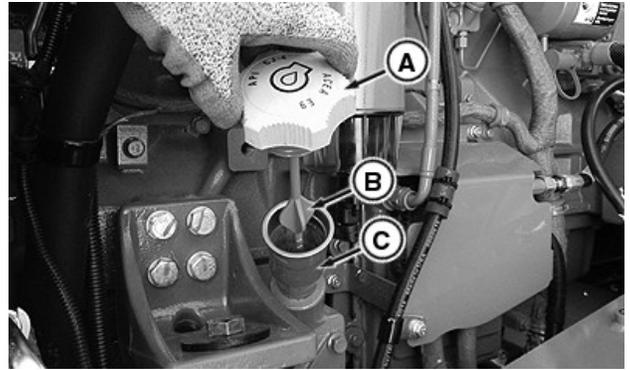
Tighten cap securely.

AK08008,0000172-19-15NOV19

Engine Oil Level—13.5 L Engine

1. Remove engine access panel, see Remove Engine Access Panel in Service - General Information section of this Operator's Manual.

NOTE: Most reliable oil level is determined before starting engine, after tractor has been parked on level ground for several hours or overnight.



RXA0141917—UN—02JUN14

13.5 L Engine

2. Remove fill cap (A) and check oil level on dipstick (B) with tractor on level ground.



RXA0141918—UN—02JUN14

3. Oil level on dipstick is considered FULL when oil is within cross-hatched area (D).

IMPORTANT: Do not operate engine with oil level below cross-hatched area on dipstick.

4. If oil is required:

- Remove fill cap.
- Add oil through fill tube (C), see Diesel Engine Oil in Engine Oil section of this Operator's Manual.

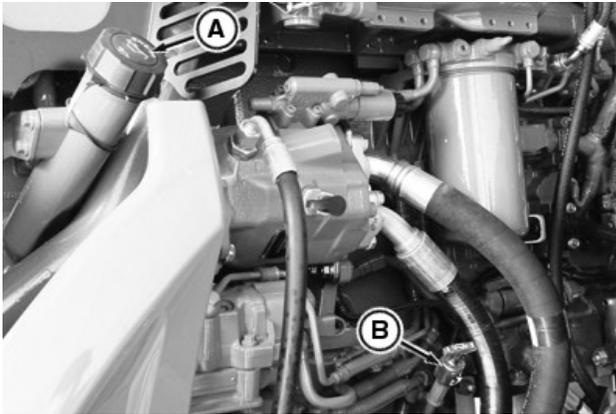
Tighten fill cap securely and install engine access panel.

AK08008,0000173-19-15NOV19

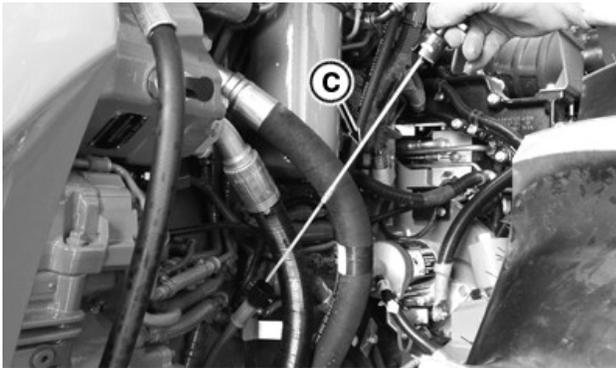
Engine Oil Level—15 L Engine

1. Remove engine access panel, see Remove Engine Access Panel in Service - General Information section of this Operator's Manual.

NOTE: Most reliable oil level is determined before starting engine, after tractor has been parked on level ground for several hours or overnight.



RXA0141821—UN—02JUN14



RXA0141822—UN—02JUN14

NOTE: Dipstick is a different location (B) than fill tube.

Remove dipstick (C) and check oil level with tractor on level ground before starting tractor.



RXA0141823—UN—02JUN14

3. Oil level on dipstick is considered FULL when oil is within cross-hatched area (D).

IMPORTANT: Do not operate engine with oil level below cross-hatched area on dipstick.

4. If oil is required:

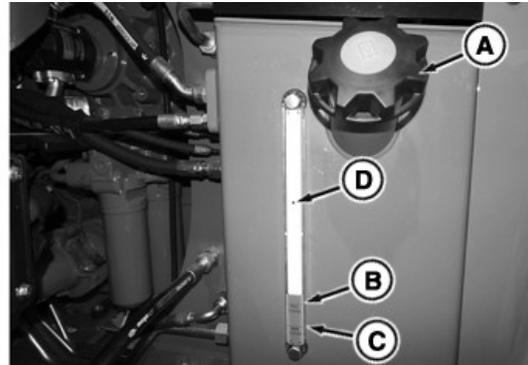
- Remove fill cap.
- Add oil, see Diesel Engine Oil in Engine Oil section of this Operator's Manual.

5. Insert dipstick and install engine access panel.

AK08008,0000174-19-15NOV19

Transmission-Hydraulic Oil Level

IMPORTANT: Poor shift quality or transmission damage may occur if incorrect oil is used, see Transmission and Hydraulic Oil in Other Lubricants section of this Operator's Manual.



RXA0141848—UN—02JUN14

Transmission-Hydraulic Oil Sight Gauge

Do not operate tractor if oil level is at or below MIN COLD mark (C) in sight gauge with engine off.

If topping off oil in hydraulic reservoir, use sight gauge marks to estimate volume and add to transmission fill tube.

Hydraulic oil reservoir does not hold all system hydraulic oil capacity. Transmission and front and rear axles hold additional system oil. If possible, check oil level prior to first start of day. Ambient temperature should be 7° C (45° F) or above.

For implements and applications requiring high volumes of oil transfer (for example - large air seeders or pulling 3 scrapers), hydraulic reservoir can be filled up to High Volume Takeout Oil Mark (D). Additional capacity is 58.5 L (15.4 gal) above MIN COLD (C).

1. Check tractor and implement for leaks daily, before start-up.
2. Park tractor on level ground with implement fully lowered.
3. Place transmission shift lever in PARK.
4. Start engine and set engine speed set to 1200 rpm.
5. Run engine for five minutes.
6. Shut off engine and wait five minutes for oil level to stabilize.

IMPORTANT: Contaminated or overheated oil may cause damage to transmission-hydraulic system components. Oil which is:

- Milky or foamy may be contaminated with water. Change oil immediately.
- Discolored or smells burned may have been overheated. See your John Deere dealer.

7. Check hydraulic reservoir oil level using sight gauge located on right-hand side of gudgeon area. Examine oil in sight gauge for milky or foamy appearance.

NOTE: As tractor and hydraulic system temperature increases, oil level will rise in reservoir.

Oil level in reservoir fluctuates depending upon volume of oil exchanged with an attached implement. If low oil level results in hydraulic pressure drop, a STOP engine light will come on.

8. Open hydraulic reservoir cap (A). Check for burned oil odor.
9. If reservoir oil level is between FULL COLD (B) and MIN COLD (C) marks, tractor can be used for normal operation. Volume difference between MIN COLD and FULL COLD marks is about 11.4 L (3 gal).
10. If reservoir oil level is below MIN COLD mark, add oil to hydraulic oil reservoir. Remove hydraulic oil reservoir cap and add oil, see Transmission-Hydraulic Oil in Service - Change section of this Operator's Manual.

AK08008,0000175-19-15NOV19

Tires

IMPORTANT: Keep tires at recommended pressure to insure maximum performance. See inflation pressure tables in Wheels, Tires, and Treads section of this Operator's Manual.

Inspect tires for cuts or breaks and repair. Adjust and maintain tire pressure according to recommended pressure charts for optimum field performance. Check pressure of each tire at least once a week. If tires contain liquid ballast, use a special air-water gauge, and measure with valve stem positioned at bottom.

AK08008,0000176-19-15NOV19

NEUTRAL Start System

CAUTION: Avoid personal injury. Make sure that everyone is clear of tractor.

1. Park tractor on level ground.
2. Fully depress clutch and brake pedals.
3. Shut off tractor.



RXA0158486—UN—28MAR17

4. Move gear shift lever (A) from PARK position to a forward gear.

CAUTION: If tractor fails this test, contact your John Deere dealer immediately.

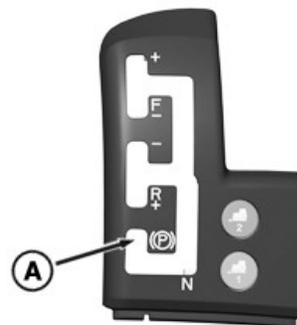
5. Attempt to start engine. If engine starts in any lever position other than NEUTRAL or PARK, repair system immediately. See your John Deere dealer.
6. Repeat step 5 with transmission in a reverse gear.

AK08008,0000177-19-15NOV19

Transmission PARK System

CAUTION: Avoid personal injury. Make sure that everyone is clear of tractor.

1. Position tractor on a 20 % incline (0.6 m (2 ft) vertically for every 3.0 m (10 ft) horizontally) with front of tractor facing downward.



RXA0140499—UN—16APR14

Right-Hand Reverser Lever PARK Position

2. Move transmission shift lever (A) into PARK position.

CAUTION: If tractor fails this test, contact your John Deere™ dealer immediately.

3. If tractor does not hold on incline in PARK position,

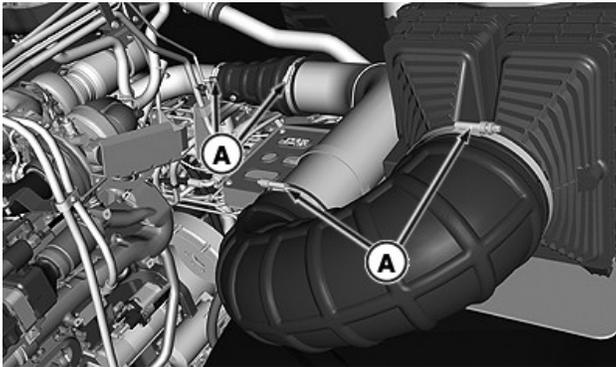
repair transmission PARK system immediately, see your John Deere dealer.

AK08008,0000178-19-15NOV19

Engine Air Intake System—9.0 L Final Tier 4/Stage V Engine

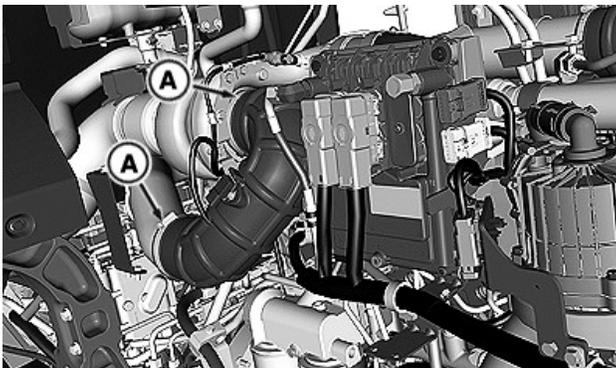
IMPORTANT: Operating engine with loose air intake clamps may allow dust entry into system and damage to engine.

NOTE: Not all air intake clamps are shown, but all need to be checked and tightened.



RXA0140513—UN—29MAY14

Air Intake System - Left Side



RXA0141741—UN—29MAY14

Air Intake System - Right Side

Check air intake system for loose clamps (A) or cap screws.

Tighten air intake system clamps to 8 N·m (5 lb·ft).

AK08008,0000179-19-15NOV19

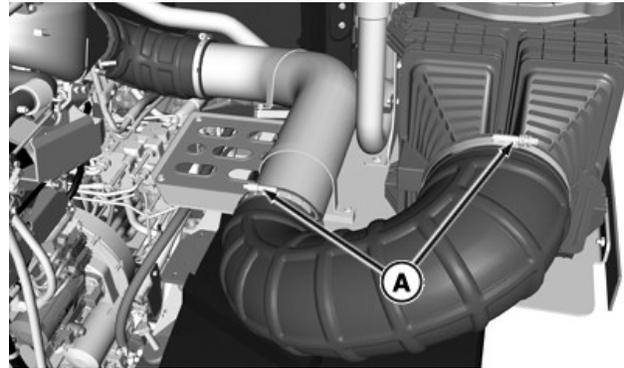
Engine Air Intake System—13.5 L Final Tier 4/Stage V Engine

1. Open hood, see Open Hood in Service - General section of this Operator's Manual.
2. Remove front and rear engine side shield, see

Remove Front Engine Side Shield and Remove Rear Engine Side Shield of this Operator's Manual.

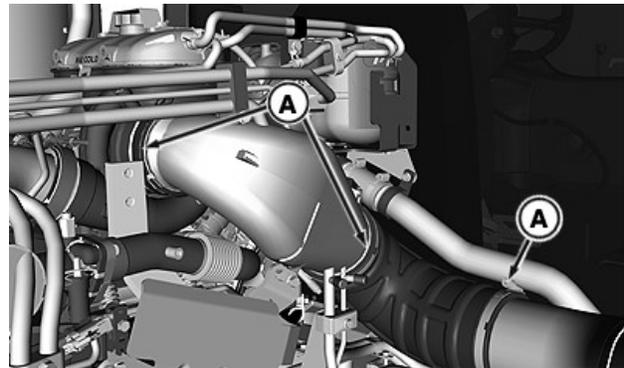
IMPORTANT: Operating engine with loose air intake clamps may allow dust entry into system and damage to engine.

NOTE: Not all air intake clamps are shown, but all need to be checked and tightened.



RXA0141744—UN—29MAY14

Air Intake System - Left Side



RXA0141745—UN—29MAY14

Air Intake System - Right Side

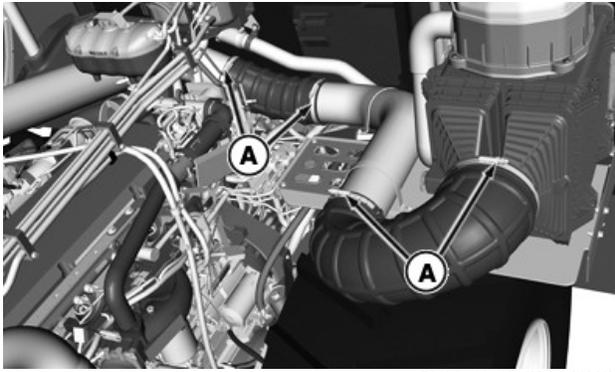
3. Check air intake system for loose clamps (A) or cap screws.
4. Tighten air intake system clamps to 8 N·m (5 lb·ft).

AK08008,000017A-19-15NOV19

Engine Air Intake System—15 L Engine

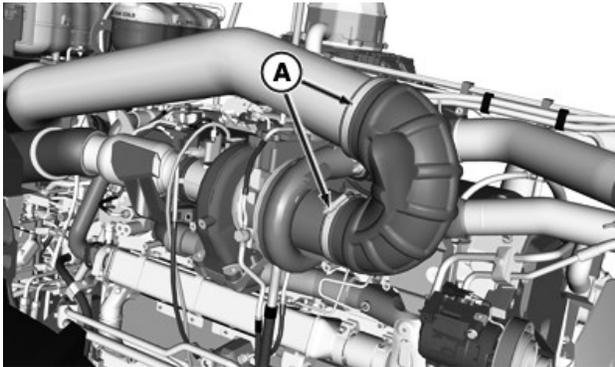
IMPORTANT: Operating engine with loose air intake clamps may allow dust entry into system and damage to engine.

NOTE: Not all air intake clamps are shown, but all need to be checked and tightened.



RXA0141748—UN—29MAY14

Left-Hand Side of Engine



RXA0141749—UN—29MAY14

Right-Hand Side of Engine

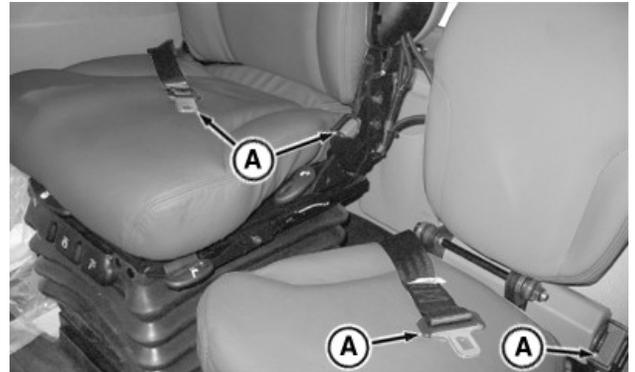
Check air intake system for loose clamps (A) or cap screws.

Tighten air intake system clamps to 8 N·m (70 lb·in).

AK08008,000017B-19-15NOV19

Seat Belts

⚠ CAUTION: If the seat belt system, including the mounting hardware, buckle, belt or retractor shows any sign of damage such as cuts, fraying, extreme or unusual wear, discoloration or abrasion, the entire seat belt system should be replaced immediately. Replace the belt system only with replacement parts approved for your machine.



RXA0108482—UN—12JUL10

Inspect seat belts (A) and mounting hardware. If seat belts or system components require replacement, see your John Deere dealer.

AK08008,000017C-19-15NOV19

HydraCushion™ Suspended Front Axle Accumulator Charge Pressure

IMPORTANT: Check HydraCushion™ suspended front axle accumulator charge pressure at 1500 hours or annually - whichever comes first.

See your John Deere dealer.

AK08008,000017D-19-15NOV19

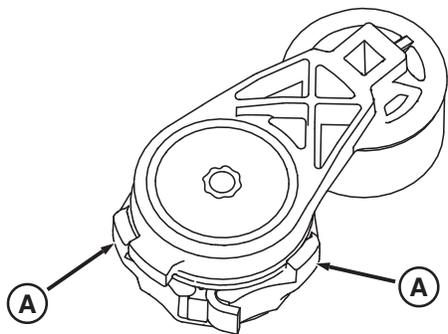
Engine Auxiliary Drive Belt and Drive Belt Tensioner

NOTE: Fan belt tensioner is only used on 9.0 L or 13.5 L Tier 2/Stage II or Tier 3/Stage IIIA engine.

Pulley or dust shield can be serviced separately from spring tensioner. Spring tensioner is serviced as an assembly.

For clarity, alternator and other components are not shown. Belt tensioner assembly remains on tractor during tests.

1. Remove front engine side shields. See Remove Front Engine Side Shields in Service – General Information section of this Operator's Manual.



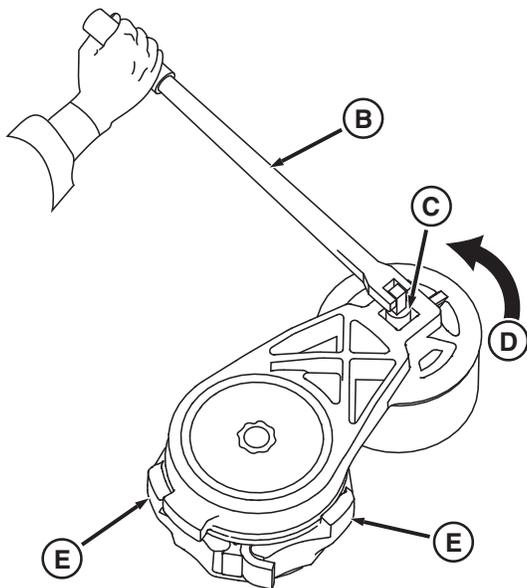
RXA0162898—UN—18APR18

2. Examine belt tensioner assembly. Replace tensioner if:

- A spring stop (A) is cracked or missing.
- Any part of tensioner assembly is cracked or broken.

If tensioner will not be replaced, go to step 3.

If tensioner must be replaced, replace, and then go to step 9.



RXA0162899—UN—18APR18

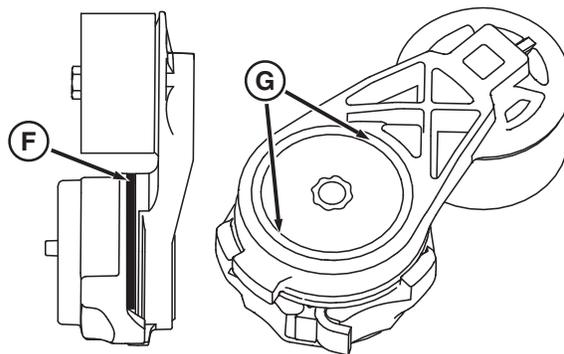
3. With belt installed, insert 1/2 inch drive ratchet or breaker bar (B) into the square hole (C) on belt tensioner arm.
4. Twist tensioner arm (D) to reduce tension on belt. Twist as far as tensioner allows.
5. If belt is against free arm stops (E) replace belt. See step 13 for belt service procedure locations. After replacing belt, go to step 5.
6. With belt tension released, examine belt tracking (wear) mark on pulley. If tracking mark is 6.4 mm (1/4 inch) or more wider than belt, replace tensioner assembly. If tensioner assembly will:

Not be replaced, go to step 7.

Be replaced, replace and then go to step 9.

7. Remove belt. See step 14 for belt service procedure locations.

IMPORTANT: Do not pry between pulley and spring case.



RXA0162900—UN—18APR18

8. Rotate tension arm slowly using 1/2 inch drive ratchet or breaker bar. Replace tensioner if:
 - Arm does not rotate smoothly between arm stops (E).
 - Metal to metal contact is present between arm and spring case (F) or arm and end cap (G).

If tensioner will not be replaced, go to step 9.

If tensioner must be replaced, replace, and then go to step 14.

9. If tensioner must be replaced, release tension on belt and remove belt (if not already done).
10. Remove tensioner pivot cap screw.
11. Replace tensioner assembly.
12. Apply thread lock and sealer Loctite® 242 to pivot cap screw.
13. Install cap screw and tighten to 70 N·m (51 lb·ft) torque.
14. Install belt. Depending upon engine type, in Service - Change section of this Operator's Manual, see:
 - Fan Belt – 9.0 L or 13.5 L Tier 2/Stage II or Tier 3/Stage IIIA Engine in this Operator's Manual section.
 - Vari-Cool™ Fan Belt—9.0 L Final Tier 4/Stage V Engine
 - Vari-Cool™ Fan Belt—13.5 L Final Tier 4/Stage V Engine
 - Engine Auxiliary Drive Belt - 9.0 L or 13.5 L Engine

Loctite is a trademark of Henkel Corporation
Vari-Cool is a trademark of Deere & Company

CAUTION: Never start engine without side shields installed and hood securely closed and latched.

15. Install front engine side shields.
16. Close and securely latch hood.

AK08008,000017E-19-15NOV19

Axle End Play

IMPORTANT: Excessive axle end play results from bearing wear or failure.

See your John Deere dealer.

AK08008,000017F-19-15NOV19

Engine Valve Clearance

NOTE: To confirm which engine your tractor is equipped with, see Engine Serial Number in Identification Numbers section of this Operator's Manual.

See your John Deere dealer.

AK08008,0000180-19-15NOV19

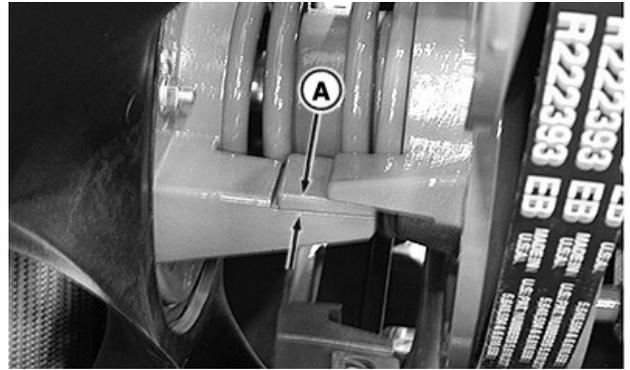
Vari-Cool™ Fan Drive and Belt—9.0 L Final Tier 4/Stage V Engine

IMPORTANT: Avoid damage to Vari-Cool fan drive. Check drive assembly and belt every 500 hours or annually, whichever occurs first.

1. Raise engine hood. See Open Hood in Service - General section of this Operator's Manual.
2. Remove left-hand engine finger guard. See Remove Finger Guards in Service - General section of this Operator's Manual.
3. Remove left-hand diverter panel. See Remove Diverter Panels in Service - General section of this Operator's Manual.
4. Check fan drive assembly for leaking grease or hydraulic oil. If leakage is found, see your John Deere dealer.

IMPORTANT: Damaged Vari-Cool™ components may generate a Diagnostic Trouble Code (DTC).

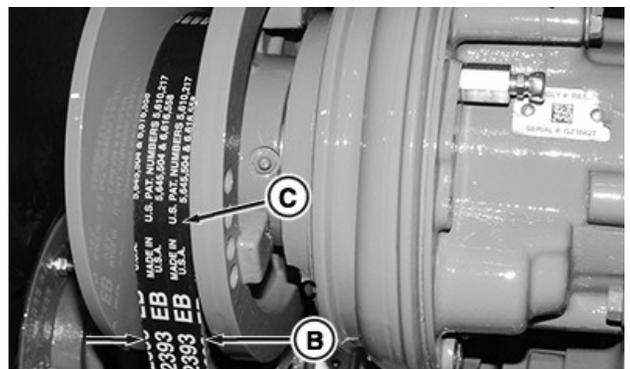
5. If Diagnostic Trouble Codes for Vari-Cool™ fan drive are displayed, see your John Deere dealer.



RXA0157315—UN—06FEB17

6. Measure drive unit wear pad thickness (A). If thickness of any one pad is 1.00 mm (0.04 in) or less, replace all pads. If any pad is damaged or appears excessively worn, replace all pads. See your John Deere dealer.

NOTE: Operating with a fan belt that is less than specified width may generate Diagnostic Trouble Code (DTC).



RXA0157316—UN—06FEB17

7. Measure width of fan belt (B). Replace belt when width is 29 mm (1.1 in) or less. See Vari-Cool Fan Belt in Service - Change section of this Operator's Manual.
8. Check fan belt (C) and replace if damaged or excessively worn. See Vari-Cool™ Fan Belt in Service - Change section of this Operator's Manual.

NOTE: While Vari-Cool™ fan drive is accessible, perform fan drive lubrication. See Vari-Cool™ Fan Drive in Service - Lubricate section of this Operator's Manual.

9. Reinstall diverter panel and tighten cap screws to 20 N·m (14 lb·ft).
10. Close and secure hood.

AK08008,0000181-19-15NOV19

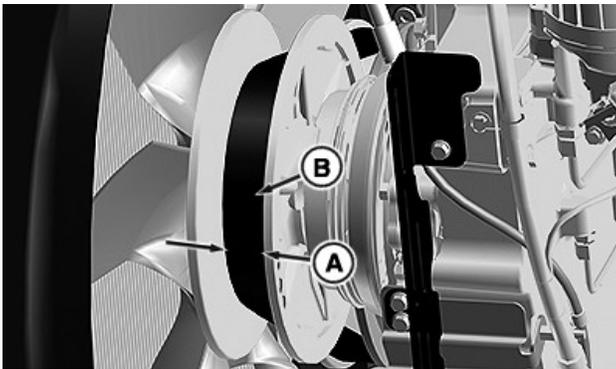
Vari-Cool™ Fan Drive and Belt—13.5L Final Tier 4/Stage V Engine

IMPORTANT: Avoid damage to Vari-Cool fan drive. Check drive assembly and belt every 500 hours or annually, whichever occurs first.

1. Remove front engine side shield, see Remove Front Engine Side Shield in Service - General section of this Operator's Manual.
2. Check fan drive assembly for leaking grease or hydraulic oil. If leakage is found, see your John Deere dealer

IMPORTANT: Damaged Vari-Cool™ components may generate a Diagnostic Trouble Code (DTC). If Diagnostic Trouble Codes for Vari-Cool™ fan drive are displayed, see your John Deere dealer.

NOTE: Operating with fan belt less than specified width may generate Diagnostic Trouble Code (DTC)



RXA0162285—UN—21FEB18
Vari-Cool Fan Belt

3. Measure width of fan belt (A). Replace belt when width is 36 mm (1.4 in) or less, see Vari-Cool Fan Belt in Service - Change section of this Operator's Manual.
4. Check fan belt (B) and replace if damaged or excessively worn, see Vari-Cool™ Fan Belt in Service - Change section of this Operator's Manual.

NOTE: While Vari-Cool™ fan drive is accessible, perform fan drive lubrication, see Vari-Cool™ Fan Drive - 13.5L Final Tier 4 or Stage V Engine in Service - Lubricate section of this Operator's Manual.

5. Reinstall front engine side shield.
6. Close and secure hood.

AK08008,0000182-19-15NOV19

Front Driveshaft Health (FDH) Sensor System



RXA0162182—UN—15FEB18

FDH sensor system monitors front driveshaft for proper operation when rotating. If a problem occurs, sensor triggers a Stop Engine (A) or Service Alert (B) light, an audible warning, and causes a diagnostic code to be displayed on CommandCenter™.

1. If Stop Engine warning occurs, stop tractor immediately in a safe location.
2. If Service Alert warning occurs, FDH system requires service and may be disabled. Service FDH system as soon as possible.
3. See your John Deere dealer to fully diagnose and repair problem indicated by code.

AK08008,0000183-19-15NOV19

Drawbar Sensor Calibration

Calibration requires a drawbar sensor calibration plug. See your John Deere dealer.

1. Fully load the scraper.
2. Raise the scraper above the ground level.
3. Stop the tractor.
4. Place transmission into PARK.
5. Turn off engine.



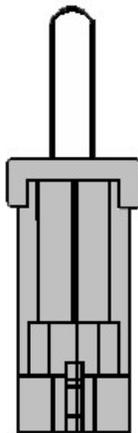
RXA0169791—UN—31JUL19

Draft Sensor Harness Connection

11. Replace the dust cover.

AK08008,0000184-19-15NOV19

6. Remove the dust cover (A) from the draft sensor harness connection. The draft sensor harness connection is located to the left of the rear SCV stack.



CM06SCR049—UN—08MAY06

Draft Sensor Calibration Plug

7. Install the draft sensor calibration plug into the draft sensor harness connection.
8. Start engine and run for a minimum of 15 seconds.
9. Turn off engine. Sensor calibration is complete.
10. Remove and store the draft sensor calibration plug.

Service - Tighten

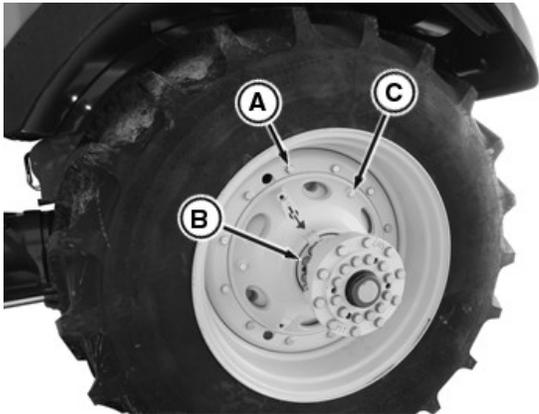
Wheel and Wheel Weight Bolts

⚠ CAUTION: Avoid the possibility of personal injury. Never operate tractor with loose wheel or wheel weight bolts. Failure to follow torquing procedure may result in personal injury. Wheel and wheel weight bolts are critical and require repeated torquing to assure secure tightness.

IMPORTANT: Failure to follow correct tightening procedure could result in equipment damage.

Retighten wheel and weight bolts after working 3 HOURS, 10 HOURS and DAILY during the first week of operation.

Check and torque all wheel and weight bolts on a regular or 500 Hour interval. See Wheels, Tires and Treads section of this Operator's Manual for bolt tightening procedure.



RXA0141936—UN—02JUN14

Tighten front and rear wheel bolts (A), hub bolts (B) and wheel weight bolts (C) .

AK08008,0000185-19-15NOV19

Use Wheel Tightening Stand



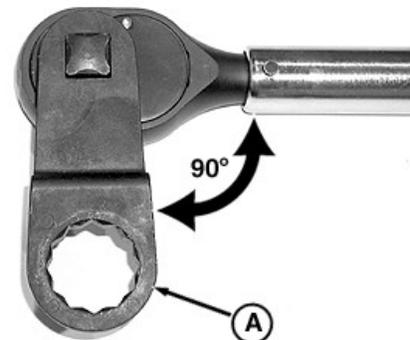
RXA0113539—UN—11FEB11

Wheel tightening stand (A) may be used to aid in tightening wheel and wheel weight hardware. Stand supports torque wrench (B) and extension when tightening bolts at different heights.

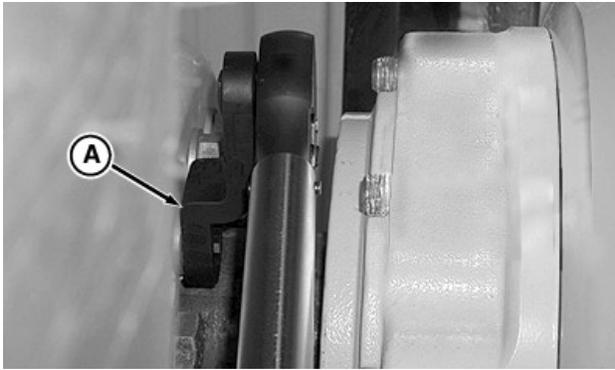
See your John Deere dealer for information on purchasing or fabricating stand.

AK08008,0000186-19-15NOV19

Use Wheel Torque Wrench Adapter



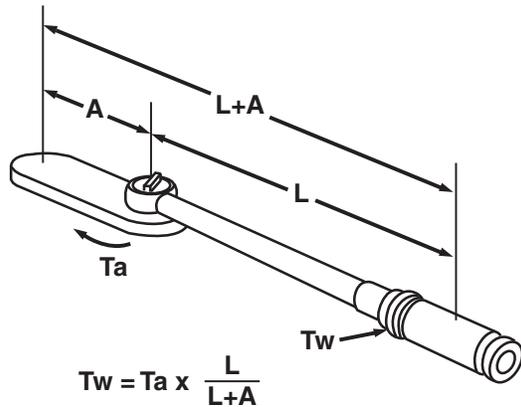
RXA0086802—UN—15FEB06



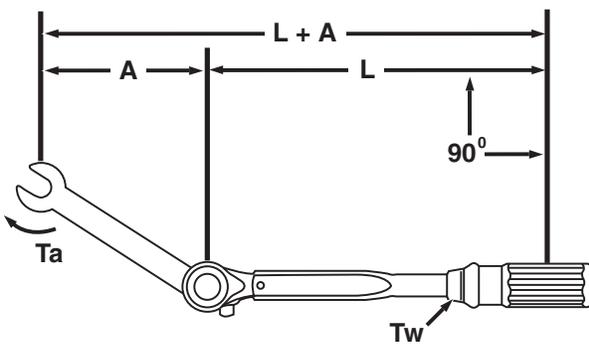
RXA0086804—UN—15FEB06

Install JDG679 Torque Wrench Adapter (A) [32 mm (3/4 in) drive] improves access to sleeve bolts on inner cast wheels with outside duals in place. See your John Deere dealer.

Install adapter at **90° angle** from torque wrench shaft to assure correct torque specification of 610 N·m (450 lb·ft).



RXA0061214—UN—19JUN02



RXA0062101—UN—15AUG02

When unable to use adapter at 90° angle from torque wrench shaft, use formula to calculate correct torque wrench setting (Tw) to obtain desired final torque on bolts.

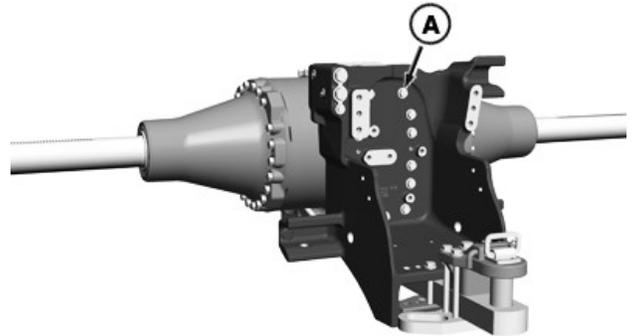
- Tw = Torque setting on torque wrench
- Ta = Torque actually being applied to bolt
- L = Length from point of force (center of the wrench handle) to center of head of torque wrench

A = Application distance from center of torque wrench head to center of adapter [95 mm (3.75 in)]

Example: Torque wrench length = 0.91 m (36 in), wrench adapter = 0.1 m (4 in), Value Tw for torque wrench setting is 549 N·m (405 lb·ft).

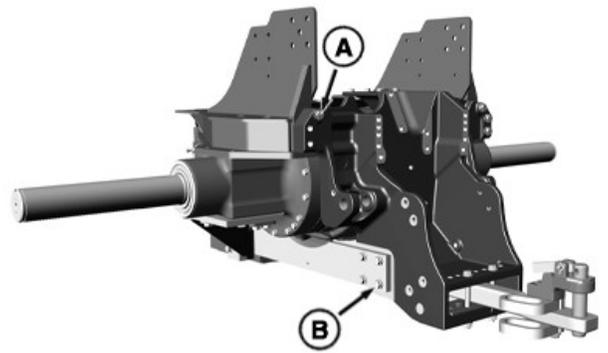
AK08008,0000187-19-15NOV19

Drawbar Support and Cap Screws



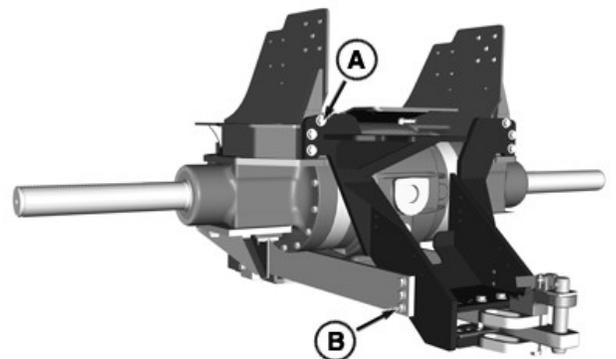
RXA0139208—UN—19FEB14

Heavy Duty Double Reduction Axle Drawbar Support



RXA0139447—UN—21MAR14

Heavy Duty Single Reduction Axle Drawbar Support



RXA0139448—UN—21MAR14

Standard Single Reduction Axle Drawbar Support

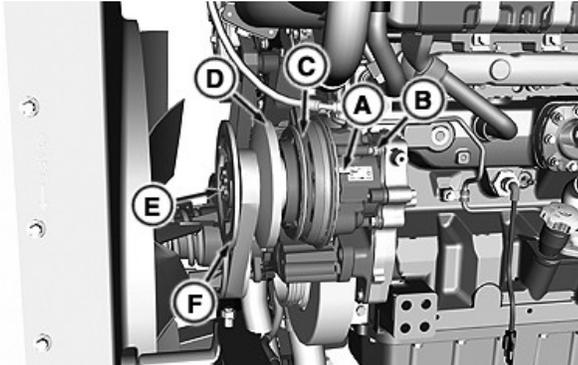
Inspect and tighten drawbar support cap screws (A) and stabilizer cap screws (B) to 490 N·m (361 lb·ft).

KD34109,00005CA-19-17MAR20

Service - Change

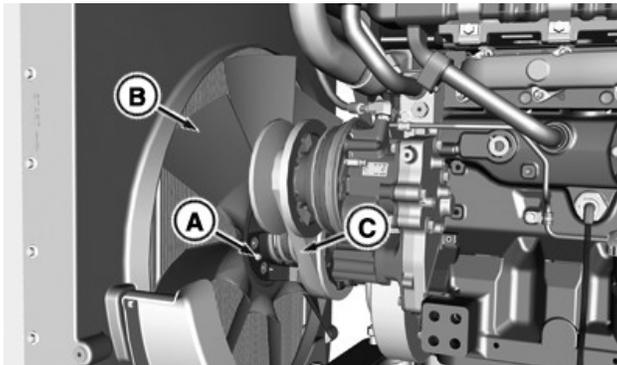
Vari-Cool™ Fan Belt—9.0 L Final Tier 4/ Stage V Engine

1. Disconnect negative battery cable. See Service Batteries and Connectors in Service - Electrical section of this Operator's Manual.
2. Remove front engine side shields, See Remove Front Engine Side Shield in Service - General Information section of this Operator's Manual.



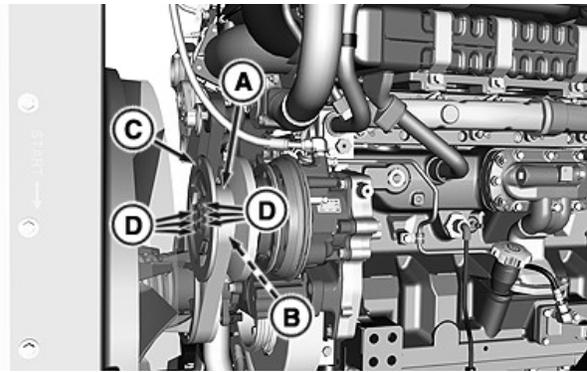
RXA0142531—UN—17JUN14

3. Remove vent adapter (A) from housing.
4. Remove cap screw (B) and install into vent adapter hole in piston plate (C).
5. Tighten cap screw (B) to pull inner sheave (D) inward.
6. Hold front sheave (F) and remove six cap screws (E).
7. Remove front sheave evenly off shaft.



RXA0142532—UN—13JUN14

8. Remove six cap screws and nuts (A) and carefully position fan (B) against radiator.
9. Remove belt (C) through opening between fan and hub.
10. Discard old belt.
11. Install new fan belt between fan and hub so that it is positioned between lower sheave halves.



RXA0142335—UN—10JUN14

12. Slide fan into place, install cap screws and nuts and tighten to 35 N·m (26 lb·ft).
13. Pull belt (A) onto drive shaft (B) and against rear sheave.

IMPORTANT: When installing front sheave (C), make sure that belt remains loose and is not pinched between sheaves.

Clean mating surfaces of front sheave and shaft.

14. Install front sheave (C).
15. Hold front drive sheave and tighten six cap screws (D) to 37 N·m (27 lb·ft).
16. Remove cap screw, install vent adapter and reinstall cap screw. Tighten vent adapter to 24 N·m (18 lb·ft) and cap screw to 13 N·m (10 lb·ft).
17. Reinstall diverter panel and cap screws. Tighten to 21 N·m (15 lb·ft).
18. Connect negative battery cable.

NOTE: Starting engine with belt loose between sheaves allows belt to climb out of groove between sheaves. Belt will correctly position itself within a few seconds after engine is started.

19. Start engine and run at idle for 15 seconds. Turn off engine.
20. Remove right-hand side front shield and make sure that belt is correctly positioned between sheaves.

⚠ CAUTION: Keep hands away from exposed fan blades. Blades have sharp edges which may result in personal injury.

21. Reinstall side panel and tighten cap screws.

AK08008,0000189-19-15NOV19

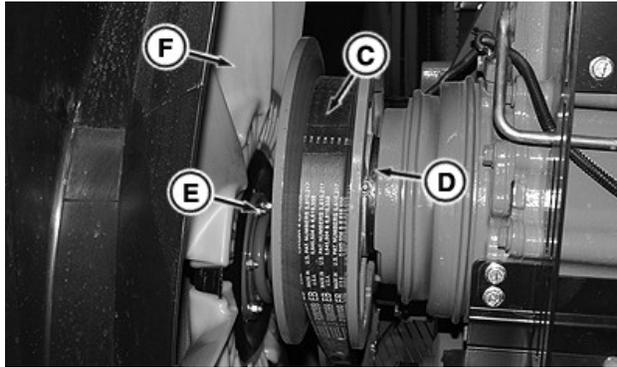
Vari-Cool™ Fan Belt—13.5 L Final Tier 4/ Stage V Engine

1. Disconnect negative battery cable. See Service

Batteries and Connectors - 13.5 L Engine in Service - Electrical section of this Operator's Manual.

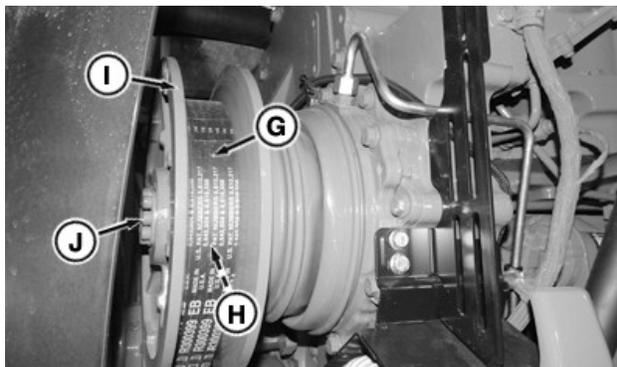
- Remove front engine side shield, See Remove Front Engine Side Shield in Service - General Information section of this Operator's Manual.

NOTE: Alternator not shown for clarity.



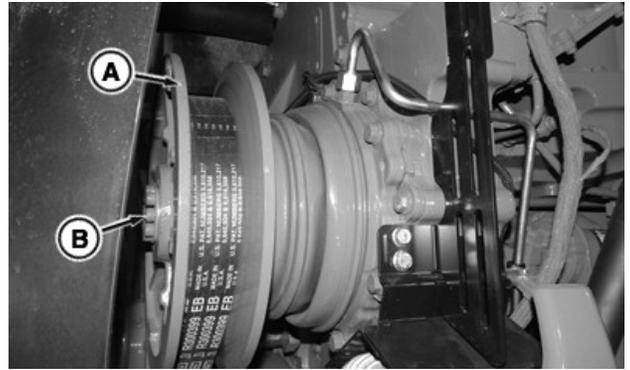
RXA0163067—UN—26APR18

- Hold front sheave (A) and remove cap screws (B).
- Remove front sheave evenly off shaft.



RXA0163068—UN—26APR18

- Retain fan belt (C) and inner sheave (D) on shaft. Remove cap screws and nuts (E) and carefully position fan (F) against radiator.
- Remove belt through opening between fan and hub.
- Discard old belt.
- Install new fan belt between fan and hub so that it is positioned between lower sheave halves.
- Slide fan into place, install cap screws and nuts and tighten to 35 N·m (26 lb-ft).



RXA0163069—UN—26APR18

- Pull belt (G) onto driveshaft (H) and against rear sheave.

IMPORTANT: Clean mating surfaces of front sheave and shaft.

When installing front sheave, ensure that belt remains loose and is not pinched between front and rear sheaves.

- Install front sheave (I).
- Hold front drive sheave and tighten cap screws (J). If:
 - Four cap screws secure sheave, tighten each to 37 N·m (27 lb-ft).
 - Eight cap screws secure sheave, tighten each to 125 N·m (92 lb-ft).
- Reinstall diverter panel and cap screws. Tighten to 21 N·m (15 lb-ft).
- Connect negative battery cable.

NOTE: Starting engine with belt loose between sheaves allows belt to climb out of groove between sheaves. Belt will correctly position itself within a few seconds after engine is started.

- Start engine and run at idle for 15 seconds. Turn off engine.

⚠ CAUTION: Avoid personal injury. Fan blades have sharp edges. Keep hands away from exposed blades.

- Remove right-hand side front shield and make sure that belt is correctly positioned between sheaves.
- Reinstall front engine side shield, close and secure hood

AK08008,000018A-19-15NOV19

Vari-Cool™ Fan Drive Bushings, Seals, and Wear Pads—9.0 L Final Tier 4/Stage V Engine

IMPORTANT: In extreme conditions, change components every 2000 hours. In normal conditions, change every 4500 hours.

See your John Deere dealer.

AK08008,000018B-19-15NOV19

Vari-Cool™ Fan Drive Bushings and Seals—13.5L Final Tier 4/Stage V Engine

See your John Deere dealer.

