

JOHN DEERE
AG & TURF DIVISION

Compact Utility Tractors
3032E, 3038E

OMLVU20279 E2

OPERATOR'S MANUAL



JOHN DEERE

⚠ 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.

California Proposition 65 Warning

North American Version
Litho in U.S.A.

Introduction

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.

Using Your Operator's Manual

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

Reading your operator's manual will help you and others avoid personal injury or damage to the machine. Information given in this manual will provide the operator with the safest and most effective use of the machine. Knowing how to operate this machine safely and correctly will allow you to train others who may operate this machine.

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 to 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 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.

Special Messages

Your manual contains special messages to bring attention to potential safety concerns, 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.

Attachments for Your Machine

There's 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 or 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's a John Deere attachment or kit to fill every need.

Product Identification

Record Identification Numbers

Compact Utility Tractor

3032E PIN (010001 -)

3038E PIN (010001 -)

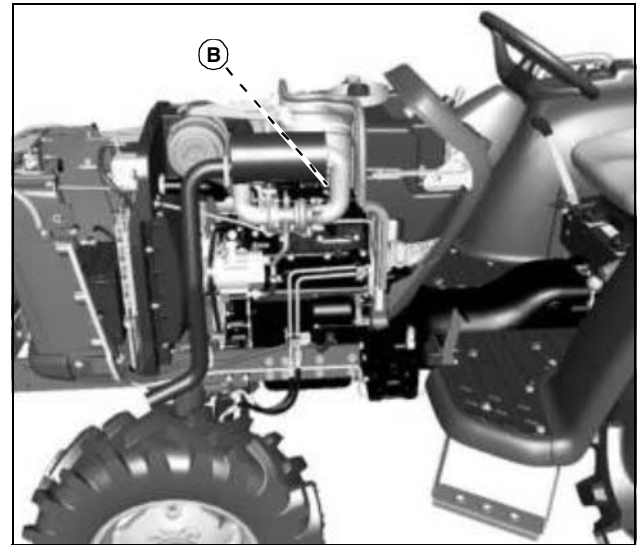
If you need to contact an Authorized Service Center for information on servicing, always provide the product model and identification numbers.

You will need to locate the identifications numbers for the product. Record the information in the spaces provided below.

DATE OF PURCHASE:

DEALER NAME:

DEALER PHONE:



MX40657

ENGINE SERIAL NUMBER (B):



MX40656

PRODUCT IDENTIFICATION NUMBER (A):

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Original Instruction

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John Deere Ag & Turf Division

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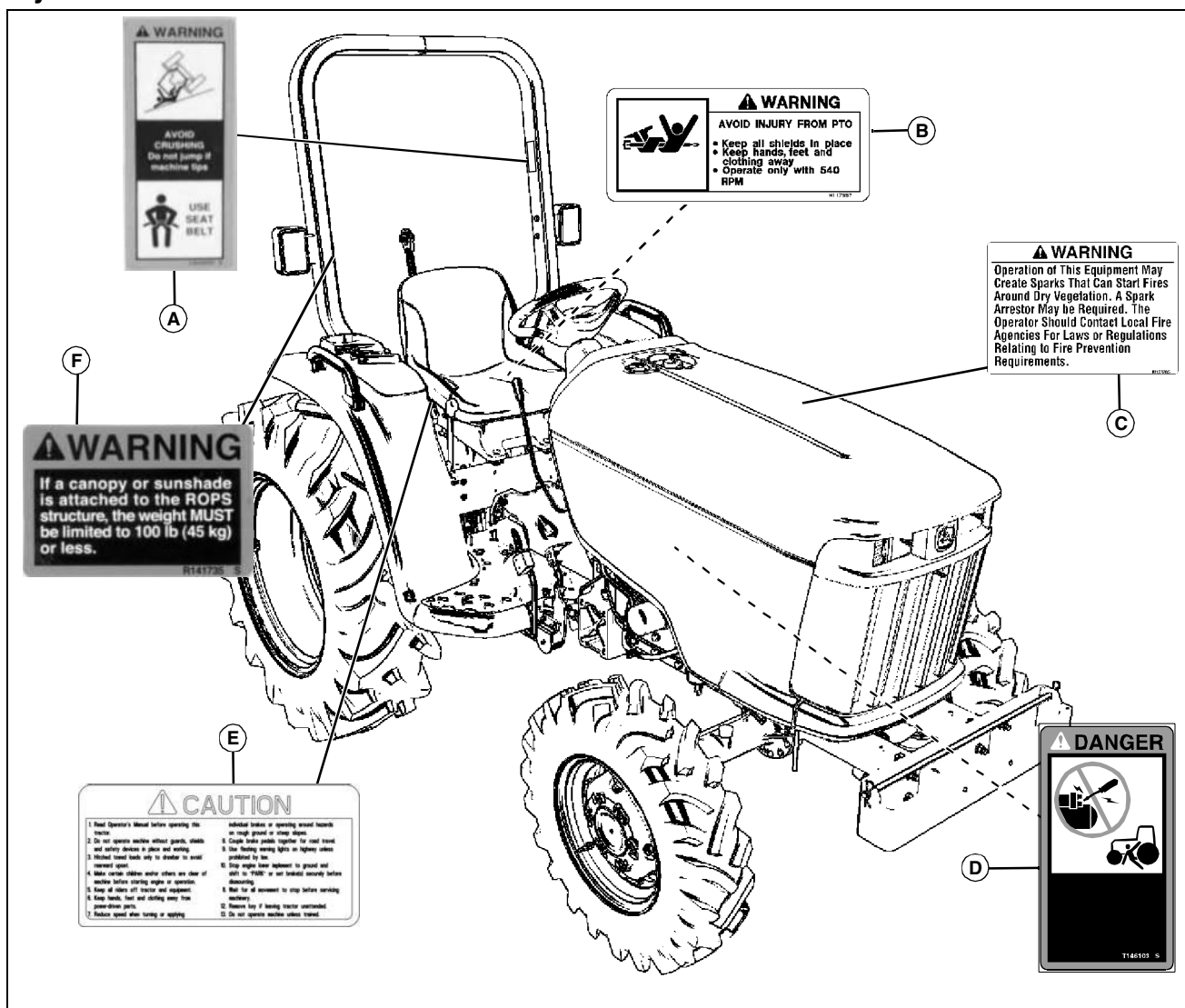
Previous Editions

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OMLVU20279 E2 -

Safety Labels

Safety Label Location



MX41277

Picture Note: Use label number listed in table below to locate complete text of safety label message following this illustration.

- A - WARNING LVU10707**
- B - WARNING M117557**
- C - WARNING M159705**
- D - DANGER T146103**
- E - CAUTION LVU20485**
- F - WARNING ROPS R141735**

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.

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.



Understanding The Machine Safety Labels

The machine safety labels shown in this section are placed in important areas on your

Safety Labels

DANGER T146103



T146103

Start only from seat in park or neutral.

Starting in gear kills.

CAUTION READ OPERATORS MANUAL LVU20485



LVU20485

1. Read Operator's Manual before operating this machine.
2. Do not operate machine without guards, shields and safety devices in place and working.
3. Hitch towed loads only to drawbar to avoid rearward upset.
4. Make certain children and / or others are clear of machine before starting engine or operation.
5. Keep all riders off tractor and equipment.
6. Keep hands, feet and clothing away from power-driven parts.
7. Reduce speed when turning or applying individual brakes or operating around hazards on rough ground or steep slopes.
8. Couple brake pedals together for road travel.
9. Use flashing warning lights on highway unless prohibited by law.

10. Stop engine, lower implement to ground and shift to "PARK" or set brake(s) securely before dismounting.
11. Wait for all movement to stop before servicing machinery.
12. Remove key if leaving machine unattended.
13. Do not operate machine unless trained.

WARNING LVU10707



LVU10707a

AVOID CRUSHING. Do not jump if machine tips.

- USE SEAT BELT.

WARNING ROPS R141735

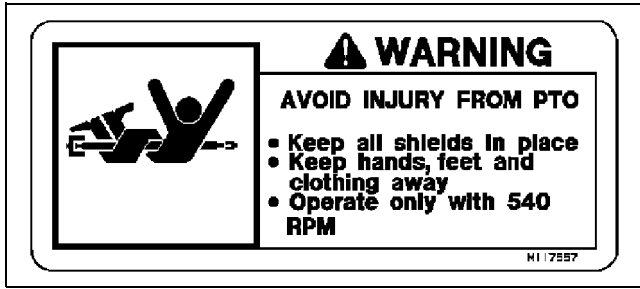


R141735

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

Safety Labels

WARNING M117557



M117557

AVOID INJURY FROM PTO.

- Keep all shields in place.
- Keep hands, feet and clothing away.
- Operate only with 540 RPM.

Warning M159705



M159705

Picture Note: This label is required and installed on machines sold in California. This label may also be installed on machines sold in other locations.

Operation of This Equipment May Create Sparks that Can Start Fires Around Dry Vegetation. A Spark Arrestor May be Required. The Operator Should Contact Local Fire Agencies For Laws or Regulations Relating to Fire Prevention Requirements.

CAUTION iMatch™ Quick-Hitch LVU13502

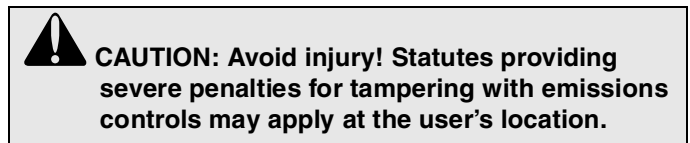
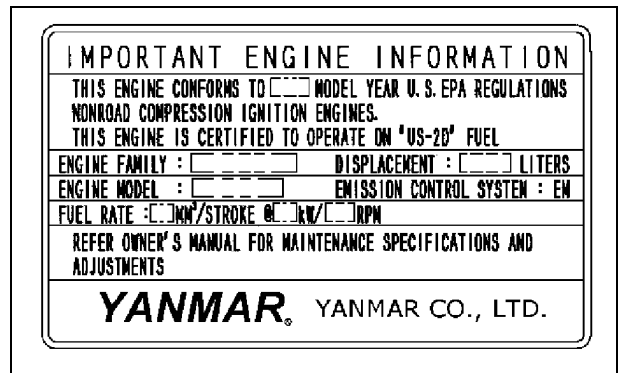


LVU13502

Picture Note: Optional iMatch Quick-Hitch.

BEFORE USING, SECURE TRACTOR IMPLEMENT WITH BOTH LOCKING LUGS OVER LOWER IMPLEMENT PINS

Emission Control System Certification Label



The emissions warranty described in the warranty section applies only to those engines marketed by John Deere that have been certified by the United States Environmental Protection Agency (EPA) and/or California Air Resources Board (CARB); and used in the United States in non-road mobile (self-propelled or portable/transportable¹) equipment. The presence of an emissions label like the one shown signifies that the engine has been certified with the EPA and/or CARB. The EPA and CARB warranties only apply to new engines having the certification label affixed to the engine and sold as stated above in the geographic

¹. Equipment moved at least once every 12 months.

Safety Labels

areas governed by the regulating agencies.

NOTE: The hp/kW rating on the engine emissions certification label specifies the gross engine hp/kW, which is flywheel power without fan. In most applications this will not be the same rating as the advertised vehicle hp/kW rating.

Safety

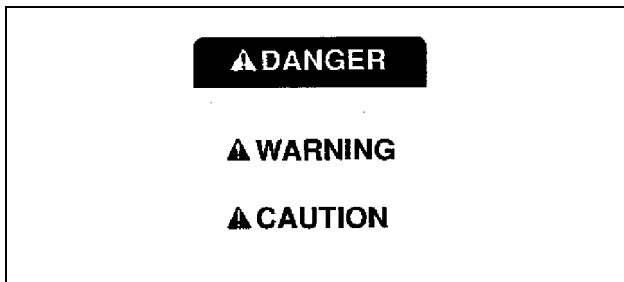


Recognize Safety Information

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

Follow recommended precautions and safe operating practices.

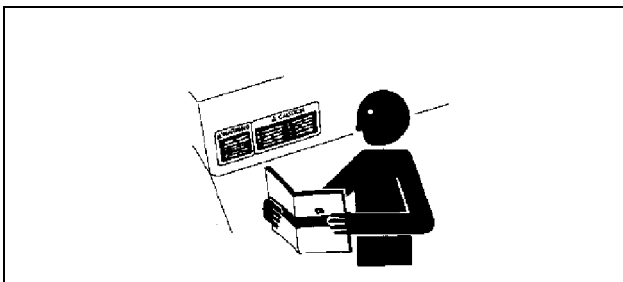
Understand Signal Words



A signal word-DANGER, WARNING, or CAUTION-is used with the safety-alert symbol. DANGER identifies the most serious hazards.

DANGER or WARNING safety signs are located near specific hazards. General precautions are listed on CAUTION safety signs. CAUTION also calls attention to safety messages in this manual.

Follow Safety Instructions



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

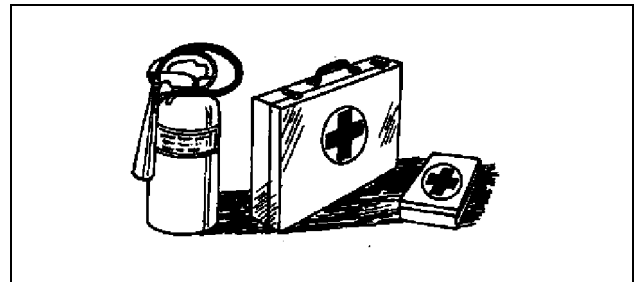
There can be additional safety information contained on parts and components sourced from suppliers that is not reproduced in this operator's manual.

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

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

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

Prepare for Emergencies

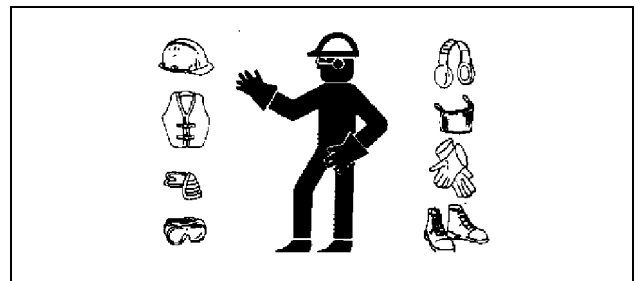


Be prepared if a fire starts.

Keep a first aid kit and fire extinguisher handy.

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

Wear Protective Clothing

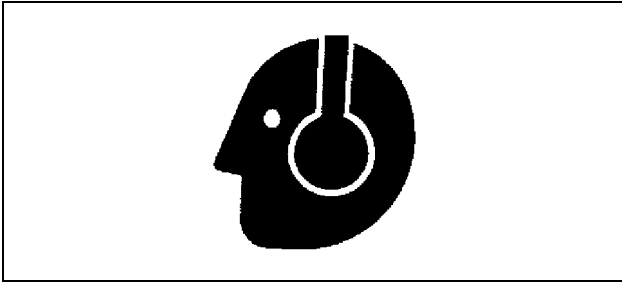


Wear close fitting clothing and safety equipment appropriate to the job.

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

Safety

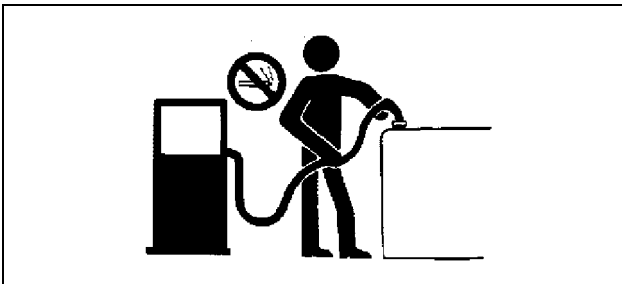
Protect Against Noise



Prolonged exposure to loud noise can cause impairment or loss of hearing.

