

**2020A/2030A and 2020A/2030A
GPS ProGator™ Utility Vehicle
North American
2020A/2030A Serial Number 180001- 2020A/2030A
GPS Sprayer Serial Number 090001-**



JOHN DEERE

OPERATOR'S MANUAL

ProGator™ Utility Vehicle

OMUC39820E ISSUE J5 (ENGLISH)

CALIFORNIA

Proposition 65 Warning

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

If this product contains a gasoline engine:

⚠ WARNING

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

The State of California requires the above two warnings.

John Deere Turf Care
North American Edition
Printed in U.S.A.

Introduction

Required Emission-Related Information

Service Provider

A repair shop or person of the owner's choosing may maintain, replace, or repair emission control devices and systems with original or equivalent replacement parts. However, warranty, recall, and all other services paid for by John Deere must be performed at an authorized John Deere service center.

DX,EMISSIONS,REQINFO-19-08DEC23

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 voids the European Union (EU) or other country's applicable type approval, certification, and emissions-related warranties.

DX,EMISSIONS,PERFORM-19-23DEC21

Thank You for Purchasing a John Deere Product

We appreciate having you as a customer and wish you many years of safe and satisfied use of your machine.

MX00654,000020B-19-17SEP25

Using Your Operator's Manual

This manual is an important part of your machine and should remain with the machine when you sell it.

Read this operator's manual, watch the safety video, and review the safety signs on your machine before use. They all contain important safety information and operating instructions that must be followed to help keep you and others safe. The operator's manual, safety video, and other important information is also available by scanning this QR code with your smartphone, or by visiting <https://www.deere.com/QR>. Be sure everyone who uses the machine has read the manual, reviewed the safety signs, and knows how to use the machine safely and properly.



TCP626370—UN—21MAY24

If you have an attachment, use the safety and operating information in the attachment operator's manual, along with the machine operator's manual, to operate the attachment safely and correctly.

This manual and safety signs on your machine may also be available in other languages (see your authorized dealer to order).

Sections in your operator's manual are placed in a specific order to help you understand all the safety messages and learn the controls so you can operate this machine safely. You can also use this manual to answer any specific operating or servicing questions. A convenient index located at the end of this book will help you find needed information quickly.

The machine shown in this manual may differ slightly from your machine, but will be similar enough to help you understand our instructions.

RIGHT-HAND and LEFT-HAND sides are determined by facing in the direction that the machine will travel when going forward. When you see a broken line (-----), the item referred to is hidden from view.

Before delivering this machine, your dealer performed a predelivery inspection to ensure best performance.

mk71445,1692374813066-19-04AUG25

John Deere Is at Your Service



TS201—UN—15APR13

Customer satisfaction is important to John Deere.

Our dealers strive to provide you with prompt, efficient parts, and service:

- Maintenance and service parts to support your equipment.
- Trained service technicians and the necessary diagnostic and repair tools to service your equipment.
- **John Deere replacement parts, repair services, and information for maintenance or repair are available. For more information, please visit deere.com or deere.ca.**

DX,IFC,JDS-19-30SEP25

Special Messages

Your manual contains special messages to bring attention to potential safety concerns and machine damage, as well as helpful operating and servicing information. Please read all the information carefully to avoid injury and machine damage.

⚠ CAUTION: Avoid injury! This symbol and text highlight potential hazards or death to the operator or bystanders that may occur if the hazards or procedures are ignored.

IMPORTANT: Avoid damage! This text is used to tell the operator of actions or conditions that might result in damage to the machine.

NOTE: General information is given throughout the manual that may help the operator in the operation or service of the machine.

MX00654,000020D-19-04AUG25

Attachments for Your Machine

There is a John Deere attachment or kit to make your new machine perform more tasks or be more versatile, whether your machine is a lawn tractor, compact utility tractor, or a utility vehicle.

You can check out the entire line of attachments for your machine at JohnDeere.com or ask your John Deere dealer. From aerators to electric lift kits to tillers, there is a John Deere attachment or kit to fill every need.

OUMX068,000051C-19-05JUN17

Service Literature

If you would like to purchase a copy of the Parts Catalog or Technical Manual for this machine, visit The John Deere Technical Information Store at:

<https://techpubs.deere.com/>

or call:

- **U.S. & Canada:** 1-800-522-7448.
- **All Other Regions:** Your John Deere dealer.

TH84124,0000199-19-04AUG25

Parts

We recommend John Deere quality parts and lubricants, available at your John Deere dealer.

When you order parts, your John Deere dealer needs the serial number or product identification number (PIN) for your machine or attachment. These are the numbers that you recorded in the Product Identification section of this manual.

Order Service Parts Online

Visit <https://partscatalog.deere.com/jdrc/> for your Internet connection to parts ordering and information.

TC00531,00000E9-19-04AUG25

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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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Previous Editions

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John Deere Quality Statement

John Deere Quality	JDQS-1
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Service Record

Service Record	SR-1
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Product Identification

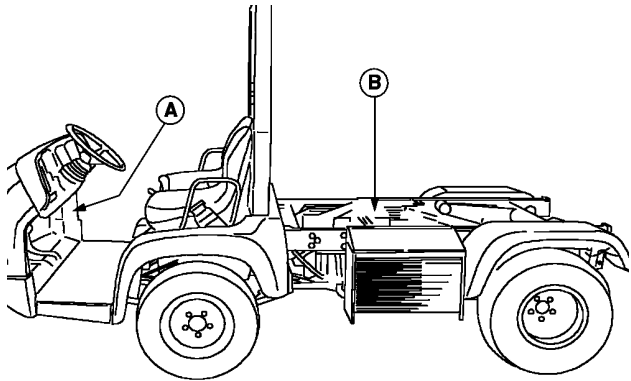
Record Identification Numbers

Utility Vehicle ProGator™ 2020A and 2030A Serial No.
(180001-)

Utility Vehicle ProGator™ 2020A GPS and 2030A GPS
Serial No. (090001-)

For information on servicing, contact an Authorized
Service Center. Always provide the product model and
serial number.

Locate the model and serial number for the machine
and for the engine of your machine and record the
information in the following spaces.



TCAL44970—UN—14MAY13

DATE OF PURCHASE:

DEALER NAME:

DEALER PHONE:

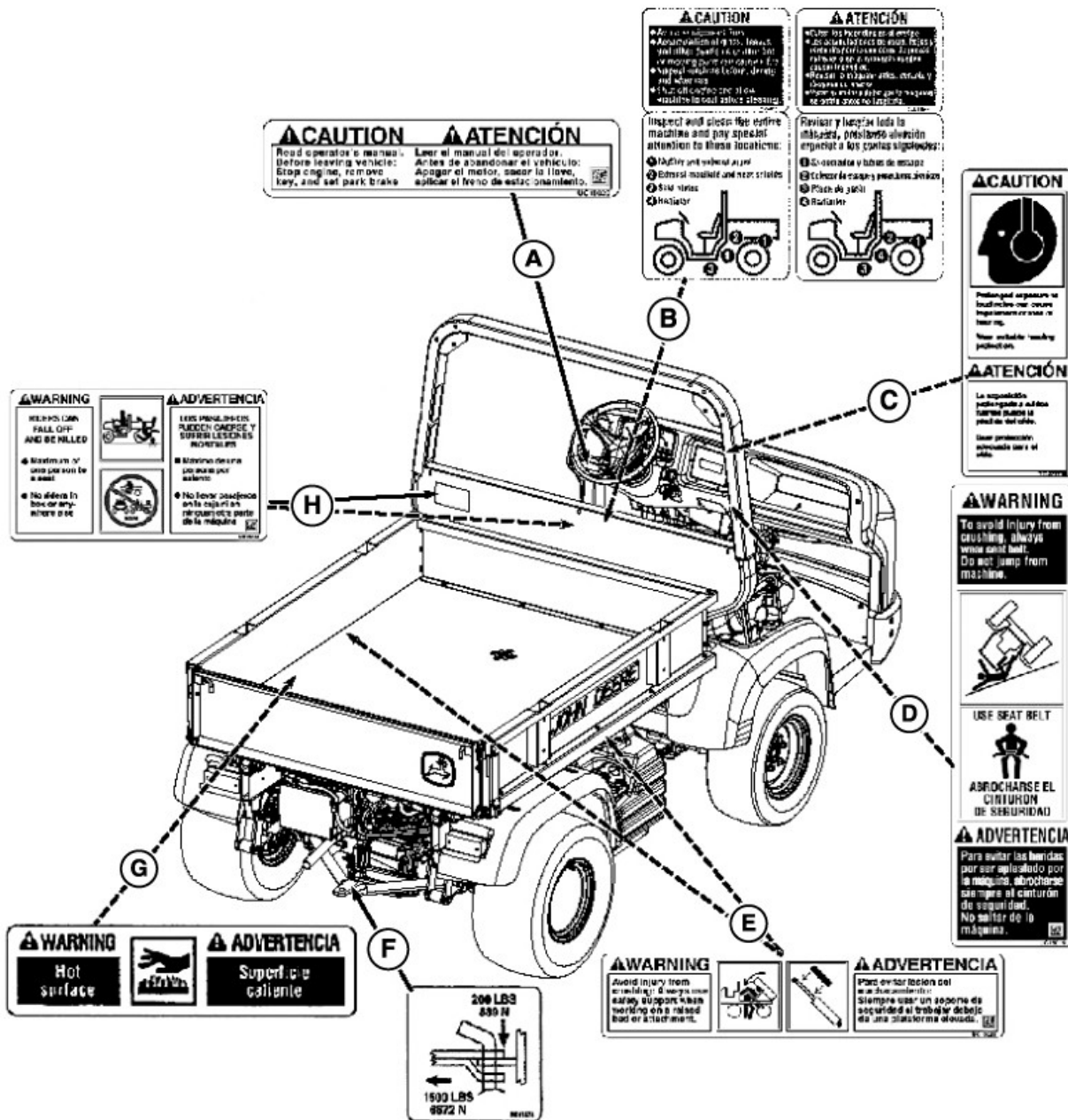
PRODUCT IDENTIFICATION NUMBER (A):

ENGINE SERIAL NUMBER (B):

mk71445,1714666338069-19-02MAY24

Safety Labels with Text

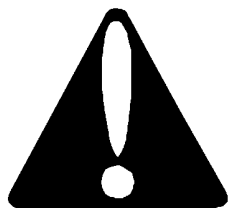
Safety Label Location



TC102119—UN—07JUN22

KL66860.0000349-19-07JUN22

Understanding the Machine Safety Labels



MXAL42363—UN—22MAY13

The machine safety labels shown in this section are placed in important areas on your machine to draw attention to potential safety hazards. DANGER or WARNING safety labels are located near specific hazards.

The operator's manual also explains any potential safety hazards whenever necessary in special safety messages that are identified with the word, CAUTION, and the safety-alert symbol.

On your machine safety labels, the words DANGER, WARNING, and CAUTION are used with this safety-alert symbol. DANGER identifies the most serious hazards:

- **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.

Replace missing or damaged safety labels. Use this operator's manual for correct safety label placement.

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

French or Spanish Safety Labels and Operator's Manual

Operator's manuals and safety labels with content in French or Spanish are available for this machine through authorized John Deere dealers. See your John Deere dealer.

NOTE: Both text and no-text labels are shown. Your machine is only equipped with one of these types of labels.

MP47322,00F4601-19-21FEB23

CAUTION

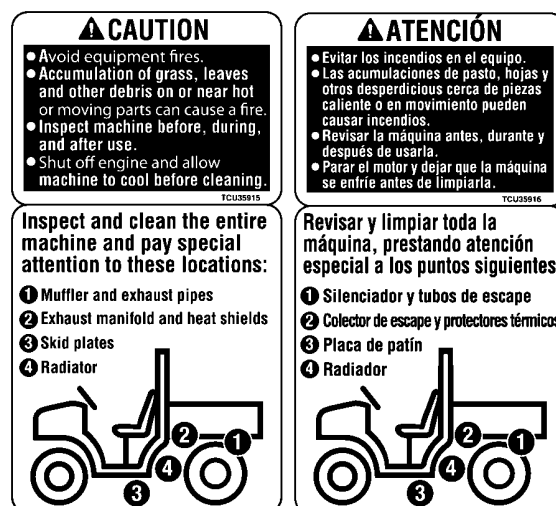


TCT015484—UN—21SEP17

- Read operator's manual. Before leaving machine: Stop engine, set park brake and remove key.

KL66860,000034C-19-21SEP17

CAUTION



TCT014171—UN—12SEP16

Left label: English; Right label: Spanish

- Avoid equipment fires.
- Accumulation of grass, leaves, and other debris on or near hot or moving parts can cause a fire.
- Inspect machine before, during, and after use.
- Shut off engine and allow machine to cool before cleaning.

Inspect and clean the entire machine and pay special attention to these locations:

1. Muffler and exhaust pipes
2. Exhaust manifold and heat shields
3. Skid plates
4. Radiator

OUMX068,000112A-19-05OCT16

CAUTION

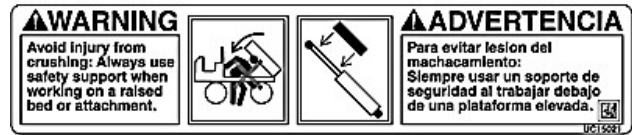


TCT015485—UN—26SEP17

- Prolonged exposure to loud noise can cause impairment or loss of hearing.
- Wear suitable hearing protection.

DK75838,000076D-19-23SEP13

WARNING



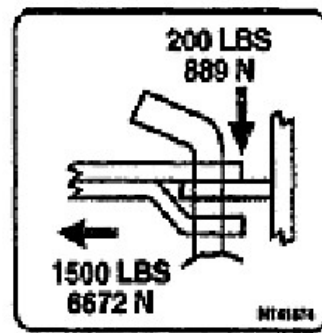
TCT015486—UN—26SEP17

- Avoid injury from crushing: Always use safety support when working on a raised bed or attachment.

KL66860,000034B-19-21SEP17

DRAWBAR LOAD

Do not exceed recommended drawbar loads stated on label.



TCT015487—UN—26SEP17

- Horizontal 1500 lb (6672 N)
- Vertical 200 lb (889 N)

DK75838,0000772-19-23SEP13

WARNING

USE SEAT BELT



TCT015485—UN—26SEP17

- To avoid injury from crushing, always wear seat belt. Do not jump from machine.

KL66860,0000352-19-21SEP17

WARNING



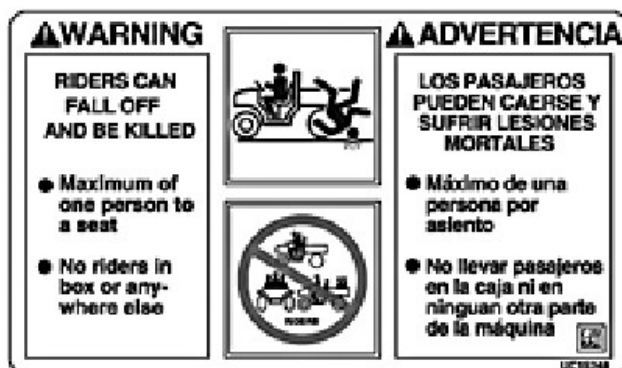
TCT015486—UN—26SEP17

Hot surface.

DK75838,0000774-19-23SEP13

WARNING

RIDERS CAN FALL OFF AND BE KILLED



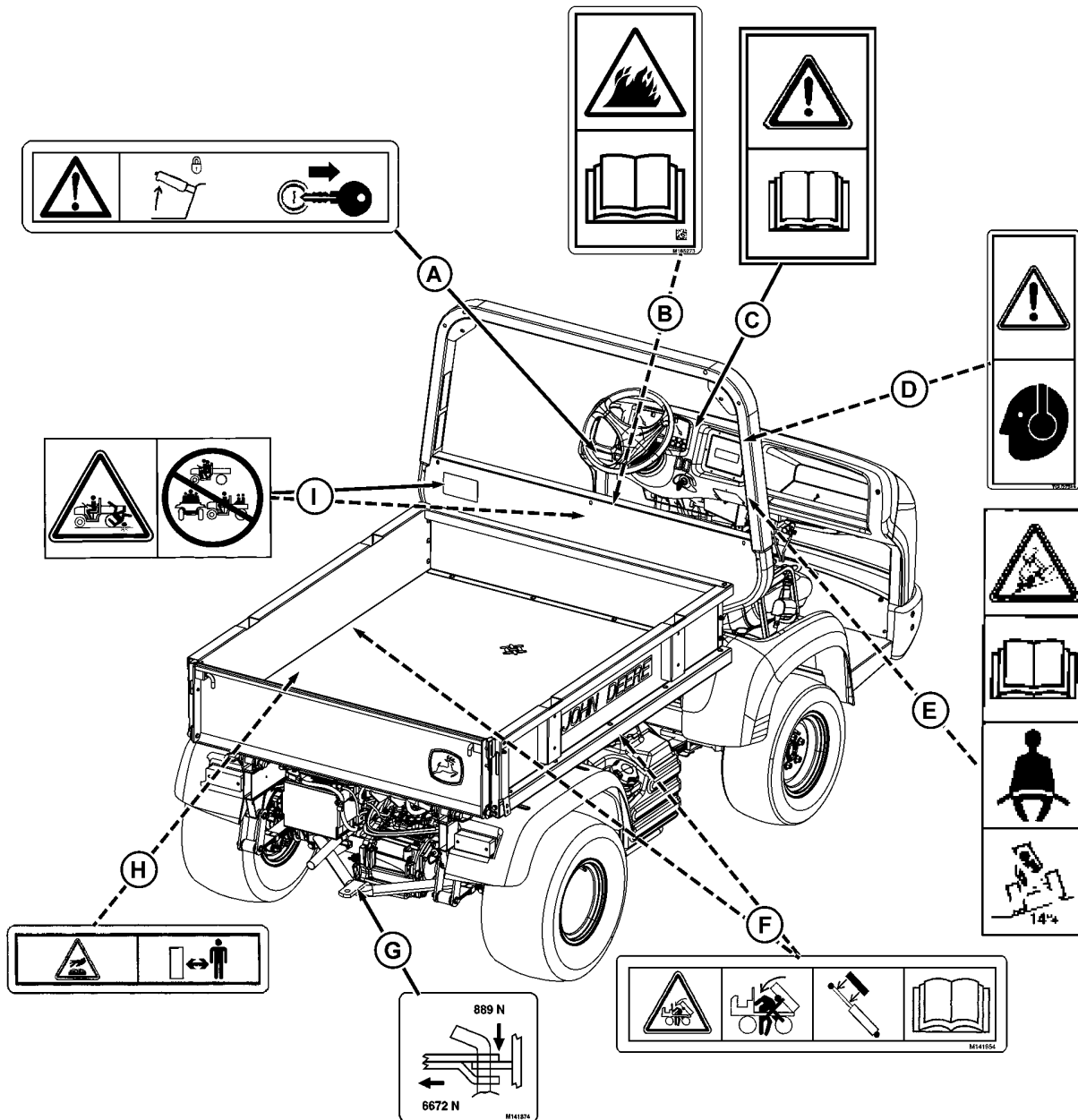
TCT015488—UN—25SEP17

- Maximum of one person to a seat
- No riders in box or anywhere else

KL66860,0000355-19-25SEP17

Safety Labels without Text

Safety Label Location



A—Park Machine Safely M120056
B—Avoid Injury From Equipment Fires M165273
C—Read Operators Manual M142773
D—Avoid Injury From Loud Noises TCU27739
E—Avoid Tipping - EU & Brazil MT6349 / Non-EU Regions
TCU31360

F—Avoid Injury From Crushing M141954
G—Drawbar Load M141875
H—Hot Surfaces TCU13555
I—Riders Can Fall Off and Be Killed MT3562

TCT014172—UN—12SEP16

KL66860,0000348-19-20SEP17

Understanding the Machine Safety Labels without Text



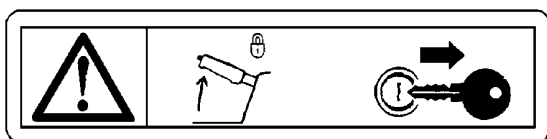
TCT005498—UN—11SEP12

The machine safety labels shown in this section are placed in important areas on your machine to draw attention to potential safety hazards.

On your machine safety labels, the words DANGER, WARNING, and CAUTION are used with this safety-alert symbol. DANGER identifies the most serious hazards.

MX00654,0000389-19-09JAN23

Park Machine Safely



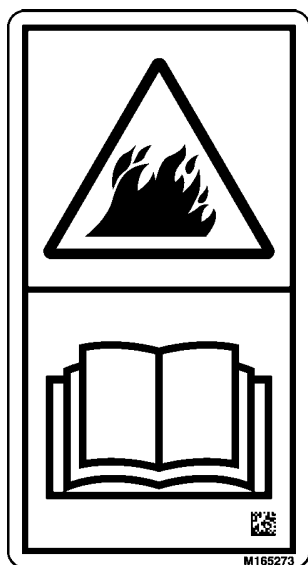
TCAL44987—UN—14MAY13

Before leaving vehicle:

- Stop engine
- Set park brake
- Remove key

MX00654,0000174-19-23SEP13

Avoid Injury From Equipment Fires



TCT014173—UN—12SEP16

- Avoid equipment fires.
- Accumulation of grass, leaves and other debris on or near hot or moving parts can cause a fire.
- Inspect machine before, during, and after use.
- Shut off engine and allow machine to cool before cleaning.

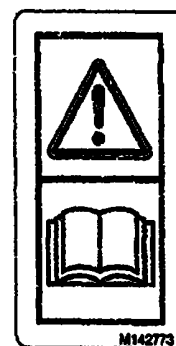
Inspect and clean the entire machine and pay special attention to these locations:

1. Muffler and exhaust pipes
2. Exhaust manifold and heat shields
3. Skid plates
4. Radiator

OUMX068,000112C-19-12SEP16

Read Operator's Manual

Safe Machine Operation

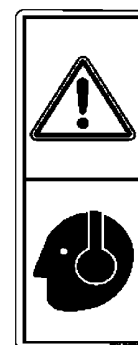


TCAL44985—UN—14MAY13

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

DK75838,000077A-19-23SEP13

Avoid Injury From Loud Noises



TCAL44986—UN—14MAY13

- Prolonged exposure to loud noises can cause impairment or loss of hearing.
- Wear suitable hearing protection.

DK75838,000077B-19-23SEP13

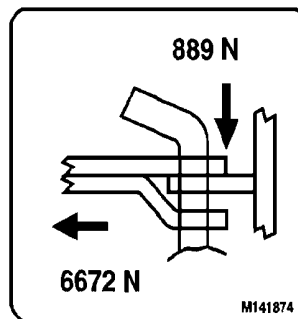
Avoid Tipping



TCAL44982—UN—14MAY13

- To avoid injury from crushing, always wear seat belt. Do not jump from machine.
- Read the Operator's Manual.
- Always use seat belt.
- Avoid tipping by identifying slopes for safe operation.

DK75838,0000777-19-23SEP13

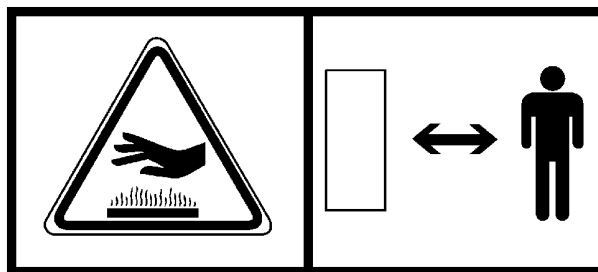


TCAL44991—UN—14MAY13

- Horizontal 6672 N (1500 lb)
- Vertical 889 N (200 lb)

DK75838,0000780-19-26SEP13

Hot Surfaces

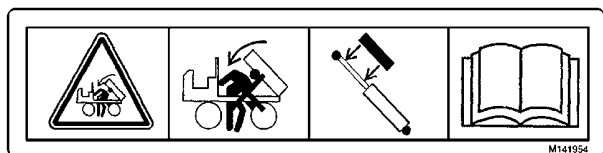


MXT008445—UN—27AUG13

Keep away from hot surfaces.

MX00654,00000D3-19-27AUG13

Avoid Injury From Crushing



TCAL44988—UN—14MAY13

Always use safety support when working on a raised bed or attachment.

DK75838,000077D-19-23SEP13

Riders Can Fall Off and Be Killed



MXT008453—UN—20JUL17

- Maximum of one person to a seat.
- No riders in box or anywhere else.

MX00654,00000D6-19-28OCT13

Drawbar Load

Do not exceed recommended drawbar loads stated on label.

Safety

Supervisor Safety Responsibilities

- Make sure all operators of this machine are thoroughly trained and are familiar with the operator's manual and understand the machine warning labels.
- Be sure to establish any special safety procedures for existing work conditions and train operators in those procedures.
- Supervisors, operators and mechanics should be familiar with and practice the safety standards that apply to this machine.

RH75544,0000159-19-08APR13

Operator Training Required

- Read the operator's manual and other training material. If the operator or mechanic cannot read English, it is the owner's responsibility to explain this material to them. This publication is available in other languages.
- Become familiar with the safe operation of the equipment, operator controls, and safety signs.
- All operators and mechanics should be trained. The owner of the machine is responsible for training the users.
- Never let children or untrained people operate or service the equipment. Local regulations may restrict the age of the operator.
- The owner/user can prevent and is responsible for accidents or injuries occurring to themselves, other people, or property.
- Operate the machine in an open, unobstructed area under the direction of an experienced operator when training.

RH75544,000015A-19-03APR18

Operating Safely

- Read, understand and follow all instructions in the operator's manual, on the machine and on the safety video before starting.
- Do not misuse the utility vehicle. It is a utility vehicle, not a recreation vehicle.
- The utility vehicle's tires are designed for off-road use only. Paved surfaces may seriously affect handling and control of the vehicle. If you must operate on a paved surface, travel slowly and do not make sudden turns or stops.
- Do not operate this vehicle on a frozen body of water. The vehicle could break through the ice, causing injury or even death.
- Go slowly and be extra careful when riding on snow-covered or ice-covered terrain.
- Slow down and be careful of traffic when operating

near or crossing roadways. Use care when approaching blind corners, shrubs, trees, or other objects that may obscure vision.

- The operator should always make sure that the passenger is aware of correct safety procedures while riding in the utility vehicle.
- Use the correct flags, lights, signs and reflectors on the vehicle to warn other drivers when operating near roadways. Make sure these features are clean and visible for 500 feet (152 m).
- The passenger should always use the hand holds.
- To avoid serious injury, always ensure that occupants have safely secured their seat belts prior to starting this vehicle.
- Horseplay or recreational riding can lead to accidents, severe bodily injury or death. Do not attempt stunts, jumps, or quick acceleration to raise front wheels off the ground. These actions can result in accidents or vehicle overturns.
- Sit on the center of the seat and keep both feet within the foot platform perimeter. Clean foot platform if dirty, and remove any debris from around foot controls.
- Check for debris in engine compartment, especially around brake linkage on each side of the transaxle.
- Always use both hands for steering.
- Know location of controls and how and what they operate.
- Never operate utility vehicle while standing.
- Never operate utility vehicle with the cargo box raised.
- Check brake action before beginning vehicle operation. Adjust or service the brakes as necessary.
- To provide adequate braking ability and traction, do not tow any attachment or loaded trailer unless the cargo box is fully loaded.
- Before shifting into reverse, always check for obstacles or people behind the machine.
- Always back slowly.
- Inspect vehicle before operating. Be sure hardware is tight. Repair or replace damaged, badly worn, or missing parts. Be sure guards and shields are in good condition and fastened in place. Make any necessary adjustments before operating.
- Do not leave vehicle unattended when it is running.
- Operate during daylight or with good artificial light and if you drive at night, use the lights.
- Do not operate vehicle if under the influence of alcohol or other drugs.
- Avoid sudden starts, stops, or turns.
- Always use a level turn-around area.
- Do not wear radio or music headphones. Safe service and operation require your full attention.

DK75838,0000784-19-01APR13

Using a Spark Arrestor

The California Public Resources Code, Section 4442.5 provides as follows:

No person shall sell, offer for sale, lease, or rent to any person any internal combustion engine subject to Section 4442 or 4443, and not subject to Section 13005 of the Health and Safety Code, unless the person provides a written notice to the purchaser or bailee, at the time of sale or at the time of entering into the lease or rental contract, stating that it is a violation of Section 4442 or 4443 to use or operate the engine on any forest-covered, brush-covered, or grass-covered land unless the engine is equipped with a spark arrestor, as defined in Section 4442, maintained in effective working order or the engine is constructed, equipped, and maintained for the prevention of fire pursuant to Section 4443. Cal. Pub. Res. Code 4442.5.

Other states or jurisdictions may have similar laws. A spark arrestor for your machine may be available from your authorized dealer. An installed spark arrestor must be maintained in good working order by the operator.

OUO2005,0000213-19-05JUL17

Parking Safely

1. Stop vehicle on a level surface, not on a slope.
2. Place gearshift lever in first or reverse position.
3. Lock park brake.
4. Stop engine.
5. Remove key.
6. Before you leave the operator's seat, wait for engine and all moving parts to stop.
7. Disconnect the negative battery cable or remove the spark plug wire (for gasoline engines) before servicing the machine.

DK75838,0000786-19-01APR13

Protect Children/Small Adults and Prevent Accidents

- This utility vehicle should not be operated by anyone under the age of 16 years.
- This utility vehicle should not be operated by anyone without a valid driver license.
- Young drivers may not be physically able to control the machine or may not be mature enough to make safe driving decisions.
- Do not allow small children to ride as passengers in this vehicle because they may not be able to sit safely in the seat and use handholds properly. All passengers must be able to grasp handholds with their back against the seat, both feet on the floor, and seat belt on (if equipped).

- Passenger should always use the handholds while the vehicle is moving.
- Seat belts installed on utility vehicles are not designed to restrain children.
- Never carry passengers, especially children, in the cargo box area. Do not tow children in a cart or trailer.
- Never assume that children will remain where you last saw them. Stay alert to the presence of children.
- Before backing or turning, look behind and around the utility vehicle for children.
- Be alert at all times; drive forward and in reverse carefully. People, especially children, can move quickly into an area of operation.
- Use extra care when coming to blind corners, shrubs, trees, or other objects that may block vision.
- Misuse can lead to accidents, severe bodily injury, or death.

OUOM068,0000D6A-19-05JUL17

Use Seat Belt Properly



TCAL25959—UN—24MAY12

- Use a seat belt when you operate with a Roll-Over Protective Structure (ROPS) to minimize chance of injury from an accident, such as an overturn.
- Never modify, disassemble or attempt to repair the seat belt.
- Replace entire seat belt if mounting hardware, buckle, belt, or retractor show signs of damage.
- Inspect seat belt and mounting hardware at least once a year. Look for signs of loose hardware or belt damage, such as cuts, fraying, extreme or unusual wear, discoloration, or abrasion. Replace only with John Deere-approved replacement parts.
- Layers of heavy clothing can interfere with proper positioning of the seat belt and can reduce the effectiveness of the seat belt.

OUO2005,0000219-19-05FEB13

Use Seat Belt Properly



TCAL45386—UN—03APR13

- Use a seat belt when you operate with a Roll-Over Protective Structure (ROPS) to minimize chance of injury from an accident, such as an overturn.

- Never modify, disassemble or attempt to repair the seat belt.
- Replace entire seat belt if mounting hardware, buckle, belt, or retractor show signs of damage.
- Inspect seat belt and mounting hardware at least once a year. Look for signs of loose hardware or belt damage, such as cuts, fraying, extreme or unusual wear, discoloration, or abrasion. Replace only with John Deere-approved replacement parts.
- Layers of heavy clothing can interfere with proper positioning of the seat belt and can reduce the effectiveness of the seat belt.

DK75838,0000788-19-13MAY13

Keep ROPS Installed Properly

- Never operate the machine without the ROPS installed.
- Make certain all parts of the ROPS are installed correctly if the ROPS structure is loosened or removed for any reason. All ROPS hardware should be tightened to the proper torque per manufacturer's recommendations.
- Any alteration of the ROPS must be approved by the manufacturer. The protection provided by the ROPS will be impaired if the ROPS is subjected to structural damage, is involved in an overturn incident, or is in any way altered by welding, bending, drilling, or cutting.
- The seat is part of the ROPS safety zone. Replace only with John Deere-approved seat.
- Never attempt to repair a damaged or altered ROPS. It must be replaced to maintain the manufacturer's certification of the structure.
- Conforms to ISO21299:2009 for energy absorbing ROPS requirements.

DK75838,0000789-19-07JUN22

Avoid Tipping



TCAL45388—UN—03APR13

Accidents resulting in serious injury or death can occur from tipping the utility vehicle. Observe the following practices to help prevent accidents:

- Do not misuse the utility vehicle. The utility vehicle is not designed for recreational riding.
- Drive very slowly when turning. Sharp turns could cause the utility vehicle to tip over.

- Reduce speed and exercise extreme caution on slopes or on rough ground.
- Do not overload vehicle and avoid shifting loads. Reduce load when operating over rough or hilly terrain.
- Do not stop or start suddenly when going uphill or downhill. Be especially cautious when changing direction on slopes.
- Stay alert for holes, rocks, and other hidden hazards in the terrain.
- Keep away from drop-offs, ditches, embankments, as well as ponds and other bodies of water. The machine could suddenly roll over if a wheel goes over the edge of a cliff or ditch or if the edge caves in.
- Keep front wheels straight at crest of hill or going over bumps.
- When descending a hill, remove foot from accelerator and apply brakes to reduce speed and maintain control.
- Do not make changes or modifications to the utility vehicle.

DK75838,000078A-19-13MAY13

Keep Riders Off Vehicle



MXAL43281—UN—15MAR13

- Seating is provided for operator and one adult passenger.
- Never allow riders in the cargo box or other areas where seats are not provided.
- Riders on vehicle are subject to injury such as being struck by foreign objects or being thrown off of the vehicle and severely injured or killed.
- Riders affect the operator's ability to control the vehicle as well as its center of gravity. Also, riders could obstruct the operator's view resulting in the vehicle being operated in an unsafe manner.

MX00654,00000B7-19-24AUG13

Transport Loads Safely

- Be sure load is evenly distributed in cargo box.
- Do not load above height of cargo box.
- Securely anchor all loads in cargo box.
- Reduce cargo box load when operating on rough or hilly terrain.

RH75544,0000165-19-08APR13

Towing Loads Safely With Utility Vehicle

- Do not tow a load that exceeds the maximum allowable towing load for this vehicle, as specified in this operator's manual. (See Determining Vehicle Load Capacity and Weights sections).
- Stopping distance increases with speed and weight of towed load. Travel slowly and allow extra time and distance to stop.
- Tow load at a speed slow enough to maintain control.
- Excessive towed load can cause loss of traction and loss of control on slopes. Reduce towed weight when operating on slopes.
- Never allow children or others in or on towed equipment.
- Use only approved hitches. Tow only with a machine that has a hitch designed for towing. Do not attach towed equipment except at the approved hitch point.
- Follow the manufacturer's recommendations for weight limits for towed equipment and towing on slopes.
- Do not turn sharply. Use additional caution when turning or operating under adverse surface conditions. Use care when reversing.
- Do not shift to neutral and coast downhill.
- Secure towed loads before transporting.

OUMX068,000091B-19-05MAR25

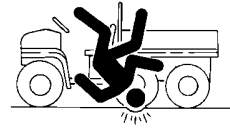
Before Driving

1. Perform Daily Operating Checklist in Operating section.
2. Clean foot platform if dirty, and remove any debris from around foot controls. Sit on the center of seat and keep both feet inside foot platform perimeter.
3. Inspect utility vehicle for signs of wear or damage.
4. All safety equipment must be in good condition and fastened in place:
 - Lights
 - Shields
 - Safety start devices
5. Before moving, check around utility vehicle, be sure no one is near it.
6. Inspect mechanical condition of your vehicle before each use to minimize chance of injury or being stranded. Remember, you can ride farther in an hour than you can walk in a day.

Be sure to check condition of tires and wheels, wheel hardware torque, and maintain proper tire pressure.
7. Securely anchor all loads.

MX00654,00000B8-19-27APR18

Driving On Rough Terrain

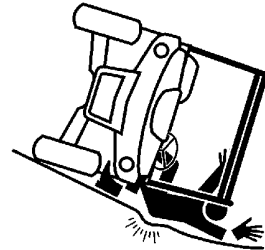


TCAL45389—UN—03APR13

- Use existing trails. Avoid terrain such as dangerous slopes and impassable swamps. Watch carefully for bumps, holes, ruts, loose terrain, or other obstacles.
- Look ahead at terrain. Know what is coming and be prepared to react. Be alert for hazards.
- Keep front wheels straight at crest of hill or going over bumps.
- Reduce speed according to trail, terrain, and visibility conditions.
- The passenger should always use the hand holds.