AK08008,000018C-19-15NOV19

Vari-Cool™ Fan Drive Bearing and Retaining Capscrew—13.5L Final Tier 4/Stage V Engine

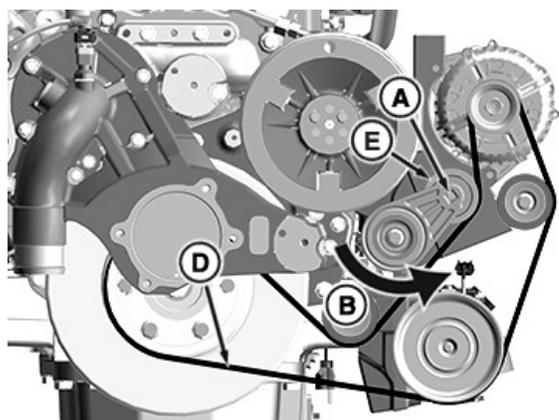
See your John Deere dealer.

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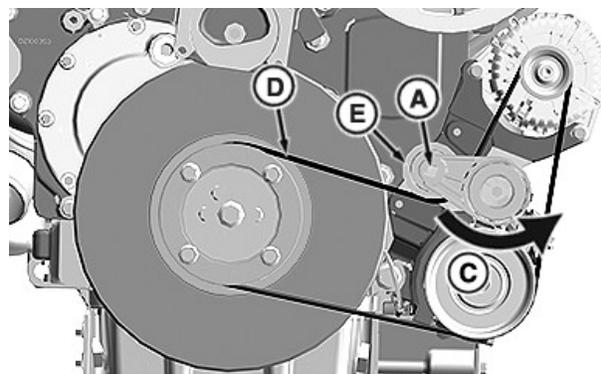
Engine Auxiliary Drive Belt—9.0 L or 13.5 L Engine

1. Remove front engine side shields, see Remove Front Engine Side Shields in Service-General Information section of this Operator's Manual.

IMPORTANT: Removal of belt requires an assistant.



RXA0162896—UN—18APR18
9.0 L Engine Accessory Drive Belt Layout



RXA0162897—UN—18APR18
13.5 L Engine Accessory Drive Belt Layout

2. Release tension on belt. Insert 1/2 inch drive ratchet or breaker bar inserted into square hole on belt tensioner arm (A). Twist tensioner:
 - 9.0 L engine - counterclockwise (B).
 - 13.5 L engine - clockwise (C).
3. While continuing to apply force with breaker bar, have assistant remove belt (D) from tensioner pulley (E).
4. Relax tension and completely remove belt.

IMPORTANT: Belt tension is controlled by an automatic belt tensioner. Tensioner does not require adjustment.

5. Inspect belt tensioner. See Engine Auxiliary Drive Belt and Drive Belt Tensioner in Service - Check section of this Operator's Manual.
6. Install new belt on all pulleys except tensioner pulley. Drive belt layout diagram shows correct belt routing.
7. Using breaker bar, release tension on tensioner pulley and position belt over pulley.
8. Slowly relax force on breaker bar.
9. Check engine fan belt for wear or damage. Replace if necessary. Depending upon engine type, in this Operator's Manual section, see:

Fan Belt – 9.0 L or 13.5 L Tier 2/Stage II or Tier 3/Stage IIIA Engine.

Vari-Cool™ Fan Belt—9.0 L Final Tier 4/Stage V Engine.

Vari-Cool™ Fan Belt—13.5 L Final Tier 4/Stage V Engine.

CAUTION: Never start engine without side panels installed and hood securely closed and latched.

10. Install engine side shields.

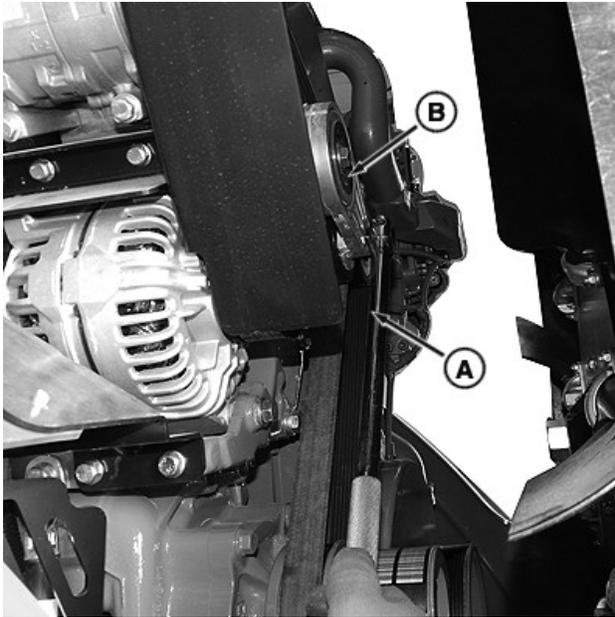
11. Close and secure hood.

AK08008,000018E-19-15NOV19

Engine Auxiliary Drive Belt—15 L Engine

1. Remove front engine side shield, see Remove Front Engine Side Shield in Service - General Information section of this Operator's Manual.

IMPORTANT: Removal of belt requires an assistant.

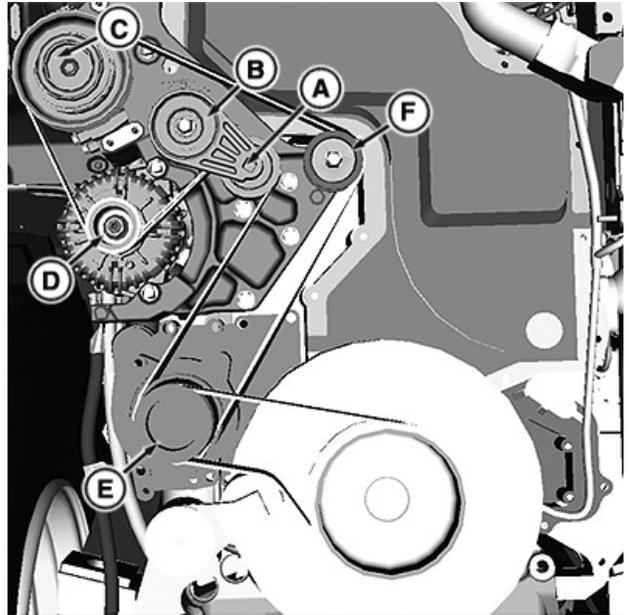


RXA0142200—UN—12JUN14

2. Release tension on drive belt. Insert 1/2 inch drive socket wrench into square hole (A) on tensioner arm (B). Twist tensioner clockwise.
3. While continuing to apply force with breaker bar, have assistant remove auxiliary belt from air conditioner pulley (C).
4. Relax tension and completely remove belt.

IMPORTANT: Belt tension is controlled by an automatic belt tensioner. Tensioner does not require adjustment.

5. Inspect belt tensioner. See Engine Auxiliary Drive Belt and Drive Belt Tensioner in Service - Check section of this Operator's Manual.



RXA0142199—UN—06JUN14

Auxiliary Drive Belt Layout

Install new belt on all pulleys except tensioner pulley. Drive belt layout chart shows correct belt routing.

7. Using breaker bar, release tension on tensioner pulley and position belt over pulley.
8. Slowly relax force on breaker bar.
9. Check engine water pump belt for wear or damage. Replace if necessary. See Engine Water Pump Drive Belt in this Operator's Manual section.

CAUTION: Never start engine without side panels installed and hood securely closed and latched.

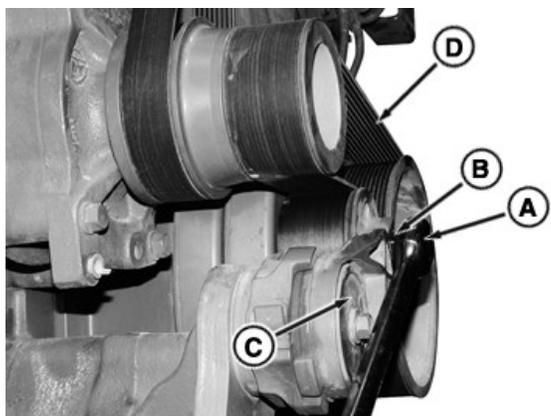
10. Install engine side shields.
11. Close and secure hood.

AK08008,000018F-19-15NOV19

Engine Water Pump Drive Belt—15 L Engine

1. Remove front engine side shield, see Remove Front Engine Side Shield in Service - General Information section of this Operator's Manual.

IMPORTANT: Removal of belt requires an assistant.



RXA0163099—UN—02MAY18

2. Release tension on drive belt. Insert 1/2 inch drive ratchet or breaker bar (A) into square hole (B) on tensioner arm (C). Twist tensioner counterclockwise.
3. While continuing to apply force with breaker bar, have assistant remove water pump belt from water pump pulley (D).
4. Relax tension and completely remove belt.

IMPORTANT: Belt tension is controlled by an automatic belt tensioner. Tensioner does not require adjustment.

5. Inspect belt tensioner. See Engine Auxiliary Drive Belt and Drive Belt Tensioner in Service - Check section of this Operator's Manual.
6. Install new belt on all pulleys except tensioner pulley.
7. Using breaker bar, release tension on tensioner pulley and position belt over pulley.
8. Slowly relax force on breaker bar.
9. Check auxiliary engine drive belt for wear or damage. Replace if necessary. See Engine Auxiliary Drive Belt—15 L Engine in this Operator's Manual section.

CAUTION: Never start engine without side panels installed and hood securely closed and latched.

10. Install engine side shields.
11. Close and secure hood.

AK08008,0000190-19-15NOV19

Engine Oil and Filter—9.0 L Engine

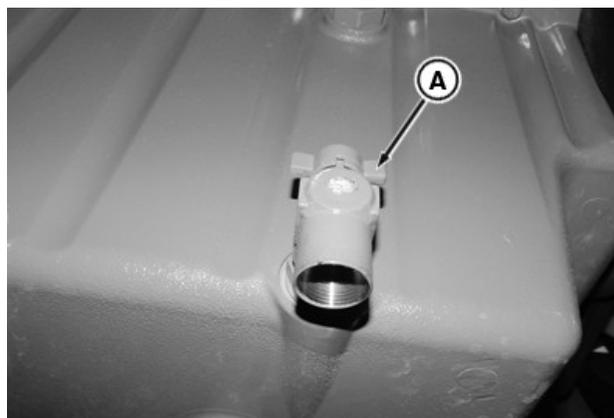
IMPORTANT: Sulfur content should not exceed 0.10%. Sulfur content less than 0.10% is preferred. Refer to Engine Oil section of this Operator's Manual for more information on oil change intervals.

IMPORTANT: Change engine oil and filter at least once every twelve months. Change even if hours of operation are fewer than otherwise recommended service interval.

IMPORTANT: The initial break-in service interval of a new or rebuilt wet sleeve engine with Break-In Plus must go at least 100 hours. This assures mating of rings and liners. The 100 hour minimum applies to all new or rebuilt engines. The maximum service interval is the same as the service interval recommendations listed in Engine Oil and Filter Service Intervals for your engine. To confirm which engine your tractor is equipped with, see Engine Serial Number in Identification Numbers Section in this Operator's Manual.

For subsequent oil changes, see Engine Oil and Filter Service Intervals for your engine located in the Engine Oil Section of this Operator's Manual.

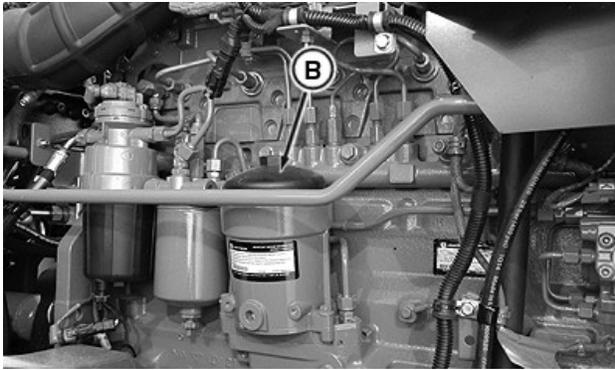
Operate engine to warm oil. Stop engine.



RXA0141930—UN—02JUN14

Place a large catch pan below engine drain valve (A) and open valve to drain oil.

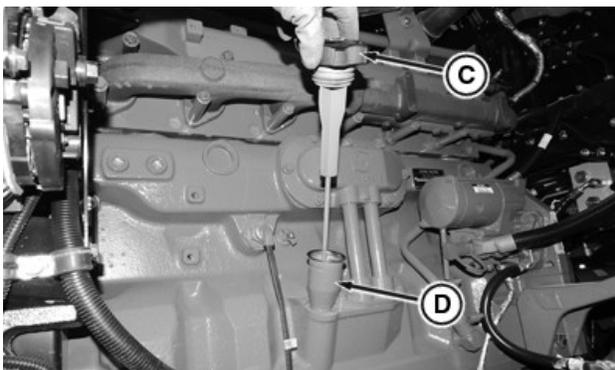
NOTE: Do not remove relief valve plug on side of filter housing. Oil in filter housing drains back into crankcase when filter is removed.



RXA0141932—UN—02JUN14

1. Remove oil filter cover (B) using a 32 mm (1.25 in) wrench.
2. Remove cap and filter element.
3. While holding cap, strike filter element against a solid surface to unfasten filter from cap.
4. Discard used filter.
5. Remove O-ring seal and replace with new O-ring provided with new filter element. Lubricate new O-ring with a small amount of engine oil.
6. Press new filter element into cap until it snaps into place.
7. Insert cap and filter assembly into oil filter housing. Screw cap into place and tighten to 40 N·m (30 lb·ft).
8. Close engine crankcase drain valve.

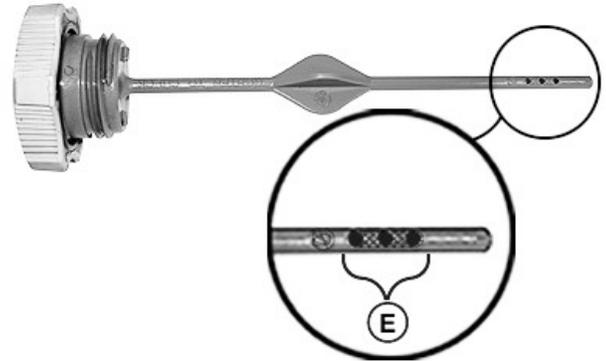
IMPORTANT: Overfilling engine oil may result in loss of engine performance or damage to engine components. Check oil level during refill to assure that correct amount of oil is added.



RXA0141934—UN—02JUN14

9. Remove engine oil filler cap (C) and refill crankcase using filler tube (D). Use seasonal viscosity grade oil as specified in Engine Oil section of this Operator's Manual. For crankcase capacity, see Capacities in Specifications section of this Operator's Manual.
10. Start and run engine for a two minutes. Then stop engine and check for oil leaks.

NOTE: Engine oil level indicator is a dipstick with a "crosshatched" area with a "safe" zone. Anywhere in the dipstick crosshatched safe zone is considered FULL.



RXA0110097—UN—10DEC10

11. Recheck oil level with dipstick to ensure level is in crosshatched area (E).

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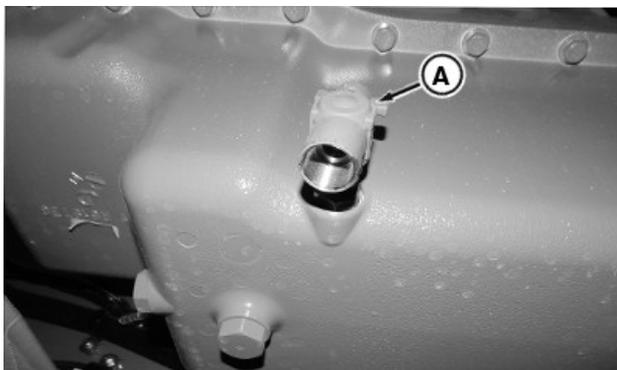
Engine Oil and Filter—13.5 L Engine

IMPORTANT: Sulfur content should not exceed 0.10%. Sulfur content less than 0.10% is preferred. Refer to Fuel, Lubricants, and Coolant section for more information on oil change intervals.

NOTE: The initial break-in service interval of a new or rebuilt wet sleeve engine with Break-In Plus must go at least 100 hours to assure the surface mating of the rings and liners has had an opportunity to occur. The 100 hour minimum applies to all new or rebuilt engines. The maximum service interval is the same as the service interval recommendations listed in Engine Oil and Filter Service Intervals for your engine. To confirm which engine your tractor is equipped with, see Engine Serial Number in Identification Numbers section of this Operator's Manual.

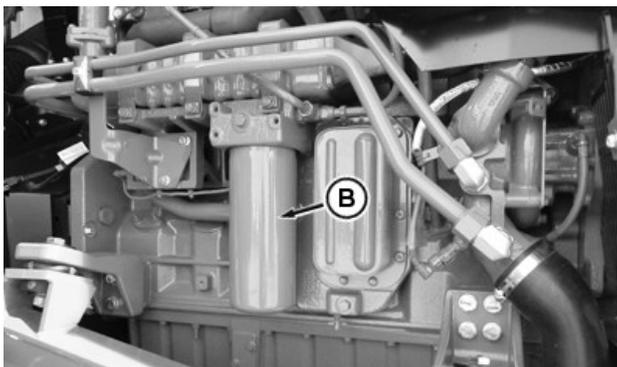
For subsequent oil changes, see Engine Oil and Filter Service Intervals for your engine located in the Engine Oil section of this Operator's Manual.

1. Operate engine approximately 5 minutes to warm oil.
2. Stop engine.



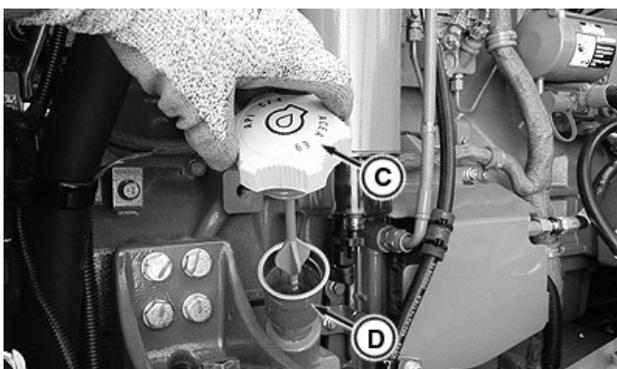
RXA0141931—UN—02JUN14

3. Turn crankcase drain fitting (A) to drain oil. Use enough containers for 75.7 L (20 gal.) and direct flow with attached valve hose.
4. Tighten fitting after oil is completely drained.
5. Remove front engine side shield, see Remove Front Engine Side Shield in Service - General Information section of this Operator's Manual.



RXA0141933—UN—02JUN14

6. Remove filter (B) and remove old O-ring. Clean filter mounting surface with clean dry cloth.
7. Apply a thin film of oil to new O-ring and install new filter.
8. Hand-tighten filter element, then turn filter element 1-1/4 turn after gasket contact. Filter wrench is required. Do not overtighten.



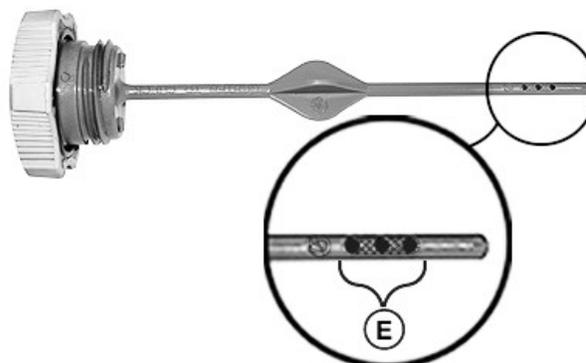
RXA0141935—UN—02JUN14

9. Remove engine oil fill cap (C) and refill crankcase using fill tube (D). Use seasonal viscosity grade oil as specified in Engine Oil section of this Operator's

Manual. For crankcase capacity, see Capacities in Specifications section of this Operator's Manual.

10. Start and run engine for a two minutes. Then stop engine and check for oil leaks.

NOTE: Engine oil level indicator is a dipstick with a "crosshatched" area with a "safe" zone. Anywhere in the dipstick crosshatched safe zone is considered FULL.



RXA0110097—UN—10DEC10

11. Recheck oil level with dipstick to ensure that level is in crosshatched (E) "safe" zone area.
12. Reinstall front engine side shield and close hood.

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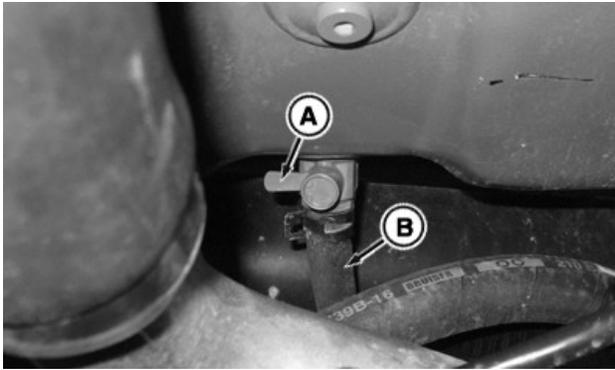
Engine Oil and Filter—15 L Engine

IMPORTANT: Fuel sulfur content should not exceed 0.10%. Fuel sulfur content less than 0.10% is preferred. Refer to Fuel, Lubricants, and Coolant section for more information on oil change intervals.

NOTE: No initial break-in service required for new or rebuilt engines. The maximum service interval is the same as the service interval recommendations listed in Engine Oil and Filter Service Intervals for your engine. To confirm which engine your tractor is equipped with, see Engine Serial Number in Identification Numbers section of this Operator's Manual.

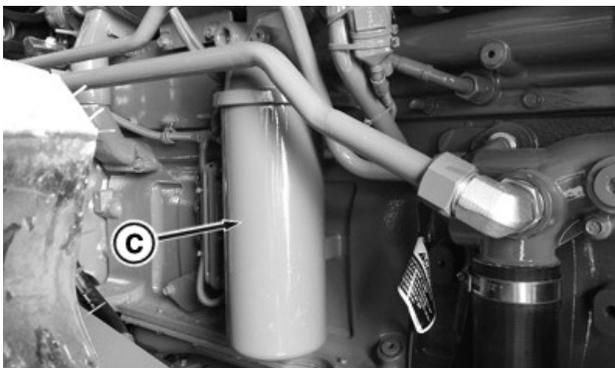
For subsequent oil changes, see Engine Oil and Filter Service Intervals in Engine Oil section of this Operator's Manual.

1. Operate engine approximately 5 minutes to warm oil.
2. Stop engine.



RXA0147883—UN—20APR15

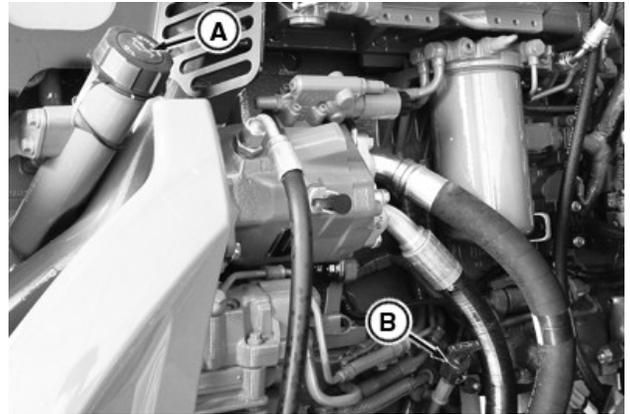
3. Locate engine drain valve (A) located inside right-hand engine side frame.
4. Turn crankcase drain valve (A) to drain engine oil. Use enough containers for 75.7 L (20 gal) capacity and direct oil flow with engine oil drain hose (B).
5. Close drain valve after all oil has been drained.
6. Remove front engine side shield, see Remove Front Engine Side Shield in Service General - Information section of this Operator's Manual.



RXA0147884—UN—20APR15

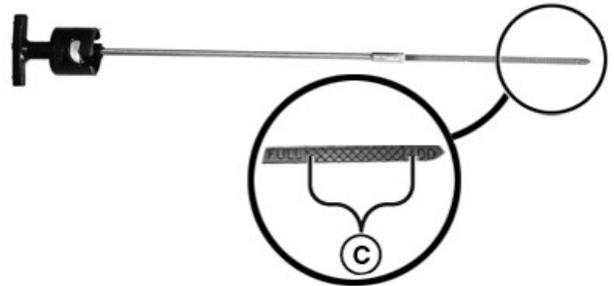
7. Remove filter (C) and old gasket. Clean filter mounting surface with clean dry cloth.
8. Apply thin film of oil to new gasket.
9. Fill filter with clean engine oil, approximately 1.9 L (0.5 gal).
10. Install gasket and filter.
11. Hand-tighten filter element until gasket contacts filter head surface. Use filter wrench to tighten an extra 3/4 to 1 turn after gasket contact. Refer to instructions on filter. Do not overtighten.

IMPORTANT: Do not overfill engine. Excess oil can cause loss of efficiency.



RXA0141925—UN—03JUN14

12. Remove engine oil fill cap (A) and fill crankcase using fill tube. Use seasonal viscosity grade oil as specified in Engine Oil section of this Operator's Manual. For crankcase capacity, see Capacities in Specifications section of this Operator's Manual.



RXA0141926—UN—03JUN14

13. Check oil level with dipstick (B), to ensure that oil level is in crosshatched "safe" area (C).
14. Start and run engine for two minutes. Then stop engine and check for oil leaks.

NOTE: Engine oil level indicator is a dipstick with a "crosshatched" area with a "safe" zone. Anywhere in the dipstick crosshatched safe zone is considered full.

15. Recheck oil level with dipstick (B), to ensure that oil level is in crosshatched "safe" zone area (C).
16. Install front engine side shield and close hood.

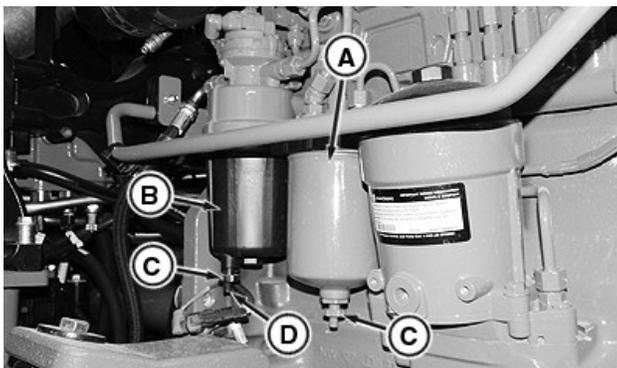
AK08008,0000193-19-15NOV19

Fuel Filters—9.0 L Engine

IMPORTANT: Replace fuel filter elements anytime audible alarm sounds and diagnostic trouble codes indicate plugged fuel filters (low fuel pressure). If no alarm sounds replace filters after 500 hours operation

1. Thoroughly clean exterior of fuel filter/water separator assembly and surrounding area.

CAUTION: Due to high-pressure common rail system design, fuel in filter is likely to be under high pressure. To avoid possible personal harm, open valve (C) on bottom of water separator bowl to relieve pressure prior to removing each filter.



RXA0141937—UN—02JUN14
Fuel Filters

2. Drain water and contaminants from primary filter (A) and secondary filter (B) into suitable container by opening drain valves (C) on bottom of filters. Make sure to turn nut past threads until it drops onto plastic tabs.
3. Disconnect the water-in-fuel sensor connector from primary filter.

IMPORTANT: Always replace both filters at the same time.

4. Remove the final fuel filter (B) first, for clearance, using a suitable filter wrench. Then remove primary fuel filter canister (A).
5. Remove primary fuel filter element and replace with new element.

IMPORTANT: Do NOT prefill either fuel filter with fuel.

6. Remove water-in-fuel sensor (D) from old primary filter. Inspect filter O-ring condition and replace if necessary. Install O-ring in new primary filter and tighten to 3.3 N·m (29 lb·in).
7. Remove packing for primary fuel filter canister and replace with new packing provided with filter element. Lubricate packing for primary fuel filter with fuel, and install canister onto base. Tighten 3/4 turn after packing contacts base.
8. Lubricate gasket and install filter onto base. Tighten 3/4 of a full turn after gasket contacts the base. Connect water-in-fuel sensor.

9. Repeat above procedure for secondary filter.

IMPORTANT: Allow sufficient time to prefill fuel filter prior to attempting to start tractor. Tractor will not start until fuel system is full.

10. Fuel system is self-bleeding. Turn key switch to ON position for at least 60 seconds to allow transfer pump to prefill fuel filters before attempting to start engine.
11. Turn key switch clockwise to START position, and run engine at high idle for 2 minutes. If engine will not start or dies, see BLEEDING FUEL SYSTEM.
12. If engine will not start after bleeding fuel system, prime the system as indicated in Restart Engine That Has Run Out Of Fuel in Engine Operation section of this Operator's Manual.

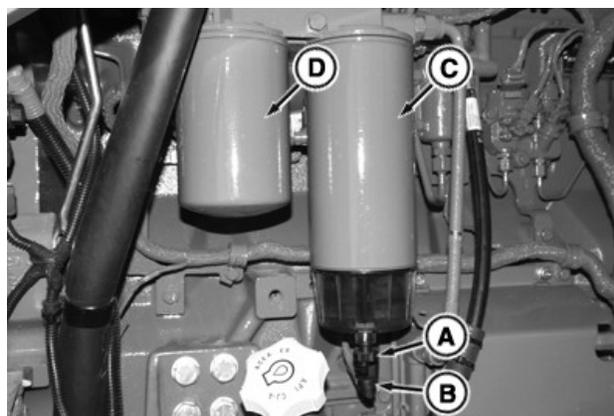
AK08008,0000194-19-15NOV19

Fuel Filters—13.5 L Engine

1. Remove engine access panel, see Remove Engine Access Panel in Service - General section of this Operator's Manual.

IMPORTANT: Replace fuel filter elements anytime audible alarm sounds and diagnostic trouble codes indicate plugged fuel filters (low fuel pressure). If no alarm sounds replace filters after 500 hours operation

2. Thoroughly clean exterior of fuel filter/water separator assembly and surrounding area.



RXA0141938—UN—02JUN14

3. Drain water and contaminants from primary filter into suitable container by opening drain valve (A) on bottom of separator.
4. Dispose of drained material in accordance with local laws and ordinances.
5. Disconnect the water-in-fuel sensor connector (B) from primary filter.

- Remove primary filter (C), secondary filter (D), and gaskets and discard.

IMPORTANT: DO NOT prefill either fuel filter with fuel.

- Lubricate gasket for primary fuel filter with fuel, and install canister onto base. Tighten 3/4 turn after packing contacts base.
- Lubricate primary fuel filter water separator gasket with fuel and install onto filter canister. Tighten 3/4 of a full turn after gasket contacts the base.
- Lubricate gasket for secondary fuel filter with fuel, and install filter onto base. Tighten 3/4 turn after packing contacts base.
- Connect water-in-fuel separator sensor harness.
- Install engine access panel.

IMPORTANT: Key must be turned to ON position for 3 minutes before starting engine to provide time to prefill fuel filters. Fuel system is self-bleeding.

Do not try to start engine until after 3 minute time elapses or an air lock in the fuel system may occur.

- Start engine and run high idle for 2 minutes.

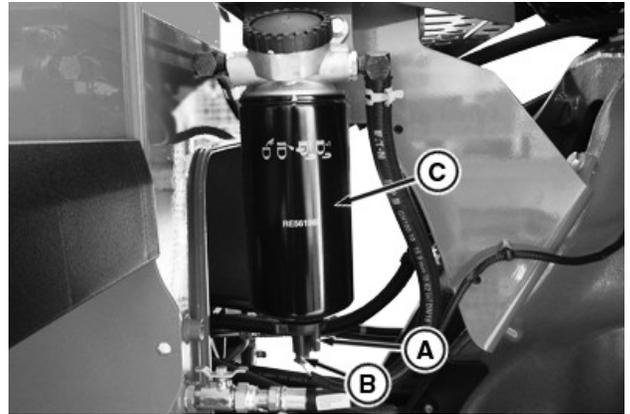
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Fuel Filters—15 L Engine

- Remove front engine access panel, see Remove Engine Access Panel in Service - General Information section of this Operator's Manual.

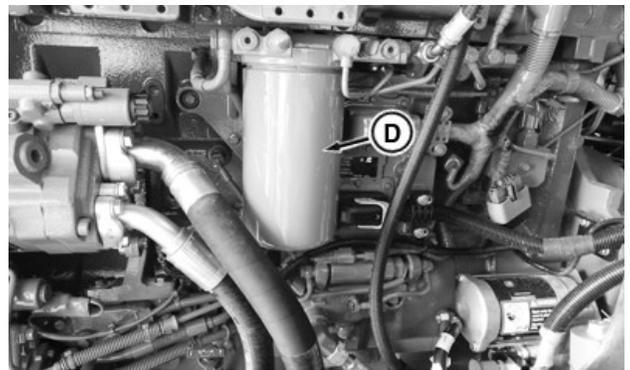
IMPORTANT: Replace fuel filter elements anytime audible alarm sounds and diagnostic trouble codes indicate plugged fuel filters (low fuel pressure). If no alarm sounds replace filters after 400 hours operation

- Thoroughly clean exterior of fuel filter/water separator assembly and surrounding area.



RXA0141928—UN—02JUN14

- Drain water and contaminants from primary filter into suitable container by opening drain valve (A) on bottom of filter.
- Dispose of drained material in accordance with local laws and ordinances.
- Disconnect the water-in-fuel sensor connector (B) from primary filter.



RXA0141924—UN—02JUN14

- Remove primary filter (C), secondary filter (D), and gaskets and discard filters.

IMPORTANT: Remove secondary filter plug (if equipped) before installing. DO NOT prefill either fuel filter with fuel.

- Lubricate gasket for primary fuel filter with fuel, and install canister onto base. Tighten 3/4 turn after packing contacts base.
- Lubricate primary fuel filter water separator gasket with fuel and install onto filter canister. Tighten 3/4 of a full turn after gasket contacts the base.
- Lubricate gasket for secondary fuel filter with fuel, and install filter onto base. Tighten 3/4 turn after gasket contacts base.
- Connect water-in-fuel sensor connector harness.
- Install engine access panel.

IMPORTANT: Turn key ON for 3 minutes before starting engine to provide time to prefill fuel filters. Fuel system is self-bleeding.

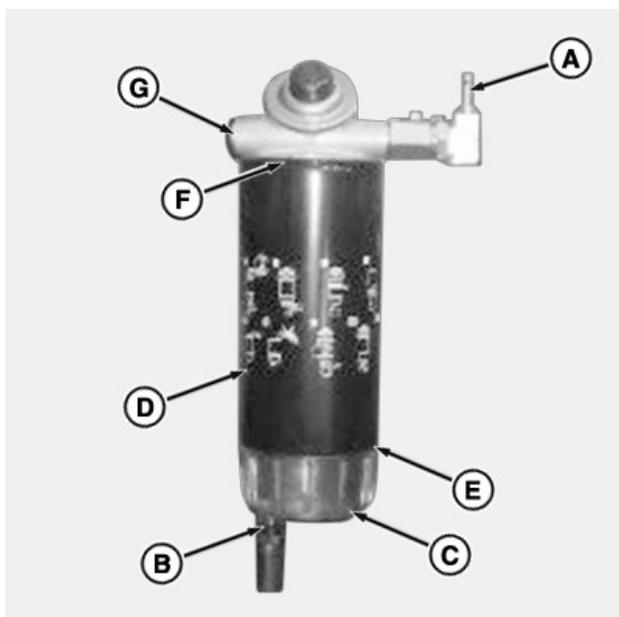
Do not attempt to start engine until prefill is complete or a fuel system air lock may occur.

12. Start engine and run high idle for 2 minutes.

AK08008,0000196-19-15NOV19

Optional Fuel Water Separator Filter Element—13.5 L Engine

1. Park machine on a flat, level surface.
2. Lower equipment to ground.
3. Shut off engine.



RXA0168513—UN—03JUN19

Priming button cap may differ

4. Close fuel shutoff valve (A).
5. Thoroughly clean fuel filter assembly and surrounding area to prevent dirt and debris from entering the fuel system.

CAUTION: Fuel in filter is under high pressure. Open drain valve on bottom of the fuel filter housing to relieve pressure before removing filter.

NOTE: Catch fluids with an approved container and dispose of according to employer and government guidelines.

6. Connect a fuel drain line to the filter drain valve (B) on bottom of the filter housing.
7. Open filter drain valve.

8. Drain all fuel.
9. Close drain valve.
10. Remove and retain water separator bowl (C) from filter element.
11. Remove and discard filter element (D).
12. Clean water separator bowl with compressed air.
13. Inspect filter housing and filter canister sealing surfaces. Clean as required.
14. Place new seal (E) on the water separator bowl.
15. Lubricate seal with clean diesel fuel.
16. Install water separator bowl onto new filter element. Tighten water separator bowl 1/2 of a turn after seal contacts filter element.
17. Lubricate new filter element seal (F) with clean diesel fuel.
18. Install filter element assembly to the filter housing (G).
19. Tighten filter element 1/2—3/4 of a turn after seal contacts filter housing.
20. Open fuel shutoff valve.
21. Bleed fuel system. See Bleed Fuel System in the Service - General Information section of this Operator's Manual.

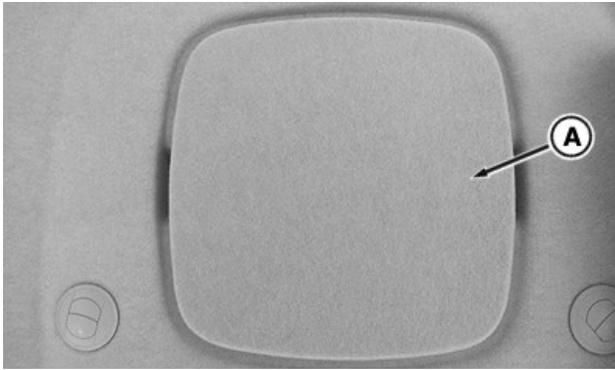
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Cab Recirculation Air Filter

CAUTION: Cab air filters are not designed to filter out harmful chemicals. Follow instructions in implement Operator's Manual and chemical manufacturer when using agricultural chemicals.

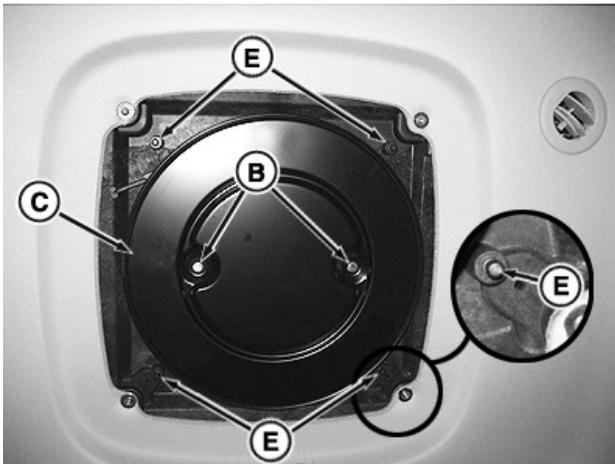
IMPORTANT: Replacement interval can vary according to operating conditions. Normal service is 1000 hours or annually, whichever occurs first.

1. Close entry door to prevent debris getting into cab.



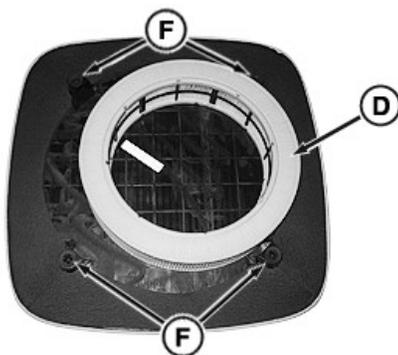
RXA0134243—UN—31JUL13

2. Remove upholstery cover (A) in headliner by grasping down outer edges and pulling.



RXA0100957—UN—17MAR09

3. While holding cover (C) in place with one hand, remove fasteners (B) allowing cover to be lowered.
4. Using a clean cloth, wipe down inside and outside of filter cover.



RXA0100959—UN—17MAR09

5. Remove and discard old recirculation filter (D).
6. Install new filter.
7. Install cover (C) and tighten fasteners (B).
8. Install upholstery cover by lining up ball studs (E) with clip nuts (F) and firmly push up.

AK08008,0000198-19-15NOV19

Cab Fresh Air Filter

⚠ CAUTION: Cab air filters are not designed to filter out harmful chemicals. Follow instructions in implement Operator's Manual and those given by chemical manufacturer when using agricultural chemicals.

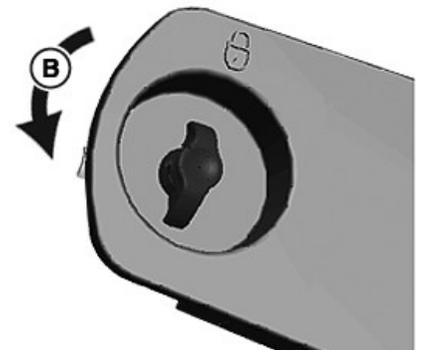
IMPORTANT: Replacement interval can vary according to operating conditions. Normal service is 1000 hours or annually, whichever occurs first.



RXA0099137—UN—19SEP08

1. Support cover (A).

NOTE: Filter cover latch has three positions; open, latched, and locked. Cover is not locked when in latched position.



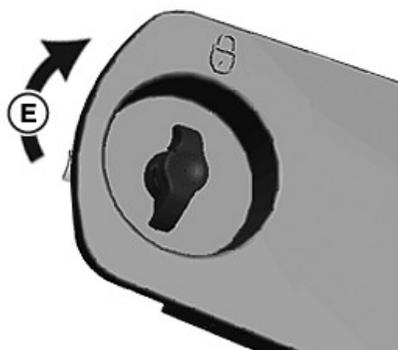
RXA0155037—UN—18OCT16

2. Turn knob fully counterclockwise (B) to unlatch cover.



RXA0155036—UN—18OCT16

3. Swing down (C) cover.
4. Remove and discard old fresh air filter (D).
5. Wipe down inside and outside of filter cover with a clean cloth.
6. Install new filter.



RXA0155035—UN—18OCT16

7. Close cover and turn knob fully clockwise (E) to securely lock latch.

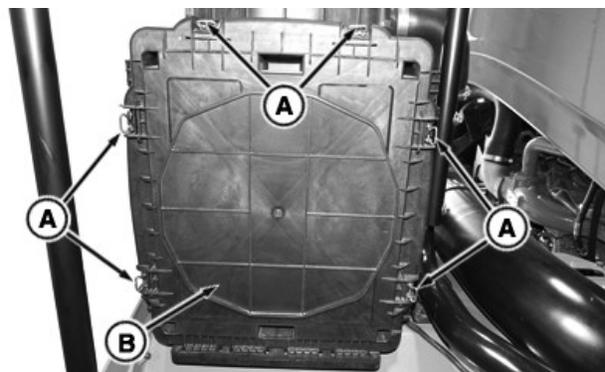
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Engine Primary and Secondary Air Filters

IMPORTANT: When Engine Air Filter Restriction Warning is activated, engine performance is reduced. Service engine air filters immediately.

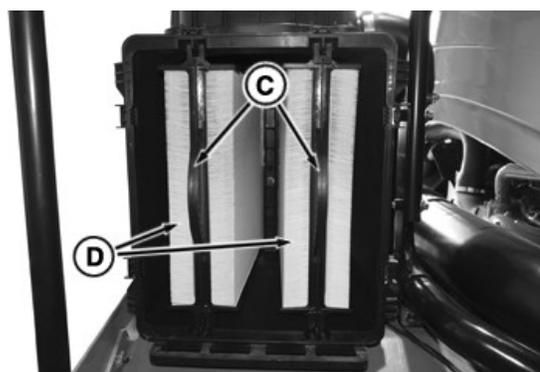
Service interval may vary due to operating conditions. Replace secondary air filter every second primary air filter change.

1. Inspect filters and intake seals. Replace filter if seal gap or damage is found.
2. Replace primary engine air filters if diagnostic trouble code remains on.



RXA0141984—UN—03JUN14

3. Unfasten clips (A) and remove air filter cover (B).



RXA0164245—UN—15AUG18

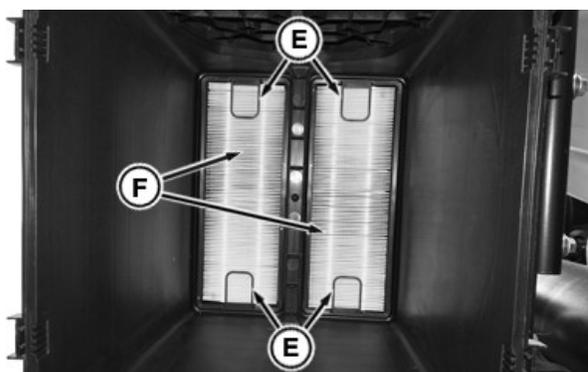
4. Grasp primary filter frame (C). Pull air filters (D) from filter housing track.

IMPORTANT: Do not attempt to clean engine air filters.

5. Inspect filter for damage or waviness in pleats. Such conditions may indicate overuse or contact with water. Replace filter if problem is found.

IMPORTANT: Replace secondary filters every other primary filter change.

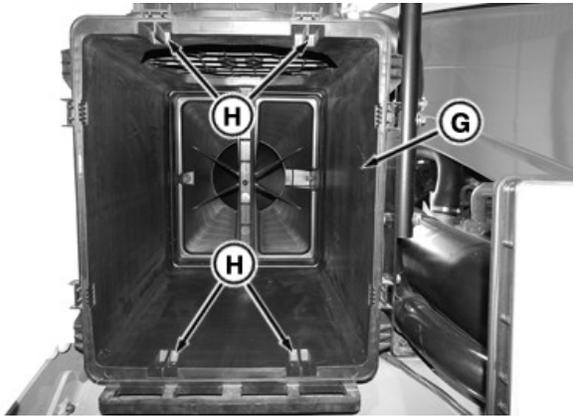
Install new secondary filters immediately to prevent dust from entering air intake system.



RXA0164246—UN—15AUG18

6. Pull on tabs (E) to remove secondary filters (F).
7. Inspect filters for damage. Replace if necessary.

NOTE: A very small amount of dust coating interior surface of filter housing is not unusual. If larger debris or significant amount of dust or dirt is found, check filters, filter housing, and air intake system for leaks.



RXA0164247—UN—15AUG18

8. Clean debris and dirt from filter housing (G). Use cloth dampened with water.

IMPORTANT: Incorrect installation of secondary filter tab may result in engine damage.

9. Replace secondary air filters.
10. Push filters firmly back to properly seat in filter housing.
11. Install primary filters into filter housing slots (H).
12. Install air filter cover and fasten cover clips.