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

Handle Fuel Safely - Avoid Fires



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

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

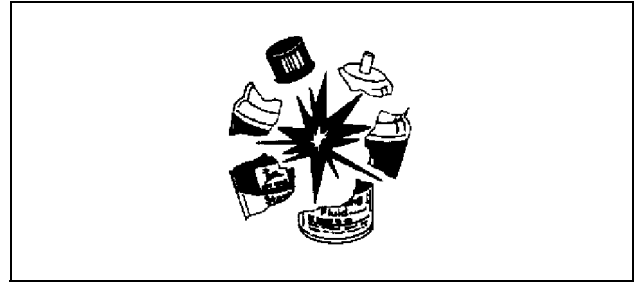
Prevent fires by keeping machine clean of accumulated trash, grease, and debris. Always clean up spilled fuel.

Use only an approved fuel container for transporting flammable liquids.

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

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

Handle Starting Fluid Safely



Starting fluid is highly flammable.

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

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

Do not incinerate or puncture a starting fluid container.

Fire Prevention

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

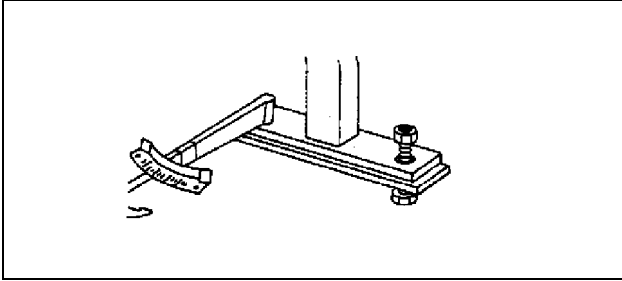
- Birds and other animals may build nests or bring other flammable materials into the engine compartment or onto the exhaust system. The tractor should be inspected and cleaned prior to the first use each day.
- A build up of grass, crop material and other debris may occur during normal operation. This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

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

Safety

inspection and cleaning.

Keep ROPS Installed Properly



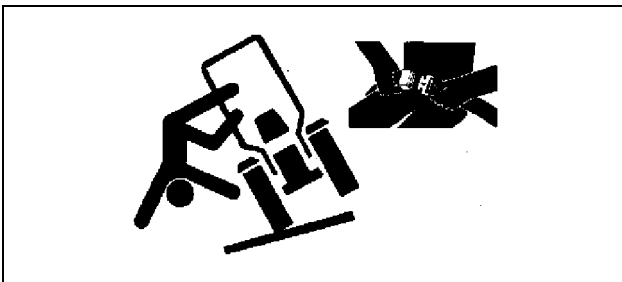
Make certain all parts are reinstalled correctly if the roll-over protective structure (ROPS) is loosened or removed for any reason. Tighten mounting bolts to proper torque.

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

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

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

Use Foldable ROPS and Seat Belt Properly



If this tractor is equipped with a foldable ROPS, keep the ROPS in the fully extended and locked position. If the tractor is ever operated with ROPS folded (e.g., to enter a low building), drive with extreme caution. Do NOT use seat belt with the ROPS folded.

Return the ROPS to the raised, fully extended and locked position as soon as the tractor is operated under normal conditions. Always fasten your seat belt when the ROPS is fully extended and locked.



Stay Clear of Rotating Drivelines

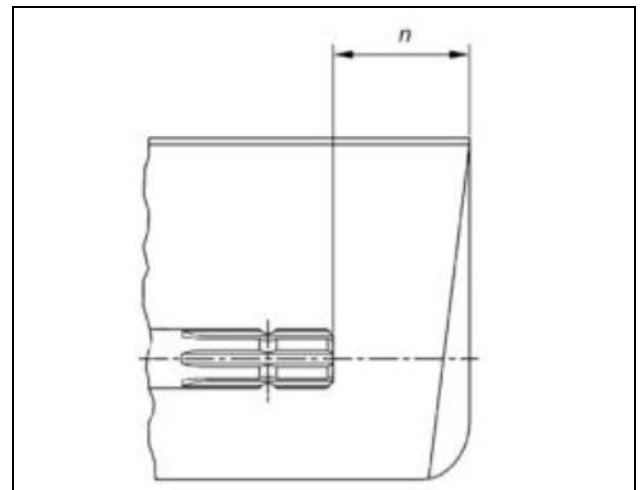
Entanglement in rotating driveline can cause serious injury or death.

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

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

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

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



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

Safety



Use Steps and Handholds Correctly

Prevent falls by facing the machine when getting on and off. Maintain 3-point contact with steps and handrails. Never use machine controls as handholds.

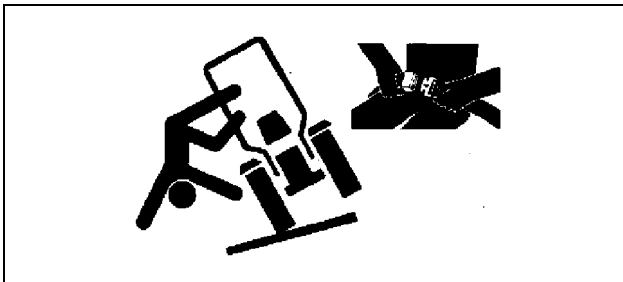
Use extra care when mud, snow, or moisture present slippery conditions. Keep steps clean and free of grease or oil. Never jump when exiting machine. Never mount or dismount a moving machine.

Read Operator Manuals for ISOBUS Implements

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

NOTE: ISOBUS refers to the ISO Standard 11783.

Use Seat Belt Properly



Use a seat belt when you operate with a roll-over protective structure (ROPS) or cab to minimize chance of injury from an accident such as an overturn.

Do not use a seat belt if operating without a ROPS or cab.

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

Inspect seat belt and mounting hardware at least once a year. Look for signs of loose hardware or belt damage, such as cuts, fraying, extreme or unusual wear, discoloration, or abrasion. Replace only with replacement parts approved for your machine. See your John Deere dealer.

Operating the Tractor Safely



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

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

Driving Concerns

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

Safety

or operating around hazards on rough ground or steep slopes.

- Couple brake pedals together for road travel.
- Pump brakes when stopping on slippery surfaces.

Towing Loads

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

Parking and Leaving the Tractor

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

Common Accidents

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

The most common accidents involving tractors:

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

Avoid Backover Accidents



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

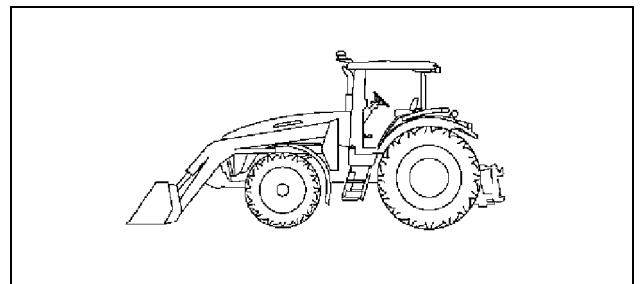
Do not rely on a camera to determine if personnel or obstacles are behind the machine. The system can be limited by many factors including maintenance practices, environmental conditions, and operating range.

Limited Use in Forestry Operation

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

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

Operating the Loader Tractor Safely



When operating a machine with a loader application,

Safety

reduce speed as required to ensure good tractor and loader stability.

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

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

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

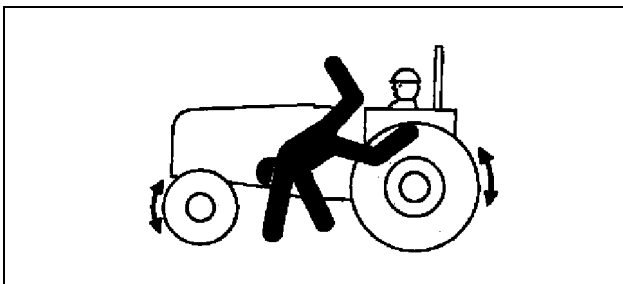
Do not use loader as a work platform.

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

Lower loader to ground before leaving operators station.

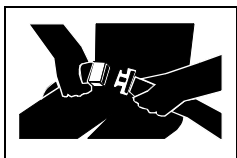
The Rollover Protective Structure (ROPS) or cab roof, if equipped, may not provide sufficient protection from load falling onto the operators station. To prevent loads from falling onto the operators station, always use appropriate implements for specific applications (that is, manure forks, round bale forks, round bale grippers, and clammers).

Keep Riders Off Machine



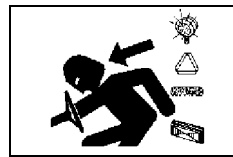
Only allow the operator on the machine. Keep riders off.

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



Instructional Seat

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

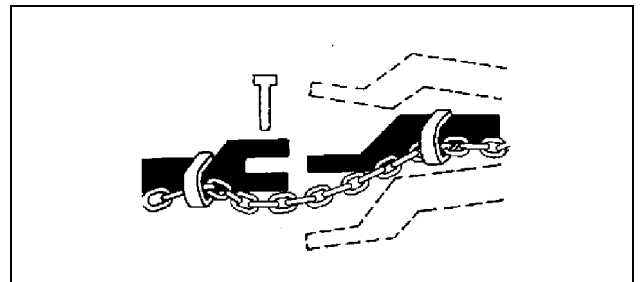


Use Safety Lights and Devices

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

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

Use a Safety Chain



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

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

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

Transport Towed Equipment at Safe Speeds

Do not exceed the maximum transport speed. This tractor is capable of operating at transport speeds that exceed the maximum allowable transport speed for most towed implements.

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

- Loss of control of the tractor/implement combination

Safety

- Reduced or no ability to stop during braking
- Implement tire failure
- Damage to the implement structure or its components

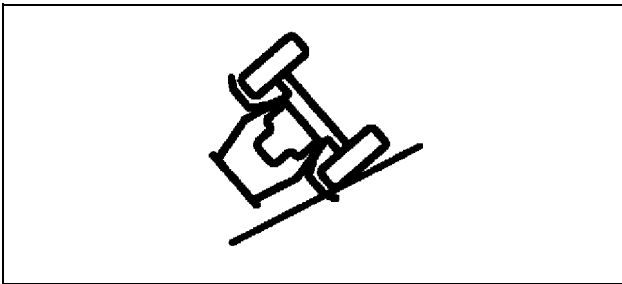
Implements without brakes:

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

Implements with brakes:

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

Use Caution On Slopes and Uneven Terrain



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

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

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

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

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

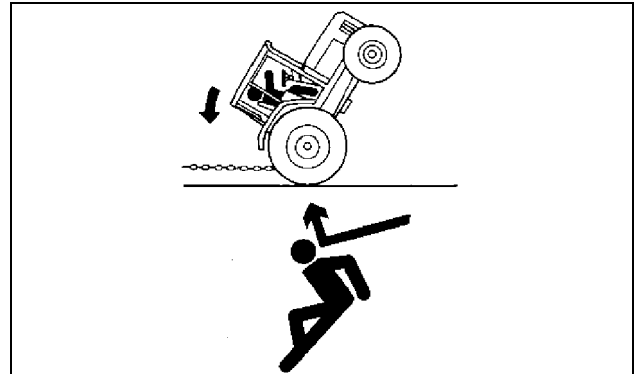
Never drive near the edge of a gully, drop-off, ditch, steep embankment, or a body of water. The machine could suddenly roll over if a wheel goes over the edge or the ground caves in.

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

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

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

Freeing a Mired Machine



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

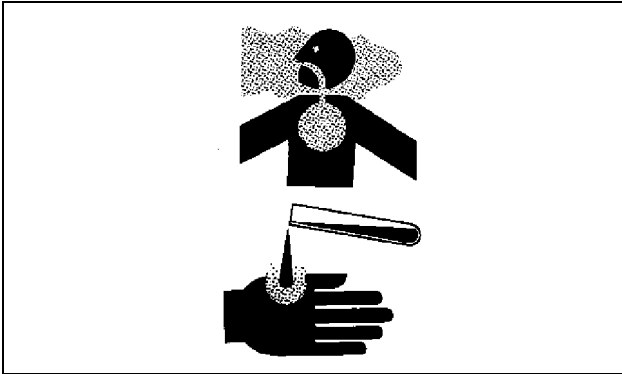
Back your tractor out if it gets mired down in mud. Unhitch any towed implements. Dig mud from behind the rear wheels. Place boards behind the wheels to provide a solid base and try to back out slowly. If necessary, dig mud from the front of all wheels and drive slowly ahead.

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

Always hitch to the drawbar of the towing unit. Do not hitch to the front pushbar attachment point. Before moving, clear the area of people. Apply power smoothly to take up the slack: a sudden pull could snap any towing device causing it to whip or recoil dangerously.

Safety

Avoid Contact with Agricultural Chemicals

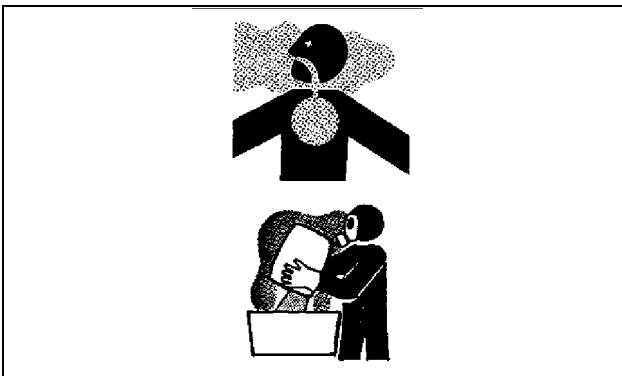


This enclosed cab does not protect against inhaling harmful pesticides. If pesticide use instructions require respiratory protection, wear an appropriate respirator inside the cab.

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

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

Handle Agricultural Chemicals Safely



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

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

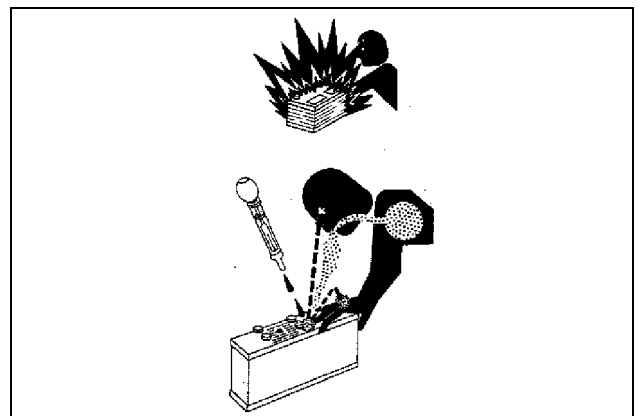
Reduce risk of exposure and injury:

- Wear appropriate personal protective equipment as recommended by the manufacturer. In the absence of

manufacturer's instructions, follow these general guidelines:

- Chemicals labeled '**Danger**': Most toxic. Generally require use of goggles, respirator, gloves, and skin protection.
- Chemicals labeled '**Warning**': Less toxic. Generally require use of goggles, gloves, and skin protections.
- Chemicals labeled '**Caution**': Least toxic. Generally require use of gloves and skin protection.
- Avoid inhaling vapor, aerosol or dust.
- Always have soap, water, and towel available when working with chemicals. If chemical contacts skin, hands, or face, wash immediately with soap and water. If chemical gets into eyes, flush immediately with water.
- Wash hands and face after using chemicals and before eating, drinking, smoking, or urination.
- Do not smoke or eat while applying chemicals.
- After handling chemicals, always bathe or shower and change clothes. Wash clothing before wearing again.
- Seek medical attention immediately if illness occurs during or shortly after use of chemicals.
- Keep chemicals in original containers. Do not transfer chemicals to unmarked containers or to containers used for food or drink.
- Store chemicals in a secure, locked area away from human or livestock food. Keep children away.
- Always dispose of containers properly. Triple rinse empty containers and puncture or crush containers and dispose of properly.