DK75838,000078F-19-13MAY13

Climbing Or Descending A Hill



MXT008509—UN—10JAN17

- Always use the brakes when going down slopes, the utility vehicle can speed up (freewheel) going down a slope. Engine or clutch braking effect is minimal.
- Balance loads evenly and secure them. Braking could shift the load and affect vehicle stability.
- Sit on center of seat and keep both feet within foot platform.
- Never drive past the limit of visibility. Slow down near crest of hill until getting a clear view of the other side. Never go over the top of any hill at a high speed. An obstacle, sharp drop, another vehicle or person, could be on the other side of the hill.
- Keep front wheels straight at crest of hill or going over bumps.
- Do not stop or start suddenly when going uphill or downhill. Be especially cautious when changing direction on slopes.
- If vehicle stops or loses power going up a hill, lock park brake to hold vehicle on slope. Maintain direction of travel and release brake slowly. Back straight down hill slowly while maintaining control. Do not turn vehicle sideways. Vehicle is more stable in a straight forward or rearward position.
- When descending a hill, remove foot from

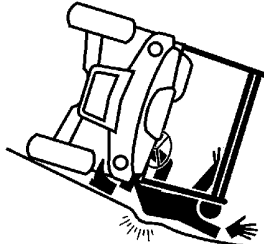
accelerator and apply brakes to reduce speed and maintain control.

OUMX068,000078F-19-23AUG17

torque using the proper procedure anytime it is loosened.

OUC02005,000021D-19-05FEB13

Driving Across Slopes



MXT008509—UN—10JAN17

- Reduce speed and use caution on slopes and in sharp turns.
- Stay alert for holes, rocks and other hidden hazards in the terrain.
- When riding on soft terrain, turn front wheels slightly uphill to keep utility vehicle on a straight line across the hill.
- If utility vehicle begins to tip, turn front wheel downhill to gain control before proceeding.

BB87125,0000D48-19-28FEB17

Wear Appropriate Clothing



TCAL45382—UN—03APR13

- Wear close fitting clothing and safety equipment appropriate for the job.
- Certain operating conditions may dictate that the operator and any passenger wear appropriate safety equipment while operating the vehicle. Be prepared for any existing and potential conditions before operating machine.
- Local safety or insurance regulations may require additional safety equipment such as eye protection or a hard hat.
- Always wear substantial footwear and long trousers. Do not operate the equipment when barefoot or wearing open sandals.

DK75838,0000794-19-13MAY13

Riding Through Water

- Avoid water whenever possible.
- Never cross any body of water where depth may be unknown to the operator. As an operational guideline, deep water is considered anything in excess of 152 mm (6 in.) in depth. Tires may float, making it difficult to maintain control.
- Choose a course within the waterway where both banks have a gradual incline. Cross at a point known to be safe.
- Proceed at a slow steady speed to avoid submerged obstacles and slippery rocks.
- Avoid water crossings where the operation of a utility vehicle may cause damage to waterway beds or erode waterway shoreline.

DK75838,0000792-19-01APR13

Stay Clear of Rotating Drivelines



TCAL45381—UN—03APR13

Entanglement in rotating driveline can cause serious injury or death.

- Wear close fitting clothing.
- Stop the engine and be sure PTO driveline is stopped before getting near it.

DK75838,0000795-19-13MAY13

Checking Wheel Hardware

- A serious accident could occur causing serious injury if wheel hardware is not tight.
- Check wheel hardware tightness often during the first 100 hours of operation.
- Wheel hardware must be tightened to specified

Avoid High Pressure Fluids



TCAL25960—UN—24MAY12

- Hydraulic hoses and lines can fail due to physical damage, kinks, age, and exposure. Check hoses and lines regularly. Replace damaged hoses and lines.
- Hydraulic fluid connections can loosen due to

physical damage and vibration. Check connections regularly. Tighten loose connections.

- Escaping fluid under pressure can penetrate the skin causing serious injury. Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure.
- Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.
- If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source. Such information is available from Deere & Company Medical Department in Moline, Illinois, U.S.A. Information may be obtained in the United States and Canada only by calling 1-800-822-8262.

OUO2005,0000220-19-05FEB13

Practice Safe Maintenance



MXAL41933—UN—18FEB13

- Only qualified, trained adults should service this machine.
- Understand service procedure before doing work. Keep area clean and dry.
- Never lubricate, service, or adjust machine while it is moving. Keep safety devices in place and in working condition.
- Keep hands, feet, clothing, jewelry, and long hair away from any moving parts, to prevent them from getting caught.
- Disconnect battery(ies) or remove spark plug wires (for gasoline engines) before making any repairs.
- Keep all nuts and bolts tightened.
- Securely support any machine elements that must be raised for service work. Lock service latches before working on machine with raised attachments.
- Never run engine unless park brake is locked.
- Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts. Replace all worn or damaged safety and instruction decals.
- To prevent fires, remove any buildup of grease, oil, or debris from the machine, especially the engine.
- Do not modify machine or safety devices. Unauthorized modifications may impair its function and safety.
- Do not wear radio or music headphones while servicing the machine. Safe service requires your full attention.
- Disconnect battery ground cable(s) (-) on the machine or remove attachment from machine before welding on the machine.

RH75544,000016E-19-08APR13

Prevent Fires

- Please review these recommendations with all operators. See your John Deere dealer with questions.
- Always follow all safety procedures posted on the machine and in this operator's manual. Before carrying out any inspection or cleaning, always shut off engine, set parking brake, and remove ignition key.
- Besides routine maintenance, one of the best ways to keep your John Deere equipment running efficiently and to reduce fire risk is to regularly remove debris buildup from the machine.
- After operating, allow machine to cool in an open area before cleaning or storing. Do not park machine near flammable materials, such as wood, cloth, or chemicals, or near an open flame or other sources of ignition, such as a water heater or furnace.
- Completely remove any combustible materials from equipment before storing by emptying any grass catcher bags, containers, and cargo boxes.
- Debris can accumulate anywhere on the machine, especially on horizontal surfaces. Remove grass and debris completely from engine compartment, muffler area, and from the mower deck or cutting units both before and after operating machine. Additional cleaning may be necessary when mowing or mulching in dry conditions.
- In addition to cleaning machine before using and storing, keeping engine area clean provides the greatest impact on fire prevention. Other areas requiring regular inspection and cleaning include behind wheel rims, wire harness, hose or line routing, mowing attachments, etc. Compressed air, leaf blowers, or water assists in keeping these areas clean.
- Frequency of these inspections and cleaning will vary depending on a number of factors, including operating conditions, machine configuration, operating speeds, and weather conditions (particularly dry, hot, and windy conditions). When you are operating in these conditions, inspect and clean these areas frequently throughout the day.
- Excess lubrication or fuel/oil leaks or spills on the machine can also serve as collection sites for debris. Prompt machine repair and oil and fuel clean-up reduces the potential for debris collection.
- Bearing failures or overheating can result in a fire. To reduce this risk, always follow the instructions in the

machine operator's manual regarding lubrication intervals and locations. Contact your local dealer or other service provider if you have any questions about the lubrication intervals or location and if any unusual noises are coming from areas where bearings might be located. Washing the machine while warm may also reduce bearing life and increase potential for premature bearing failure.

- Always shut off fuel when storing or transporting machine, if the machine has a fuel shutoff.
- Check fuel lines, tank, cap, and fittings frequently for cracks or leaks. Replace if necessary.

OUO2005,0000221-19-22JUL25

Do Not Modify Machine

Do not make any unauthorized modifications to the machine in any way.

Modifications can result in making the machine unstable, increasing the possibility of rollover causing severe bodily injury or death.

RH75544,0000170-19-08APR13

Tire Safety



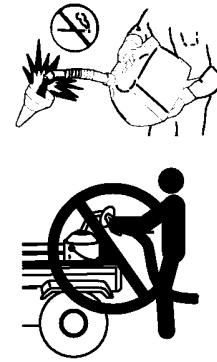
TCAL25965—UN—24MAY12

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

- Do not attempt to mount a tire without 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.
- Check tires for low pressure, cuts, bubbles, damaged rims or missing lug bolts and nuts.

OUO2005,0000222-19-10MAY17

Handling Fuel Safely



MXAL41938—UN—18FEB13

To avoid personal injury or property damage, use extreme care in handling fuel. Fuel is extremely flammable and fuel vapors are explosive:

- Extinguish all cigarettes, cigars, pipes, and other sources of ignition.
- Use only an approved fuel container. Use only non-metal, portable fuel containers approved by the Underwriter's Laboratory (U.L.) or the American Society for Testing & Materials (ASTM). If using a funnel, make sure it is plastic and has no screen or filter.
- Never remove the fuel tank cap or add fuel with the engine running. Allow engine to cool before refueling.
- Never add fuel to or drain fuel from the machine indoors. Move machine outdoors and provide adequate ventilation.
- Clean up spilled fuel immediately. If fuel is spilled on clothing, change clothing immediately. If fuel is spilled near machine, do not attempt to start the engine but move the machine away from the area of spillage. Avoid creating any source of ignition until fuel vapors have dissipated.
- Never store the machine or fuel container where there is an open flame, spark, or pilot light such as on a water heater or other appliance.
- Prevent fire and explosion caused by static electric discharge. Static electric discharge can ignite fuel vapors in an ungrounded fuel container.
- Never fill containers inside a vehicle or on a truck or trailer bed with a plastic liner. Always place containers on the ground away from your vehicle before fueling.
- Remove fuel-powered equipment from the truck or trailer and refuel it on the ground. If this is not possible, then refuel such equipment with a portable container, rather than from a fuel dispenser nozzle.
- Keep the nozzle in contact with the rim of the fuel tank or container opening at all times until the fueling is complete. Do not use a nozzle lock-open device.
- Never overfill fuel tank. Replace fuel tank cap and tighten securely.
- Replace all fuel container caps securely after use.

- For gasoline engines, do not use gas with methanol. Methanol is harmful to your health and to the environment.

OUO2005,0000223-19-12OCT16

Handling Waste Product and Chemicals

Waste products, such as, used oil, fuel, coolant, brake fluid, and batteries, can harm the environment and people:

- Do not use beverage containers for waste fluids - someone may drink from them.
- See your local Recycling Center or authorized dealer to learn how to recycle or get rid of waste products.
- A Safety Data Sheet (SDS) provides specific details on chemical products: physical and health hazards, safety procedures, and emergency response techniques. The seller of the chemical products used with your machine is responsible for providing the SDS for that product.

OUO2005,0000224-19-11OCT18

Using the Lift Cylinder Safety Support

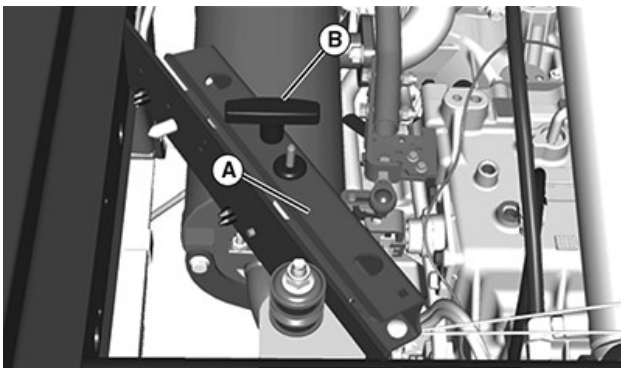
To service vehicle, always use the lift cylinder safety support.

⚠ CAUTION: Avoid injury! Attachment is heavy and can crush.

- Support any raised attachment with a mechanical lock or other safe method before servicing.
- Empty all material from any attachment before servicing.

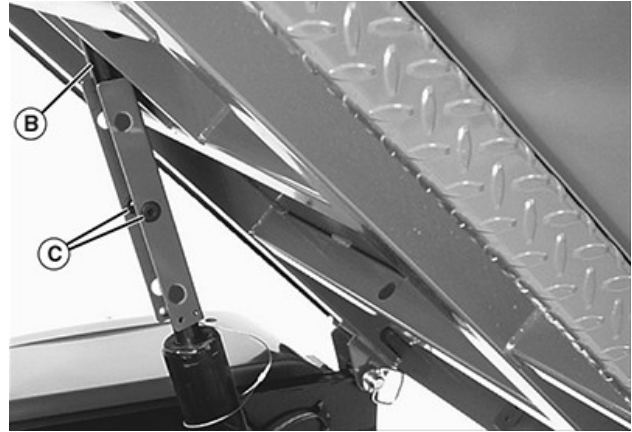
Installing:

1. Empty attachment.
2. Fully raise attachment to service position.
3. Park vehicle safely. (See Parking Safely in the Safety section.)



TCAL44993—UN—14MAY13

4. Remove safety support (A) using handle (B) from stored position in the rear of the vehicle on the left side.



TCAL44994—UN—14MAY13

5. Install safety support onto the lift cylinder rod (B). Be sure that the lift cylinder rod is seated properly between the safety support rubber grommets (C).

Removing:

1. Remove safety support from the lift cylinder rod.
2. Return safety support to the stored position.
3. Lower attachment.

DK75838,000079D-19-29JUN15

Machine Cleanout

General Cleaning Guidelines

Machine must be inspected periodically throughout the day. Buildup of debris must be removed to ensure proper machine function and to reduce the risk of fire. Frequency of these inspections and cleanings vary depending on a number of factors including operating conditions, machine configuration, operating speeds, and weather conditions. Inspections and cleanings may be required multiple times throughout the day particularly in dry, hot, and windy conditions.

IMPORTANT: Avoid fire! Regular and thorough cleaning of machine combined with other routine maintenance procedures listed in the Operator's Manual greatly reduce the risk of fire, downtime, and improve machine performance.

Besides proper maintenance the condition of the material being handled is the most significant factor contributing to fires. Dry, light, and fluffy materials that can create a dust cloud are the most likely to catch fire. Debris can accumulate in various areas especially on horizontal surfaces. Conditions such as wind speed and direction can change where the material accumulates. Be aware of these changing conditions and adjust your cleaning schedule and practices to ensure proper machine function and to reduce the risk of fire.

Always follow all safety procedures posted on the machine and in the Operator's Manual. Before carrying out any inspection or cleaning, always park machine safely. (See Parking Safely in the Safety Section).

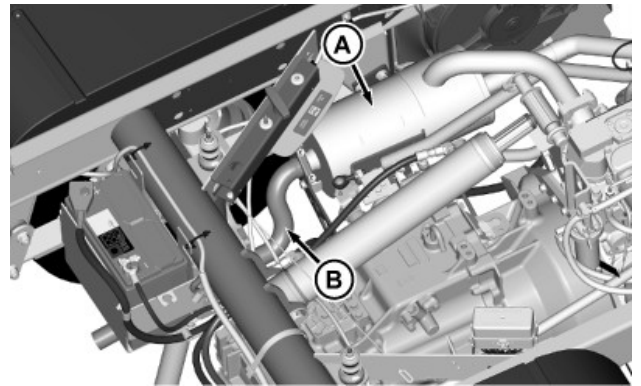
The entire machine should be inspected, with extra attention given to the areas noted below.

OUMX068,0001043-19-03AUG25

Cleanout Areas

Clean and inspect the entire machine (See Safety Label Section). Primary areas that must be inspected and cleaned include the following:

Muffler and Exhaust Pipe

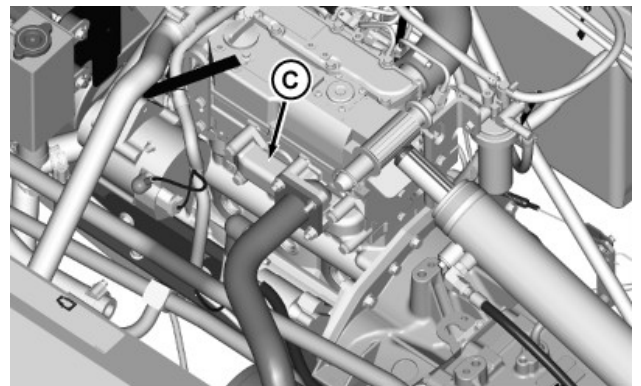


TCT014174—UN—12SEP16

Picture Note: Diesel model shown.

- Muffler (A) and exhaust pipe (B).

Exhaust Manifold

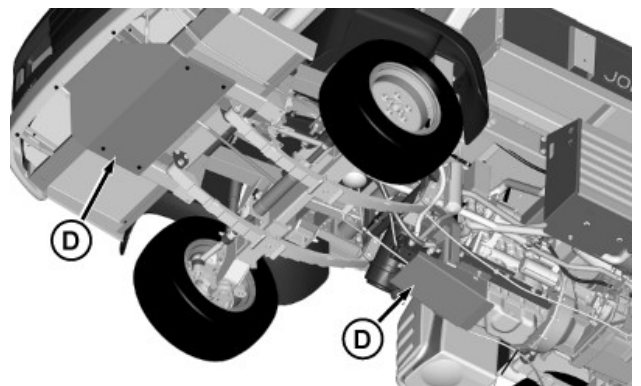


TCT014175—UN—12SEP16

Picture Note: Diesel model shown.

- Exhaust manifold (C).

Skid Plates

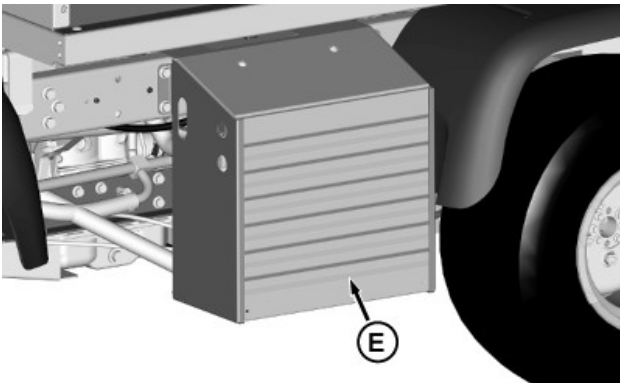


TCT014177—UN—12SEP16

Picture Note: Diesel model shown.

- Skid plates (D).

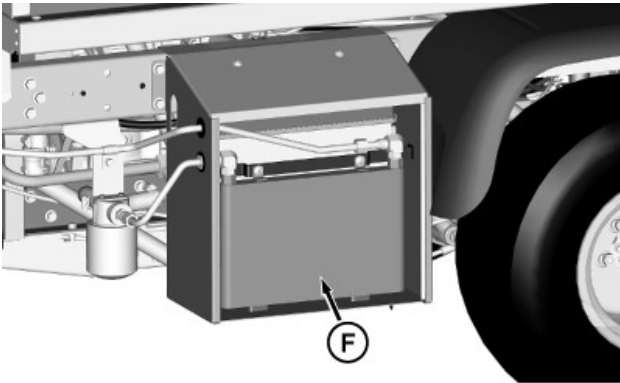
Radiator Screen



TCT014178—UN—12SEP16

- Radiator screen (E).

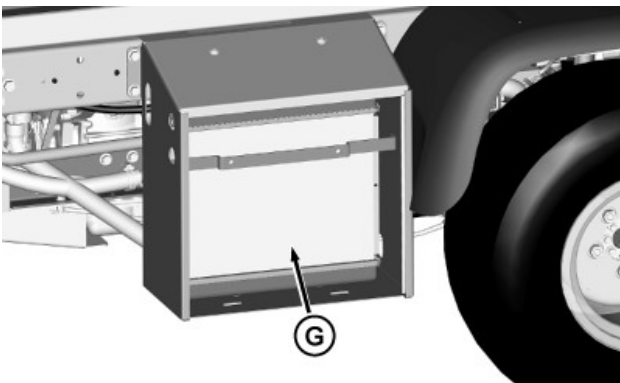
Oil Cooler Fins (Machines with Auxiliary Hydraulics)



TCT014179—UN—12SEP16

- Oil cooler fins (F).

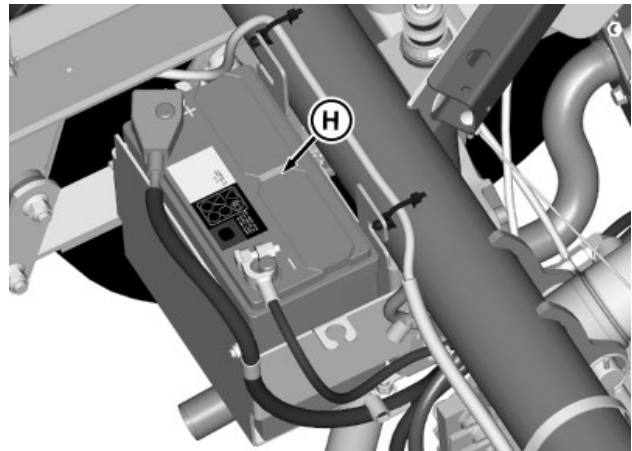
Radiator Fins



TCT014180—UN—12SEP16

- Radiator fins (G).

Battery Area



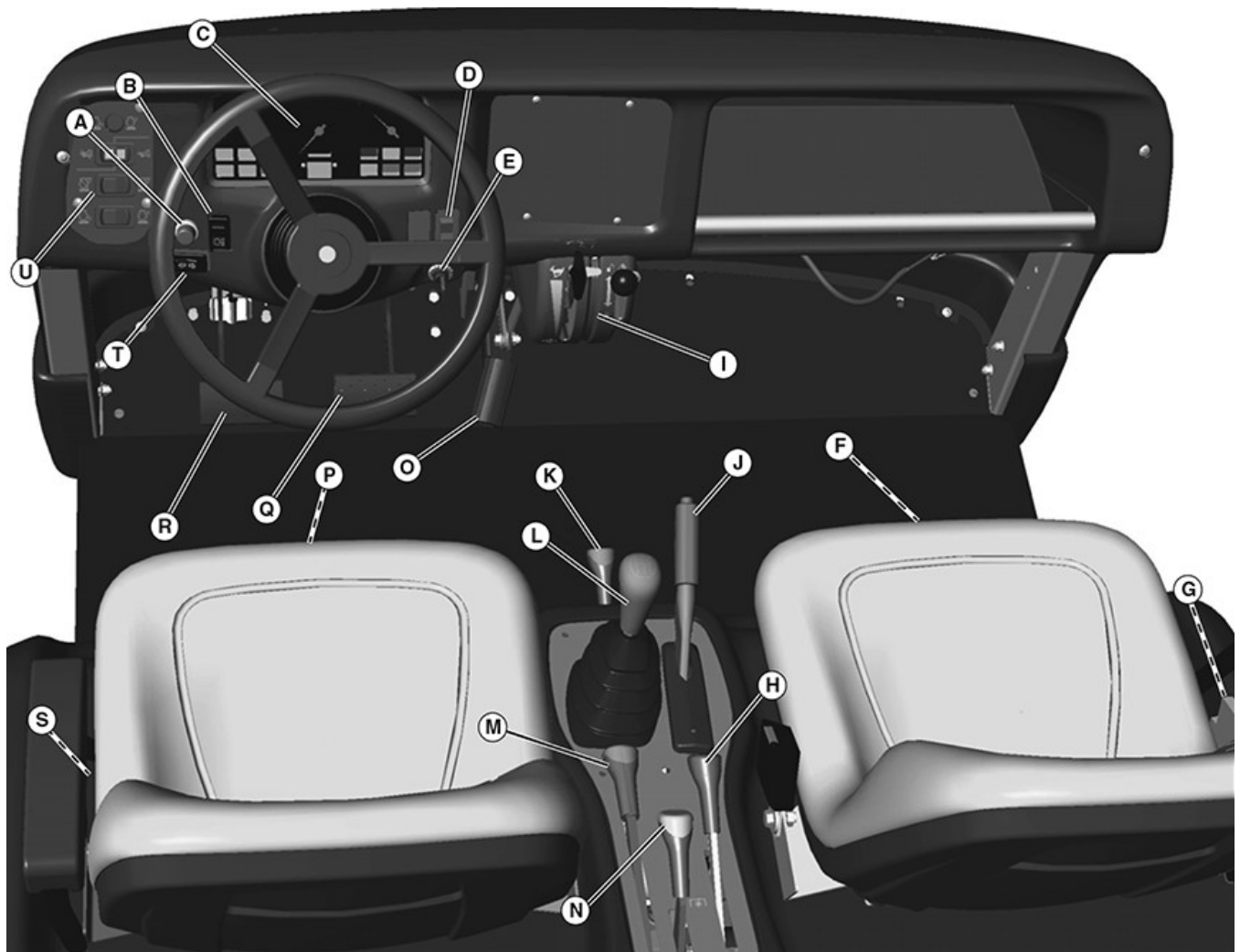
TCT014181—UN—12SEP16

- Battery (H) and related harnesses.

OUMX068,000112D-19-12SEP16

Operating Controls

Operator Station Controls



TCAL44995—UN—14MAY13

- A—Horn
- B—Light Switch
- C—Instrument Panel
- D—Hazard Switch (Optional)
- E—Key Switch
- F—Passenger Seat Adjustment Lever
- G—Passenger Seat Belt
- H—Lift Cylinder Lever
- I—Throttle Governor Control (Optional Diesel Models)
- J—Park Brake Lever
- K—2WD/4WD Lever (Optional)
- L—Gear Shift Lever
- M—Differential Lock Lever (Traction Assist)
- N—Hydraulic PTO lever (Optional)
- O—Accelerator Pedal
- P—Operator Seat Adjustment Lever
- Q—Brake Pedal
- R—Clutch Pedal
- S—Driver Seat Belt
- T—Turn Signal Switch (Optional)
- U—Multi-Mode Throttle Control (Optional Gas Models)

OUMX068,000074B-19-17APR14

Operating

Daily Operating Checklist

- ☐ Test safety interlock system.
- ☐ Inspect tires and check air pressure.
- ☐ Clean debris from machine.
- ☐ Check for loose, missing, or damaged parts.
- ☐ Check engine oil level, and for leaks.
- ☐ Check transaxle oil level, and for leaks.
- ☐ Check coolant level, and for leaks.
- ☐ Check and clean air intake screen and fan shroud.
- ☐ Check fuel tank level, and for leaks.
- ☐ Check area below machine for any leaks.

DK75838,000079F-19-01APR13

Avoid Damage to Plastic and Painted Surfaces

- Do not wipe plastic parts unless rinsed first. Using a dry cloth may cause scratches.
- Insect repellent spray may damage plastic and painted surfaces. Do not spray insect repellent near machine.
- Be careful not to spill fuel on machine. Fuel may damage surface. Wipe up spilled fuel immediately.
- Prolonged exposure to sunlight will damage hood surfaces.

DK75838,00007A0-19-01APR13

Adjusting Seats

1. Sit on the operator or passenger seat.



APY46185—UN—12APR21

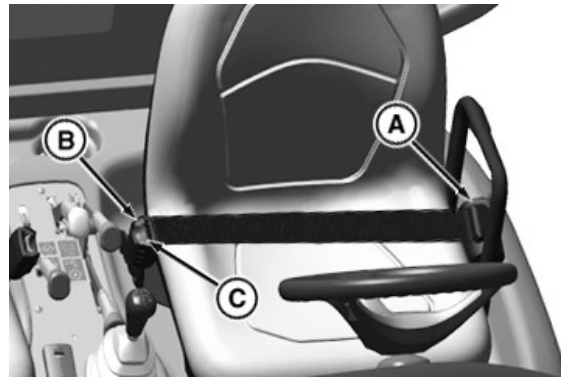
2. Pull and hold the lever (A) to left.
3. Slide seat forward or rearward to the desired position.
4. Release lever.

FENAFNX,00003C1-19-14APR21

Using Seat Belts

⚠ CAUTION: Avoid injury! Always wear a seat belt when operating machine with a Roll-Over Protective Structure (ROPS) or a cab. Do not jump from machine if machine tips.

To Connect the Seat Belt:



APY46186—UN—12APR21

- With one continuous motion, pull seat belt from retractor (A) and across hips and waist.

NOTE: If seat belt stops short of being able to insert into latch, allow belt to return into the retractor and pull again.

- Insert buckle into latch (B) on other side of seat. When properly inserted into the latch, the buckle clicks.

To Disconnect the Seat Belt:

- Press red button (C). Allow seat belt to return to retractor.

FENAFNX,00003C2-19-14APR21

Testing Safety Systems



TCT005796—UN—08NOV12

⚠ CAUTION: Avoid injury! Engine exhaust fumes contain carbon monoxide and can cause serious illness or death.

- **Move the machine to an outside area before running the engine.**
- **Do not run an engine in an enclosed area without adequate ventilation.**
- **Connect a pipe extension to the engine exhaust pipe to direct the exhaust fumes out of the area.**
- **Allow fresh outside air into the work area to clear the exhaust fumes out.**

The safety systems installed on your machine should be checked before each machine use. Be sure you have read the machine operator manual and are completely familiar with the operation of the machine before performing these safety system checks.

Use the following checkout procedures to check for normal operation of machine.

If there is a malfunction during one of these procedures, do not operate machine. **See your authorized dealer for service.**

Perform these tests in a clear open area. Keep bystanders away.

OUMX068,0000775-19-14JUN23

Testing Seat and Park Brake Switches

1. Operator on seat.
2. Lock the park brake.
3. Move gearshift lever to the neutral position.
4. Start engine.
5. With engine running at slow idle, raise off seat.
6. Engine must continue to run.
7. Operator on seat.
8. Unlock park brake.
9. Raise off seat.

Result: Engine must stop within five seconds. If the engine does not stop, there is a problem with the safety interlock circuit. See your authorized dealer.

DK75838,00007A4-19-01APR13

Testing Neutral Switch

1. Operator on seat.
2. Lock park brake.
3. Move the gearshift lever to the "R" (reverse) position.
4. Turn the key switch to the start position.
5. Engine must not crank.

6. Repeat starting procedure with shift lever in each gear.
7. Engine must not crank.
8. Move the gearshift lever to the neutral position.
9. Turn the key switch to the start position.

Result: Engine should crank. If the engine should start with the gearshift lever in any position other than the neutral position, there is a problem with the safety interlock circuit. See your authorized dealer.

DK75838,00007A5-19-01APR13

Testing Auxiliary Hydraulic System Switch

CAUTION: Avoid injury! The PTO interlock switch is a safety feature designed to prevent engine start-up when the PTO control lever is in the on position. The interlock eliminates supply pressure to the auxiliary quick couplers. Never operate the vehicle if the PTO interlock system is defective or disconnected. Sudden, unexpected operation of an auxiliary attachment could occur during vehicle start-up.

NOTE: Make sure that no attachments are connected to the auxiliary hydraulic quick couplers at the rear of the vehicle.

1. Operator on seat.
2. Lock park brake.
3. Move the gearshift lever to the neutral position.
4. Pull up hydraulic PTO lever to the ON position.
5. Turn the key switch to the start position.

Result: Engine must not start. If the engine starts, there is a problem with the safety interlock circuit. See your authorized dealer.

DK75838,00007A6-19-29JUN15

Using Light Switch

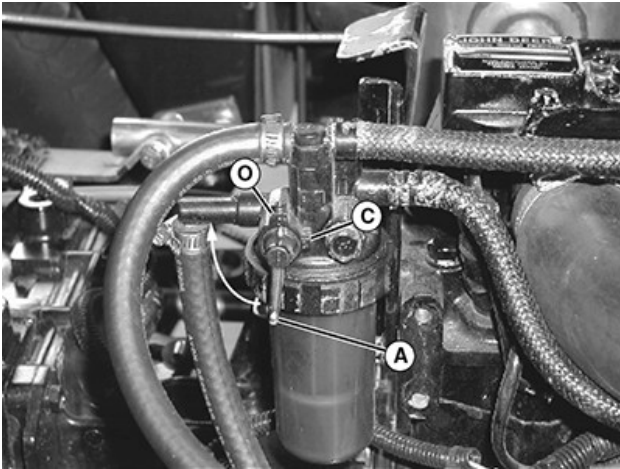
NOTE: Using headlights for extended periods of time without engine running will discharge the battery.

1. Push in on top of rocker switch to turn lights on.
2. Push in on bottom of rocker switch to turn lights off.

DK75838,00007A7-19-01APR13

Using Fuel Shut-Off Valve (Diesel Models)

1. Locate fuel filter sediment bowl assembly on the right side of the engine.



TCAL44999—UN—14MAY13

Fuel shut-off valve shown in the open position.

2. Rotate two-position fuel shut-off valve lever (A) to the "O" (open) position or "C" (closed) position.

"C" (Closed) Position

- When performing any type of engine service.
- When transporting.
- During periods of extended storage.

"O" (Open) Position

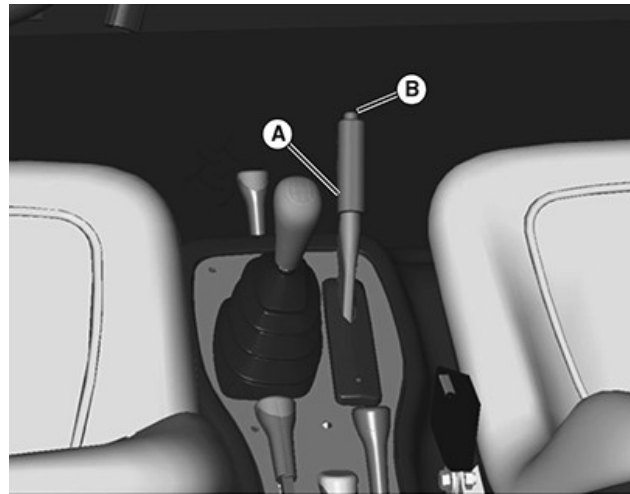
- Fuel shut-off valve must be in the full open position for proper fuel delivery to the engine.

DK75838,00007A8-19-01APR13

Using the Park Brake

⚠ CAUTION: Avoid injury! Always lock the park brake when the utility vehicle is left unattended. If park brake is not locked, the vehicle can begin to move without an operator present.

To Lock Park Brake



TCAL45000—UN—14MAY13

- Pull up lever (A) and latch into position.

To Unlock Park Brake

- Pull up on lever (A).
- Depress button (B).
- Push lever (A) down completely. Instrument panel indicator light must go out.

DK75838,00007A9-19-29JUN15

Using the Differential Lock Lever

⚠ CAUTION: Avoid injury! Chance of tipping the vehicle is increased when the differential lock is engaged. Do not attempt to turn the vehicle on slopes and hills. Do not operate the vehicle at high speeds.

The differential lock is used to provide better traction when the rear wheels of the vehicle start to slip. Engaging the differential lock lever locks the left and right rear axles together and causes both rear wheels to turn at equal speeds for maximum traction.

IMPORTANT: Avoid damage! To prevent damage to differential, do not engage differential lock when either rear wheel is slipping.

NOTE: Vehicle turning radius is increased when the differential lock is engaged.

To Engage Differential Lock:

- Stop vehicle.
- Pull up and hold differential lock lever in the raised position. Hold lever in the raised position as long as there is rear wheel slippage.

To Disengage Differential Lock:

- Lower differential lock lever.

DK75838,00007AA-19-29JUN15

Using Four Wheel Drive (4WD)

The 4WD system is manual shift, allowing the power train to drive the front wheels in addition to the rear wheels for improved traction on difficult ground conditions.

Only use tires listed in the SPECIFICATIONS to avoid 4WD damage.

Engaging and Disengaging 4WD

IMPORTANT: Avoid damage! Do not engage 4WD when the rear wheels are slipping, internal gears can be damaged. Machine must be stopped or traveling at a steady speed, in a straight line, to engage 4WD.

- Push down on 4WD lever to engage.
- Pull up on 4WD lever to disengage. If traveling forward, it can be necessary to lift foot from the accelerator momentarily to allow 4WD to disengage.

Tips for operating 4WD:

- Maintain recommended front and rear tire pressures to ensure optimum performance on all surface conditions.
- Disengage 4WD when driving machine on paved or hard packed surfaces to increase front tire life and reduce drivetrain wear.

DK75838,00007AB-19-29JUN15

Using the Hydraulic PTO Control Lever

Perform this operational procedure with vehicles equipped with the auxiliary hydraulic kit. Engaging the hydraulic PTO lever provides auxiliary hydraulics for attachments requiring the capability.

Dash indicator illuminates when PTO is engaged.

IMPORTANT: Avoid damage! Do not operate PTO control lever without an auxiliary attachment connected. Hydraulic flow is blocked and pressure bypasses through relief port of hydraulic control valve causing excessive heat buildup and possible component failure.

Check the auxiliary hydraulic oil level before each use.

To Engage the Hydraulic PTO:

- Pull up hydraulic PTO lever to the on position.

To Disengage the Hydraulic PTO:

- Push Hydraulic PTO lever down to the off position.

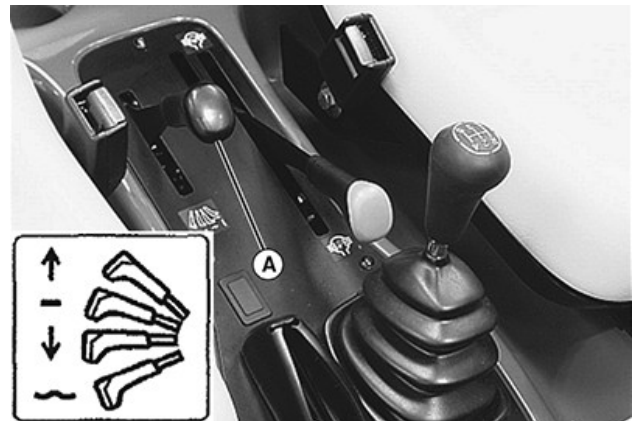
DK75838,00007AC-19-30JUN15

Using the Lift Cylinder Lever

⚠ CAUTION: Avoid injury! Make sure that the vehicle is on a hard, level surface and the park brake is locked before raising the cargo box. If the vehicle is facing uphill with the cargo box raised, the weight of the cargo box can cause the vehicle to tip. Do not perform a service function under a raised attachment without the lift cylinder safety support properly installed.