AK08008,000019A-19-15NOV19

Fuel Tank Vent Filters

1. Clean off dirt and debris before removing vent filters.

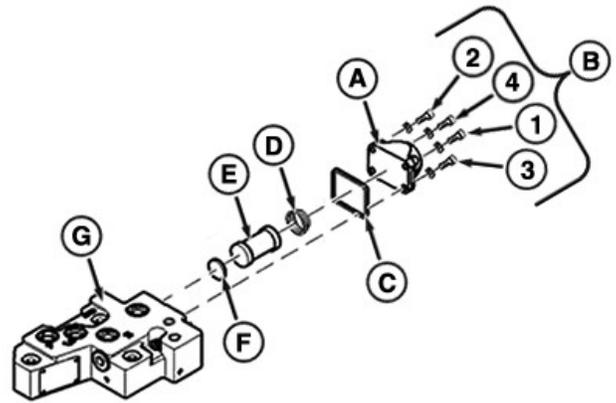


RXA0152653—UN—05JUL16

2. Remove left-hand and right-hand fuel tank vent filters (A).
3. Replace with new tank vent filters.

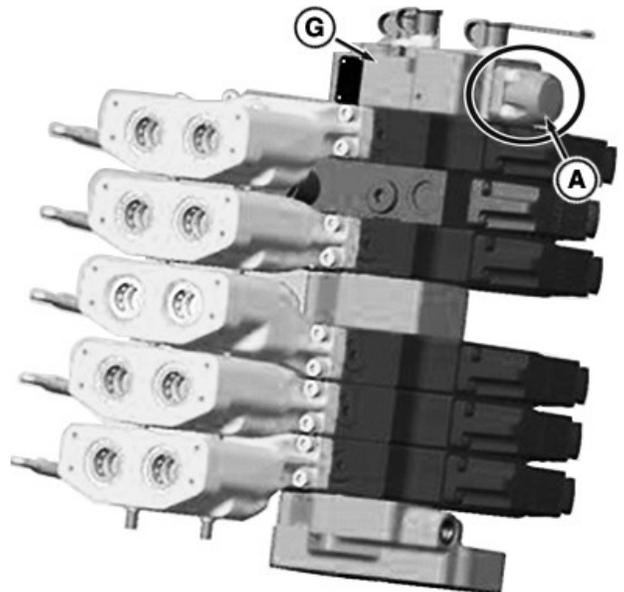
AK08008,000019B-19-15NOV19

SCV Pilot Valve Filter



RXA0152694—UN—11JUL16

1. Remove cap screws (B).



RXA0152693—UN—11JUL16

2. Remove SCV pilot filter cover (A) from SCV pilot filter housing (G).
3. Remove old spring (D), SCV pilot filter (E), and O-ring (F).
4. Install new O-ring, SCV pilot filter, and spring.
5. Replace gasket (C) and SCV pilot filter cover.
6. Install cap screws and tighten to 6 N·m (53 lb·in) in sequence (1, 4, 3, 2).

AK08008,000019C-19-15NOV19

Diesel Exhaust Fluid (DEF) Tank Vent Filter

⚠ CAUTION: Avoid possible personal injury. In case of DEF contact, immediately flush eyes with large amounts of water for a minimum of 15 minutes. Reference the Materials Safety Data Sheet (MSDS) for additional information. Do not ingest DEF. In the event DEF is ingested, contact a physician immediately. Reference the Materials Safety Data Sheet (MSDS) for additional information.

IMPORTANT: Avoid corrosion of vehicle parts or surfaces. If DEF is spilled or contacts any surface other than the storage tank, immediately clean the surface with clear water. DEF is corrosive to painted and unpainted metallic surfaces and can distort some plastic and rubber components. Spilled DEF, if left to dry or if only wiped away with a cloth, will leave a white residue. Improperly cleaned DEF spill may interfere with diagnosis of Selective Catalytic Reduction (SCR) system leakage problems.

Replace the DEF tank vent filter every 1500 hours of operation.



RXA0142031—UN—03JUN14

The DEF tank vent filter (C) is in the battery compartment, above the DEF dosing unit.

1. Open the battery compartment door. See Access Battery Compartment in the Service—General Information section of this Operator's Manual.
2. Remove and replace the DEF tank vent filter.

AK08008,000019D-19-21APR21

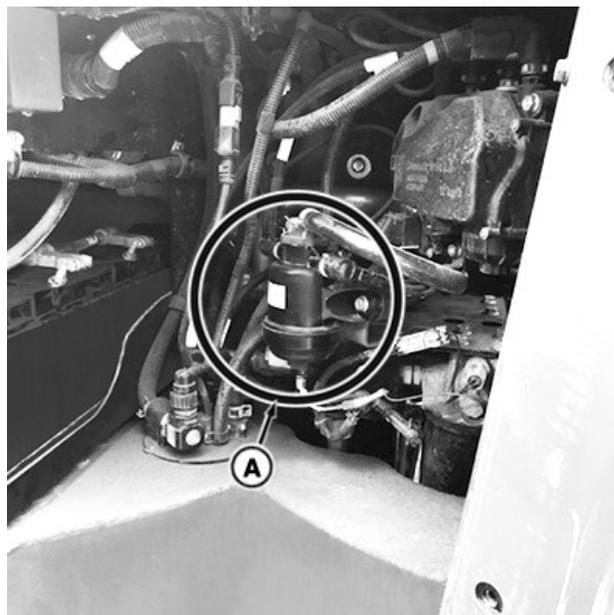
Access Diesel Exhaust Fluid (DEF) In-Line Filter

IMPORTANT: Avoid damage to the emissions system:

- Replace the in-line DEF filter every 3000

hours or every 3 years, whichever occurs first.

- Do not begin service on the DEF in-line filter until the light on the battery disconnect switch has gone out. See Battery Disconnect Switch in Engine Operation section of this Operator's Manual.



RXA0163952—UN—24JUL18

The DEF in-line filter (A) is inside the battery compartment.

1. Open the battery compartment door. See Access Battery Compartment in the Service—General Information section of this Operator's Manual.
2. To replace the DEF in-line filter, see Change Diesel Exhaust Fluid (DEF) In-Line Filter in this section of the Operator's Manual.

AK08008,00007DE-19-21APR21

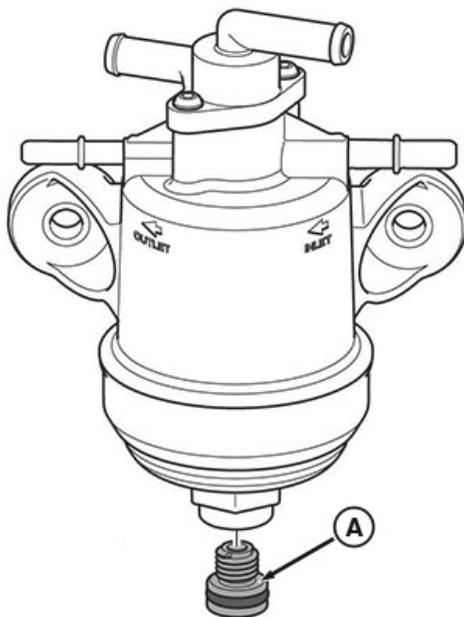
Change Diesel Exhaust Fluid (DEF) In-Line Filter

⚠ CAUTION: Avoid possible personal injury. In case of DEF contact, immediately flush eyes with large amounts of water for a minimum of 15 minutes. Reference the Materials Safety Data Sheet (MSDS) for additional information. Do not ingest DEF. In the event DEF is ingested, contact a physician immediately. Reference the Materials Safety Data Sheet (MSDS) for additional information.

IMPORTANT: Avoid corrosion of vehicle parts or surfaces. If DEF is spilled or contacts any surface other than the storage tank, immediately clean the surface with clear water. DEF is corrosive to painted and unpainted metallic surfaces and can distort some plastic and rubber components. Spilled DEF, if left to dry or if only wiped away with a cloth, will leave a white residue. Improperly cleaned DEF spill may interfere with diagnosis of Selective Catalytic Reduction (SCR) system leakage problems.

NOTE: See your John Deere equipment technical manual or OEM manufacturer's technical manual for in-line DEF filter location.

IMPORTANT: Avoid system and filter damage. Ensure that DEF system is not frozen before changing filter. If system is frozen, operate engine until system has thawed completely.



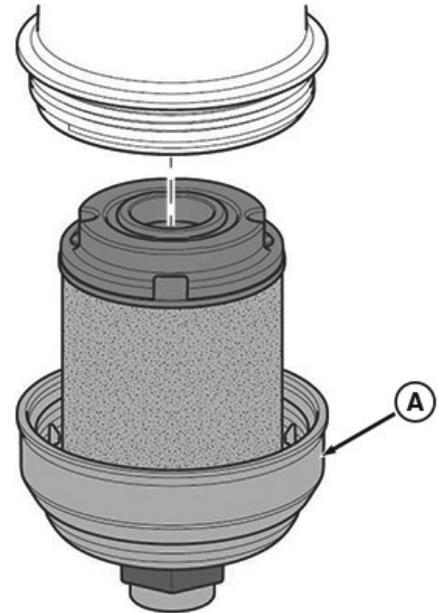
RG30728—UN—08AUG18
DEF Fluid Removal

A—Drain Plug with O-Ring

1. Remove drain plug with O-ring (A) and discard.

NOTE: Container must be DEF compatible and hold at least 300 mL (0.32 qt).

2. Drain DEF into a proper container.



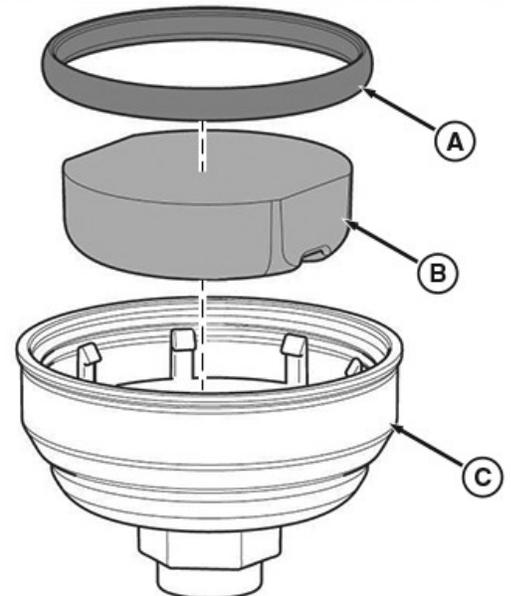
Filter Removal

RG30727—UN—08AUG18

A—Filter Housing

3. Rotate filter housing (A) counterclockwise and pull down.
4. Remove and discard filter from housing (A).

NOTE: If necessary, tap filter to loosen from filter housing (A).



Filter Housing Components

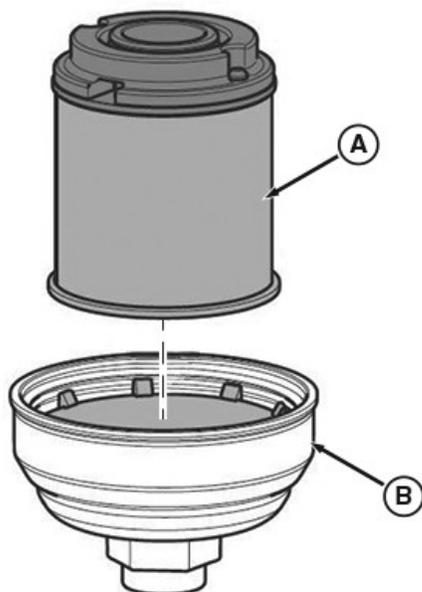
RG30726—UN—08AUG18

- A—O-Ring
- B—Foam Compensation Element
- C—Filter Housing

- Remove and discard O-ring (A) and foam compensation element (B).

NOTE: Filter housing should be cleaned with clean DEF before installing new components to remove any sediment debris or contamination.

- Install new O-ring (A) and foam compensation element (B) into filter housing (C).

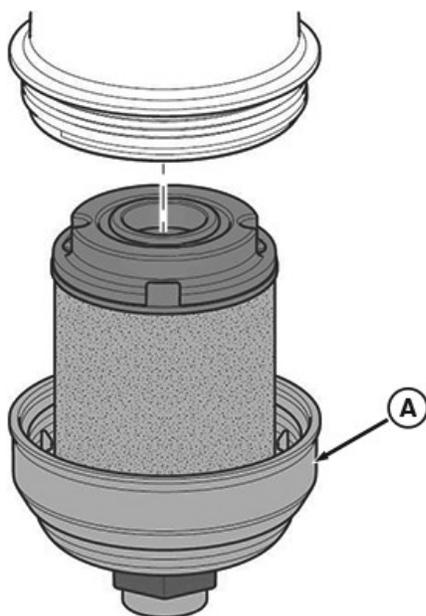


RG30725—UN—08AUG18

Filter Housing and Components Installation

- A—Filter
- B—Filter Housing

- Install new filter (A) into filter housing (B).



RG30727—UN—08AUG18

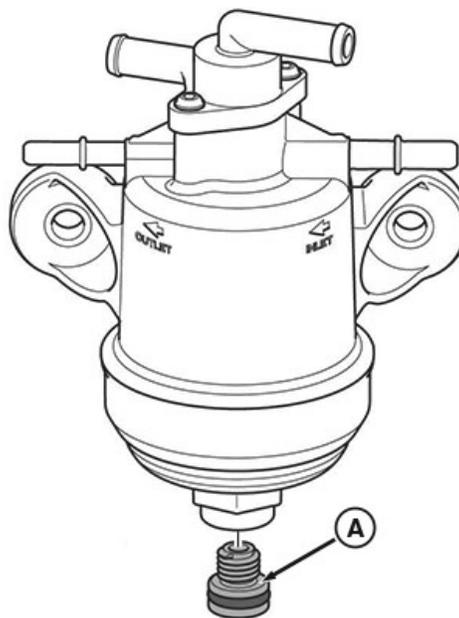
In-Line DEF Filter Housing Installation

A—Filter Housing

- Install filter housing (A) with O-ring, foam compensation element, and filter element.
- Rotate filter housing (A) clockwise and tighten to specification.

Specification

In-Line DEF Filter Housing—Torque.	25 N·m (221 lb·in)
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RG30728—UN—08AUG18

In-Line DEF Filter Drain Plug

A—Drain Plug with O-Ring

- Install new drain plug with O-ring (A). Tighten to specification.

Specification

In-Line DEF Filter Drain Plug—Torque.	4 N·m (35 lb·in)
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DX,DEF,CHANGE,INLINE,FILT-19-15APR20

Transmission-Hydraulic Oil and Filters

IMPORTANT: Prevent premature axle failure. Carefully follow drain and fill procedure.

NOTE: Recalibrate transmission only if transmission shift characteristics change after transmission oil and filter change. See Transmission Calibration in Service - General Information section of this Operator's Manual.

Maximum transmission/hydraulic oil reservoir/axles volume is 265.5 L (71.0 gal), depending on option configuration. Select appropriately sized containers for draining oil.

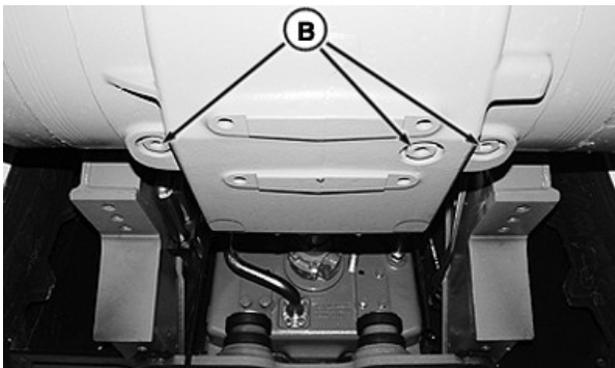
1. Park tractor on level ground, place transmission in PARK and shut off engine. Allow oil to cool for few minutes.



RXA0141856—UN—02JUN14

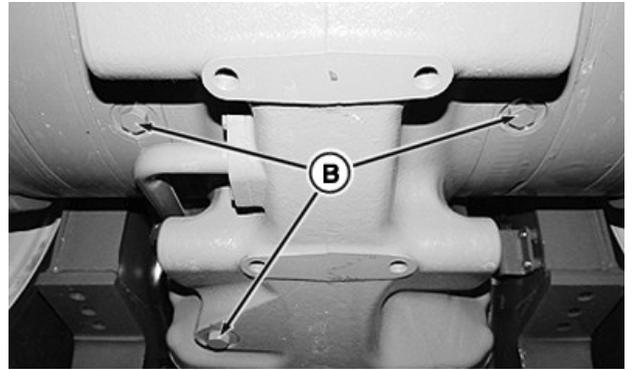
2. Remove hydraulic reservoir drain plug (A) in gudgeon area and direct oil into a catch oil container.

IMPORTANT: Determine type of tractor drive axle to correctly perform this procedure. See **Single or Double Reduction Axle Identification** in **Service - General Information** section of this **Operator's Manual**.



RXA0142111—UN—06JUN14

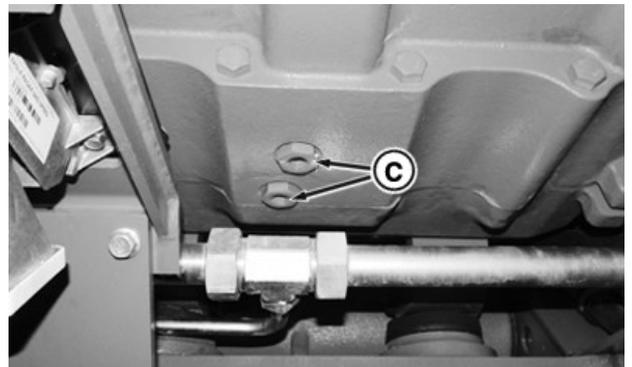
Single Reduction Front Axle



RXA0142108—UN—06JUN14

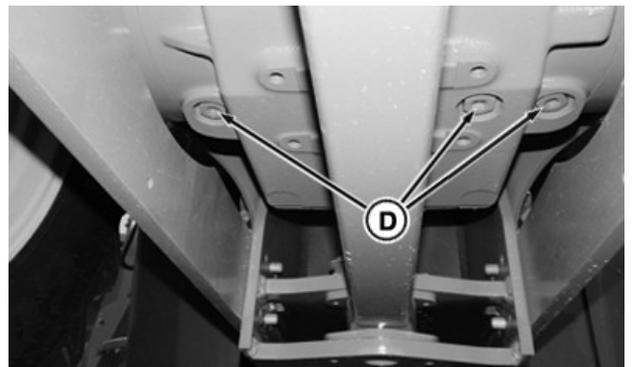
Double Reduction Front Axle

3. Remove three front axle plugs (B) to drain oil.



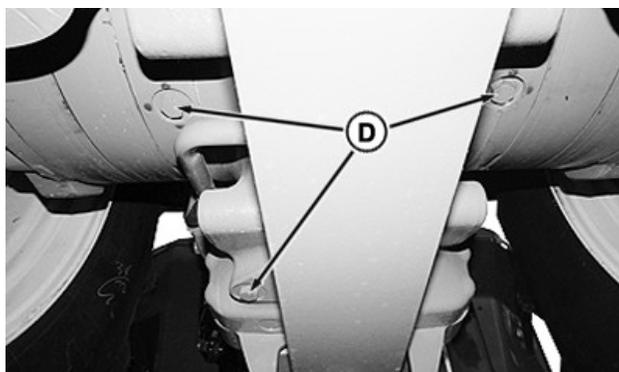
RXA0142109—UN—06JUN14

4. Remove two transmission plugs (C) to drain oil.



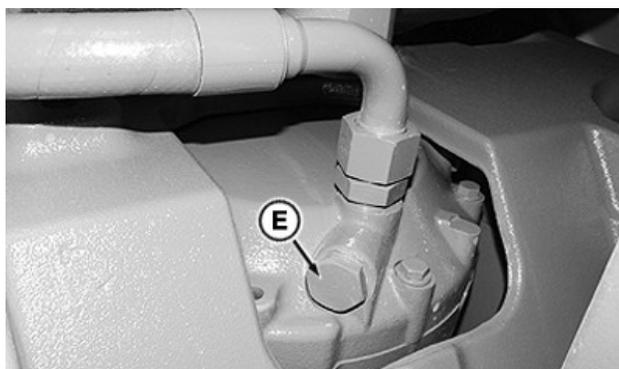
RXA0161060—UN—16OCT17

Single Reduction Rear Axle



RXA0161061—UN—16OCT17
Double Reduction Rear Axle

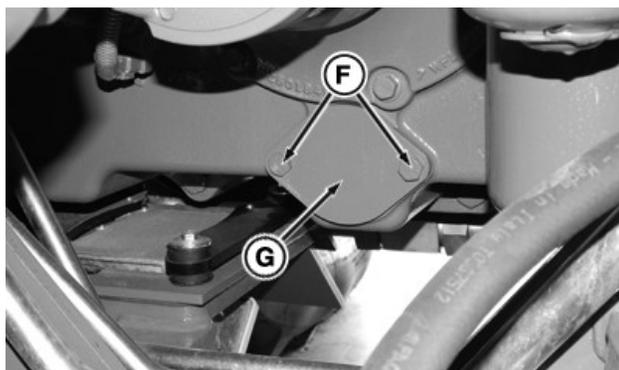
- Remove three plugs (D) and drain rear axle oil.



RXA0161062—UN—16OCT17

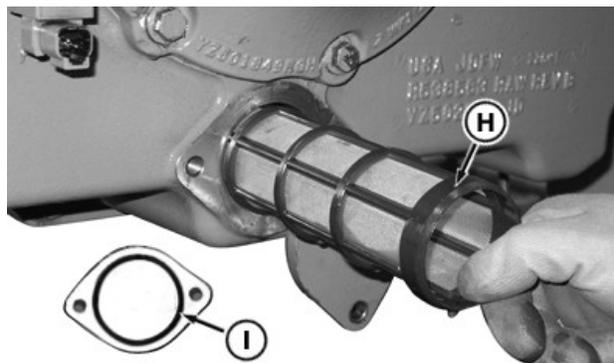
- If PTO equipped, remove dropbox plug (E).
- Reinstall reservoir drain plug.
- Reinstall transmission drain plug and tighten to 70 N·m (52 lb·ft).
- Reinstall all removed front and rear axle drain plugs. Tighten to 70 N·m (52 lb·ft).
- If equipped, reinstall PTO dropbox drain plug and tighten to 70 N·m (52 lb·ft).

NOTE: Some parts in illustration have been removed to better show transmission suction screen.



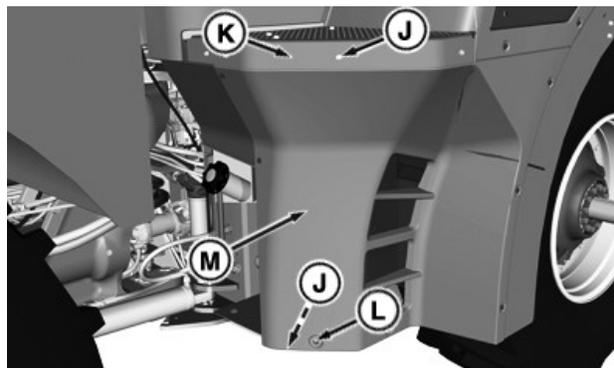
RXA0161063—UN—16OCT17
Transmission-Rear View

- Remove suction screen cover cap screws (F) and remove cover (G) from rear of transmission.



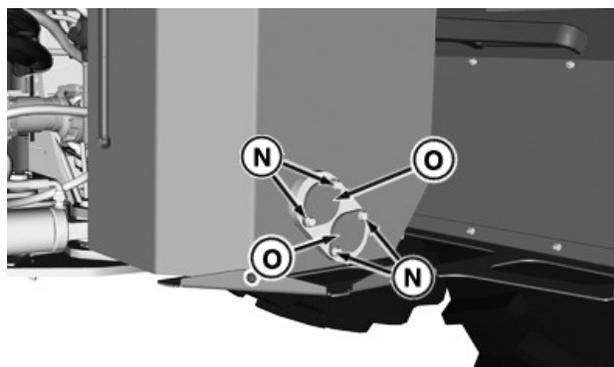
RXA0161064—UN—16OCT17

- Remove suction screen (H) and clean with a solvent.
- Remove and discard O-ring (I) on suction screen cover.
- Inspect for debris in suction screen cavity using a flashlight or magnet.
- Install new O-ring on cover.
- Reinstall suction screen and cover. Tighten cap screws to 55 N·m (40 lb·ft).



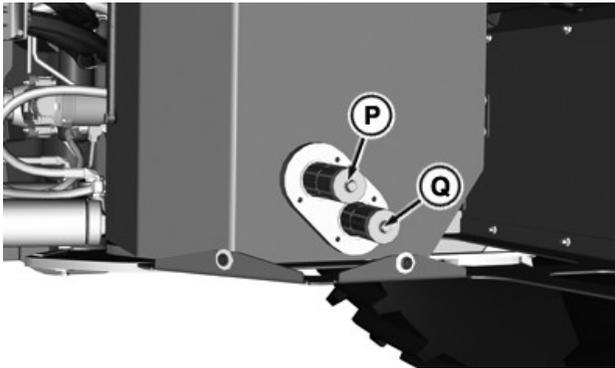
RXA0161065—UN—16OCT17

- Remove platform cap screws (J) and remove platform step (K).
- Remove panel cap screws (L) and remove lower shield panel (M).



RXA0161066—UN—16OCT17

19. Remove screen cover cap screws (N) and both screen covers (O).



RXA0161067—UN—16OCT17

20. Remove axle lube suction screen (P) and clean with a solvent.
21. Remove charge pump suction screen (Q) and clean with a solvent.
22. Reinstall suction screens and covers. Tighten cap screws to 73 N·m (54 lb·ft).
23. Reinstall lower panel and tighten cap screws to 37 N·m (27 lb·ft).
24. Reinstall platform and tighten cap screws to 79 N·m (58 lb·ft).

NOTE: Approximately 1.9 L (2 qts) of oil is lost when changing filter. Size drain pan accordingly.

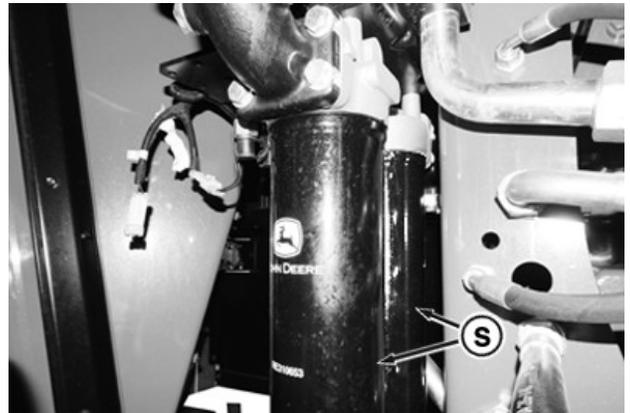


RXA0161068—UN—16OCT17

25. Remove transmission oil filters (R), at right-hand rear of transmission.
26. Lubricate new filter O-rings with hydraulic oil and install filters. Tighten one-half turn after O-rings contact filter housing base.

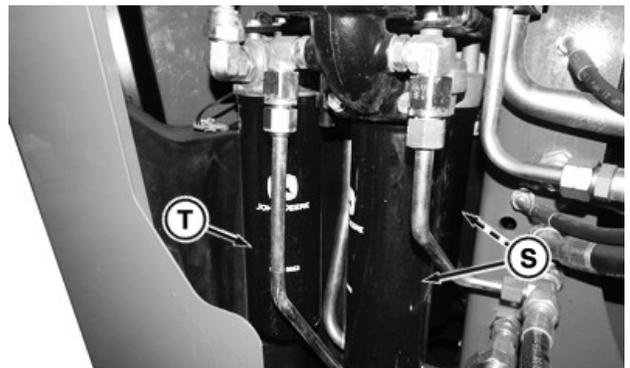
IMPORTANT: Replace hydraulic oil and double reduction axle oil filters every 1500 hours or when indicator illuminates.

NOTE: Double reduction axle tractor is equipped with hydraulic oil and double reduction axle oil filters. Single reduction axle tractor is only equipped with hydraulic oil filters.



RXA0161069—UN—16OCT17

Single Reduction Axle Tractor



RXA0161070—UN—16OCT17

Double Reduction Axle Tractor

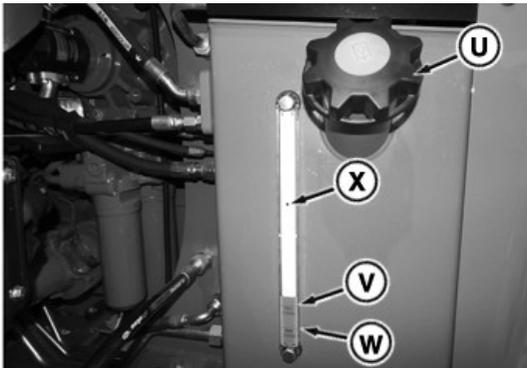
27. Replace hydraulic oil filters (S), on left-hand side of gudgeon.
28. Replace double reduction axle oil filter (T), located next to hydraulic oil filters (S).
29. Lubricate hydraulic oil and double reduction axle oil filter O-rings with hydraulic oil and install on tractor. Tighten one half turn after O-ring contacts filter housing base.

NOTE: Hydraulic oil reservoir does not hold all system hydraulic oil. Transmission and front and rear axles also hold additional system oil.

If possible, check oil level prior to first start of day. Ambient temperature should be 7°C. (45°F) or above. Oil level in the reservoir fluctuates depending upon the volume of oil exchanged with an attached implement.

For applications or implements requiring high volumes of oil transfer (for example - large air seeders or pulling three scrapers), hydraulic reservoir can be filled up to High Volume Takeout Oil Mark 58.5 L (15.4 gal) above MIN COLD.

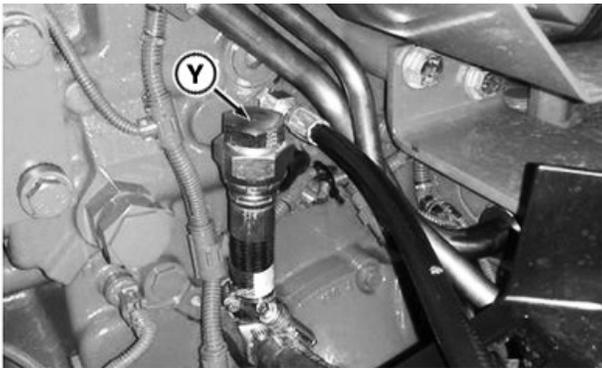
NOTE: For Transmission-Hydraulic Oil System Capacities (with Filters), see Capacities in Specifications section of this Operator's Manual.



RXA0161071—UN—16OCT17

30. Remove hydraulic oil reservoir fill cap (U) and add hydraulic oil to the reservoir.
31. Reinstall and tighten hydraulic reservoir fill cap.

IMPORTANT: Fill transmission with prescribed quantity of oil to ensure lubrication of transmission lube pump at start-up.

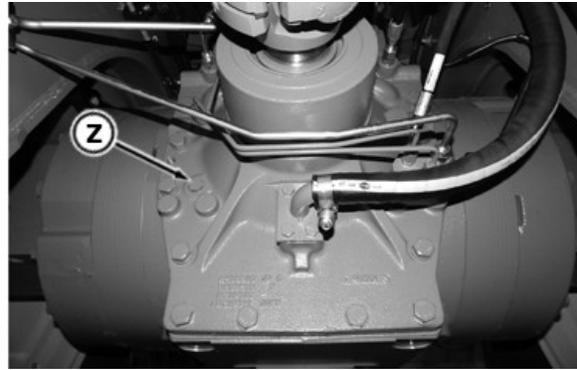


RXA0161072—UN—16OCT17

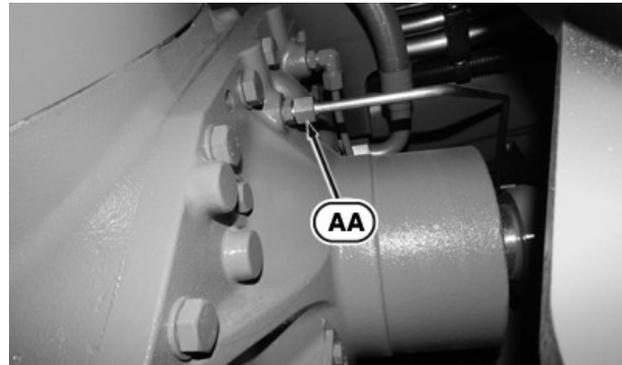
32. Prefill transmission with 37.9 L (10.0 gal) of transmission-hydraulic oil at fill tube (Y). See Transmission and Hydraulic Oil in Other Lubricants section of this Operator's Manual.

If tractor is single reduction axle equipped, go to step 33.

If tractor is double reduction axle equipped, go to step 36.



RXA0161073—UN—16OCT17



RXA0161074—UN—16OCT17

33. Remove front axle bleed plug (Z) and disconnect rear axle line fitting (AA).

IMPORTANT: Do not depress brake pedal during this step. If brake pedal is depressed, additional oil flows to axles and result in an inaccurate oil level check.

34. Start and set engine speed at 1200 rpm for approximately 5 minutes or until oil is circulated and appears at both front and rear axle ports.
35. Stop engine and install front axle bleed plug and connect rear axle line fitting. Tighten front axle plug to 70 N·m (52 lb·ft) and rear axle line fitting to 24 N·m (18 lb·ft).
36. Place transmission in PARK.
 - a. Start engine.
 - b. Run engine at 1200 rpm for 5 minutes.
37. Shut engine OFF and wait 5 minutes for oil level to stabilize.

NOTE: Confirm that oil level does not fall too low if tractor is to be used with implements with large hydraulic cylinders that remove large volumes of oil from the hydraulic system. Place implement in position that requires maximum amount of oil. Oil level should be near High Volume Takeout Oil Mark position on sight gauge.

38. Check to ensure transmission-hydraulic reservoir oil level is visible between Min Cold and Full Cold

marks in the sight gauge. If oil level is visible between Min Cold and Full Cold, tractor can be used for normal operation. Oil level in reservoir rises as temperature increases. Replace the transmission-hydraulic oil reservoir vent filter. See Transmission-Hydraulic Vent Filter in this Operator's Manual section.

NOTE: Volume capacity between Min Cold mark and Full Cold mark is 11.4 L (3 gal).

39. If oil level is below Min Cold is sight gauge, add oil through reservoir cap.

IMPORTANT: Excess hydraulic oil can result in decreased engine power and decrease fuel economy.

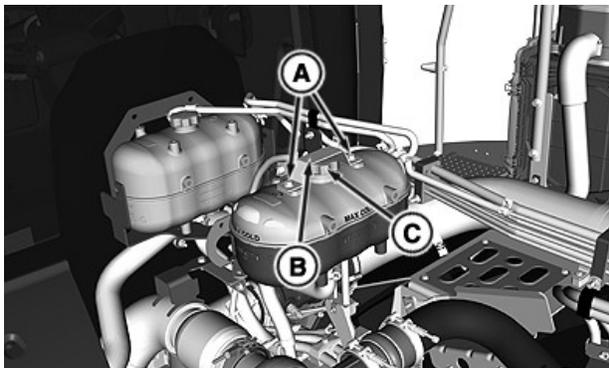
40. If oil level is above Full Cold mark, remove enough oil to bring it down to Full Cold mark level.

Remove drain plug under hydraulic oil reservoir and direct oil into a container.

KD34109,00005CB-19-19MAR20

Engine Cooling System Radiator Cap—15 L Engine

1. Raise hood.

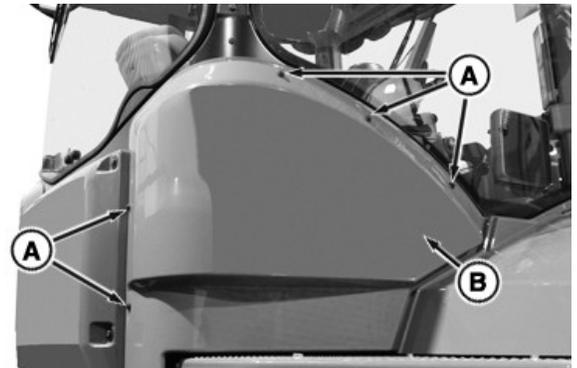


RXA0143144—UN—02JUL14

2. Remove cap screws (A) and bracket (B) from over cap.
3. Remove radiator pressure cap (C)
4. Replace with new radiator pressure cap.
5. Reinstall bracket and tighten cap screws to 20 N·m (15 lb·ft).
6. Close hood.

AK08008,00001A0-19-15NOV19

Transmission-Hydraulic Vent Filter



RXA0142029—UN—03JUN14

1. Remove right-hand rear cab panel retaining cap screws (A) and remove cab panel (B).



RXA0142030—UN—03JUN14

2. Release retaining hose clamps to remove vent filter (C) from hose.
3. Install new filter onto hose and secure with retaining hose clamps.

IMPORTANT: Do not over tighten retaining screws. Overtightening may result in damage to cab panels.

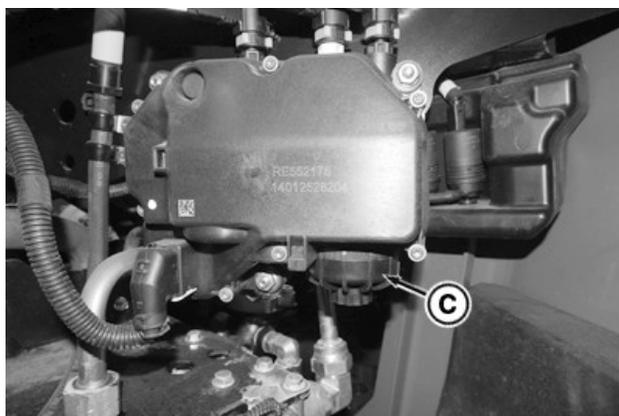
4. Reinstall cab panel and tighten retaining cap screws.

AK08008,00001A1-19-15NOV19

Access Diesel Exhaust Fluid (DEF) Dosing Unit Filter

IMPORTANT: Avoid damage to the emissions system:

- Replace the DEF dosing unit filter every 1500 hours or every 3 years, whichever occurs first.
- Do not begin service on the DEF dosing unit filter until the light on the battery disconnect switch has gone out. See Battery Disconnect Switch in Engine Operation section of this Operator's Manual.

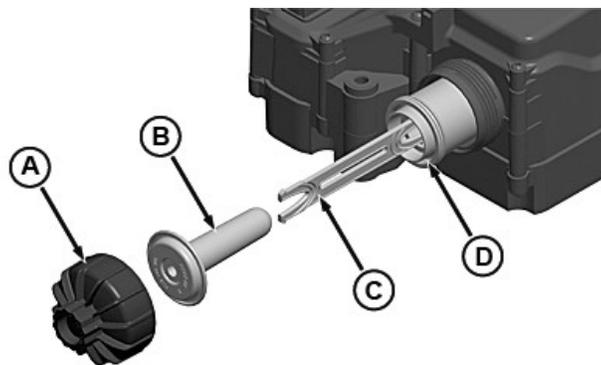


RXA0161214—UN—26OCT17
The DEF dosing unit filter (C) is in the battery compartment, at the bottom of the DEF dosing unit.

1. Open the battery compartment door. See Access Battery Compartment in the Service—General Information section of this Operator's Manual.
2. To replace the DEF dosing unit filter, see Change Diesel Exhaust Fluid (DEF) Dosing Unit Filter in this section of the Operator's Manual.

AK08008,00007E2-19-21APR21

Change Diesel Exhaust Fluid (DEF) Dosing Unit Filter



RG22534—UN—21MAR13
DEF Dosing Unit Filter

- A—DEF Dosing Unit Filter Cover
- B—DEF Dosing Unit Filter Equalizing Element
- C—DEF Dosing Unit Filter Tool (supplied with new filter)
- D—DEF Dosing Unit Filter

CAUTION: Avoid contact with eyes. In case of contact, immediately flush eyes with large amounts of water for a minimum of 15 minutes. Reference the Materials Safety Data Sheet (MSDS) for additional information.

IMPORTANT: If DEF is spilled or contacts any surface other than the storage tank, immediately clean the surface with clear water. DEF is corrosive to painted and unpainted metallic surfaces and can distort some plastic and rubber components.

Spilled DEF, if left to dry or if only wiped away with a cloth, leaves a white residue. Improperly cleaned DEF spill can interfere with diagnosis of Selective Catalytic Reduction (SCR) system leakage problems.

NOTE: See your John Deere equipment technical manual or OEM manufacturer's technical manual for DEF dosing unit filter location.

IMPORTANT: Avoid system and filter damage. Ensure that DEF system is not frozen before changing filter. If system is frozen, operate engine until system has thawed completely.

1. Remove DEF dosing unit filter cover (A).
2. Remove and discard DEF dosing unit filter equalizing element (B).

NOTE: DEF dosing unit filter tool (C) is supplied with replacement filter.

3. Insert "Black" end of DEF dosing unit filter tool (C) into DEF dosing unit filter (D) until CLICK is felt or heard indicating DEF dosing unit filter tool is fully engaged.

NOTE: A tool such as a screwdriver can be inserted into DEF dosing unit filter tool slot to assist removal.

4. Pull DEF dosing unit filter tool and DEF dosing unit filter from DEF dosing unit. Discard DEF dosing unit filter and DEF dosing unit filter tool.
5. Clean DEF dosing unit threads and mating surfaces with distilled water.
6. Lubricate DEF filter O-rings with clean DEF. Carefully insert DEF dosing unit filter into DEF dosing unit.
7. Install new DEF dosing unit filter equalizing element into DEF dosing unit filter.
8. Install DEF dosing unit filter cover and tighten to specification.

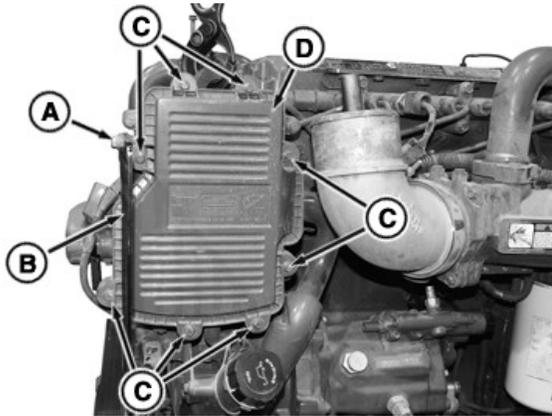
Specification

DEF Dosing Unit Filter	
Cover—Torque	23 N·m (204 lb·in)

DX,DEF,CHANGE,FILT-19-31OCT19

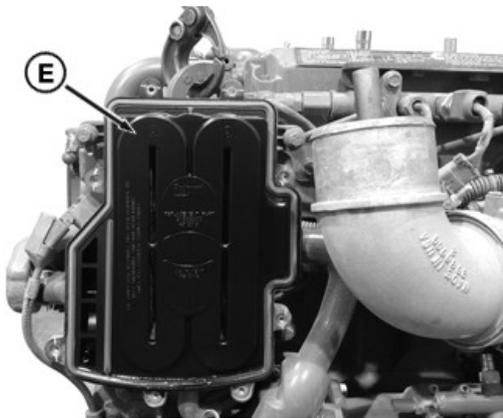
Engine Crankcase Breather Filter Element —15 L Engine

1. Open hood.



RXA0142546—UN—16JUN14

2. Remove cap screw (A) and finger guard (B).
3. Remove eight cap screws (C) and cover (D).



RXA0142547—UN—17JUN14

4. Replace and install new filter (E).
5. Replace cover and tighten cap screws to 5 N·m (45 lb·in).
6. Reinstall finger guard and tighten cap screw to 73 N·m (54 lb·ft).
7. Close hood.

AK08008,00001A4-19-15NOV19

Transmission Drive Shaft Damper

IMPORTANT: In normal operating conditions, replace damper every 4500 hours. In heavy duty operations, replace every 3000 hours. See your John Deere dealer.

AK08008,00001A5-19-15NOV19

Engine Coolant—9.0L Engine

IMPORTANT: Thermostat, thermostat gasket, and de-aeration tank cap should be replaced whenever system is flushed.

INITIAL change interval is 6 years or 6000 operating hours, provided cooling system is topped off using only John Deere Cool-Gard™ II and premix. SCHEDULED interval (2 years or 2000 operating hours) can be extended up to 6 years and 6000 operating hours, depending upon coolant being used. See Drain Intervals for Diesel Engine Coolant in Engine Coolant section of this Operator's Manual.

NOTE: When service is performed on cooling system, make sure to check coolant daily for the next three days of operation. The most effective way to check coolant level is when tractor engine is cool. If coolant is low, fill de-aeration tank to mark on tank.



TS281—UN—15APR13

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

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

1. Park tractor, turn key switch to OFF and allow radiator to cool.



RXA0158422—UN—28MAR17

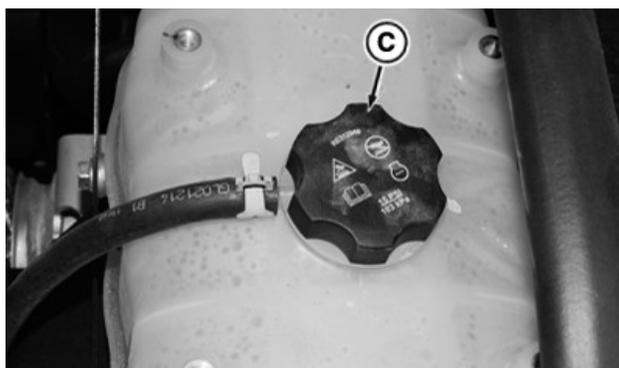
NOTE: Throughout the draining, flushing and filling procedure, set cab temperature to highest setting (B) and leave set to the highest setting to ensure that fluids are drained from heating/air conditioning unit. If either cab temperature setting (B) is not set to highest setting or key switch is not turned to Run, system will not completely drain.

See your John Deere dealer for recommendations on cleaning solutions.



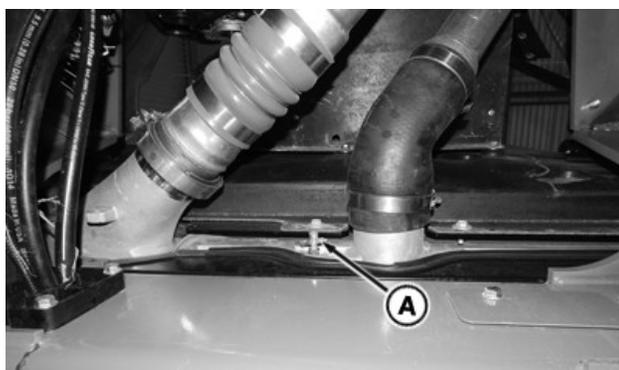
RXA0141883—UN—04JUN14

- Turn key to RUN Position (A), then set cab temperature setting (B) to highest setting.



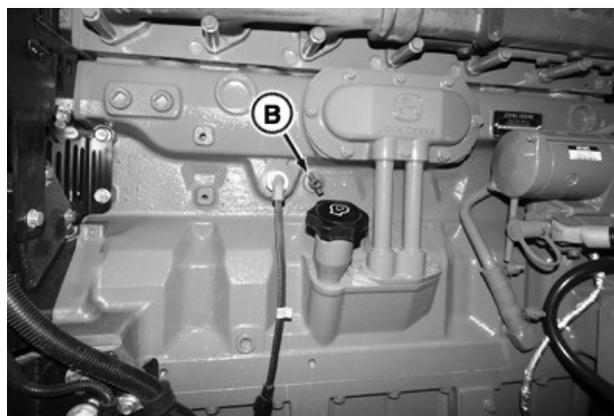
RXA0160215—UN—17JUL17

- Open hood and remove de-aeration tank cap (C).



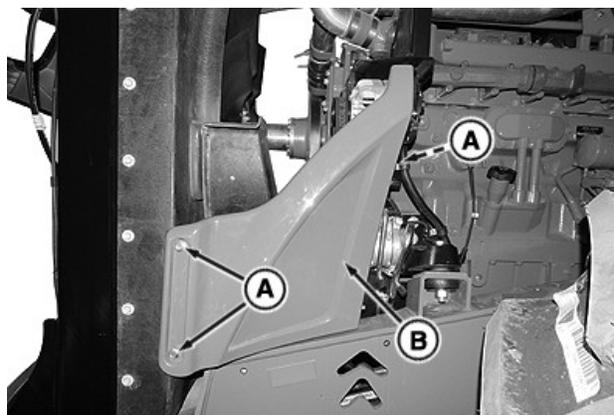
RXA0141885—UN—04JUN14

- Place catch pan under radiator drain valve (A).
- Open radiator drain valve (A) and drain coolant into catch pan.
- Place catch pan under engine drain valve.