Handling Batteries Safely



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

Safety

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

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

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

Avoid the hazard by:

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

If you spill acid on yourself:

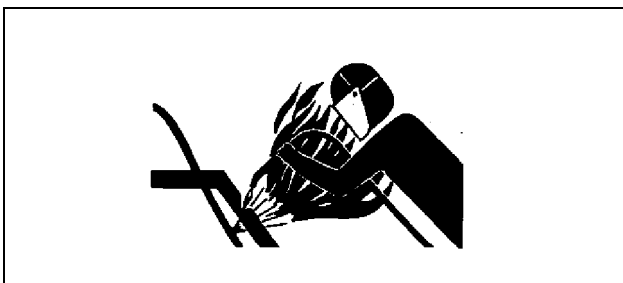
1. Flush your skin with water.
2. Apply baking soda or lime to help neutralize the acid.
3. Flush your eyes with water for 15-30 minutes. Get medical attention immediately.

If acid is swallowed:

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

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

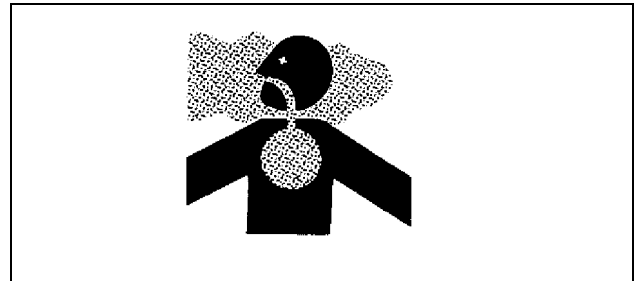
Avoid Heating Near Pressurized Fluid Lines



Flammable spray can be generated by heating near pressurized fluid lines, resulting in severe burns to yourself and bystanders. Do not heat by welding, soldering or using a torch near pressurized fluid lines or other flammable

materials. Pressurized lines can be accidentally cut when heat goes beyond the immediate flame area.

Remove Paint Before Welding or Heating



Avoid potentially toxic fumes and dust.

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

Remove paint before heating:

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

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

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

Dispose of paint and solvent properly.

Handle Electronic Components and Brackets Safely



Falling while installing or removing electronic components

Safety

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

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

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

Practice Safe Maintenance



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

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

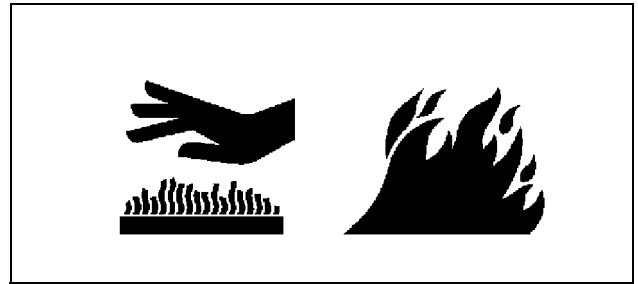
Securely support any machine elements that must be raised for service work.

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

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

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

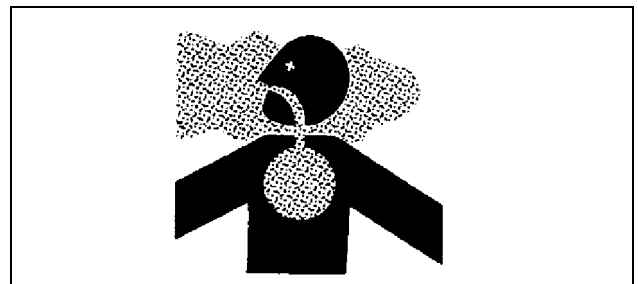
Avoid Hot Exhaust



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

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

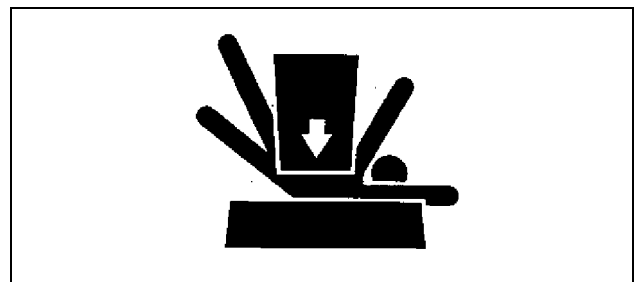
Work in a Ventilated Area



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

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

Support Machine Properly



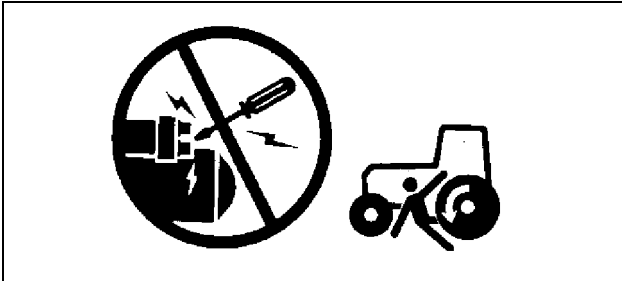
Safety

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

Do not support the machine on cinder blocks, hollow tiles, or props that may crumble under continuous load. Do not work under a machine that is supported solely by a jack. Follow recommended procedures in this manual.

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

Prevent Machine Runaway

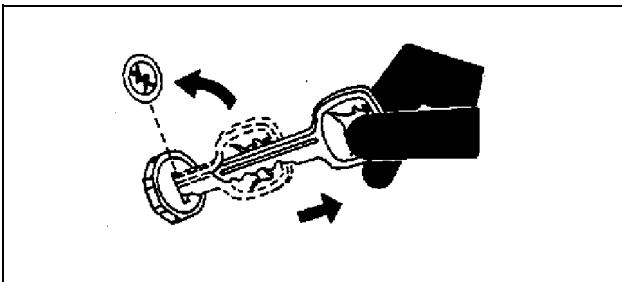


Avoid possible injury or death from machinery runaway.

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

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

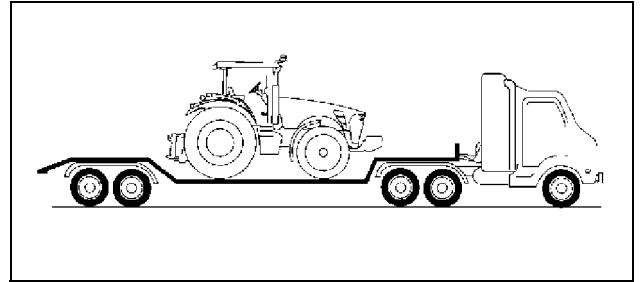
Park Machine Safely



Before working on the machine:

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

Transport Tractor Safely

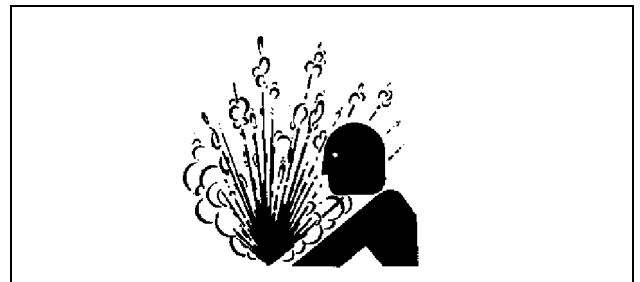


A disabled tractor is best transported on a flatbed carrier. Use chains to secure the tractor to the carrier. The axles and tractor frame are suitable attachment points.

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

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

Servicing Cooling System Safely

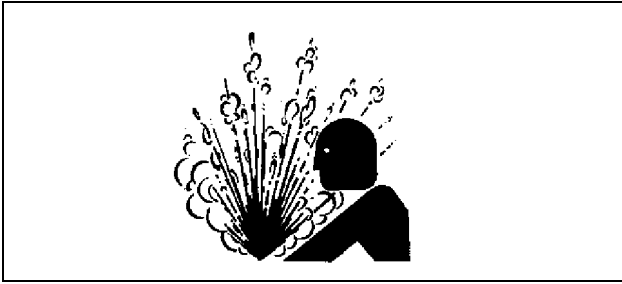


Explosive release of fluids from pressurized cooling system can cause serious burns.

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

Safety

Service Accumulator Systems Safely



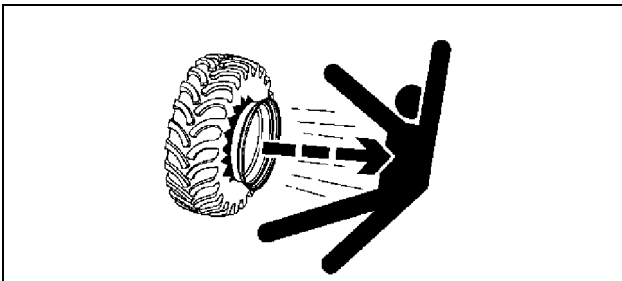
Escaping fluid or gas from systems with pressurized accumulators that are used in air conditioning, hydraulic, and air brake systems can cause serious injury. Extreme heat can cause the accumulator to burst, and pressurized lines can be accidentally cut. Do not weld or use a torch near a pressurized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

Relieve pressure from the pressurized system before removing accumulator.

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

Accumulators cannot be repaired.

Service Tires Safety

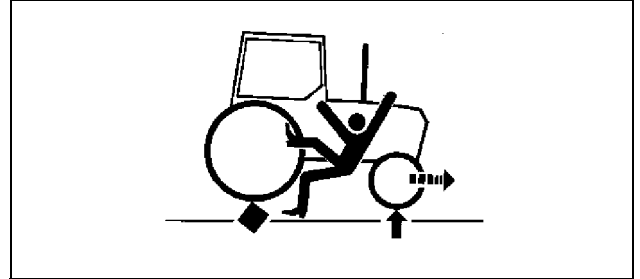


Explosive separation of a tire and rim parts can cause serious injury or death:

- 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. Use a safety cage if available.
- Check tires for low pressure, cuts, bubbles, damaged rims

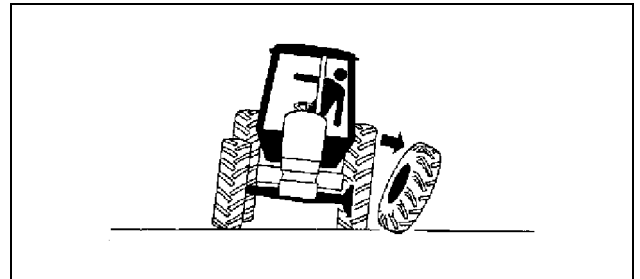
or missing lug bolts and nuts.

Service Front-Wheel Drive Tractor Safely



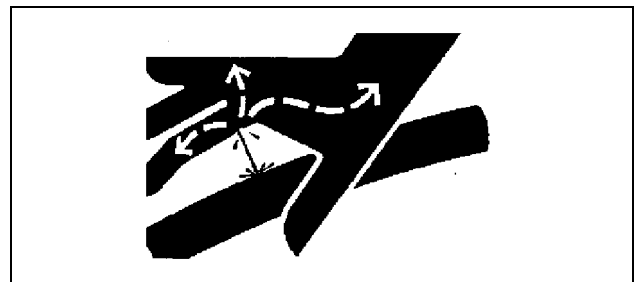
When servicing front-wheel drive tractor with the rear wheels supported off the ground and rotating wheels by engine power, always support front wheels in a similar manner. Loss of electrical power or transmission hydraulic system pressure will engage the front driving wheels, pulling the rear wheels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

Tightening Wheel Retaining Bolts / Nuts



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

Avoid High Pressure Fluids



Safety

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

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

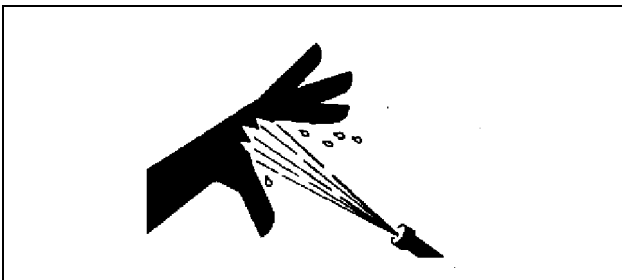
Escaping fluid under pressure can penetrate the skin causing serious injury.

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

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

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

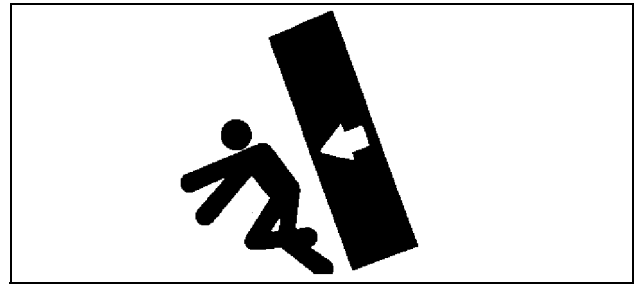
Do Not Open High-Pressure Fuel System



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

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

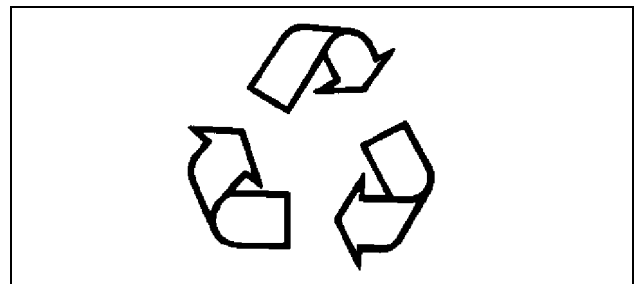
Store Attachments Safely



Stored attachments can fall and cause serious injury or death.

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

Dispose of Waste Properly



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

Use leakproof containers when draining fluids.

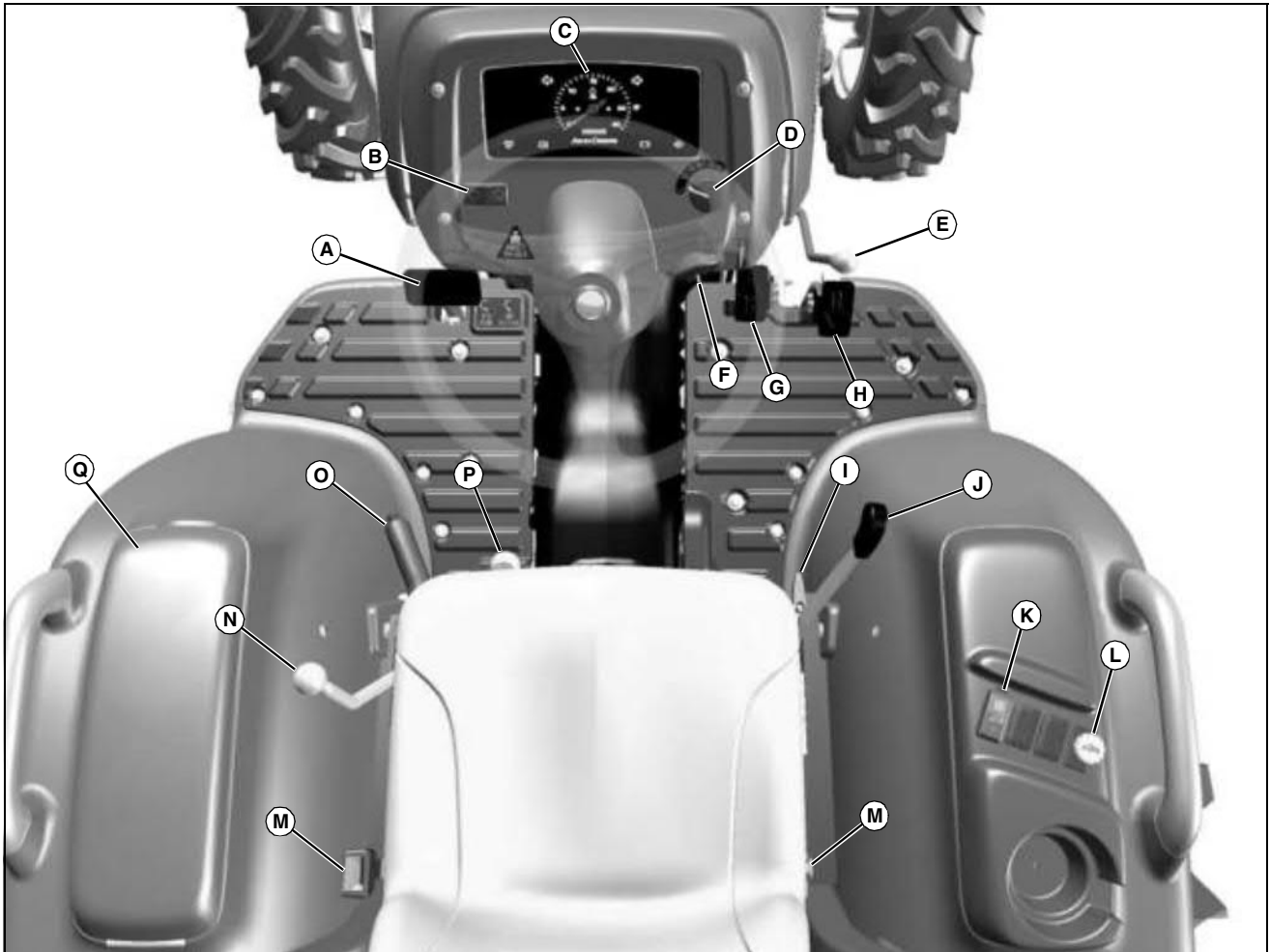
Do not use food or beverage containers that may mislead someone into drinking from them. Do not pour waste onto the ground, down a drain, or into any water source.