To Raise Attachment

1. Start engine.



TCAL45001—UN—14MAY13

2. Pull and hold back lever (A) to raise attachment.
3. Release lever. Lever returns to the neutral position, and attachment is held in position with the lift cylinder locked in place.

To Lower Attachment

NOTE: An attachment can be lowered and the lift cylinder retracts with the engine running or the engine stopped.

1. Push and hold down lever until attachment is lowered or positioned as desired.
2. Release lever. Lever returns to the neutral position, and attachment is held in position, with the lift cylinder locked in place.

NOTE: When operating the machine with the auxiliary hydraulic PTO engaged, it is recommended that the lift cylinder lever be held down momentarily after the attachment has been lowered. This will firmly seat the load check for the lift cylinder spool which locks the lift cylinder in position.

When operating the machine with a cargo box attachment having the tailgate release kit installed, the lift cylinder lever must be held down momentarily after the box has been lowered. This will lock the tailgate and eliminate tailgate rattle.

To Allow Attachment to Float

NOTE: Float position allows the lift cylinder to move freely for use with some ground following attachments.

Placing the lift cylinder lever in the float position causes a raised attachment to lower by gravity until down. For best control of raised loads, it is recommended that the float position is not used to lower attachments.

1. Push lever (A) down, through "lower" position, and with extra force, push lever down past detent to lock lever into float position.
2. Pull up lever to release float position.
3. Release lever. Lever returns to the neutral position, and attachment is held in position, with the lift cylinder locked in place.

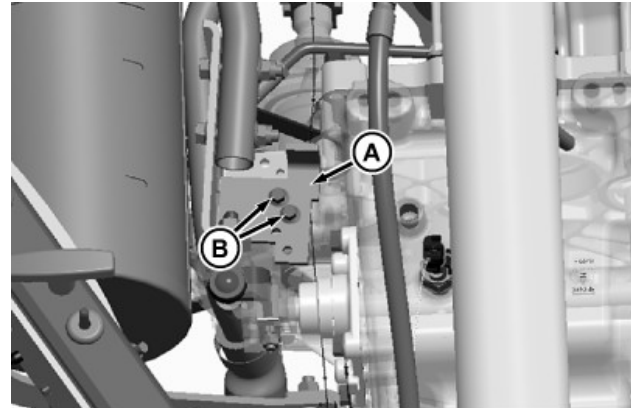
DK75838,00007AD-19-29JUN15

Using the Fourth and/or Fifth Gear Lockout

CAUTION: Avoid injury! Reduce speed before braking or turning, when hauling loads, and when operating around obstacles or on hazardous off-road conditions.

NOTE: Setting the gear lockout requires access to the transmission shift input shaft on the left side of the transmission, above the rear axle. If an attachment is installed, empty attachment and raise to service position. Park safely (see Using the Lift Cylinder Safety Support in the Safety section) and install the safety support.

Make sure that the vehicle is on a hard level surface, and the park brake is locked. Place the transmission in "Neutral" and turn the key switch to the STOP position before setting the fourth and/or fifth gear lockout.



TCT012901—UN—16JUL15

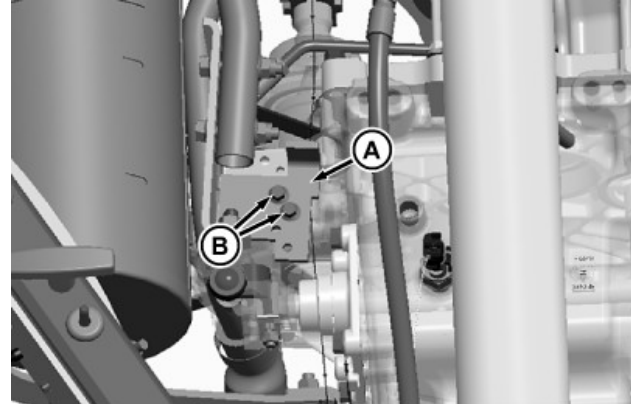
This vehicle is equipped with a lock bracket feature (A) for 4th and/or 5th gear lockout. Preventing the use of 4th or 5th gear while limiting vehicle ground speed is advisable in certain operating conditions.

The lockout feature was included in a parts bag from the factory to allow all gears. Use of the lockout feature requires installation of two factory bolts (B).

To Lock Out Fifth Gear:

NOTE: If vehicle transmission is already in fifth gear, lock does not operate.

1. Move gearshift lever to any position except fifth gear.



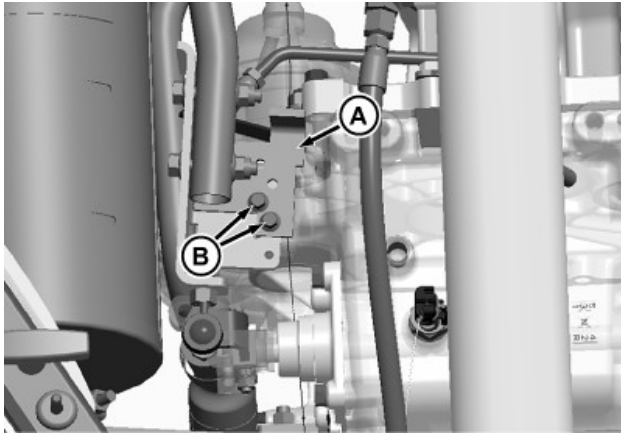
TCT012901—UN—16JUL15

2. Position lock bracket (A) as shown and fasten with two bolts (B).
3. Remove safety support and lower attachment.

To Lock Out 4th and 5th Gear:

NOTE: If vehicle transmission is already in fourth or fifth gear, lock does not operate.

1. Move gearshift lever to any position except 4th or 5th gear.



TCT012902—UN—16JUL15

2. Position lock bracket (A) as shown and fasten with two bolts (B).
3. Remove safety support and lower attachment.

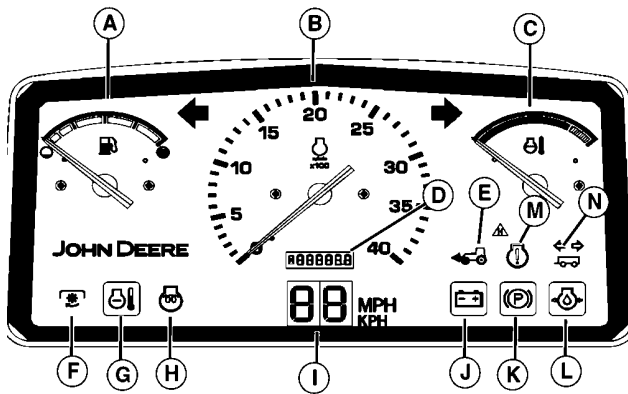
To Unlock 4th and/or 5th Gear:

NOTE: Setting the gear lockout requires access to the transmission shift input shaft on the left side of the transmission, above the rear axle. If an attachment is installed, empty attachment and raise to service position. Park safely (see Using the Lift Cylinder Safety Support in the Safety section) and install the safety support.

1. Remove bracket and bolts, and store separately from machine.
2. Remove safety support and lower attachment.

OUMX068,0000CDA-19-16JUL15

Instrument Panel



TCAL45006—UN—14MAY13

- A— Fuel Gauge
- B— Tachometer
- C— Engine Coolant Temperature Gauge
- D— Hour Meter
- E— Four Wheel Drive (4WD) Indicator (If equipped)
- F— PTO Indicator
- G— Engine Coolant Temperature Indicator
- H— Glow Plug Circuit Indicator (Diesel Model)
- I— Speedometer LED Display
- J— Battery Low Voltage Indicator
- K— Park Brake Indicator
- L— Engine Oil Pressure Indicator
- M— Check Engine Indicator - Malfunction Indicator Lamp (MIL) (Gas Models)
- N— Not Used

Fuel Gauge (A) shows approximately how much fuel is in the fuel tank.

Tachometer (B) is an instrument used to determine speed. Engine speed is shown in 100s. Example: If indicator is pointing at 20 (20 x 100 = 2000 rpm).

Engine Coolant Temperature Gauge (C) will indicate if engine temperature becomes excessive. If the gauge indicator needle moves all the way into the red zone, stop vehicle engine immediately and determine cause.

Gas Models Only - Engine RPM's and power will automatically be reduced when indicator needle is sustained for 10 seconds or more within the red zone.

Hour Meter (D) shows the approximate number of hours the engine has run. Use the hour meter and the Service Interval Chart to determine when the vehicle will need service.

Four Wheel Drive (4WD) Indicator (If equipped) (E) is visible only when lighted and will illuminate when the four wheel drive (4WD) is engaged.

PTO Indicator (F) is visible only when lighted and will illuminate when the hydraulic PTO lever is engaged.

Engine Coolant Temperature Indicator (G) will illuminate when the engine coolant approaches a dangerously hot temperature. Reduce engine to idle speed. Check the engine coolant level and make sure air flow to the radiator is not obstructed. Continued operation may cause higher temperatures resulting in damage.

Gas Models Only - Engine RPM's and power will automatically be reduced when light is illuminated.

Glow Plug Indicator (Diesel Model) (H) is visible only when lighted and will illuminate when the key switch is turned to the run position. The indicator light should go off approximately 3 seconds after the key switch is turned to the run position. This indicates that the engine glow plugs are on and preheating the engine combustion chamber.

Speedometer LED Display (I) will illuminate when the key switch is turned to the run position. This LED display indicates vehicle speed.

Battery Discharge Indicator (J) will illuminate when the key switch is turned to the run position. The indicator should turn off once the engine is started; if it continues to illuminate, the alternator may not be producing adequate current. Stop engine and determine cause.

Park Brake Indicator (K) will illuminate when the park brake is locked.

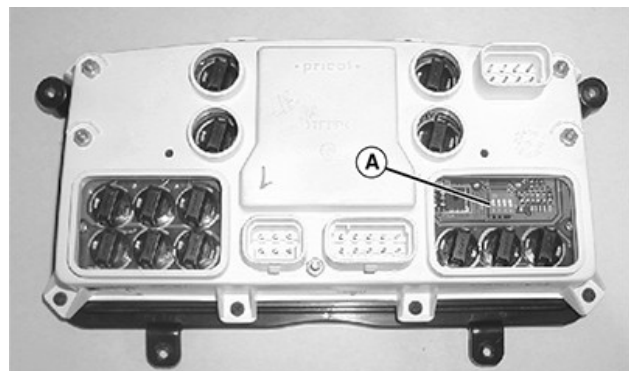
Engine Oil Pressure Indicator (L) will illuminate when engine oil pressure is low. If lamp glows when engine is running, stop engine immediately. This is an indication that the engine may be low on oil, or major engine damage may have occurred.

Check Engine Indicator - Malfunction Indicator Lamp (MIL) (Gas Models) (M) will illuminate at startup but will go off. If lamp glows when engine is running, stop engine immediately and determine cause.

DK75838,00007AF-19-16MAY13

Switching Engine Speedometer

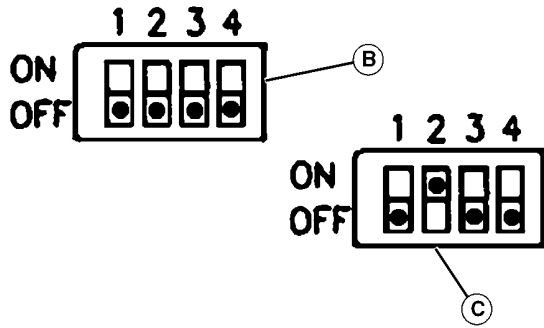
1. Disconnect the battery negative cable.
2. Remove front grille.



TCAL45007—UN—14MAY13

3. Locate mph/kph switch (A) on the back of instrument panel on your machine.

NOTE: The switches are set on machines using standard tires.



TCAL45008—UN—14MAY13

4. Toggle the switches from factory configuration for mph (B) to kph (C), using a screwdriver to reach each switch.
5. Install the front grille.
6. Connect the negative battery cable.

DK75838,00007B0-19-01APR13

Operating the 5-Speed Synchronized Transmission

Using the Clutch Pedal

IMPORTANT: Avoid damage! Avoid unnecessary wear; never “ride” the clutch by resting a foot on the clutch pedal while the vehicle is in operation.

It is possible to create high clutch speeds when leaving the vehicle in first, second, or reverse gears and coasting down a hill with the clutch pedal depressed. Never allow the vehicle to freewheel while in gear with the clutch disengaged.

The functions of the clutch pedal are:

- Connects and disconnects engine power to the transmission.
- Operates with the gearshift lever to shift gears.

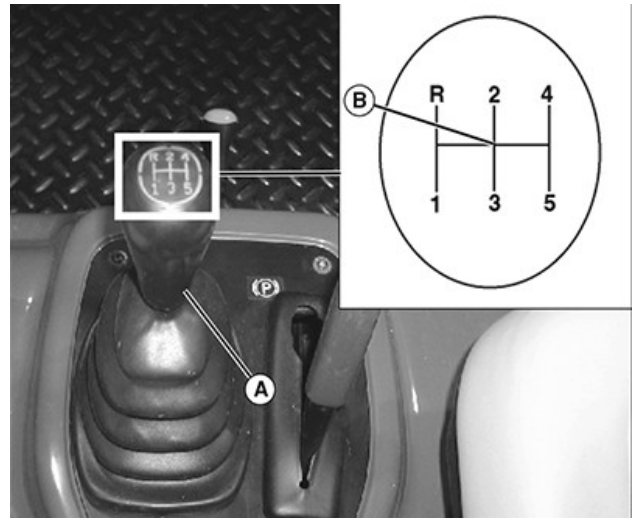
To Disengage the Clutch:

- Press the clutch pedal down completely. This disengages the transmission from engine power.

To Engage the Clutch:

- Remove foot from clutch pedal slowly. This engages the transmission to engine power.

Using the Gearshift Lever



TCAL45009—UN—14MAY13

The gearshift lever (A) is on a console to the right of the operator seat. The gearshift lever provides five forward travel speeds and one reverse speed.

Select a gear on the gearshift lever that matches desired speed and direction. First and second gears are low and must be used when hauling heavy loads.

Gear	Maximum Ground Speed with Standard Size Tires at 3300 rpm
1	4.5 km/h (2.8 mph)
2	7.4 km/h (4.6 mph)
3	12.7 km/h (7.9 mph)
4	24.1 km/h (15 mph)
5	30.7 km/h (19.1 mph)
R	5.8 km/h (3.6 mph)

Forward Travel

1. Lock park brake.

NOTE: The gearshift lever must be in the neutral position for the engine to start.

2. Move the gearshift lever to the neutral position (B) between gears “2” and “3”.
3. Depress clutch pedal and start engine.
4. Move gearshift lever to a desirable starting gear.
 - Vehicles with a load - first gear
 - Vehicles with no load - second or third gear
5. Unlock park brake.
6. Release clutch gradually to take up load smoothly.

IMPORTANT: Avoid damage! When downshifting this vehicle, it is important not to skip more than one gear at a time. For example, shifting from gear 5 to 4 is preferred. Shifting from gear 5 to 3 is acceptable. Shifting from gear 5 to 2 is not recommended. When downshifting more than two gears at a time, it is possible to spin the clutch past its limit of 10,000 rpm. Spinning the clutch at or above 10,000 rpm results in severe clutch damage and possible failure.

7. Shift gears while moving:

- Depress clutch and shift to next gear.
- Slowly release clutch.

Reverse Travel

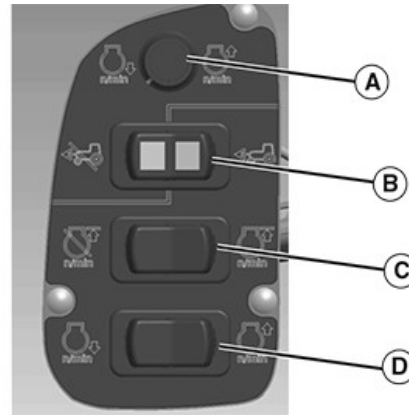
1. Stop vehicle completely.
2. Depress clutch.
3. Move gearshift lever to reverse.
4. Slowly release clutch.

DK75838,00007B1-19-29JUN15

Using Optional Multi-Mode Throttle Control (Gas Models Only)

This feature allows the operator to select from three distinct modes of throttle operation:

- **MODE 0 (Normal Mode):** Engine speed tracks foot pedal throttle position up to the maximum governed speed.
- **MODE 1: (PTO Mode)** - Engine controller ignores the foot pedal throttle and will hold engine speed at a constant value (idle up to maximum governed engine speed) based on the position of the Hand Throttle Control Dial. This mode would be used for applying material with a hand sprayer.
- **MODE 2: (Mobile Mode)** - Allows operator to set an alternate governed engine speed (less than the maximum). Engine speed will track the foot throttle up to this alternate speed and no higher, even if pedal is pressed full stroke. This mode would be used for spraying or top dressing where a constant vehicle speed is needed.



TCAL45010—UN—14MAY13

- A—Hand Throttle Control Dial**
B—Mode Select Switch
C—Set/Clear Switch
D—Accelerate/Decelerate Switch

Using MODE 0:

Normal operation, put Mode Select Switch (B) in the middle position.

Using MODE 1:

1. Park machine safely. (Park brake must be applied).
2. Put transmission in NEUTRAL.
3. Rotate Hand Throttle Control Dial fully counter-clockwise.
4. Push left side of Mode Select Switch (B). Switch will illuminate indicating PTO is in stationary mode.
5. Rotate Hand Throttle Control Dial (A) clockwise to increase engine speed and counter clockwise to decrease engine speed until desired engine speed is reached

Once in this mode, the engine will maintain the desired RPM regardless of throttle input. Loss of the BRAKE, NEUTRAL, or switch inputs will cause the system to return to MODE "0" (normal operation).

Using MODE 2:

1. Engage transmission while sitting in operator's seat.
2. Push right side of Mode Select Switch (B). Switch will illuminate indicating mobile mode.
3. Push foot throttle to desired travel speed.
4. Momentarily depress the right side of the SET/CLEAR switch (C) to set the current engine speed as the desired maximum governed engine speed. The ECU will remember this as the desired speed. Push left side to clear set speed, the ECU will revert to the factory maximum governor speed.

Once in this mode, the engine set speed becomes the new maximum engine speed. Engine speed will track throttle input up to the set point and no higher, regardless of throttle input. This will allow the operator to hold the foot pedal throttle to the floor to maintain the

desired vehicle speed rather than having to hold pedal at some intermediate position.

Using Accelerate/Decelerate Switch:

When operating in the Mobile Mode, pressing and holding the right hand side of the Accelerate/Decelerate Switch (D) will cause the governor set speed to increase at a linear rate until the switch is released. The Engine Control Unit (ECU) will remember this as the new maximum engine speed. Likewise, pressing and holding the left hand side of the switch will cause the governor set speed to decrease until the switch is released. When the switch is pressed momentarily, the engine set speed will increase or decrease in 100 rpm increments.

NOTE: To prevent unexpected engine acceleration, the Engine Control Unit (ECU) will not recognize the CLEAR input unless the foot pedal throttle is at the idle position.

DK75838,00007B2-19-26SEP13

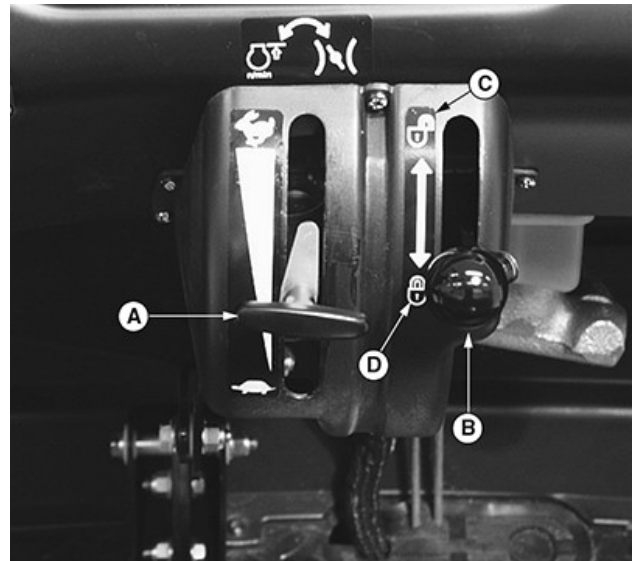
Using Optional Throttle/Governor Control (Diesel Units Only)

The throttle/governor control can be operated in three different modes.

- **DISENGAGED VERTICAL MODE:** Allows for normal vehicle operation without the throttle/governor control.
- **THROTTLE MODE:** For vehicle stationary operation only and should not be operated as a cruise control. Use only when the vehicle transmission is in the NEUTRAL position.
- **GOVERNOR MODE:** Allows the vehicle to be set at a specific RPM to control top ground speed.

DK75838,00007B3-19-01APR13

Using Disengaged Vertical Mode



1. Pull out the throttle/governor selector T-handle (A) and rotate to DISENGAGED VERTICAL MODE (pointer up). Release T-handle.
2. Move clamp lever (B) to UNLOCKED position (C).
3. Move T-handle (A) to highest FAST position and hold.
4. Lower clamp lever (B) to LOCKED position (D).

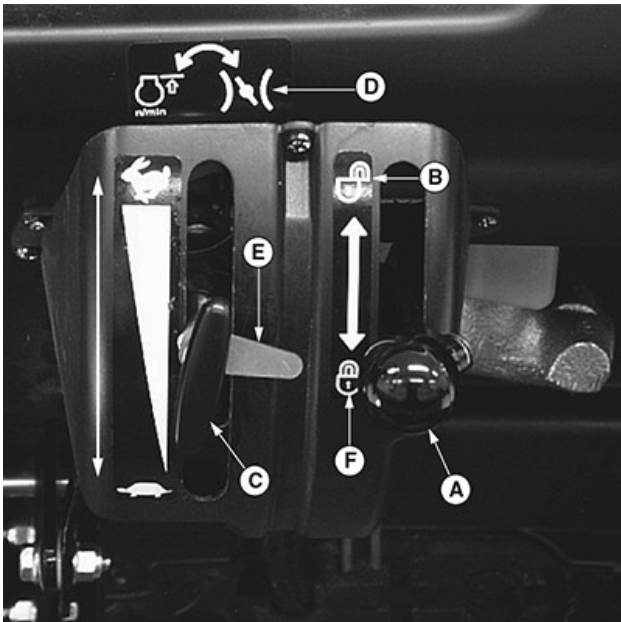
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Using Throttle Mode

NOTE: To allow for proper throttle engagement keep foot off the accelerator pedal when beginning operation in the throttle mode.

1. Lock vehicle park brake.
2. Move gear shift lever to NEUTRAL position.
3. Start vehicle engine.

Engage Throttle



TCAL45012—UN—14MAY13

1. Move clamp lever (A) to UNLOCKED position (B).
 - Throttle/governor selector T-handle (C) will drop to lowest SLOW (t) position.
2. Pull out T-handle (C) and rotate T-handle to THROTTLE MODE (D) with pointer (E) facing right. Release T-handle.

NOTE: Use the vehicle tachometer to monitor engine speed. Refer to each attachment operator's manual if a set RPM is required for attachment operation.

3. Move T-handle to increase engine RPM. Hold selector lever in position when desired engine speed is reached.
4. Lower clamp lever (A) to LOCKED position (F).
 - If the T-handle is moved to the DISENGAGED VERTICAL MODE and the clamp lever remains in the LOCKED position, the preset position of the throttle will be maintained.
 - To resume operation of the vehicle at the preset engine speed, push down the accelerator pedal to increase RPM. With the assistance of the vehicle tachometer, increase RPM until the engine speed set at earlier is surpassed. Return T-handle to THROTTLE MODE and release the accelerator.

Disengage Throttle

1. Pull out the throttle/governor selector T-handle (A) and rotate T-handle to DISENGAGED VERTICAL MODE (pointer up). Release T-handle.
2. Move clamp lever to UNLOCKED position.
3. Move T-handle to highest FAST position and hold.

4. Lower clamp lever to LOCKED position.

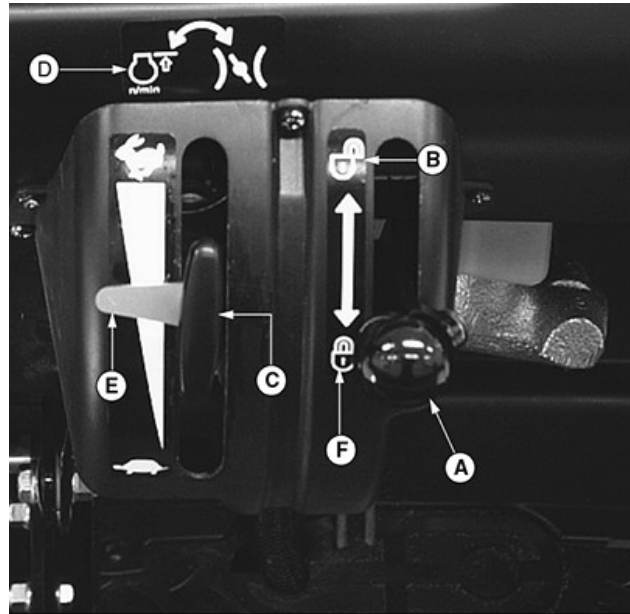
DK75838,00007B5-19-20MAY13

Using Governor Mode

NOTE: To allow for proper governor engagement keep foot off the accelerator pedal when beginning operation in the governor mode.

1. Lock vehicle park brake.
2. Start vehicle engine.

Engage Governor



TCAL45013—UN—14MAY13

1. Move clamp lever (A) to UNLOCKED position (B).
 - Throttle/governor selector T-handle (C) will drop to the lowest SLOW (t) position.
2. Pull out T-handle (C) and rotate T-handle to GOVERNOR MODE (D) with the pointer (E) facing left. Release T-handle.

NOTE: Use the vehicle tachometer to monitor engine speed. Refer to each attachment operator's manual if a set RPM is required for attachment operation.

3. Push down accelerator pedal to increase engine RPM.
4. With accelerator pedal held in place at the desired RPM level, lower clamp lever (A) to LOCKED position (F).
 - If accelerator pedal is released, it will return to the raised position and engine RPM will return to idle.
 - If the accelerator pedal is depressed, the engine will be restricted to the set RPM, but will operate

at any RPM below the maximum set by throttle/governor selector.

- If T-handle is moved to the DISENGAGED VERTICAL MODE and the clamp lever remains in the LOCKED position, the preset position of the governor will be maintained. Return T-handle to GOVERNOR MODE when operation of the vehicle at the preset RPM is desired.
- When set speed is determined, unlock park brake and begin vehicle travel.

Disengage Governor

1. Pull out the throttle/governor selector T-handle and rotate T-handle to DISENGAGED VERTICAL MODE (pointer up). Release T-handle.
2. Move clamp lever to the UNLOCKED position.
3. Move T-handle to the highest FAST position and hold.
4. Lower clamp lever to the locked position.

DK75838,00007B6-19-01APR13

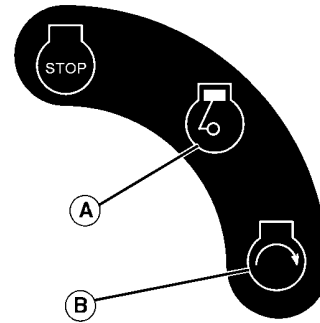
Starting the Engine

CAUTION: Avoid injury! Engine exhaust fumes contain carbon monoxide and can cause serious illness or death.

- Move the machine to an outside area before running the engine.
- Do not run an engine in an enclosed area without adequate ventilation.
- Connect a pipe extension to the engine exhaust pipe to direct the exhaust fumes out of the area.
- Allow fresh outside air into the work area to clear out the exhaust fumes.

NOTE: Diesel Models: Make sure fuel shutoff valve is open.

1. Park vehicle safely. (See Parking Safely in the Safety section.)
2. Push hydraulic PTO lever to the off position.
3. Move the gearshift lever to the neutral position.



TCAL45014—UN—14MAY13

4. Turn key switch to the run position (A).
5. Check indicator lights:
 - Battery discharge indicator light must be on.
 - Park brake indicator light must be on.
 - Engine oil pressure indicator light must be on.
 - **Diesel Models:** Glow plug indicator light must be on. After approximately three seconds, the indicator light goes off. Engine is now ready to start.

IMPORTANT: Avoid damage! Starter can be damaged if operated for more than 20 seconds at a time. Wait at least two minutes before trying again if engine does not start.

6. Turn key switch to the start position (B).

NOTE: Engine is calibrated at the factory to slow idle when started as follows:

- Diesel engine - 1250 rpm $\pm$ 50
- Gas engine - 1000 rpm $\pm$ 10

7. When engine starts, release key switch to the run position.
 - Battery discharge indicator light must go out.
 - Engine oil pressure indicator light must go out.
8. Unlock park brake.
 - Park brake indicator light must go out.

DK75838,00007B7-19-29JUN15

Stopping the Engine

CAUTION: Avoid injury! Always lock the park brake when the utility vehicle is left unattended. If park brake is not locked, the vehicle can begin to move without an operator present. If the gearshift lever is moved to the neutral position the vehicle free-wheels.

1. Release accelerator pedal and allow engine to slow idle.
2. Depress the clutch pedal and the foot brake.

NOTE: Gasoline engine has a time delay between turning key switch to the stop position and when engine stops. Make sure that engine has stopped before leaving vehicle.

3. Turn key switch to the stop position.
4. Place gearshift lever in first or reverse gear.
5. Lock park brake.
6. Remove key.

DK75838,00007B8-19-29JUN15

Operating Vehicle Engine with Operator Off the Seat

CAUTION: Avoid injury!

- Lock park brake at all times before leaving seat.
- Do not leave seat with vehicle running unless attachment function requires it.

NOTE: During normal operating conditions, the vehicle engine should stop running when the operator raises off the seat.

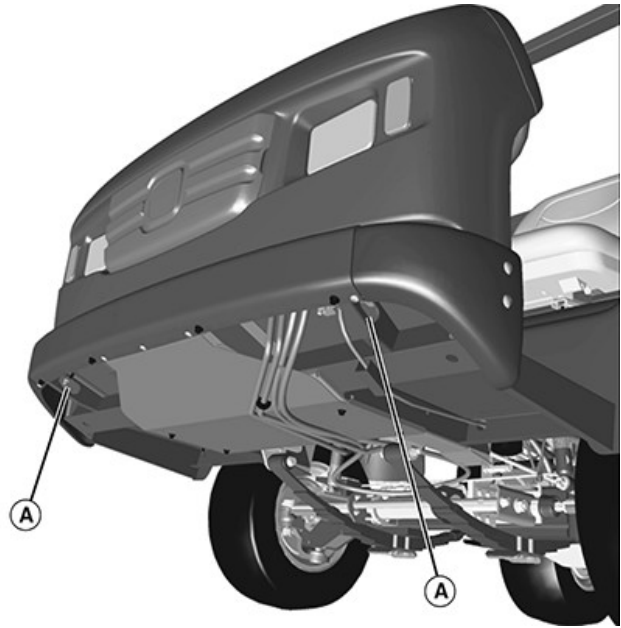
1. Sit in operator seat with seat belt engaged.
2. Depress clutch and foot brake pedals to stop the vehicle.
3. Move the gearshift lever to the neutral position.
4. Lock park brake.
5. Slowly release clutch and foot brake pedals.
6. Disengage seat belt and exit the vehicle.
 - Engine should continue to run with the operator off the seat.

DK75838,00007B9-19-30JUN15

Towing Utility Vehicle

CAUTION: Avoid injury! Remove any load from the vehicle cargo box or attachment before towing. Towing a loaded vehicle could cause either vehicle to lose control.

1. Move gearshift lever to the neutral position.



TCAL45015—UN—14MAY13

2. Attach a tow line to oval slot (A) provided on either side of the main frame under the front of the vehicle.
3. Unlock park brake.

CAUTION: Avoid injury! Do not exceed 16 km/h (10 mph) when towing the vehicle. The vehicle is difficult to steer when the engine is not running.

4. Tow vehicle slowly and carefully to desired location.

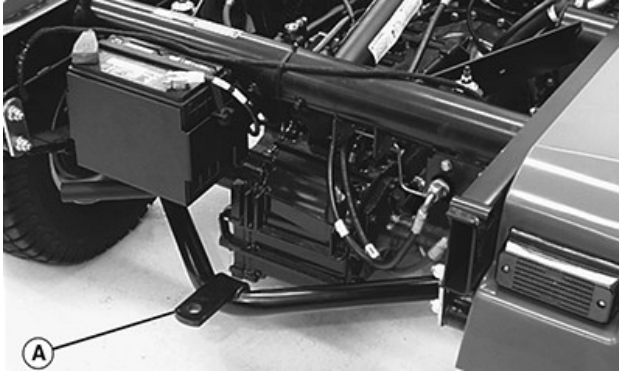
DK75838,00007BA-19-29JUN15

Towing Loads

CAUTION: Avoid injury! Excessive towed load can cause loss of traction and loss of control on slopes. Stopping distance increases with speed and weight of towed load.

Do not tow a load that exceeds the maximum allowable towing load for this vehicle, as specified in this operator's manual.

- To provide adequate braking ability and traction, weight of towed load (trailer plus cargo) must never exceed the vehicle payload (operator plus passenger plus cargo box load).
- Do not tow a load that exceeds the maximum allowable towing load for this vehicle, as specified in this operator's manual.
- Do not tow a load with this vehicle that exceeds 680 kg (1500 lb.).
- Do not exceed a tongue weight of 90.7 kg (200 lb.).
- Tow loads at a speed slow enough to maintain control.



TCAL45016—UN—14MAY13

- Always use rear hitch point (A) provided on and approved for this utility vehicle. This is an approved hitch point; do not modify in any way.

DK75838,00007BB-19-29JUN15

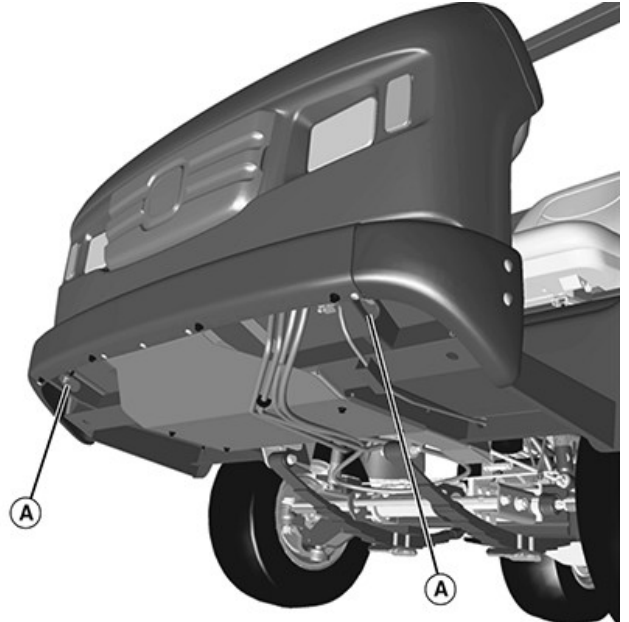
Transporting Utility Vehicle

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

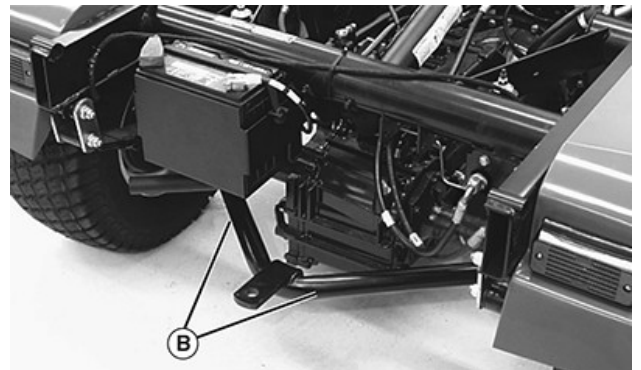
Use extra caution when transporting towed loads under adverse surface conditions, especially when turning, and on inclined surfaces.

Use of warning lights and turn signals are recommended when traveling on public roads unless prohibited by state or local regulations. An implement safety lighting kit is available from your John Deere dealer.

1. Drive vehicle forward onto a trailer.
2. Park vehicle safely. (See Parking Safely in the Safety section.)
3. **Diesel Models:** Turn the fuel shutoff valve to the "OFF" position during transport.
4. Block rear wheels with chocks or wood blocks.
5. Fasten vehicle to trailer with heavy-duty straps, chains, or cables.