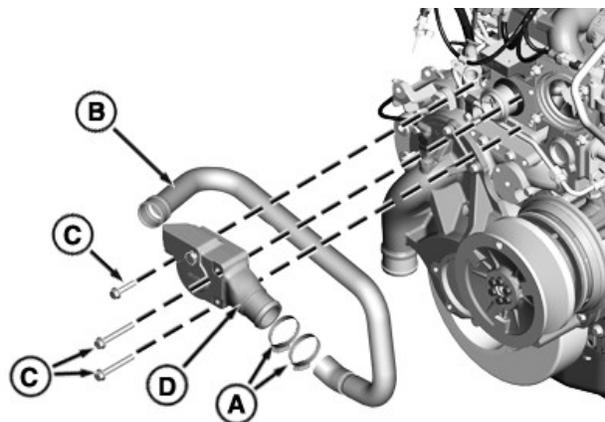
RXA0141886—UN—04JUN14

- Open engine block drain valve (B) and drain coolant into catch pan.
- Allow radiator and engine to drain.



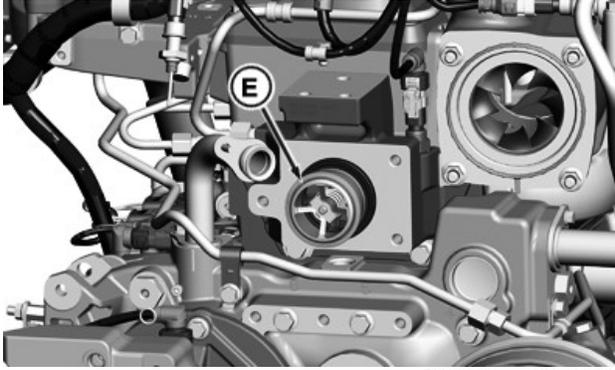
RXA0141888—UN—04JUN14

- Remove cap screws (A) and left front side panel (B).



RXA0142076—UN—03JUN14

- Loosen hose clamp (A) and slide hose (B) off thermostat cover.
- Remove three cap screws (C) and thermostat cover (D).



RXA0142077—UN—03JUN14

12. Remove old thermostat (E) and clean sealing area.

NOTE: During draining, filling, and flushing, coolant system will not have thermostat installed.

13. Install new gasket and cover. Tighten cap screws to 48 N·m (35 lb-ft).
14. Replace previously removed radiator hose and clamp, diverter and side panel.
15. Close engine drain valve, and radiator drain valve.
16. Dispose of old coolant in accordance with local laws and ordinances.

IMPORTANT: Never pour cold water or coolant into hot engine.

NOTE: See your John Deere dealer for recommendations on cleaning solutions.

17. Fill high-pressure coolant system at de-aeration tank with cooling system cleaning solution.
18. Install de-aeration cap and close hood.

IMPORTANT: Make sure side panel is installed and hood is closed before starting engine.

19. Start engine and run at a minimum of 1500 rpm for 15 minutes.
20. Shut off engine and allow cleaning solution to cool.
21. Make sure temperature knob is turned to highest setting, then turn key switch to Run position.



TS281—UN—15APR13

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

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

22. Open hood, remove de-aeration cap, put drain pans in place, then open radiator and engine drain valves.
23. Allow cooling system to drain.
24. Close engine drain valve, and radiator drain valve.

IMPORTANT: Never pour cold water or coolant into hot engine.

25. Dispose of cleaning solution in accordance with local laws and ordinances.
26. Fill high-pressure coolant system at de-aeration tank with clean water.
27. Install de-aeration cap and close hood.
28. Start engine and run at a minimum of 1500 rpm for 15 minutes.
29. Shut off engine and allow water to cool.
30. Make sure temperature knob is turned to highest setting. Then turn key to Run.



TS281—UN—15APR13

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

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

31. Open hood, remove de-aeration cap, put drain pans in place, then open radiator and engine drain valves.
32. Allow radiator to drain, then remove left side panel and diverter.
33. Loosen clamp and slide hose back, remove three cap screws, thermostat cover, and gasket.
34. Inspect sealing area to ensure it is clean.
35. Apply light coat of RTV silicone sealant to new gasket.
36. Install new thermostat, new gasket, and cover. Tighten cap screws to 73 N·m (54 lb·ft).
37. Replace previously removed hose, clamps, diverter, and left front side panel.
38. Close engine drain valve and radiator drain valve.
39. Dispose of drain clean water in accordance with local laws and ordinances.
40. Fill high-pressure coolant system at de-aeration tank with new coolant solution. For cooling system capacity, see Capacities in Specifications section of this Operator's Manual.

⚠ CAUTION: Make sure side panel is installed and hood is closed before starting engine.

41. Install de-aeration cap, install front side panels, close hood, start engine and run for a minimum of 1500 rpm for 15 minutes.

NOTE: Coolant may seep out of the de-aeration tank overflow vent as air is purged from the coolant system.

Level may change when tractor is running or during the next few cycles.

It is highly recommended the cooling system is checked for leaks after draining, flushing, and refilling to ensure tractor performance. Consult your John Deere Dealer for procedure and appropriate tools.

42. Monitor coolant level for next several hours/overnight. Refill De-aeration tank as required.

AK08008,00001A6-19-15NOV19

Engine Coolant—13.5 L Engine

IMPORTANT: READ ENTIRE PROCEDURE BEFORE BEGINNING. Special tools and other products are needed to complete procedure.

Thermostat, thermostat gasket, and de-aeration tank cap should be replaced whenever system is flushed.

INITIAL change interval is 6 years or 6000 operating hours, provided cooling system is topped off using only John Deere Cool-Gard™ II and premix. SCHEDULED interval (2 years or 2000 operating hours) can be extended up to 6 years and 6000 operating hours, depending upon coolant being used. See Drain Intervals for Diesel Engine Coolant in Engine Coolant section of this Operator's Manual.

NOTE: When service is performed on cooling system, make sure to check coolant daily for the next three days of operation. The most effective way to check coolant level is when tractor engine is cool. If coolant is low, fill de-aeration tank to mark on tank.



TS281—UN—15APR13

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

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

1. Park tractor, turn key switch to OFF and allow radiator to cool.
2. Remove front and rear engine side shields, see Remove Front Engine Side Shield and Remove Rear Engine Side Shield in Service - General Information sections of this Operator's Manual.

NOTE: Throughout the draining, flushing and filling procedure, turn temperature knob to highest setting (B) and leave set to the highest setting to ensure that fluids are drained from heating/Air conditioning unit. If either temperature knob is not set to highest setting or key switch is not turned to RUN, system will not completely drain.

See your John Deere dealer for recommendations on cleaning solutions.

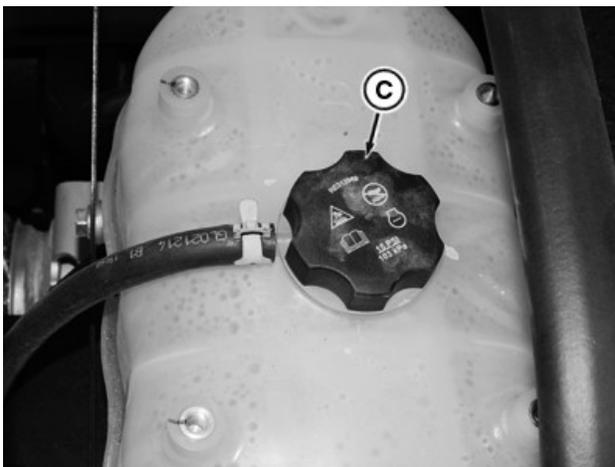


RXA0141883—UN—04JUN14



RXA0158422—UN—28MAR17

3. Turn key to RUN (A), then turn temperature knob (B) to highest setting.



RXA0141887—UN—09JUN14

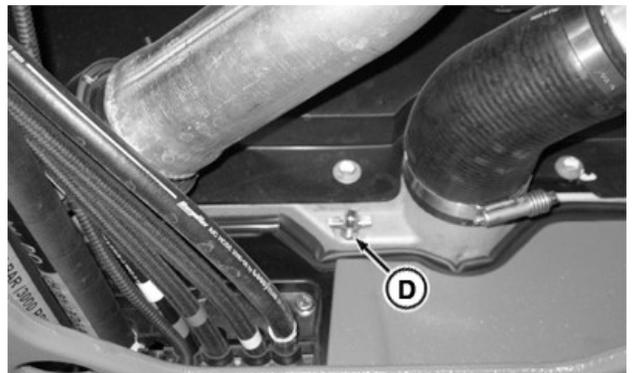
4. Open hood and remove de-aeration tank cap (C).



TS281—UN—15APR13

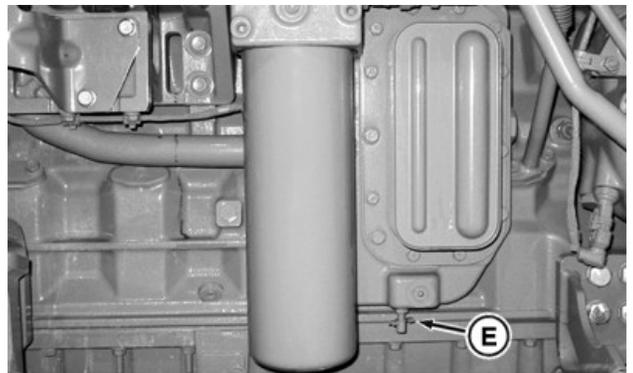
CAUTION: Explosive release of fluids from pressurized cooling system can cause serious burns.

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



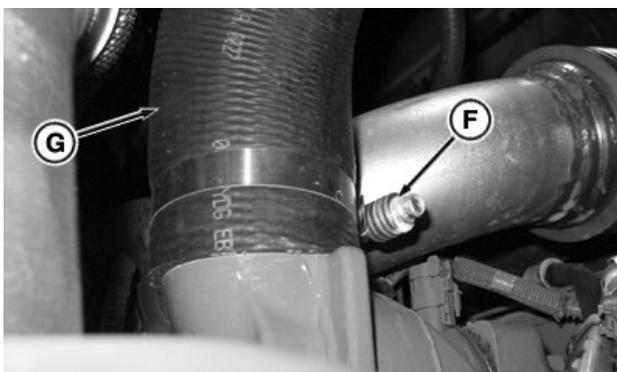
RXA0161216—UN—26OCT17

5. Place catch pan under radiator drain valve (D).
6. Open radiator drain valve and drain coolant into catch pan.
7. Place catch pan under engine drain valve.



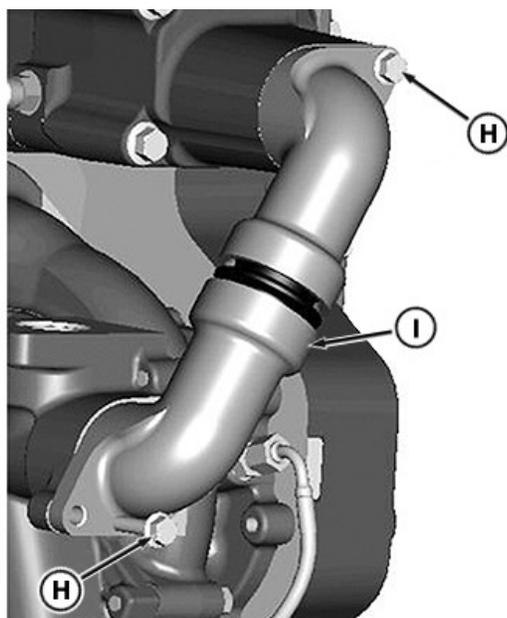
RXA0161217—UN—26OCT17

8. Open engine drain valve (E) and drain coolant into catch pan.
9. Allow radiator and engine to drain.



RXA0161218—UN—26OCT17

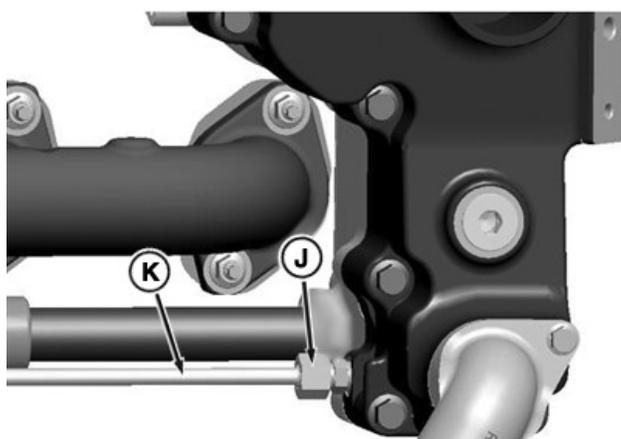
10. Loosen hose clamp (F) and slide hose (G) off of thermostat housing.



RXA0161219—UN—26OCT17

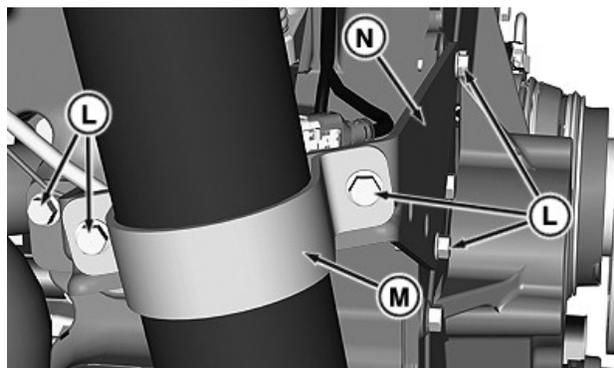
11. Remove cap screws (H) and remove coolant by-pass tube assembly (I).

NOTE: Coolant by-pass tube assembly does not need to be taken apart.



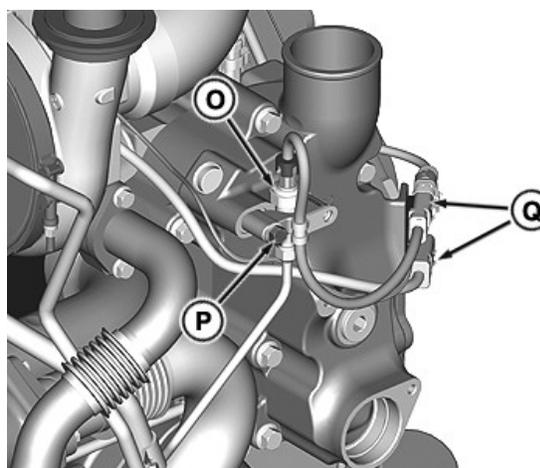
RXA0161220—UN—26OCT17

12. Remove coolant return line (K) by removing fitting on thermostat housing (J) and rear top liner cooling fitting with O-ring.



RXA0161221—UN—26OCT17

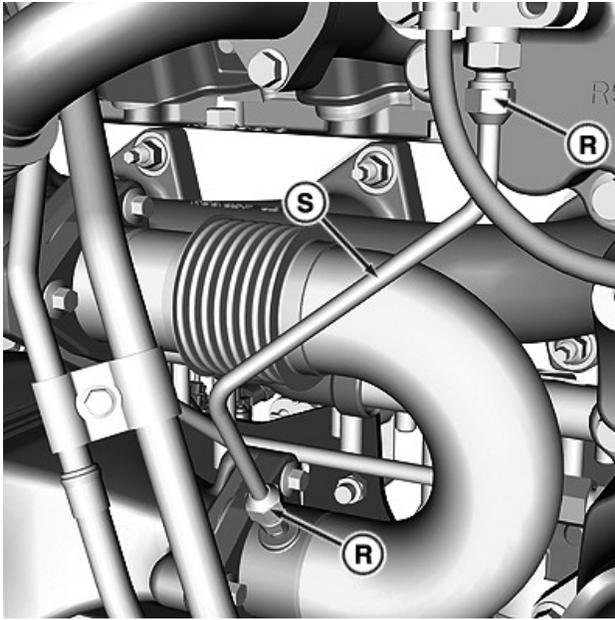
13. Remove cap screws (L), bracket (M), and brace (N).



RXA0161222—UN—26OCT17

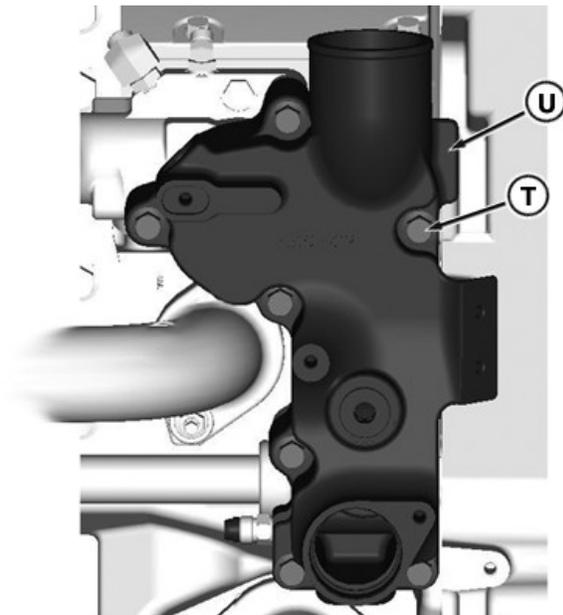
14. Remove cap screw (P).

IMPORTANT: Handle pressure line with caution. Line is easily damaged and can cause engine problems.



RXA0161223—UN—27OCT17

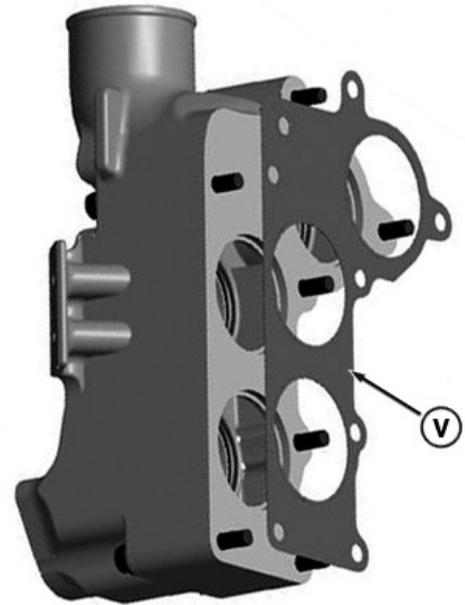
15. Loosen fittings (R) and rotate hard line (S) enough to remove housing.
16. Remove pressure sensor (O) and electrical hardware (Q).



RXA0161224—UN—26OCT17

17. Remove six 85 mm cap screws, one 100 mm cap screw (T), and thermostat housing (U).
18. Remove old thermostats and clean sealing area.

NOTE: During draining, filling, and flushing, coolant system will not have thermostat installed.



RXA0161225—UN—26OCT17

19. Replace gasket (V) and housing.
20. Replace previously removed coolant return line assembly, coolant by-pass hose assembly, hard line, electrical hardware, bracket, brace, cap screws, radiator hose and clamp.
21. Close engine drain valve, and radiator drain valve.
22. Dispose of old coolant in accordance with local laws and ordinances.

IMPORTANT: Never pour cold water or coolant into hot engine.

NOTE: See your John Deere dealer for recommendations on cleaning solutions.

23. Fill high pressure coolant system at de-aeration tank with cooling system cleaning solution.
24. Install de-aeration cap and close hood.

CAUTION: Make sure hood is closed before starting engine.

25. Start engine and run at a minimum of 1500 rpm for 15 minutes.
26. Shut off engine and allow cleaning solution to cool.
27. Make sure temperature knob is turned to highest setting, then turn key switch to Run position.



TS281—UN—15APR13

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

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

28. Open hood, remove de-aeration cap, put drain pans in place, then open radiator and engine drain valves.
29. Allow cooling system to completely drain.
30. Close engine drain valve, and radiator drain valve.
31. Dispose of cleaning solution in accordance with local laws and ordinances.
32. Fill high pressure coolant system at de-aeration tank with clean water.

IMPORTANT: Never pour cold water or coolant into hot engine.

33. Install de-aeration cap and close hood.

⚠ CAUTION: Make sure hood is closed before starting engine.

34. Start engine and run at a minimum of 1500 rpm for 15 minutes.
35. Shut off engine and allow water to cool.
36. Make sure temperature knob is turned to highest setting. then turn key to Run.

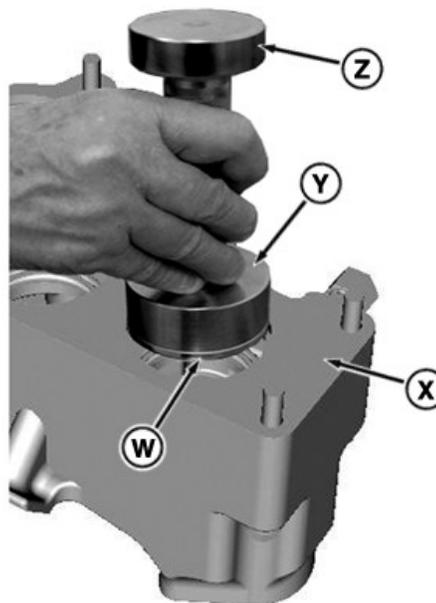


TS281—UN—15APR13

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

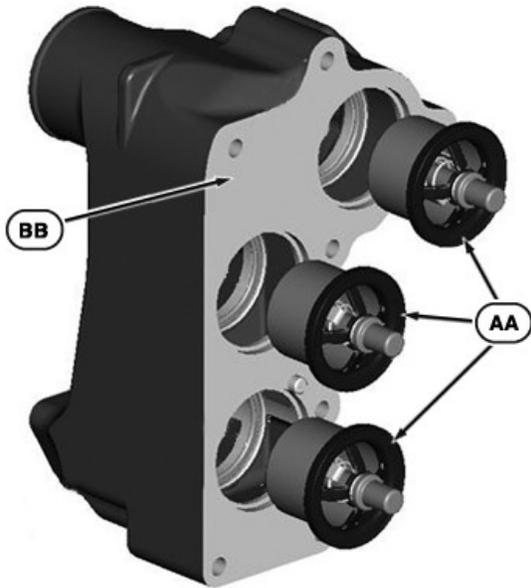
Only remove cap when cool enough to touch with bare hands. Slowly loosen cap to first stop to relieve pressure before removing completely.

37. Open hood, remove de-aeration cap, put drain pans in place, then open radiator and engine drain valves.
38. Allow radiator to drain.



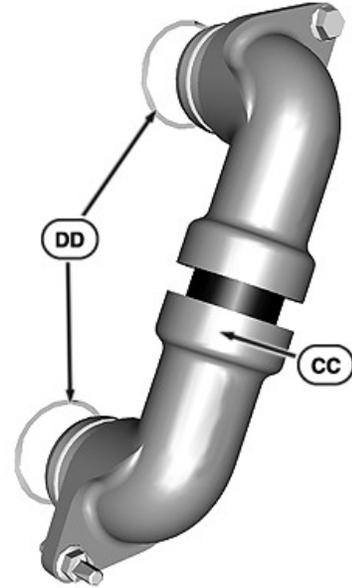
RXA0161226—UN—26OCT17

39. Remove radiator hose and clamp, bracket, brace, cap screws, electrical hardware, coolant return assembly, coolant bypass assembly, thermostat housing (X) and gasket.
40. Install lip seals (W) using handle JDG8092 (Z) and seal installer JDG11202 (Y).
41. Apply light coat of RTV silicone sealant to new gasket.



RXA0161227—UN—26OCT17

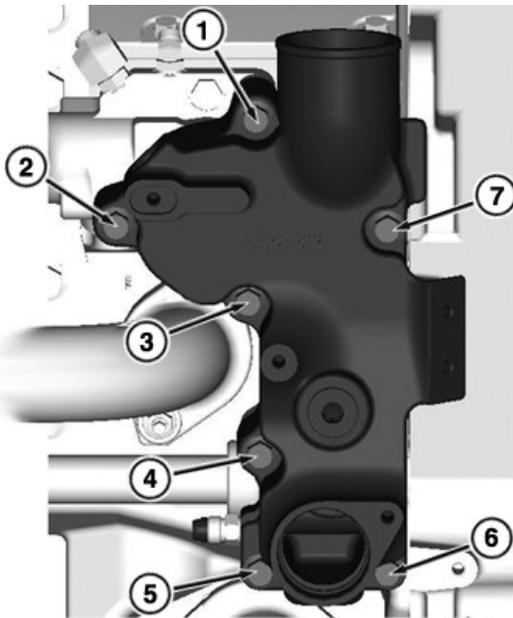
42. Install new thermostats (AA), new gasket (BB) and reinstall housing.



RXA0161229—UN—26OCT17

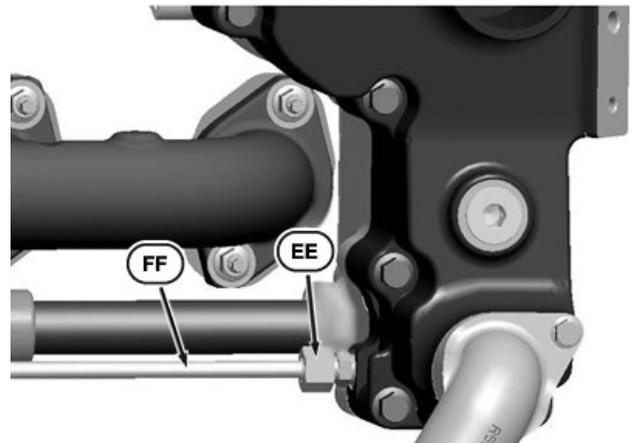
44. Replace previously removed by-pass tube assembly (CC) and new O-rings (DD). Tighten cap screws to 37 N·m (27 lb·ft).

IMPORTANT: When installing rear top liner cooling fitting, apply Loctite® 242 thread locker to fitting threads and tighten fitting to specification. Apply AR54749 soap solution to O-ring when installing return line to thermostat housing.



RXA0161228—UN—26OCT17

43. Tighten cap screws to 50 N·m (39 lb·ft) in order from 1 to 7.



RXA0161230—UN—26OCT17

45. Replace previously removed return line (FF) with fitting (EE) and rear top liner cooling fitting with O-ring. Tighten cap screws to 13.5 N·m (10 lb·ft).
46. Replace hard line and tighten fittings to 19 N·m (14 lb·ft).
47. Replace cap screw and electrical hardware. Tighten cap screw to 20 N·m (14 lb·ft).

Loctite is a trademark of Henkel Corporation

48. Replace bracket and brace. Tighten cap screws to 30 N·m (22 lb·ft).
49. Replace previously removed hose and clamp.
50. Close engine drain valve and radiator drain valve.
51. Dispose of drain clean water in accordance with local laws and ordinances.
52. Fill high pressure coolant system at de-aeration tank with new coolant solution. For cooling system capacity, see Capacities in Specifications section of this Operator's Manual.

 **CAUTION: Make sure hood is closed before starting engine.**

IMPORTANT: Never pour cold water or coolant into hot engine.

NOTE: Coolant may seep out of the de-aeration tank overflow vent as air is purged from the coolant system.

Level may change when tractor is running or during the next few cycles.

It is highly recommended the cooling system is checked for leaks after draining, flushing and refilling to ensure tractor performance. Consult your John Deere Dealer for procedure and appropriate tools.

53. Install de-aeration cap, Install engine side shields, close hood, start engine, and run for a minimum of 1500 rpm for 15 minutes.

AK08008,00001A7-19-15NOV19

Engine Coolant—15 L Engine

See your John Deere dealer.

AK08008,00001A8-19-15NOV19

Engine Crankshaft Damper—9.0 L or 13.5 L Engine

See your John Deere dealer.

AK08008,00001A9-19-15NOV19

Front Drive Shaft U-Joints

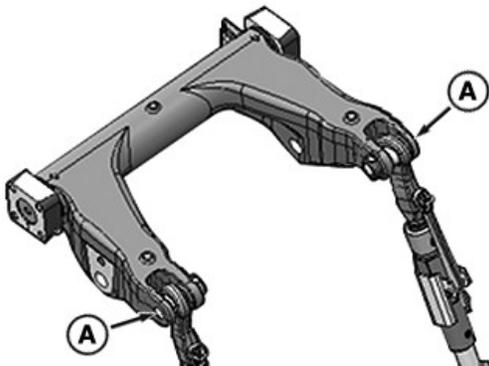
See your John Deere dealer.

AK08008,00001AA-19-15NOV19

Service - Lubricate

Heavy Duty Lift Link Pins (Optional)

IMPORTANT: Prevent damage to hitch pins. Grease daily when hitch is in use.



RXA0158577—UN—29MAR17

Lubricate hitch lift link pins (A). Use John Deere SD Polyurea grease or equivalent. See Grease in Other Lubricants section of this Operator's Manual.

AK08008,00001AB-19-15NOV19

specified in Fuel, Lubricants and Coolant section of this Operator's Manual.

AK08008,00001AC-19-15NOV19

Steering Pins

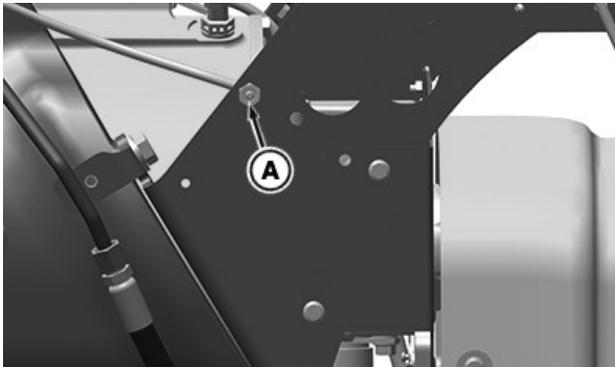
CAUTION: Place tractor in PARK and remove key before working in hinge area.



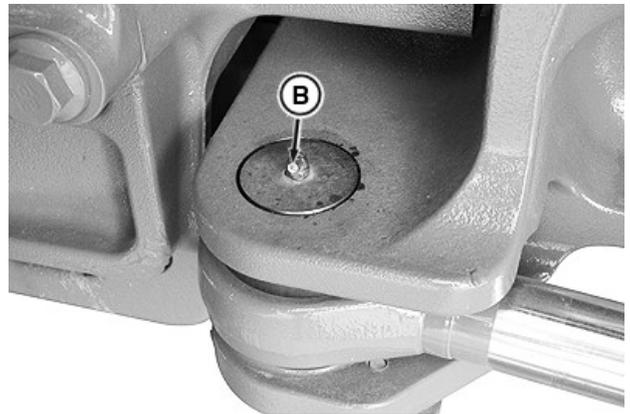
RXA0141971—UN—02JUN14

Hinge Pins

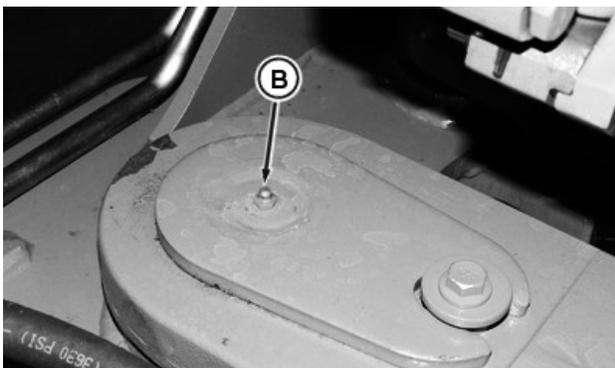
CAUTION: Place tractor in PARK and remove key before working in hinge area.



RXA0162410—UN—06MAR18



RXA0141972—UN—02JUN14

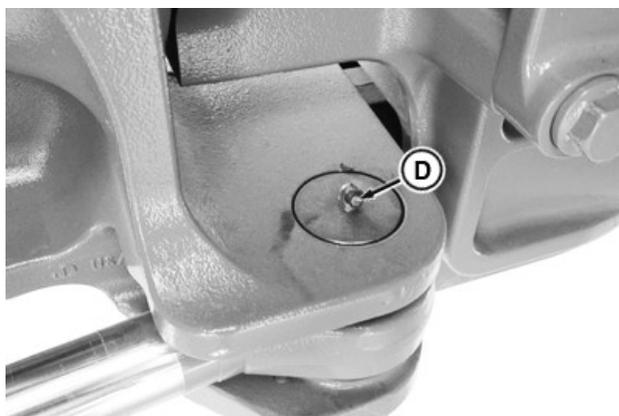


RXA0141970—UN—02JUN14



RXA0141973—UN—02JUN14

Lubricate upper (A) and lower hinge pins (B). Use John Deere SD Polyurea grease or other grease as

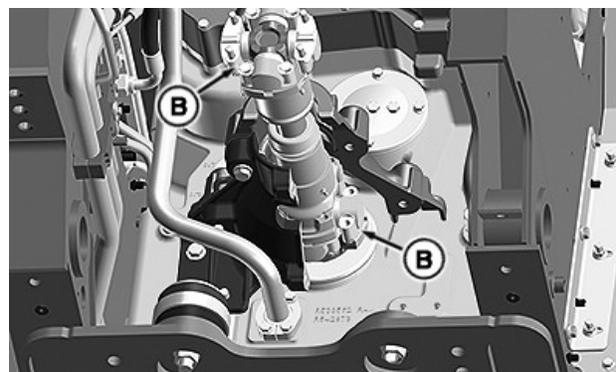


RXA0141974—UN—02JUN14

Lubricate right-hand front (A) and rear (B), left-hand front (C) and rear (D) steering pin bushings.

Use John Deere SD Polyurea grease or other grease as specified in Grease in Other Lubricants section of this Operator's Manual.

AK08008,00001AD-19-15NOV19

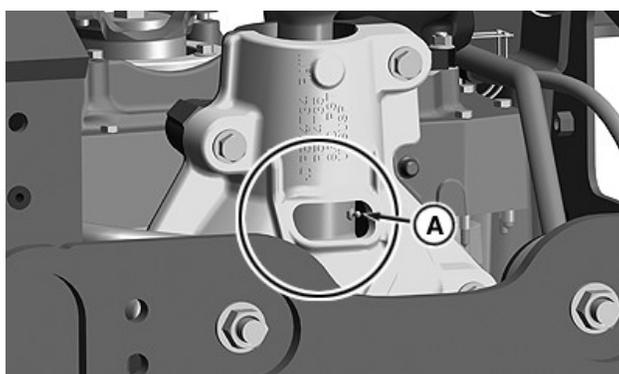


RXA0158395—UN—20MAR17

Inspect universal joints (B) for discoloration and looseness. If problem is detected, see your John Deere dealer.

AK08008,00001AE-19-15NOV19

Telescoping Drive Shaft



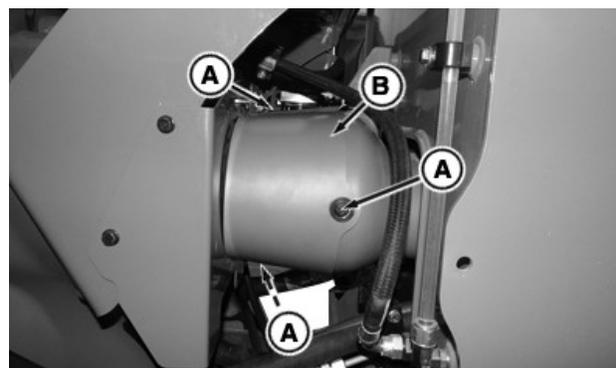
RXA0149743—UN—24AUG15

Transmission to Front Axle Drive Shaft (View From Under Tractor)

Lubricate telescoping transmission to front axle drive shaft lubrication fitting (A).

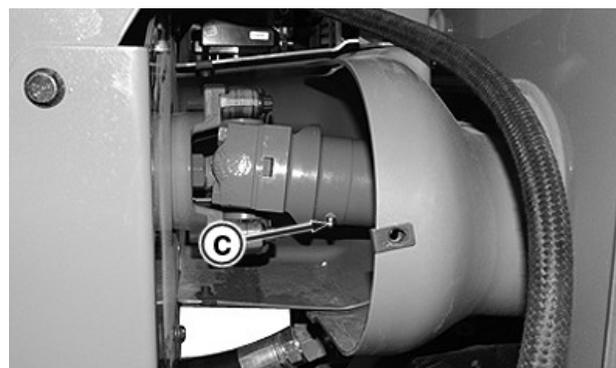
Use John Deere SD Polyurea grease or other grease as specified in Grease in Other Lubricants section of this Operator's Manual.

PTO Drive Shaft



RXA0142745—UN—20JUN14

1. Remove three cap screws (A) and remove PTO shield (B) to access to PTO lubrication fitting. Rotate PTO shaft so fitting can be easily accessed for lubrication.



RXA0142916—UN—20JUN14

Rear PTO Shaft Fitting (With Parts Removed)

2. Lubricate rear PTO shaft fitting (C). Use John Deere SD Polyurea grease or other grease as specified in Grease in Other Lubricants section of this Operator's Manual.

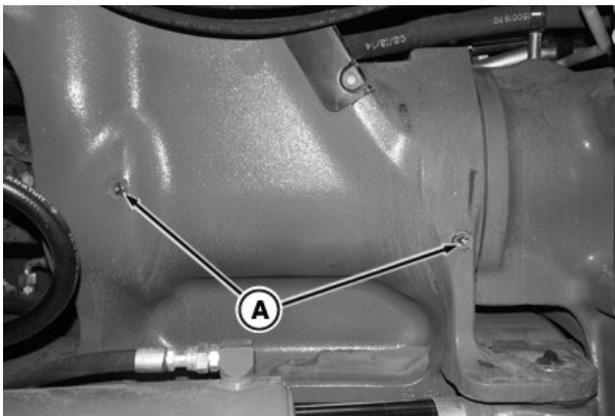
3. Reinstall PTO drive shaft shield. Tighten cap screws to 28 N·m (21 lb·ft).

AK08008,00001AF-19-15NOV19

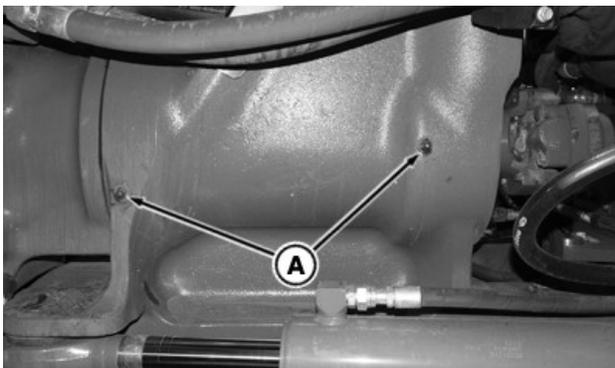
Heavy-Duty Gudgeon Bearings

IMPORTANT: Over-lubrication of bearings may result in damage to bearings, seals, and drive shaft.

Use only hand pump grease gun. Other grease gun types fill grease cavity too quickly and displace bearing seal. Grease then may bypass bearing, leaving it improperly lubricated.



RXA0142539—UN—16JUN14



RXA0142540—UN—16JUN14

Lubricate heavy-duty gudgeon tapered roller bearing fittings (A) on both left-hand and right-hand side and on top of gudgeon. Give each fitting approximately 40 pumps of grease.

Use John Deere SD Polyurea grease or other grease as specified in Grease in Other Lubricants section of this Operator's Manual.

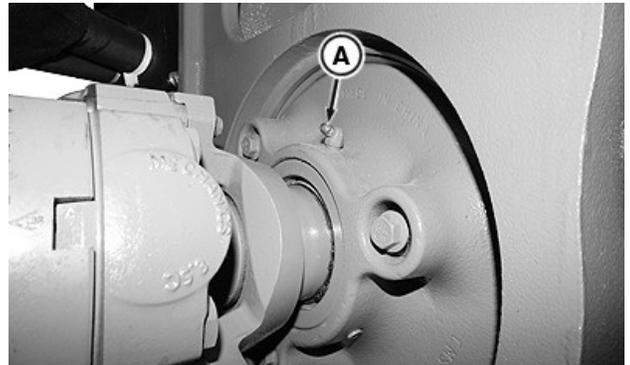
AK08008,00001B0-19-15NOV19

Lower Drive Line Bearings

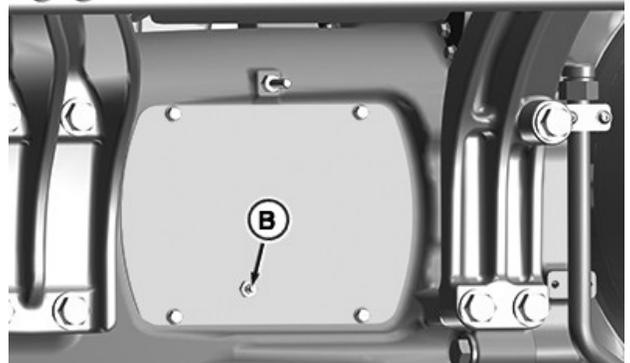
IMPORTANT: Normal lubrication is every 250 operating hours. If used in extremely wet conditions, lubricate daily or every 10 operating hours.

IMPORTANT: Avoid drivetrain damage. Operate tractor at low speeds (below 10 mph (16 km/h)) for first 6 hours.

IMPORTANT: Use only hand pump grease gun. Other types of grease guns fill the grease cavity at greater speed. This can push retention seal out of position, allowing grease to enter gudgeon center cavity and leaving bearing improperly lubricated.



RXA0141923—UN—02JUN14



RXA0161215—UN—26OCT17

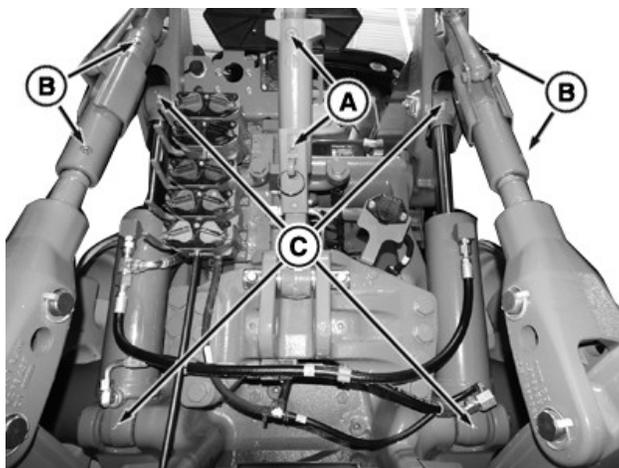
Lubricate front (A) and rear (B, if equipped) lower drive line bearing lubrication fittings.

Use John Deere SD Polyurea grease or other grease as specified in Grease in Other Lubricants section of this Operator's Manual.

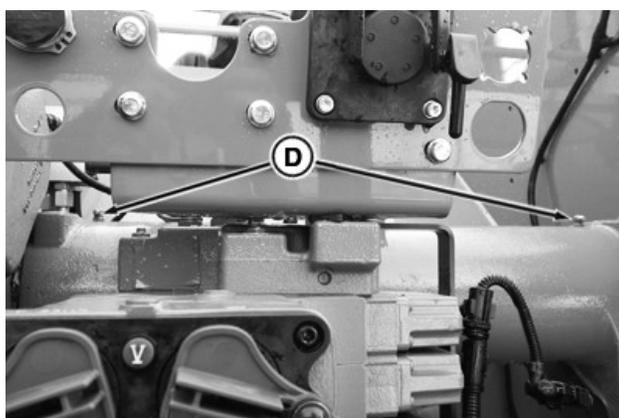
AK08008,00001B1-19-15NOV19

Rear Hitch

IMPORTANT: Normal service is every 250 hours. If used daily, service every 50 hours.



RXA0150422—UN—11NOV15



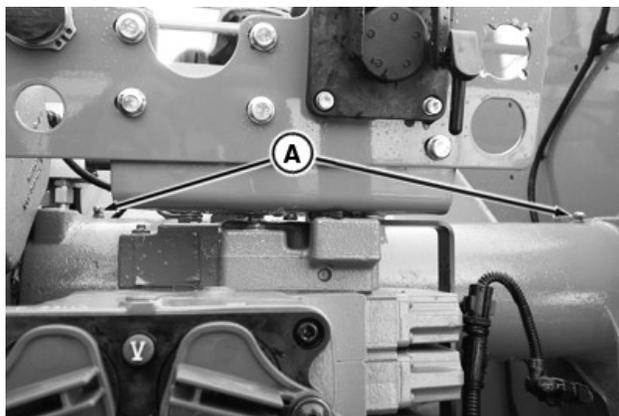
RXA0150423—UN—11NOV15

Lubricate center link (A), lift link (B), lift cylinders (C), and rockshaft (D) hitch fittings.

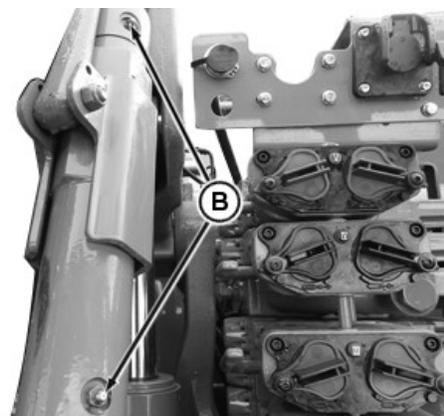
Use John Deere SD Polyurea grease or equivalent. See Grease in Other Lubricants section of this Operator's Manual.

AK08008,00001B2-19-15NOV19

Lift Cylinders and Rockshaft



RXA0141976—UN—02JUN14



RXA0141977—UN—20JUN14

Rockshaft Assembly

Lubricate lift cylinder pin fittings (B) on both sides of tractor. Lubricate left-hand (A) and right-hand side rockshaft fittings. See Grease in Other Lubricants section of this Operator's Manual for correct grease to use.

AK08008,00001B3-19-15NOV19

Vari-Cool™ Fan Drive—9.0 L Final Tier 4/ Stage V Engine

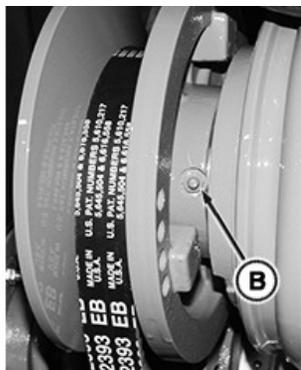
IMPORTANT: Avoid damage to Vari-Cool™ fan drive. Lubricate fan drive every 500 hours or annually, whichever occurs first.

Lubrication is required only if a grease fitting is present.

1. Raise engine hood. See Open Hood in Service - General section of this Operator's Manual.
2. Remove left-hand engine finger guard.
3. Remove left-hand diverter panel.

IMPORTANT: Grease only one driver and driven shaft fittings. The fitting on the opposite side provides fan balance and service position convenience.

If more than 50 pumps of TY25744 Extreme Duty Synthetic Grease are required, internal leakage may be occurring. See your John Deere dealer.



RXA0157310—UN—06FEB17

4. Pump TY25744 Extreme Duty Synthetic Grease into a lubrication fitting (B) until grease is visible coming from shaft vent (A).

NOTE: While Vari-Cool™ fan drive is accessible, perform fan drive system checks. See Vari-Cool™ Fan Drive and Belt in Service - Check section of this Operator's Manual.

5. Reinstall diverter panel and tighten cap screws to 20 N·m (14 lb·ft).
6. Reinstall finger guard and tighten cap screws.
7. Close and secure hood.