Air conditioning refrigerants escaping into the air can damage the Earth's atmosphere. Government regulations may require a certified air conditioning service center to recover and recycle used air conditioning refrigerants.

Inquire on the proper way to recycle or dispose of waste from your local environmental or recycling center, or from your John Deere dealer.

Operating Controls

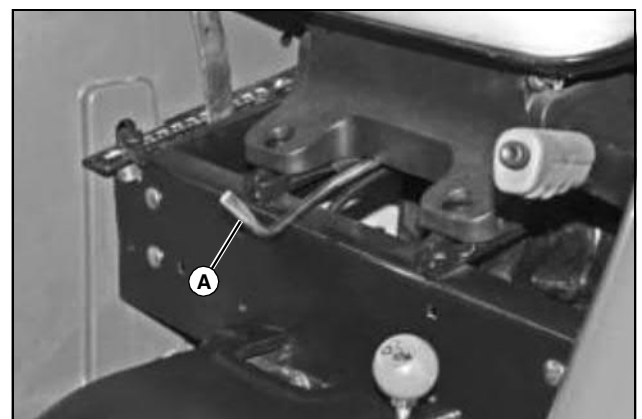
Operator Station Controls



MX40655

- A - Brake/Differential Lock Pedal
- B - Turn Signal Switch
- C - Tachometer
- D - Light Switch
- E - Hand Throttle Lever
- F - Key Switch
- G - Forward Travel Pedal
- H - Reverse Travel Pedal
- I - Rockshaft Depth Stop
- J - Rockshaft Control Lever
- K - Cruise Control Switch (Optional)
- L - PTO Engagement Knob
- M - Seat Belt
- N - Transmission Range Shift Lever
- O - Park Brake Lever
- P - Mechanical Front Wheel Drive (MFWD) Lever
- Q - Operator Manual Holder

Floor Panel Controls



MX27068

- A - Seat Adjust Lever

Operating

Daily Operating Checklist

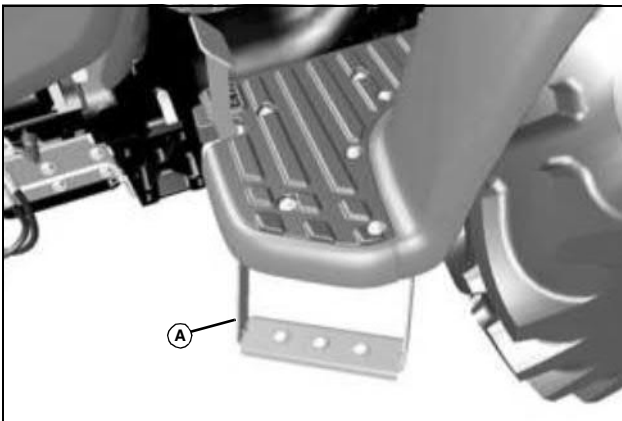
- Test safety systems. Perform safety interlock system checkout procedure.
- Check engine oil level.
- Check transmission oil level.
- Check radiator coolant level.

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.

Entering and Exiting Machine

Using Step

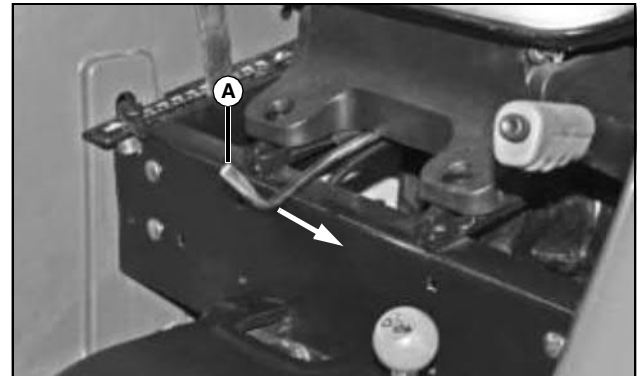


MX40654

Step (A) is located on the left side of machine. Use step for entering and exiting the operator station.

Adjusting Seat Position

1. Sit on the operator seat.



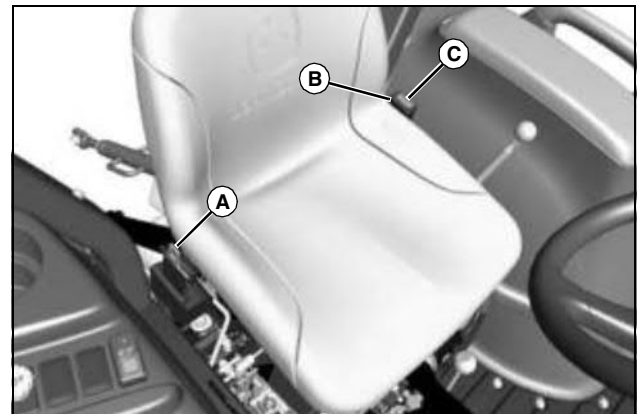
MX27068

2. Pull seat lever (A) to the left.
3. Slide seat forward or rearward to desired position.
4. Release lever to lock seat in position. Make sure all controls can be easily accessed.

Using Seat Belt



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



MX40653

Fasten Belt

1. Pull belt end (A) across operator lap.
2. Install tab into buckle (B).
 - A click will be heard when the tab locks into the buckle.

Release Belt

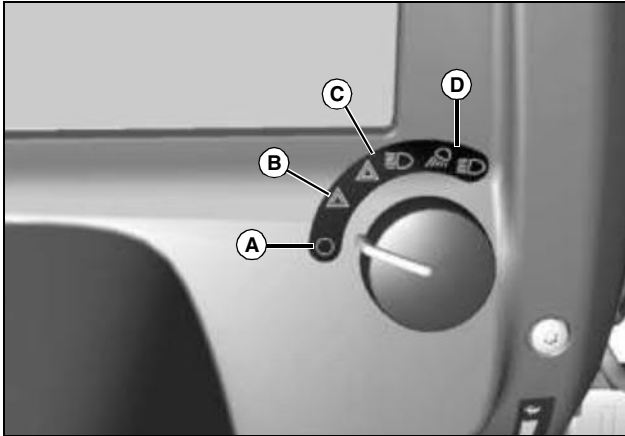
1. Press red button (C) to release seat belt allowing the belt to retract.

Operating

Using Light Switch



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

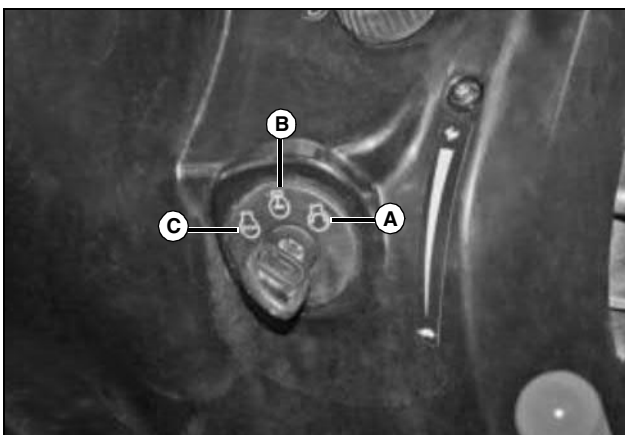


MX40652

- A - All lights off.**
- B - Warning flasher lights on.**
- C - Road Position: headlights, taillights, and warning flasher lights on.**
- D - Field Position: headlights, taillights, and optional working lights on.**

With the key switch in the off position, you can view the hour meter in the instrument panel by turning the light switch to (B) or (C) position.

Using Key Switch



MX27067

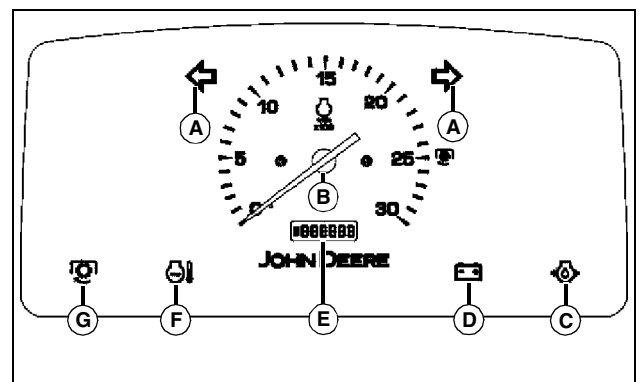
A-Start Position - Turn the key to the start position to start the engine. Release the key after the engine has started

and it will automatically return to the run position. The engine will continue to run.

B-Run Position - With the key in the run position, and the engine not running, the engine oil pressure light and the battery discharging light should illuminate. Both lights should turn off when the engine is running. You will also hear a clicking noise when the engine fuel shut-off solenoid engages.

C-Off Position - With the key in the off position, all switched power is off, and the engine should not run.

Using the Instrument Panel



MX40651

A-Warning Flasher/Turn Signal Indicator Light: These indicator lights will turn on and flash when the light switch is turned to one of the two warning flasher positions, or the turn signal switch is in the right or left hand turn position.

B-Tachometer: Shows engine speed in increments of 100 rpm. Example: If indicator is pointing at 20, then $20 \times 100 = 2000$ rpm. Note the special PTO marker. At this engine speed, the PTO rotates at the industry standard 540 rpm.

C-Engine Oil Pressure Light: This light should illuminate when the ignition key switch is in the run position and the engine is not running, and also when engine oil pressure is too low with the engine running. If this light illuminates while the engine is running, stop engine immediately.

D-Alternator/Battery Discharging Light: This light should illuminate when the ignition key switch is in the run position and the engine is not running. If this light does illuminate with the engine running, see your John Deere dealer.

E-Hour Meter: This display shows Total number of accumulated running hours. Use the hour meter as a guide when servicing various components of this machine.

F-Engine Coolant Temperature Light: This light should not illuminate when the ignition key switch is in the run position or when the engine is running. It will light if the engine is running and the engine coolant temperature raises too high. If this light illuminates while the engine is

Operating

running, stop engine immediately.

G-PTO Engaged Light: This light will illuminate when the PTO is engaged.

Using Turn Signal Switch

- Push the left side of the turn signal switch down to signal a left turn.
- Push the right side of the turn signal switch down to signal a right turn.

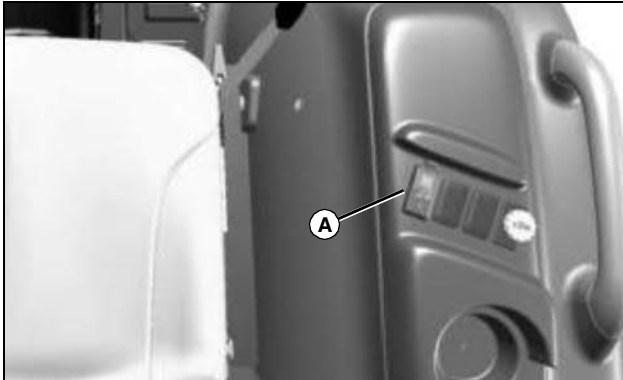
Using Cruise Control (If Equipped)

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

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

Engaging Cruise Control

1. Depress forward travel pedal until desired travel speed is reached.



MX40655

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

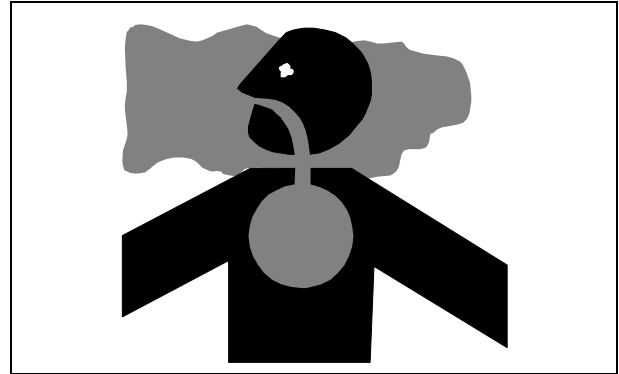
Disengaging Cruise Control

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

1. Fully depress bottom of cruise switch (A), or depress the

brake pedal.

Testing Safety Systems



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.

Testing Rear PTO Knob

1. Sit on operator's seat.
2. Lock park brake.
3. Move the transmission range lever to neutral.

Operating

4. Pull the PTO engagement knob to the engaged/on position.
5. Turn key switch to start position.
 - Engine must not crank.
6. Push the PTO engagement knob to the disengaged/off position.
7. Turn key switch to off position.

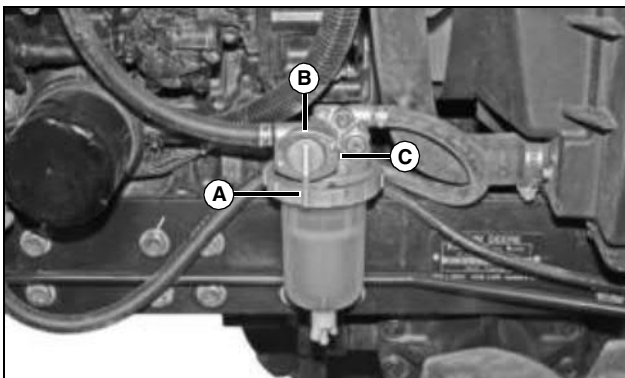
Testing Rear PTO/Seat Switch Interface

1. Sit on operator's seat.
2. Lock park brake.
3. Push the PTO engagement knob to the disengaged/off position.
4. Start machine engine. Set engine speed at 1500 rpm.
5. Pull the PTO engagement knob to the engaged/on position.
6. Raise up from operator's seat. Do not dismount machine.
7. Engine should stop.
8. Push the PTO engagement knob to the disengaged/off position.
9. Turn key switch to off position.

Using Fuel Shut-Off Valve

Close the valve when performing any type of engine fuel system service.

1. Locate the fuel shut-off valve on the right side of the machine on the fuel sediment filter.



MX27078

2. Open or close fuel shut-off valve lever (A) as required:
 - **Open Valve:** Rotate valve lever to the "ON" (vertical) position (B).
 - **Close Valve:** Rotate valve lever to the "OFF"

(horizontal) position (C).

Using Brake/Differential Lock Pedal

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

Depress pedal beyond 25mm (1 in.) to operate brake.

Using Park Brake

Locking Park Brake:



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

1. Press down firmly on brake/differential lock pedal.
2. Pull park brake lever up to locked position.
3. Remove foot from brake/differential lock pedal.

Unlocking Park Brake:

1. Press down firmly on brake/differential lock pedal.
2. Pull up slightly on park brake lever while depressing release button. Push park brake lever down to unlocked position.
3. Remove foot from brake/differential lock pedal.

Using Throttle Controls

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

- **Decrease Engine Speed** - Pull throttle rearward.
- **Increase Engine Speed** - Push throttle forward.

Operating

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 the exhaust fumes out.

NOTE: It is recommended to install optional engine block heater and hydraulic oil heater if operating machine in temperatures below -18° C (0° F).

If temperature is below 0° C (32° F), follow the cold weather starting steps in this section.