TCAL45017—UN—14MAY13



TCAL45018—UN—14MAY13

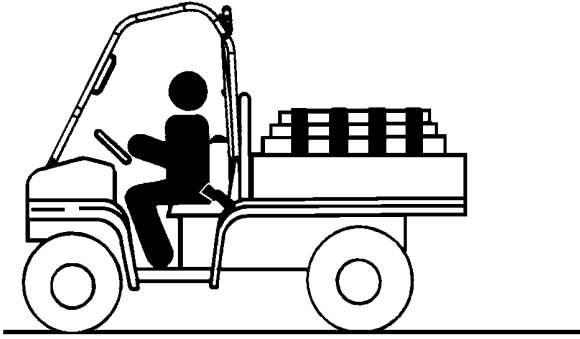
- The tie-downs must be attached to oval slots (A) provided on both sides of the main frame under the front of the vehicle. Attach the tie-downs on both sides of the hitch assembly (B) at the rear of the vehicle.
 - Both front and rear straps must be directed down and outward from the vehicle.
6. When transporting the utility vehicle on a road or highway, use accessory lights and devices for adequate warning to operators of other vehicles. Check local, state, provincial, or federal laws.

DK75838,00007BC-19-29JUN15

Loading Cargo Box

CAUTION: Avoid injury! The utility vehicle may become unstable if the cargo box is loaded incorrectly. Avoid loose and shifting loads or uneven loading of material.

- Securely anchor all loads in cargo box.
- Do not load beyond maximum capacity.

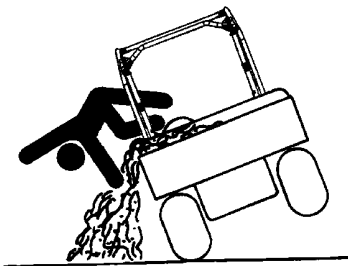
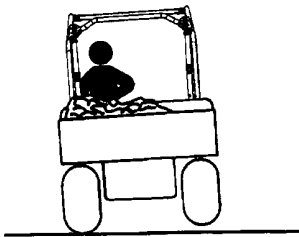


TCAL45019—UN—14MAY13

Reduce load by half when operating over rough, hilly, or steep terrain. Do not overload vehicle. Limit loads to those that can be safely controlled.

Reduce speed and exercise extreme caution when operating over rough, hilly, or steep terrain.

Securely anchor and evenly distribute loads in cargo box, when loading objects into vehicle. Shifting loads will affect stability.



TCAL45020—UN—14MAY13

Avoid concentrated loads at rear or side of cargo box to prevent vehicle from tipping over. Be sure load is evenly distributed.

Because there is a big difference in weight between dry and wet sand, the only way of getting true weight of the load you are carrying is by using a scale.

Printed weight is normally on bagged and other material.

DK75838,00007BD-19-29JUN15

Vehicle Payload Capacity With Cargo Box

The following maximum payload capacities include a 91 kg (200 lb) operator, 91 kg (200 lb) passenger and loaded cargo box. Operator must factor in the weight of any other attachments installed on vehicle. Cargo weight must not exceed the payload capacity minus the combined weight of operator and passenger and any other installed attachments.

A vehicle with heavy duty suspension has heavy duty front and rear leaf springs, 4-post ROPS, and wide tire kit installed.

Standard Suspension Capacities

Machine Type	Weight
Gas 2WD	1446 kg (3187 lb)
Gas 4WD	1384 kg (3051 lb)
Diesel 2WD	1447 kg (3191 lb)
Diesel 4WD	1388 kg (3061 lb)

Heavy Duty Suspension Capacities

Machine Type	Weight
Gas 2WD	1782 kg (3928 lb)
Gas 4WD	1720 kg (3792 lb)
Diesel 2WD	1784 kg (3932 lb)
Diesel 4WD	1725 kg (3802 lb)

DK75838,00007BE-19-16MAY13

Vehicle Payload Capacity Without Cargo Box

The following maximum payload capacities include a 91 kg (200 lb) operator and a 91 kg (200 lb) passenger. Operator must factor in the weight of any other attachments installed on vehicle. Cargo weight must not exceed the payload capacity minus the combined weight of operator and passenger and any other installed attachments.

A vehicle with heavy duty suspension has heavy duty front and rear leaf springs, 4-post ROPS, and wide tire kit installed.

Standard Suspension Capacities

Machine Type	Weight
Gas 2WD	1592 kg (3510 lb)
Gas 4WD	1530 kg (3374 lb)
Diesel 2WD	1594 kg (3514 lb)
Diesel 4WD	1535 kg (3384 lb)

Heavy Duty Suspension Capacities

Machine Type	Weight
Gas 2WD	1928 kg (4251 lb)
Gas 4WD	1867 kg (4115 lb)
Diesel 2WD	1930 kg (4255 lb)
Diesel 4WD	1871 kg (4125 lb)

DK75838,00007BF-19-16MAY13

Raising and Lowering the Cargo Box

CAUTION: Avoid injury! Make sure that the vehicle is on a hard, level surface and the park brake is locked before raising the cargo box. If the vehicle is facing uphill with the cargo box raised, the weight of the cargo box can cause the vehicle to tip.

- Do not perform a service function under a raised attachment without the lift cylinder safety support properly installed.
- Empty all material from the cargo box before servicing the vehicle.

1. Start engine.
2. Pull and hold back lift cylinder lever to raise cargo box.

NOTE: The lift cylinder retracts and the cargo box lowers with the engine running or the engine stopped.

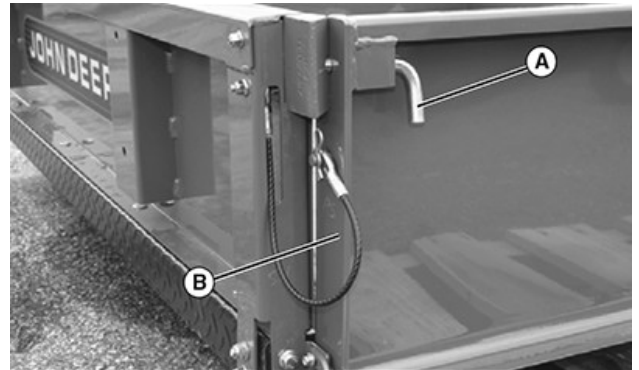
Pushing the lever down beyond the lower position into the detented float position causes the box to drop more slowly than in the lower position. The circuit is restricted to avoid a sudden drop.

3. Push and hold down lever to lower cargo box.
4. Stop engine.

DK75838,00007C0-19-29JUN15

Operating the Cargo Box Tailgate

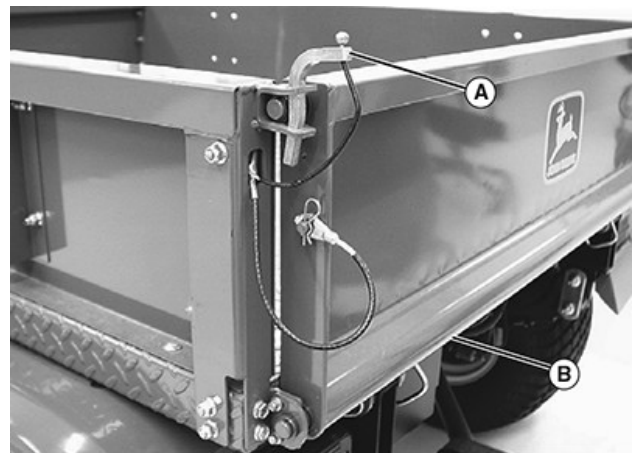
Opening Latch Pin With Spring



TCAL45021—UN—14MAY13

1. Pull both tailgate latch pins (A) and lower tailgate (B).

Opening Latch Pin Without Spring



TCAL45022—UN—14MAY13

1. Pull up and remove each tailgate latch pin (A).

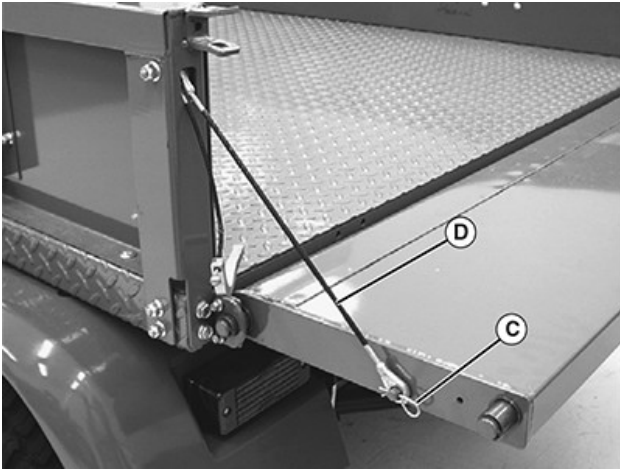
IMPORTANT: Avoid damage! Do not exceed 181 kg (400 lb.) directly on tailgate at one time.

2. Lower tailgate (B).

Fully Lowering Tailgate

CAUTION: Avoid injury! Do not operate the vehicle with the tailgate fully lowered. In a fully lowered position the tailgate obstructs vehicle tail lights causing a possible rear collision.

IMPORTANT: Avoid damage! The tailgate fully lowered can contact the rear fenders and cause structural damage. Do not operate utility vehicle with the tailgate fully lowered.

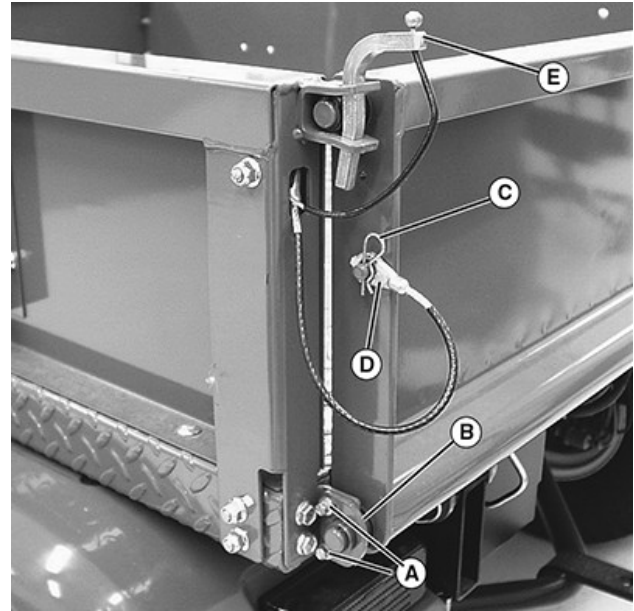


TCAL45023—UN—14MAY13

Cargo box with latch pin without spring shown.

1. Remove spring locking pin (C) and cable (D) from each drilled stud to fully lower tailgate.

DK75838,00007C1-19-29JUN15



TCAL45025—UN—14MAY13

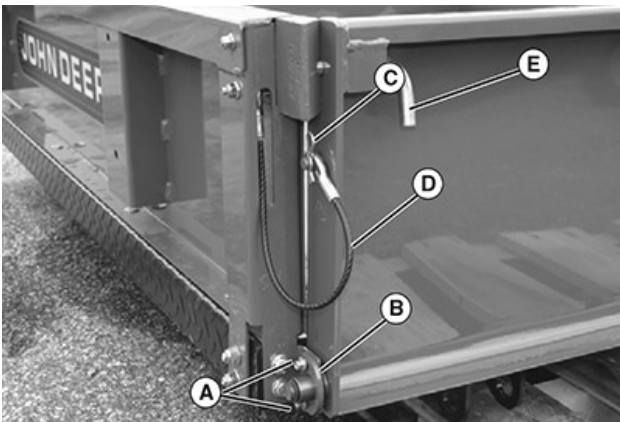
2. Remove two screws (A) and tailgate support plates (B) from each side.
3. Remove spring locking pin (C) and cable (D) from each drilled stud.
4. Pull up and remove each tailgate latch pin (E).
5. Remove tailgate.
6. Reverse steps to install tailgate.

DK75838,00007C2-19-01APR13

Removing the Cargo Box Tailgate

Tailgate With Latch Pin With Spring

1. Close the tailgate and latch both sides.



TCAL45024—UN—14MAY13

2. Remove two screws (A) and tailgate support plates (B) from each side.
3. Remove spring locking pin (C) and cable (D) from each drilled stud.
4. Pull both tailgate latch pins (E) and remove tailgate.
5. Reverse steps to install tailgate.

Tailgate With Latch Pin Without Spring

1. Close the tailgate and latch both sides.

Service Intervals

Servicing Your Machine

Park the vehicle safely. (See Parking Safely in the Safety section.)

IMPORTANT: Avoid damage! High-pressure washing can damage machine components.

Operating in extreme conditions requires more frequent service intervals

OUMX068,000052F-19-14JAN25

Before Each Use

- Check engine oil.
- Check hydraulic oil.
- Check coolant.
- Check transaxle fluid.
- Check for leaks.
- Inspect tires and check air pressure.
- Check safety interlock system.
- Check brake system.
- Check air filtration system.
- Check for loose, missing, or damaged parts.
- Check fuel/water separator.
- Check seat belt.
- Check control cables.

OUMX068,000073C-19-16JUL15

After Each Use

- Check/fill fuel.
- Clean debris from machine.
- Clean debris from cooling system.
- Lubricate machine after washing.

MX00654,0000179-19-25SEP13

Break In - After First 50 Hours

- Change transaxle oil and filter.
- Check alternator belt tension.
- Check all hoses and clamps.
- Check wheel hardware.
- Check brake fluid level.

KL66860,0000353-19-22SEP17

Every 100 Hours

- 4WD Models: Check front axle oil level.

- Clean and check battery.

MX00654,000017B-19-16JUL15

Every 200 Hours

- Change engine oil and filter.
- Check alternator belt.
- Check all hoses and clamps.
- Gas Models:
 - Clean PCV valve.
 - Check air inductors for leaks (See the technical manual or your John Deere dealer.)
 - Inspect timing belt (See the technical manual or your John Deere dealer.)

MX00654,000017C-19-25SEP13

Every 500 Hours or Yearly

- Replace fuel filter.
- Change hydraulic oil and filter.
- Check toe-in adjustment. (See the technical manual or your John Deere dealer.)
- 4WD Models: Change front axle oil.
- Gas Models: Check cylinder head bolt torque. (See the technical manual or your John Deere dealer.)

MX00654,000017D-19-26SEP13

Every 800 Hours

- Gas Models:
 - Replace spark plugs.
 - Replace PCV valve.

MX00654,000017E-19-25SEP13

Every 1500 Hours

- Check fuel injectors. (See the technical manual or your John Deere dealer.)
- Check valve clearance. (See the technical manual or your John Deere dealer.)

OUMX068,000073D-19-13SEP16

Every 2000 Hours or 24 Months

- Change engine coolant and thermostat.
- Flush brake lines and replace fluid.
- Gas Model:

- Replace timing belt.

MX00654,0000181-19-12SEP16

Every 3000 Hours or 36 Months

- Check fuel injection pump. (See the technical manual or your John Deere dealer.)

MX00654,0000182-19-16JUL15

Service Intervals After Converting to Bio Hy-Gard

Use the service procedures below at the intervals listed for machines converted to use Bio Hy-Gard:

Every 250 Hours

- Change hydraulic oil and filter.

Yearly

- Replace Bio Hy-Gard lubricant.

DK75838,00007D3-19-01APR13

Service Lubrication

Grease

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

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

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

The following greases are preferred:

- John Deere Multi-Purpose SD Polyurea Grease
- John Deere Multi-Purpose HD Lithium Complex Grease
- SUPER LUBE lubricant.

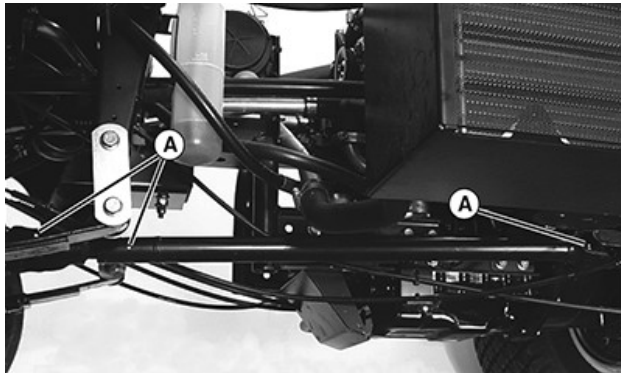
If not using any of the preferred greases, be sure to use a general all-purpose grease with an NLGI grade No.2 rating.

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

DK75838,00007D4-19-20DEC22

Lubricating the Drive Shaft (4WD Models)

1. Park vehicle safely. (See Parking Safely in the Safety section.)



TCAL45026—UN—14MAY13

2. Lubricate three grease fittings (A) on the drive shaft with John Deere SD Polyurea grease or an equivalent.

DK75838,00007D5-19-01APR13

Service Engine

Emissions Service Information

Within the warranty period, John Deere will reimburse reasonable service costs incurred at service providers outside the John Deere authorized network only in an unsafe, emergency condition if an authorized John Deere dealer is not available and the failure does not arise from the owner's misuse or failure to perform required maintenance. An emergency situation exists under this section if, after 30 days, the authorized John Deere network is unable to perform the repairs or source replacement parts.

Emission Control System Certification Label

NOTE: *Tampering with emission controls and components by unauthorized personnel may result in severe fines or penalties. Emission controls and components can only be adjusted by EPA and/or CARB authorized service centers. Contact your John Deere Retailer concerning emission controls and component questions.*

The presence of an emissions label signifies that the engine has been certified with the United States Environmental Protection Agency (EPA) and/or California Air Resources Board (CARB).

The emissions warranty applies only to those engines marketed by John Deere that have been certified by the EPA and/or CARB; and used in the United States and Canada in off-road mobile equipment.

Altitude Adjustment (Gasoline or Propane Converted Engines Only)

If your engine features a carburetor it is calibrated by the engine manufacturer and is not adjustable.

If your engine is operated at altitudes below 610 m (2,000 ft.), a high altitude carburetor jet kit is not required. If your engine is operated at altitudes above 610 m (2,000 ft.), a high altitude carburetor jet kit may be required for proper engine performance and emissions control. Operating the engine with the wrong carburetor configuration at a given altitude may increase the engine's emissions and decrease fuel efficiency and performance.

See a qualified service provider for details on jet kit requirements for your specific product.

TC00531,00000EC-19-20FEB25

Avoid Fumes

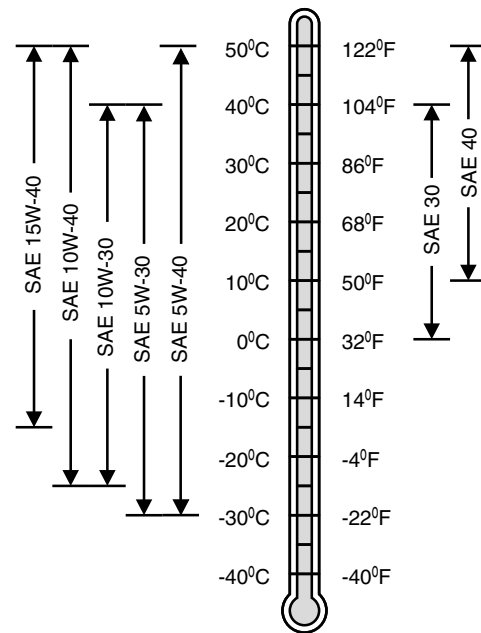
CAUTION: Avoid injury! Engine exhaust fumes contain carbon monoxide and can cause serious illness or death.

- Move the machine to an outside area before running the engine.

- Do not run an engine in an enclosed area without adequate ventilation.
- Connect a pipe extension to the engine exhaust pipe to direct the exhaust fumes out of the area.
- Allow fresh outside air into the work area to clear out the exhaust fumes.

DK75838,00007D7-19-29JUN15

Gasoline Engine Oil



TS1744—UN—25AUG20

Oil Viscosities for Air Temperature Ranges

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

Using single viscosity grade oils such as SAE 30 or SAE 40 can reduce oil consumption in air cooled engines.

The following oils are approved:

- John Deere Plus-50™ II
- John Deere Turf-Gard™

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

- ILSAC GF-6A
- API Service Category SP
- API Service Category SN
- API Service Category SM
- API Service Category SL
- API Service Category SJ

Plus-50 is a trademark of Deere & Company
Turf-Gard is a trademark of Deere & Company

- ACEA Oil Sequence A3/B3
- ACEA Oil Sequence A3/B4
- ACEA Oil Sequence A5/B5
- ACEA Oil Sequence C5
- ACEA Oil Sequence C4
- ACEA Oil Sequence C3
- ACEA Oil Sequence C2
- ACEA Oil Sequence C1

DX,ENOIL2-19-15JUL20

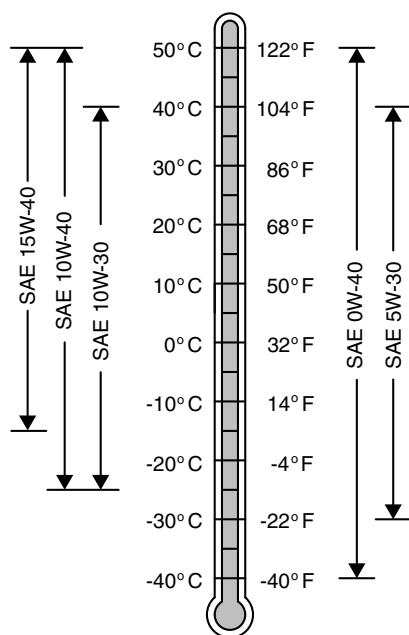
Multi-viscosity diesel engine oils are preferred.

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

IMPORTANT: Avoid damage! Use only ultra-low sulfur diesel (ULSD) fuel with a maximum sulfur content of 15 mg/kg (15 ppm).

MK71445,000007F-19-14JUN18

Diesel Engine Oil



TS1691—UN—18JUL07

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 any 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.

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 CD or higher
- ACEA Oil Sequence E3 or higher

DO NOT use engine oil containing more than 1.0% sulfated ash, 0.12% phosphorus, or 0.4% sulfur.

Plus-50 is a trademark of Deere & Company

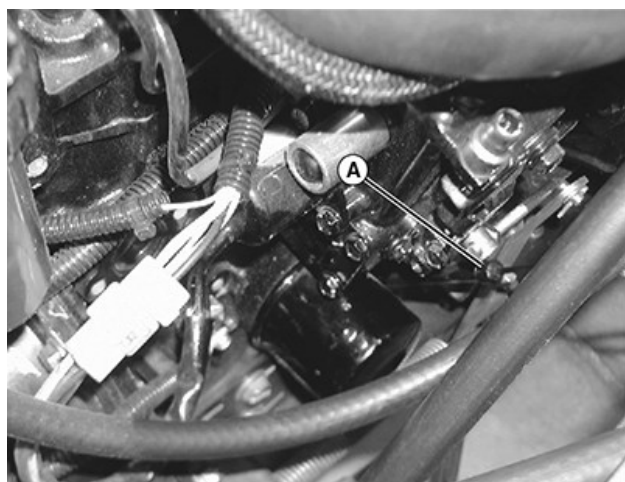
Checking Engine Oil Level

IMPORTANT: Avoid damage! Avoid dirt and other contaminants from entering the oil dipstick tube location. Clean area around dipstick before removing.

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

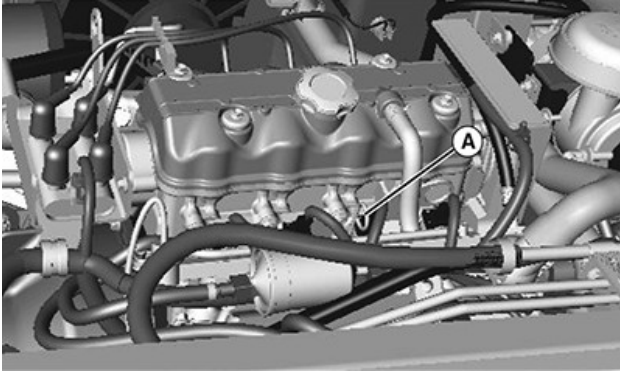
- Check oil level before operating.
- Check oil level when the engine is cold and not running.
- Keep level between the full and the add marks.
- Shut off engine before adding oil.
- If you run engine over 4 operating hours a day, check oil level twice a day.

1. Raise attachment to service position. (See Using the Lift Cylinder Safety Support in the Safety section.)
2. Park vehicle safely. (See Parking Safely in the Safety section.)



TCAL45029—UN—14MAY13

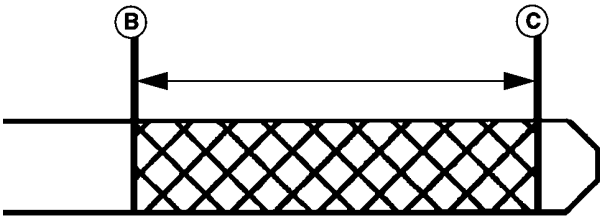
Diesel Model



Gas Model

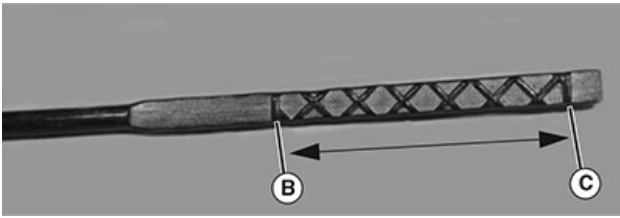
TCAL45030—UN—14MAY13

3. Allow engine to cool for 2-3 minutes. Remove dipstick (A) and wipe with a clean cloth.
4. Install dipstick.



Diesel Model

TCAL45031—UN—14MAY13



Gas Model

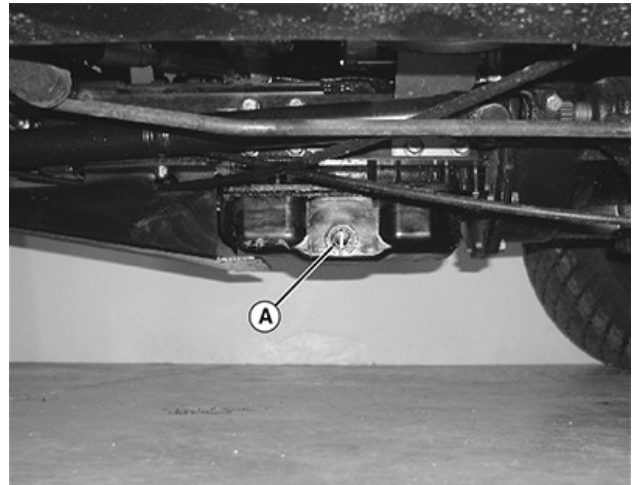
TCAL45032—UN—14MAY13

5. Remove dipstick. Check oil level on dipstick; oil level must be between levels (B) and (C) on the dipstick.
 - If oil is low, add oil to bring oil level no higher than level (C) on the dipstick.
 - If oil level is above level (B) on the dipstick, drain to proper level.
6. Install dipstick.
7. Lower attachment.

DK75838,00007DA-19-29JUN15

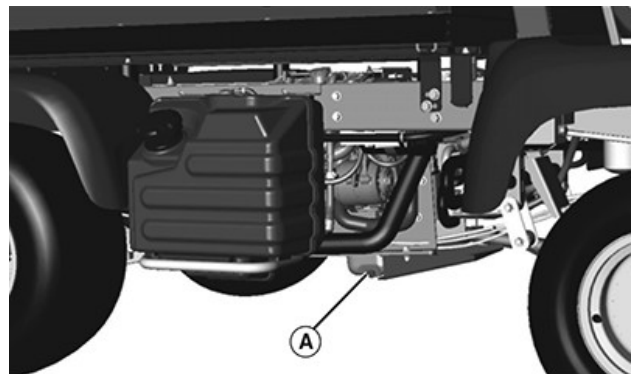
- **Extremely dusty conditions.**
- **Frequent slow or low-speed operation.**
- **Frequent short trips.**

1. Run engine to warm the oil.
2. Raise attachment to service position. (See Using the Lift Cylinder Safety Support in the Safety section.)
3. Park vehicle safely. (See Parking Safely in the Safety section.)
4. Place container under the oil drain location.



Diesel Engine

TCAL45033—UN—14MAY13



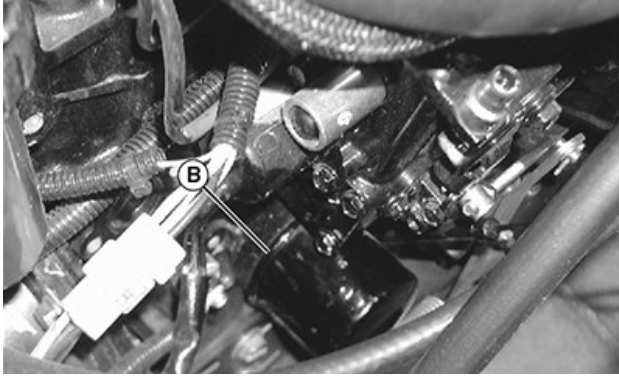
Gas Engine

TCAL45034—UN—14MAY13

5. Remove drain plug (A) located under the left side of the diesel engine and under the right side of the gas engine.

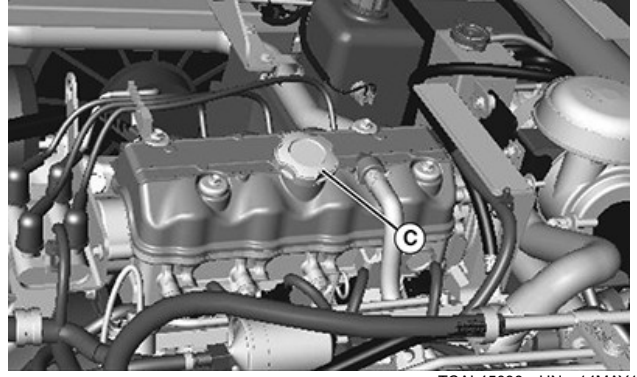
Changing Engine Oil and Filter

IMPORTANT: Avoid damage! Change the oil more often if the vehicle is used in extreme conditions:



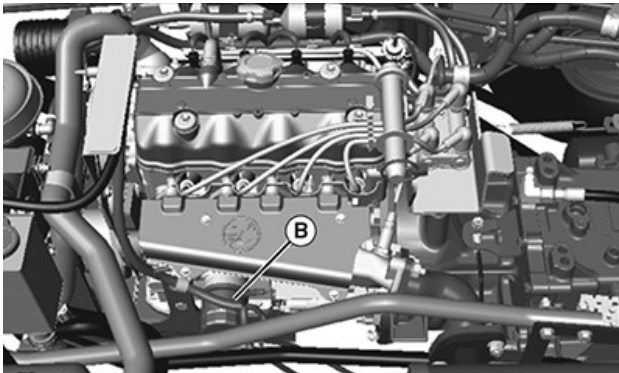
Diesel Engine

TCAL45035—UN—14MAY13



Gas Engine

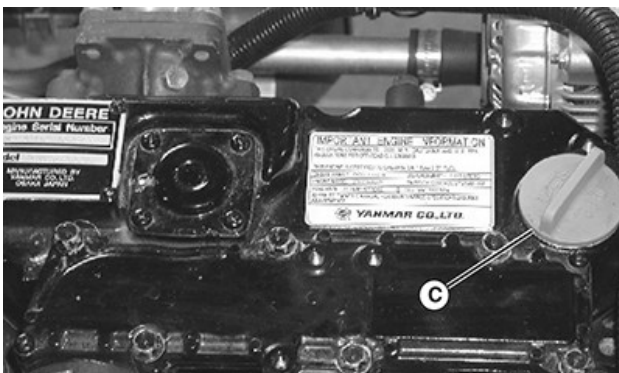
TCAL45038—UN—14MAY13



Gas Engine

TCAL45036—UN—14MAY13

6. Remove oil filter (B).
 - Locate filter under the right side of the engine.
 - Turn filter counterclockwise to remove.
7. Apply a film of clean engine oil on gasket of new filter.
8. Install oil filter.
 - Turn filter clockwise until gasket makes contact with mounting surface. Tighten 1/2-3/4 turn after gasket contact.
9. Install oil drain plug. Do not overtighten.



Diesel Engine

TCAL45037—UN—14MAY13

10. Remove oil fill cap (C) on top of engine.
11. Add recommended fluid.
12. Install oil fill cap.
13. Start engine and run at idle for approximately two minutes. Check for leaks. Fix any leaks before operating.
14. Stop engine.
15. After approximately two minutes check engine oil level. Add oil if necessary.
16. Lower attachment.

DK75838,00007DB-19-29JUN15

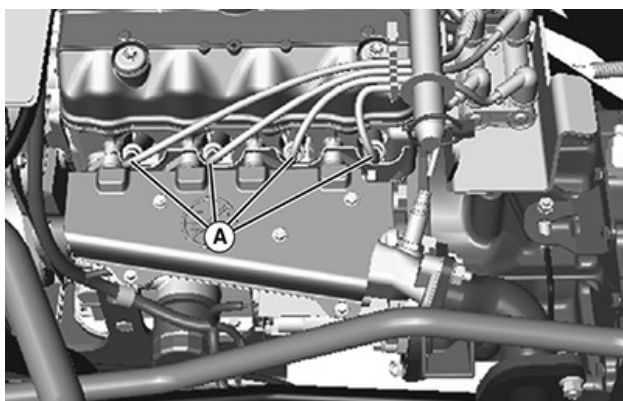
Checking Spark Plugs (Gas Model)

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

IMPORTANT: Avoid damage! Do not clean spark plugs with abrasives.

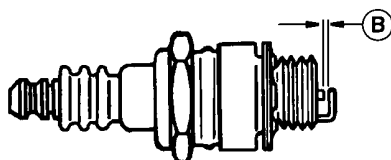
1. Raise attachment to service position. (See Using the Lift Cylinder Safety Support in the Safety section.)
2. Park vehicle safely. (See Parking Safely in the Safety section.)
3. Clean area around each spark plug.

NOTE: Breather hose rotated away from engine for photo clarity.



TCAL45039—UN—14MAY13

4. Disconnect the spark plug wire (A) from each plug.
5. Remove and inspect spark plugs:
 - Clean each plug and check for damage; replace if necessary.
 - If plugs are in good condition, check gap.



TCAL45040—UN—14MAY13

6. Check and adjust spark plug gap to specification (B).

Specification

Spark Plug—Gap. 1-1.2 mm (0.039 - 0.047 in.)

7. Install spark plugs.
 - Tighten to specification.

Specification

Spark Plug—Torque. 20 N·m (15 lb.-ft.)

8. Install each spark plug wire.
9. Lower attachment.

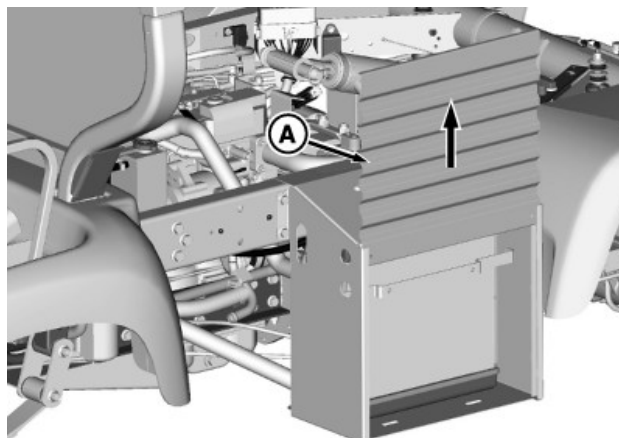
DK75838,00007DC-19-29JUN15

Cleaning Radiator Screen

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

1. Raise attachment to service position. (See Using the Lift Cylinder Safety Support in the Safety section.)

2. Park vehicle safely. (See Parking Safely in the Safety section.)



TCT011002—UN—16APR14

3. Lift radiator screen (A) from position in front of the engine radiator.
4. Clean screen with a brush or compressed air.
5. Install grille screen.
6. Lower attachment.

OUMX068,0000740-19-29JUN15

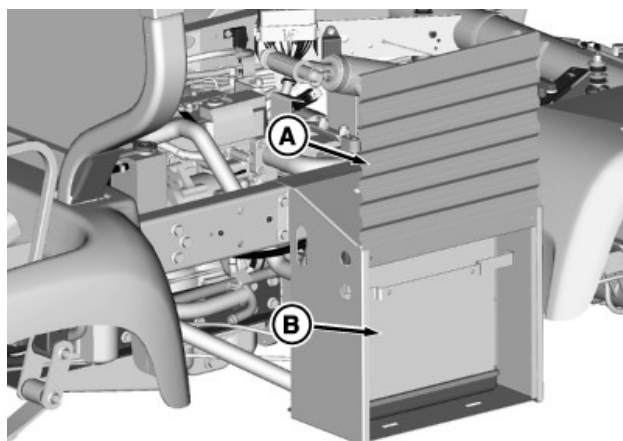
Cleaning Radiator Cooling Fins and Fan Shroud

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

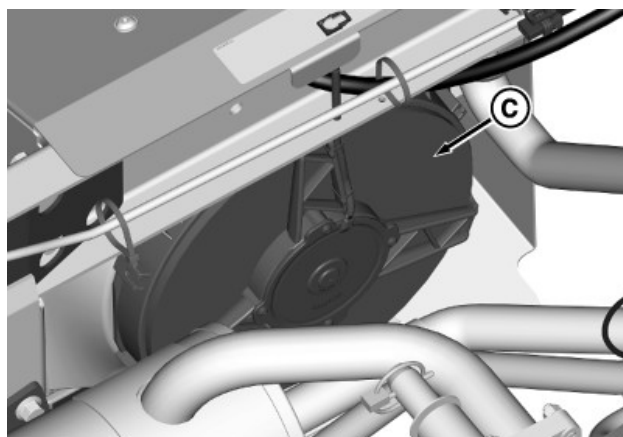
- Clear work area of bystanders.
- Wear eye protection when using compressed air for cleaning purposes.
- Reduce compressed air pressure to 210 kPa (2.10 bar) (30 psi).