AK08008,00001B4-19-15NOV19

Vari-Cool™ Fan Drive—13.5 L Final Tier 4/ Stage V Engine

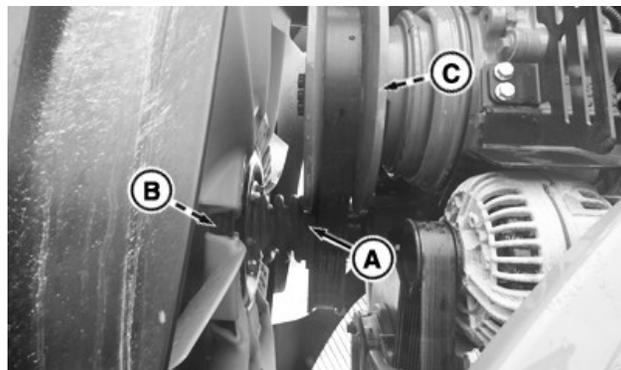
IMPORTANT: Avoid damage to Vari-Cool™ fan drive. Lubricate fan drive every 500 hours or annually, whichever occurs first.

Lubrication is required only if a grease fitting is present.

1. Remove front engine side shields, see Remove Front Engine Side Shield in Service - General Information section of this Operator's Manual.

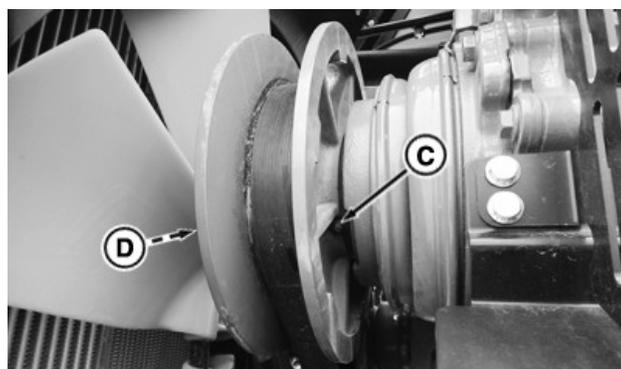
IMPORTANT: Grease only one driver and driven shaft fittings. The fitting on the opposite side provides fan balance and service position convenience.

If more than 50 pumps of TY25744 Extreme Duty Synthetic Grease required, contact your John Deere dealer to replace internal seals and inspect shaft splines.



RXA0163077—UN—27APR18

- Pump TY25744 Extreme Duty Synthetic Grease into the shaft lubrication fitting (A) until grease is visible coming from driven shaft vent (B).



RXA0163078—UN—27APR18

2. Grease the fan driver sheave lubrication fitting (C) until grease is visible at driver vent opening (E).
3. Reinstall diverter panel and tighten cap screws to 20 N·m (14 lb·ft).
4. Reinstall finger guard and tighten cap screws.
5. Install front engine side shields.
6. Close and secure hood.

AK08008,00001B5-19-15NOV19

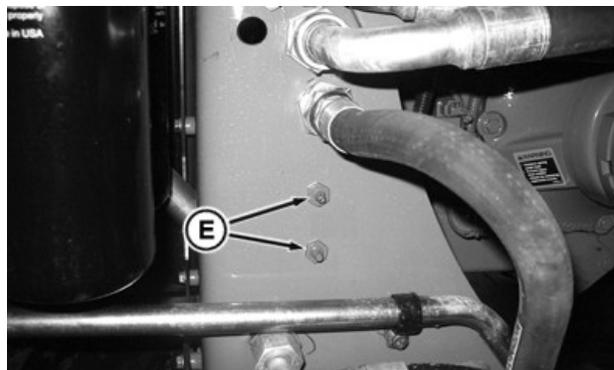
HydraCushion™ Front Axle Suspension

Lubricate HydraCushion™ front axle suspension components. Use John Deere SD Polyurea grease or other grease as specified in Grease in Other Lubricants section of this Operator's Manual.



RXA0132813—UN—06JUN13

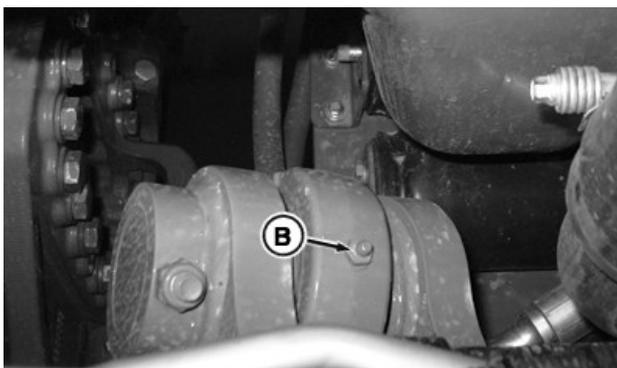
Access suspension cylinders at location (A) on both sides of tractor.



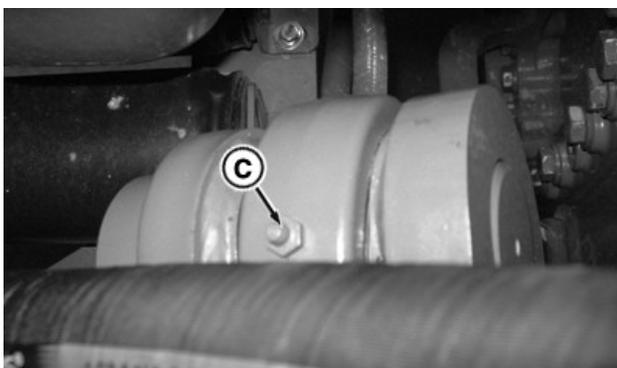
RXA0161101—UN—20OCT17

Lubricate front axle suspension remote fittings (E) located on left-hand side of gudgeon frame.

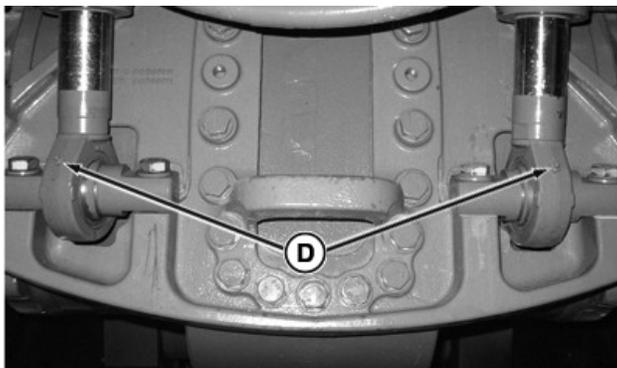
AK08008,00001B6-19-15NOV19



RXA0132818—UN—30MAY13



RXA0132820—UN—06JUN13

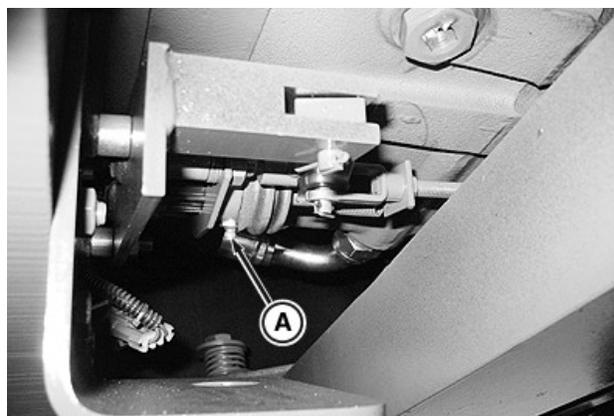


RXA0132821—UN—06JUN13

Lubricate upper right-hand (B), upper left-hand (C) and lower right-hand and left-hand fittings (D). Give each fitting approximately 10 pumps of grease.

Rear Hitch Draft Sensor—9370R Tractor

NOTE: Service applies only to single reduction axle equipped tractor.



RXA0109326—UN—06AUG10

Lubricate rear hitch draft sensor (A).

Use John Deere SD Polyurea grease or other grease as specified in Grease in Other Lubricants section of this Operator's Manual.

KD34109,00005CC-19-18MAR20

Service - Electrical

Service - Electrical Overview

In addition to fuses and relays mounted in fuse panels (behind operator's seat), tractors are also equipped with solid state load centers located in two electronic control units.

These solid-state load centers replace fused relay circuits previously used. Their primary function is to control the majority of high current loads such as rear fender lights and horn. Load center circuitry monitors loads and voltages providing fast reaction time and ability to alert operator if a circuit overloads or if voltage is out of specification, i.e. open circuit (undercurrent) or short circuit (over-current).

If circuit is faulty and a diagnostic trouble code is generated, circuit will stay OFF and diagnostic trouble code will remain active until circuit is recycled by operator. If circuit or one of its components is turned back ON and problem is no longer present, system will function normally.

As an example, if a light circuit is determined to have an over-current condition, load center system will shut the circuit off. If operator turns light switch off and back on, and system senses zero amps when light controlled by the switch is off, system will turn system back on and normal operation will turn back on.

If total current load of load center exceeds a preset level, software will automatically shut down system, turning off one circuit at a time. Logic circuit will wait a few seconds between circuit shutdowns to determine if total controller current has fallen below preset level, or if additional circuits should be turned off.

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

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

AK08008,0000214-19-15NOV19

Welding Near Electronic Control Units



TS953—UN—15MAY90

IMPORTANT: Do not jump-start engines with arc welding equipment. Currents and voltages are too high and may cause permanent damage.

1. Disconnect the negative (-) battery cable(s).
2. Disconnect the positive (+) battery cable(s).
3. Connect the positive and negative cables together. Do not attach to vehicle frame.
4. Clear or move any wiring harness sections away from welding area.
5. Connect welder ground close to welding point and away from control units.
6. After welding, reverse Steps 1—5.

DX,WW,ECU02-19-14AUG09

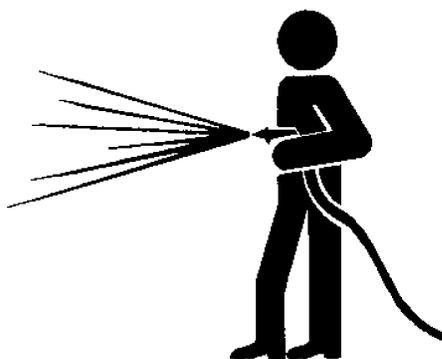
Keep Electronic Control Unit Connectors Clean

IMPORTANT: Do not open control unit and do not clean with a high-pressure spray. Moisture, dirt, and other contaminants may cause permanent damage.

1. Keep terminals clean and free of foreign debris. Moisture, dirt, and other contaminants may cause the terminals to erode over time and not make a good electrical connection.
2. If a connector is not in use, put on the proper dust cap or an appropriate seal to protect it from foreign debris and moisture.
3. Control units are not repairable.
4. Since control units are the components LEAST likely to fail, isolate failure before replacing by completing a diagnostic procedure. (See your John Deere dealer.)
5. The wiring harness terminals and connectors for electronic control units are repairable.

DX,WW,ECU04-19-11JUN09

Compressed Air Use



RW56455—UN—30JUN97

IMPORTANT: Directing pressurized air at electronic/electrical components or connectors, may cause buildup of static electricity and product malfunctions.

AK08008,0000215-19-15NOV19

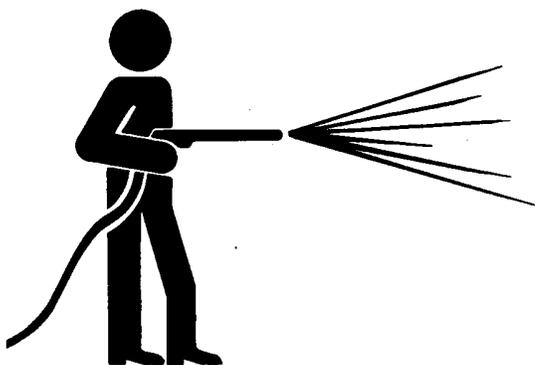
IMPORTANT: Prevent damage to tractor emissions system. Battery disconnect switch with indicator light: Tractor is equipped with an engine which uses a Selective Catalytic Reduction (SCR) system. Light is illuminated during Diesel Exhaust Fluid (DEF) purge from system. Do not turn disconnect switch off until light goes out.

Battery disconnect switch without indicator light: Engine not equipped with SCR system. No waiting period is required before turning off switch.

See Battery Disconnect Switch in Engine Operation section of this Operator's Manual.

AK08008,0000217-19-15NOV19

High-Pressure Washer Use



T6642EJ—UN—18OCT88

IMPORTANT: Directing pressurized water at electronic/electrical components or connectors, bearings and hydraulic seals, fuel injection pumps, exhaust outlet or other sensitive parts and components may cause product malfunctions. Reduce pressure, and spray at a 45 to 90 degree angle. When washing do not direct any water towards the exhaust or any fill tank openings.

AK08008,0000216-19-15NOV19

Service Batteries and Connections



RXA0086786—UN—14FEB06

CAUTION: It can cause a buildup of static charge leading to potential injury.

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

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

Always remove battery ground cables before positive battery cables and connect them last. Do not let disconnected ground terminal touch metal surface.

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.**

Disconnect Battery

CAUTION: Avoid injury or damage to tractor systems from inadvertent contact with electrical power. Disconnect battery when directed.

CAUTION: Avoid contact with poisonous sulfuric acid in battery electrolyte. Battery acid can burn skin, damage clothing, and cause blindness if splashed into eyes.

NOTE: Although this battery is a maintenance free battery, conditions such as long periods of operation at high ambient temperatures and excessive engine cranking may require adding water. See label on battery.

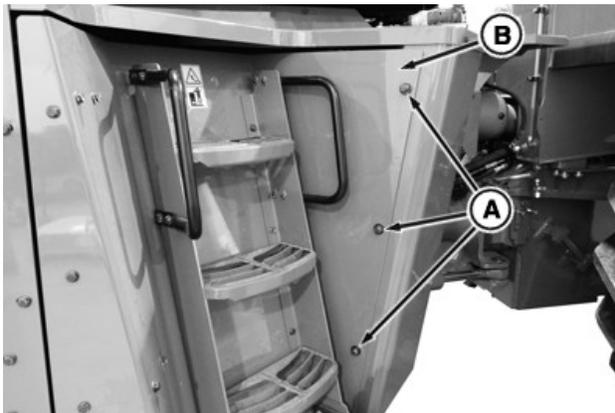
For optimum battery performance, keep battery terminals clean and tight. For replacement batteries, follow manufacturer's recommendations.

IMPORTANT: Prevent damage to tractor emissions system. Battery disconnect switch with indicator light: Tractor is equipped with an engine which uses a Selective Catalytic Reduction (SCR) system. Light is illuminated during Diesel Exhaust Fluid (DEF) purge from system. Do not turn disconnect switch off until light goes out.

Battery disconnect switch without indicator light: Engine not equipped with SCR system. No waiting period is required before turning off switch.

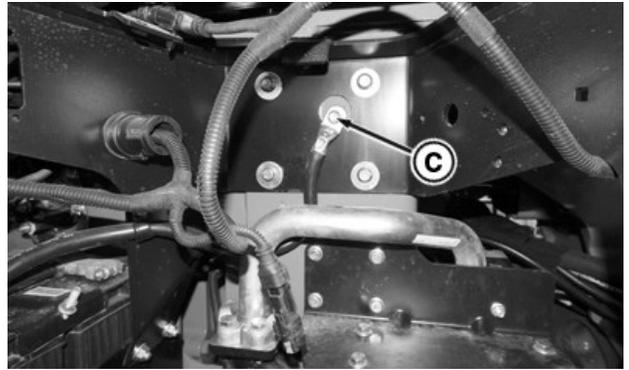
See **Battery Disconnect Switch in Engine Operation** section of this Operator's Manual.

1. If tractor is:
 - Equipped with battery disconnect switch with indicator light, wait until indicator light has gone out. Then go to step 2.
 - Not equipped with battery disconnect switch indicator light. Go to step 2.
2. Turn off battery disconnect switch.



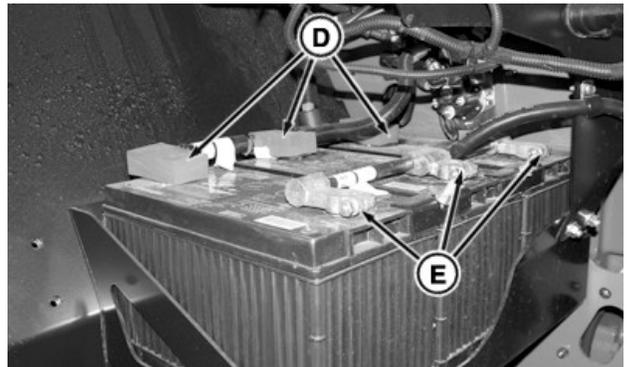
RXA0141965—UN—02JUN14

3. Remove three cap screws (A).
4. Swing open battery compartment cover (B).



RXA0141966—UN—02JUN14

5. Disconnect the single point ground cable (C).



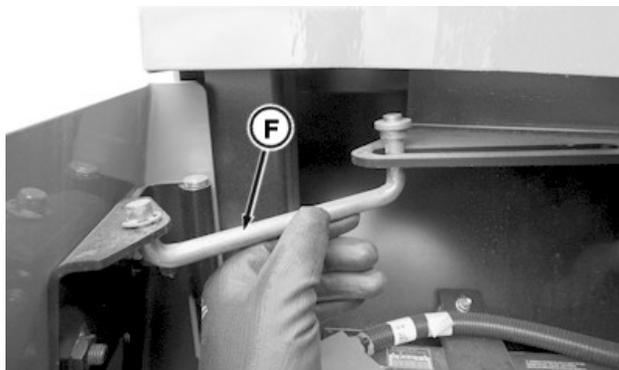
RXA0158217—UN—09MAR17

13.5 L Engine Tractor Batteries

6. Disconnect negative battery cables (E), then positive battery cables (D).

IMPORTANT: Never use compressed air to clean batteries.

7. Remove any corrosion with a terminal brush, then clean terminals and battery posts using a baking soda and water solution.
8. Rinse with clean water and air dry.
9. If batteries have been removed for service, slide batteries back into compartment. Install battery retaining clamp.
10. Install battery retaining clamp.
11. Connect positive battery cables, then connect negative battery cables.
12. Apply thin coat of grease to cable ends.
13. Connect single point ground cable to tractor frame.



RXA0158218—UN—09MAR17

14. Lift battery panel latch (F) up to close battery compartment cover.
15. Reinstall and tighten battery compartment cover cap screws.
16. Turn battery disconnect switch on.

AK08008,0000218-19-15NOV19



RXA0108495—UN—12JUL10

Load center is found directly behind the operator's seat and just below the rear cab window. To access load center, lift on Operator's Manual holder (A).

Diagram identifies load center fuse location, size and description.

Access Load Center Fuses

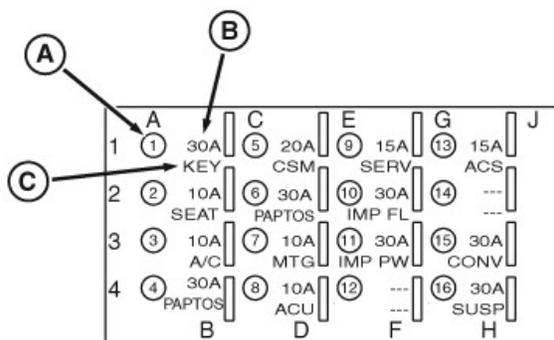
IMPORTANT: Prevent damage to tractor emissions system. Battery disconnect switch with indicator light: Tractor is equipped with an engine which uses a Selective Catalytic Reduction (SCR) system. Light is illuminated during Diesel Exhaust Fluid (DEF) purge from system. Do not turn disconnect switch off until light goes out.

Battery disconnect switch without indicator light: Engine not equipped with SCR system. No waiting period is required before turning off switch.

See Battery Disconnect Switch in Engine Operation section of this Operator's Manual.

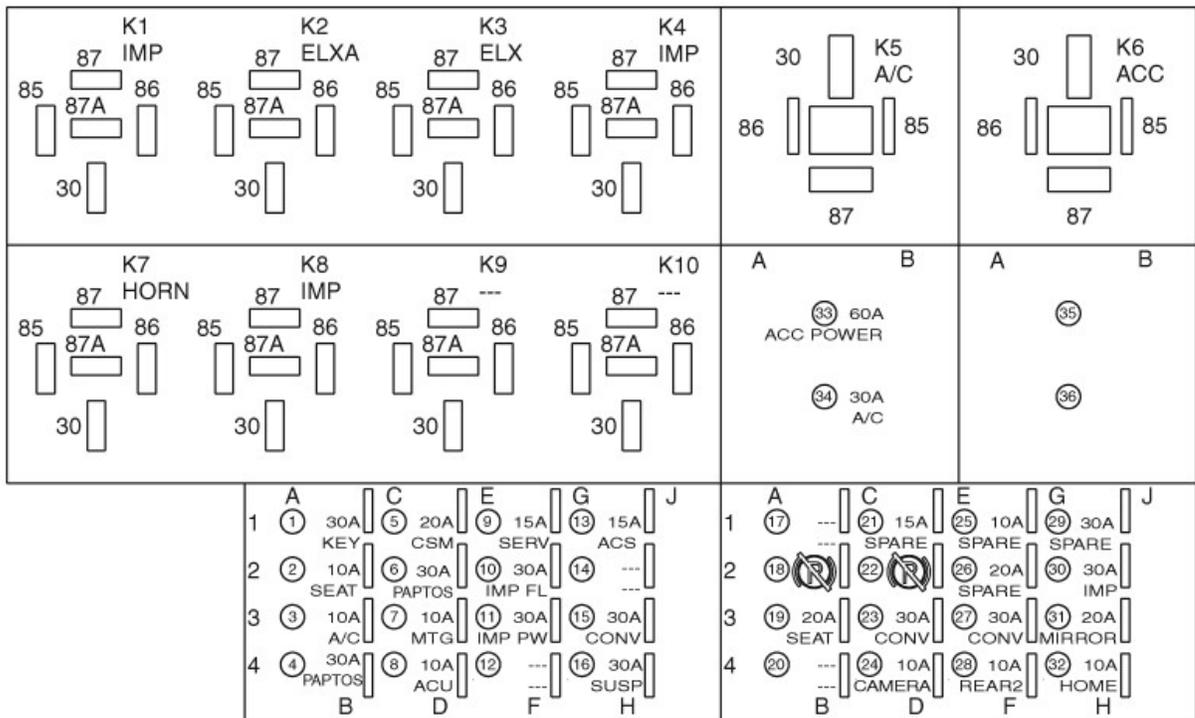
IMPORTANT: Replacement fuses must be the same rating as original. Ensure key is in OFF position.

NOTE: The seat backrest can be folded down to allow easier access to the Load Center Fuses. It will improve lighting and allows easier access for fuse replacement.



RXA0129611—UN—25JAN13

A—Fuse Location Number
B—Fuse Size
C—Fuse Use/Description



RXA0127389—UN—25JAN13

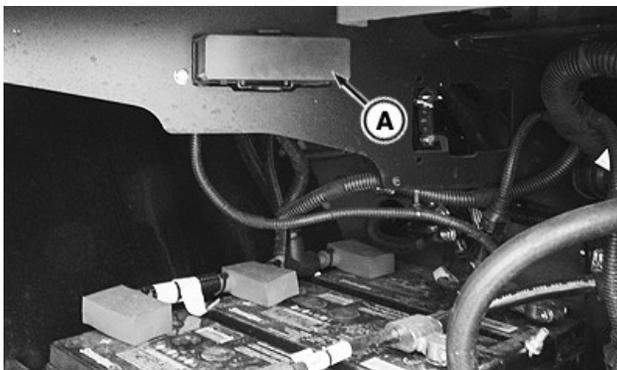
Relay and Fuse Locations

- K1—ISO Implement Connector Power Relay
- K2—Electronics Relay
- K3—Electronics Relay
- K4—Implement Accessory Relay
- K5—Blower Relay
- K6—Accessories Relay
- K7—Warning Horn Relay
- K8—Implement Flood Relay
- K9—Not Used
- K10—Not Used

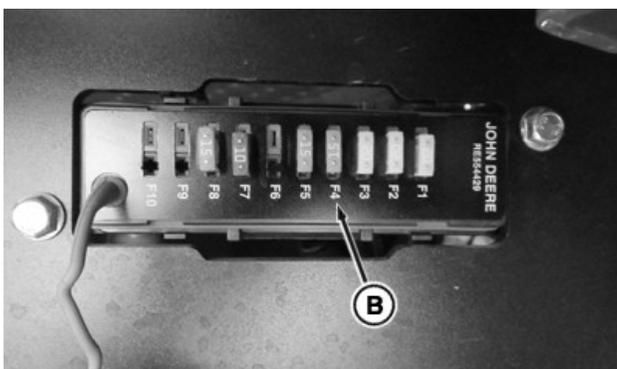
- 1—Key Switch (30 Amp)
- 2—Operator Presence Switch (10 Amp)
- 3—Air Conditioner (10 Amp)
- 4—Not Used
- 5—Radio, Primary Display and Interior Lights (20 Amp)
- 6—Not Used
- 7—Modular Telematics Gateway (10 Amp)
- 8—Armrest Control Unit (10 Amp)
- 9—Server (15 Amp)
- 10—Implement Flood Lights (30 Amp)
- 11—Implement Accessory (30 Amp)
- 12—Not Used
- 13—Steering Controller (15 Amp)

- 14—Not Used
- 15—Convenience Outlet Battery (30 Amp)
- 16—Tracks Suspension (Tracks Only) (30 Amp)
- 17—Not Used
- 18—Park Brake Release
- 19—Seat Controls (20 Amp)
- 20—Not Used
- 21—Spare (15 Amp)
- 22—Park Brake Release
- 23—Convenience Outlet Switched (30 Amp)
- 24—Video Camera Power and Armrest Outlet (10 Amp)
- 25—Spare (10 Amp)
- 26—Spare (20 Amp)
- 27—Convenience Outlet Switched (30 Amp)
- 28—Rear Chassis Control Unit (10 Amp)
- 29—Spare (30 Amp)
- 30—ISO Implement Connector (30 Amp)
- 31—Remote Mirror (20 Amp)
- 32—Come Home Mode (10 Amp)
- 33—Accessories Power (60 Amp)
- 34—Blower Motor (30 Amp)
- 35—Not Used
- 36—Not Used

Load center 1 is located in battery compartment. Open battery compartment cover.



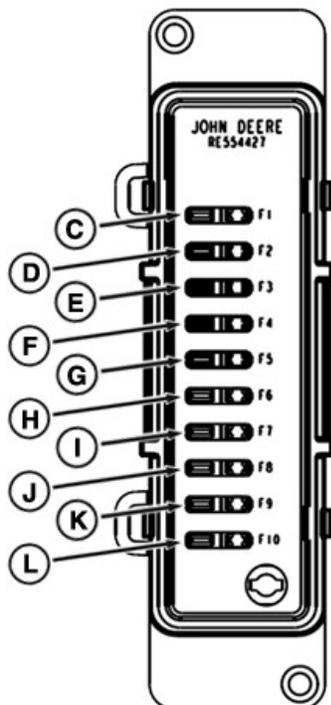
RXA0142041—UN—04JUN14



RXA0142042—UN—04JUN14

- A—Load Center Cover
- B—Load Center Fuse Panel

Load Center for 9.0 L or 13.5 L Engine Tractor

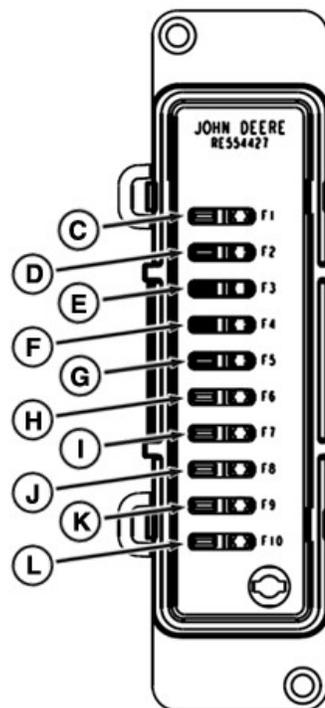


RXA0130342—UN—11JAN13

- C—F1 - ECU (20 Amp)
- D—F2 - ECU (20 Amp)
- E—F3 - ECU (20 Amp)
- F—F4 - Dosing Pump (15 Amp)
- G—F5 - Fuel Transfer Pump (15 Amp)

- H—F6 - Not Used
- I—F7 - Key Switch (10 Amp)
- J—F8 - ActiveCommand Steering (ACS)™ Control Unit (If ACS™ Equipped) or AutoTrac™ Control Unit (If AutoTrac™ Equipped) (15 Amp)
- K—F9 - Front Chassis Control Unit 2 (25 Amp)
- L—F10 - Front Chassis Control Unit 1 (HydraCushion™ Suspension-If Equipped) (10 Amp)

Load Centers for 15 L Engine

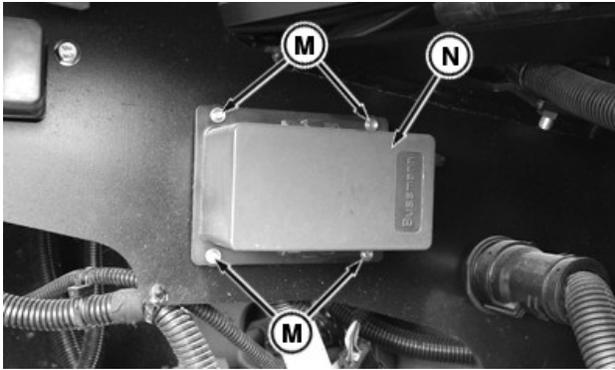


RXA0130342—UN—11JAN13

- C—F1 - ECU (20 Amp)
- D—F2 - Not Used
- E—F3 - DEF Heaters (20 Amp)
- F—F4 - After Treatment
- G—F5 - DEF Supply Pump (15 Amp)
- H—F6 - A/C Compressor
- I—F7 - Key Switch (10 Amp)
- J—F8 - Steering System, AutoTrac Control Unit (If Equipped with AutoTrac) (10 Amp)
- K—F9 - Not Used
- L—F10 - Not Used

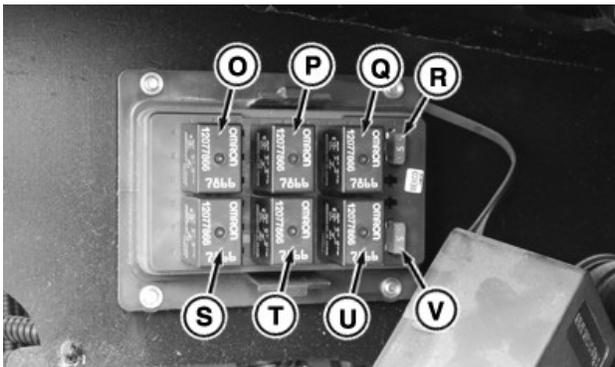
Load Center 2 is located near engine.

*ActiveCommand Steering is a trademark of Deere & Company
AutoTrac is a trademark of Deere & Company
HydraCushion is a trademark of Deere & Company*



KEXX Cover

RXA0161089—UN—18OCT17



KEXX Fuses and Relays

RXA0161090—UN—18OCT17

- M—Cap Screws (4 used)
- N—Cover
- O—A/C Compressor Clutch Relay
- P—Line Heater Relay (PRESSURE)
- Q—Aftertreatment Relay
- R—Alternator
- S—DEF Supply Relay
- T—Line Heater Relay (RETURN)
- U—Line Heater Relay (SUCTION)
- V—ECU

AK08008,0000219-19-15NOV19

Access Master Fuses

IMPORTANT: Prevent damage to tractor emissions system. Battery disconnect switch with indicator light: Tractor is equipped with an engine which uses a Selective Catalytic Reduction (SCR) system. Light is illuminated during Diesel Exhaust Fluid (DEF) purge from system. Do not turn disconnect switch off until light goes out.

Battery disconnect switch without indicator light: Engine not equipped with SCR system. No waiting period is required before turning off switch.

See **Battery Disconnect Switch in Engine Operation** section of this Operator's Manual.

CAUTION: Disconnect both negative and positive battery connections from both batteries prior to fuse inspection or replacement.

IMPORTANT: Do not attempt to disassemble master fuses unless instructed by your John Deere dealer.

Replacement fuses must be the same rating as original.

Tractors have three master fuses.

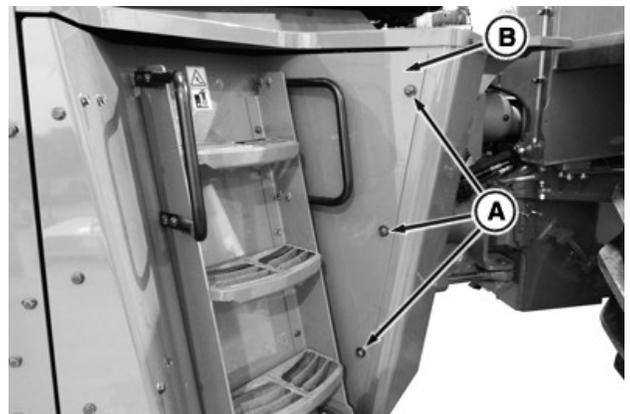
1. Disconnect battery ground (-) cable.



Master Fuse without ACS

RXA0142334—UN—10JUN14

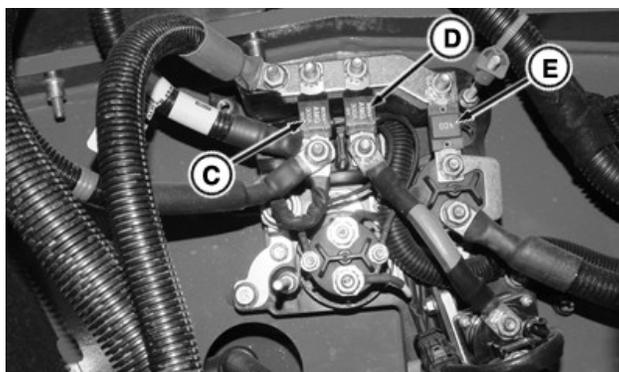
NOTE: Master fuse (C) is located within battery panel of tractor. Master fuse is connected across both posts of junction box.



RXA0141965—UN—02JUN14

2. Remove cap screws (A) and open panel (B).

The master fuses are:

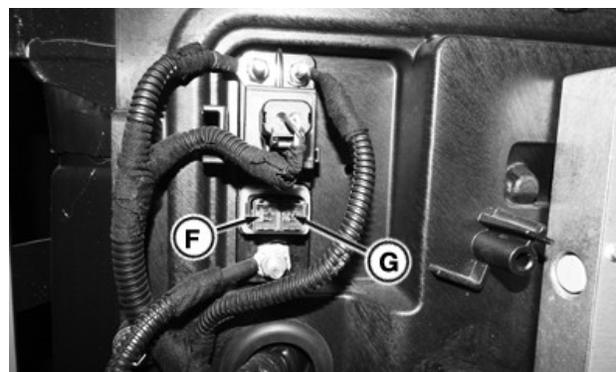


RXA0142038—UN—04JUN14

Master Fuse with ACS

- Master Fuse-300 Amps (C)
- Alternator Battery Fuse-300 Amps (D)
- Backup Hydraulic Pump Fuse - 400 Amps (E)

AK08008,000021A-19-15NOV19



RXA0142136—UN—05JUN14

Top left-hand module stud is switched power lug (A) protected by a 60 amp fuse (F). Top right-hand module stud is unswitched power lug (B) protected by a 30 amp fuse (G).

Bottom center is the battery power input stud (C).

To Change Fuses

1. Press down on fuse cover tabs (D) and remove fuse cover (E).
2. To remove, pull fuse straight back.
3. Insert new fuse.
4. Replace cover and slide tabs over cover edge to hold in place.

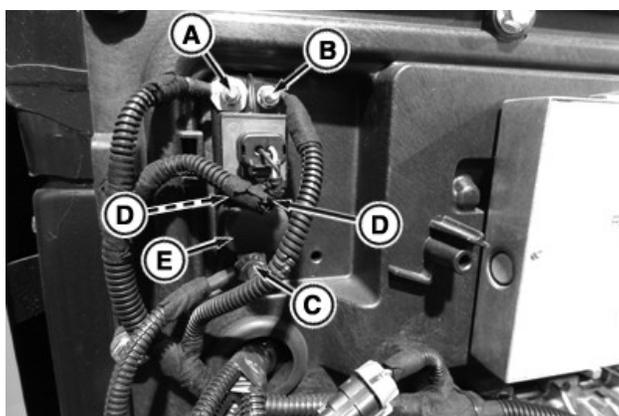
AK08008,000021B-19-15NOV19

Access Implement Power Relay Module Fuses

IMPORTANT: Replacement fuse must be same rating as original.

Turn key to OFF position before replacing any fuses.

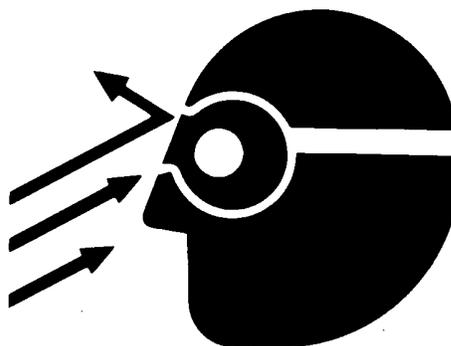
Remove cab back panel. In upper left-hand corner is a relay module to route power to implement CAN Bus Breakaway Connector.



RXA0142135—UN—05JUN14

Implement Power Relay Module

Handle Halogen Light Bulbs Safely



TS266—UN—23AUG88



H39474—UN—30JUN00

CAUTION: Halogen bulbs (A) contain gas under pressure. Handling a bulb improperly could cause it to shatter into flying fragments. To avoid possible injury:

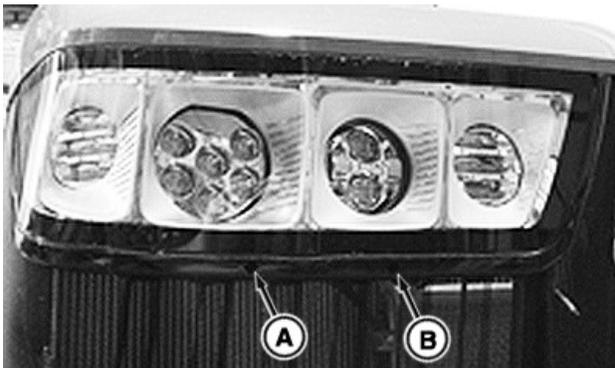
- Turn light switch off and allow bulbs to cool before changing. Leave switch off until bulb change is done.
- Wear eye protection.
- Handle bulb by its base. Keep bulb oil free; wear gloves to avoid touching glass.
- Do not drop or scratch bulb. Keep moisture away.
- Place used bulb in the new bulb carton and dispose of properly. Keep out of reach of children.

AK08008,000021C-19-15NOV19

Adjust Front Grille Lights

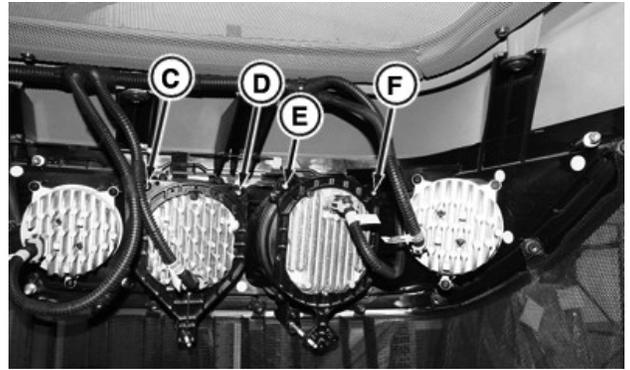
To adjust front grille lights:

For Low Beam Headlights:



RXA0169633—UN—15JUL19

1. To lower low beam aim, turn low beam adjustment screw (A) clockwise.



RXA0142138—UN—05JUN14

To raise and tilt out low beam headlights, turn low beam adjustment screw (E) clockwise.

To raise and tilt in low beam headlights, turn low beam adjustment screw (F) clockwise.

For High Beam Headlights:

2. To lower high beam aim, turn high beam adjustment screw (B) clockwise.

To raise and tilt out high beam, turn high beam adjustment screw (C) clockwise.

To raise and tilt in high beam, turn high beam adjustment screw (D) clockwise.

3. Repeat for opposite side of tractor.

AK08008,000021F-19-15NOV19

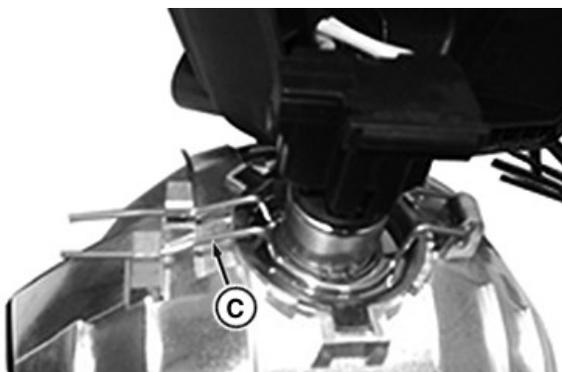
Change Auxiliary Driving Light

To locate this light, see Light Identification in the Lights section of this Operator's Manual.



RXA0172756—UN—03DEC19

1. Remove screws (A).
2. Remove the frame (B) from the light housing.
3. Remove the wiring harness.



RXA0172757—UN—03DEC19

4. Remove the clip holding the bulb in place (C).
5. Remove and replace the light bulb.
6. Reassemble in reverse order.

EC82310,0000B82-19-14MAY20

Change Wrap-Around Cab Light



RXA0172758—UN—03DEC19

1. Pry light out using flat tip screwdriver in slot (A).
2. Disconnect harness connectors.
3. Replace light assembly.
4. Reconnect harness connectors.
5. Insert light assembly into cab until it snaps into place.

EC82310,0000B83-19-14MAY20

Change Cab Roof Light



RXA0172759—UN—03DEC19

Cab Roof Light—LED Light Option Shown

1. Gently pry light out the light assembly using a flat tip screwdriver in slot (A).
2. The cab roof light is equipped with either an LED assembly or a halogen bulb. To replace the cab roof light if the light assembly contains:
 - An LED assembly:
 - a. Disconnect the harness connector.
 - b. Replace the LED assembly.
 - c. Reconnect the harness connector.
 - d. Insert the cab roof light assembly into the cab roof until it snaps into place.
 - A halogen bulb:
 - a. Remove the halogen bulb base from the light assembly.
 - b. Remove and replace the halogen bulb from the halogen bulb base.
 - c. Insert the halogen bulb base into the light assembly.
 - d. Insert the cab roof light assembly into the cab roof until it snaps into place.