1. Lock the park brake.
2. Push the PTO knob to the disengaged/off position.
3. Remove foot from forward and reverse travel pedals.



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

4. Lower any rear mount implement to the ground by pushing the rockshaft control lever forward.
5. Lower any front mounted implement to the ground using the SCV lever.
6. Set hand throttle lever to the 1/3 fast position.
7. Turn key switch to the run position.
8. Check instrument panel indicator lights:
 - Alternator/battery discharging light will illuminate.
 - Engine oil pressure light will illuminate.

IMPORTANT: Avoid damage! Glow plugs and air heater are operational during cranking. Using ether or starter fluid during cranking will cause damage to engine.

9. For cold weather starting, place range shift lever in low range, turn key to start position and hold for:
 - 10 - 15 seconds for temperatures as low as -18°C (0°F).

- 15 - 30 seconds for temperatures below -18°C (0°F).

IMPORTANT: Avoid damage! Starter may be damaged if starter is operated for more than 20 seconds at a time:

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

10. Continue to hold key in start position and shift range lever to neutral position. Release key when engine starts.

11. Check instrument panel indicator lights:

- Engine oil pressure light should go out within 5 seconds.
- Alternator/battery discharging light should go out within 10 seconds.

12. Set engine speed at full throttle if indicator light does not go out after 10 seconds. If indicator light continues to stay on, stop the engine and check for cause.

IMPORTANT: Avoid damage! In cold weather, run engine several minutes to allow engine oil and transmission oil to warm.

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

13. Warm the engine:

- In warm weather, set hand throttle lever to the 1/2 fast position for 1 minute without load.
- In cold weather, set hand throttle lever to the 1/2 fast position for 5 minutes without load.

Idling the Engine

NOTE: Allowing engine to idle for long periods of time will waste fuel and cause carbon build-up.

1. Adjust hand throttle lever to set engine speed at slow idle.
2. Lock the park brake.

Starting a Stalled Engine

IMPORTANT: Avoid damage! If engine stalls while operating under load, start engine immediately to prevent abnormal heat build-up in engine.

1. Disengage PTO.
2. Remove foot from forward travel and reverse travel

Operating

pedals.

3. Shift transmission range lever to neutral.
4. Start engine. Continue with normal operation, or set engine at slow idle speed for 2 minutes before stopping the engine.

Stopping the Machine

Normal Stopping

1. Position the machine on a firm, level surface.
2. Remove foot smoothly from forward or reverse travel pedals to stop motion.
3. Push the PTO knob to the disengaged/off position.



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

4. Lower any rear mount implement to the ground by pushing the rockshaft control lever forward.
5. Lower any front mounted implement to the ground using the SCV lever.

IMPORTANT: Avoid damage! Do not stop engine immediately after hard or extended operation. Keep engine running at low idle for about 2 minutes to prevent heat build-up.

6. Adjust hand throttle lever rearward to set engine speed to slow idle speed. Allow engine to idle for 2 minutes.



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

7. Lock the park brake.
8. Turn key switch to the off position.
9. Remove the key.
10. Wait for the engine and all moving parts to stop before leaving the operator's station.

Emergency Stopping

1. Remove foot from forward or reverse travel pedals.
2. Depress brake/differential lock pedal.
3. Turn key switch to off position. Do not release brake/differential lock pedal until all moving parts have stopped.

4. If possible, lock the park brake.

Operating Transmission

The range shift lever provides two speed ranges.

The range shift lever is used in conjunction with the forward and reverse travel pedals.

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

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

1. Choose a speed range to match work application.
 - L – Low speed/high power operations such as tilling hard soil, mowing high grass.
 - L or H – Operations including hauling, and grass mowing.
 - H – High speed operations such as transport and light mowing.

Driving Machine



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

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

1. Start machine engine.
2. Unlock park brake.
3. Choose L or H speed range on transmission range shift lever to match work application.
4. Move hand throttle lever to desired operating speed.
5. Slowly depress forward pedal downward to travel forward. Slowly depress reverse pedal downward to travel in reverse.
 - The farther either travel pedal is depressed, the faster the machine will travel.
6. Release travel pedal to stop machine and change speed range.

Operating

7. Fully stop machine motion before turning key switch to off.

Using Differential Lock (Traction Assist)



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

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

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

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

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

Engaging Differential Lock

1. Stop or slow machine movement.
2. Depress pedal 20 - 25mm (3/4 - 1 in.) to operate differential lock.

Disengaging Differential Lock

Rear wheel slippage will keep differential lock engaged. Lock will automatically disengage when traction equalizes.

Using Mechanical Front Wheel Drive (MFWD)

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



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

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

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

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

1. Pull up on MFWD lever to engage MFWD.

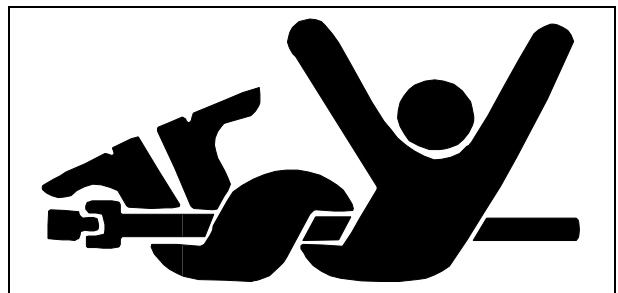
NOTE: It may be necessary to reduce engine load to disengage front wheel drive.

2. Push down MFWD lever to disengage MFWD.

Tips for Operating MFWD:

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

Using the Power-Take-Off (PTO) Safely



Operating



CAUTION: Avoid injury! Stay clear of rotating drivelines:

- Entanglement in rotating driveline can cause serious injury or death.
- Keep hands, feet and clothing away.
- Make sure that all shields are installed and used properly.
- Stop the engine and be sure PTO driveline is stopped before getting near it.

Using Rear PTO

NOTE: The Rear PTO is only operational with the operator on the seat.

Engaging Rear PTO

1. Sit on operator's seat.
2. Stop machine motion, remove foot from forward and reverse travel pedals.

NOTE: The starter will not crank if the PTO knob is pulled to the engaged/on position. If the operator leaves the seat with the engine running and the PTO engaged, the safety interlock system will stop the engine.

3. Reduce throttle setting to 1500 rpm.
4. Pull the PTO knob to the engaged/on position to engage the rear PTO.
5. Adjust the hand throttle lever forward to the desired speed for implement used.

NOTE: The PTO icon on the tachometer indicates the correct engine rpm for a standard 540 PTO .

Disengaging Rear PTO

1. Adjust engine rpm to low idle speed.
2. Push the PTO knob to the disengaged/off position to disengage the rear PTO.

Using Drawbar Hitch (If equipped)



CAUTION: Avoid injury! Use only the drawbar that was provided with the machine (if equipped), or the optional drawbar available from your John Deere Dealer. Do not install or use any other type drawbar.

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

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

Maximum Drawbar Loads

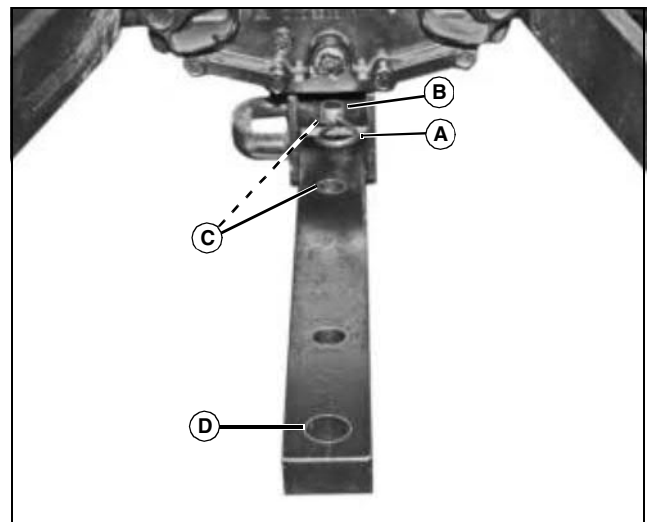
Certain heavy equipment such as a loaded single-axle trailer can place excessive strain on the drawbar. Strain is greatly increased by speed and rough ground. Do not exceed the following maximum static vertical loads on drawbar:

- All Models.....400 kg (882 lb)

Adjusting Drawbar Length

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

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



MX27079

1. Remove quick-lock pin (A) and drilled pin (B).
2. Adjust drawbar to one of two operating positions (C), or

Operating

to storage position (D).

3. Install drilled pin (B) up from bottom of machine. Secure with quick-lock pin (A).

Towing Loads



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

Ensure the load does not exceed the recommended weight. The machine must be heavy and powerful enough with adequate braking power for the towed load. Use additional caution and reduce speed when towing loads under adverse surface conditions, when turning, and on inclines.

NOTE: Weight requirement for towed equipment:

- If towed equipment does not have brakes, do not tow loads more than 1500 kg (3307 lb) maximum.
- If towed equipment has brakes, do not tow loads more than 2000 kg (4409 lb) maximum.

1. Hitch the towed load only to the drawbar. Lock the drawbar and pin in place.
2. Install a safety chain to the machine drawbar support and to the towed load. Provide only enough slack to permit turning.
3. Before descending a hill, shift to a gear low enough to control machine travel speed without having to use the brake pedal to brake the machine and installed implements.

Using Safety Chain

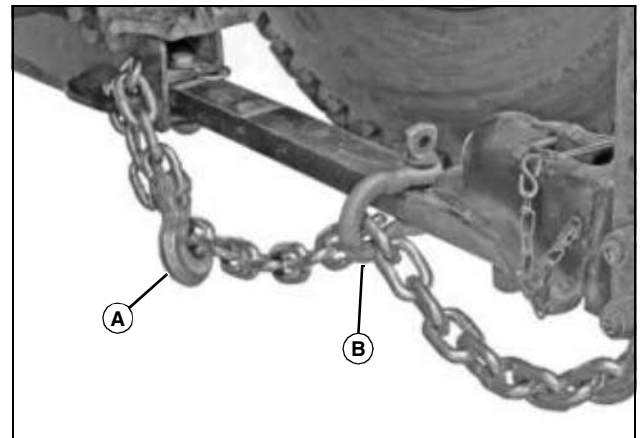


CAUTION: Avoid injury! Hitch towed loads only to the drawbar to avoid rearward upset. Do not use the safety chain for towing loads.

IMPORTANT: Avoid damage! Secure the towed load to the drawbar. The safety chain is designed to help control the towed load should it separate from the drawbar.

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

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



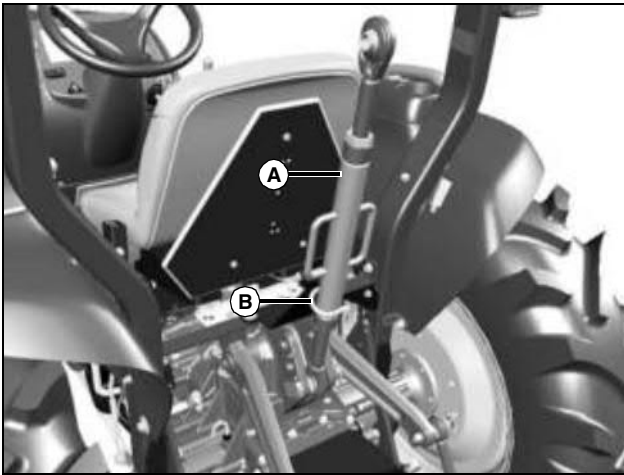
MX27077

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

Using 3 Point Hitch

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

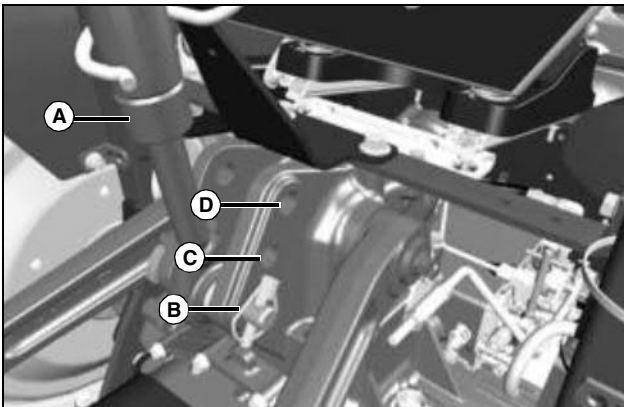
Operating



MX40854

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

Positioning Center Link



MX40855

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

Using Rockshaft Control Lever

Use rockshaft control lever to raise and lower equipment attached to the 3-point hitch.

The nine positions are identifiers only and do not signify

specific operating depths. When the rockshaft control lever is moved forward, the draft arms will lower closer to the ground.

Lower Implement: Push rockshaft control lever forward.

Raise Implement: Pull rockshaft control lever rearward.

Using Rate of Drop/Lock Valve



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

IMPORTANT: Avoid damage! To prevent overheating hydraulic oil and damaging machine, do not raise rockshaft when drop/lock valve is closed.

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



MX40653

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

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



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

Operating

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

Unlock 3-Point Hitch: Rotate drop/lock valve knob (A) counter-clockwise.

Using Draft Links

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

1. Slowly back machine into position to align draft links with implement lift brackets.
2. Park machine safely. (See Parking Safely in the SAFETY section.)

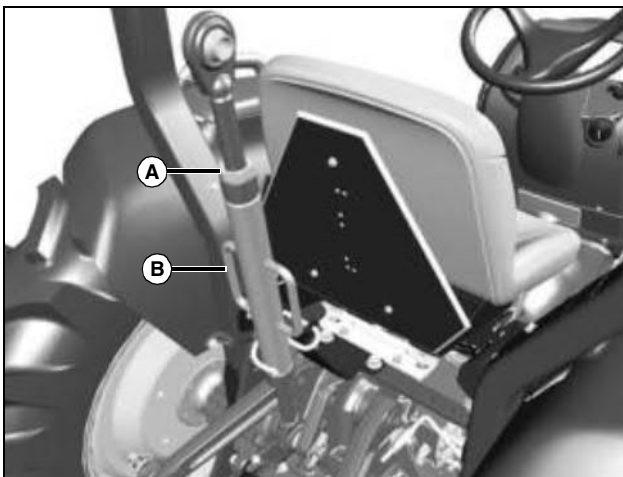
CAUTION: Avoid injury! Fingers and hands can be pinched or crushed. Be aware of potential pinch points and keep hands away.

3. Connect draft links to the implement.

Leveling Implement Front-to-Rear

Leveling a 3-point hitch mounted implement front-to-rear is accomplished by adjusting the length of the center link:

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



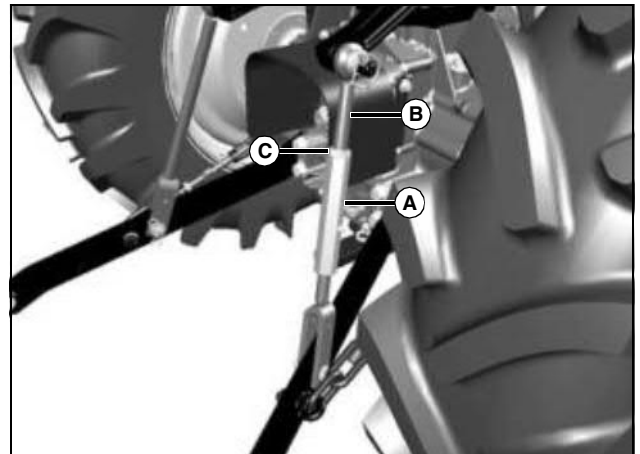
MX40856

2. Loosen locknut (A).

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

3. Rotate handle (B) to lengthen or shorten the center link.
4. Tighten locknut (A).

Leveling Implement Side-to-Side



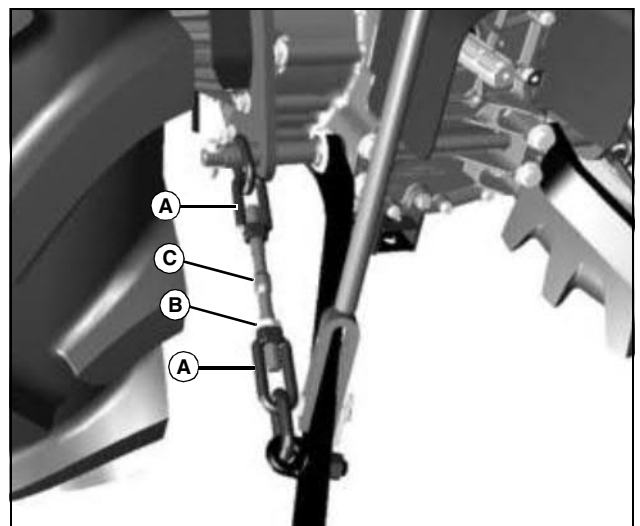
MX40857

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

1. Park machine safely. (See Parking Safely in the Safety section.)
2. Loosen locknut (C) at top of turnbuckle.
3. Rotate turnbuckle (A) to raise or lower draft link until 3-point hitch mounted implement is level from side-to-side.
4. Tighten locknut (C) to secure position.