IMPORTANT: Avoid damage! Dirty cooling fins and radiator screens can cause engine overheating. The radiator cooling fins and fan shroud must be clean.

1. Raise attachment to service position. (See Using the Lift Cylinder Safety Support in the Safety section.)
2. Park machine safely. (See Parking Safely in the Safety section.)



TCT011003—UN—16APR14



TCT011004—UN—16APR14

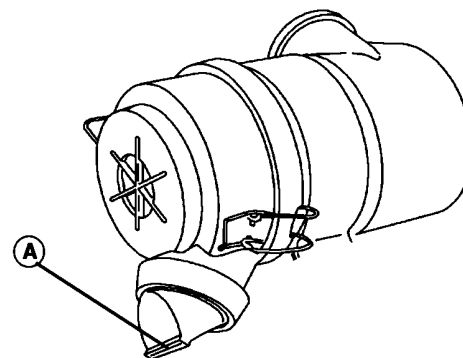
3. Remove radiator screen (A).
4. Remove dirt and debris from the radiator cooling fins (B) and fan shroud (C) using compressed air or low-pressure water.
5. Check radiator fins for damage.
6. Install radiator screen.
7. Lower attachment.

OUMX068,0000741-19-29JUN15

Cleaning Dust Unloading Valve

IMPORTANT: Avoid damage! Do not operate engine without air cleaner element and rubber dust unloading valve installed.

1. Park the vehicle safely. (See Parking Safely in the SAFETY section.)
2. Allow engine to cool.
3. Access the engine compartment.



TCAL45044—UN—14MAY13

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

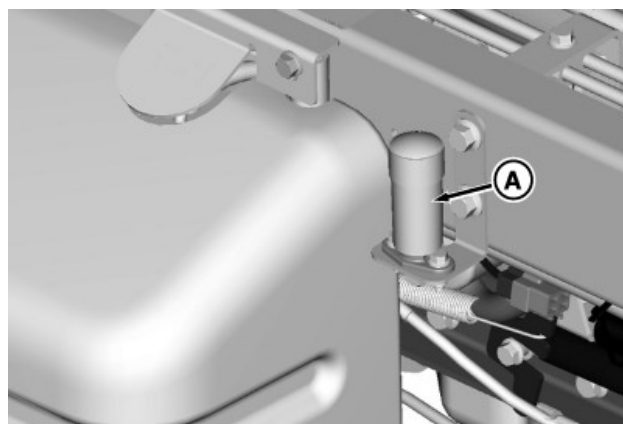
DK75838,00007DF-19-29JUN15

Checking Air Restriction Indicator (Diesel Models)

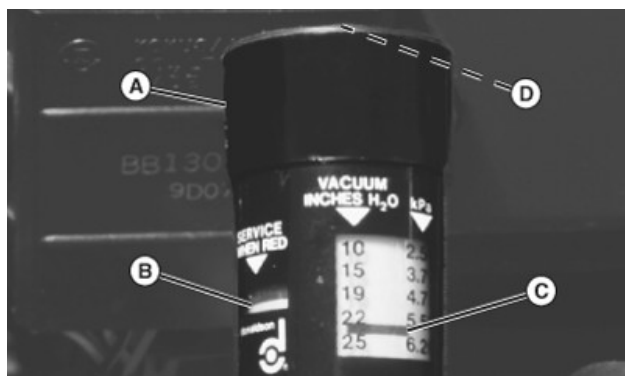
IMPORTANT: Avoid damage! Never check air cleaner until restriction indicator is red or at 6.2 kPa (25 in. of H₂O) vacuum. This keeps contamination of the intake system to a minimum.

Check air filter restriction indicator more frequently if operating in dusty conditions.

1. Lock park brake.
2. Place transmission in neutral.
3. Start engine.



TCT011005—UN—16APR14



TCAL43352—UN—14MAR13

4. Check air filter restriction indicator (A).
 - When the indicator window (B) is yellow, no air cleaner service is required.
 - When the indicator window is red, air cleaner element needs replacement.
 - Vacuum scale (C) on indicator shows how restricted the air cleaner elements are.
5. Stop the engine and wait for any moving parts to stop.
6. Service the air cleaner element if sight window shows red or reading is 6.2 kPa (25 in. H₂O) vacuum.
7. Depress the rubber button (D) on top of the housing to reset indicator.

OUMX068,0000742-19-29JUN15

Servicing Air Cleaner Element (Gas Models)

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

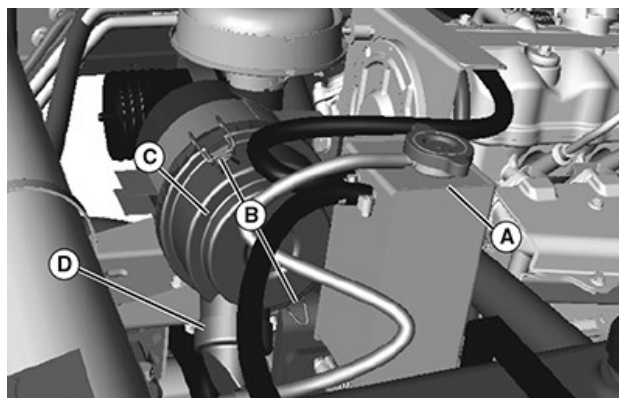
- Do not wash paper element.
- Do not attempt to clean paper element by tapping against another object.
- Do not use pressurized air to clean element.
- Replace element only if it is dirty, damaged or the seal is cracked.

Checking Air Cleaner Element

1. Raise attachment to service position. (See Using the Lift Cylinder Safety Support in the Safety section.)
2. Park vehicle safely. (See Parking Safely in the Safety section.)

IMPORTANT: Avoid damage! Dirt and debris can enter engine when air cleaner canister is opened. Do not open canister unless required for scheduled service, keeping contamination of the intake system to a minimum.

Check filter element more frequently if operating in dusty conditions.



TCAL45046—UN—14MAY13

3. Gently move coolant tank (A) out of the way, release latches (B) and remove air cleaner canister cover (C).
4. Visually inspect each element before removing. Replace element only if damaged or dirty.

Replacing Primary Air Filter Element



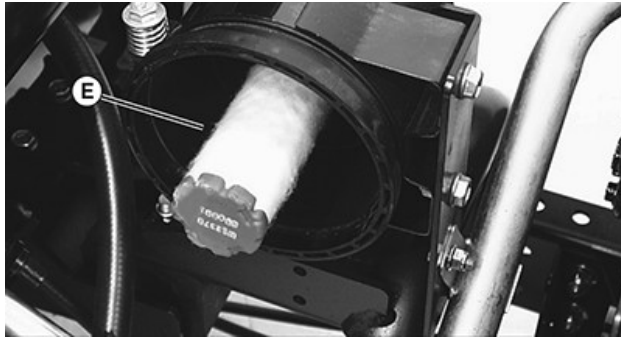
TCAL45047—UN—14MAY13

1. Remove and discard primary element (E). Replace with a new primary filter element.
2. Install air cleaner canister cover (B).
 - Check instruction molded into canister cover for proper installation.
 - Rubber dust unloading valve (D) must be pointed downward when the cover is properly installed.

3. Engage latches (A).

Replacing Secondary Air Filter Element

1. Remove air cleaner canister cover.
2. Remove primary air filter element.



TCAL45048—UN—14MAY13

3. Remove and discard secondary air filter element (E). Replace with a new secondary air filter element.
4. Install primary air filter element.
5. Replace air cleaner canister cover.
6. Lower attachment.

OUMX068,0000743-19-29JUN15

Servicing Air Cleaner Element (Diesel Models)

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

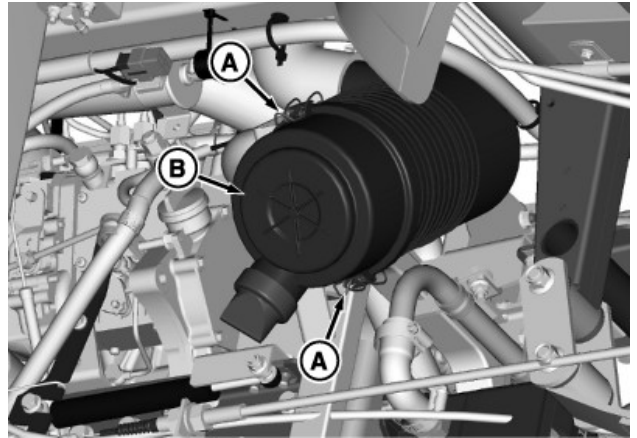
- Do not wash paper element.
- Do not attempt to clean paper element by tapping against another object.
- Do not use pressurized air to clean element.
- Replace element only if it is very dirty, damaged or the seal is cracked.

Checking Air Cleaner Element

1. Lower attachment.
2. Park vehicle safely. (See Parking Safely in the Safety section.)

IMPORTANT: Avoid damage! Dirt and debris can enter engine when air cleaner canister is opened. Do not open canister unless required for scheduled service. This will keep contamination of the intake system to a minimum.

Check filter element more frequently if operating in dusty conditions.

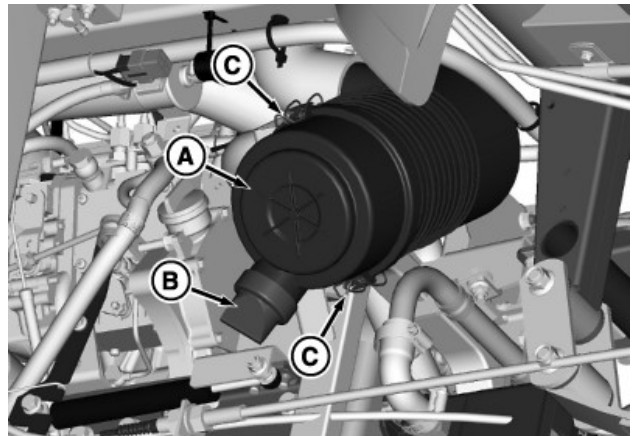


TCT011006—UN—16APR14

3. Release latches (A) and remove air cleaner canister cover (B).
4. Visually inspect each element before removing. Replace element only if damaged or very dirty.

Replacing Primary Air Filter Element

1. Remove and discard primary element. Replace with a new primary filter element.



TCT011007—UN—16APR14

2. Install air cleaner canister cover (A).
 - Check instruction molded into canister cover for proper installation.
 - Rubber dust unloading valve (B) should be pointed downward when the cover is properly installed.
3. Engage latches (C).

Replacing Secondary Air Filter Element

1. Remove air cleaner canister cover.
2. Remove primary air filter element.
3. Remove and discard secondary air filter element. Replace with a new secondary air filter element.
4. Install primary air filter element.

5. Replace air cleaner canister cover.

OUMX068,0000744-19-16APR14

Check Air Intake Hose, Hydraulic Hoses, Radiator Hoses and Clamps

1. Raise attachment to service position. (See Using the Lift Cylinder Safety Support in the Safety section.)
2. Park vehicle safely. (See Parking Safely in the Safety section.)
3. Check hoses for leaking or damage and adjustable clamps for tightness in the systems listed below. Replace if necessary.
 - Fuel system
 - Cooling system
 - Hydraulics system
 - Air intake system

4. Lower attachment.

DK75838,00007E2-19-01APR13

Service Cooling System Safely



MXAL42730—UN—22MAR13

CAUTION: Avoid injury! The radiator is hot and burns skin. Built-up pressure causes an explosive release of coolant when the radiator cap is removed:

- Shut off engine and allow to cool.
- Do not remove the cap until the radiator and the engine are cool enough to touch with bare hands.
- Release all pressure by slowly loosen the cap to the first stop. Then remove the cap.

MX00654,0000028-19-12APR19

Diesel Engine Coolant

Preferred coolants:

The following pre-mix engine coolants are preferred:

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

Not all Cool-Gard™ II pre-mix products are available in all countries.

Use Cool-Gard™ II PG when a non-toxic coolant formulation is required.

Additional Recommended Coolants

The following engine coolant is also recommended:

- John Deere Cool-Gard™ II Concentrate in a 40—60% mixture of concentrate with quality water.

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

Other Coolants

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

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

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

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

Water Quality

Water quality is important to the performance of the cooling system. Distilled, deionized, or demineralized water is recommended for mixing with ethylene glycol base engine coolant concentrate.

Cool-Gard is a trademark of Deere & Company

Coolant Drain Intervals

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

When Cool-Gard™ II or Cool-Gard™ II PG is used, the drain interval is 6 years or 6000 operating hours.

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

IMPORTANT: Avoid Damage!

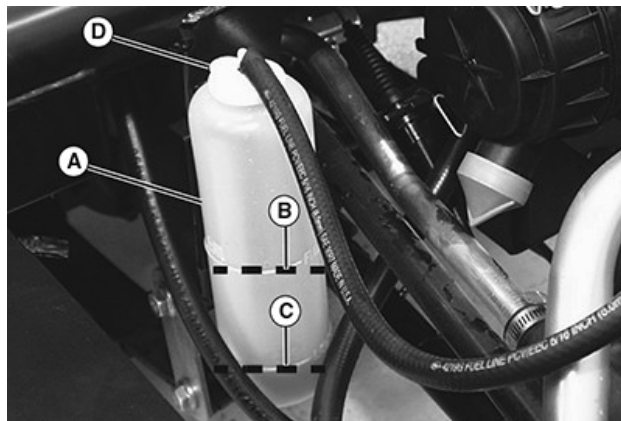
- Do not use cooling system sealing additives or antifreeze that contains sealing additives.
- Do not mix ethylene glycol and propylene glycol base coolants.
- Do not use coolants that contain nitrites.

UP00731,0000022-19-17JAN19

Servicing Cooling System

Checking Coolant Level

1. Raise attachment to service position. (See Using the Lift Cylinder Safety Support in the Safety section.)
2. Park machine safely. (See Parking Safely in the Safety section.)



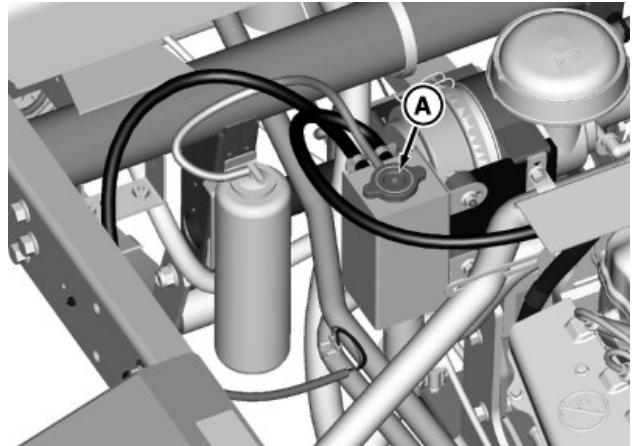
TCAL45050—UN—14MAY13

3. Check recovery bottle (A) coolant level:
 - If engine is warm, coolant level must be between the "FULL" line (B) and the "LOW" line (C).
 - If engine is cold, coolant level must be at the "LOW" line (C) on the recovery bottle.
4. Remove recovery bottle cap (D) to add coolant.
5. If coolant is low, add specified ratio of antifreeze and water.
6. Install and tighten recovery bottle cap.

7. Clean debris from the air intake screen, fan shroud, radiator cooling fins, and auxiliary oil cooler coils.
8. Check condition of coolant system hoses and clamps. Check for leaks or loose connections.

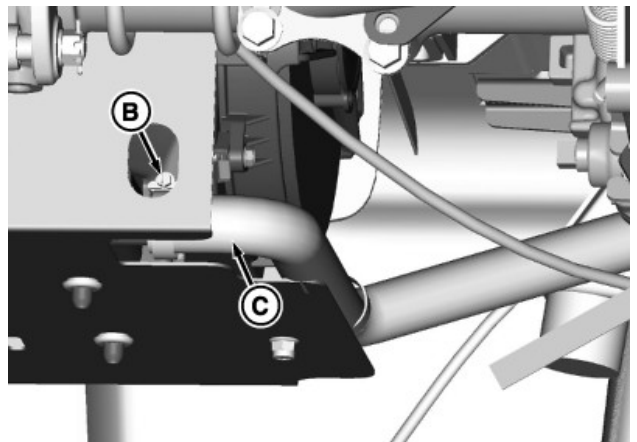
Draining Cooling System

1. Raise attachment to service position. (See Using the Lift Cylinder Safety Support in the Safety section.)
2. Park machine safely. (See Parking Safely in the Safety section.)



TCT011009—UN—17APR14

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



TCT011010—UN—17APR14

5. Loosen clamp (B) and remove lower radiator hose (C). Drain coolant into a pan.
6. When coolant drains from the recovery bottle, remove radiator cap.
7. After all coolant has drained, install lower radiator hose and tighten clamp.
8. Flush cooling system.

Flushing Cooling System

1. Fill cooling system with clean water and John Deere Cooling System Cleaner or John Deere Cooling

System Quick Flush, or an equivalent. Follow directions on the can.

2. Install and tighten radiator cap.
3. Start and run engine until it reaches operating temperature.
4. Stop engine.

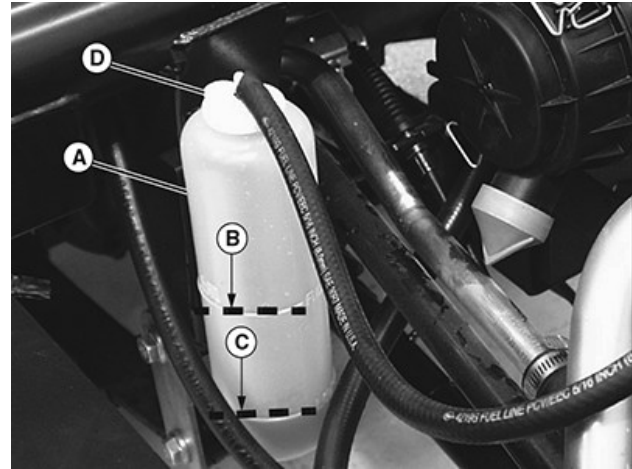
CAUTION: Avoid injury! The radiator is hot and can burn skin. Built-up pressure causes explosive release of coolant when the radiator cap is removed:

- Shut off the engine and allow to cool.
- Do not remove the cap unless the radiator and the engine are cool enough to touch with bare hands.
- Slowly loosen the cap to the first stop to release all pressure. Then remove the cap.

5. Loosen clamp and remove lower radiator hose.
 - Drain cooling system immediately before rust and dirt settle.
 - Once flow slows, open radiator cap to the first stop to relieve vacuum and allow system to drain.
6. After all coolant has drained, install lower radiator hose and tighten clamp.
7. Fill cooling system with clean water and repeat flushing until system is clean.

Filling Cooling System

1. Fill cooling system with recommended coolant.
 - Certain geographical areas require protection from lower temperatures. See the label on your antifreeze container or consult your John Deere dealer to obtain the latest information and recommendations.
 - John Deere Cooling System Sealer or its equivalent can be added to the radiator to seal leaks. Do not use any other additives in the cooling system.
2. Install and tighten radiator cap.
3. Run engine until it reaches operating temperature.
4. Stop engine.



TCAL45053—UN—14MAY13

5. Check recovery bottle (A) coolant level:
 - If engine is warm, coolant level must be between the "FULL" line (B) and the "LOW" line (C).
 - If engine is cold, coolant level must be at the "LOW" line (C) on the recovery bottle.
6. Remove cap (D) from recovery bottle to add coolant if necessary.
7. Install cap if removed.
8. Check condition of coolant system hoses and clamps.
9. Lower attachment.

OUMX068,0000745-19-30JUN15

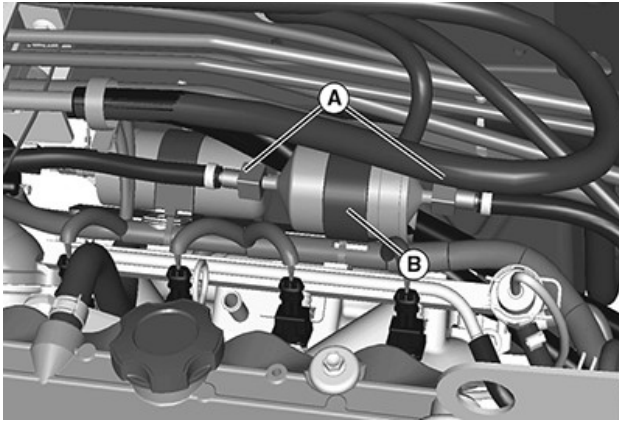
Replace Fuel Filter (Gas Models)

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

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

NOTE: Change filter when fuel is low.

1. Raise attachment to service position. (See Using the Lift Cylinder Safety Support in the Safety section.)
2. Park vehicle safely. (See Parking Safely in the Safety section.)



TCAL45054—UN—14MAY13

3. Remove quick connection fitting by depressing button on connectors (A) and pulling it off.
4. Loosen fastener securing clamp (B) that holds the filter and remove filter.

NOTE: When installing a new fuel filter, make sure the filter arrow is pointed toward the back of the machine.

5. Install new filter.
6. Tighten clamp (B) fastener.
7. Lubricate lightly the filter ends with engine oil.
8. Push fuel line connectors on filter until it securely clicks into place.

DK75838,00007E6-19-29JUN15

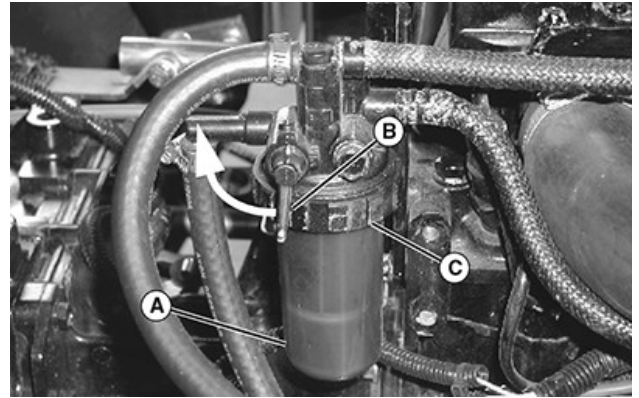
Servicing Fuel Filter Sediment Bowl (Diesel Models)

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

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

Checking Sediment Bowl

1. Raise attachment to service position. (See Using the Lift Cylinder Safety Support in the Safety section.)
2. Park vehicle safely. (See Parking Safely in the Safety section.)



TCAL45055—UN—14MAY13

3. Visually check for water and deposits in the sediment bowl (A).
4. If necessary, clean bowl and replace filter.

Cleaning and Replacing Sediment Bowl

1. Close fuel shutoff valve (B).
2. Turn collar (C) to remove bowl and filter. Discard filter.
3. Clean bowl.
4. Install new filter and bowl.
5. Tighten collar.
6. Open fuel shutoff valve.
7. Lower attachment.

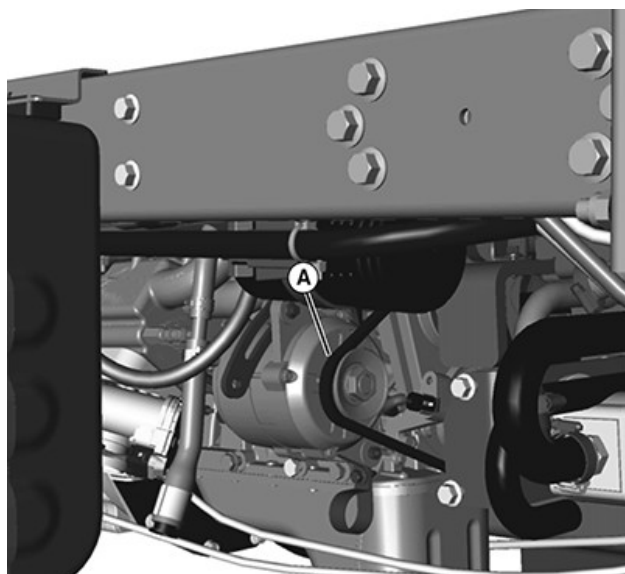
DK75838,00007E7-19-29JUN15

Checking and Adjusting Alternator Belt

⚠ CAUTION: Avoid injury! Entanglement in a belt or sheave can cause serious injury. Stop engine and wait for all moving parts to stop.

Checking Belt Tension

1. Raise attachment to service position. (See Using the Lift Cylinder Safety Support in the Safety section.)
2. Park machine safely. (See Parking Safely in the Safety section.)



TCAL45056—UN—14MAY13

Gas model shown. Alternator on opposite side of engine on Diesel model. Some parts removed for photo clarity.

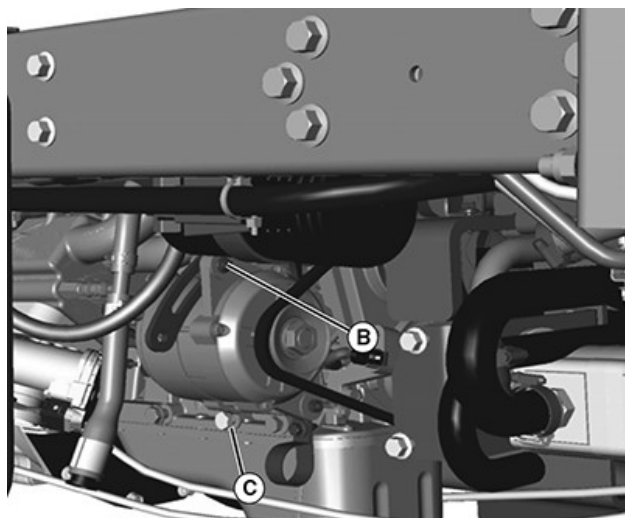
3. Check alternator belt (A):

- Inspect belt for excessive wear, damage, or stretching while in position on the sheaves.
- Apply thumb pressure to the belt halfway between the sheaves. Belt deflection must meet specification.

Specification

Alternator Belt—Deflection. 10 mm (3/8 in.)

Adjusting Belt Tension



TCAL45057—UN—14MAY13

Gas model shown. Alternator on opposite side of engine on Diesel model. Some parts removed for photo clarity.

1. Loosen alternator adjustment bolt (B).
2. Loosen alternator mounting bolt (C).

3. Apply outward pressure to the alternator housing.
4. Tighten alternator adjustment bolt and mounting bolt.
5. Check belt tension:
 - Apply thumb pressure to the belt halfway between the sheaves. Belt deflection must meet specification.

Specification

Alternator Belt—Deflection. 10 mm (3/8 in.)

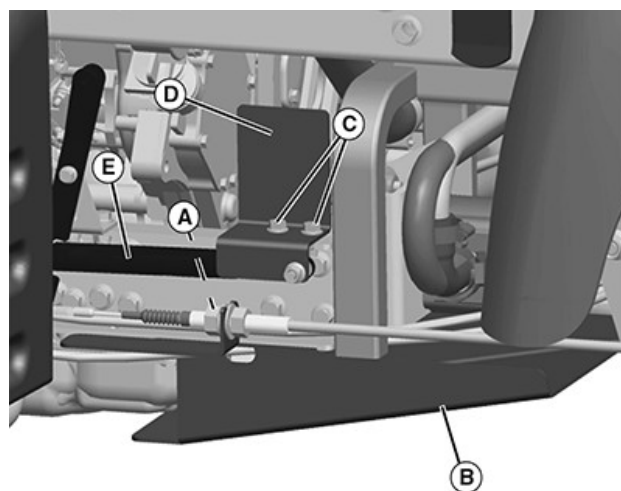
6. Lower attachment.

DK75838,00007E8-19-29JUN15

Replacing Alternator Belt

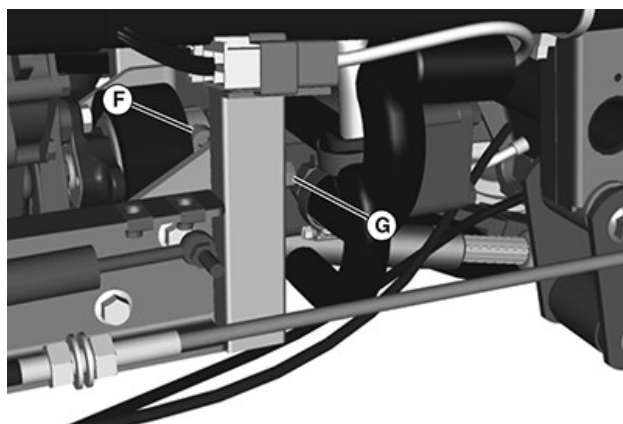
⚠ CAUTION: Avoid injury! Entanglement in a belt or sheave can cause serious injury. Stop engine and wait for all moving parts to stop.

1. Raise attachment to service position. (See Using the Lift Cylinder Safety Support in the Safety section.)
2. Park machine safely. (See Parking Safely in the Safety section.)



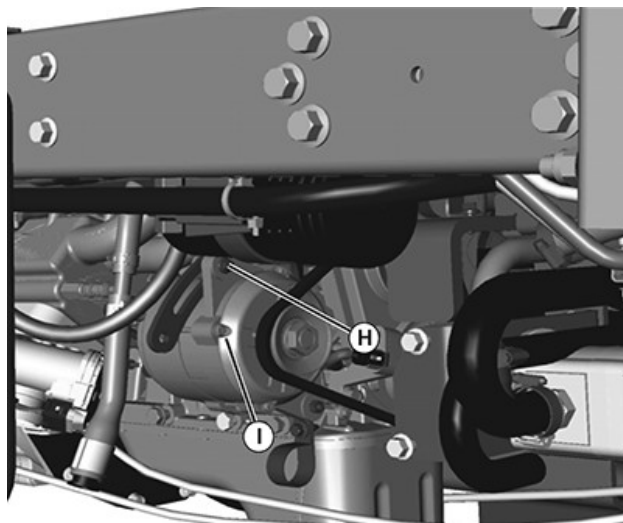
TCAL45058—UN—14MAY13

3. Remove two nuts (A) and cap screws (one on each side).
4. Remove skid plate (B).
5. Remove two cap screws (C) and lower coupler guard (D) and absorber (E) (if equipped) away from engine.



TCAL45059—UN—14MAY13

6. Loosen screw (F) securing coupling to auxiliary pump shaft.
7. Slide couplers (G) towards pump.



TCAL45060—UN—14MAY13

Gas model shown. Alternator on opposite side of engine on Diesel model. Some parts removed for photo clarity.

8. Loosen alternator adjustment bolt (H) and alternator mounting bolt (I).
9. Pivot alternator inward to loosen belt tension.
10. Replace alternator belt.
11. Pivot alternator outward to tension alternator belt.
12. Tighten adjustment bolt and mounting bolt.
13. Check belt tension:
 - Apply thumb pressure to the belt halfway between the sheaves. Belt deflection must meet specification.

Specification

Alternator Belt—Deflection. 10 mm (3/8 in.)

14. Slide couplers (G) towards engine.
15. Tighten screw retaining coupling to auxiliary pump shaft. Torque to specification.

Specification

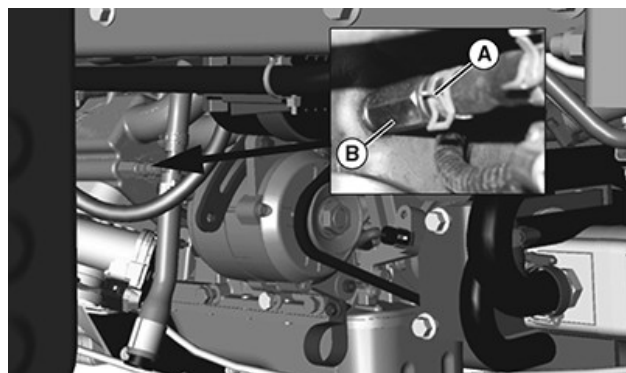
Cap Screw—Torque. 41 N·m (36 lb.-ft.)

16. Diesel models - install coupler guard with two cap screws.
17. Install skid plate with two cap screws and nuts.
18. Lower attachment.

DK75838,00007E9-19-29JUN15

Servicing PCV Valve

1. Locate the PCV valve on the intake manifold facing the front of the vehicle.



TCAL45061—UN—14MAY13

2. Squeeze tension clamp (A) and remove hose.
3. Loosen and remove PCV Valve (B) using a 14mm wrench.

NOTE: To clean PCV valve, use compressed air to remove particulates.

4. Reverse procedure to install cleaned or new valve.

DK75838,00007EA-19-01APR13

Spark Arrestor Maintenance (If Equipped)

Spark arrestor assemblies include a screen element that should be inspected and cleaned periodically. Visually inspect the screen for tears, broken wires, or loose welds. Replace the spark arrestor assembly if any of these conditions exist. If the screen is determined to be in good condition, proceed with cleaning the screen by brushing away loose dirt or carbon using a brush.

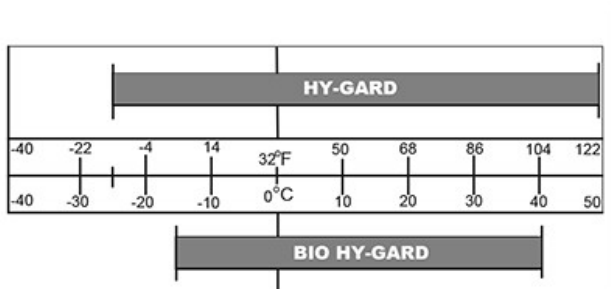
RM87422,00002DA-19-05JUL17

Service Transmission

Transmission Oil

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

The following John Deere transmission and hydraulic oils are preferred:



TCAL45062—UN—14MAY13

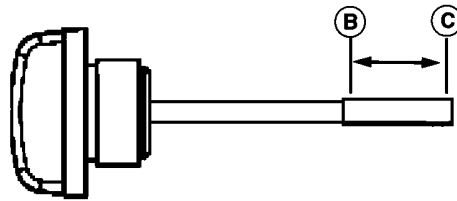
- Hy-Gard™ (JDM J20C)
- Bio Hy-Gard™

IMPORTANT: Avoid damage! Only use a quality oil in this transmission. Do not mix any other oils in this transmission. Do not use engine oil or “Type F” (Red) Automatic Transmission Fluid.

DK75838,00007EB-19-29JUN15

NOTE: DO NOT tighten dipstick. Allow threads to rest on top of transmission housing.

4. Install fill cap/dipstick.



TCAL45064—UN—14MAY13

5. Remove fill cap/dipstick. Check oil level on dipstick. Oil level must be between levels (B) and (C) on the dipstick.

- If oil is low, add oil to bring oil level no higher than level (B) on the dipstick.
- If oil is above level (B) on the dipstick, drain to proper level.

6. Install fill cap/dipstick.

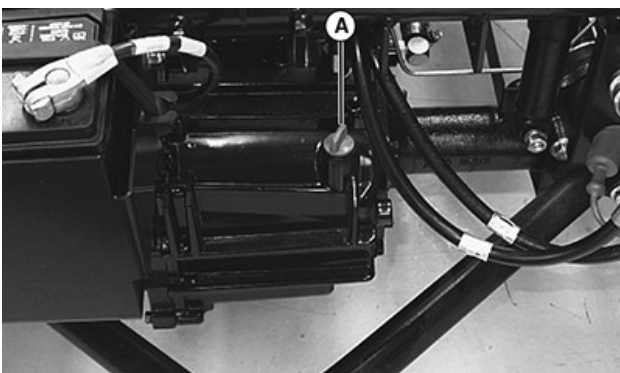
OUMX068,000073E-19-29JUN15

Checking Transmission Oil Level

IMPORTANT: Avoid damage! Hot hydraulic oil expands and shows incorrect oil level. Check oil level:

- When oil is cold.
- With engine not running.
- Attachment must be in the lowered operating position when checking transmission oil level.

1. Park vehicle safely. (See Parking Safely in the Safety section.)



TCAL45063—UN—14MAY13

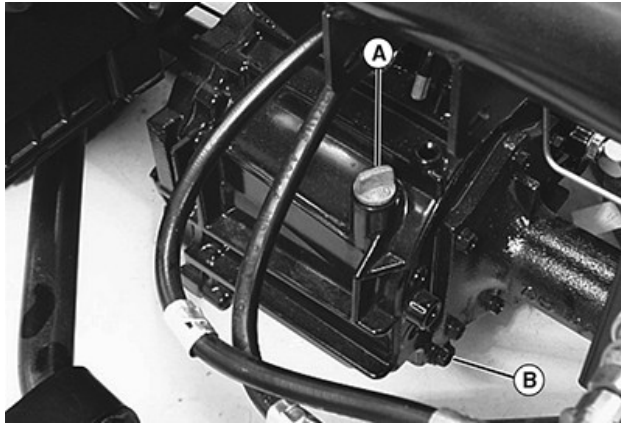
2. Thoroughly clean area around reservoir fill cap/dipstick (A).
3. Remove fill cap/dipstick and wipe with a clean cloth.