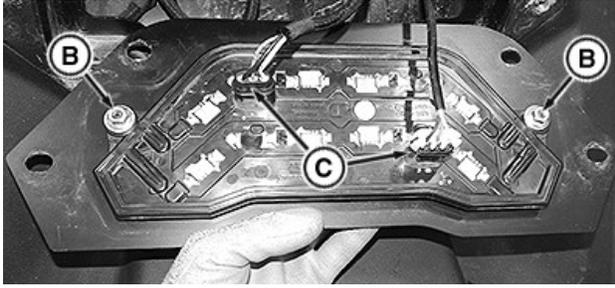
EC82310,0000B84-19-14MAY20

Change Rear Fender—Rear Indicator



RXA0172762—UN—04DEC19

1. Remove bolts (A).



RXA0172765—UN—03DEC19

2. Remove bolts holding cover (B).
3. Disconnect light assembly (C).

EC82310,0000B87-19-12DEC19

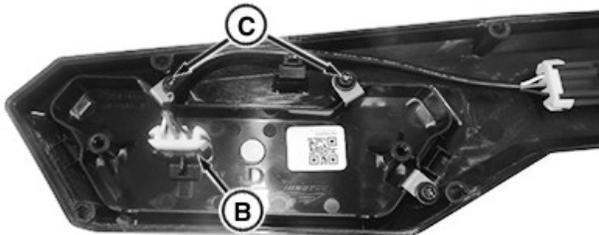
Change Extremity Light—Cab



RXA0172768—UN—03DEC19

Extremity Light—Example

1. Remove screws (A). Some extremity light arms have more screws than shown.



RXA0172769—UN—03DEC19

2. Remove screws (B).
3. Disconnect the light assembly (C).
4. Replace with new light assembly.

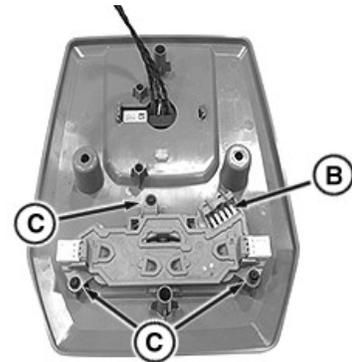
EC82310,0000B89-19-20FEB20

Change Cab Dome Light



RXA0172763—UN—03DEC19

1. Remove screws (A).



RXA0172764—UN—05DEC19

2. Disconnect wiring harness (B).
3. Remove screws (C) holding the light assembly.
4. Replace with new light assembly.

EC82310,0000B8A-19-12DEC19

Troubleshooting - Procedures

Engine

Symptom	Problem	Solution
Engine hard to start or will not start	Incorrect starting procedure	Review starting procedure
	No fuel	See Bleeding Fuel System
	Air in fuel line	Bleed fuel line
	Cold weather	Use cold weather starting aids
	Slow starter speed	See Starter Cranks Slowly
	Crankcase oil too heavy	Use correct oil viscosity
	Incorrect type of fuel	Consult fuel supplier; use correct fuel type for operating conditions
	Water, dirt, or air in fuel system	Drain, flush, fill and bleed system
	Clogged fuel filter	Replace filter
	Clogged sump screen	Drain tank, clean or replace screen
Engine knocks	Dirty or faulty injectors	Have John Deere dealer check injectors
	Insufficient oil	Add oil
	Low coolant temperature	Replace thermostats
	Engine overheating	See Engine Overheats
Engine runs irregularly or stalls frequently	Valve lash	See your John Deere dealer
	Low coolant temperature	Replace thermostats
	Clogged in-line filter or fuel filter	Replace filters and flush in-line filter
	Clogged sump screen	Drain tank, clean or replace screen
	Water, dirt, or air in fuel system	Drain, flush, fill and bleed system
	Restricted fuel line	Clean or replace fuel line
Below normal engine temperature	Dirty or faulty injectors	Have John Deere dealer check injectors
	Defective thermostat or thermostat incorrectly installed	Remove and check thermostats
	Defective temperature gauge or sender	Check gauge, sender and connections

Troubleshooting - Procedures

Symptom	Problem	Solution
	Viscous fan locked up	See your John Deere dealer
Lack of power	Engine overloaded	Reduce load or shift to lower gear
	Low fast idle speed	See your John Deere dealer
	Intake air restriction	Service air cleaner
	Clogged in-line filter or fuel filter	Replace filter(s)
	Clogged sump screen	Drain tank, clean or replace screen
	Incorrect type of fuel	Use correct fuel
	Overheated engine	See Engine Overheats
	Below normal engine temperature	Replace thermostats
	Incorrect valve clearance	See your John Deere dealer
	Dirty or faulty injectors	Have John Deere dealer check injectors
	Turbocharger not functioning	See your John Deere dealer
	Leaking exhaust manifold gasket	See your John Deere dealer
	Implement incorrectly adjusted	See implement operator's manual
	Restricted fuel line	Clean or replace fuel line
	Incorrect ballast	Adjust ballast to load
Low oil pressure	Low oil level	Add oil
	Incorrect type of oil	Drain, fill crankcase with correct quality and viscosity of oil
High oil consumption	Crankcase oil too light	Use correct viscosity oil
	Incorrect oil refill	See CHECKING ENGINE OIL LEVEL in the Lubrication section
	Oil leaks	Check for leaks in lines, around gaskets and drain plug
	Defective turbocharger	See your John Deere dealer
Engine emits white smoke	Incorrect type of fuel	Use correct fuel
	Clogged or dirty air cleaner	Service air cleaner
	Engine overloaded	Reduce load or shift to a low gear

Troubleshooting - Procedures

Symptom	Problem	Solution
	Incorrect starting procedure	See STARTING THE ENGINE, in Operating The Engine section
	Injection nozzles dirty	See your John Deere dealer
	Engine out of time	See your John Deere dealer
	Turbocharger not functioning	See your John Deere dealer
Engine overheats	Dirty radiator core, oil cooler, or grille screens	Remove all trash
	Engine overloaded	Shift to lower gear or reduce load
	Low engine oil level	Check oil level. Add oil as required
	Low coolant level	Fill radiator to correct level, check radiator and hoses for loose connections or leaks
	Faulty radiator cap	See your John Deere dealer
	Loose or defective fan belt	Check belt tensioner. Replace as needed
	Cooling system needs flushing	Flush cooling system
	Defective thermostat	Replace thermostats
	Defective temperature gauge or sender	See your John Deere dealer
High fuel consumption	Incorrect type of fuel	Use correct fuel
	Clogged or dirty air cleaner	Service air cleaner
	Engine overloaded	Reduce load or shift to lower gear
	Incorrect valve clearance	See your John Deere dealer
	Injection nozzles dirty	See your John Deere dealer
	Implement incorrectly adjusted	See implement operator's manual
	Low engine temperature	Replace thermostats
	Excessive ballast	Adjust ballast to load
	Defective turbocharger	See your John Deere dealer

Symptom	Problem	Solution
Engine power reduced	Operating with heavy ballast and full power	See Drivetrain Protection—9470R, 9520R, 9570R, and 9620R in Drivetrain section of this Operator's Manual

AK08008,00001B8-19-15NOV19

Transmission-Hydraulic-Axles

Symptom	Problem	Solution
Transmission slippage	Riding clutch pedal	Remove foot from clutch pedal
	Excessive load on tractor	Lower gear and/or reduce load
	Transmission filter indicator light on	Change filter element or have your Dealer repair
	Plugged transmission sump screens	Clean sump screens
	Plugged filters	Replace filters
	Low oil	Refill oil
Tractor will not move in any gear	Check for active diagnostic code	See your John Deere Dealer
	Transmission malfunction	Remove and inspect transmission suction screen for metal particles or See your John Deere™ Dealer
	Transmission drive line broken	Repair or have your John Deere Dealer repair
Tractor lacks power or moves slow	Transmission slipping	Have your John Deere Dealer repair
	Transmission in too high a gear	Downshift to lower gear
	Excessive load	Transmission in wrong gear for operating conditions
Transmission shifts too slow	Sticking clutch solenoid valve	Have your John Deere Dealer repair
	Pump malfunction	Have your John Deere Dealer repair
	Transmission filter indicator light on	Change filter element
Transmission warning displays	Diagnostic trouble code has been stored	Access PTP codes in the CommandCenter™ display. See Diagnostic Trouble Codes section
Transmission shifts too fast	High transmission system pressure	Have your John Deere Dealer repair

Symptom	Problem	Solution
	Transmission requires calibration	See Transmission Calibration in Service - General Information section of this Operator's Manual
Transmission shift quality changed	Transmission requires calibration	See Transmission Calibration in Service - General Information section of this Operator's Manual
	Transmission shifts without direct operator input	If in manual mode, verify that clutch is not being used excessively
Transmission system overheats	Sticking clutch solenoid valve	Have your John Deere Dealer repair
	Pump malfunction	Have your John Deere Dealer repair
	Transmission filter indicator light on	Change filter element or see your John Deere Dealer to repair
	Excessive load	Lighten load or use lower gear
	Plugged front grille screens	Clean debris from front grille screens
	Plugged hydraulic cooler	Clean debris from hydraulic cooler
Excessive transmission noise (Under load or no load)	Parts worn or damaged in transmission	Have your John Deere Dealer repair
Excessive tractor vibration	Transmission or transmission pump malfunction	Have your John Deere Dealer repair
	Parts worn or damaged in transmission	Have your John Deere Dealer repair
Excessive noise	Transmission pump malfunction	Have your John Deere Dealer repair
	Excessive backlash in gear train	Have your John Deere™ Dealer repair
CommandCenter™ hydraulic display icon appears	Axle filter is restricted	Replace axle filter
Entire hydraulic system functions are slow	Hydraulic filters are restricted	Replace hydraulic filters
Entire hydraulic system fails to function	Clogged hydraulic filters	Replace hydraulic filters
	Oil cooler air passages clogged	Clean oil cooler
	High-pressure internal leak	See your John Deere Dealer
Hydraulic oil overheats	Oil cooler air passages clogged	Clean oil cooler
	Internal hydraulic leak	See your John Deere Dealer

Troubleshooting - Procedures

Symptom	Problem	Solution
	Implement hydraulic load not matched to tractor	See your John Deere Dealer

AK08008,00001B9-19-15NOV19

Hydraulic System

Symptom	Problem	Solution
Entire hydraulic system fails to function	Low oil supply	Fill system with correct oil
	Clogged hydraulic filters	Replace hydraulic filter
	Oil cooler air passages clogged	Clean oil cooler
	High-pressure internal leak	See your Dealer
Hydraulic oil overheats	Low oil supply	Fill system with correct oil
	Oil cooler air passages clogged	Clean oil cooler
	Clogged transmission oil filter	Replace transmission filter
	Internal hydraulic leak	See your John Deere Dealer
	Implement hydraulic load not matched to tractor	See your John Deere Dealer
CommandCenter™ hydraulic display icon appears	Axle filter is restricted	Replace axle filter
Entire hydraulic system functions are slow	Hydraulic filters are restricted	Replace hydraulic filters

AK08008,00001BA-19-15NOV19

Brakes

Symptom	Problem	Solution
No solid pedal feel (Engine Off)	Air in system	See your John Deere Dealer
Pedal settles (Engine Off)	Brake piston seals leaking	See your John Deere Dealer
	Brake bleeder not correctly closed	See your John Deere Dealer
	Leakage in pump control system at brake valve	See your John Deere Dealer
Excessive pedal travel or kickback (With Engine On)	Leakage in pump control system	See your John Deere Dealer
	Air in system	See your John Deere Dealer
	Brake piston seals leaking	See your John Deere Dealer

Troubleshooting - Procedures

Symptom	Problem	Solution
	Brake bleeder not correctly closed	See your John Deere Dealer

AK08008,00001BB-19-15NOV19

Hitch

Symptom	Problem	Solution
Insufficient transport clearance	Center link too long	Adjust center link
	Lift links too long	Adjust lift links
	Implement not level	Level implement
	Implement not correctly adjusted	See implement operator's manual
	Upper height limit not correctly set	Adjust upper height limit
Hitch fails to follow lever	Malfunction in lever position sensor circuit or hitch position sensor	See your Dealer
Poor position control	Load/depth mix control on wrong position	Turn load/depth mix control to the left
	System is reset	Enable system
	Calibration fuse inadvertently moved	Be sure key switch is OFF and move fuse to spare position
	Malfunction in lever position sensor circuit or hitch position sensor	See your John Deere Dealer
Hitch drops slowly	Hitch rate-of-drop control not correctly set	Adjust rate-of-drop knob
Hitch fails to lift or lifts slowly	Excessive load on hitch	Reduce load
	Center link in wrong position	Readjust center link
Implement will not operate at desired depth	Lift links too short	Adjust lift links
	Lack of penetration	See implement operator's manual
	Draft sensor failed	See your John Deere Dealer
Insufficient or no hitch response to draft load	Load/depth mix control in wrong position	Turn load/depth mix control to the right
	System is reset	Enable system
	Rate-of-drop too slow	Adjust rate-of-drop knob

Troubleshooting - Procedures

Symptom	Problem	Solution
Hitch too responsive	Load/depth mix control not correctly set	Turn load/depth mix control to the left
Hitch settles too fast after tractor is parked and engine is shut off	Internal circuit leakage	See your John Deere Dealer
Hitch will not move (controls not working, including rear raise/lower switch)	Fuse(s) blown	Replace fuses
	Engine not running	Start engine
Rear raise/lower switch will not move hitch	Failure of raise/lower switch, connector, or wiring harness	See your John Deere Dealer
	Hitch Control Lever in transport position	Move lever out of transport

AK08008,00001BC-19-15NOV19

Selective Control Valve (SCV)

Symptom	Problem	Solution
Remote cylinder will not lift load	Flow blockage	Cycle SCV levers
	Excessive load	Reduce load
	Hoses not completely installed	Attach hoses correctly
	Incorrect remote cylinder size	Use correct size cylinder
Remote cylinder rate of travel too fast or too slow	Incorrect flow rate	Adjust flow rate
Direction of remote cylinder travel is reversed	Incorrect hose connections	Reverse hose connections
Hoses will not couple	Incorrect hose male connectors	Replace connectors with ISO Standard connectors
Detent does not hold or releases too soon	Detent time set incorrectly	Set time correctly
	SCV lever is not being released to neutral	Release SCV lever from detent to neutral in less than 0.8 seconds
SCV lever does not release	SCV float is being "commanded"	Do not push lever down in forward position
	Lever mechanism failed	See your Dealer
Implement does not operate or does not operate correctly	Incorrect hose connections	See hose connection examples in Hydraulic Connections section

Symptom	Problem	Solution
		See your John Deere Dealer

AK08008,00001BD-19-15NOV19

Electrical System

Symptom	Problem	Solution
Voltage indicator flashing when there is low battery voltage (key ON and engine stopped)	Defective battery	Check electrolyte level and specific gravity
	Low charging voltage	See your dealer
	High resistance in charging circuit	See your John Deere dealer
	Indicator malfunction	See your John Deere dealer
Voltage and SERVICE ALERT indicators flashing indicating low charging voltage (engine running)	Low engine speed	Increase speed
	Alternator belt slipping	Check belt tension
	Defective battery	Check electrolyte level and specific gravity
	Defective alternator	See your John Deere dealer
Voltage and SERVICE ALERT indicators flashing indicating excessive charging voltage	Excessive electrical load	Decrease load
	Faulty connection to alternator	Check wiring connections
	Defective regulator	See your John Deere dealer
Voltage indicator flashing indicating excessive charging voltage	Excessive electrical load	Decrease load
	Faulty connection to alternator	Check wiring connections
Batteries will not charge	Defective regulator	See your John Deere dealer
	Loose or corroded connections	Clean and tighten connections
	Sulfated or worn-out batteries	Check electrolyte level and specific gravity
Starter inoperative	Loose or defective alternator belt	Adjust belt tension or replace belts
	Transmission in gear	Place transmission in PARK
	Faulty or maladjusted neutral start switch or starter solenoid malfunction	See your John Deere dealer

Troubleshooting - Procedures

Symptom	Problem	Solution
	Loose or corroded connections	Clean and tighten loose connections
	Low battery output	See your John Deere dealer
	Blown fuse	Replace fuse
Starter cranks slowly	Low battery output	Check electrolyte level and specific gravity
	Crankcase oil too heavy	Use correct viscosity oil
	Loose or corroded connections	Clean and tighten loose connections
Light system does not function; rest of electrical system functions	Blown fuse	Replace fuse
Entire electrical system does not function	Faulty battery connection	Clean and tighten connections
	Sulfated or worn out batteries	Check electrolyte level and specific gravity
	Blown fuse	Replace fuse
Blower malfunctioning	Blower does not work	Check all blower fuses

AK08008,00001BE-19-15NOV19

Operator Enclosure

Symptom	Problem	Solution
Blower not keeping dust out of operator enclosure	Defective seal around filter element	Check seal condition
		Check filter for correct installation
	Defective filter	Replace filter
	Excessive air leak	Seal air leaks
	Blower air flow too low	See Blower Air Flow Too Low in Operator Enclosure Troubleshooting
Blower air flow too low	Clogged filter or air intake screen	Clean
	Heater core or evaporator core clogged	Clean
Heater will not shut off	Heater hoses connected incorrectly	See your John Deere dealer
Air conditioner not cooling	Low voltage	See your John Deere dealer
	Low refrigerant	See your John Deere dealer

Troubleshooting - Procedures

Symptom	Problem	Solution
	Belt slipping	Check belt tension
	Heater on	Turn heater to off position.
	Compressor stuck	Rock compressor pulley back and forth
Intermittent cooling	Air restriction	Clean side screens, radiator and oil cooler/condenser
Water leaking from roof	Plugged air conditioning condensate drain hoses	Clean drain hoses
	Heater hoses leaking	Replace heater hoses
Seat suspension sticking	Foreign objects under seat	Keep area under seat completely clear
Seat suspension not working	Blown fuse	Replace fuse, see Load Center Fuses in Service - Electrical section of this Operator's Manual
Radio does not function	Blown fuse	Replace fuse, see Load Center Fuses in Service - Electrical section of this Operator's Manual

AK08008,00001BF-19-15NOV19

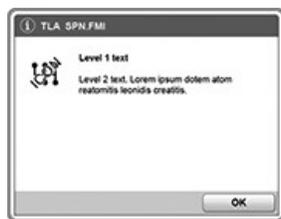
Troubleshooting - Diagnostic Trouble Codes (DTC)

STOP, Service, and Information Alerts on CommandCenter™

CommandCenter™ alert overlays display control unit, diagnostic trouble code (DTC), system, and solution. If condition is out of range, the control unit followed by an industry standard number displays. Numbers to the left of the decimal indicate the system and numbers to the right of decimal indicate the condition.

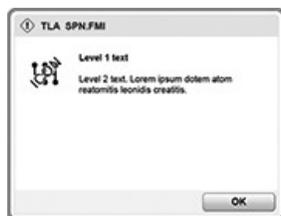
Some alert indicators can be acknowledged by pressing OK. If condition still exists, diagnostic trouble code may reappear later. Follow solution on CommandCenter™. If situation cannot be corrected, contact your John Deere dealer. For more information on DTCs, refer to Diagnostics Center. For access information, see Access Diagnostic Trouble Codes in this Operator's Manual section.

IMPORTANT: Engine will shut down automatically if STOP signal is received when operator is out of the seat for longer than 3 seconds and the transmission control is in PARK. CommandCenter™ display can be reset by cycling key switch.



RXA0167778—UN—06MAY19
Information Alert Overlay

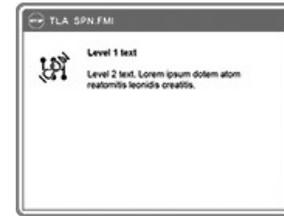
Information Alert — in some situations, information (INFO) indicator light comes on continuously and alarm pattern sounds for 2 seconds, indicating a fault condition. Tractor operations can continue without damage but performance of some functions may be degraded. Operating in a different manner may correct and clear an out-of-range condition.



RXA0167779—UN—06MAY19
Service Alert Overlay

Service Alert — light flashes and an alarm pattern sounds five times. A performance or operational problem has been detected and must be resolved as soon as possible. Continued operations can cause a service alert to escalate into a STOP alert. If appropriate corrective action is not taken soon (service, repair,

operate in a different manner), a significant reduction in performance and/or damage to machine will occur.



RXA0167780—UN—06MAY19
STOP Alert Overlay

STOP Alert — light flashes and an alarm pattern sounds continuously. A serious malfunction requiring immediate attention has occurred. If situation allows, stop operations immediately, reduce engine speed to idle, and shut down engine. Turn key to run position to observe CommandCenter™ display for problem identification and solution. It may be necessary to access the stored codes. See Access Diagnostic Trouble Codes in this Operator's Manual section. Correct problem before restarting. If ignored, damage to machine will occur.

AK08008,00001C0-19-15NOV19

Access Diagnostic Trouble Codes

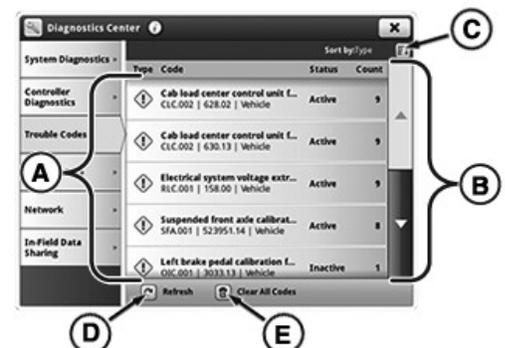
NOTE: If problem is not resolved after cycling power to tractor or following solution on CommandCenter™ page, see your John Deere dealer.

Not all active DTCs are displayed. Follow steps to retrieve stored DTCs.



RXA0133360—UN—26JUL13

1. Select Menu.
2. Select System tab.
3. Select Diagnostics Center icon.
4. Select Trouble Codes tab.



RXA0166979—UN—14MAR19

5. Select desired diagnostic trouble code from list (A).
Use arrow keys (B) to access additional diagnostic trouble codes in the list.

Additional Features on Trouble Codes Page

Sort by: (C) — select to sort list by Code, Controller, Count, Status, or Type.

Refresh (D) — select to display the most up-to-date list of codes and counts. Page automatically refreshes upon entry.

Clear All Codes (E) — select to clear inactive DTCs and reset counts to zero. A message displays to verify action since it cannot be undone.

AK08008,00001C1-19-15NOV19

Service - Storage

Place Tractor in Storage

IMPORTANT: If tractor will not be used for more than three months, the following recommendations for storage and removal from storage will minimize corrosion and deterioration.

NOTE: Whenever possible store tractor in a building or under a roof to avoid damage resulting from prolonged exposure to the elements.

1. Lower hitch.
2. Change engine oil and replace filter (if required).

NOTE: Do not add BioDiesel fuel if placing tractor in storage.

3. Drain fuel tank and add back approximately 19 L (5 gal) of fuel.

IMPORTANT: Final Tier 4/Stage V Engines Only: To determine tractor engine type, see Engine Serial Number in Identification Numbers section of this Operator's Manual. Long-term storage of Diesel Exhaust Fluid (DEF) in vehicle (over six months) is not recommended. If long-term storage is necessary, periodic testing of DEF is recommended to ensure that urea concentration does not fall out of specification.

4. Final Tier 4 and Stage V tractors: Diesel Exhaust Fluid (DEF) has a limited shelf life, but may be stored in vehicle for as long as six months, depending upon storage conditions, see Storing DEF in Diesel Exhaust Fluid (DEF) section of this Operator's Manual. If draining DEF tank is necessary, see Draining DEF Tank in Fuel, Lubricants, and Coolant section of this Operator's Manual for proper procedure.
5. Using plastic bags and either tape or tie-bands, seal air inlets and exhaust, crankcase vent tube, radiator overflow hose, and transmission-hydraulic system fill cap.

IMPORTANT: Prevent damage to tractor emissions system. Battery disconnect switch with indicator light: Tractor is equipped with an engine which uses a Selective Catalytic Reduction (SCR) system. Light is illuminated during Diesel Exhaust Fluid (DEF) purge from system. Do not turn disconnect switch off until light goes out.

Battery disconnect switch without indicator light: Engine not equipped with SCR system. No waiting period is required before turning off switch.

NOTE: See Battery Disconnect Switch in Engine Operation section of this Operator's Manual.

6. If tractor is:
 - Equipped with battery disconnect switch with indicator light, wait until indicator light has gone out. Then go to step 7.
 - Not equipped with battery disconnect switch indicator light. Go to step 7.
7. Turn off battery disconnect switch.
8. Disconnect batteries. See Service Batteries and Connections in Service – Electrical section of this Operator's Manual.
9. Remove and store batteries in a cool, dry location. Keep batteries charged.¹
10. Coat all exposed (machined) metal surfaces such as lift cylinders and steering cylinder rods with light coat of grease.
11. Lubricate all grease fittings.

If tractor must be stored outside, follow these additional precautions.

1. Cover instrument panel, control levers, and seat with sheets of material or cardboard to protect against sun rays.
2. Thoroughly clean tractor, touching up any scratched or chipped painted surfaces.
3. Wax or cover entire tractor with waterproof material.
4. Raise tires or tracks off the ground and/or cover them to protect from heat and sunlight.

AK08008,00001C2-19-15NOV19

Remove Tractor from Storage

1. Remove all coverings placed in or on tractor while preparing for storage.

IMPORTANT: To avoid engine damage, unseal crankcase vent tube.

2. Unseal all openings sealed during storage.
3. Remove any accumulated trash or debris, especially around engine and inside engine compartment.

IMPORTANT: If air conditioning compressor is locked up, engine operation with compressor clutch engaged may damage drive belt or compressor.

4. Rotate air conditioner compressor pulley several turns. If pulley does not turn freely, compressor components may be seized, see your John Deere dealer.

¹ Disconnect battery ground cable for short-term storage periods (20 to 90 days).

5. Check auxiliary drive belt for cracking and, if serviceable, install auxiliary drive belt on air conditioning compressor pulley.
6. Check under and around tractor for any evidence of fluid leaks.

IMPORTANT: If transmission-hydraulic oil level was correct at time of storage, and there is no evidence of hydraulic oil leaks, there should be no concern starting tractor even if transmission-hydraulic oil sight glass level is low. Over a period of storage, hydraulic oil may drain into transmission, causing sight glass to read low even when adequate amount of oil is available. If there are indications of oil leaks, do not start tractor until the source has been determined and repairs made. If there are no leakage indications, but there is any doubt about oil level at time of storage, check hydraulic oil level as soon as possible after starting tractor.

7. Check transmission-hydraulic oil level. Add oil as required.
8. Check all other fluid levels. Fill as required.
9. Fill fuel tank.

IMPORTANT: To confirm which engine your tractor is equipped with, see Engine Serial Number in Identification Numbers section of this Operator's Manual.

10. (Final Tier 4 and Stage V engines) If Diesel Exhaust Fluid (DEF) tank has not been drained, test urea concentration, see Testing Diesel Exhaust Fluid (DEF) in Diesel Exhaust Fluid (DEF) section of this Operator's Manual. If concentration is not within specifications, drain and replace with new or good DEF. If DEF tank has been drained, fill tank, see Fill Diesel Exhaust Fluid (DEF) Tank in Diesel Exhaust Fluid (DEF) section of this Operator's Manual for appropriate procedures.
11. Inspect tracks for cuts, rips or tears, see Tracks section of this Operator's Manual.
12. Perform all Daily or 10 Hour services and any other scheduled services as required, see 10 Hour or Daily Service in Service - Record Charts section of this Operator's Manual.
13. Install batteries and connect cables.
14. Turn battery disconnect switch on.
15. Turn key switch to RUN position for one minute to allow fuel system to prime.

NOTE: While operating engine at low idle, visually check all instruments and indicators to ensure they function properly.

16. Start and operate engine at low idle for several minutes.
17. Check tractor functions and systems, including air conditioning.
18. Warm up tractor before putting tractor under load.

AK08008,00001C3-19-07APR21

Specifications

Engine: John Deere

[Ag]	9370R	9420R	9470R	9520R
POWER				
Rated Engine power PS ^a (hp ISO) at 2100 engine rpm (EU 2016/1628)(97/68/EC)	370 hp (272 kW)	420 hp (309 kW)	470 hp (346 kW)	520 hp (382 kW)
Rated Engine power PS ^a (hp ISO) at 2100 engine rpm (ECE-R24)	355 hp (261 kW)	403 hp (297 kW)	451 hp (332 kW)	499 hp (367 kW)
Rated PTO power (hp SAE) at rated PTO speed (1895 erpm) ^{bc}	335 hp (249 kW)			
ENGINE				
Manufacturer	John Deere PowerTech™ 9.0 L (548 in ³) PSS	John Deere PowerTech™ 13.5 L (824 in ³) PSS		
Type	Diesel, In-Line, 6-Cylinder, Wet-Sleeve Cylinder Liners with 4 Valves-In-Head			
Aspiration	Dual Series Turbocharger With Fixed Geometry First Stage-Variable Geometry Second Stage - Air-to-Air Aftercooling and Cooled Exhaust Gas Recirculation			
Filter, engine air	Dual-Stage with Exhaust Aspiration			
Displacement	9.0 L (548 in ³)	13.5 L (824 in ³)		
Bore and Stroke	118.4 x 136 mm (4.66 x 5.35 in)	132 x 165 mm (5.20 x 6.50 in)		
Compression Ratio	16.0:1			
Rated Speed	2100 rpm			
Lubrication	Full-Pressure, Full-Flow Filtration with Bypass			
Filter, Oil	Replaceable Cartridge Style Oil Filter	Replaceable Spin-On Style Oil Filter		
FUEL SYSTEM				
Injection Pump Type	Electronically-Controlled, High-Pressure Common Rail With Electric Fuel Transfer Pump (Self-Priming)	Electronically-Controlled Unit Injectors, Electronic Governor (Self-Priming)		
Filter System	Two-Stage with Water Separator and Service Indicator Light			
Filter, Primary	10-Micron Replaceable Cartridge with Water Indication Sensor and Drain			
Filter, Secondary	2-Micron Spin-On Element			
Required Fuel Type	Ultra-Low Sulfur Diesel (B20 Diesel Compatible)			

^aGerman term for horsepower in which one PS is equivalent to .9863 SAE horsepower

^bDoes not include optional equipment losses.

^c80% Factory Observed MOE value.

[Scraper]	9470R	9520R
POWER		
Rated Engine power PS ^a (hp ISO) at 2100 engine rpm (EU 2016/1628)(97/68/EC)	470 hp (346 kW)	520 hp (382 kW)
Rated Engine power PS ^a (hp ISO) at 2100 engine rpm (ECE-R24)	451 hp (332 kW)	499 hp (367 kW)
ENGINE		
Manufacturer	John Deere PowerTech™ PSS 13.5 L (824 in ³)	
Type	Diesel, In-Line, 6-Cylinder, Wet-Sleeve Cylinder Liners with 4 Valves-In-Head	
Aspiration	Dual Series Turbocharger With Fixed Geometry First Stage-Variable Geometry Second Stage - Air-to-Air Aftercooling and Cooled Exhaust Gas Recirculation	
Filter, engine air	Dual-Stage with Exhaust Aspiration	
Displacement	13.5 L (824 in ³)	
Bore and Stroke	132 x 165 mm (5.20 x 6.50 in)	

Specifications

[Scraper]	9470R	9520R
Compression Ratio	16.0:1	
Rated Speed	2100 rpm	
Lubrication	Full-Pressure, Full-Flow Filtration with Bypass	
Filter, Oil	Replaceable Spin-On Style Oil Filter	
FUEL SYSTEM		
Injection Pump Type	Electronically-controlled, electronic unit injectors (self-priming)	
Filter system	Two-Stage with Water Separator and Service Indicator Light	
Filter, primary	10-Micron Replaceable Cartridge with Water Indication Sensor and Drain	
Filter, secondary	2-Micron Spin-On Element	
Required Fuel Type	Ultra-Low Sulfur Diesel (B20 Diesel Compatible)	

^aGerman term for horsepower in which one PS is equivalent to .9863 SAE horsepower

KD34109,00008F7-19-24MAR21

Engine: QSX15 Cummins®

[Ag]	9570R	9620R
POWER		
Rated Engine power PS ^a (hp ISO) at 2100 engine rpm (EU 2016/1628)(97/68/EC)	570 hp (419 kW)	620 hp (456 kW)
Rated Engine power PS ^a (hp ISO) at 2100 engine rpm (ECE-R24)	547 hp (402 kW)	595 hp (438 kW)
Rated PTO power (hp SAE) at rated PTO speed (1895 erpm) ^{bc}	335 hp (249 kW)	335 hp (249 kW)
ENGINE		
Manufacturer	Cummins® QSX15 15 L (912 in ³)	
Type	Diesel, In-Line, 6-Cylinder, Wet-Sleeve Cylinder Liners with 4 valves-in-head	
Aspiration	Single variable geometry turbocharger air-to-air aftercooling and cooled exhaust gas recirculation	
Filter, engine air	Dual-stage with exhaust aspiration	
Displacement	15 L (912 in ³)	
Bore and Stroke	137 x 169 mm (5.39 x 6.65 in)	
Compression Ratio	17.2:1	
Rated Speed	2100 rpm	
Lubrication	Full-pressure, full-flow filtration with bypass	
Filter, Oil	Replaceable spin-on style oil filter	
FUEL SYSTEM		
Injection Pump Type	High-Pressure Common Rail (self-priming)	
Filter System	Two-stage with water separator and service indicator light	
Filter, Primary	7-micron spin-on style with water in fuel sensor and drain	
Filter, Secondary	3-micron spin-on element	
Required Fuel Type	Ultra-Low Sulfur Diesel (B8 Diesel Compatible)	

^aGerman term for horsepower in which one PS is equivalent to .9863 SAE horsepower

^bDoes not include optional equipment losses.

^c80% Factory Observed MOE value.

[Scraper]	9570R	9620R
POWER		
Rated Engine power PS ^a (hp ISO) at 2100 engine rpm (EU 2016/1628)(97/68/EC)	570 hp (419 kW)	620 hp (456 kW)
Rated Engine power PS ^a (hp ISO) at 2100 engine rpm (ECE-R24)	547 hp (402 kW)	595 hp (438 kW)

Specifications

[Scraper]	9570R	9620R
ENGINE		
Manufacturer	Cummins® QSX15 15 L (912 in ³)	
Type	Diesel, In-Line, 6-Cylinder, Wet-Sleeve Cylinder Liners with 4 valves-in-head	
Aspiration	Single variable geometry turbocharger air-to-air aftercooling and cooled exhaust gas recirculation	
Filter, engine air	Dual-stage with exhaust aspiration	
Displacement	15 L (912 in ³)	
Bore and Stroke	137 x 169 mm (5.39 x 6.65 in)	
Compression Ratio	17.2:1	
Rated Speed	2100 rpm	
Lubrication	Full-pressure, full-flow filtration with bypass	
Filter, Oil	Replaceable spin-on style oil filter	
FUEL SYSTEM		
Injection Pump Type	High-Pressure Common Rail	
Filter System	Two-stage with water separator	
Filter, Primary	7-micron spin-on style with water in fuel sensor and drain	
Filter, Secondary	3-micron spin-on element	
Required Fuel Type	Ultra-Low Sulfur Diesel (B8 Diesel Compatible)	

^aGerman term for horsepower in which one PS is equivalent to .9863 SAE horsepower

KD34109,00008CE-19-18MAR21

Capacities

[Ag]	9370R	9420R	9470R	9520R	9570R	9620R
FUEL TANK	1211.3 L (320.0 gal) ^a	1490.0 L (394.0 gal) ^b				
DEF TANK	120.0 L (31.7 gal)					
COOLING SYSTEM (Includes deaeration tank capacity)						
PowerTech™ Plus 13.5 L PSS	50.0 L (13.2 gal)	56.5 L (14.9 gal)			—	
QSX15 Cummins®	—				62.0 L (16.3 gal)	
ENGINE CRANKCASE OIL (Includes filter)						
PowerTech™ Plus 13.5 L PSS	34.0 L (9.0 gal)	48.0 L (12.7 gal)			—	
QSX15 Cummins®	—				43.5 L (11.5 gal) ^c	
HYDRAULIC/TRANSMISSION/AXLE OIL						
Without 3-point rear hitch and PTO	276.0 L (73.0 gal)	220.0 L (58.0 gal)				
With 3-point rear hitch and PTO	284.0 L (75.0 gal)	227.0 L (60.0 gal)				
HYDRAULIC RESERVOIR REFERENCE MARKS						
FULL COLD Mark	93.0 L (24.5 gal)					
MIN COLD Mark	81.0 L (21.5 gal)					
High Volume Take Out Oil Mark (Dot half way up the sight tube) ^d	140.0 L (37.0 gal)					
TRANSMISSION/HYDRAULIC RESERVOIR						

Specifications

[Ag]	9370R	9420R	9470R	9520R	9570R	9620R
Standard Flow	265.0 L (70.0 gal) ^a	208.0 L (55.0 gal) ^b				
High Flow	268.5 L (71.0 gal) ^a	212.0 L (56.0 gal) ^b				

^aSingle reduction axle

^bDouble reduction axle

^c41.6 L Crankcase, 1.9 Prefill Filter (11.0 gal Crankcase, 0.5 gal Pre-fill Filter)

^dFor applications requiring large volumes of oil (For example an Air Seeder)

[Scraper]	9470R	9520R	9570R	9620R
FUEL TANK	1490.0 L (394.0 gal) ^a			
DEF TANK	120.0 L (31.7 gal)			
COOLING SYSTEM (Includes deaeration tank capacity)				
PowerTech™ Plus 13.5 L PSS	56.5 L (14.9 gal)		—	
QSX15 Cummins®	—		62.0 L (16.3 gal)	
ENGINE CRANKCASE OIL (Includes filter)				
PowerTech™ Plus 13.5 L PSS	48.0 L (12.7 gal)		—	
QSX15 Cummins®	—		43.5 L (11.5 gal) ^b	
HYDRAULIC RESERVOIR REFERENCE MARKS				
FULL COLD Mark	93.0 L (24.5 gal)			
MIN COLD Mark	81.0 L (21.5 gal)			
High Volume Take Out Oil Mark (Dot half way up the sight tube) ^c	140.0 L (37.0 gal)			
HYDRAULIC/TRANSMISSION/AXLE OIL				
Without 3-point rear hitch and PTO	223.0 L (59.0 gal) ^a			

^aDouble reduction axle

^b41.6 L Crankcase, 1.9 L Prefill filter (11.0 gal Crankcase, 0.5 gal Prefill filter)

^cFor applications requiring large volumes of oil (For example pulling 3 scrapers.)

KD34109,00008F6-19-24MAR21

Hydraulics

[Ag]	9420R	9470R	9520R	9570R	9620R
Type	Closed Center Pressure/Flow Compensated				
Selective Control Valves	Standard — 4; Optional — 5,6 and 8				
Maximum Pressure	20000 kPa (2900 psi)				
Maximum pump flow-base hydraulics	220 L/min (58 gpm)				
Maximum pump flow-high flow	435 L/min (115 gpm)				
Available flow at a single SCV - 1/2" coupler	132 L/min (35 gpm)				
Approximate flow values @ 2100 Engine rpm	Approximate flow values @ 2100 Engine rpm				
Main Hydraulic Pump	Axial Piston				
Displacement	90cm ³ (5.4 in ³)				
Available Flow Two 1/2" SCVs	220 L/min (58 gpm)				
Selective Control Valves 1/2" (SCVs)	Electro-hydraulic				
High Flow	Approximate flow values @ 2100 Engine rpm				
Main Hydraulic Pump	Axial Piston				
Displacement	90 cm ³ (5.4 in ³)				
Second Hydraulic Pump	Axial Piston				
Displacement	85 cm ³ (5.2 in ³)				
Available Flow					

Specifications

[Ag]	9420R	9470R	9520R	9570R	9620R
Top Two 1/2" SCVs	215 L/min (57 gpm)				
Bottom Three 1/2" SCVs	220 L/min (58 gpm)				
At One 3/4" SCV I (3/4" SCV is Field Installed Only)	159 L/min (42 gpm)				

[Scraper]	9470R	9520R	9570R	9620R
Standard Approximate flow values @ 2100 Engine rpm				
Type	Closed-center, pressure/flow compensated			
Main hydraulic pump	Axial Piston			
Displacement	90 cm ³ (5.5 in ³)			
Maximum pressure	20684 kPa (207 bar) (3000 psi)			
Maximum pump flow with Base Hydraulics	219 L/min (58 gpm)			
Available flow at a single SCV - 1/2" coupler	132 L/min (35 gpm)			
Available flow at a single SCV with High-Flow - 3/4" coupler	159 L/min (42 gpm)			
Available Flow Two SCVs	219 L/min (58 gpm)			
Selective Control Valves (SCVs)	Electro-hydraulic			
Selective Control Valves (SCVs)	4 Standard, 6 Optional			
High Flow Approximate flow values @ 2100 Engine rpm				
Type	Closed Center Pressure/Flow Compensated/Partially Charged			
Main Hydraulic Pump	Axial Piston			
Displacement	90 cm ³ (5.5 in ³)			
Second Hydraulic Pump	Axial Piston			
Displacement	85 cm ³ (5.2 in ³)			
Maximum Pressure	20684 kPa (207 bar) (3000 psi)			
Maximum Pump Flow From Both Pumps	435 L/min (115 gpm)			
Available Flow at One 3/4" SCV	159 L/min (42 gpm)			
Available Flow Multiple 3/4" SCVs	435 L/min (115 gpm)			
Selective Control Valves (SCVs)	Electro-hydraulic			

KD34109,00008F8-19-24MAR21

Transmission and Power Train

[Ag]	9370R	9420R	9470R	9520R	9570R	9620R
TRANSMISSION						
e18™ PowerShift™ Transmission with Efficiency Manager™ (40 km/h (25 mph)) ^a (18 forward, 6 reverse)	Standard					
AXLE FINAL DRIVES	Inboard planetary with single reduction axles	Inboard planetary with double-reduction axles				
FRONT AND REAR AXLES						
110 x 3048 mm (4.33 x 120 in), Single Reduction Axles	Standard	—				
120 x 3048 mm (4.72 x 120 in), (Dual Taper Hub)	Optional	Standard				
HydraCushion™ front axle suspension	—	Optional				Standard

Specifications

[Ag]	9370R	9420R	9470R	9520R	9570R	9620R
DIFFERENTIAL LOCK						
Full-Locking electrohydraulic	Standard					
STEERING						
Hydraulic power-steering with electric pump back-up	Standard					
ActiveCommand Steering (ACS) TM	Optional					
BRAKES						
Hydraulic power, wet disc, self-adjusting on front and rear axle	Standard					
Hydraulic Trailer Brakes	Optional					

^aFor ground speed data, see *Ground Speeds—e18TM PowerShiftTM Transmission* in this Operator's Manual section.

[Scraper]	9470R	9520R	9570R	9620R
TRANSMISSION				
e18 TM PowerShift TM Transmission with Efficiency Manager TM (40 km/h (25 mph)) ^a (18 forward, 6 reverse)	Standard			
AXLE FINAL DRIVES				
Inboard planetary with double-reduction axle				
FRONT and REAR AXLES				
120 x 3048 mm diameter (4.72 x 120 in), (Dual Taper Hub) Double Reduction Axles	Standard			
HydraCushion TM front axle suspension	Optional			Standard
STEERING				
Hydraulic power-steering w/electric pump back-up	Standard			
ActiveCommand Steering (ACS) TM	Optional			
DIFFERENTIAL LOCK: Full-Locking electrohydraulic				
Standard				
BRAKES				
Hydraulic power, wet disk, self adjusting on front and rear axle	Standard			

^aFor ground speed data, see *Ground Speeds—e18TM PowerShiftTM Transmission* in this Operator's Manual section.

KD34109,00008D3-19-19MAR21

PTO [Ag], Hitch [Ag], and Drawbar

[Ag]	9370R	9420R	9470R	9520R	9570R	9620R
3-POINT HITCH — Electric-Hydraulic with Draft Sensing						
Category 4N/3 with Quik-Coupler						
6804 kg (15000 lb) ^a	Optional			—		
9072 kg (20000 lb) ^b	Optional			—		
Category 4N/4 with Quik-Coupler						
6804 kg (15000 lb) ^a	Optional					
9072 kg (20000 lb) ^b	Optional					
DRAWBAR						
For Drawbar Load Limitations, see Drawbar Load Limitations (Agricultural Tractors) in the Drawbar [Ag] section of this Operator's Manual.						

Specifications

[Ag]	9370R	9420R	9470R	9520R	9570R	9620R
REAR PTO (POWER TAKE-OFF) — Independent						
1-3/4 in, 20-spline 1000-rpm	Optional					

^aAll axle diameters allowed

^b120 mm axle diameter required

[Scraper]	9470R	9520R	9570R	9620R
DRAWBAR				
For Drawbar Load Limitations, see Drawbar Load Limitations (Scraper Tractors) in the Drawbar [Scraper] section of this Operator's Manual.				

KD34109,00008D4-19-23MAR21

Electrical

[Ag]	9370R	9420R	9470R	9520R	9570R	9620R
Alternator/Battery	Standard — 200 amps/12 Volt; Optional — 240 amps/12 Volt					
Total Cold Cranking Amps	2775 (3-925 CCA) ^a				3700 (4-925 CCA) ^b	

^aThree batteries in parallel, negative ground

^bFour batteries in parallel, negative ground

[Scraper]	9470R	9520R	9570R	9620R
Alternator/Battery	Standard — 200 amps/12 Volt; Optional — 240 amps/12 Volt			
Total cold cranking amps	2775 (3-925 CCA) ^a			

^aThree batteries in parallel, negative ground

KD34109,00008D5-19-22MAR21

Integrated Technology

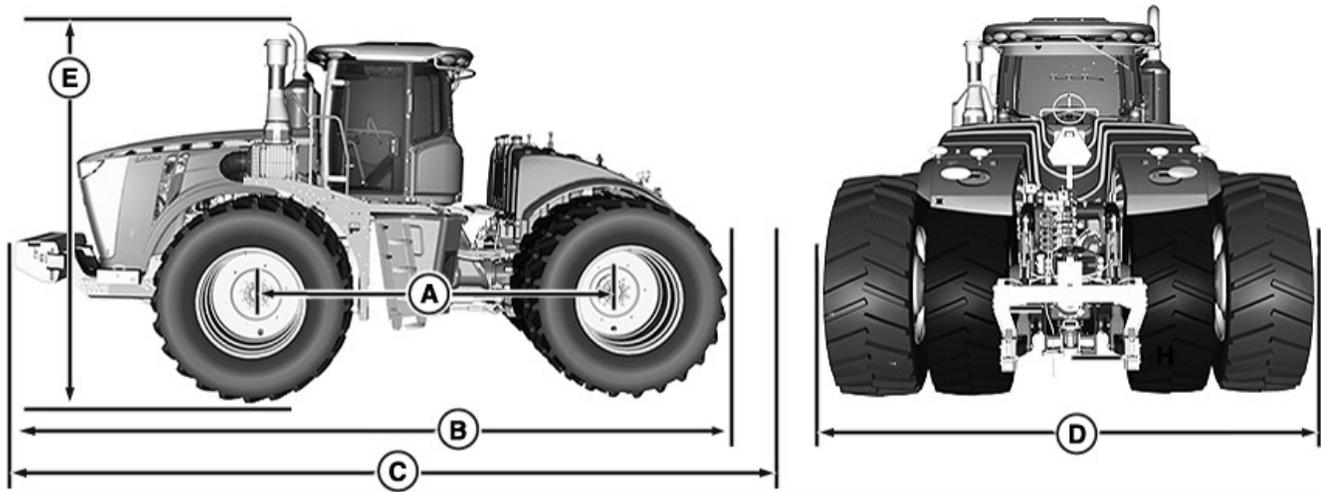
AutoTrac™ Ready	Standard
Modular Telematics Gateway (MTG)	Available with JDLink™ hardware, activations, and Ethernet Harness ^a
Service ADVISOR™ Remote	Available with JDLink™ hardware and activations
CommandCenter™	
8.4 inch (213 mm) Video with 4200 Processor	Single video input ^b
10.0 inch (254 mm) Video with 4600 Processor	Four video inputs ^b

^aAvailability dependent upon destination

^b(Tyco Connector PN 776536-1) For camera using PAL or NTSC signal. Integrated behind rear cab cover. Camera and extension harness available through parts.

KD34109,00008D6-19-23MAR21

Overall Dimensions



RXA0153371—UN—22AUG16

[Ag]	9370R ^a	9420R ^b	9470R ^b	9520R ^b	9570R ^b	9620R ^b
LENGTH						
Wheelbase (A)	3807 mm (149.9 in)	3912 mm (154 in)				
Overall Length with front weights						
Excluding hitch and coupler (B)	7593 mm (298.9 in)	7697 mm (303 in)				
Including hitch and coupler (C)	8311 mm (327.2 in)	8416 mm (331.3 in)				
OVERALL WIDTH						
Axle Length	3048 mm (120 in)					
Axle Diameter—Standard	110 mm (4.3 in)	120 mm (4.7 in)				
Axle Diameter—Optional	120 mm (4.7 in)	—				
With outside duals (D)	4900 mm (192.9 in)					
OVERALL HEIGHT^c (E)						
Top of Roof	3728 mm (146.8 in)					
Top of Beacon	3939 mm (155.1 in)					
Top of Exhaust						
9L and 13.5L	3705 mm (145.9 in)					—
15L	—					4174 mm (164.3 in)
TURNING RADIUS						
Group 48 Tires	5547 mm (18.2 ft)	6035 mm (19.8 ft)				
GROUND CLEARANCE						
Drawbar ^d	419.1 mm (16.5 in)					
ESTIMATED SHIPPING WEIGHT						

Specifications

[Ag]	9370R ^a	9420R ^b	9470R ^b	9520R ^b	9570R ^b	9620R ^b
Tractor equipped with Tier 4/Stage V engine, standard tires, no PTO and no 3-point hitch	17780 kg (39200 lb)	19370 kg (42704 lb)	19750 kg (43550 lb)		19690 kg (43420 lb)	
Maximum Ballast Level	22105 kg (48700 lb)		24721 kg (54500 lb)	27216 kg (60000 lb) ^e		

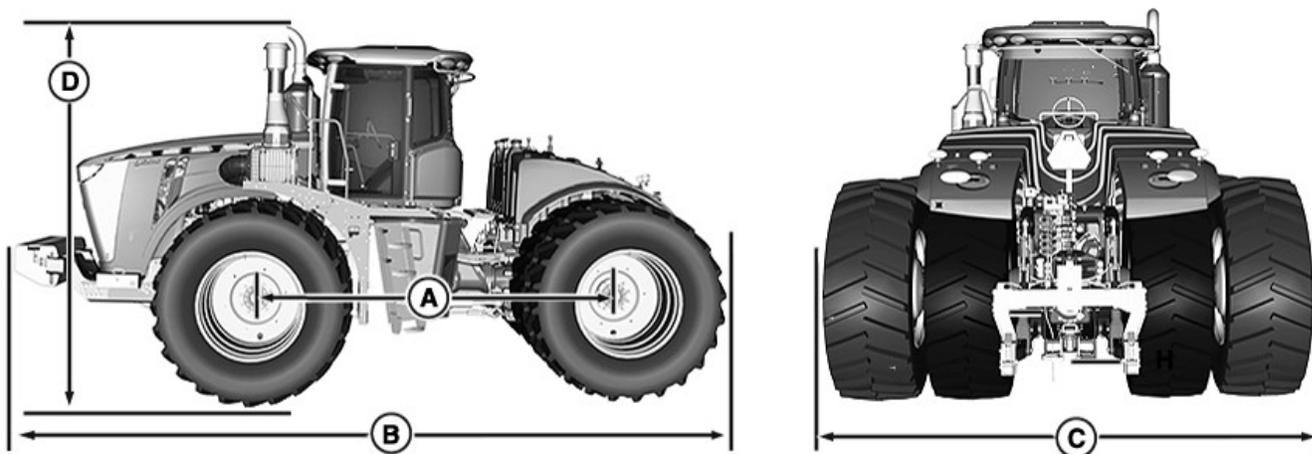
^aSingle Reduction Axle

^bDouble Reduction Axle

^cWith largest Group 48 tire offered

^dGround Clearances were calculated using Group 48 tires

^e24494 kg (54000 lb) for agricultural land leveling operations. See Agricultural Heavy-Duty Land Leveling Package [Ag] in this section of this Operator's Manual.