Adjusting Implement Side-to-Side Sway

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



MX40858

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

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

Operating

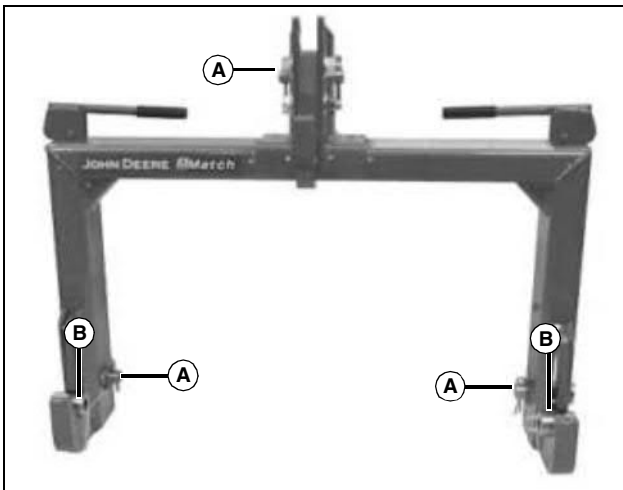
section.)

2. Loosen locknut (B).
3. Rotate sway link adjusting rod (C) to adjust 3-point hitch implement side-to-side sway.
4. Tighten locknut (B).

Using Optional iMatch™ Quick-Attach Hitch System

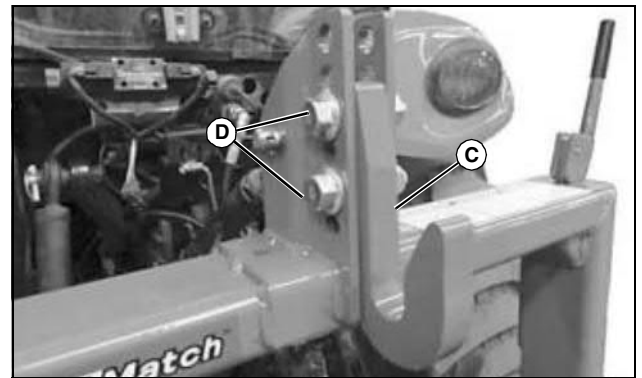
The optional quick-attach hitch fits all Category I implements designed to the ASAE Cat I standard for quick-attach hitches.

Installing Hitch



LV15483

1. Remove three drilled pins (A) and two bushings (B) from quick-attach hitch.
2. Use machine rockshaft control lever to fully lower 3-point hitch draft links.
3. Park machine safely. (See Parking Safely in the SAFETY section.)



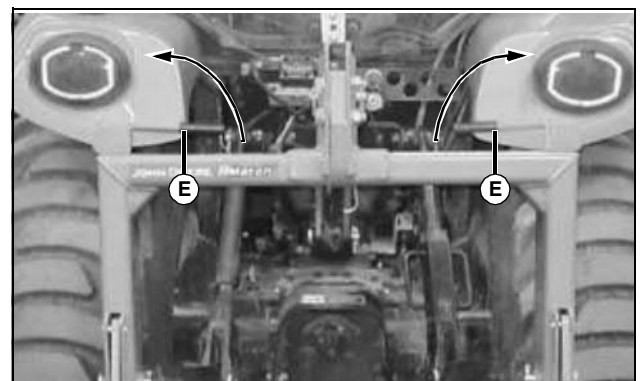
LV15482

Picture Note: Previous version of the iMatch Hitch is not equipped with the adjustable center link.

4. Center link hook (C) is set from factory at standard height to accommodate most implements. Adjust center link hook, if required.
 - Remove nuts and bolts (D).
 - Raise or lower center link hook as required.
 - Install nuts and bolts. Torque bolts to 245-318 N•m before use of iMatch assembly.
5. Position quick-attach hitch near draft links and adjust 3-point hitch sway links to align draft links with quick-attach hitch.
6. Install quick-attach hitch on draft links using drilled pins.
7. Install 3-point hitch center link on quick-attach hitch using center link quick-lock pin and drilled pin.

Connecting Implement

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

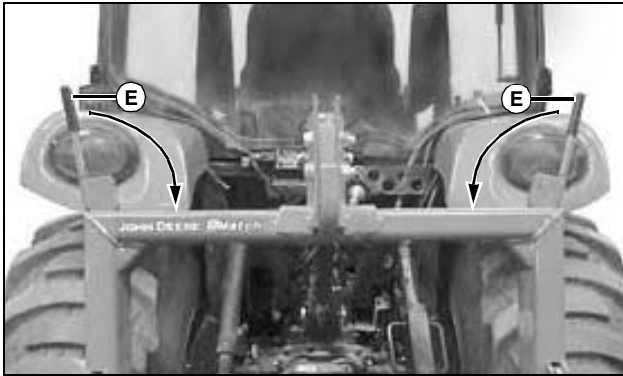


LV15484

2. Move levers (E) on quick-attach hitch to unlocked position.
3. Back machine into position and align quick-attach hitch with implement lift brackets.
4. Use rockshaft control lever to position quick-attach hitch

Operating

under lift brackets and lift implement from ground.



LV15481

5. Fully raise implement. Move levers (E) on quick-attach hitch to locked position.

Using Attachments

When using attachments, check full range of 3 point hitch travel each time a new attachment or implement is mounted. Watch for hoses and attachment parts throughout the 3 point hitch travel range. Adjust the depth stop as needed. Some attachments with very short driveshafts may require an upstop, see your John Deere Dealer. The driveshaft can be damaged if attachments are operated at too high of an angle.

Ballasting Machine



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

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

Add weight to machine front end if needed for stability. Heavy pulling and heavy rear mounted implements tend to lift front wheels. Add enough ballast to maintain steering control and prevent tip over. Remove weight when it is no longer needed.

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

Implement Codes

Use the following tables to determine the number of front

weights to use with John Deere implements that show implement code data in the ballasting section of the implement operator's manual.

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

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

Maximum recommended implement codes:

- Base tractor: 21
- Tractor with 305 loader: 52
- Tractor with 305 loader, bucket removed: 36

Implement Code Using iMatch Quick-Attach Hitch	
Number of 42 lb. (20 kg) Weights	3032E, 3038E
0	21
1	23
2	25
3	27
4	29
5	31
6	33
7	35
8	37
9	39
10	41

Implement Code Using iMatch Quick-Attach Hitch	
Number of 70 lb. (32 kg) Weights	3032E, 3038E
0	21
1	24
2	28
3	31

Operating

Implement Code Using iMatch Quick-Attach Hitch	
Number of 70 lb. (32 kg) Weights	3032E, 3038E
4	35
5	39
6	42
7	46
8	49
9	53
10	57

Tire Capacities

IMPORTANT: Avoid damage! Do not overload tires. Do not exceed tire maximum inflation pressure or maximum load capacity.
If required ballast will exceed tire load capacity, reduce load or install other tires.

See tire maximum inflation pressure and maximum load capacities in the SPECIFICATIONS section.

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

Using Optional Rear Cast Iron Wheel Weights

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

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

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

Rear wheel weights are available from your John Deere Dealer.

Using Optional Rear Ballast Box

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

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

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

Using Liquid Weight in Tires

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

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

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

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

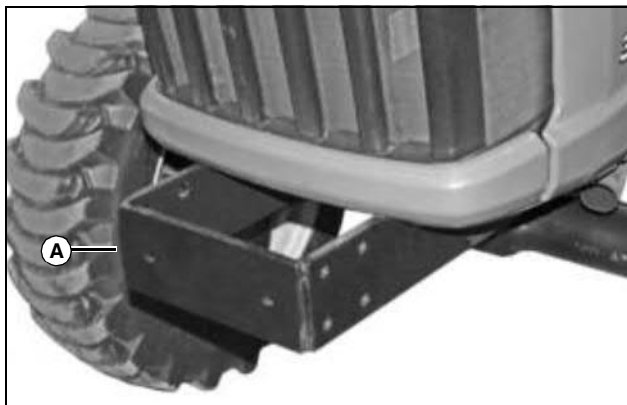
A mixture of 0.4 kg of calcium chloride per liter of water (3.5 lb/gal), will not freeze solid above -45° C (-50° F).

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

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

Operating

Optional Front Weights and Front Weight Bracket Extension



MX27080

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

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

Transporting Machine on Trailer



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

Close fuel shut-off valve, if your machine is equipped.

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

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

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

1. Drive or back machine onto trailer so hood or engine cover opens from rear of trailer.
2. Lower any implements to trailer deck.

3. Lock the park brake.
4. Stop the engine.
5. Remove the key.
6. Close the fuel shut-off valve.
7. Fasten machine to trailer with heavy-duty straps, chains, or cables. Both front and rear straps must be directed down and outward from machine. Trailer must have signs and lights as required by law.

Transporting Machine

Driving Machine Safely on Roads

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



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

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

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

- Make sure SMV (Slow Moving Vehicle) emblem and warning lights are clean and visible. If towed or rear-mounted equipment obstructs these safety devices, install SMV emblem and warning lights on equipment.
- Rotate light switch to road position.
- Drive slowly enough to maintain safe control at all times. Slow down for hillsides, rough ground, and sharp turns, especially when transporting heavy, rear-mounted implements.
- Adjust tread width position of rear wheels to provide maximum stability.
- Disengage the MFWD to reduce tire wear.
- Never coast machine downhill.

Operating

Pushing or Towing Machine



CAUTION: Avoid injury! Never tow machine faster than 16 km/h (10 mph). If possible, have someone operate steering and brakes of towed tractor.

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

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

Replacement Parts

Service Literature

If you would like a copy of the Parts Catalog or Technical Manual for this machine call:

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

Parts

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

Part numbers may change, use part numbers listed below when you order. If a number changes, your dealer will have the latest number.

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 <http://JDParts.deere.com> for your Internet connection to parts ordering and information.

Part Numbers

Item	Part Number
Air Cleaner Assembly:	
• Primary Element	• M131802
• Secondary Element	• M131803
Engine Oil Filter	M806419
Fuel Filter Element	MIU800645
Alternator Belt - 40 Amp Alternator	M801821
Hydraulic Suction Oil Filter	LVA14703
Battery	TY26498
HST Charge Filter	LVA16054
Light Bulbs	
• Headlamp	• R136239
• Tail Lamp	• AR48041
• Flashers	• AD2062R
• Work Lamp (Option)	• 57M7358

Item	Part Number
Fuses:	
• 10 Amp	• 57M7689
• 20 Amp	• 57M7691
• 30 Amp	• 57M8163

(Part numbers are subject to change without notice. Part Numbers may be different outside the U.S.A.)

Service Intervals

Servicing Your Machine

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

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

Please use the following timetables to perform routine maintenance on your machine.

Park the vehicle safely. See Park Safely in the SAFETY Section.

As Needed

- Replace alternator belt.
- Replace air filter elements.
- Replace light bulbs.
- Replace fuses.
- Clean and replace battery.
- Replace radiator hoses and clamps.
- Check tire air pressure.
- Clean fuel tank overflow reservoir.
- Drain water and sediment from fuel tank, and service water separator.
- Check and adjust front wheel toe-in.
- Check and clean grille and side screens.
- Check and clean radiator cooling screen.
- Clean debris from engine compartment.

After First 10 Hours

- Check wheel bolt torque.

Every 10 Hours or Daily

- Test safety systems.
- Check engine oil level.
- Check transmission oil level.
- Check radiator coolant level.

Every 50 Hours

- Check front axle oil level.
- Lubricate machine.

Every 200 Hours

- Change engine oil and filter.
- Inspect alternator belt.
- Check wheel bolt torque.

Every 400 Hours

- Change transmission oil and filter.
- Replace fuel filter.

Every 600 Hours

- Check engine low idle speed.
- Check air filter element, intake, hoses, and clamps.
- Change front axle oil.
- Check front axle thrust bolt torque.
- Check brake adjustment.

Yearly

- Change engine oil and filter if less than 200 hours of operation.
- Drain water from fuel tank and replace fuel filter.
- Check all hoses and clamps.

Every 1200 Hours

- Check engine valve clearance. See your John Deere dealer.

Every Two Years or 2000 Hours

- Flush and replace factory coolant. Flush cooling system and replace coolant with John Deere COOL-GARD II engine coolant.
- Service fuel injection nozzles.

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

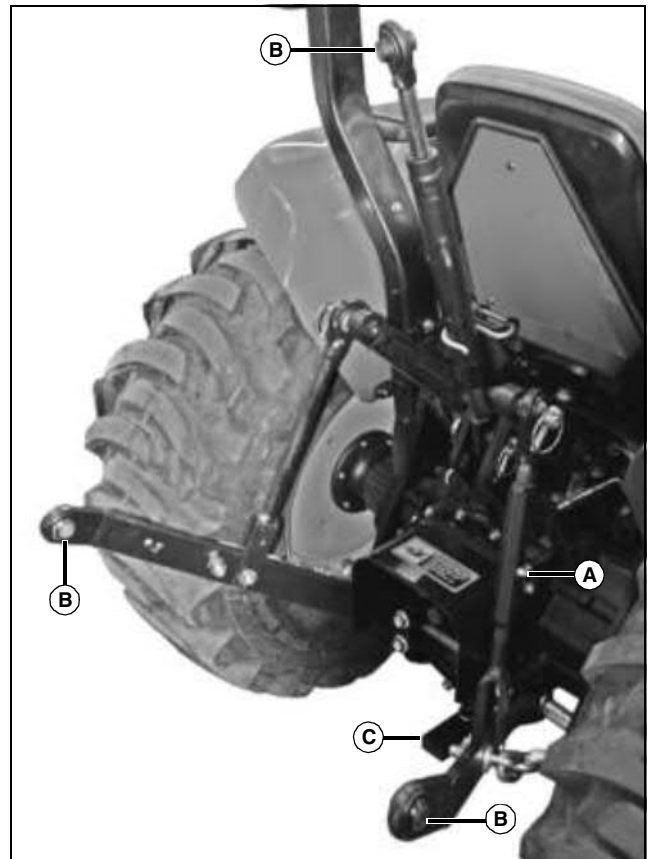
If not using any of the preferred greases, be sure to use a general all-purpose grease with an NLGI grade No.2 rating.

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

The following lubricant is preferred:

- SUPER LUBE® lubricant.¹

Lubricating 3 Point Hitch



MX27076

- Lubricate lift link grease fitting (A) with recommended grease or an equivalent.
- Lubricate ball joints (B) and drawbar (C) with SUPER LUBE lubricant.

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

Service Engine

Engine Warranty Maintenance Statement

Maintenance, repair, or replacement of the emission control devices and systems on this engine, which are being done at the customer's expense, may be performed by any non-road engine repair establishment or individual. Warranty repairs must be performed by an authorized John Deere dealer.