Changing Transmission Oil and Filter

IMPORTANT: Avoid damage! Contamination of hydraulic fluid can cause transmission damage or failure. Do not remove cap from fill opening unless necessary.

Severe or unusual conditions require a more frequent service interval.

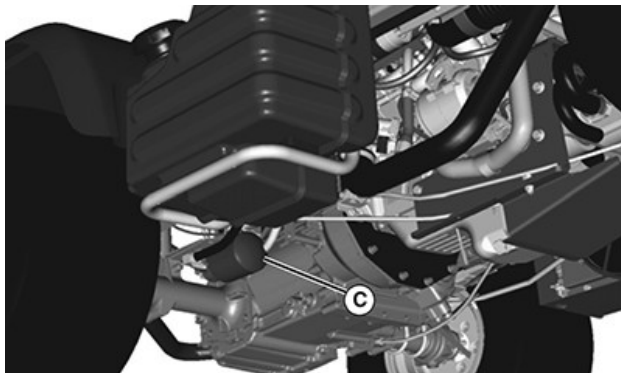
1. Raise attachment to service position. (See Using the Lift Cylinder Safety Support in the Safety section.)
2. Park vehicle safely. (See Parking Safely in the Safety section.)
 - Allow the engine and transmission to cool.



TCAL45065—UN—14MAY13

3. Thoroughly clean areas around the transmission fill cap/dipstick (A). Remove fill cap/dipstick.
4. Locate drain plug (B) under right side of transmission.
5. Remove drain plug. Allow oil to drain into a drain pan.

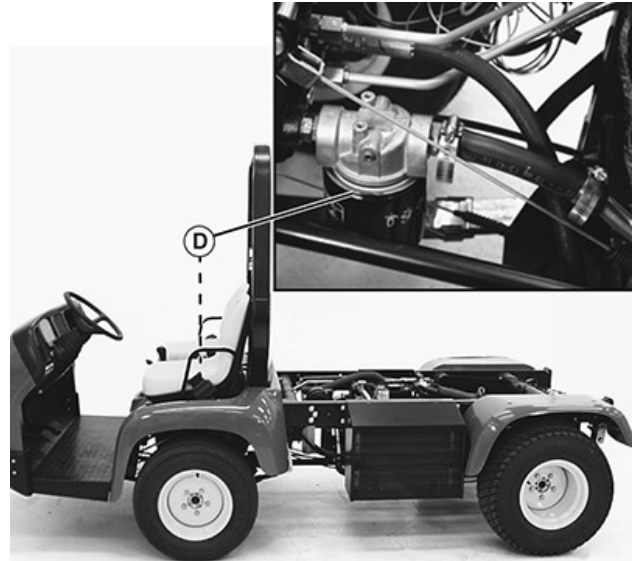
NOTE: If the vehicle is equipped with an auxiliary hydraulic kit, the transmission filter (C) is relocated to the left side of the vehicle.



TCAL45066—UN—14MAY13

6. Locate transmission oil filter (C) on the left side of vehicle on the transaxle.

NOTE: If vehicle does not have an auxiliary hydraulic kit installed, the transmission filter (D) is located in the center of vehicle, directly behind control valve.



TCAL45067—UN—14MAY13

- Locate transmission oil filter (D) on standard machine in the center behind control valve.
7. Turn filter counterclockwise to remove. Use a drain pan to catch dripping oil.
 8. Install new filter.
 - Apply a film of clean oil on gasket of new filter.
 - Turn filter clockwise until gasket contacts the mounting surface. Tighten 1/2 to 3/4 turn after gasket contact.
 9. Clean transmission oil strainer.
 10. Install and tighten drain plug, torque to specification.

Specification

Transmission Drain
Plug—Torque. 49 N·m (36 lb.-ft.)

11. Add recommended fluid into fill opening.

NOTE: DO NOT tighten dipstick. Allow threads to rest on top of transmission housing.

12. Install fill cap/dipstick.

NOTE: Check oil level with attachment in the lowered position.

13. Remove fill cap/dipstick. Check oil level; add or drain oil to correct level if necessary.
14. Install fill cap/dipstick.

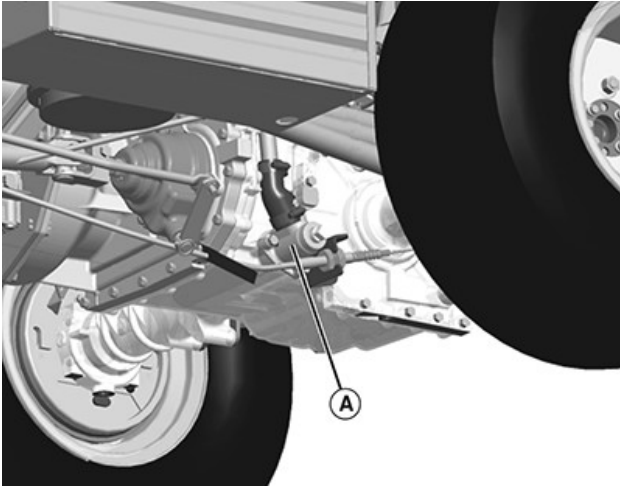
OUMX068,000073F-19-29JUN15

Clean Transmission Oil Strainer

CAUTION: Avoid injury! Use caution when cleaning the oil strainer. During periods of machine operation, the transmission oil can get hot.

NOTE: Routinely clean strainer when changing the transmission oil and filter. Strainer must be serviced when the transmission is empty.

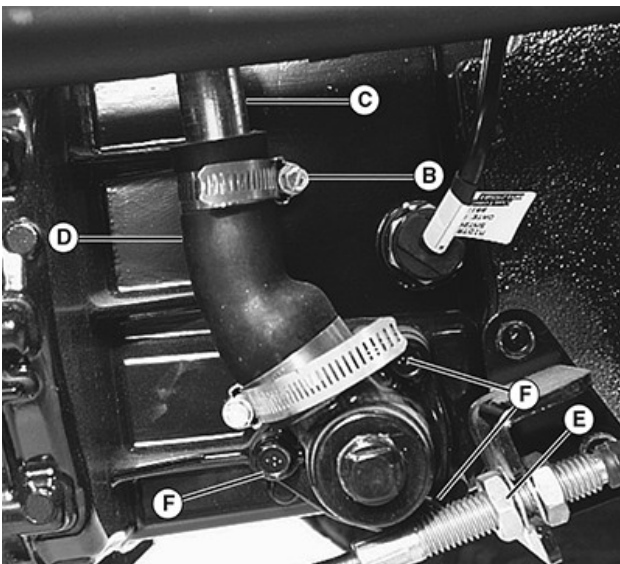
1. Change transmission oil and filter.



TCAL45068—UN—14MAY13

2. Locate strainer housing (A) on the left side of vehicle.

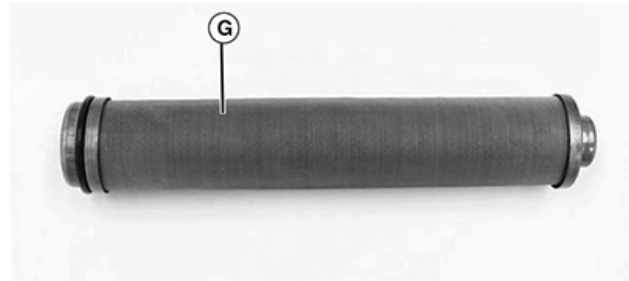
NOTE: Use drain pan to catch dripping oil.



TCAL45069—UN—14MAY13

3. Loosen adjustable hose clamp (B).
4. Remove hydraulic line (C) from rubber hose (D).
5. Loosen nut (E) and remove differential cable.
6. Loosen and remove three hex bolts (F).

7. Remove strainer housing and strainer.



TCAL45070—UN—14MAY13

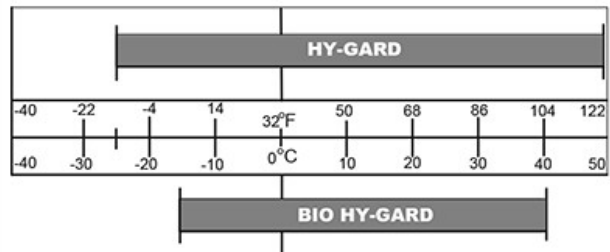
8. Clean strainer (G) with solvent or mineral spirits and allow to dry.
9. Install strainer into the strainer housing.
10. Replace strainer housing gasket if needed.
11. Install strainer housing.
12. Install and tighten three hex bolts.
13. Install rubber hose onto hydraulic line.
14. Tighten adjustable hose clamp.
15. Install differential cable and tighten nut.

DK75838,00007EE-19-29JUN15

Front Axle Oil

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

The following John Deere hydraulic oil is preferred:



TCAL45071—UN—14MAY13

- HY-GARD™ (JDM J20C)
- BIO HY-GARD™

IMPORTANT: Avoid damage! Only use a quality oil in this gear case. Do Not mix any other oils in this gear case.

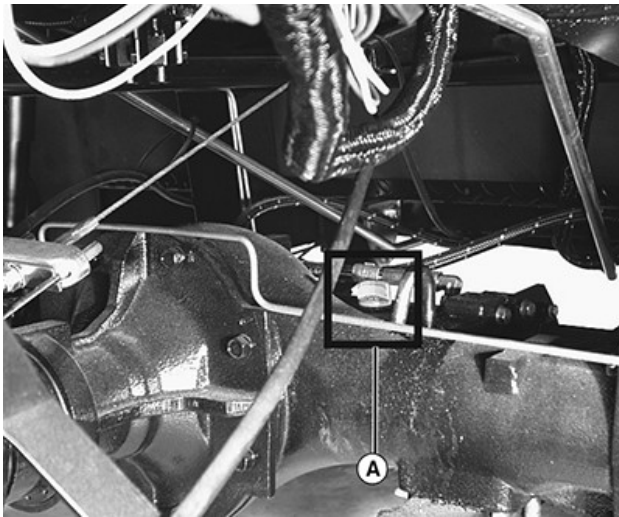
DK75838,00007EF-19-30JUN15

Checking the Front Axle Oil Level (4WD Models)

IMPORTANT: Avoid damage! Allow front axle oil time to cool before checking level.

1. Park vehicle safely. (See Parking Safely in the Safety section.)

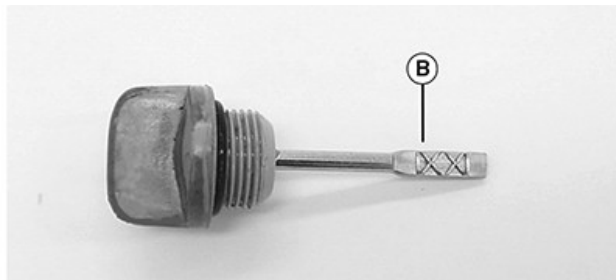
IMPORTANT: Avoid damage! Dirt and debris in oil causes damage. Help prevent contaminants from entering the oil dipstick location. Clean area around dipstick before removing.



2. Unscrew dipstick (A) and remove it from axle.
3. Wipe dipstick dry with a clean cloth.

NOTE: Do not tighten dipstick. Allow threads to rest on top of the axle housing.

4. Install dipstick into the axle housing.



5. Remove dipstick. Oil level must be at level (B) on the dipstick.

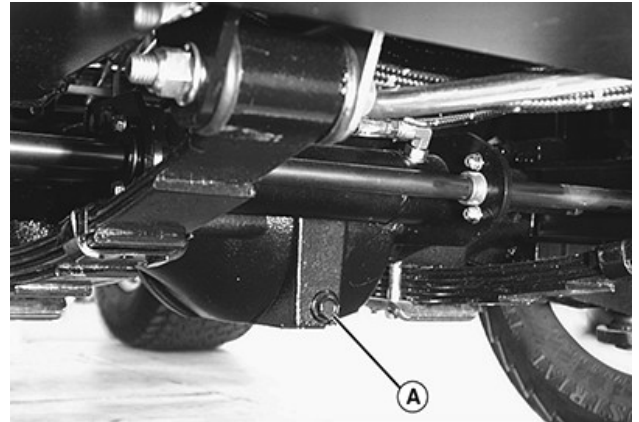
- If oil is low, add oil. Oil level must be to the top of area (B) on the dipstick.

6. Install and tighten dipstick.

DK75838,00007F0-19-29JUN15

Changing the Front Axle Oil (4WD Models)

1. Park vehicle safely. (See Parking Safely in the Safety section.)
2. Place container under the oil drain location.



3. Remove differential drain plug (A) to drain oil.
4. Install and tighten drain plug.

IMPORTANT: Avoid damage! Dirt and debris in oil causes damage. Help prevent contaminants from entering the oil dipstick location. Clean area around dipstick before removing.

5. Unscrew dipstick and remove it from the differential housing.
6. Add recommended fluid through the dipstick opening.
7. Wipe dipstick dry with a clean cloth.

NOTE: Do not tighten dipstick. Allow threads to rest on top of the dipstick opening.

8. Install dipstick.
9. Remove dipstick. Oil level must be to the top of the cross-hatched area on the dipstick.
 - If oil is low, add oil until oil level is to the top of the cross-hatched area on the dipstick.
10. Install and tighten dipstick.

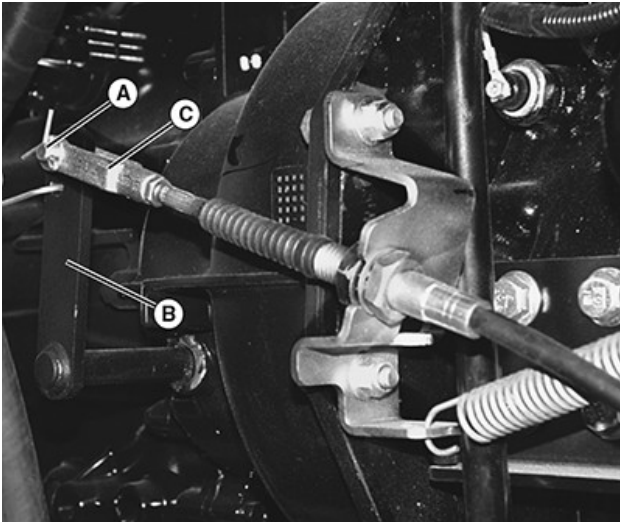
NOTE: Oil flows slowly through the front axle housing. Check oil level again after the first several hours of operation.

DK75838,00007F1-19-29JUN15

Adjusting Clutch and Accelerator Cables

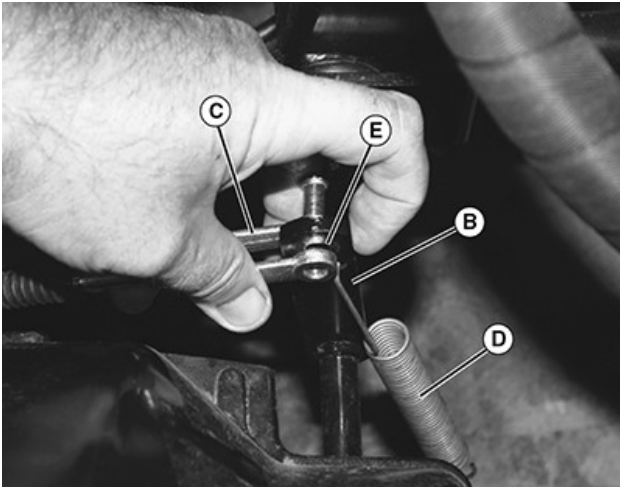
Adjust Clutch Cable

1. Park machine safely. (See Parking Safely in the SAFETY section.)



TCAL45075—UN—14MAY13

2. Remove cotter pin and pin (A) from clutch arm (B) and clevis (C).



TCAL45076—UN—14MAY13

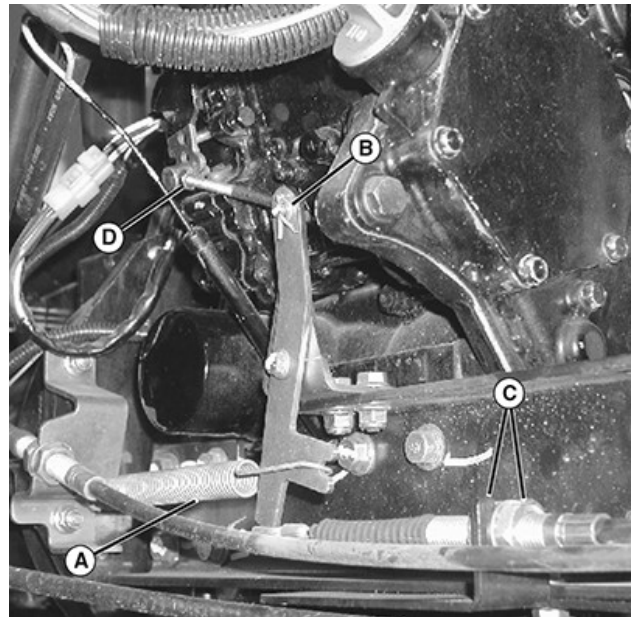
3. Disconnect spring (D), and pull clutch arm (B) and clevis (C) toward each other and check alignment of holes.

NOTE: Make sure enough force is being applied to clevis to pull clutch pedal to the top of its travel, or block clutch pedal up to the top of its travel.

4. If holes (E) do not line up, loosen locknut on clevis and adjust clevis until holes align.
5. Install pin and connect return spring.
6. Adjust clutch arm by tightening cable jam nuts until clutch arm has 1 - 2 mm of free play.
7. Be sure that clevis pin can slide freely through clevis and clutch arm.
8. Tighten jam nuts.
9. Connect spring.

Adjust Accelerator Cable (Diesel Models Only)

1. Park machine safely. (See Parking Safely in the SAFETY section.)
2. Place a small piece of reflective tape on outside edge of crankshaft pulley.
3. Start engine and run for 5 minutes or until engine is at operating temperature.
4. With engine running, depress throttle pedal all the way to the floor and check engine speed using JT05719 Digital Tachometer.
5. If fast idle is above or below 3450 ± 50 rpm, shut engine off.



TCAL45077—UN—14MAY13

6. Disconnect spring (A).
7. Remove cotter pin and washer (B) from throttle adjustment pin, and disconnect from governor lever.
8. Push throttle pedal to the floor. If pedal will not go all the way to the floor, loosen jam nuts (C) and adjust cable.
9. With accelerator pedal on floor, hold governor throttle lever to fast idle position and check alignment of adjustment pin and hole in lever.
10. If pin does not align with hole in throttle lever, loosen locknut (D) on adjustment pin and adjust until pin aligns with hole in throttle lever.
11. Install washer and cotter pin onto throttle rod adjusting pin and tighten locknut.

DK75838,00007F2-19-01APR13

Service Hydraulics

Servicing Optional Auxiliary Hydraulics

⚠ CAUTION: Avoid injury! 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.

Use caution when filling and draining hydraulic oil. During periods of machine operation, the hydraulic oil reservoir can get hot. Allow engine and oil reservoir to cool before servicing.

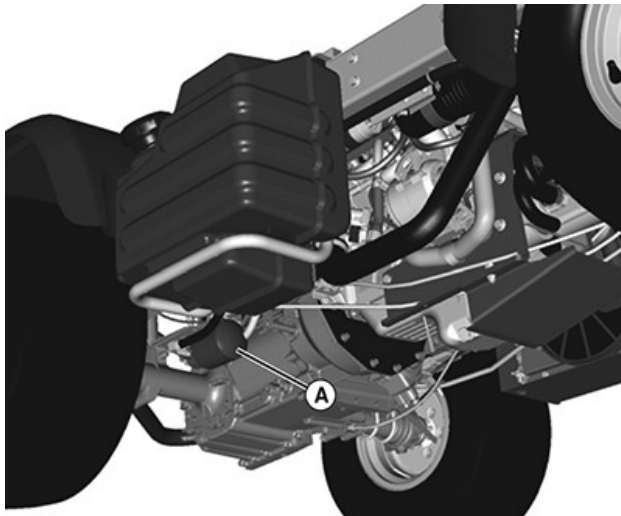
IMPORTANT: Avoid damage! Contamination of hydraulic fluid could cause transmission damage or failure. Do not open oil reservoir cap unless necessary.

Severe or unusual conditions requires a more frequent service interval.

NOTE: This service procedure only applies to vehicles equipped with the auxiliary hydraulic kit.

Drain Fluid and Change Filter

1. Raise attachment to service position. (See Using the Lift Cylinder Safety Support in the Safety section.)
2. Park vehicle safely. (See Parking Safely in the Safety section.)
3. Allow the engine and the oil reservoir to cool.



TCAL45078—UN—14MAY13

4. Drain hydraulic oil using transmission drain plug. (See Changing Transmission Oil and Filter).
5. Locate transmission oil filter (A) on the left side of vehicle on the transaxle.
6. Turn filter counterclockwise to remove. Use a drain pan to catch dripping oil.

7. Apply a film of clean oil on gasket of new filter.
8. Turn filter clockwise until gasket contacts the mounting surface. Tighten 1/2 to 3/4 turn after gasket contact.
9. Install transmission drain plug. Do not overtighten.
10. Fill transmission (See Changing Transmission Oil and Filter).

DK75838,00007F3-19-30JUN15

Cleaning Oil Cooler

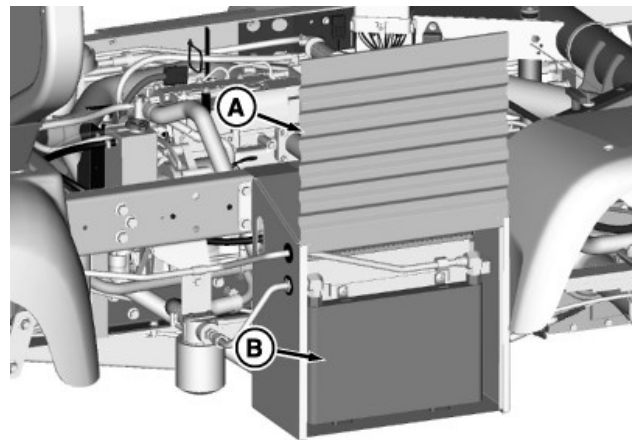
⚠ CAUTION: Avoid injury! Compressed air can cause debris to fly a long distance.

- Clear work area of bystanders.
- Wear eye protection when using compressed air for cleaning purposes.
- Reduce compressed air pressure to 210 kPa (2.10 bar) (30 psi).

IMPORTANT: Avoid damage! Cooling fins must be clean to prevent engine from overheating and to allow adequate air intake.

NOTE: Perform this service procedure on vehicles equipped with auxiliary hydraulic kit.

1. Raise attachment to service position. (See Using the Lift Cylinder Safety Support in the Safety section.)
2. Park vehicle safely. (See Parking Safely in the Safety section.)



TCT011008—UN—16APR14

3. Lift air intake screen (A) from position in front of the engine radiator.
4. Remove dirt and debris from the auxiliary hydraulics an oil cooling coils (B) using compressed air or water. Check coils for damage.
5. Install air intake screen.

6. Lower attachment.

OUMX068,0000747-19-30JUN15

Service Steering & Brakes

Brake Fluid

The following heavy duty brake fluid is **PREFERRED** for all drum and disc brakes:

- Brake Fluid - DOT3

Other brake fluids may be used if they provide the following:

- Conforms to Motor Vehicle Safety Standard No. 116.
- Minimum wet boiling point 140°C (284°F).
- Minimum dry boiling point 232°C (450°F) to prevent vapor lock.

DK75838,00007F5-19-20MAY13

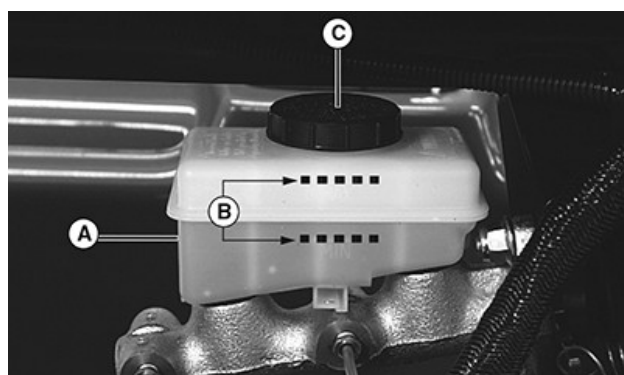
Check Brake Fluid Level

IMPORTANT: Avoid damage! Avoid contamination of the brake fluid. Thoroughly clean area around the filler cap before removing. Do not open the brake fluid reservoir cap unless absolutely necessary.

Use extreme care when filling the reservoir. Fluid spilled on painted surfaces can cause damage.

Use only brake fluid from a sealed container.

1. Park vehicle safely. (See Parking Safely in the Safety section.)
2. Pull front grill straight out and remove.



TCAL45080—UN—14MAY13

3. Visually check the see-through reservoir (A) for the appropriate amount of fluid.
 - Fluid levels must be maintained between the "MAX" maximum and "MIN" minimum fill lines (B).
 - If the fluid level is above the "MIN" minimum fill line, do not open the cap.
4. If fluid is low:
 - Carefully clean area around reservoir cap (C). Unscrew cap.

- Add fluid until level is midway between the reservoir fill lines.

5. Install reservoir cap; wipe up any spills.
6. Install front grille.

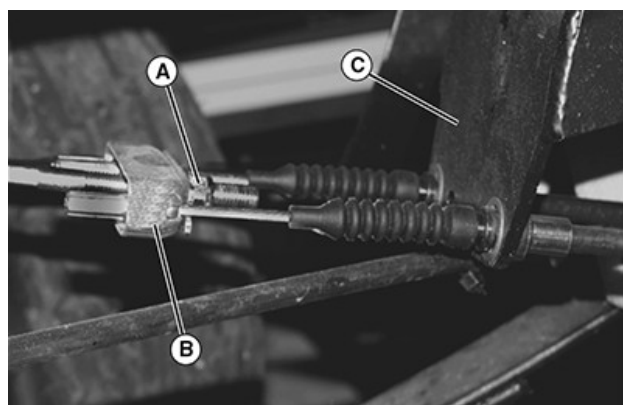
DK75838,00007F6-19-30JUN15

Adjusting Park Brake

NOTE: The rear brakes must be adjusted correctly before adjusting the park brake cable

1. Park machine safely. (See Parking Safely in the Safety section.)

IMPORTANT: Avoid damage! Do not overtighten the cable, or the brakes are preloaded.



TCAL45081—UN—14MAY13

2. Adjust the nut (A) on the brake lever cable at the equalizer (B) until the slack in the control cable slide rod and clevis (C) has been removed.
3. Check each park brake cable to ensure that the return spring is not fully compressed, if it is, the park brake linings need to be replaced.

NOTE: Minimum allowable thickness for a park brake pad is 0.762 mm (0.030 in).

SR99263,0000342-19-18MAY20

Service Electrical

Electrical

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

MP47322,00F466E-19-04AUG25

Service the Battery Safely



TCAL45082—UN—14MAY13

CAUTION: Avoid injury! Battery electrolyte contains sulfuric acid. It is poisonous and can cause serious burns:

- Wear eye protection and gloves.
- Keep skin protected.
- If electrolyte is swallowed, get medical attention immediately.
- If electrolyte is splashed into eyes, flush immediately with water for 15-30 minutes and get medical attention.
- If electrolyte is splashed onto skin, flush immediately with water and get medical attention if necessary.

The battery produces a flammable and explosive gas. The battery may explode:

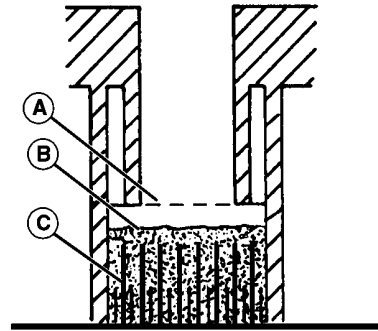
- Do not smoke near battery.
- Wear eye protection and gloves.
- Do not allow direct metal contact across battery posts.
- Remove negative cable first when disconnecting.
- Install negative cable last when connecting.

DK75838,00007F9-19-30JUN15

Checking Battery Electrolyte Level

NOTE: Add only distilled water to replace battery electrolyte.

1. Park the machine safely. (See Parking Safely in the SAFETY section.)
2. Remove battery cell caps. Make sure cap vents are not plugged.



TCAL45083—UN—14MAY13

3. Check electrolyte level. Electrolyte (B) should be approximately halfway between bottom of filler neck (A) and top of plates (C).

IMPORTANT: Avoid damage! Do not overfill battery. Electrolyte can overflow when battery is charged and cause damage.

4. Add only distilled water if necessary.
5. Install battery cell caps.

DK75838,00007FA-19-30JUN15

Clean Battery and Terminals

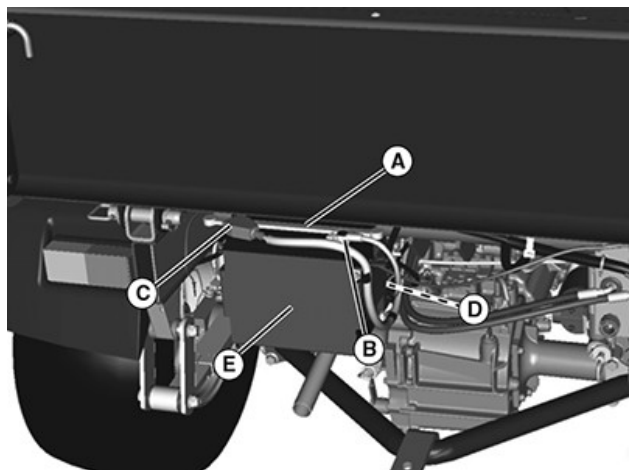
1. Park machine safely. (See Parking Safely in the Safety section.)
2. Disconnect and remove battery.
3. Wash battery with solution of four tablespoons of baking soda to one gallon of water. Be careful not to get the soda solution into the cells.
4. Rinse the battery with plain water and dry.
5. Clean terminals and battery cable ends with wire brush until bright.
6. Install battery.
7. Attach cables to battery terminals, beginning with the positive cable, using washers and nuts.
8. Apply spray lubricant to terminal to prevent corrosion.

MP47322,00F4671-19-17AUG23

Removing and Installing Battery

Removing Battery

1. Park the vehicle safely. (See Parking Safely in the SAFETY section.)



TCAL45084—UN—14MAY13

2. Remove strap (A) securing battery.
3. Disconnect negative (-) battery cable (B).
4. Push red cover away from positive (+) battery cable (C) and disconnect cable from battery.
5. Remove battery.

Installing Battery

NOTE: The service battery is slightly deeper and may need to have the battery bracket moved out. The battery bracket has two sets of mounting holes.

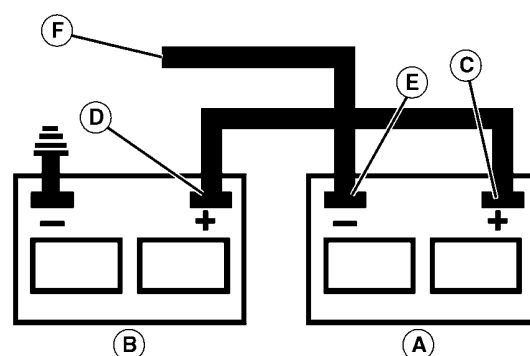
1. If replacement battery is larger than removed battery:
 - a. Remove hardware (D) from both sides and bottom of bracket.
 - b. Slide bracket (E) out to the other hole in bracket to allow the deeper service battery to fit.
 - c. Install hardware.
2. Install battery.
3. Connect positive (+) cable to battery positive (+) terminal first, then negative (-) cable to battery negative (-) terminal.
4. Apply spray lubricant on battery terminals to help prevent corrosion.
5. Install strap to secure battery.

DK75838,00007FC-19-01APR13

Using Booster Battery

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

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



TCAL45085—UN—14MAY13

A—Booster Battery
B—Disabled Vehicle Battery

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

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

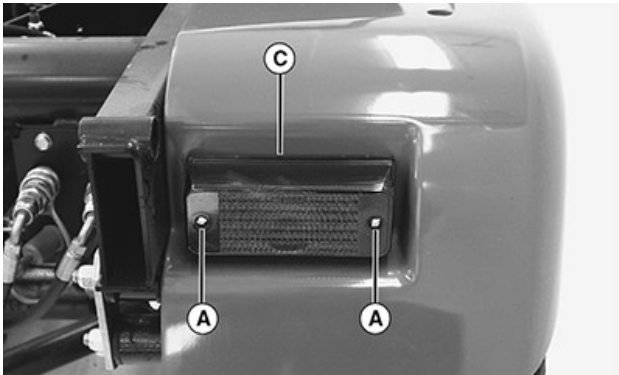
Install negative booster cable away from moving parts in the engine compartment, such as belts and fan blades.

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

DK75838,00007FD-19-30JUN15

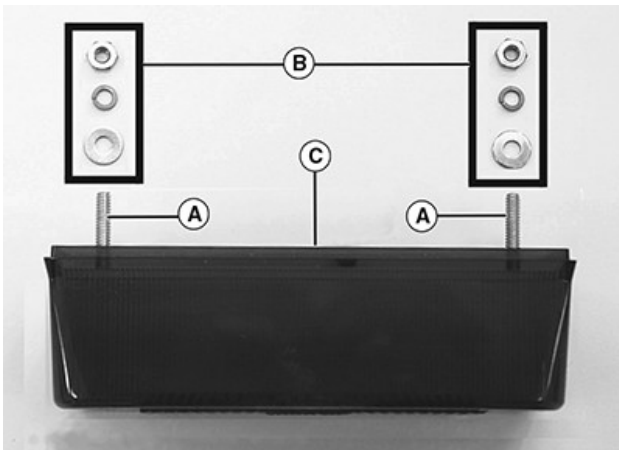
Replacing Stoplight/Taillight Bulb

1. Park vehicle safely. (See Parking Safely in the Safety section.)



TCAL45086—UN—14MAY13

2. Remove two screws (A).



TCAL45087—UN—14MAY13

3. Remove attaching hardware (B) and lens (C) from the combination stoplight/taillight assembly.
4. Remove defective bulb.
 - Rotate bulb counterclockwise approximately 1/3 turn and remove from the socket.
5. Install new bulb into the socket.
 - Push down top of bulb and rotate clockwise into a locked position.
6. Check operation of lights.
7. Install lens.

DK75838,00007FE-19-01APR13

Replacing Indicator Light Bulb

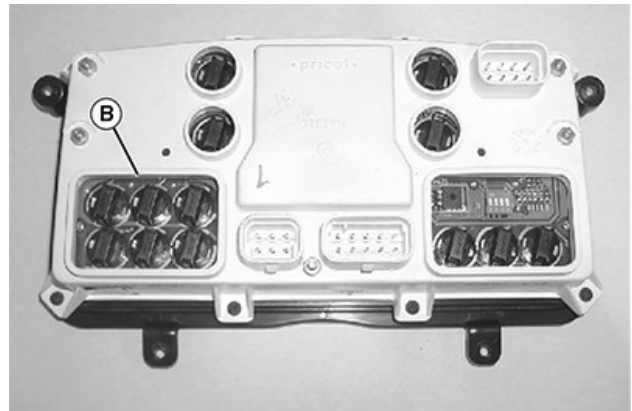
1. Park machine safely. (See Parking Safely in the Safety section.)
2. Remove front grille.

NOTE: Instrument panel housing removed for photo clarity.



TCAL45088—UN—14MAY13

3. Locate rear of instrument panel housing (A).



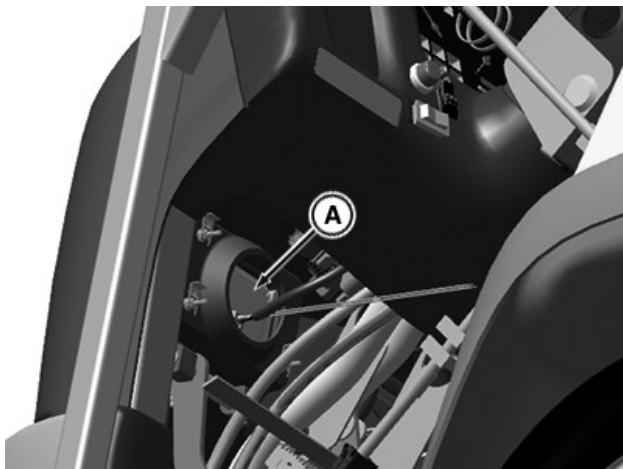
TCAL45089—UN—14MAY13

4. Remove rubber plugs to locate indicator light bulb assemblies.
5. Remove defective bulb assembly (B) from the instrument panel housing.
 - Rotate bulb assembly counterclockwise approximately 1/3 turn and remove from the housing socket.
6. Install new bulb assembly into housing socket and rotate clockwise into locked position.
7. Check operation of lights.
8. Install rubber plug.
9. Install front grille.