RXA0175585—UN—26FEB20

[Scraper]	9470R	9520R	9570R	9620R
LENGTH				
Wheelbase (A)	3912 mm (154 in)			
Overall Length (with front weights) (B)	7697 mm (303 in)			
WIDTH				
Overall Width (Wide Tires) (C)	4496 mm (177.7 in)			
Overall Width (Narrow Tires) (C)	4420 mm (174 in)			
Axle Length	3048 mm (120 in)			
Axle Diameter (std.)	120 mm (4.72 in)			
OVERALL HEIGHT^a (D)				
Top of Roof	3782 mm (148.9 in)			
Top of Beacon	3939 mm (155.1 in)			
Top of Exhaust				
13.5L	3705 mm (145.9 in)			—
15L	—			4174 mm (164.3 in)
TURNING RADIUS				
Group 48 Tires	6035 mm (19.8 ft)			
GROUND CLEARANCE				

Specifications

[Scraper]	9470R	9520R	9570R	9620R
Drawbar	447 mm (17.6 in)			
Maximum Ballast Level	24494 kg (54000 lb)			
Estimated Shipping Weight ^b	19030 kg (41950 lb)		18970 kg (41820 lb)	

^aWith largest Group 48 tire offered

^bTractors equipped with standard tires

KD34109,00008F9-19-24MAR21

Ground Speeds—e18™ PowerShift™ Transmission

Forward Speeds

Gear	Tire Group	
	47	48
	Rolling Circumference mm (in)	
	5850 (230)	6165 (243)
Ground Speeds ^a km/h (mph)		
1	4.0 (2.5)	4.1 (2.6)
2	5.0 (3.1)	5.0 (3.1)
3	5.5 (3.4)	5.6 (3.5)
4	6.1 (3.8)	6.2 (3.9)
5	6.8 (4.2)	6.8 (4.3)
6	7.6 (4.7)	7.7 (4.8)
7	8.4 (5.2)	8.5 (5.3)
8	9.3 (5.8)	9.4 (5.8)
9	10.3 (6.4)	10.4 (6.5)
10	11.4 (7.1)	11.6 (7.2)
11	12.6 (7.9)	12.8 (8.0)
12	14.1 (8.7)	14.2 (8.8)
13	15.6 (9.7)	15.7 (9.8)
14	17.3 (10.8)	17.5 (10.9)
15	21.4 (13.3)	21.6 (13.4)
16	26.3 (16.4)	26.6 (16.4)
17	32.4 (20.1)	32.7 (20.2)
18	39.8 (24.7)	40.3 (24.8)

^aGround speeds are at a rated engine speed of 2100 erpm (unless otherwise noted) using the rolling circumference.

Reverse Speeds

Gear	Tire Group	
	47	48
	Rolling Circumference mm (in)	
	5850 (230)	6165 (243)
Ground Speeds ^a km/h (mph)		
R1	4.0 (2.5)	4.1 (2.6)
R2	5.5 (3.4)	5.6 (3.5)
R3	6.1 (3.8)	6.2 (3.9)
R4	8.4 (5.2)	8.5 (5.3)

Gear	Tire Group	
	47	48
	Rolling Circumference mm (in)	
	5850 (230)	6165 (243)
Ground Speeds ^a km/h (mph)		
R5	9.3 (5.8)	9.4 (5.8)
R6	12.6 (7.9)	12.8 (8.0)

^aGround speeds are at a rated engine speed of 2100 erpm (unless otherwise noted) using the rolling circumference.

KD34109,00008DB-19-19MAR21

Agricultural Heavy-Duty Land Leveling Package [Ag]

- Required to maintain warranty if tractor is used to pull implements with very high drawbar loads in an agricultural application over 150 hours but less than half the annual usage of the tractor.
- Never use tires larger than 710 mm. Maximum outer tread spacing is 3690.6 mm (145.3 in).
- Must not exceed 24494 kg (54000 lb) maximum ballast level.
- Must be equipped with Cat 5 drawbar with 4989 kg (11000 lb) vertical load limit.
- Must not exceed 8391 kg (18500 lb) vertical drawbar load. (Requires separately ordered implement drawbar.)
- Configuration not approved for commercial scraper applications.
- See your John Deere dealer for additional information.

KD34109,00008F5-19-24MAR21

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.

Free Replacement

Any new battery which becomes unserviceable (not merely discharged) due to defects in material or workmanship within 90 days of purchase will be replaced free of charge. Installation costs will be covered by warranty if (1) the unserviceable battery was installed by a John Deere factory or dealer, (2) failure occurs within 90 days of purchase, and (3) the replacement battery is installed by a John Deere dealer.

Pro Rata Adjustment

Any new battery which becomes unserviceable (not merely discharged) due to defects in material or workmanship more than 90 days after purchase, but before the expiration of the applicable adjustment period, will be replaced upon payment of the battery's current list price less a pro rata credit for unused months of service. The applicable adjustment period is determined from the Warranty Code printed at the top of the battery and chart below. Installation costs are not covered by warranty after 90 days from the date of purchase.

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.

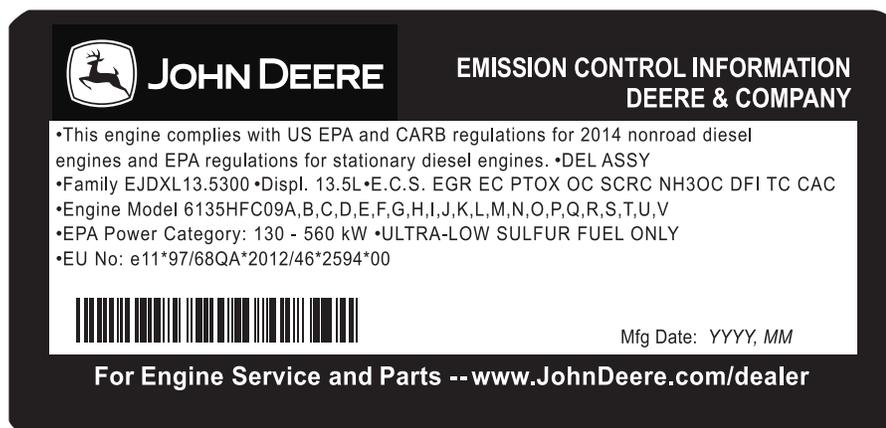
Pro Rata Months of Adjustment

Warranty Code	Warranty Period
A	40 Months
B	36 Months
C	24 Months

NOTE: If your battery is not labeled with a warranty code, it is a warranty code "B".

DX,BATWAR,NA-19-16APR92

Emissions Control System Certification Label



RG24291—UN—18SEP13

Engine Emissions Label

CAUTION: Statutes providing severe penalties for tampering with emissions controls may apply to the user or dealer.

The emissions warranty applies to those engines marketed by John Deere that have been certified by the United States Environmental Protection Agency (EPA) and/or California Air Resources Board (CARB); and used in the United States and Canada in Non-road equipment. The presence of an emissions label like the one shown signifies that the engine has been certified with the EPA and/or CARB. The EPA and CARB warranties only apply to new engines having the certification label affixed to the engine and sold as stated above in the geographic areas. The presence of an EU number signifies that the engine has been certified with the European Union countries per Directive 97/68/EC. The EPA and/or CARB emissions warranties do not apply to the EU countries.

The emissions label has applicable US EPA and/or CARB regulatory year. The regulatory year determines which warranty statement is applicable to engine. See "EPA Non-road Emissions Control Warranty Statement—Compression Ignition" and "CARB Non-road Emissions Control Warranty Statement—Compression Ignition". For additional regulatory year warranty statements, see www.JohnDeere.com or contact the nearest John Deere service dealer for assistance.

Emission Control System(s) Laws

The U.S. EPA and California ARB prohibit the removal or rendering inoperative of any device or element of design installed on or in engines/equipment in compliance with applicable emission regulations prior to or after the sale and delivery of the engines/equipment to the ultimate purchaser.

KD34109,00008FA-19-24MAR21

EPA Non-road Emissions Control Warranty Statement—Compression Ignition



JOHN DEERE

DXLOGOV1—UN—28APR09

U.S. AND CANADA EMISSION CONTROL WARRANTY STATEMENT YOUR WARRANTY RIGHTS AND OBLIGATIONS

To determine if the John Deere engine qualifies for the additional warranties set forth below, look for the "Emissions Control Information" label located on the engine. If the engine is operated in the United States or Canada and the Emissions Control information label states: "This engine complies with US EPA regulations for nonroad and stationary diesel engines", or "This engine conforms to US EPA nonroad compression-ignition regulations", refer to the "U.S. and Canada Emission Control Warranty Statement." If the engine is operated in California, and the label states: "This engine complies with US EPA and CARB regulations for nonroad diesel engines", or "This engine conforms to US EPA and California nonroad compression-ignition emission regulations", also refer to the "California Emission Control Warranty Statement."

Warranties stated on this certificate refer only to emissions-related parts and components of your engine. The complete engine warranty, less emissions-related parts and components, is provided separately. If you have any questions about your warranty rights and responsibilities, you

should contact John Deere at 1-319-292-5400.

JOHN DEERE'S WARRANTY RESPONSIBILITY

John Deere warrants to the ultimate purchaser and each subsequent purchaser that this off-road diesel engine including all parts of its emission-control system was designed, built and equipped so as to conform at the time of the sale with Section 213 of the Clean Air Act and is free from defects in materials and workmanship which would cause the engine to fail to conform with applicable US EPA regulations for a period of five years from the date the engine is placed into service or 3,000 hours of operation, whichever first occurs.

Where a warrantable condition exists, John Deere will repair or replace, as it elects, any part or component with a defect in materials or workmanship that would increase the engine's emissions of any regulated pollutant within the stated warranty period at no cost to you, including expenses related to diagnosing and repairing or replacing emission-related parts. Warranty coverage is subject to the limitations and exclusions set forth herein. Emission-related components include engine parts developed to control emissions related to the following:

Air-Induction System	Aftertreatment Devices
Fuel System	Crankcase Ventilation Valves
Ignition System	Sensors
Exhaust Gas Recirculation Systems	Engine Electronic Control Units

EMISSION WARRANTY EXCLUSIONS

John Deere may deny warranty claims for malfunctions or failures caused by:

- Non-performance of maintenance requirements listed in the Operator's Manual
- The use of the engine/equipment in a manner for which it was not designed
- Abuse, neglect, improper maintenance or unapproved modifications or alterations
- Accidents for which it does not have responsibility or by acts of God

The off-road diesel engine is designed to operate on diesel fuel as specified in the Fuels, Lubricants and Coolants section in the Operators Manual. Use of any other fuel can harm the emissions control system of the engine/equipment and is not approved for use.

To the extent permitted by law John Deere is not liable for damage to other engine components caused by a failure of an emission-related part, unless otherwise covered by standard warranty.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. REMEDIES UNDER THIS WARRANTY ARE LIMITED TO THE PROVISIONS OF MATERIAL AND SERVICES AS SPECIFIED HEREIN. WHERE PERMITTED BY LAW, NEITHER JOHN DEERE NOR ANY AUTHORIZED JOHN DEERE ENGINE DISTRIBUTOR, DEALER, OR REPAIR FACILITY OR ANY COMPANY AFFILIATED WITH JOHN DEERE WILL BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

Emission_CI_EPA (18Dec09)



JOHN DEERE

**U.S. AND CANADA EMISSION CONTROL WARRANTY STATEMENT
YOUR WARRANTY RIGHTS AND OBLIGATIONS**

To determine if the John Deere engine qualifies for the additional warranties set forth below, look for the "Emissions Control Information" label located on the engine. If the engine is operated in the United States or Canada and the Emissions Control information label states: "This engine complies with US EPA regulations for nonroad and stationary diesel engines", or "This engine conforms to US EPA nonroad compression-ignition regulations", refer to the "U.S. and Canada Emission Control Warranty Statement." If the engine is operated in California, and the label states: "This engine complies with US EPA and CARB regulations for nonroad diesel engines", or "This engine conforms to US EPA and California nonroad compression-ignition emission regulations", also refer to the "California Emission Control Warranty Statement."

Warranties stated on this certificate refer only to emissions-related parts and components of your engine. The complete engine warranty, less emissions-related parts and components, is provided separately. If you have any questions about your warranty rights and responsibilities, you should contact John Deere at 1-319-292-5400.

JOHN DEERE'S WARRANTY RESPONSIBILITY

John Deere warrants to the ultimate purchaser and each subsequent purchaser that this off-road diesel engine including all parts of its emission-control system was designed, built and equipped so as to conform at the time of the sale with Section 213 of the Clean Air Act and is free from defects in materials and workmanship which would cause the engine to fail to conform with applicable US EPA regulations for a period of five years from the date the engine is placed into service or 3,000 hours of operation, whichever first occurs.

Where a warrantable condition exists, John Deere will repair or replace, as it elects, any part or component with a defect in materials or workmanship that would increase the engine's emissions of any regulated pollutant within the stated warranty period at no cost to you, including expenses related to diagnosing and repairing or replacing emission-related parts. Warranty coverage is subject to the limitations and exclusions set forth herein. Emission-related components include engine parts developed to control emissions related to the following:

Air-Induction System	Aftertreatment Devices
Fuel System	Crankcase Ventilation Valves
Ignition System	Sensors
Exhaust Gas Recirculation Systems	Engine Electronic Control Units

EMISSION WARRANTY EXCLUSIONS

John Deere may deny warranty claims for malfunctions or failures caused by:

- Non-performance of maintenance requirements listed in the Operator's Manual
- The use of the engine/equipment in a manner for which it was not designed
- Abuse, neglect, improper maintenance or unapproved modifications or alterations
- Accidents for which it does not have responsibility or by acts of God

The off-road diesel engine is designed to operate on diesel fuel as specified in the Fuels, Lubricants and Coolants section in the Operators Manual. Use of any other fuel can harm the emissions control system of the engine/equipment and is not approved for use.

To the extent permitted by law John Deere is not liable for damage to other engine components caused by a failure of an emission-related part, unless otherwise covered by standard warranty.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. REMEDIES UNDER THIS WARRANTY ARE LIMITED TO THE PROVISIONS OF MATERIAL AND SERVICES AS SPECIFIED HEREIN. WHERE PERMITTED BY LAW, NEITHER JOHN DEERE NOR ANY AUTHORIZED JOHN DEERE ENGINE DISTRIBUTOR, DEALER, OR REPAIR FACILITY OR ANY COMPANY AFFILIATED WITH JOHN DEERE WILL BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

Emission_CI_EPA (18Dec09)

TS1721—UN—15JUL13
DX,EMISSIONS,EPA-19-12DEC12

CARB Non-road Emissions Control Warranty Statement—Compression Ignition

Emissions Control Warranty Statement 2019 through 2021



JOHN DEERE

CALIFORNIA EMISSIONS CONTROL WARRANTY STATEMENT

DXLOGOV1—UN—28APR09

YOUR WARRANTY RIGHTS AND OBLIGATIONS

To determine if the John Deere engine qualifies for the additional warranties set forth below, look for the "Emission Control Information" label located on the engine. If the engine is operated in the United States or Canada and the engine label states: "This engine complies with US EPA regulations for nonroad and stationary diesel engines", or "This engine complies with US EPA regulations for stationary emergency diesel engines", refer to the "U.S. and Canada Emission Control Warranty Statement." If the engine is operated in California, and the engine label states: "This engine complies with US EPA and CARB regulations for nonroad diesel engines" also refer to the "California Emissions Control Warranty Statement."

Warranties stated on this certificate refer only to emissions-related parts and components of your engine. The complete engine warranty, less emission-related parts and components, is provided separately. If you have any questions about your warranty rights and responsibilities, you should contact John Deere at 1-319-292-5400.

CALIFORNIA EMISSIONS CONTROL WARRANTY STATEMENT:

The California Air Resources Board (CARB) is pleased to explain the emission-control system warranty on 2019 through 2021 off-road diesel engines. In California, new off-road engines must be designed, built and equipped to meet the State's stringent anti-smog standards. John Deere must warrant the emission control system on your engine for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your engine.

Your emission control system may include parts such as the fuel injection system and the air induction system. Also included may be hoses, belts, connectors and other emission-related assemblies.

John Deere warrants to the ultimate purchaser and each subsequent purchaser that this off-road diesel engine was designed, built, and equipped so as to conform at the time of sale with all applicable regulations adopted by CARB and is free from defects in materials and workmanship which would cause the failure of a warranted part to be identical in all material respects to the part as described in John Deere's application for certification for a period of five years from the date the engine is delivered to an ultimate purchaser or 3,000 hours of operation, whichever occurs first for all engines rated at 19 kW and greater. In the absence of a device to measure hours of use, the engine shall be warranted for a period of five years.

EMISSIONS WARRANTY EXCLUSIONS:

John Deere may deny warranty claims for failures caused by the use of an add-on or modified part which has not been exempted by the CARB. A modified part is an aftermarket part intended to replace an original emission-related part which is not functionally identical in all respects and which in any way affects emissions. An add-on part is any aftermarket part which is not a modified part or a replacement part.

In no event will John Deere, any authorized engine distributor, dealer, or repair facility, or any company affiliated with John Deere be liable for incidental or consequential damage.

JOHN DEERE'S WARRANTY RESPONSIBILITY:

Where a warrantable condition exists, John Deere will repair or replace, as it elects, your off-road diesel engine at no cost to you, including diagnosis, parts or labor. Warranty coverage is subject to the limitations and exclusions set forth herein. The off-road diesel engine is warranted for a period of five years from the date the engine is delivered to an ultimate purchaser or 3,000 hours of operation, whichever occurs first. The following are emissions-related parts:

Specifications

Air Induction System

- Intake manifold
- Turbocharger
- Charge air cooler

Fuel Metering system

- Fuel injection system

Exhaust Gas Recirculation

- EGR valve

Catalyst or Thermal Reactor Systems

- Catalytic converter
- Exhaust manifold

Emission control labels

Particulate Controls

- Any device used to capture particulate emissions
- Any device used in the regeneration of the capturing system
- Enclosures and manifolding
- Smoke Puff Limiters

Positive Crankcase Ventilation (PCV) System

- PCV valve
- Oil filler cap

Advanced Oxides of Nitrogen (NOx) Controls

- NOx absorbers and catalysts

SCR systems and urea containers/dispensing systems

Miscellaneous Items used in Above Systems

- Electronic control units, sensors, actuators, wiring harnesses, hoses, connectors, clamps, fittings, gasket, mounting hardware

Any warranted emissions-related part scheduled for replacement as required maintenance is warranted by John Deere for the period of time prior to the first scheduled replacement point for the part. Any warranted emissions-related part not scheduled for replacement as required maintenance or scheduled only for regular inspection is warranted by John Deere for the stated warranty period.

OWNER'S WARRANTY RESPONSIBILITIES:

As the off-road diesel engine owner you are responsible for the performance of the required maintenance listed in your Operator's Manual. John Deere recommends that the owner retain all receipts covering maintenance on the off-road diesel engine, but John Deere cannot deny warranty solely for the lack of receipts or for the owner's failure to ensure the performance of all scheduled maintenance. However, as the off-road diesel engine owner, you should be aware that John Deere may deny you warranty coverage if your off-road diesel engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

The off-road diesel engine is designed to operate on diesel fuel as specified in the Fuels, Lubricants and Coolants section in the Operators Manual. Use of any other fuel may result in the engine no longer operating in compliance with applicable emissions requirements.

The owner is responsible for initiating the warranty process, and should present the machine to the nearest authorized John Deere dealer as soon as a problem is suspected. The warranty repairs should be completed by the authorized John Deere dealer as quickly as possible.

Emissions regulations require the customer to bring the unit to an authorized servicing dealer when warranty service is required. As a result, John Deere is NOT liable for travel or mileage on emissions warranty service calls.

Emission_CI_CARB (01Feb17)

Emissions Control Warranty Statement 2019 through 2021

DXLOGOV1 —UN—28APR09



JOHN DEERE

CALIFORNIA EMISSIONS CONTROL WARRANTY STATEMENT YOUR WARRANTY RIGHTS AND OBLIGATIONS

To determine if the John Deere engine qualifies for the additional warranties set forth below, look for the “Emission Control Information” label located on the engine. If the engine is operated in the United States or Canada and the engine label states: “This engine complies with US EPA regulations for nonroad and stationary diesel engines”, or “This engine complies with US EPA regulations for stationary emergency diesel engines”, refer to the “U.S. and Canada Emission Control Warranty Statement.” If the engine is operated in California, and the engine label states: “This engine complies with US EPA and CARB regulations for nonroad diesel engines” also refer to the “California Emissions Control Warranty Statement.”

Warranties stated on this certificate refer only to emissions-related parts and components of your engine. The complete engine warranty, less emission-related parts and components, is provided separately. If you have any questions about your warranty rights and responsibilities, you should contact John Deere at 1-319-292-5400.

CALIFORNIA EMISSIONS CONTROL WARRANTY STATEMENT:

The California Air Resources Board (CARB) is pleased to explain the emission-control system warranty on 2019 through 2021 off-road diesel engines. In California, new off-road engines must be designed, built and equipped to meet the State’s stringent anti-smog standards. John Deere must warrant the emission control system on your engine for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your engine.

Your emission control system may include parts such as the fuel injection system and the air induction system. Also included may be hoses, belts, connectors and other emission-related assemblies.

John Deere warrants to the ultimate purchaser and each subsequent purchaser that this off-road diesel engine was designed, built, and equipped so as to conform at the time of sale with all applicable regulations adopted by CARB and is free from defects in materials and workmanship which would cause the failure of a warranted part to be identical in all material respects to the part as described in John Deere’s application for certification for a period of five years from the date the engine is delivered to an ultimate purchaser or 3,000 hours of operation, whichever occurs first for all engines rated at 19 kW and greater. In the absence of a device to measure hours of use, the engine shall be warranted for a period of five years.

EMISSIONS WARRANTY EXCLUSIONS:

John Deere may deny warranty claims for failures caused by the use of an add-on or modified part which has not been exempted by the CARB. A modified part is an aftermarket part intended to replace an original emission-related part which is not functionally identical in all respects and which in any way affects emissions. An add-on part is any aftermarket part which is not a modified part or a replacement part.

In no event will John Deere, any authorized engine distributor, dealer, or repair facility, or any company affiliated with John Deere be liable for incidental or consequential damage.

RG29280—UN—02FEB17

Specifications

JOHN DEERE'S WARRANTY RESPONSIBILITY:

Where a warrantable condition exists, John Deere will repair or replace, as it elects, your off-road diesel engine at no cost to you, including diagnosis, parts or labor. Warranty coverage is subject to the limitations and exclusions set forth herein. The off-road diesel engine is warranted for a period of five years from the date the engine is delivered to an ultimate purchaser or 3,000 hours of operation, whichever occurs first. The following are emissions-related parts:

Air Induction System	Emission control labels	Advanced Oxides of Nitrogen (NOx) Controls
<ul style="list-style-type: none">• Intake manifold• Turbocharger• Charge air cooler	Particulate Controls	<ul style="list-style-type: none">• NOx absorbers and catalysts
Fuel Metering system	<ul style="list-style-type: none">• Any device used to capture particulate emissions• Any device used in the regeneration of the capturing system• Enclosures and manifolding• Smoke Puff Limiters	SCR systems and urea containers/dispensing systems
<ul style="list-style-type: none">• Fuel injection system	Positive Crankcase Ventilation (PCV) System	Miscellaneous Items used in Above Systems
Exhaust Gas Recirculation	<ul style="list-style-type: none">• PCV valve• Oil filler cap	<ul style="list-style-type: none">• Electronic control units, sensors, actuators, wiring harnesses, hoses, connectors, clamps, fittings, gasket, mounting hardware
<ul style="list-style-type: none">• EGR valve		
Catalyst or Thermal Reactor Systems		
<ul style="list-style-type: none">• Catalytic converter• Exhaust manifold		

Any warranted emissions-related part scheduled for replacement as required maintenance is warranted by John Deere for the period of time prior to the first scheduled replacement point for the part. Any warranted emissions-related part not scheduled for replacement as required maintenance or scheduled only for regular inspection is warranted by John Deere for the stated warranty period.

OWNER'S WARRANTY RESPONSIBILITIES:

As the off-road diesel engine owner you are responsible for the performance of the required maintenance listed in your Operator's Manual. John Deere recommends that the owner retain all receipts covering maintenance on the off-road diesel engine, but John Deere cannot deny warranty solely for the lack of receipts or for the owner's failure to ensure the performance of all scheduled maintenance. However, as the off-road diesel engine owner, you should be aware that John Deere may deny you warranty coverage if your off-road diesel engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

The off-road diesel engine is designed to operate on diesel fuel as specified in the Fuels, Lubricants and Coolants section in the Operators Manual. Use of any other fuel may result in the engine no longer operating in compliance with applicable emissions requirements.

The owner is responsible for initiating the warranty process, and should present the machine to the nearest authorized John Deere dealer as soon as a problem is suspected. The warranty repairs should be completed by the authorized John Deere dealer as quickly as possible.

Emissions regulations require the customer to bring the unit to an authorized servicing dealer when warranty service is required. As a result, John Deere is NOT liable for travel or mileage on emissions warranty service calls.

Emission_CI_CARB (01Feb17)

RG29281—UN—27FEB17

Emissions Control Warranty Statement 2022 through 2024



JOHN DEERE

DXLOGOV1—UN—28APR09

CALIFORNIA EMISSIONS CONTROL WARRANTY STATEMENT YOUR WARRANTY RIGHTS AND OBLIGATIONS

To determine if the John Deere engine qualifies for the additional warranties set forth below, look for the "Emission Control Information" label located on the engine. If the engine is operated in the United States or Canada and the engine label states: "This engine complies with US EPA regulations for nonroad and stationary diesel engines", or "This engine complies with US EPA regulations for stationary emergency diesel engines", refer to the "U.S. and Canada Emission Control Warranty Statement." If the engine is operated in California, and the engine label states: "This engine complies with US EPA and California regulations for nonroad/off-road diesel engines" also refer to the "California Emissions Control Warranty Statement."

Warranties stated on this certificate refer only to emissions-related parts and components of your engine. The complete engine warranty, less emission-related parts and components, is provided separately. If you have any questions about your warranty rights and responsibilities, you

Specifications

should contact John Deere at 1-319-292-5400.

CALIFORNIA EMISSIONS CONTROL WARRANTY STATEMENT:

The California Air Resources Board (CARB) is pleased to explain the emission-control system warranty on 2022 through 2024 off-road diesel engines. In California, new off-road engines must be designed, built and equipped to meet the State's stringent anti-smog standards. John Deere must warrant the emission control system on your engine for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your engine.

Your emission control system may include parts such as the fuel injection system and the air induction system. Also included may be hoses, belts, connectors and other emission-related assemblies.

John Deere warrants to the ultimate purchaser and each subsequent purchaser that this off-road diesel engine was designed, built, and equipped so as to conform at the time of sale with all applicable regulations adopted by CARB. John Deere warrants that this engine is free from defects in materials and workmanship which would cause the failure of emissions warranted parts to be identical in all material respects to the part as described in John Deere's application for certification for a period of five years from the date the engine is delivered to an ultimate purchaser or 3,000 hours of operation, whichever occurs first. This applies to all engines rated at 19 kW and greater. In the absence of a device to measure hours of use, the engine shall be warranted for a period of five years.

EMISSIONS WARRANTY EXCLUSIONS:

John Deere may deny warranty claims for failures caused by the use of an add-on or modified part which has not been exempted by the CARB. A modified part is an aftermarket part intended to replace an original emission-related part which is not functionally identical in all respects and which in any way affects emissions. An add-on part is any aftermarket part which is not a modified part or a replacement part.

In no event will John Deere, any authorized engine distributor, dealer, or repair facility, or any company affiliated with John Deere be liable for incidental or consequential damage.

JOHN DEERE'S WARRANTY RESPONSIBILITY:

Where a warrantable condition exists, John Deere will repair or replace, as it elects, your off-road diesel engine at no cost to you, including diagnosis, parts or labor. Warranty coverage is subject to the limitations and exclusions set forth herein. The off-road diesel engine is warranted for a period of five years from the date the engine is delivered to an ultimate purchaser or 3,000 hours of operation, whichever occurs first. The following are emissions-related parts:

Air Induction System

- Intake manifold
- Turbocharger
- Charge air cooler

Fuel Metering system

- Fuel injection system

Exhaust Gas Recirculation

- EGR valve

Catalyst or Thermal Reactor Systems

- Catalytic converter
- Exhaust manifold

Emission control labels

Particulate Controls

- Any device used to capture particulate emissions
- Any device used in the regeneration of the capturing system
- Enclosures and manifolding
- Smoke Puff Limiters

Positive Crankcase Ventilation (PCV) System

- PCV valve
- Oil filler cap

Advanced Oxides of Nitrogen (NOx) Controls

- NOx absorbers and catalysts

SCR systems and urea containers/dispensing systems

Miscellaneous Items used in Above Systems

- Electronic control units, sensors, actuators, wiring harnesses, hoses, connectors, clamps, fittings, gasket, mounting hardware

Specifications

Any warranted emissions-related part scheduled for replacement as required maintenance is warranted by John Deere for the period of time prior to the first scheduled replacement point for the part. Any warranted emissions-related part not scheduled for replacement as required maintenance or scheduled only for regular inspection is warranted by John Deere for the stated warranty period.

OWNER'S WARRANTY RESPONSIBILITIES:

As the off-road diesel engine owner you are responsible for the performance of the required maintenance listed in your Operator's Manual. John Deere recommends that the owner retain all receipts covering maintenance on the off-road diesel engine, but John Deere cannot deny warranty solely for the lack of receipts or for the owner's failure to ensure the performance of all scheduled maintenance. However, as the off-road diesel engine owner, you should be aware that John Deere may deny you warranty coverage if your off-road diesel engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

The off-road diesel engine is designed to operate on diesel fuel as specified in the Fuels, Lubricants and Coolants section in the Operators Manual. Use of any other fuel may result in the engine no longer operating in compliance with applicable emissions requirements.

The owner is responsible for initiating the warranty process, and should present the machine to the nearest authorized John Deere dealer as soon as a problem is suspected. The warranty repairs should be completed by the authorized John Deere dealer as quickly as possible.

Emissions regulations require the customer to bring the unit to an authorized servicing dealer when warranty service is required. As a result, John Deere is NOT liable for travel or mileage on emissions warranty service calls.

Emission_CI_CARB (14Apr20)

Emissions Control Warranty Statement 2022 through 2024

DXLOGOV1 —UN—28APR09



JOHN DEERE

CALIFORNIA EMISSIONS CONTROL WARRANTY STATEMENT YOUR WARRANTY RIGHTS AND OBLIGATIONS

To determine if the John Deere engine qualifies for the additional warranties set forth below, look for the "Emission Control Information" label located on the engine. If the engine is operated in the United States or Canada and the engine label states: "This engine complies with US EPA regulations for nonroad and stationary diesel engines", or "This engine complies with US EPA regulations for stationary emergency diesel engines", refer to the "U.S. and Canada Emission Control Warranty Statement." If the engine is operated in California, and the engine label states: "This engine complies with US EPA and California regulations for nonroad/off-road diesel engines" also refer to the "California Emissions Control Warranty Statement."

Warranties stated on this certificate refer only to emissions-related parts and components of your engine. The complete engine warranty, less emission-related parts and components, is provided separately. If you have any questions about your warranty rights and responsibilities, you should contact John Deere at 1-319-292-5400.

CALIFORNIA EMISSIONS CONTROL WARRANTY STATEMENT:

The California Air Resources Board (CARB) is pleased to explain the emission-control system warranty on 2022 through 2024 off-road diesel engines. In California, new off-road engines must be designed, built and equipped to meet the State's stringent anti-smog standards. John Deere must warrant the emission control system on your engine for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your engine.

Your emission control system may include parts such as the fuel injection system and the air induction system. Also included may be hoses, belts, connectors and other emission-related assemblies.

John Deere warrants to the ultimate purchaser and each subsequent purchaser that this off-road diesel engine was designed, built, and equipped so as to conform at the time of sale with all applicable regulations adopted by CARB. John Deere warrants that this engine is free from defects in materials and workmanship which would cause the failure of emissions warranted parts to be identical in all material respects to the part as described in John Deere's application for certification for a period of five years from the date the engine is delivered to an ultimate purchaser or 3,000 hours of operation, whichever occurs first. This applies to all engines rated at 19 kW and greater. In the absence of a device to measure hours of use, the engine shall be warranted for a period of five years.

EMISSIONS WARRANTY EXCLUSIONS:

John Deere may deny warranty claims for failures caused by the use of an add-on or modified part which has not been exempted by the CARB. A modified part is an aftermarket part intended to replace an original emission-related part which is not functionally identical in all respects and which in any way affects emissions. An add-on part is any aftermarket part which is not a modified part or a replacement part.

In no event will John Deere, any authorized engine distributor, dealer, or repair facility, or any company affiliated with John Deere be liable for incidental or consequential damage.

RG32758—UN—19AUG20

Specifications

JOHN DEERE'S WARRANTY RESPONSIBILITY:

Where a warrantable condition exists, John Deere will repair or replace, as it elects, your off-road diesel engine at no cost to you, including diagnosis, parts or labor. Warranty coverage is subject to the limitations and exclusions set forth herein. The off-road diesel engine is warranted for a period of five years from the date the engine is delivered to an ultimate purchaser or 3,000 hours of operation, whichever occurs first. The following are emissions-related parts:

Air Induction System	Emission control labels	Advanced Oxides of Nitrogen (NOx) Controls
<ul style="list-style-type: none">• Intake manifold• Turbocharger• Charge air cooler	Particulate Controls	<ul style="list-style-type: none">• NOx absorbers and catalysts
Fuel Metering system	<ul style="list-style-type: none">• Any device used to capture particulate emissions• Any device used in the regeneration of the capturing system• Enclosures and manifolding• Smoke Puff Limiters	SCR systems and urea containers/dispensing systems
<ul style="list-style-type: none">• Fuel injection system	Positive Crankcase Ventilation (PCV) System	Miscellaneous Items used in Above Systems
Exhaust Gas Recirculation	<ul style="list-style-type: none">• PCV valve• Oil filler cap	<ul style="list-style-type: none">• Electronic control units, sensors, actuators, wiring harnesses, hoses, connectors, clamps, fittings, gasket, mounting hardware
<ul style="list-style-type: none">• EGR valve		
Catalyst or Thermal Reactor Systems		
<ul style="list-style-type: none">• Catalytic converter• Exhaust manifold		

Any warranted emissions-related part scheduled for replacement as required maintenance is warranted by John Deere for the period of time prior to the first scheduled replacement point for the part. Any warranted emissions-related part not scheduled for replacement as required maintenance or scheduled only for regular inspection is warranted by John Deere for the stated warranty period.

OWNER'S WARRANTY RESPONSIBILITIES:

As the off-road diesel engine owner you are responsible for the performance of the required maintenance listed in your Operator's Manual. John Deere recommends that the owner retain all receipts covering maintenance on the off-road diesel engine, but John Deere cannot deny warranty solely for the lack of receipts or for the owner's failure to ensure the performance of all scheduled maintenance. However, as the off-road diesel engine owner, you should be aware that John Deere may deny you warranty coverage if your off-road diesel engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

The off-road diesel engine is designed to operate on diesel fuel as specified in the Fuels, Lubricants and Coolants section in the Operators Manual. Use of any other fuel may result in the engine no longer operating in compliance with applicable emissions requirements.

The owner is responsible for initiating the warranty process, and should present the machine to the nearest authorized John Deere dealer as soon as a problem is suspected. The warranty repairs should be completed by the authorized John Deere dealer as quickly as possible.

Emissions regulations require the customer to bring the unit to an authorized servicing dealer when warranty service is required. As a result, John Deere is NOT liable for travel or mileage on emissions warranty service calls.

Emission_CI_CARB (14Apr20)

RG32759—UN—19AUG20
DX,EMISSIONS,CARB-19-26AUG20

Required Emission-Related Information

Service Provider

A qualified repair shop or person of the owner's choosing may maintain, replace, or repair emission control devices and systems with original or equivalent replacement parts. However, warranty, recall, and all other services paid for by John Deere must be performed at an authorized John Deere service center.

DX,EMISSIONS,REQINFO-19-12JUN15

Cummins® — CARB Non-road Emissions Control Warranty Statement

California Emission Control Warranty Statement, Off-Highway

Your Warranty Rights and Obligations

The California Air Resources Board and Cummins Inc., are pleased to explain the emission control system warranty on your 2017, 2018, and 2019 model year engine. In California, new heavy-duty off-road diesel engines must be designed, built and equipped to meet the State's stringent anti-smog standards. Cummins Inc. ® must warrant the emission control system on your engine for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your engine. Your emission control system may include parts such as the fuel injection system and the air induction system. Also included may be hoses, belts, connectors and other emission-related assemblies.

Where a warrantable condition exists, Cummins Inc. will repair your heavy-duty off-road diesel engine at no cost to you including diagnosis, parts and labor.

Manufacturer's Warranty Coverage

This warranty coverage for 2017, 2018, and 2019 model year heavy-duty off-road engines is provided for 5 years or 3,000 hours of engine operation, whichever first occurs from the date of delivery of the engine to the first user. If any emission-related part on your engine is defective, the part will be repaired or replaced by Cummins Inc..

Owner's Warranty Responsibilities

As the engine owner, you are responsible for the performance of the required maintenance listed in your Cummins® Owners and/or Operation and Maintenance Manual. Cummins Inc. recommends that you retain all receipts covering maintenance on your engine, but Cummins Inc. cannot deny warranty solely for the lack of receipts or for your failure to substantiate the performance of all scheduled maintenance.

You are responsible for presenting your engine to a Cummins® dealer as soon as a problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

As an engine owner, you should also be aware that Cummins Inc. may deny you warranty coverage if your engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

If you have any questions regarding your warranty rights and responsibilities, you should contact Cummins® Customer Relation Department at 1-800-343-7357 or the California Air Resources Board at 9528 Telstar Avenue, El Monte, CA 91731.

A warranted part which is scheduled for replacement as required maintenance is warranted up to the first schedule replacement point.

Prior to the expiration of the applicable warranty, Owner must give notice of any warranted emission control failure to a Cummins® distributor, authorized dealer or other repair location approved by Cummins Inc. and deliver the engine to such facility for repair. Repair locations are listed in Cummins® United States and Canada Service Directory.

Owner is responsible for incidental costs such as: communication expenses, meals, lodging incurred by Owner or employees of Owner as a result of a Warrantable Condition.

Owner is responsible for "downtime" expenses, cargo damage, fines, all applicable taxes, all business costs, and other losses resulting from a Warrantable Condition.

Last Modified: 7-Apr-2016

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California Emission Control System Warranty Coverage

This list of emission control parts may be covered by the emission control system warranty under certain failure modes:

Aftertreatment System	Base Engine System
Component	Component
Aftertreatment Electroconnections	Cam Shaft
Aftertreatment Fuel Drain Valve	Cam Shaft Valve Lobe
Aftertreatment Fuel Injector/Regulator	Coolant Temperature Sensor

Specifications

Aftertreatment Fuel Pressure Sensor	Crankcase Breather
Aftertreatment Fuel Shut-off Valve	Engine Oil Pressure Sensor
Aftertreatment Injector Manifold	Engine Oil Temperature
Aftertreatment Inlet and Outlet Modules	Engine Speed, Position Sensor, Cam Position Sensor
Aftertreatment Temperature Interface Module	Exhaust Valve
Aftertreatment System (cont')	EGR System
Component	Component
Aftertreatment Temperature Sensors	EGR Cooler
Decomposition Tube	EGR Differential Pressure Sensor
DEF Dosing Unit (Pump)	EGR Mixer/Venturi
DEF Dosing Valve	EGR Temperature Sensor
Diesel Oxidation Catalyst	EGR Mixer/Venturi
Diesel Particulate Filter (except for ash maintenance)	EGR Valve
Diesel Particulate Filter Differential Pressure Sensor	
NOx Sensors	
SCR Catalyst	
Air Handling	Electronic Control System
Component	Component
Barometric Air Pressure Sensor	Engine Control Module
Exhaust Gas Pressure Sensor	Engine Control Module Calibration
Exhaust Manifold	
Air Handling (cont')	Fuel System
Component	Component
Charge Air Cooler and Associated Plumbing	Fuel Lines
Intake Manifold	Fuel Pressure Sensor
Intake Manifold Temperature/Pressure Sensor	Fuel Pump
Turbocharger Actuator	Injector
Turbocharger Assembly	Secondary Fuel Pressure/Temperature Sensor
Turbocharger Compressor Inlet Air Temperature Sensor	
Turbocharger Speed Sensor	

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Specifications

Replacement Parts

Cummins recommends that any service parts used for maintenance, repair or replacement of emission control systems be new, genuine Cummins or Cummins approved rebuilt parts and assemblies, and that the engine be serviced by a Cummins distributor, authorized dealer or the repair location approved by Cummins. The owner may elect to have maintenance, replacement or repair of the emission control parts performed by a facility other than a Cummins distributor, an authorized dealer or a repair location approved by Cummins, and may elect to use parts other than new genuine Cummins or Cummins approved rebuilt parts and assemblies for such maintenance, replacement or repair; however, the cost of such service or parts will not be covered under this emission control system warranty.

Cummins Responsibilities

Repairs and service will be performed by any Cummins distributor, authorized dealer or other repair location approved by Cummins using new, genuine Cummins or Cummins approved rebuilt parts and assemblies. Cummins will repair any of the emission control parts found by Cummins to be defective without charge for parts or labor (including diagnosis which results in determination that there has been a failure of a warranted emission control part).

Emergency Repairs

In the case of an emergency where a Cummins distributor, authorized dealer, or other repair location approved by Cummins is not available, repairs may be performed by any available repair location using any replacement parts. Cummins will reimburse the Owner for expenses (including diagnosis), not to exceed the manufacturer's suggested retail price for all warranted parts replaced and labor charges based on the manufacturer's recommended time allowance for the warranty repair and the geographically appropriate hourly labor rate. A part not being available within 30 days or a repair not being complete within 30 days constitutes an emergency. Replaced parts and paid invoices must be presented at a Cummins authorized repair facility as a condition of reimbursement for emergency repairs not performed by a Cummins distributor, authorized dealer, or other repair location approved by Cummins.

Warranty Limitations

Cummins is not responsible for failures resulting from Owner or operator abuse or neglect, such as: operation without adequate coolant, fuel or lubricants; overfueling; overspeeding; lack of maintenance of lubricating, cooling or air intake systems; improper storage, starting, warm-up, run-in or shutdown practices.

The manufacturer warrants to the ultimate purchaser and each subsequent purchaser that the engine is designed, built, and equipped so as to conform with all applicable regulations adopted by the Air Resources Board, and that it is free from defects in materials and workmanship which cause the failure of a warranted part.

Any warranted part which is not scheduled for replacement as required maintenance, or which is scheduled only for regular inspection to the effect of "repair or replace as necessary" is warranted for the warranty period.

Any warranted part which is scheduled for replacement as required maintenance is warranted for the period of time prior to the first scheduled replacement point for that part.

The owner will not be charged for diagnostic labor which leads to the determination that a warranted part is defective, if the diagnostic work is performed at a warranty station.

The manufacturer is liable for damages to other engine components caused by the failure under warranty of any warranted part.

Cummins is not responsible for failures resulting from improper repair or the use of parts which are not genuine Cummins or Cummins approved parts.

These warranties, together with the express commercial warranties and emission warranty are the sole warranties of Cummins®. There are no other warranties, express or implied, or of merchantability or fitness for a particular purpose.

Last Modified: 7-Apr-2016

California Emission Control Warranty Statement, Off-Highway

Your Warranty Rights and Obligations

The California Air Resources Board and Cummins Inc., are pleased to explain the emission control system warranty on your 2017, 2018, and 2019 model year engine. In California, new heavy-duty off-road diesel engines must be designed, built and equipped to meet the State's stringent anti-smog standards. Cummins Inc. ® must warrant the emission control system on your engine for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your engine. Your emission control system may include parts such as the fuel injection system and the air induction system. Also included may be hoses, belts, connectors and other emission-related assemblies.

Where a warrantable condition exists, Cummins Inc. will repair your heavy-duty off-road diesel engine at no cost to you including diagnosis, parts and labor.

Manufacturer's Warranty Coverage

This warranty coverage for 2017, 2018, and 2019 model year heavy-duty off-road engines is provided for 5 years or 3,000 hours of engine operation, whichever first occurs from the date of delivery of the engine to the first user. If any emission-related part on your engine is defective, the part will be repaired or replaced by Cummins Inc..

Owner's Warranty Responsibilities

As the engine owner, you are responsible for the performance of the required maintenance listed in your Cummins® Owners and/or Operation and Maintenance Manual. Cummins Inc. recommends that you retain all receipts covering maintenance on your engine, but Cummins Inc. cannot deny warranty solely for the lack of receipts or for your failure to substantiate the performance of all scheduled maintenance.

You are responsible for presenting your engine to a Cummins® dealer as soon as a problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

As an engine owner, you should also be aware that Cummins Inc. may deny you warranty coverage if your engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

If you have any questions regarding your warranty rights and responsibilities, you should contact Cummins® Customer Relation Department at 1-800-343-7357 or the California Air Resources Board at 9528 Telstar Avenue, El Monte, CA 91731.

A warranted part which is scheduled for replacement as required maintenance is warranted up to the first schedule replacement point.

Prior to the expiration of the applicable warranty, Owner must give notice of any warranted emission control failure to a Cummins® distributor, authorized dealer or other repair location approved by Cummins Inc. and deliver the engine to such facility for repair. Repair locations are listed in Cummins® United States and Canada Service Directory.

Owner is responsible for incidental costs such as: communication expenses, meals, lodging incurred by Owner or employees of Owner as a result of a Warrantable Condition.

Owner is responsible for "downtime" expenses, cargo damage, fines, all applicable taxes, all business costs, and other losses resulting from a Warrantable Condition.

Last Modified: 7-Apr-2016
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RG30824—UN—24SEP18

Specifications

California Emission Control System Warranty

Coverage

This list of emission control parts may be covered by the emission control system warranty under certain failure modes:

Aftertreatment System	Base Engine System
Component	Component
Aftertreatment Electroconnections	Cam Shaft
Aftertreatment Fuel Drain Valve	Cam Shaft Valve Lobe
Aftertreatment Fuel Injector/Regulator	Coolant Temperature Sensor
Aftertreatment Fuel Pressure Sensor	Crankcase Breather
Aftertreatment Fuel Shut-off Valve	Engine Oil Pressure Sensor
Aftertreatment Injector Manifold	Engine Oil Temperature
Aftertreatment Inlet and Outlet Modules	Engine Speed, Position Sensor, Cam Position Sensor
Aftertreatment Temperature Interface Module	Exhaust Valve
Aftertreatment System (cont')	EGR System
Component	Component
Aftertreatment Temperature Sensors	EGR Cooler
Decomposition Tube	EGR Differential Pressure Sensor
DEF Dosing Unit (Pump)	EGR Mixer/Venturi
DEF Dosing Valve	EGR Temperature Sensor
Diesel Oxidation Catalyst	EGR Mixer/Venturi
Diesel Particulate Filter (except for ash maintenance)	EGR Valve
Diesel Particulate Filter Differential Pressure Sensor	
NOx Sensors	
SCR Catalyst	
Air Handling	Electronic Control System
Component	Component
Barometric Air Pressure Sensor	Engine Control Module
Exhaust Gas Pressure Sensor	Engine Control Module Calibration
Exhaust Manifold	
Air Handling (cont')	Fuel System
Component	Component
Charge Air Cooler and Associated Plumbing	Fuel Lines
Intake Manifold	Fuel Pressure Sensor
Intake Manifold Temperature/Pressure Sensor	Fuel Pump
Turbocharger Actuator	Injector
Turbocharger Assembly	Secondary Fuel Pressure/Temperature Sensor
Turbocharger Compressor Inlet Air Temperature Sensor	
Turbocharger Speed Sensor	

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RG28225—UN—28APR16

Specifications

Replacement Parts

Cummins recommends that any service parts used for maintenance, repair or replacement of emission control systems be new, genuine Cummins or Cummins approved rebuilt parts and assemblies, and that the engine be serviced by a Cummins distributor, authorized dealer or the repair location approved by Cummins. The owner may elect to have maintenance, replacement or repair of the emission control parts performed by a facility other than a Cummins distributor, an authorized dealer or a repair location approved by Cummins, and may elect to use parts other than new genuine Cummins or Cummins approved rebuilt parts and assemblies for such maintenance, replacement or repair; however, the cost of such service or parts will not be covered under this emission control system warranty.