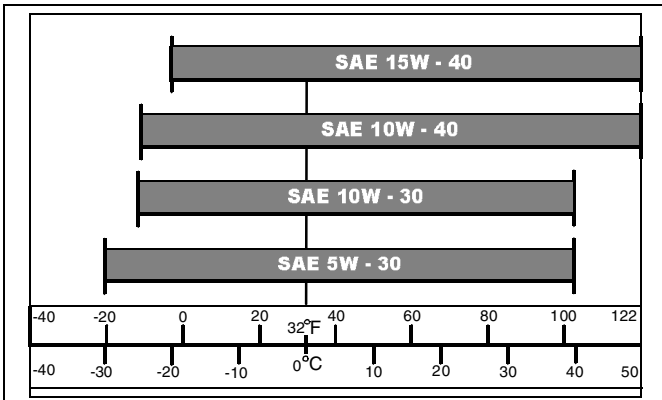
Avoid Fumes



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 the exhaust fumes out.

Engine Oil



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

The following John Deere oils are preferred:

- PLUS-50™
- TORQ-GARD SUPREME™

Other oils may be used if above John Deere oils are not available, provided they meet the following specification:

- API Service Classification CH or higher
- ACEA Specification E3 or higher

Checking Engine Oil Level

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

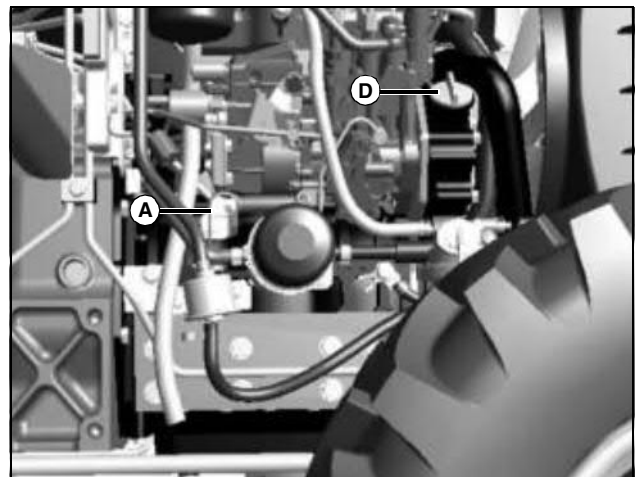
- Check oil level before operating.
- Check oil level when the engine is cold and not running.
- Keep level between the Full and the Add marks.
- Shut off engine before adding oil.

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

Check engine oil with machine parked on level surface.

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

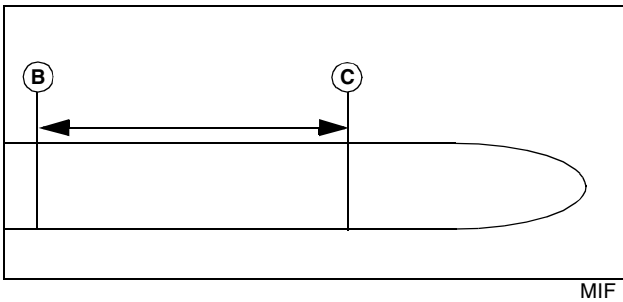
IMPORTANT: Avoid damage! Dirt and contamination can enter engine when checking oil level. Clean area around dipstick before loosening or removing.



MX40662

2. Remove dipstick (A). Wipe with a clean cloth.
3. Install dipstick.

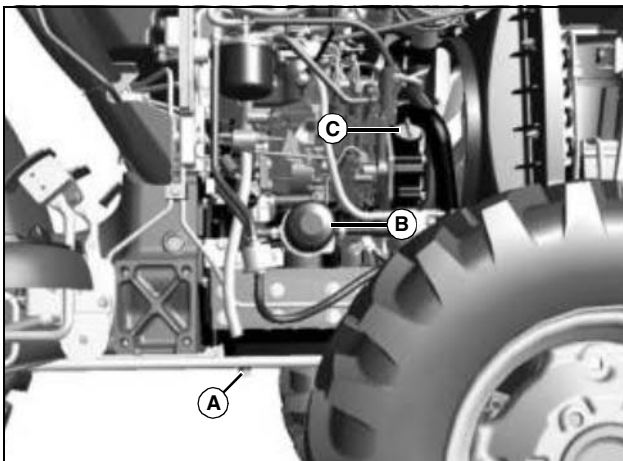
Service Engine



4. Remove dipstick.
5. Check oil level on dipstick. Oil level should be between levels (B) and (C) on dipstick.
6. If oil level is low:
 - a. Remove oil fill cap (D).
 - b. Add proper engine oil until oil level is within operating range on dipstick. Do not overfill.
7. Install oil fill cap (D).
8. If oil is above level (B) on the dipstick, drain to proper level.
9. Install dipstick.

Changing Engine Oil and Filter

1. Run engine to warm the oil.
2. Park machine safely. (See Parking Safely in the SAFETY section.)
3. Place drain pan under oil drain located on left side of engine.



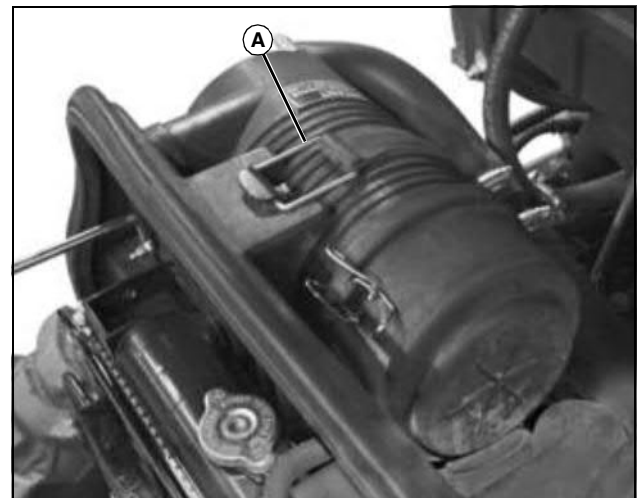
4. Remove drain plug (A).
5. Wipe dirt from around oil filter (B).
6. Turn filter counter-clockwise to remove.

7. Put a light coat of clean engine oil on the gasket of new filter.
8. Install replacement oil filter by turning filter clockwise until gasket contacts filter base. Tighten additional one-half turn.
9. Install drain plug. Do not overtighten.
10. Remove oil fill cap (C).
11. Add engine oil.
12. Install oil fill cap.
13. Start and run engine at idle to check for leaks.
14. Stop engine. Fix any leaks before operating.
15. Check engine oil level and add oil if necessary.

Servicing Air Filter Element

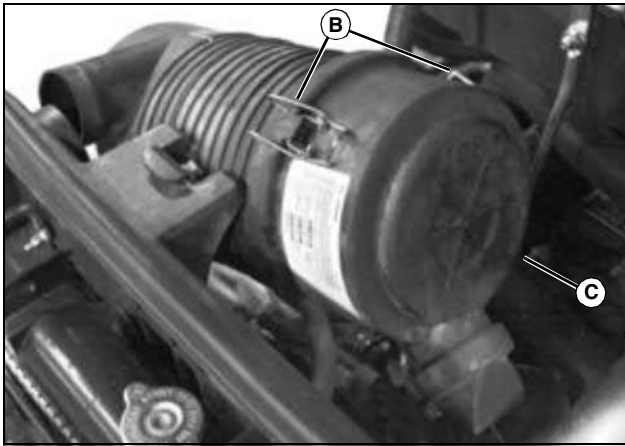
Servicing Primary Element:

1. Park the machine safely. (See Park Safely in the SAFETY section.)
2. Allow engine to cool.
3. Raise hood.



4. Remove strap (A).

Service Engine



MX27082

5. Tilt canister up and release latches (B) and remove air cleaner canister cover (C).



MX27083

6. Remove and discard primary element (D). Clean out any dirt in canister, taking care not to damage the secondary filter element. Replace with a new primary filter element.

7. Install air cleaner canister cover with rubber dust unloading valve pointing downward.

8. Secure latches.

9. Position canister back in place and install strap.

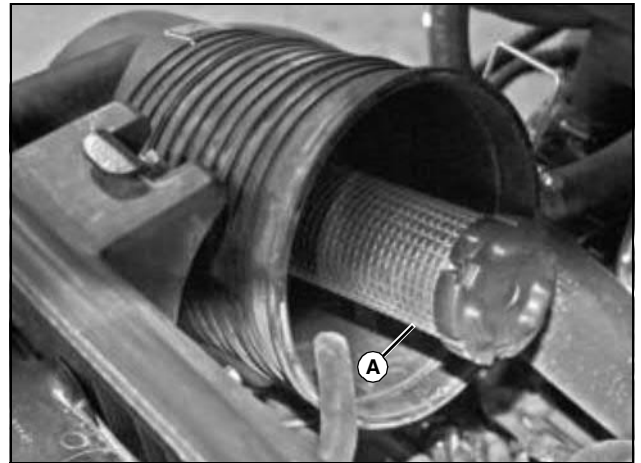
10. Check instruction molded into canister cover for proper installation.

11. Lower hood.

Servicing Secondary Element:

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

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



MX27084

3. Remove and discard secondary air filter element (A). Replace with a new secondary air filter element.

4. Install new primary air filter element.

5. Replace air cleaner canister cover.

6. Position canister back in place and install strap.

7. Lower hood.

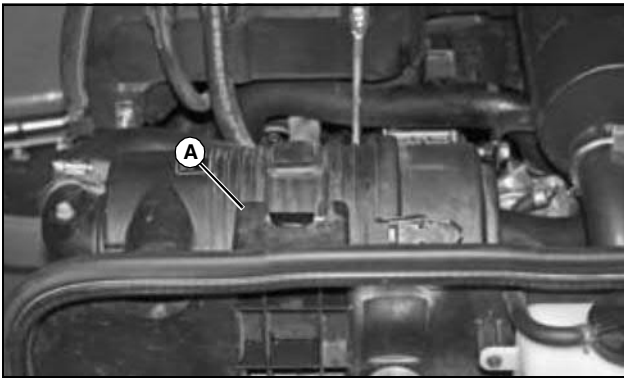
Checking Air Filter Hose

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

2. Raise hood.

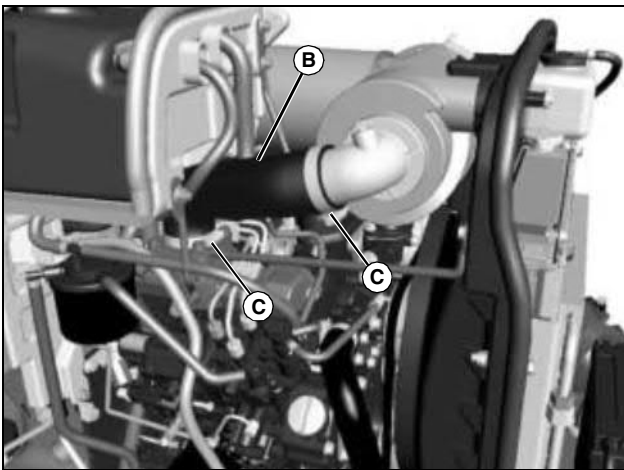
Service Engine

NOTE: Upper air intake flange must be properly installed into shroud adapter (A) on radiator support frame.



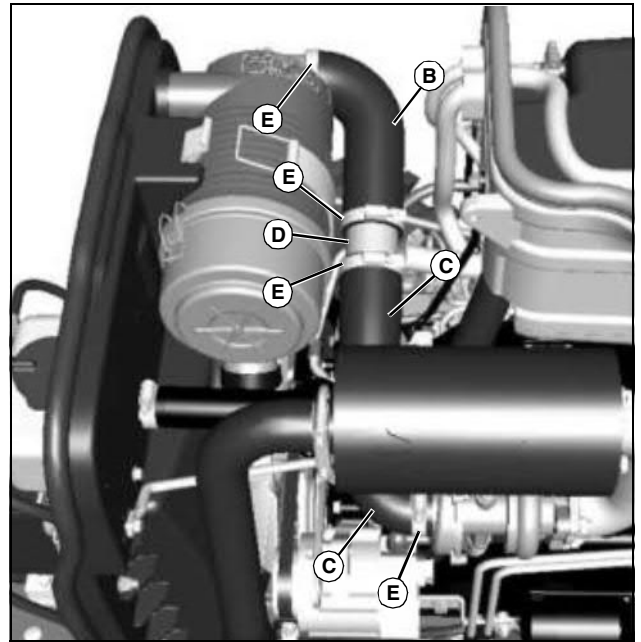
MX27073

3. Tighten hose clamps:



MX40863

- Model 3032E: Locate the lower air intake hose (B) and tighten two hose clamps (C).

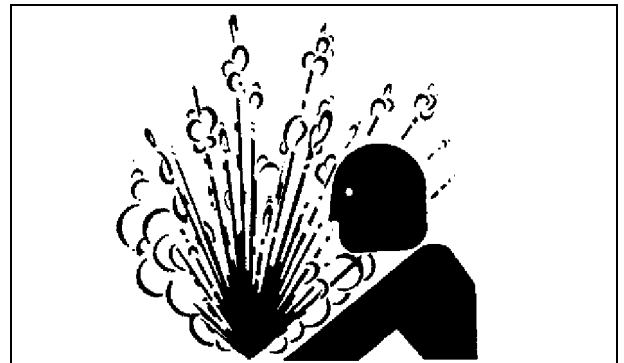


MX40815

- Model 3038E: Locate the two lower air intake hoses (B) and (C), and the tube fitting (D) below muffler, and tighten four hose clamps (E).

4. Lower hood.

Service Cooling System Safely



TS281

Service Engine



CAUTION: Avoid injury! The radiator will be hot and can burn skin. Built-up pressure may cause 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.

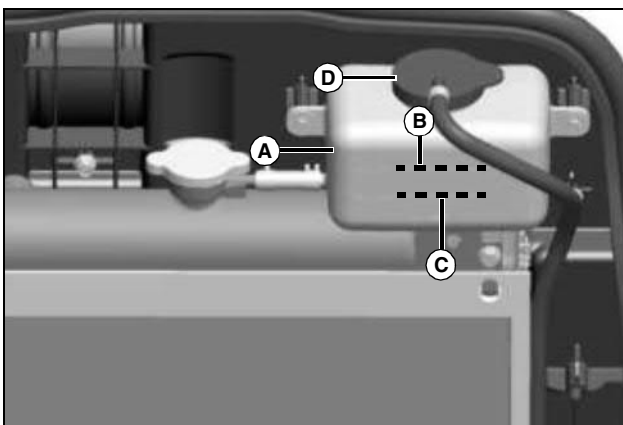
Checking Coolant Level

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

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

NOTE: If you suspect a leak, check the coolant level by removing the radiator cap and looking inside.

1. Park the vehicle safely. (See Park Safely in the SAFETY section.)
2. Allow engine to cool.
3. Raise hood.



MX40862

4. Check recovery tank (A) coolant level:
 - If engine is warm, coolant level should be between the FULL HOT line (B) and the FULL COLD line (C).
 - If engine is cold, coolant level should be at the FULL COLD line (C) on the recovery tank.
5. Remove recovery tank cap (D) if necessary to add

coolant.

6. Add pre-diluted coolant or specified ratio of antifreeze and water.
7. Install recovery tank cap.
8. If no coolant is present, check coolant in radiator first.
9. Lower hood.

Recommended Engine Coolant

IMPORTANT: Avoid damage! Using incorrect coolant mixture can cause overheating and damage to the radiator and engine:

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

The engine cooling system is filled to provide year-round protection against corrosion and cylinder liner pitting, and winter freeze protection to -37 degrees C (-34 degrees F). If protection at lower temperatures is required, consult your John Deere dealer for recommendations.

The following coolants are preferred:

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

John Deere COOL-GARD™ II Premix and John Deere COOL-GARD™ Premix are available in a concentration of 50% propylene glycol.

John Deere COOL-GARD™ PG Premix is available in a concentration of 55% propylene glycol.

Additional recommended coolants:

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

If the recommended coolants are unavailable, use an ethylene glycol or propylene glycol base coolant that meets the following specification:

- ASTM D3306 prediluted (50%) coolant.
- ASTM D3306 coolant concentrate in a 40% to 60% mixture of concentrate with water.