DK75838,00007FF-19-01APR13

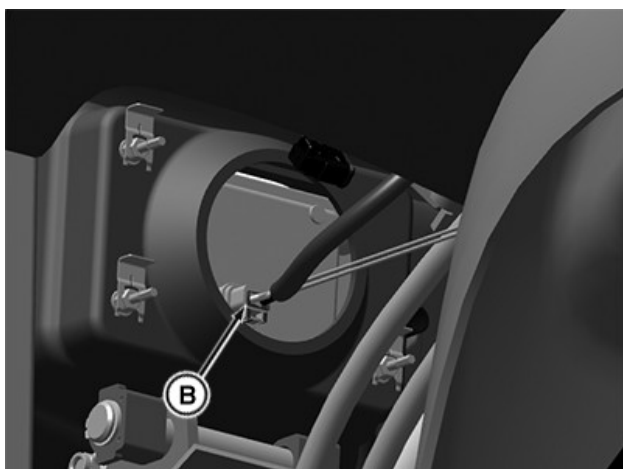
Replacing LED Headlight Assembly

1. Park vehicle safely. (See Parking Safely in the Safety section.)



APY35101—UN—08APR20

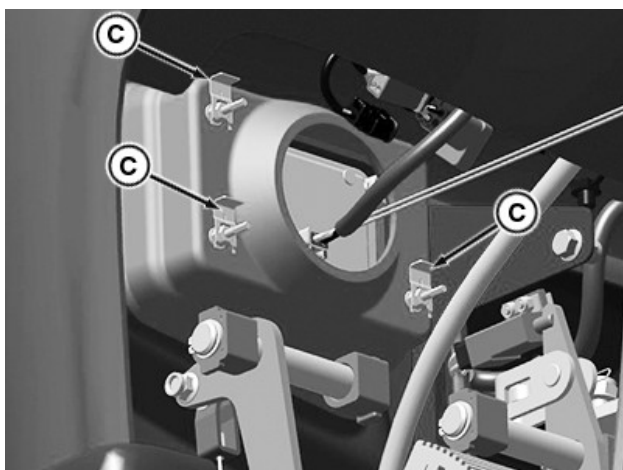
2. Locate LED headlight assembly (A) under the vehicle dashboard.



APY35102—UN—08APR20

3. Disconnect the wiring harness connector (B) from the LED headlight assembly (A).

IMPORTANT: Avoid damage! Do not repair the LED headlight assembly. Remove the LED headlight assembly carefully while inspecting or replacing.



APY35103—UN—22APR20

4. Remove clips (C) that engages into the grooves at the base of the headlight screws.



APY35104—UN—22APR20

Front Side Shown

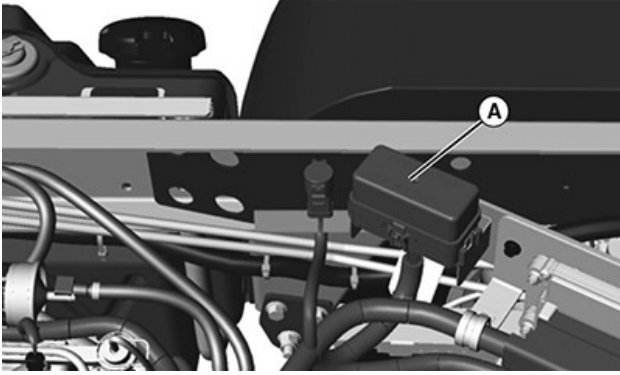
5. Remove LED headlight assembly (A) from the front side.
6. Inspect or replace the LED headlight assembly (A).
7. Install the LED headlight assembly (A) into the front fascia and engage headlight screws with clips (C).
8. Connect the wiring harness connector (B) to the LED headlight assembly (A).
9. Check the operation of lights.

SG77823,0000503-19-22APR20

Checking and Replacing Fuses

IMPORTANT: Avoid damage! Prevent vehicle electrical circuit damage. Make sure that replacement fuse is the correct size.

1. Park vehicle safely. (See Parking Safely in the Safety section.)
2. Raise attachment to service position. (See Using the Lift Cylinder Safety Support in the Safety section.)
3. Open fuse box (A).



TCAL45092—UN—14MAY13

4. Identify fuse, refer to the decal near the fuse box behind the controller on the diagonal frame.
5. Replace defective fuse.
 - Remove defective fuse from fuse holder.
 - Push in a new fuse.

DK75838,0000801-19-30JUN15

Service Miscellaneous

Gas Fuel

Use regular grade unleaded fuel with an octane rating of 87 octane or higher. Fuel blends containing up to 10% ethanol or up to 15% MTBE reformulated fuel are acceptable. Do not use fuel or additives containing methanol as engine damage can occur.

Always use fresh, clean fuel that is purchased in a quantity that can be used within approximately 30 days, or add fuel stabilizer.

Fuel is blended to give best seasonal performance. To avoid engine performance problems such as hard starting or vapor lock, use in-season fuel. Use fuel during warm weather that was purchased during that season, and use fuel during cold weather that was purchased during that season.

Fuel can become stale in machines with engines that are used seasonally or infrequently during a season. Stale fuel can produce varnish and plug carburetor or injector components which can affect engine performance.

Keep fuel storage container tightly covered and in a cool area out of direct sunlight. Fuel can break down and degrade if not sealed properly or exposed to sun and heat.

Condensation may collect in the fuel tank because of a variety of operating or environmental conditions and, over time, may affect your machine's operation. Fill fuel tank at the end of daily use and store fuel in plastic containers to reduce condensation.

For best year-round performance and fuel-handling, add stabilizer to fuel immediately after fuel purchase. Such practice helps prevent engine performance problems and allows fuel storage in the machine all year without draining.

OUMX068,000094D-19-22AUG14

Diesel Fuel

Consult your local fuel distributor for properties of the diesel fuel available in your area.

In general, diesel fuels are blended to satisfy the low temperature requirements of the geographical area in which they are marketed.

Diesel fuels specified to EN 590 or ASTM D975 are recommended.

Required Fuel Properties

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

Cetane number of 45 minimum. Cetane number greater than 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 (0.018 in) as measured by ASTM D6079 or ISO 12156-1. A maximum scar diameter of 0.45 mm (0.020 in) 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 5000 mg/kg (5000 ppm).

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 injury! 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 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 greater than 37 kW

- Use of diesel fuel with sulfur content less than 1000 mg/kg (1000 ppm) is REQUIRED.

Sulfur Content for other 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. Contact your John Deere dealer or other service provider.

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

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

MK71445,0000080-19-17OCT25

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.

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.

Engines 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 blends above B20 cannot be used.

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.

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 or other service provider for John Deere fuel products to improve storage and performance with biodiesel fuels.

MK71445,0000081-19-08JUL25

Fill Fuel Tank

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

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

IMPORTANT: Avoid damage! Dirt and water in fuel causes engine damage:

- Clean dirt and debris from the fuel tank opening.
- Use clean, fresh, stabilized fuel.
- Fill the fuel tank at the end of operation each day to prevent condensation and freezing during cold weather.
- If using a funnel, make sure it is plastic and has no screen or filter.

1. Park machine safely. (See Parking Safely in the Safety section.)
2. Allow engine to cool.
3. Remove any debris from area around fuel tank cap.
4. Remove fuel tank cap slowly to allow any pressure built up in tank to escape.
5. Fill fuel tank only to bottom of filler neck. Do not overfill.

NOTE: On some models, the fuel tank cap will click when it is tight.

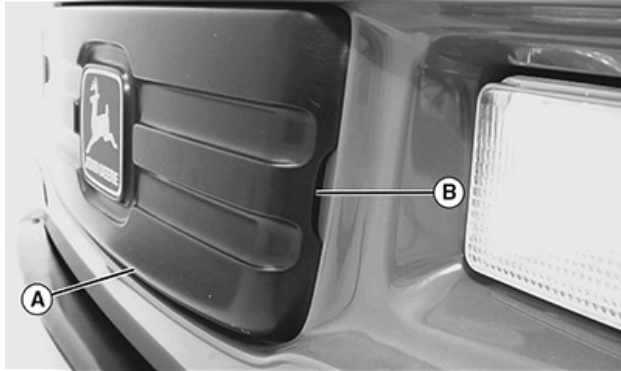
6. Install fuel tank cap and turn cap until it is tight.

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Removing and Installing Front Grille

Remove Grille

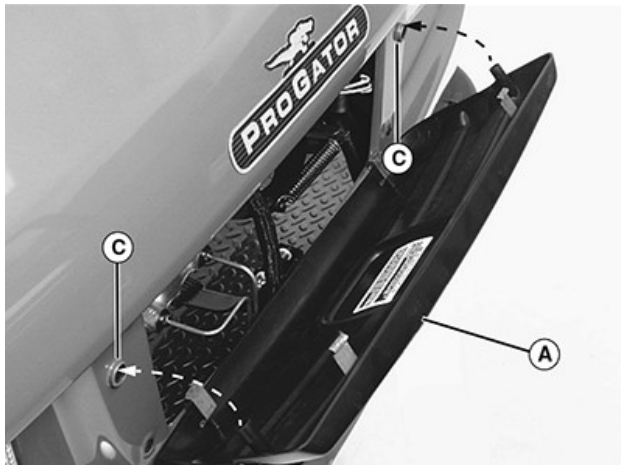
1. Park vehicle safely. (See Parking Safely in the Safety section.)



TCAL45093—UN—14MAY13

2. Grasp each side of grille (A) at location (B).
3. Pull each side of grille firmly and evenly outward to remove.

Install Grille



TCAL45094—UN—14MAY13

1. Align grille (A) with holes (C) in the front hood.
2. Push grille evenly forward on both ends. Make sure grille snaps into a closed position.

DK75838,0000804-19-01APR13

Removing and Installing Wheel Assembly

Removing

1. Park machine safely. (See Parking Safely in the Safety section.)

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

- Use a safe lifting device rated for the load to be lifted.

- Lower machine onto jack stands or other stable supports and block wheels before servicing.

IMPORTANT: Avoid damage! Place jack stands under frame, not under transmission or engine, when raising or supporting machine.

2. Loosen lug nuts on wheel(s) being removed.
3. Raise and support machine so that the wheel being removed is just off the ground.
4. Remove lug nuts.
5. Remove wheel.

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

- Do not attempt to mount a tire without the proper equipment and experience to perform the job.

6. Take wheel assembly to an authorized service dealer for repairs.

Installing

1. Apply grease to spindle shaft before installing wheel assembly.
2. Install wheel assembly with valve stem to the outside.
3. Tighten wheel nuts evenly in alternating sequence until snug.
4. Lower machine completely to the ground.
5. Tighten wheel nuts.

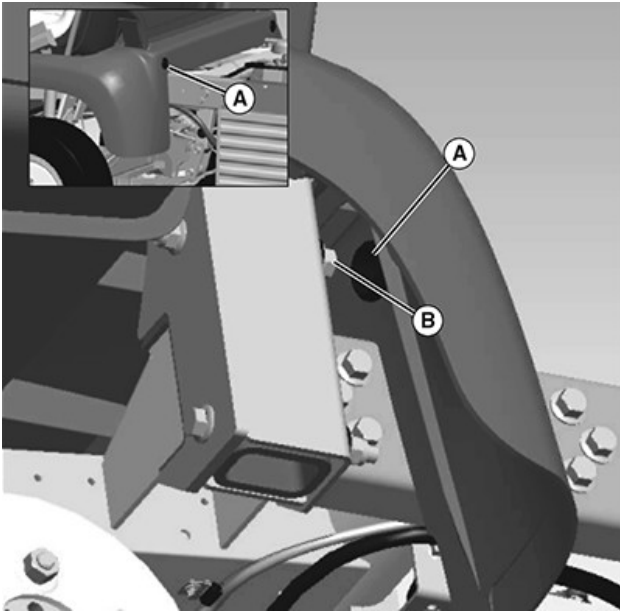
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Checking and Tightening Roll-Over Protective Structure (ROPS) Hardware

CAUTION: Avoid injury! To maintain operator protection and ROPS certification:

- Do not repair or revise the ROPS.
- Any alteration of the ROPS must be approved by the manufacturer.

1. Park machine safely. (See Parking Safely in the SAFETY section.)



TCAL45095—UN—14MAY13

2. Remove plug (A) in seat base to access top bolt (B). Access bottom fasteners and top nut from below.

NOTE: Refer to the SPECIFICATIONS section for ROPS torque values.

3. Tighten each fastener on both side of ROPS to proper torque.
4. Install seat base plugs.

DK75838,0000806-19-30JUN15

Tightening Wheel Hardware



TCAL45096—UN—14MAY13

- Tighten front and rear wheel nuts (A) alternately to specification.

Specification

Wheel Nuts—Torque. 115 N·m (85 lb-ft.)

- Tighten wheel hub bolts (B) to specification.

Specification

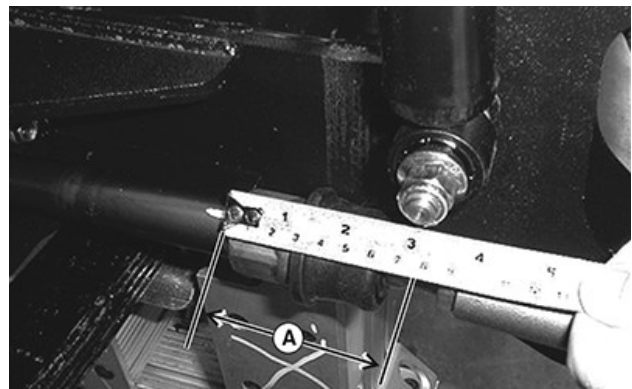
Wheel Hub Bolts—Torque. 81 N·m (60 lb-ft.)

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Checking and Adjusting Toe-In

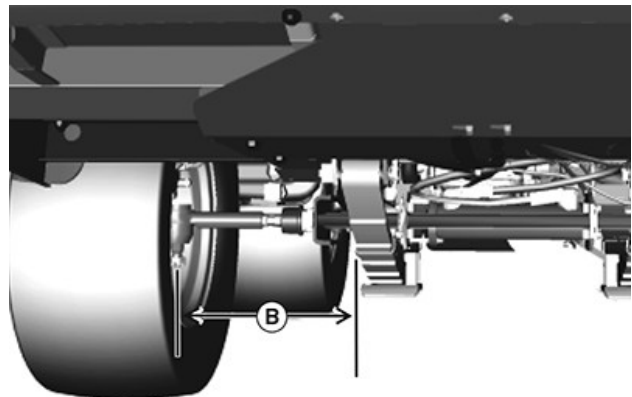
Checking Toe-In

1. Park machine on level surface.
2. Park machine safely. (See Parking Safely in the SAFETY section.)
3. Turn key switch OFF.
4. Lock park brake.



TCAL45097—UN—14MAY13

5. Place wheels in straight-ahead position. Measure the distance (A) from the inside edge of the ball socket nut to the center of the lower shock mounting stud on each side of the vehicle. Turn the steering wheel left or right until this measurement is equal on both sides.

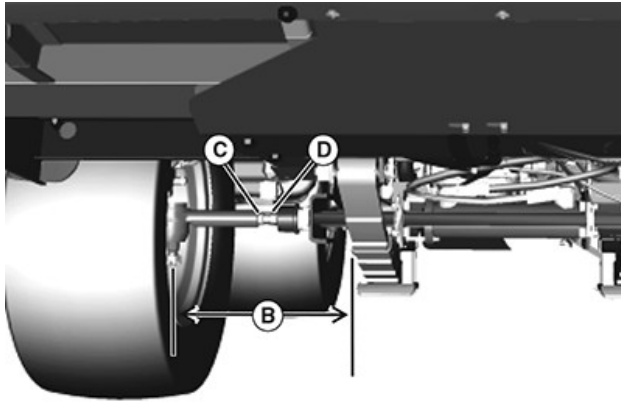


TCAL45098—UN—14MAY13

6. Measure the distance (B) from the outside edge of the front leaf spring to the center of the tie rod bolt on each side of the vehicle. This dimension should be equal. If it is not, perform the following adjustments.

Adjusting Toe-In

Initial Adjustment



TCAL45099—UN—14MAY13

1. If the dimension (B) from the center of the wheel to the edge of the leaf spring is not equal, loosen tie rod locknut (C) and turn link (D) until the measurement is equal. Tighten locknuts.

Final Adjustment



TCAL45100—UN—14MAY13

1. Measure the distance (A) between the center of the tire beads (center of tire) at front of tire, hub height. Record measurement.
2. Measure the distance between the center of the tire beads (center of tire) at rear of tire, hub height. Record measurement.
3. Adjust tie rod lengths until measurement is within specification.

Specification

Tie Rod—Length. 3 +/- 1.5 mm
(0.125 +/- 0.62 in.)

4. Tighten lock nuts.

DK75838,0000808-19-23MAY14

Cleaning Plastic Surfaces

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

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

1. Rinse hood and entire machine with clean water to remove dirt and dust that may scratch the surface.
2. Wash surface with clean water and a mild liquid automotive washing soap.
3. Dry thoroughly to avoid water spots.
4. Wax the surface with a liquid automotive wax. Use products that specifically say "contains no abrasives."

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

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

DK75838,0000809-19-30JUN15

Cleaning and Repairing Metal Surfaces

Cleaning:

Follow automotive practices to care for your vehicle painted metal surfaces. Use a high-quality automotive wax regularly to maintain the factory look of your vehicle's painted surfaces.

Repairing Minor Scratches (surface scratch):

1. Clean area to be repaired thoroughly.

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

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

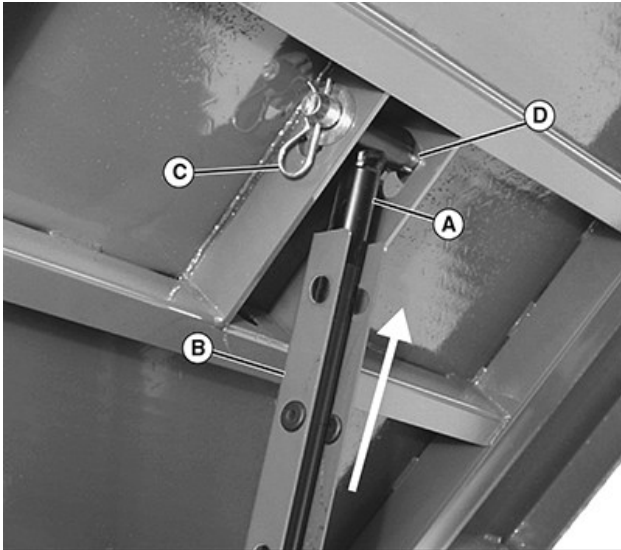
Repairing Deep Scratches (bare metal or primer showing):

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

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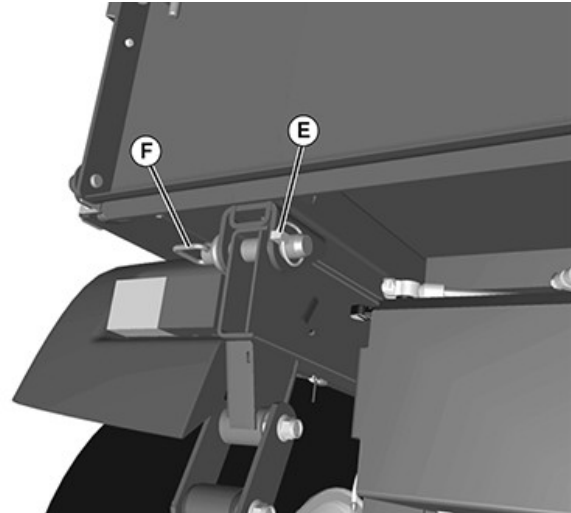
Removing the Cargo Box

1. Empty cargo box.
2. Park vehicle on a hard, level surface.
3. Lock park brake and start engine.
4. Raise the cargo box.



TCAL45101—UN—14MAY13

- Extend the lift cylinder (A) until the cargo box is fully raised.
5. Stop engine.
 6. Install the lift cylinder safety support (B).
 7. Raise front of cargo box slightly with a safe lifting device.
 8. Disconnect lift cylinder from the cargo box.
 - a. Remove quick-lock pin (C), cylinder pin (D) and washer.
 - b. Install cylinder pin and quick-lock pin back into the lift cylinder for storage.
 9. Return safety support to the stored position.
 10. Start engine.
 11. Retract lift cylinder fully and stop engine.
 12. Slowly lower front of cargo box onto top of vehicle frame.



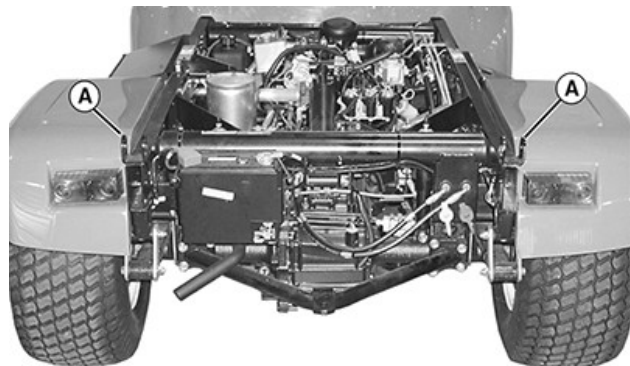
TCAL45102—UN—14MAY13

13. Remove quick-lock pins (E) and drilled pins (F) securing the rear of the cargo box to the frame.
14. Carefully remove cargo box from the vehicle.
15. Install drilled pins and quick-lock pins back into vehicle brackets for storage.

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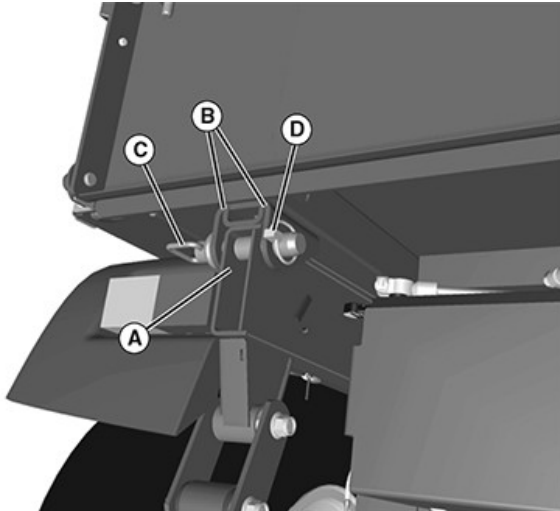
Installing the Cargo Box

1. Park vehicle safely. (See Parking Safely in the Safety section.)



TCAL45103—UN—14MAY13

2. Remove quick-lock pins and drilled pins stored in brackets (A) at the rear of the vehicle.
3. Carefully position cargo box on top of vehicle frame with a safe lifting device.

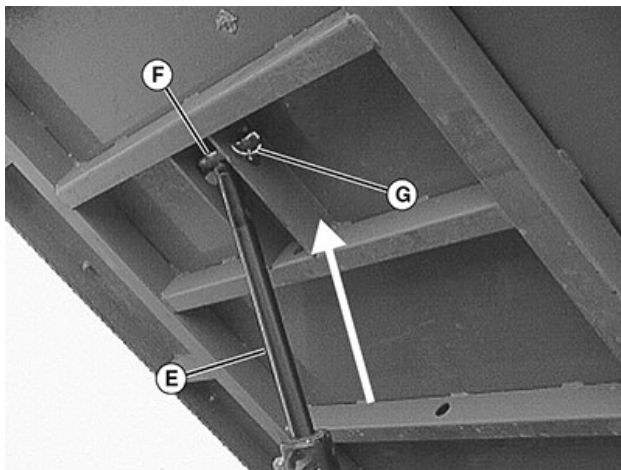


TCAL45104—UN—14MAY13

- Align cargo box tabs (B) and brackets (A) at the rear of the vehicle.
4. Secure rear of cargo box to the frame with drilled pins (C) and quick-lock pins (D).

CAUTION: Avoid injury! Make sure cargo box is safely supported in the raised position before connecting the lift cylinder to the bottom of the cargo box.

5. Raise front of cargo box with a safe lifting device.
6. Remove quick-lock pin, cylinder pin and washer stored in the lift cylinder.
7. Start engine.



TCAL45105—UN—14MAY13

8. Extend the lift cylinder (E) until the holes in the bottom of the cargo box frame and the top of the lift cylinder align.

NOTE: Washer must be installed on cylinder pin on same side as quick-lock pin.

9. Attach lift cylinder to the cargo box with cylinder pin (F) and quick-lock pin (G) and washer.

10. Disconnect lifting device.
11. Lower cargo box.
12. Stop engine.

DK75838,000080C-19-30JUN15

Blink Code Function (Gas Model Only)

The emissions control system utilizes the Malfunction Indicator Lamp (MIL) to warn the operator or technician of a possible issue with the engine or emissions control system. The system will keep the MIL illuminated for the entire key cycle in which the Diagnostic Trouble Code (DTC) was set. It will keep the MIL illuminated for three additional engine run cycles under the following two circumstances:

1. The fault caused the engine to shut down.
2. The fault is related to the exhaust gas oxygen (EGO) sensors. This function is called MIL persistence.

In the event the DTC is related to either an engine shutdown fault or an oxygen sensor fault the following statement applies: If the vehicle is not serviced by a technician and the condition causing the MIL illumination no longer exists, the MIL will remain illuminated for the 3 additional start cycles. The MIL will go out on the 4th start cycle if the condition does not reoccur.

In the event the DTC is not related to an engine shut down or an oxygen sensor fault and the condition causing the MIL illumination no longer exists, the MIL will go out at the next run cycle.

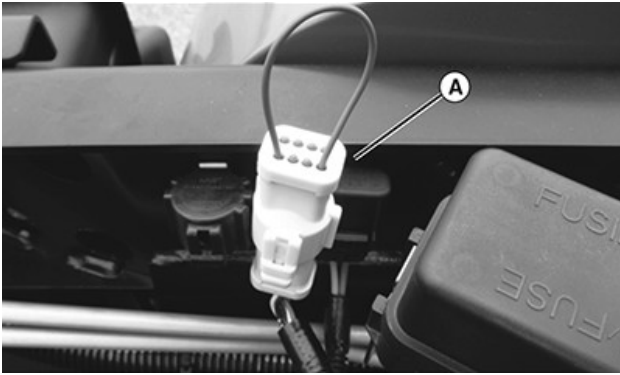
A run cycle is when the engine speed is above the "run speed" set point for 1.5 seconds or longer. The "run speed" is the transition point when the ECM recognizes the engine is going from the cranking parameters to the engine running parameters. The run speed is typically set at 450 rpm.

DTC codes may be retrieved using the blink code function. Entering the blink code function can be done using the Diagnostic Plug supplied with your ProGator or a jumper wire.

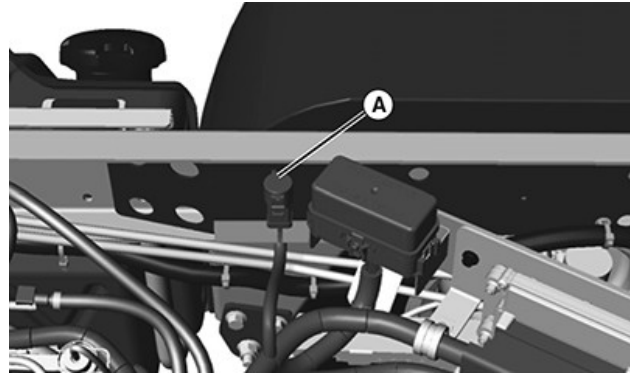
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Using Diagnostic Plug to Retrieve Diagnostic Trouble Codes

1. Raise attachment to service position. (See Using the Lift Cylinder Safety Support in the Safety section.)
2. Park vehicle safely. (See Parking Safely in the Safety section.)



TCAL45106—UN—14MAY13



TCAL45107—UN—14MAY13

3. Locate diagnostic port (A) near right rear of tire.
4. Remove port cap and insert diagnostic plug supplied with ProGator.
5. Turn the ignition key to the run position
6. The system will now enter the self diagnostic blink code mode. Be ready with pen and paper to write down any codes that may be stored.
7. The ECM will flash the MIL indicator with a pause between represented numbers that represent DTC codes. The sequence starts with code 1654. Code 1654 confirms the system has entered the blink code mode. The ECM will flash code 1654 (3) times before displaying the actual DTC code that may be set.

Example:

One short blink (pause) six short blinks (pause) five short blinks (pause) four short blinks.

If no DTC codes are found, the ECM will continue to flash 1654 only. This means no stored DTC codes were found.

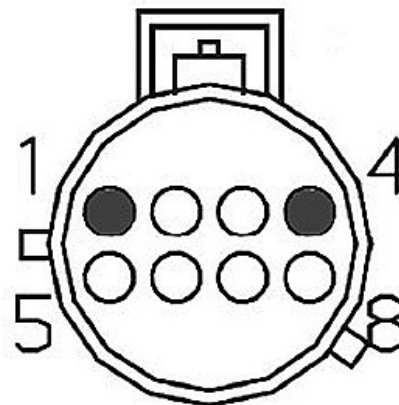
If one of the numbers in the DTC code is zero (0), no flash will occur to represent the zero value—it will be represented as a short pause.

DK75838,000080E-19-01APR13

Using Jumper Wire to retrieve Diagnostic Trouble Codes

1. Raise attachment to service position. (See Using the Lift Cylinder Safety Support in the Safety section.)
2. Park vehicle safely. (See Parking Safely in the Safety section.)

3. Locate diagnostic port near right rear of tire.
4. Remove port cap.



TCAL45108—UN—14MAY13

5. Jump pins 1 and 4 at the port as shown.
6. Turn the ignition key to the run position.
7. The system will now enter the self diagnostic blink code mode. Be ready with pen and paper to write down any codes that may be stored.
8. The ECM will flash the MIL indicator with a pause between represented numbers that represent DTC codes. The sequence starts with code 1654. Code 1654 confirms the system has entered the blink code mode. The ECM will flash code 1654 (3) times before displaying the actual DTC code that may be set.

If no DTC codes are found, the ECM will continue to flash 1654 only. This means no stored DTC codes were found.

If one of the numbers in the DTC code is zero (0), no flash will occur to represent the zero value—it will be represented as a short pause.

DK75838,000080F-19-20MAY13

Troubleshooting

Using Troubleshoot Chart

If you are experiencing a problem that is not listed in this chart, see your Technical Manual, dealer, or other service provider for service.

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Engine

IF	CHECK
Engine Will Not Crank	Verify gearshift lever is in "neutral" position. Verify "PTO" is not engaged. Verify battery cables at battery and starter are clean and tight - Clean and tighten connections. Check for blown fuses - Replace fuses. Verify battery state of charge - Charge or replace battery. Defective starter - Replace starter. Check diagnostic trouble codes. (Gas Models Only)
Engine Will Not Start	Stale fuel/improper fuel/low fuel level. Fuel is dirty - Replace fuel filter. Clean fuel pick-up, drain, and clean fuel tank. Refill tank with clean, fresh fuel. Blown fuses - Replace fuses. Loose or corroded electrical connections. Air cleaner filter elements plugged. Defective key switch - Replace key switch. Diesel Models: Fuel shut-off valve closed. Diesel Models: Air in system. Gas Models: Spark plug wires loose or disconnected. Gas Models: Check spark plug gap. Gas Models: Go to Blink Code Function Section. Valves not seating correctly - Adjust valves. Dirty or faulty fuel injectors.
Engine Hard To Start	Stale fuel/improper fuel/low fuel level. Fuel is dirty - Replace fuel filter. Clean fuel pick-up, drain, and clean fuel tank. Refill tank with clean, fresh fuel. Air cleaner filter elements plugged. Loose or corroded electrical connections. Diesel Models: Check fuel filter sediment bowl. Diesel Models: Air in system. Gas Models: Spark plug wires loose or disconnected. Gas Models: Check/replace failing spark plug. Gas Models: Check spark plug gap. Valves not seating correctly - Adjust valves. Dirty or faulty fuel injectors.
Engine Misses Under Load	Stale fuel/improper fuel/low fuel level. Fuel is dirty - Replace fuel filter. Clean fuel pick-up, drain, and clean fuel tank. Refill tank with clean, fresh fuel. Air cleaner filter elements plugged. Diesel models: Fuel shut-off valve partially closed. Diesel Models: Air in system. Operating too fast for ground speed conditions. Engine overload - Reduce load. Gas Models: Spark plug wires loose or disconnected. Gas Models: Check/replace failing spark plug. Gas Models: Check spark plug gap. Gas Models: Go to Blink Code Function section. Valves not seating correctly - Adjust valves. Dirty or faulty fuel injectors.
Engine Overheats	Air cleaner element plugged - Replace filter element. Clean radiator air intake screen, fan shroud, and cooling fins. Clean oil cooler coils (optional). Check engine oil level - Add oil. Low coolant level. Cooling system needs changing/flushing. Defective radiator cap. Fan fuse blown. Defective fan switch relay. Defective thermostat. Loose or defective alternator belt. Engine overload - Reduce load. Gas Models: Go to Blink Code Function section.

Troubleshooting

IF	CHECK
	Valves not seating correctly - Adjust valves. Dirty or faulty fuel injectors.
Engine Will Not Slow Idle	Stale fuel/improper fuel/low fuel level. Fuel is dirty - Replace fuel filter. Clean fuel pick-up, drain, and clean fuel tank. Refill tank with clean, fresh fuel. Air cleaner filter elements plugged. Diesel Models: Fuel shut-off valve partially closed. Diesel Models: Air in system. Gas Models: Spark plug wires loose or disconnected. Gas Models: Check/replace failing spark plug. Gas Models: Check spark plug gap. Gas Models: Go to Blink Code Function section. Valves not seating correctly - Adjust valves. Dirty or faulty fuel injectors.
Engine Backfires	Stale fuel/improper fuel/low fuel level. Fuel is dirty - Replace fuel filter. Clean fuel pick-up, drain, and clean fuel tank. Refill tank with clean, fresh fuel. Air cleaner filter elements plugged. Operating too fast for ground speed conditions. Diesel Models: Air in system. Gas Models: Spark plug wires loose or disconnected. Gas Models: Check/replace failing spark plug. Gas Models: Check spark plug gap. Gas Models: Go to Blink Code Function section. Valves not seating correctly - Adjust valves. Dirty or faulty fuel injectors.
Engine Vapor Locks	Replace fuel filter. Replace carbon canister. Check fuel lines.
Engine Runs Rough	Stale fuel/improper fuel/low fuel level. Fuel is dirty - Replace fuel filter. Clean fuel pick-up, drain, and clean fuel tank. Refill tank with clean, fresh fuel. Air cleaner filter elements plugged. Too much oil in engine - Drain to correct level. Operating too fast for ground speed conditions. Engine overload - Reduce load. Engine overheating - Clean radiator screen, fan shroud, cooling fins and oil cooler coils (optional). Diesel Models: Fuel shut-off valve partially closed. Diesel Models: Air in system. Gas Models: Spark plug wires loose or disconnected. Gas Models: Check/replace failing spark plug. Gas Models: Check spark plug gap. Gas Models: Go to Blink Code Function section. Valves not seating correctly - Adjust valves. Dirty or faulty fuel injectors.
Engine Knocks	Stale fuel/improper fuel. Engine oil level low. Engine overload - Reduce load. Diesel Models: Injection pump out of time. Gas Models: Go to Blink Code Function section.
Low Oil Pressure	Engine oil level low. Excessive bearing or oil pump wear. Plugged oil filter. Improper type of oil. Oil leaks. Broken wire or faulty oil pressure sender.
Engine Uses Too Much Oil	Improper type of oil. Excessive ring or cylinder wear. Low engine temperature. Defective thermostat. Gas Models: Go to Blink Code Function section. Diesel Models: Injection pump out of time.
Engine Emits Black Or Gray Exhaust Smoke	Stale fuel/Improper fuel. Plugged air intake system. Engine overload - Reduce load. Dirty or faulty fuel injectors. Gas Models: Go to Blink Code Function section.
Engine Emits White Exhaust Smoke	Stale fuel/improper fuel.

Troubleshooting

IF	CHECK
	Low engine temperature. Head gasket leakage. Diesel Models: Low Cetane fuel. Gas Models: Go to Blink Code Function section.

KL66860,000033A-19-07SEP17

Steering

IF	CHECK
Steering Not Working Correctly	Check tire inflation pressure. Transmission oil level low - Check oil level. 4WD Models: Front axle oil level low - Check oil level. Check and align toe-in adjustment.

KL66860,000033F-19-07SEP17

Brakes

IF	CHECK
Brakes Not Working Correctly	Brake fluid level low - Check fluid level. Adjust brakes. Replace worn brake pads. Repair/replace worn or damaged brake linkage.