Cummins Responsibilities

Repairs and service will be performed by any Cummins distributor, authorized dealer or other repair location approved by Cummins using new, genuine Cummins or Cummins approved rebuilt parts and assemblies. Cummins will repair any of the emission control parts found by Cummins to be defective without charge for parts or labor (including diagnosis which results in determination that there has been a failure of a warranted emission control part).

Emergency Repairs

In the case of an emergency where a Cummins distributor, authorized dealer, or other repair location approved by Cummins is not available, repairs may be performed by any available repair location using any replacement parts. Cummins will reimburse the Owner for expenses (including diagnosis), not to exceed the manufacturer's suggested retail price for all warranted parts replaced and labor charges based on the manufacturer's recommended time allowance for the warranty repair and the geographically appropriate hourly labor rate. A part not being available within 30 days or a repair not being complete within 30 days constitutes an emergency. Replaced parts and paid invoices must be presented at a Cummins authorized repair facility as a condition of reimbursement for emergency repairs not performed by a Cummins distributor, authorized dealer, or other repair location approved by Cummins.

Warranty Limitations

Cummins is not responsible for failures resulting from Owner or operator abuse or neglect, such as: operation without adequate coolant, fuel or lubricants; overfueling; overspeeding; lack of maintenance of lubricating, cooling or air intake systems; improper storage, starting, warm-up, run-in or shutdown practices.

The manufacturer warrants to the ultimate purchaser and each subsequent purchaser that the engine is designed, built, and equipped so as to conform with all applicable regulations adopted by the Air Resources Board, and that it is free from defects in materials and workmanship which cause the failure of a warranted part.

Any warranted part which is not scheduled for replacement as required maintenance, or which is scheduled only for regular inspection to the effect of "repair or replace as necessary" is warranted for the warranty period.

Any warranted part which is scheduled for replacement as required maintenance is warranted for the period of time prior to the first scheduled replacement point for that part.

The owner will not be charged for diagnostic labor which leads to the determination that a warranted part is defective, if the diagnostic work is performed at a warranty station.

The manufacturer is liable for damages to other engine components caused by the failure under warranty of any warranted part.

Cummins is not responsible for failures resulting from improper repair or the use of parts which are not genuine Cummins or Cummins approved parts.

These warranties, together with the express commercial warranties and emission warranty are the sole warranties of Cummins®. There are no other warranties, express or implied, or of merchantability or fitness for a particular purpose.

Last Modified: 7-Apr-2016

RG28226—UN—19MAY16

California Emission Control Warranty Statement, Off-Highway

Your Warranty Rights and Obligations

The California Air Resources Board and Cummins Inc., are pleased to explain the emission control system warranty on your 2020, 2021, and 2022 model year engine. In California, new heavy-duty off-road diesel engines must be designed, built and equipped to meet the State's stringent anti-smog standards. Cummins Inc. ® must warrant the emission control system on your engine for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your engine. Your emission control system may include parts such as the fuel injection system and the air induction system. Also included may be hoses, belts, connectors and other emission-related assemblies.

Where a warrantable condition exists, Cummins Inc. will repair your heavy-duty off-road diesel engine at no cost to you including diagnosis, parts and labor.

Manufacturer's Warranty Coverage

This warranty coverage for 2020, 2021, and 2022 model year heavy-duty off-road engines is provided for 5 years or 3,000 hours of engine operation, whichever first occurs from the date of delivery of the engine to the first user. If any emission-related part on your engine is defective, the part will be repaired or replaced by Cummins Inc..

Owner's Warranty Responsibilities

As the engine owner, you are responsible for the performance of the required maintenance listed in your Cummins® Owners and/or Operation and Maintenance Manual. Cummins Inc. recommends that you retain all receipts covering maintenance on your engine, but Cummins Inc. cannot deny warranty solely for the lack of receipts or for your failure to substantiate the performance of all scheduled maintenance.

You are responsible for presenting your engine to a Cummins® dealer as soon as a problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

As an engine owner, you should also be aware that Cummins Inc. may deny you warranty coverage if your engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

If you have any questions regarding your warranty rights and responsibilities, you should contact Cummins® Customer Relation Department at 1-800-343-7357 or the California Air Resources Board at 9528 Telstar Avenue, El Monte, CA 91731.

A warranted part which is scheduled for replacement as required maintenance is warranted up to the first schedule replacement point.

Prior to the expiration of the applicable warranty, Owner must give notice of any warranted emission control failure to a Cummins® distributor, authorized dealer or other repair location approved by Cummins Inc. and deliver the engine to such facility for repair. Repair locations are listed in Cummins® United States and Canada Service Directory.

Owner is responsible for incidental costs such as: communication expenses, meals, lodging incurred by Owner or employees of Owner as a result of a Warrantable Condition.

Owner is responsible for "downtime" expenses, cargo damage, fines, all applicable taxes, all business costs, and other losses resulting from a Warrantable Condition.

Last Modified: 19-Nov-2019
Cummins is a trademark of Cummins Inc.

California Emission Control System Warranty Coverage

This list of emission control parts may be covered by the emission control system warranty under certain failure modes:

Aftertreatment System	Base Engine System
Component	Component
Aftertreatment Electroconnections	Cam Shaft
Aftertreatment Fuel Drain Valve	Cam Shaft Valve Lobe
Aftertreatment Fuel Injector/Regulator	Coolant Temperature Sensor
Aftertreatment Fuel Pressure Sensor	Crankcase Breather

Specifications

Aftertreatment Fuel Shut-off Valve	Engine Oil Pressure Sensor
Aftertreatment Injector Manifold	Engine Oil Temperature
Aftertreatment Inlet and Outlet Modules	Engine Speed, Position Sensor, Cam Position Sensor
Aftertreatment Temperature Interface Module	Exhaust Valve
Aftertreatment System (cont')	EGR System
Component	Component
Aftertreatment Temperature Sensors	EGR Cooler
Decomposition Tube	EGR Differential Pressure Sensor
DEF Dosing Unit (Pump)	EGR Mixer/Venturi
DEF Dosing Valve	EGR Temperature Sensor
Diesel Oxidation Catalyst	EGR Mixer/Venturi
Diesel Particulate Filter (except for ash maintenance)	EGR Valve
Diesel Particulate Filter Differential Pressure Sensor	
NOx Sensors	
SCR Catalyst	
Air Handling	Electronic Control System
Component	Component
Barometric Air Pressure Sensor	Engine Control Module
Exhaust Gas Pressure Sensor	Engine Control Module Calibration
Exhaust Manifold	
Air Handling (cont')	Fuel System
Component	Component
Charge Air Cooler and Associated Plumbing	Fuel Lines
Intake Manifold	Fuel Pressure Sensor
Intake Manifold Temperature/Pressure Sensor	Fuel Pump
Turbocharger Actuator	Injector
Turbocharger Assembly	Secondary Fuel Pressure/Temperature Sensor
Turbocharger Compressor Inlet Air Temperature Sensor	
Turbocharger Speed Sensor	

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Specifications

Replacement Parts

Cummins recommends that any service parts used for maintenance, repair or replacement of emission control systems be new, genuine Cummins or Cummins approved rebuilt parts and assemblies, and that the engine be serviced by a Cummins distributor, authorized dealer or the repair location approved by Cummins. The owner may elect to have maintenance, replacement or repair of the emission control parts performed by a facility other than a Cummins distributor, an authorized dealer or a repair location approved by Cummins, and may elect to use parts other than new genuine Cummins or Cummins approved rebuilt parts and assemblies for such maintenance, replacement or repair; however, the cost of such service or parts will not be covered under this emission control system warranty.

Cummins Responsibilities

Repairs and service will be performed by any Cummins distributor, authorized dealer or other repair location approved by Cummins using new, genuine Cummins or Cummins approved rebuilt parts and assemblies. Cummins will repair any of the emission control parts found by Cummins to be defective without charge for parts or labor (including diagnosis which results in determination that there has been a failure of a warranted emission control part).

Emergency Repairs

In the case of an emergency where a Cummins distributor, authorized dealer, or other repair location approved by Cummins is not available, repairs may be performed by any available repair location using any replacement parts. Cummins will reimburse the Owner for expenses (including diagnosis), not to exceed the manufacturer's suggested retail price for all warranted parts replaced and labor charges based on the manufacturer's recommended time allowance for the warranty repair and the geographically appropriate hourly labor rate. A part not being available within 30 days or a repair not being complete within 30 days constitutes an emergency. Replaced parts and paid invoices must be presented at a Cummins authorized repair facility as a condition of reimbursement for emergency repairs not performed by a Cummins distributor, authorized dealer, or other repair location approved by Cummins.

Warranty Limitations

Cummins is not responsible for failures resulting from Owner or operator abuse or neglect, such as: operation without adequate coolant, fuel or lubricants; overfueling; overspeeding; lack of maintenance of lubricating, cooling or air intake systems; improper storage, starting, warm-up, run-in or shutdown practices.

The manufacturer warrants to the ultimate purchaser and each subsequent purchaser that the engine is designed, built, and equipped so as to conform with all applicable regulations adopted by the Air Resources Board, and that it is free from defects in materials and workmanship which cause the failure of a warranted part.

Any warranted part which is not scheduled for replacement as required maintenance, or which is scheduled only for regular inspection to the effect of "repair or replace as necessary" is warranted for the warranty period.

Any warranted part which is scheduled for replacement as required maintenance is warranted for the period of time prior to the first scheduled replacement point for that part.

The owner will not be charged for diagnostic labor which leads to the determination that a warranted part is defective, if the diagnostic work is performed at a warranty station.

The manufacturer is liable for damages to other engine components caused by the failure under warranty of any warranted part.

Cummins is not responsible for failures resulting from improper repair or the use of parts which are not genuine Cummins or Cummins approved parts.

These warranties, together with the express commercial warranties and emission warranty are the sole warranties of Cummins®. There are no other warranties, express or implied, or of merchantability or fitness for a particular purpose.

Last Modified: 7-Apr-2016

California Emission Control Warranty Statement, Off-Highway

Your Warranty Rights and Obligations

The California Air Resources Board and Cummins Inc., are pleased to explain the emission control system warranty on your 2020, 2021, and 2022 model year engine. In California, new heavy-duty off-road diesel engines must be designed, built and equipped to meet the State's stringent anti-smog standards. Cummins Inc. ® must warrant the emission control system on your engine for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your engine. Your emission control system may include parts such as the fuel injection system and the air induction system. Also included may be hoses, belts, connectors and other emission-related assemblies.

Where a warrantable condition exists, Cummins Inc. will repair your heavy-duty off-road diesel engine at no cost to you including diagnosis, parts and labor.

Manufacturer's Warranty Coverage

This warranty coverage for 2020, 2021, and 2022 model year heavy-duty off-road engines is provided for 5 years or 3,000 hours of engine operation, whichever first occurs from the date of delivery of the engine to the first user. If any emission-related part on your engine is defective, the part will be repaired or replaced by Cummins Inc..

Owner's Warranty Responsibilities

As the engine owner, you are responsible for the performance of the required maintenance listed in your Cummins® Owners and/or Operation and Maintenance Manual. Cummins Inc. recommends that you retain all receipts covering maintenance on your engine, but Cummins Inc. cannot deny warranty solely for the lack of receipts or for your failure to substantiate the performance of all scheduled maintenance.

You are responsible for presenting your engine to a Cummins® dealer as soon as a problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

As an engine owner, you should also be aware that Cummins Inc. may deny you warranty coverage if your engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

If you have any questions regarding your warranty rights and responsibilities, you should contact Cummins® Customer Relation Department at 1-800-343-7357 or the California Air Resources Board at 9528 Telstar Avenue, El Monte, CA 91731.

A warranted part which is scheduled for replacement as required maintenance is warranted up to the first schedule replacement point.

Prior to the expiration of the applicable warranty, Owner must give notice of any warranted emission control failure to a Cummins® distributor, authorized dealer or other repair location approved by Cummins Inc. and deliver the engine to such facility for repair. Repair locations are listed in Cummins® United States and Canada Service Directory.

Owner is responsible for incidental costs such as: communication expenses, meals, lodging incurred by Owner or employees of Owner as a result of a Warrantable Condition.

Owner is responsible for "downtime" expenses, cargo damage, fines, all applicable taxes, all business costs, and other losses resulting from a Warrantable Condition.

Last Modified: 19-Nov-2019
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RG30824A—UN—20FEB20

Specifications

California Emission Control System Warranty

Coverage

This list of emission control parts may be covered by the emission control system warranty under certain failure modes:

Aftertreatment System	Base Engine System
Component	Component
Aftertreatment Electroconnections	Cam Shaft
Aftertreatment Fuel Drain Valve	Cam Shaft Valve Lobe
Aftertreatment Fuel Injector/Regulator	Coolant Temperature Sensor
Aftertreatment Fuel Pressure Sensor	Crankcase Breather
Aftertreatment Fuel Shut-off Valve	Engine Oil Pressure Sensor
Aftertreatment Injector Manifold	Engine Oil Temperature
Aftertreatment Inlet and Outlet Modules	Engine Speed, Position Sensor, Cam Position Sensor
Aftertreatment Temperature Interface Module	Exhaust Valve
Aftertreatment System (cont')	EGR System
Component	Component
Aftertreatment Temperature Sensors	EGR Cooler
Decomposition Tube	EGR Differential Pressure Sensor
DEF Dosing Unit (Pump)	EGR Mixer/Venturi
DEF Dosing Valve	EGR Temperature Sensor
Diesel Oxidation Catalyst	EGR Mixer/Venturi
Diesel Particulate Filter (except for ash maintenance)	EGR Valve
Diesel Particulate Filter Differential Pressure Sensor	
NOx Sensors	
SCR Catalyst	
Air Handling	Electronic Control System
Component	Component
Barometric Air Pressure Sensor	Engine Control Module
Exhaust Gas Pressure Sensor	Engine Control Module Calibration
Exhaust Manifold	
Air Handling (cont')	Fuel System
Component	Component
Charge Air Cooler and Associated Plumbing	Fuel Lines
Intake Manifold	Fuel Pressure Sensor
Intake Manifold Temperature/Pressure Sensor	Fuel Pump
Turbocharger Actuator	Injector
Turbocharger Assembly	Secondary Fuel Pressure/Temperature Sensor
Turbocharger Compressor Inlet Air Temperature Sensor	
Turbocharger Speed Sensor	

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RG28225—UN—28APR16

Specifications

Replacement Parts

Cummins recommends that any service parts used for maintenance, repair or replacement of emission control systems be new, genuine Cummins or Cummins approved rebuilt parts and assemblies, and that the engine be serviced by a Cummins distributor, authorized dealer or the repair location approved by Cummins. The owner may elect to have maintenance, replacement or repair of the emission control parts performed by a facility other than a Cummins distributor, an authorized dealer or a repair location approved by Cummins, and may elect to use parts other than new genuine Cummins or Cummins approved rebuilt parts and assemblies for such maintenance, replacement or repair; however, the cost of such service or parts will not be covered under this emission control system warranty.

Cummins Responsibilities

Repairs and service will be performed by any Cummins distributor, authorized dealer or other repair location approved by Cummins using new, genuine Cummins or Cummins approved rebuilt parts and assemblies. Cummins will repair any of the emission control parts found by Cummins to be defective without charge for parts or labor (including diagnosis which results in determination that there has been a failure of a warranted emission control part).

Emergency Repairs

In the case of an emergency where a Cummins distributor, authorized dealer, or other repair location approved by Cummins is not available, repairs may be performed by any available repair location using any replacement parts. Cummins will reimburse the Owner for expenses (including diagnosis), not to exceed the manufacturer's suggested retail price for all warranted parts replaced and labor charges based on the manufacturer's recommended time allowance for the warranty repair and the geographically appropriate hourly labor rate. A part not being available within 30 days or a repair not being complete within 30 days constitutes an emergency. Replaced parts and paid invoices must be presented at a Cummins authorized repair facility as a condition of reimbursement for emergency repairs not performed by a Cummins distributor, authorized dealer, or other repair location approved by Cummins.

Warranty Limitations

Cummins is not responsible for failures resulting from Owner or operator abuse or neglect, such as: operation without adequate coolant, fuel or lubricants; overfueling; overspeeding; lack of maintenance of lubricating, cooling or air intake systems; improper storage, starting, warm-up, run-in or shutdown practices.

The manufacturer warrants to the ultimate purchaser and each subsequent purchaser that the engine is designed, built, and equipped so as to conform with all applicable regulations adopted by the Air Resources Board, and that it is free from defects in materials and workmanship which cause the failure of a warranted part.

Any warranted part which is not scheduled for replacement as required maintenance, or which is scheduled only for regular inspection to the effect of "repair or replace as necessary" is warranted for the warranty period.

Any warranted part which is scheduled for replacement as required maintenance is warranted for the period of time prior to the first scheduled replacement point for that part.

The owner will not be charged for diagnostic labor which leads to the determination that a warranted part is defective, if the diagnostic work is performed at a warranty station.

The manufacturer is liable for damages to other engine components caused by the failure under warranty of any warranted part.

Cummins is not responsible for failures resulting from improper repair or the use of parts which are not genuine Cummins or Cummins approved parts.

These warranties, together with the express commercial warranties and emission warranty are the sole warranties of Cummins®. There are no other warranties, express or implied, or of merchantability or fitness for a particular purpose.

Last Modified: 7-Apr-2016

RG28226—UN—19MAY16
DX,EMISSIONS,CUMMINS,CARB-19-08APR20

Cummins® — EPA Non-Road Emissions Control Warranty Statement

Emission Warranty

Products Warranted

This Emission Warranty applies to new Engines marketed by Cummins® that are used in the United States* and Canada in vehicles designed for Industrial Off-Highway use. This Warranty applies to Engines delivered to the ultimate purchaser on or after April 1, 1999, for Engines up to 750 horsepower and on or after January 1, 2000, for Engines 751 horsepower and over.

Coverage

Cummins® warrants to the ultimate purchaser and each subsequent purchaser that the Engine is designed, built, and equipped so as to conform at the time of sale by Cummins with all U.S. Federal emission regulations applicable at the time of manufacture and that it is free from defects in workmanship or material which would cause it not to meet these regulations within the longer of the following periods: (A) ***Five years or 3,000 hours of operation for industrial applications, five years or 3,500 hours of operation for industrial spark-ignited Engines (GTA855, G855, G5.9C, G8.3-C, GTA8.9E, QSK19G) and five years or 2,500 hours of operation for industrial spark-ignited Engines (GKTA19-GC), whichever occurs first, as measured from the date of delivery of the Engine to the ultimate purchaser, or (B) The Base Engine Warranty.

If the vehicle in which the Engine is installed is registered in the state of California, a separate California Emission Warranty also applies.

Limitations

Engines with an emissions certification listed below must be operated using only diesel fuel having no more than the corresponding maximum sulfur content. Failure to use the specified fuel as listed in the Cummins® Fuel Bulletin #3379001 Table 1 (Cummins Inc. Required Diesel Fuel Specifications) can damage the Engine and aftertreatment system within a short period of time. This damage could cause the Engine to become inoperable and failures attributable to the use of incorrect fuels will be denied Warranty Coverage. Fuel specifications also need to comply with local fuel regulations (EN590 for Europe and ASTM D975 for North America) for Warranty eligibility.

Cummins is a trademark of Cummins Inc.

Maximum sulfur levels by emissions certification level as listed on the Engine's dataplate are:	
EPA 2007/2010/2013	MAX 15 parts per million
EPA Tier 4 Interim / Final	MAX 15 parts per million
EU Stage IIIB 2011	MAX 15 parts per million
Euro 4/5	MAX 50 parts per million
Euro 6	MAX 10 parts per million

Failures, other than those resulting from defects in materials or workmanship, are not covered by this Warranty.

Cummins® is not responsible for failures or damage resulting from what Cummins determines to be abuse or neglect, including, but not limited to: operation without adequate coolant or lubricants; overfueling; overspeeding; lack of maintenance of lubricating, cooling, or intake systems; improper storage, starting, warm-up, run-in or shutdown practices; unauthorized modifications of the Engine. Cummins is also not responsible for failures caused by incorrect oil, fuel, or diesel exhaust fluid or by water, dirt, or other contaminants in the fuel, oil, or diesel exhaust fluid.

Cummins® is not responsible for non-Engine repairs, "downtime" expenses, cargo damage, fines, all business costs, or other losses resulting from a Warrantable Failure.

CUMMINS IS NOT RESPONSIBLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

* United States includes American Samoa, the Commonwealth of Northern Mariana Islands, Guam, Puerto Rico, and the U.S. Virgin Islands.

** Alternators, starters, and fans ARE covered for the duration of the Base Engine Warranty on A Series and B3.3 Engines.

** Alternators and starters are covered for the duration of the Base Engine Warranty on QSK23 Engines.

*** Emissions Warranty for BLPG Industrial Off-Highway Engines is 5 years / 3,500 hours.

Specifications

Emission Warranty

Products Warranted

This Emission Warranty applies to new Engines marketed by Cummins that are used in the United States* and Canada in vehicles designed for Industrial Off-Highway use. This Warranty applies to Engines delivered to the ultimate purchaser on or after April 1, 1999, for Engines up to 750 horsepower and on or after January 1, 2000, for Engines 751 horsepower and over.

Coverage

Cummins warrants to the ultimate purchaser and each subsequent purchaser that the Engine is designed, built and equipped so as to conform at the time of sale by Cummins with all U.S. Federal emission regulations applicable at the time of manufacture and that it is free from defects in workmanship or material which would cause it not to meet these regulations within the longer of the following periods: (A) ***Five years or 3,000 hours of operation for industrial applications, five years or 3,500 hours of operation for industrial spark-ignited Engines (GTA855, G855, G5.9C, G8.3-C, GTA8.9E, QSK19G) and five years or 2,500 hours of operation for industrial spark-ignited Engines (GKTA19-GC), whichever occurs first, as measured from the date of delivery of the Engine to the ultimate purchaser, or (B) The Base Engine Warranty.

If the vehicle in which the Engine is installed is registered in the state of California, a separate California Emission Warranty also applies.

Limitations

Engines with an emissions certification listed below must be operated using only diesel fuel having no more than the corresponding maximum sulfur content. Failure to use the specified fuel as listed in the Cummins Fuel Bulletin #3379001 Table 1 (Cummins Inc. Required Diesel Fuel Specifications) can damage the Engine and aftertreatment system within a short period of time. This damage could cause the Engine to become inoperable and failures attributable to the use of incorrect fuels will be denied Warranty Coverage. Fuel specifications also need to comply with local fuel regulations (EN590 for Europe and ASTM D975 for North America) for Warranty eligibility.

Maximum sulfur levels by emissions certification level as listed on the Engine's dataplate are:	
EPA 2007/2010/2013	max. 15 parts per million
EPA Tier 4 Interim / Final	max. 15 parts per million
EU Stage IIIB 2011	max. 15 parts per million
Euro 4/5	max. 50 parts per million
Euro 6	max. 10 parts per million

Failures, other than those resulting from defects in materials or workmanship, are not covered by this Warranty.

Cummins is not responsible for failures or damage resulting from what Cummins determines to be abuse or neglect, including, but not limited to: operation without adequate coolant or lubricants; overfueling; overspeeding; lack of maintenance of lubricating, cooling or intake systems; improper storage, starting, warm-up, run-in or shutdown practices; unauthorized modifications of the Engine. Cummins is also not responsible for failures caused by incorrect oil, fuel or diesel exhaust fluid or by water, dirt or other contaminants in the fuel, oil or diesel exhaust fluid.

Cummins is not responsible for non-Engine repairs, "downtime" expenses, cargo damage, fines, all business costs or other losses resulting from a Warrantable Failure.

CUMMINS IS NOT RESPONSIBLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

* United States includes American Samoa, the Commonwealth of Northern Mariana Islands, Guam, Puerto Rico and the U.S. Virgin Islands.

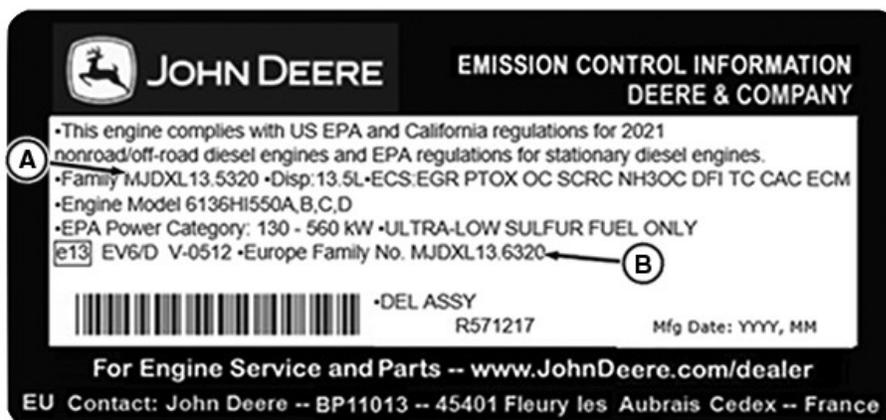
** Alternators, starters, and fans ARE covered for the duration of the Base Engine Warranty on A Series and B3.3 Engines.

** Alternators and starters are covered for the duration of the Base Engine Warranty on QSK23 Engines.

*** Emissions Warranty for BLPG Industrial Off-Highway Engines is 5 years / 3,500 hours.

RG26034—UN—28JUL14
DX,EMISSIONS,CUMMINS,EPA-19-01AUG14

Carbon Dioxide Emissions (CO₂)



Engine Emissions Label

RG33430—UN—04FEB21

A—Family

NOTE: If your engine emissions label lists both a family number (A) and a Europe family number (B), reference the Europe family number using the chart.

NOTE: The first letter of the family number is not utilized for family identification on the chart.

To identify the carbon dioxide (CO₂) output, locate the engine emissions label. Find the appropriate family on the emissions label and reference the chart.

B—Europe Family

and shall not imply or express any guarantee of the performance of a particular engine.

DX,EMISSIONS,CO2-19-05FEB21

Emissions Label Family	CO ₂ Result
_JDXL02.9323	952 g/kW-hr
_JDXL02.9327	784 g/kW-hr
_JDXL04.5337	819 g/kW-hr
_JDXL04.5338	682 g/kW-hr
_JDXL04.5304	1004 g/kW-hr
_JDXN04.5174	792 g/kW-hr
_JDXL06.8324	720 g/kW-hr
_JDXL06.8328	683 g/kW-hr
_JDXL06.8336	701 g/kW-hr
_JDXN06.8175	771 g/kW-hr
_JDXL09.0319	646 g/kW-hr
_JDXL09.0325	695 g/kW-hr
_JDXL09.0329	657 g/kW-hr
_JDXL09.0333	650 g/kW-hr
_JDXL13.5326	684 g/kW-hr
_JDXL13.6320	651 g/kW-hr
_JDXL13.5340	604 g/kW-hr

This CO₂ measurement results from testing over a fixed test cycle under laboratory conditions a(n) (parent) engine representative of the engine type (engine family)

Identification Numbers

Identification Plates

Each tractor has the identification plates shown on these pages. The letters and numbers stamped on the plates identify a component or assembly. ALL these characters are needed when ordering parts or identifying a tractor or component for any John Deere product support program.

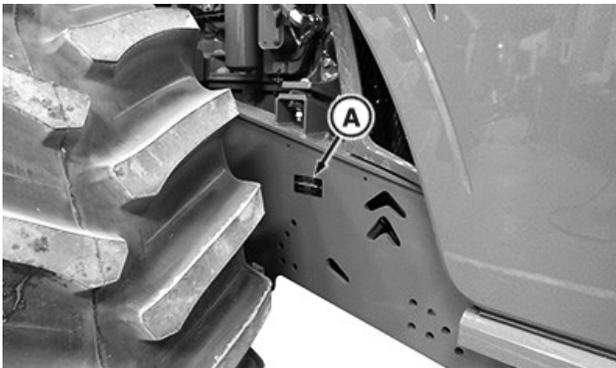
Also, they are needed for law enforcement to trace your tractor if it is ever stolen. ACCURATELY record these characters in the spaces provided in each of the following photographs. Additionally in a separate and secure location, maintain an up-to-date inventory of all product and component serial numbers.

AK08008,0000230-19-15NOV19

Product Identification Number

Product Identification Number

* _____ *



RXA0162311—UN—23FEB18

Identification data plate (A) is along right-hand tractor frame.

Position 10—Character designating calendar year of manufacture

Code	L	M
Year	2020	2021

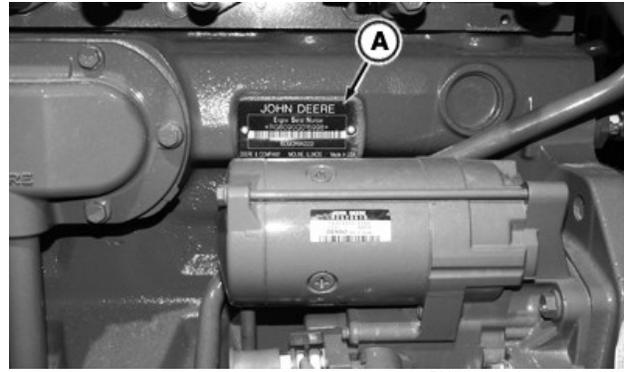
AK08008,0000231-19-06JUL20

Engine Serial Number

John Deere Engine Serial Plate

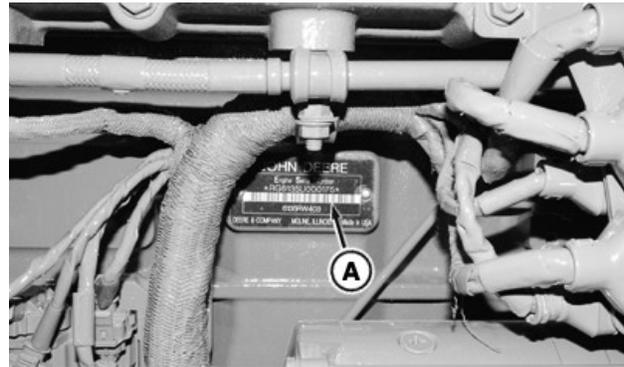
Serial Number

* _____ *



RXA0142410—UN—12JUN14

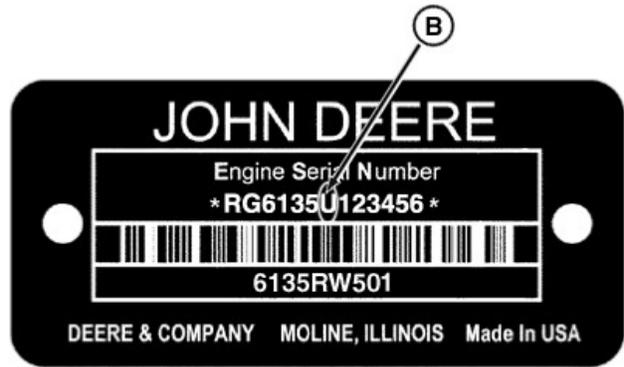
9.0 L Engine Serial Number Plate Location [Ag]



RXA0160356—UN—03AUG17

13.5 L Engine Serial Number Plate Location

Identification plate (A) is on left-hand side of engine, near the starter.



RXA0176285—UN—16MAR20

Engine emission tier level is identified by seventh character (B) of the engine serial number.

Emission Tier Level	Seventh Character of Engine Serial Number
Final Tier 4/Stage V	U

Cummins® 15 L Engine Dataplate

Serial Number

* _____ *

- D/C = date code
- E/C = engine calibration

AK08008,0000232-19-17MAR20



RXA0160138—UN—07JUL17
15 L Engine Serial Number Plate Location

Identification plate (C) is on left-hand side of engine valve cover.

The engine dataplate, on top of the rocker lever cover, provides the model identification and other important data about the engine.

Have the following engine data available when communicating with a Cummins® Authorized Repair Location. The information on the dataplate is **mandatory** when sourcing service parts:

1. Engine serial number (ESN)
2. Control parts list (CPL)
3. Model
4. Indicates the Emissions Control Systems



RXA0160139—UN—07JUL17
15 L Engine Control Module (ECM) Dataplate

The Engine Control Module (ECM) Dataplate (D) is on left-hand side of engine, on front of the ECM.

The abbreviations on the dataplate are explained as follows:

- P/N = part number
- ESN = engine serial number
- S/N = serial number

Cab Serial Number

Serial Number

* _____ *



RXA0142516—UN—26JUN14

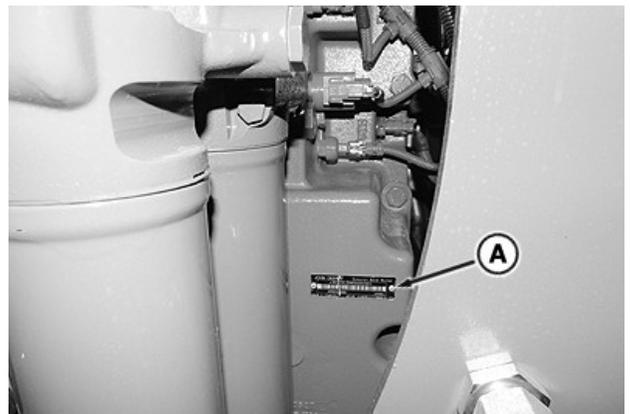
Identification plate (A) is located on cab floor panel, inside entry door and under the floor mat.

AK08008,0000233-19-15NOV19

Transmission Serial Number

Serial Number

* _____ *



RXA0142107—UN—05JUN14

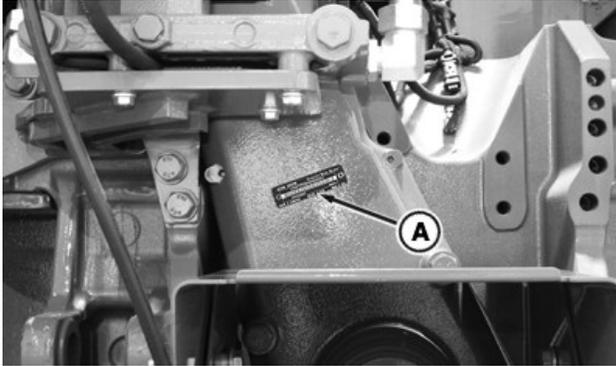
Identification plate (A) for PowerShift™ is located on right-hand rear of transmission case, near the transmission filters.

AK08008,0000234-19-15NOV19

PTO Dropbox Serial Number [Ag]

Serial Number

* _____ *



RXA0142515—UN—24JUN14

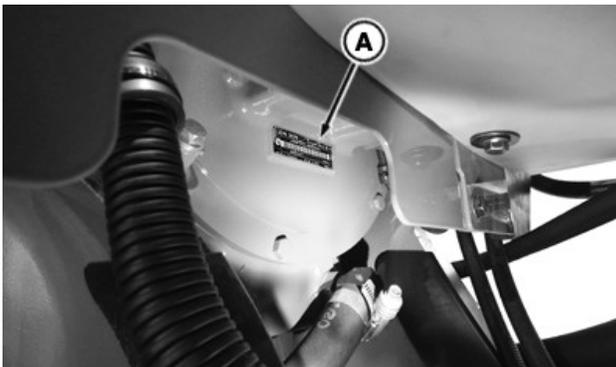
Identification plate (A) is on PTO drop box at rear of tractor.

AK08008,0000235-19-15NOV19

PTO Clutch Serial Number [Ag]

Serial Number

* _____ *



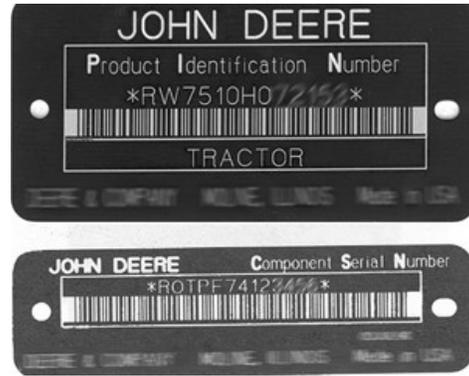
RXA0142514—UN—24JUN14

PTO Clutch Serial Number (Bottom View)

Identification plate (A) is on PTO clutch in the gudgeon area.

AK08008,0000236-19-15NOV19

Keep Proof of Ownership

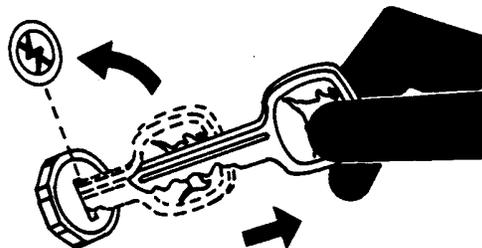


TS1680—UN—09DEC03

1. Maintain in a secure location an up-to-date inventory of all product and component serial numbers.
2. Regularly verify that identification plates have not been removed. Report any evidence of tampering to law enforcement agencies and order duplicate plates.
3. Other steps you can take:
 - Mark your machine with your own numbering system
 - Take color photographs from several angles of each machine

DX,SECURE1-19-18NOV03

Keep Machines Secure



TS230—UN—24MAY89

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

6. Notify your John Deere dealer of any losses.

DX, SECURE2-19-18NOV03

Change of Ownership

Subsequent Ownership

Second Owner

Serial Number:	Tractor Model:
Engine Number:	Registration Number:
Previous Owner:	New Owner:
Address:	Address:
Purchase Date: Hours at Purchase:	Dealer's Stamp <i>(only if sold through a dealer)</i>

Third Owner

Serial Number:	Tractor Model:
Engine Number:	Registration Number:
Previous Owner:	New Owner:
Address:	Address:
Purchase Date: Hours at Purchase:	Dealer's Stamp <i>(only if sold through a dealer)</i>

AK08008,00001C4-19-15NOV19

Predelivery

Predelivery Checklist

NOTE: Make a copy of this checklist and complete while performing.

Tractors equipped with 15 L engines will automatically perform an initial engine regeneration after at least 4 hours of operation. This procedure could occur before the tractor is delivered. If regeneration begins, allow full completion of process. See Engine Settings—AUTO Exhaust Filter Cleaning in Engine Operation section of this Operator's Manual.

Some listed options are not available on specific tractors.

The following inspection, adjustment, and service work were performed before delivery of this machine.

Complete the Air Conditioning Pre-Run Procedure

IMPORTANT: Reduce chance of air conditioner compressor damage. Complete pre-run procedure when the tractor:

- Arrives at the dealership.
- Has not been run for over 29 days.

- 1. Complete the pre-start checks.
- 2. Start tractor and run the engine at a low idle.
- 3. Switch the air conditioning system to high.
- 4. Run the tractor for at least three minutes.
- 5. Shut off the tractor.

Complete the Following Pre-Start Checks Before Operating the Tractor

- 1. Engine oil level is between Low and Full marks.
- 2. Coolant level is correct.
- 3. Air cleaner elements are installed correctly.
- 4. Air intake system clamps are tight.
- 5. Transmission-hydraulic and axle oil levels are correct.
- 6. Lubrication fittings are greased.
- 7. Shields, guards, handrails, and steps are installed correctly.
- 8. Paint is free of defects.
- 9. Exterior and interior labels are smooth and neat.

Start the tractor before continuing the checks.

- 10. Start and run tractor at a low idle for at least three minutes.

IMPORTANT: Determine if the air conditioning pre-run procedure is needed. Run if necessary.

- 11. Complete the air conditioning pre-run procedure.
- 12. Shut off the tractor.

Inspect the tractor for:

- 13. Coolant leaks.
- 14. Engine oil leaks.
- 15. Fuel leaks.
- 16. Transmission, hydraulic, and axle oil leaks.

Complete the Following Checks Inside the Cab

- 1. Check for diagnostic trouble codes. If diagnostic trouble codes are present, record the codes and see Service ADVISOR™ to resolve and repair as needed. Clear all the codes.
- 2. All brake systems operate correctly:
 - Service brakes.
 - Hydraulic and air trailer brakes.
 - Parking brake.
 - Secondary brake.
- 3. Transmission operates correctly (including PARK position).
- 4. Neutral start switch operates correctly.
- 5. SCVs operate correctly.
- 6. Hitch operates correctly.
- 7. PTO operates correctly.
- 8. Warning system lights and instrument displays and gauges operate correctly.
- 9. All lights operate correctly in all switch positions.
- 10. Engine fast and low idle are set correctly.
- 11. Seat can be adjusted properly.
- 12. Check seat belt integrity. Seat belt latches function correctly.
- 13. Doors operate correctly.
- 14. Cab is clean and upholstery appearance neat.
- 15. Premium radio region code set for location.
- 16. Radio operates correctly.
- 17. Washers and wipers operate correctly.
- 18. Heater, ventilation, and air conditioning system operate correctly. For details, see separate information leaflet in tractor cab.
- 19. All optional equipment is installed and operates correctly.

Complete These Dealer Services Before Delivery to the Customer

- 1. Thoroughly wash the tractor.
- 2. Charge the battery and set the battery date code.

IMPORTANT: Muffler extension and radio antenna increase tractor height. Be aware of clearance restrictions when transporting tractor.

- 3. Replace the transport rain cap with the muffler extension.

- 4. Install the AM/FM radio antenna if necessary.¹
- 5. Check and adjust the tire pressure.
- 6. Adjust the wheel spacings for the customer needs:
- 7. Check track tread settings and track alignment.
- 8. Check and adjust the steering stops.²

IMPORTANT: Failure to follow track tractor road transport recommendations can void the tractor warranty. See Transport section and General Track Use Guidelines in Tracks – General Information section of this Operator's Manual.

- 9. Perform the track system break-in procedure. See Perform Track Systems Break-In in Service—Break-In (100 Hours or Less) section of this Operator's Manual.

⚠ CAUTION: Avoid the possibility of personal injury. Never operate the tractor with loose wheel or wheel weight bolts. Failure to follow torquing procedure can result in personal injury. Wheel and wheel weight bolts are critical and require repeated torquing to assure secure tightness.

IMPORTANT: Failure to follow correct tightening procedure could result in equipment damage. Retighten bolts after working 3 hours, 10 hours, and daily during the first week of operation.

- 10. Tighten wheels and weights to specifications (even if no adjustments are made).
- 11. Tighten the track drive (sprocket) wheel, drive (sprocket) wheel sleeve, idler wheel, and mid-roller fasteners to specifications (even if no adjustments are made).
- 12. Reposition all components from shipping to operating positions (i.e. mirrors).
- 13. Adjust all lights, including extremity warning lights and beacon light. Check all lights for compliance with local regulations.
- 14. Adjust the hitch components and lock in position.
- 15. Install the Slow Moving Vehicle emblem (if necessary).
- 16. Set up the display to customer preference.
- 17. Activate the Automatic Exhaust Cleaning Mode in CommandCenter™.
- 18. Install the StarFire™ receiver.
- 19. Perform the Connected Machine Setup Process together with customer. See CCMS Solution 206001 for details.
- 20. Perform a test drive. Verify correct function of all

systems, including transmission, brakes, and steering.

- 21. Calibrate the radar.
- 22. Check for diagnostic trouble codes. If codes are present, record codes and see Service ADVISOR™ to resolve and repair as needed. Clear all codes.

Date and Signature of Dealer/Service Technician

KD34109,00008BE-19-18MAR21

¹ Located in the cab.

² To avoid equipment damage on tractors equipped with ILS™ and group 43 or larger tires remove both transport steering stops and adjust tread settings.

Delivery Checklist and Certificate

Make two copies of this form. Complete one copy for customer and retain a second copy for dealer records.

Customer Copy

Dealer Copy

Delivery Checklist

At the Dealer:

- Predelivery inspection completed
- All necessary forms and literature available
- Labels installed
- Customer specified attachments and options are installed or available

 **CAUTION: Avoid the possibility of personal injury. Never operate tractor with loose wheel or wheel weight bolts. Failure to follow torquing procedure may result in personal injury. Wheel and wheel weight bolts are critical and require repeated torquing to assure secure tightness.**

IMPORTANT: Failure to follow correct tightening procedure could result in equipment damage. Retighten wheel bolts after working 3 hours, 10 hours, and daily during first week of operation.

At Delivery Area with Customer: (shown and explained)

- All warning labels on machine
- Location of all serial numbers on machine
- Operator's Manual
- Help Text access and function
- Lubrication and service points on machine and attachments
- Tire or track maintenance and care
- Use of lubrication and maintenance schedules
- Break-in service procedures
- Warranty coverage and procedure

Demonstrated operating procedures:

- Engine—throttle, starting and stopping
- Transmission
- Steering
- Brakes
- Hitch and SCVs
- Differential lock
- PTO
- Three-point hitch adjustment
- iTEC™ system
- Lights
- Wipers
- Heater
- Air conditioning
- CommandCenter™ display and controls
- Operator's seat

- Check hardware is tight on frame, drawbar support, wheels, and wheel weights or track system component

Delivery Certificate

Serial number:

Vehicle Model:

OM Number:

Issue:

Registration No.:

Engine No.:

Delivery Date:

Owner's Name:

Delivery Hours:

Street Address:

Dealership:

City/State:

Dealer's Stamp:

ZIP/Postal Code/Country:

Predelivery

I hereby confirm receiving the tractor in complete and good condition. I have received the Operator's Manual. All necessary work upon delivery has been carried out and I have been informed of the safe method of operation and the mandatory daily maintenance work as per the Delivery Checklist.

Customer's Signature: _____ Dealership Instructor's Signature: _____

Date: _____ Date: _____

AK08008,00001C6-19-15NOV19

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John Deere Service Literature Available

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:



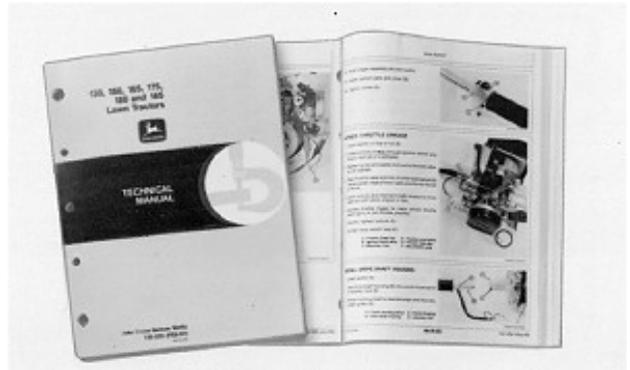
TS189—UN—17JAN89

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

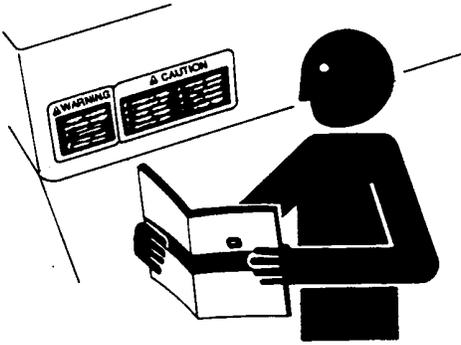
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DX,SERV LIT-19-07DEC16

John Deere Service Keeps You On The Job

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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

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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/.

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