KL66860,0000340-19-07SEP17

Electrical System

IF	CHECK
Starter Does Not Engage	Verify gearshift lever is in "neutral" position. Verify "PTO" is not engaged. Verify battery cables at battery and starter are clean and tight - Clean and tighten connections. Check for blown fuses - Replace fuses. Verify battery state of charge - Charge or replace battery.
Starter Turns Slowly	Verify battery cables at battery and starter are clean and tight - Clean and tighten connections. Verify battery state of charge - Charge or replace battery.
Battery Low Voltage Indicator Remains On With Engine Running	Low engine speed or electrical overload - Increase engine speed and/or reduce electrical load. Verify battery cables at battery and alternator are clean and tight - Clean and tighten connections. Loose or defective alternator belt - Tighten/Replace belt. Verify battery state of charge - Charge or replace battery. Defective alternator - Replace alternator.
Battery Will Not Charge	Verify battery cables at battery and starter are clean and tight - Clean and tighten connections. Check for blown fuses - Replace fuses. Loose or defective alternator belt - Tighten/Replace belt. Defective Battery - Charge or replace battery. Defective alternator - Replace alternator.
Lights Do Not Work	Blown fuse - Replace fuse. Loose or blown bulb - Tighten/Replace bulb. Loose or defective switch - Connect or replace switch.

Hydraulics

IF	CHECK
Valve makes relief noise, or attachment does not work properly	• Weight of load versus limit, check that weight is evenly distributed. • If locks are on the sprayer. • The relief setting in the valve.

Using Troubleshooting Blink Code Chart

Before attempting to troubleshoot your vehicle using Diagnostic Trouble Codes listed, ensure MIL system is working correctly. The light should illuminate when key is in RUN position, and engine is not running. This feature verifies that the lamp is in proper working order. If the light does not illuminate with vehicle key in RUN position and engine OFF, see your Technical Manual or your authorized John Deere dealer. Once the engine has started, the light should go off. If light stays on while engine is running, a current Diagnostic Trouble Code

may be set or a problem may exist with the MIL electrical wiring.

The following is not a complete list of Diagnostic Trouble Codes which may display on your machine instrument panel when blink code function has been initiated. Contact your John Deere dealer when any other codes are displayed. If multiple codes are listed, always troubleshoot using the lowest first.

Blink Codes (Gas Models Only)

Blink Code	Description	Check
111	Intake Air Temperature Higher Than Expected	• Air inlet for obstructions or damaged components. • Air cleaner element(s) plugged - replace filter element. • Inspect the air inlet system for cracks or breaks that may allow unwanted under hood air in to the air inlet system. • The exhaust system for leaks. • Operating in an enclosed area.
116	Engine Coolant Temperature Higher Than Expected (Stage 1) NOTE: Engine power will automatically reduce to 50% of normal capacity.	• Air cleaner element plugged - replace filter element. • Clean radiator air intake screen, fan shroud and cooling fins. • Clean oil cooler coils (optional). • Check engine oil level - add oil. • Low coolant level. • Cooling system needs flushing. • Defective radiator cap. • Fan fuse blown. • Defective fan switch relay. • Defective thermostat. • Loose or defective alternator belt. • Operating at too fast ground speed for conditions. • Excessive load.
127	Intake Air Temperature Higher Than Expected	• The air inlet for obstructions or damaged components. • Inspect the air inlet system for cracks or breaks that may allow unwanted under hood air in to the air inlet system. • Air cleaner element(s) plugged - replace filter element. • The exhaust system for leaks. • Operating in an enclosed area.
171	Heated Oxygen Sensor Adaptive Learn High	• Oxygen sensor wires may be mis-routed and contacting the exhaust manifold. • Vacuum leaks and/or crankcase leaks. • Stale fuel/improper fuel/low fuel level. • Fuel is dirty - replace fuel filter, drain and clean fuel tank, refill tank with clean fresh fuel. • ECM grounds must be clean, tight and in the proper location. • Air cleaner element(s) plugged - replace filter element. • Open or leaking fuel injector.

Troubleshooting

Blink Code	Description	Check
172	Heated Oxygen Sensor Adaptive Learn Low	• Oxygen sensor wires may be mis-routed and contacting the exhaust manifold. • Vacuum leaks and/or crankcase leaks. • Stale fuel/improper fuel/low fuel level. • Fuel is dirty - replace fuel filter, drain and clean fuel tank, refill tank with clean fresh fuel. • ECM grounds must be clean, tight and in the proper location. • Air cleaner element(s) plugged - replace filter element. • Open or leaking fuel injector.
217	Engine Coolant Temperature Higher Than Expected (Stage 2). NOTE: Engine power will remain at 50% of normal capacity. Engine speed will be limited to 1500 RPM.	• Air cleaner element(s) plugged - replace filter element. • Clean radiator air intake screen, fan shroud and cooling fins. • Clean oil cooler coils (optional). • Check engine oil level - add oil. • Low coolant level. • Cooling system needs flushing. • Defective radiator cap. • Fan fuse blown. • Defective fan switch relay. • Defective thermostat. • Loose or defective alternator belt. • Operating at too fast ground speed for conditions. • Excessive load.
219	Max Govern Speed Override	• Vacuum leaks and/or crankcase leaks.
524	Low Oil Pressure	• Engine oil level low. • Excessive bearing or oil pump wear. • Plugged oil filter. • Improper type of oil. • Oil leaks. • Defective oil pressure switch.
562	Low System Voltage	• Battery low - charge battery. • Battery cables loose or corroded - clean and tighten battery cables. • Loose or defective alternator belt.
1111	Fuel Rev Limit Exceeded	• Vacuum leaks and/or crankcase leaks.
1112	Spark Rev Limit Exceeded	• Vacuum leaks and/or crankcase leaks.
1155	Heated Oxygen Sensor Closed Loop Multiplier High	• Oxygen sensor wires may be mis-routed and contacting the exhaust manifold. • Vacuum leaks and/or crankcase leaks. • Stale fuel/improper fuel/low fuel level. • Fuel is dirty - replace fuel filter, drain and clean fuel tank, refill tank with clean fresh fuel. • ECM grounds must be clean, tight and in the proper location. • Air cleaner element(s) plugged - replace filter element. • Air inlet for obstructions or damaged components. • Open or leaking fuel injector.
1156	Heated Oxygen Sensor Adaptive Learn Low	• Oxygen sensor wires may be mis-routed and contacting the exhaust manifold. • Vacuum leaks and/or crankcase leaks. • Stale fuel/improper fuel/low fuel level. • Fuel is dirty - replace fuel filter, drain and clean fuel tank, refill tank with clean fresh fuel. • ECM grounds must be clean, tight and in the proper location. • Air cleaner element(s) plugged - replace filter element. • Air inlet for obstructions or damaged components. • Open or leaking fuel injector.

DK75838,0000817-19-16MAY13

Storage

Storing Safety

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

Engine exhaust fumes contain carbon monoxide and cause serious illness or death:

- **Run the engine only long enough to move the machine to or from storage.**
- **If a machine is stored before allowing it to cool, machine fires and structure fires can occur. Fires can occur if debris is not removed from around the engine and muffler, or if stored near combustible materials.**
- **Do not store vehicle with fuel in the tank inside a building where fumes reach an open flame or spark.**
- **Allow the engine to cool before storing the machine in any enclosure.**

MP47322,00F4680-19-06MAY15

Preparing Machine for Storage

1. Repair any worn or damaged parts. Replace parts if necessary. Tighten loose hardware.
2. Repair scratched or chipped metal surfaces to prevent rust.
3. Remove grass and debris from machine.
4. Wash the machine and apply wax to metal and plastic surfaces.
5. Run machine for five minutes to dry belts and pulleys.
6. Apply light coat of engine oil to pivot and wear points to prevent rust.
7. Clean out above hydraulic PTO control valve under seats. Apply hydraulic oil on both spools where they enter the valve block.
8. Lubricate grease points and check tire pressure.

DK75838,0000819-19-01APR13

Preparing Fuel and Engine For Storage

Fuel:

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

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

If you are not using "Stabilized Fuel:"

1. Park machine safely in a well-ventilated area. (See Parking Safely in the Safety section.)

NOTE: Try to anticipate the last time the machine will be used for the season so very little fuel is left in the fuel tank.

2. Turn on engine and allow to run until it runs out of fuel.
3. For machines equipped with an ignition key switch, turn the ignition key switch to the OFF position.

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

- **Add fuel conditioner or stabilizer to fresh fuel before filling tank.**
4. Mix fresh fuel and fuel stabilizer in a separate container. Follow stabilizer instructions for mixing.
 5. Fill fuel tank with stabilized fuel.
 6. Run engine for a few minutes to allow fuel mixture to circulate through the fuel system.

Engine:

Engine storage procedure should be used when vehicle is not to be used for longer than 60 days.

1. Change engine oil and filter while engine is warm.
2. Service air filter if necessary.
3. Clean debris from the engine air intake screen.
4. On gas engines:
 - Remove spark plugs. Put 30 ml (1 oz) of clean engine oil in cylinders.
 - Install spark plugs, but do not connect spark plug wires.
 - Crank the engine 5 or 6 times to allow oil to be distributed.
5. Clean the engine and engine compartment.
6. Remove battery.
7. Clean the battery and battery posts. Check the electrolyte level, if your battery is not maintenance free.
8. Store the battery in a cool, dry place where it will not freeze.

NOTE: The stored battery should be recharged every 90 days.

9. Charge the battery.

IMPORTANT: Avoid damage! Prolonged exposure to sunlight could damage the hood surface. Store machine inside or use a cover if stored outside.

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

MP47322,00F4682-19-11APR24

Removing Machine From Storage

1. Check tire pressure.
2. Check engine oil level.
3. Check battery electrolyte level, if your battery is not maintenance free. Charge battery if necessary.
4. Install battery.
5. On gas engines: Check spark plug gap. Install and tighten plugs to specified torque.
6. Lubricate all grease points.
7. Open fuel shut-off valve, if your machine is equipped.
8. Be sure all shields and guards or deflectors are in place.
9. Run the engine 5 minutes without any attachments running to allow oil to be distributed throughout engine.
10. Clean out above hydraulic PTO control valve under seats. Apply hydraulic oil on both spools where they enter the valve block.

DK75838,000081B-19-01APR13

Storage for BioDiesel Fuel

IMPORTANT: Avoid damage! BioDiesel fuel must be used within three mo. of the date of production by the fuel supplier.

Before placing a BioDiesel fueled machine in long-term storage (without operating the engine):

- Drain all BioDiesel fuel from the fuel tank.
- Fill the tank with conventional petroleum fuel as indicated in the Operator's Manual.
- Start the engine and run for a minimum of 5 operating hours.

DK75838,000081C-19-26MAY15

Specifications

Engine (Model 2020A-Gas)

Manufacturer	Power Solutions, Incorporated
Model Number	97L-L4
Power Rating Information	http://psiengines.com/
Displacement	0.97 Liters (59.2 cu. in.)
Cylinders	Four
Cycle	Four
Slow Idle RPM (± 50)	1000 rpm
Fast Idle RPM (± 50)	3500 rpm
Oil Filter	Full Flow, Replaceable
Lubrication	Full Pressure
Cooling	Liquid
Air Cleaner	Canister Type w/ Secondary Element

DK75838,000081D-19-16MAY13

Engine (Model 2030A-Diesel)

Manufacturer	Yanmar
Model Number	3TNV80F
Displacement	1267 cm ³ (77.3 in ³)
Cylinders	Three
Cycle	Four
Slow Idle RPM (± 50)	1250 rpm
Fast Idle RPM (± 25)	3415 rpm
Oil Filter	Full Flow, Replaceable
Lubrication	Full Pressure
Cooling	Liquid
Air Cleaner	Canister Type with Secondary Element

OUMX068,000112E-19-13SEP16

Drivetrain and Travel Speeds

Drivetrain

Manufacturer	Kanzaki
Type	5-speed, synchro-mesh
4WD Option	Manual Shift

Travel Speeds

Gear 1	4.5 km/h (2.8 mph)
Gear 2	7.4 km/h (4.6 mph)
Gear 3	12.7 km/h (7.9 mph)
Gear 4	24.1 km/h (15 mph)
Gear 5	30.7 km/h (19.1 mph)
Reverse	5.8 km/h (3.6 mph)

OUMX068,0000C79-19-30JUN15

Electrical System

Type	12 Volt, Battery / Alternator
Alternator Capacity	55A - Diesel, 70A - Gas
Battery Voltage	12 volts DC
Cold Cranking Amps @ 0°F	500
Ignition	CDI

DK75838,0000821-19-16MAY13

Fuel System (Gas Models)

Fuel Types (Recommended):	
	Regular Grade 87 Octane Unleaded Fuel
	Ethanol Blended Fuel (Up to 10%)
	MTBE Reformulated Fuel (Up to 15%)
Fuel Filter	Replaceable Element
Fuel Pump	Electric

DK75838,000081F-19-16MAY13

Fuel System (Diesel Models)

Fuel Types (Recommended)	
	Diesel No. 1 or No. 2
	B7 Bio-Diesel (7% Blend)
Fuel Filter	Replaceable Element
Fuel Injection Pump	Mechanical

OUMX068,000094E-19-13AUG18

Steering and Brakes

Service Brake Type	4-Wheel Hydraulic Disk
Park Brake Type	Mechanical Disk
Park Brake Actuation	Hand Lever
Steering	Hydraulic Power

DK75838,0000822-19-16MAY13

Tires

Front (Standard)	
Size	23x10.50-12
Ply Rating	4
Pressure	82/138 kPa(12/20 psi) Minimum/Maximum
Front Smooth (Optional)	
Size	22x9.50-12
Ply Rating	4
Pressure	82/152 kPa(12/22 psi) Minimum/Maximum

Specifications

Rear Multi Trac (Standard)

Size	26x12.00-12
Ply Rating	4
Pressure	82/138 kPa(12/20 psi) Minimum/Maximum

Rear Multi Trac, Smooth, and Fairway (Optional)

Size	26x14.00-12
Ply Rating	4
Pressure	82/165 kPa(12/24 psi) Minimum/Maximum

NOTE: Minimum Pressures is for Unloaded,
Unballasted Unit.

MX00654,0000177-19-24SEP13

Capacities

Fuel Tank	30.66 L (8.1 gal.)
Diesel Cooling System (Total)	3.8 L (4.1 qt.)
Gas Cooling System (Total)	4.2 L (1.1 gal.)
Crankcase with Oil Filter (Gas Models)	3.2 L (3.4 qt.)
Crankcase (Gas Models)	3.0 L (3.2 qt.)
Crankcase with Oil Filter (Diesel Models)	2.1 L (2.2 qt.)
Transmission Oil System (Total)	10.6 L (2.8 gal.)
Front Axle Oil (4WD Models)	3.3 L (3.5 qt.)

OUMX068,0000C7A-19-30JUN15

Dimensions

Ground Clearance	16.8 cm (6.6 in.)
Wheelbase (Front to Rear Axle)	167.6 cm (66 in.)
Wheel Tread, Front	123.2 cm (48.5 in.)
Wheel Tread, Rear	129 cm (50.8 in.)
Overall Length w/ Optional Cargo Box	328.4 cm (129.3 in.)
Overall Length w/o Optional Cargo Box	319.3 cm (125.7 in.)
Overall Width	158.5 cm (62.4 in.)
Overall Height	193.7 cm (76.3 in.)

DK75838,0000827-19-16MAY13

Weights

Model 2020A 2WD with Standard Suspension	857 kg (1890 lb)
Model 2020A 4WD with Standard Suspension	919 kg (2026 lb)
Model 2020A 2WD with Standard Suspension and Auxiliary Hydraulic	872 kg (1923 lb)
Model 2020A 4WD with Standard Suspension and Auxiliary Hydraulic	927 kg (2044 lb)
Model 2030A 2WD with Standard Suspension	856 kg (1887 lb)
Model 2030A 4WD with Standard Suspension	915 kg (2017 lb)
Model 2030A 2WD with Standard Suspension and Auxiliary Hydraulic	870 kg (1917 lb)
Model 2030A 4WD with Standard Suspension and Auxiliary Hydraulic	928 kg (2045 lb)

Specifications

NOTE: *Weights are with vehicle full of fluids; without operator, passenger, or attachments.*

OUMX068,0000C7B-19-05OCT16

Torque Values

Roll-Over Protective Structure (ROPS) Bolts 101 N·m (75 lb.-ft.)

OUMX068,0000C7C-19-30JUN15

Turning Circle Clearance

Inside Clearance Circle - 2WD 43 cm (17 in.)
Inside Clearance Circle - 4WD 175 cm (69 in.)
Outside Clearance Circle - 2WD 498 cm (196 in.)
Outside Clearance Circle - 4WD 630 cm 248 in.)

DK75838,000082B-19-16MAY13

Towing

Maximum Towing Capacity (Rear Hitch) 680.4 kg (1500 lb)
Maximum Tongue Weight (Rear Hitch) 90.7 kg (200 lb)

DK75838,000082B-19-16MAY13

Cargo Box

Overall Length, Inside 165 cm (65 in.)
Overall Width, Inside 128.4 cm (50.5 in.)
Overall Depth, Inside 26.8 cm (10.5 in.)
Weight 146.5kg (323 lb)
Bedliner Optional
Automatic Tailgate Release Optional

DK75838,000082C-19-16MAY13

Recommended Lubricants

Engine Oil - Gas Models John Deere TURF-GARD™
Engine Oil - Diesel Models John Deere PLUS-50™ II
. John Deere TORQ-GARD SUPREME™
Engine Coolant John Deere COOL-GARD™ II PREMIX
. John Deere COOL-GARD™ II PG PREMIX
Transaxle/Hydraulic Oil. John Deere J20C HY-GARD™
. John Deere BIO HY-GARD™
Grease John Deere Multi-Purpose HD Lithium Complex Grease
. John Deere Multi-Purpose SD Polyurea Grease

Warranty

Product Warranty

John Deere offers a standard warranty on new John Deere products. For a copy of the product warranty statement or for details on the warranty terms and conditions for products purchased in the United States and Canada, please contact your local John Deere Dealer or utilize the following resources:

United States

Website:

http://www.deere.com/en_US/services_and_support/warranty/warranty.page

Toll Free: 1-800-537-8233

Dealer Locator:

<http://dealerlocator.deere.com/servlet/country=US>

Canada

Website (English):

http://www.deere.ca/en_CA/services_and_support/service_plans_warranties/service_plans_warranties.page

Website (French):

http://fr.deere.ca/en_CA/services_and_support/service_plans_warranties/service_plans_warranties.page

Toll Free: 1-800-537-8233

Dealer Locator:

<http://dealerlocator.deere.com/servlet/country=CA>

Emission-related warranties are included in this Operator's Manual, and applicable if required by law or regulation.

For products purchased in a country other than the United States or Canada, please contact your local John Deere dealer for assistance.

MP47322,00F4690-19-27FEB24

California and U.S. EPA Emission Control System Warranty Statement (Off-Road Engine Equipment)

Your Warranty Rights and Obligations

The California Air Resources Board, John Deere, and the United States Environmental Protection Agency are pleased to explain the emission control system's warranty on your model year 2025 or 2026 off-road engine equipment. In California, new small or large (less than 1 liter) spark ignited off-road engines, and new equipment that uses small or large spark ignition 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 off-road engine equipment for the period listed below provided there has been no abuse, neglect or improper maintenance of your off-road engine equipment leading to the failure of the emission control system.

Your emission control system may include parts such as: carburetors, regulator or fuel injection system, ignition system, engine computer unit (ECM), catalytic converters, air induction system, fuel tanks, fuel lines (for liquid fuel and fuel vapors), fuel caps, valves, canisters, filters, clamps, connectors, and other associated components. Also included may be hoses, belts, sensors and other emission-related assemblies.

Where a warrantable condition exists, John Deere or an authorized John Deere service provider will repair your off-road engine equipment at no cost to you including diagnosis, parts and labor.

Manufacturer's Warranty Coverage

This evaporative emission control system is warranted for two years. Your off-road engine is warranted for three years. If any emission-related part on your equipment is defective, the part will be repaired or replaced by John Deere or an authorized John Deere service provider.

Owner's Warranty Responsibilities

- As the spark ignited off-road engine equipment owner, you are responsible for the performance of the required maintenance listed in your Operator's Manual. John Deere recommends that you retain all receipts covering maintenance on your spark ignited off-road engine equipment, but John Deere cannot deny warranty coverage solely for lack of receipts or for your failure to ensure the performance of all scheduled maintenance.
- As the spark ignited off-road engine equipment owner, you should however be aware that John Deere may deny you warranty coverage if your spark ignited off-road engine equipment or a part has failed due to abuse, neglect, or improper maintenance or unapproved modifications.
- You are responsible for presenting your spark ignited off-road engine equipment to a John Deere Turf and Compact Utility distribution center or service center as soon as a problem exists. The warranty repairs shall be completed in a reasonable amount of time, not to exceed 30 days. If you have a question about your emission control warranty coverage, your emission control warranty rights and responsibilities, how to make an emission control system warranty claim or how to make arrangements for emission-related authorized repairs, you should contact your John Deere Turf and Compact Utility retailer, or the John Deere Customer Contact Center at 1-800-537-8233, or email John Deere from

<https://www.deere.com/en/our-company/contact-us/>.

General Emission Control System Warranty

The warranty period begins on the date the spark ignited off-road engine equipment is delivered to an ultimate purchaser. John Deere warrants to the ultimate purchaser and each subsequent purchaser that the spark ignited off-road engine equipment is:

- Designed, built and equipped so it conforms at the time of sale to the ultimate purchaser with applicable regulations adopted by the California Air Resources Board;
- Designed, built and equipped so as to conform at the time of sale to the ultimate purchaser with applicable U.S. Environmental Protection Agency regulations under 40 CFR Parts 1054, 1048, and 1060: and,
- Free from defects in materials and workmanship which cause such engine to fail to conform with applicable regulations for the Emission Control System Warranty period provided herein.
- For owners located more than 100 miles from a John Deere authorized service center, John Deere will pay either for shipping costs to and from an authorized service center, provide for a service technician to come to the owner to make the warranty repair, or pay for the repair to be made at a local non-authorized service center. These provisions do not apply to high-altitude counties within the following States: Alaska, Hawaii, Arizona, Colorado, Idaho, Montana, Nebraska, Nevada, New Mexico, Oregon, Texas, Utah, and Wyoming.

Emission Control System Warranty Interpretation

- Any warranted part that is not scheduled for replacement as required by the maintenance instructions in the Operator's Manual is warranted as provided herein. If any such part fails during the period of warranty coverage it will be repaired or replaced by John Deere or an authorized John Deere service provider. Any such part repaired or replaced under warranty is warranted for the remaining warranty period.
- Any warranted part that is scheduled only for regular inspection in the maintenance instructions in the Operator's Manual is warranted as provided herein. A statement in the Operator's Manual to the effect of "repair or replace as necessary" does not reduce the period of warranty coverage. Any such part repaired or replaced under warranty is warranted for the remaining warranty period.
- Any warranted part that is scheduled for replacement as required maintenance in the Operator's Manual is warranted for the period of time prior to the first scheduled replacement point for that part. If the part fails prior to the first scheduled replacement, the part will be repaired or replaced by John Deere or an authorized John Deere service provider. Any such part repaired or replaced under warranty is warranted for the remainder of the period prior to the first scheduled replacement point for the part.

- Repair or replacement of any warranted part under the warranty will be performed at no charge to the owner at any authorized John Deere or an authorized John Deere service provider.
- The owner will not be charged for diagnostic labor which leads to the determination that a warranted part is defective, provided such work is performed by John Deere or an authorized John Deere service provider.
- John Deere or an authorized John Deere service provider will repair damages to other engine components proximately caused by a failure under warranty of any emission-related warranted part.
- Add-on or modified parts that are not exempted by the California Air Resources Board may not be used. The use of any non-exempted add-on or modified parts will be grounds for disallowing a warranty claim. John Deere will not be liable to warrant failures of warranted parts caused by the use of a non-exempted add-on or modified part.

Emission Control System Warranty Parts List

Coverage under this warranty includes, but is not limited to, the parts listed below (the emission control system parts) to the extent these parts were on the off-road equipment and engine purchased.

Fuel Metering System:

- Carburetor and internal parts (or fuel injection system)
- Air/fuel ratio feedback and control system
- Cold start enrichment system

Evaporative System:

- Fuel tank, fuel cap and tether
- Fuel hose, line, fittings, clamps
- Fuel pump, fuel shut-off valve
- Fuel vapor hoses, fittings
- Carbon canister
- Rollover/slant valve for fuel vapor control
- Purge and vent line

Air Induction System:

- Air cleaner
- Intake manifold

Ignition System:

- Spark plugs
- Magneto or electronic ignition system
- Spark advance/retard system
- Gaskets

Lubrication System:

- Oil pump and internal parts

Positive Crankcase Ventilation (PCV) System

- PCV Valve
- Oil filler cap

Exhaust System:

- Exhaust manifold
- Catalyst muffler

Miscellaneous Items Used in Above Systems

- Valves and Switches: vacuum, temperature, position, check, time-sensitive
- Electronic controls
- Hoses, belts, connectors and assemblies

Limited Liability

a) The liability of John Deere under this Emission Control System Warranty is limited solely to the remedying of defects in materials or workmanship. Except as otherwise expressly provided herein, this warranty does not cover inconvenience or loss of use of the off-road equipment or engine or transportation of the equipment or engine to or from the John Deere Turf and Compact Utility retailer or authorized service provider. John Deere shall not be liable for any other expense, loss, or damage, whether direct, incidental, consequential (except as listed above under "coverage") or exemplary arising in connection with the sale or use of or inability to use the off-road equipment or engine for any other purpose.

b) No express emissions control system warranty is given by John Deere with respect to the equipment or engine except as specifically set forth in this document. Any emission control system warranty implied by law, including any warranty of merchantability or fitness for a particular purpose, is expressly limited to the emission control system warranty terms set forth in this document.

c) No dealer or service provider is authorized to modify

this Federal, California and John Deere Emission Control System Warranty.

mk71445,1709053966302-19-22MAR24

Emission System Warranty

YANMAR POWER TECHNOLOGY CO., LTD. LIMITED EMISSION CONTROL SYSTEM WARRANTY - USA ONLY

Your Warranty Rights and Obligations:

The California Air Resources Board (CARB), the United States Environmental Protection Agency (EPA) and YANMAR POWER TECHNOLOGY CO., LTD. hereafter referred to as YANMAR, are pleased to explain the **emission control system warranty** on your 2023, 2024, or 2025 model year compression-ignition engine. In California, new heavy-duty off-road engines must be designed, built and equipped to meet the State's stringent anti-smog standards. In the remaining forty nine (49) states, new non-road compression-ignition engines must be designed, built and equipped to meet the United States EPA emissions standards. YANMAR must warrant the emission control system on your engine for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your engine.

Your emission control system may include parts such as the fuel injection system, the air induction system, the electronic control system, EGR (Exhaust Gas Recirculation) system and the exhaust gas after treatment (diesel particulate filter system, urea SCR system). Also included may be hoses, belts, connectors, and other emission-related assemblies.

Where a warrantable condition exists, YANMAR will repair your heavy-duty off-road compression-ignition engine at no charge to you including diagnosis, parts and labor.

Manufacturer's Warranty Period:

2023, 2024, or 2025 model year heavy-duty off-road compression-ignition engines are warranted for the periods listed below. If any emission-related part on your engine is defective, the part will be repaired or replaced by YANMAR.

If your engine is certified as	And its maximum power is	And its rated speed is	Then its warranty period is
Variable speed or constant speed	kW <8	Any speed	2,000 hours or two (2) years whichever comes first. In the absence of a device to measure the hours of use, the engine has a warranty period of two (2) years.
Variable speed or constant speed	8<=kW<19	Any speed	2,000 hours or two (2) years whichever comes first. In the absence of a device to measure the hours of use, the engine has a warranty period of two (2) years.
Constant speed	19 <=kW <37	3000 rpm or higher	2,000 hours or two (2) years whichever comes first. In the absence of a device to measure the hours of use, the engine has a warranty period of two (2) years.
Constant speed	19 <=kW <37	Less than 3,000 rpm	3,000 hours or five (5) years whichever comes first.

Warranty

			In the absence of a device to measure the hours of use, the engine has a warranty period of five (5) years.
Variable speed	19 ≤kW <37	Any speed	3,000 hours or five (5) years whichever comes first. In the absence of a device to measure the hours of use, the engine has a warranty period of five (5) years.
Variable speed or constant speed	kW ≥ 37	Any speed	3,000 hours or five (5) years whichever comes first. In the absence of a device to measure the hours of use, the engine has a warranty period of five (5) years.

Warranty Coverage:

This warranty is transferable to each subsequent purchaser for the duration of the warranty period. YANMAR recommends that repair or replacement of any warranted part will be performed at an authorized YANMAR dealer.

Warranted parts not scheduled for replacement as required maintenance in the owner's manual shall be warranted for the warranty period. Warranted parts scheduled for replacement as required maintenance in the owner's manual are warranted for the period of time prior to the first scheduled replacement. Any warranted parts scheduled for replacement as required maintenance that are repaired or replaced under warranty shall be warranted for the remaining period of time prior to the first scheduled replacement. Any part not scheduled for replacement that is repaired or replaced under warranty shall be warranted for the remaining warranty period.

During the warranty period, YANMAR is liable for damages to other engine components caused by the failure of any warranted part during the warranty period.

Any replacement part which is functionally identical to the original equipment part in all respects may be used in the maintenance or repair of your engine, and shall not reduce YANMAR's warranty obligations. Add-on or modified parts that are not exempted may not be used. The use of any non-exempted add-on or modified parts shall be grounds for disallowing a warranty.

Warranted Parts:

This warranty covers engine components that are a part of the emission control system of the engine as delivered by YANMAR to the original retail purchaser. Such components may include the following:

- Fuel injection system (including Altitude compensation system)
- Cold start enrichment system
- Intake manifold and Air intake throttle valve
- Turbocharger systems
- Exhaust manifold and exhaust throttle valve
- Positive crankcase ventilation system
- Charge Air Cooling systems

- Exhaust Gas Recirculation (EGR) systems
- Exhaust gas after treatment (Diesel Particulate Filter (DPF) system, urea SCR system)
- Electronic Control units, sensors, solenoids and wiring harnesses used in above systems
- Hoses, belts, connectors and assemblies used in above systems
- Emission Control Information Labels

Since emissions related parts may vary slightly between models, certain models may not contain all of these parts and other models may contain the functional equivalents.

Exclusions:

Failures other than those arising from defects in material or workmanship are not covered by this warranty. The warranty does not extend to the following: malfunctions caused by abuse, misuse, improper adjustment, modification, alteration, tampering, disconnection, improper or inadequate maintenance, or use of non-recommended fuels and lubricating oils; accident-caused damage and replacement of expendable items made in connection with scheduled maintenance. YANMAR disclaims any responsibility for incidental or consequential such as loss of time, inconvenience, loss of use of equipment/engine or commercial loss.

Owner's Warranty Responsibilities:

As the off-road compression-ignition engine owner, you are responsible for the performance of the required maintenance listed in your owner's manual. YANMAR recommends that you retain all documentation, including receipts, covering maintenance on your off-road compression-ignition engine, but YANMAR cannot deny warranty solely for the lack of receipts, or for your failure to ensure the performance of all scheduled maintenance.

As the off-road engine owner, you should however be aware that YANMAR may deny your warranty coverage if your off-road compression-ignition engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

Your engine is designed to operate on diesel fuel only. Use of any other fuel may result in your engine no

longer operating in compliance with CARB and EPA emissions requirements.

You are responsible for initiating the warranty process. The ARB and EPA suggest that you present your off-road engine to a YANMAR dealer as soon as a problem exists. The warranty repairs should be completed by the dealer as expeditiously as possible. If you have any questions regarding your warranty rights and responsibilities, you should contact YANMAR America Corporation. If you would like to find the nearest YANMAR dealer or authorized service center, you should contact YANMAR America Corporation.

Website: <https://www.yanmar.com>

E-mail: CS_support@yanmar.com

Toll free telephone number: 1-800-872-2867, 1-855-416-7091

What the Emergency Stationary Type Engine Owner must Do:

The engines for emergency stationary type generators certified by Federal Law (40 CFR Part 60) are limited to emergency use only, and the operation for maintenance checks and verification test for functions is required. The total operating hours for maintenance and verification test for functions should not exceed 100 hours per year. However, there is no limitation on the operating hours for emergency use. Keep a log of the number of hours the engine is operated for both emergency use and non-emergency use. Also, note the reason for the operation.

mk71445,1679915954842-19-30MAR23

Tire Warranty

John Deere warranty applies for tires available through the John Deere parts system. For tires not available through the John Deere parts system, the tire manufacturer's warranty applicable to your machine may not apply outside the U.S. (See your John Deere dealer for specific information.)

MX00654,0000314-19-21AUG14

Limited Battery Warranty For Factory Installed Batteries

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 PERIOD

Any new battery which becomes unserviceable (not merely discharged) due to defects in material or workmanship within the FREE REPLACEMENT PERIOD will be replaced free of charge. Installation costs will be covered by warranty if the unserviceable battery was installed by a John Deere factory or dealer and the replacement battery is installed by a John Deere dealer.

PRO RATA ADJUSTMENT (batteries with letter code identification only)

Any new battery which becomes unserviceable (not merely discharged) due to defects in material or workmanship within the Pro Rata Warranty 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 table below. Installation costs are not covered after the battery warranty period has ended.

THIS WARRANTY DOES NOT COVER

- A. Breakage of the container, cover, or terminals.
- B. Depreciation or damage caused by lack of reasonable and necessary maintenance or by improper maintenance.
- C. Transportation, mailing, or service call charges for warranty service.
- D. Batteries that are merely discharged.

LIMITATION OF IMPLIED WARRANTIES AND PURCHASER'S REMEDIES

To the extent permitted by law, neither John Deere nor any company affiliated with it makes any warranties, representations, or promises as to the quality, performance or freedom from defect of the products covered by this warranty. IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, TO THE EXTENT APPLICABLE, SHALL BE LIMITED IN DURATION TO THE APPLICABLE ADJUSTMENT PERIOD SET FORTH HERE. THE PURCHASER'S ONLY REMEDIES IN CONNECTION WITH THE BREACH OR PERFORMANCE OF ANY WARRANTY ON JOHN DEERE BATTERIES ARE THOSE SET FORTH HERE. IN NO EVENT WILL THE DEALER, JOHN DEERE OR ANY COMPANY AFFILIATED WITH JOHN DEERE BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES. (Note: Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages. So these limitations and exclusions may not apply to you.) This warranty gives you specific legal rights, and you may also have some rights which vary from state to state.

NO DEALER WARRANTY

The selling dealer makes no warranty of its own and the dealer has no authority to make any representation or promise on behalf of John Deere, or to modify the terms or limitations of this warranty in any way.

WARRANTY TERMS TABLE

NOTE: If your battery is not labeled with a warranty code, it is a warranty code 6.

Warranty Code	Free Replacement Period	Pro Rata Warranty Period
A	90 Days	40 Months
B	90 Days	36 Months
C	90 Days	24 Months
D	12 Months	48 Months
E	90 Days	12 Months
F	90 Days	60 Months
G	12 Months	60 Months
H	12 Months	60 Months
6	6 Months	0 Months
12	12 Months	0 Months
18	18 Months	0 Months

OUMX068,0000504-19-18OCT24

John Deere Quality Statement

John Deere Quality

John Deere equipment is more than just a purchase, it's an investment in quality. That quality goes beyond our equipment to your John Deere dealer's parts and service support. This support is needed to keep you a satisfied customer.

That's why John Deere has initiated a process to handle your questions or problems, should they arise. The following three steps will help guide you through the process.

Step 1

Refer to your operator's manual

A. It has many illustrations and detailed information on the safe and proper operation of your equipment.

B. It gives troubleshooting procedures, and specification information.

C. It gives ordering information for parts catalogs, service and technical manuals.

D. If your questions are not answered in the operator's manual, then go to Step 2.

Step 2

Contact your dealer

A. Your John Deere dealer has the responsibility, authority, and ability to answer questions, resolve problems, and fulfill your parts and service needs.

B. First, discuss your questions or problems with your dealer's trained parts and service staff.

C. If the parts and service people are unable to resolve your problem, see the dealership manager or owner.

D. If your questions or problems are not resolved by the dealer, then go to Step 3.

Step 3

Contact John Deere

A. Your John Deere dealer is the most efficient source in addressing any concern, but if you are not able to resolve your problem after checking your operator's manual and contacting your dealer, contact John Deere for assistance.

B. For prompt, effective service, please have the following ready before you call:

- The name of the dealer with whom you've been working.
- Your equipment model number.
- Number of hours on machine (if applicable).
- Your serial number which you recorded on the inside front cover of this manual.
- If the problem is with an attachment, your attachment identification number.

C. Then call 1-800-537-8233 (United States and Canada) and our advisor will work with your dealer to investigate your concern. If you are outside the United States and Canada, visit the following website:

<https://www.deere.com/en/global-country-selector/>

Select your country and then click on the Contact Us link at the bottom of the page.

SP66632,00043A7-19-04AUG25

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