Check container label before using to be sure it has the appropriate specifications for your machine. Use coolant with conditioner or add conditioner to coolant before using.

Service Engine

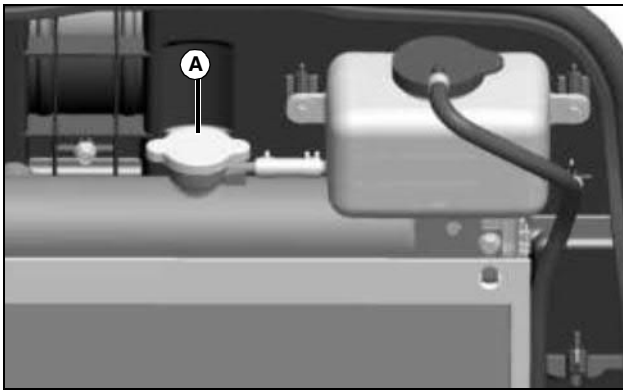
Water Quality

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

Servicing Cooling System

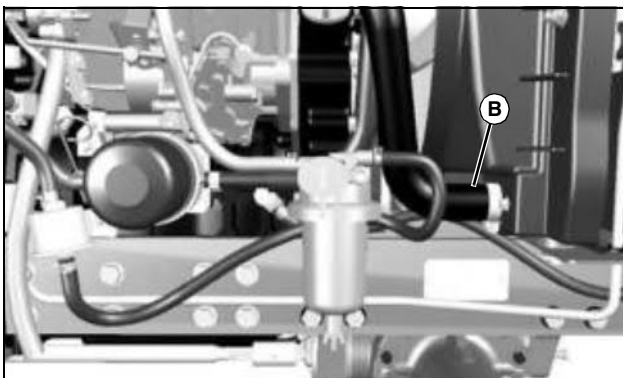
Draining Cooling System

1. Park machine safely. (See Parking Safely in the SAFETY section.)
2. Allow engine to cool.
3. Raise hood.



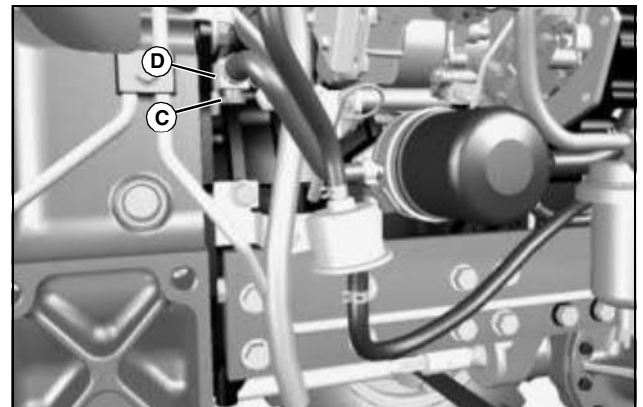
MX40862

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



MX40859

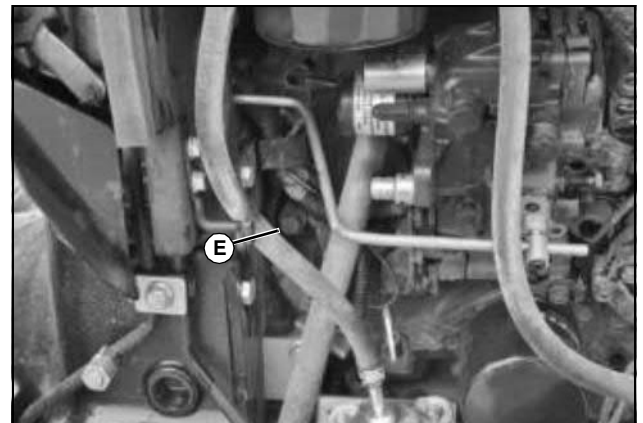
6. Position drain pan under radiator. Remove lower radiator hose (B) at radiator.
7. Drain coolant from engine:



MX40860

Picture Note: 3038E engine shown.

- Model 3038E: Locate drain plug (C) at bottom of oil cooler fitting (D) at right side of engine, behind the oil filter. Position drain pan under drain plug, remove drain plug and allow all coolant to drain.



MX27085

Picture Note: 3032E engine shown.

- Model 3032E: Locate drain plug (E) at right side of engine, behind the oil filter. Position drain pan under drain plug, remove drain plug and allow all coolant to drain.

8. After coolant drains from the recovery tank, remove radiator cap.
9. Install drain plug and lower radiator hose.
10. Flush cooling system.

Flushing Cooling System

1. Fill cooling system with recommended fluid.
2. Install and tighten radiator cap.
3. Start and run engine until it reaches operating temperature.
4. Stop engine.
5. Remove lower radiator hose at radiator.

Service Engine

6. Drain cooling system immediately before rust and dirt settle.
7. Replace lower radiator hose at radiator.

Filling Cooling System

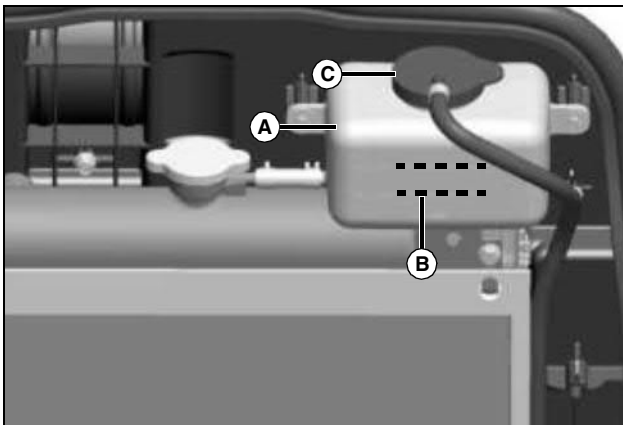
IMPORTANT: Avoid damage! Using incorrect coolant mixture can damage the radiator:

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

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

Follow the directions on the container for correct mixture ratio.

1. Allow radiator to cool.
2. Raise hood.
3. Fill cooling system.
4. Install and tighten radiator cap.
5. Run engine until it reaches operating temperature.
6. Stop engine.
7. Allow engine to cool. (Some coolant may be drawn into the radiator from the recovery tank during cool down.)

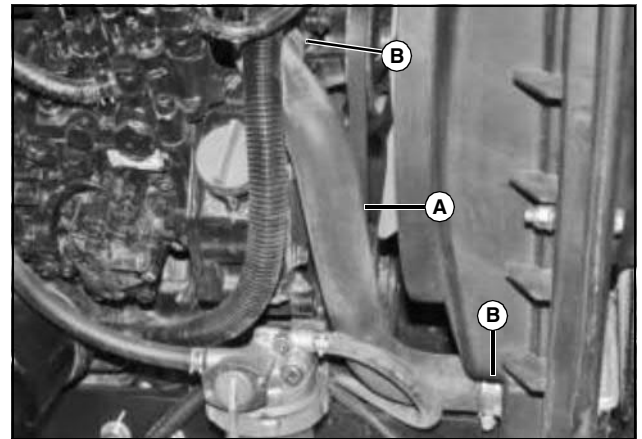


MX40862

8. Check recovery tank (A) coolant level:
 - After engine cools, coolant level should be at the FULL COLD line (B) on the recovery tank.
 - If no coolant is present, check radiator coolant level first.
9. Remove cap (C) from recovery tank to add coolant if necessary.
10. Lower hood.

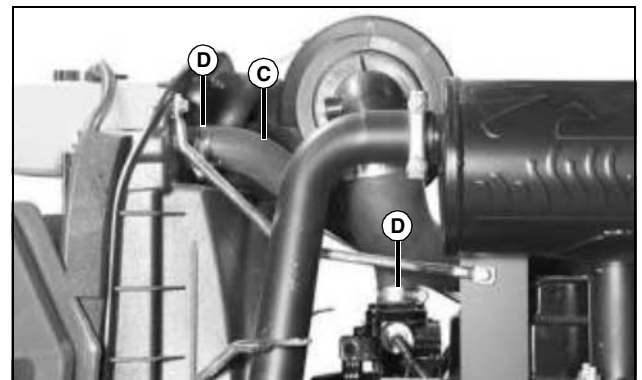
Checking Radiator Hoses

1. Park machine safely. (See Parking Safely in the SAFETY section.)
2. Allow engine to cool.
3. Raise hood.



MX27086

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



MX36770

6. Check upper radiator hose (C) for damage or cracking. Replace if necessary.
7. Tighten hose clamps (D) as needed.
8. Lower hood.

Servicing the Alternator Belt

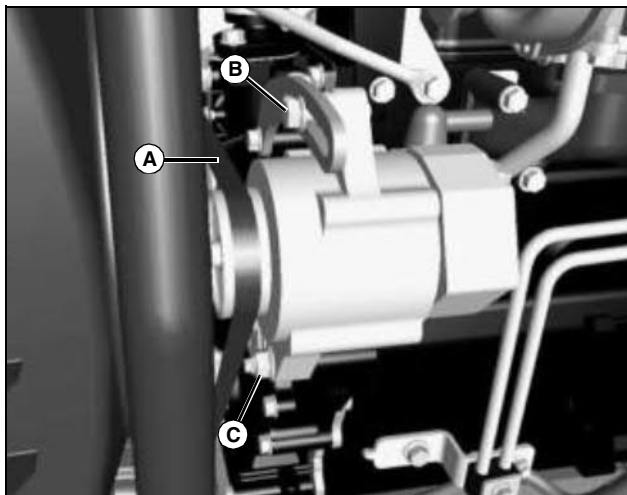


CAUTION: Avoid injury! Rotating parts can catch fingers, loose clothing, or long hair. Wait for engine and all moving parts to stop before leaving operator's station to adjust or service machine.

Service Engine

Checking Belt Tension

1. Park machine safely. (See Parking Safely in the SAFETY section.) Allow engine to cool.
2. Raise hood.



MX40816

3. Apply moderate thumb pressure to belt (A) halfway between the pulleys. Belt should deflect inward approximately 9 mm (3/8 in.).
4. Adjust belt tension if deflection is more or less than specified.

Adjusting Belt Tension

1. Loosen top adjusting bolt (B).
2. Loosen nut (C) on lower mounting stud.
3. Apply outward pressure to alternator housing until tension is correct.
4. Tighten hardware.
5. Check belt tension.
6. Lower hood.

Replacing Belt

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

1. Raise hood.
2. Disconnect black negative (-) cable from battery.
3. Loosen top adjusting bolt (B).
4. Loosen nut (C) on lower mounting stud.
5. Apply inward pressure to alternator housing.
6. Remove belt (A) from alternator sheave, fan sheave and crankshaft sheave.
7. Route defective belt over fan and remove.
8. Install new belt over fan and onto sheaves.

9. Apply outward pressure to alternator housing until tension is correct.
10. Tighten hardware.
11. Check belt tension. Adjust as necessary.
12. Connect black negative (-) cable to battery.
13. Lower hood.

Servicing Water Separator Sediment Bowl



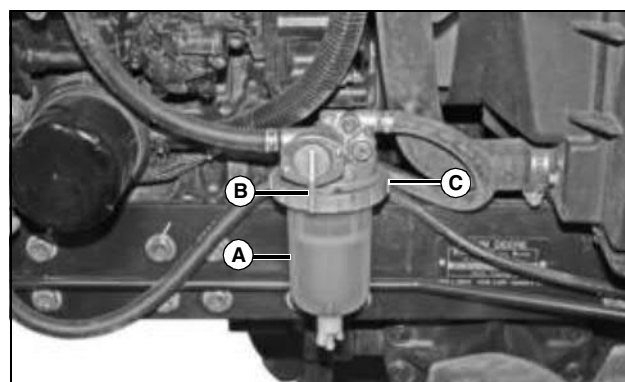
CAUTION: Avoid injury! Fuel vapors are explosive and flammable:

- 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. Park machine safely. (See Parking Safely in the SAFETY section.)
2. Allow engine to cool.

NOTE: Red ring in bottom of sediment bowl will float on water. If ring is floating, sediment bowl should be cleaned.



MX27078

3. Check for water and deposits in sediment bowl (A).
4. Clean sediment bowl and replace fuel filter if necessary.

Cleaning Water Separator Sediment Bowl

1. Close fuel shut-off valve (B).
2. Position drain pan under sediment bowl to catch fuel spillage.
3. Turn locking collar (C) counterclockwise to remove bowl.

Service Engine

4. Remove and retain the plastic ring and spring from sediment bowl.
 5. Clean bowl, plastic ring, and spring.
 6. Install plastic ring and spring in original position in sediment bowl.
 7. Place sediment bowl and locking collar in position.
 8. Tighten locking collar to filter head to secure.
 9. Open fuel shut-off valve.
- NOTE: Fuel system is self bleeding.**
10. Turn key switch to ON to bleed fuel system.

Cleaning Fuel Filter Sediment Bowl and Replacing Filter

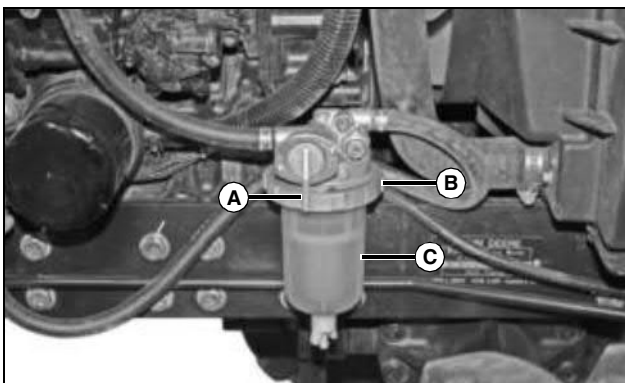


CAUTION: Avoid injury! Fuel vapors are explosive and flammable:

- 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. Park machine safely. (See Parking Safely in the SAFETY section.) Allow engine to cool.
2. Raise hood.



MX27078

3. Close fuel shut-off valve (A).
4. Position drain pan under fuel filter sediment bowl to catch fuel spillage.
5. Turn locking collar (B) counterclockwise to remove bowl (C).

6. Remove and discard the fuel filter.
 7. Remove and retain the plastic ring and spring from sediment bowl.
 8. Clean bowl, plastic ring, and spring.
 9. Install plastic ring and spring in original position in sediment bowl.
 10. Install new filter to filter head.
 11. Place sediment bowl and locking collar in position.
 12. Tighten locking collar to filter head to secure.
 13. Open fuel shut-off valve.
 14. Lower hood.
- NOTE: Fuel system is self bleeding.**
15. Turn key switch to ON to bleed fuel system.

Replacing Fuel Filter

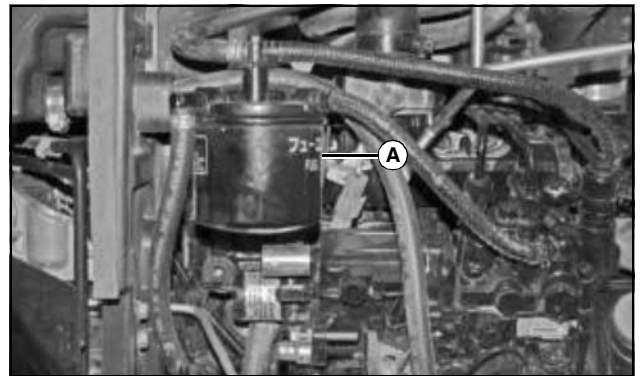


CAUTION: Avoid injury! Fuel vapors are explosive and flammable:

- 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. Park machine safely. (See Parking Safely in the SAFETY section.)
2. Allow engine to cool.
3. Close fuel shut-off valve.



MX27087

4. Position drain pan under fuel filter (A) to catch fuel

Service Engine

spillage.

5. Turn filter counterclockwise to remove and discard.
6. Apply fuel to surface of new filter gasket.
7. Install new filter to filter head. Tighten to one complete turn after filter contacts head.
8. Open fuel shut-off valve.

Fuel Injection Pump

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

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

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

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

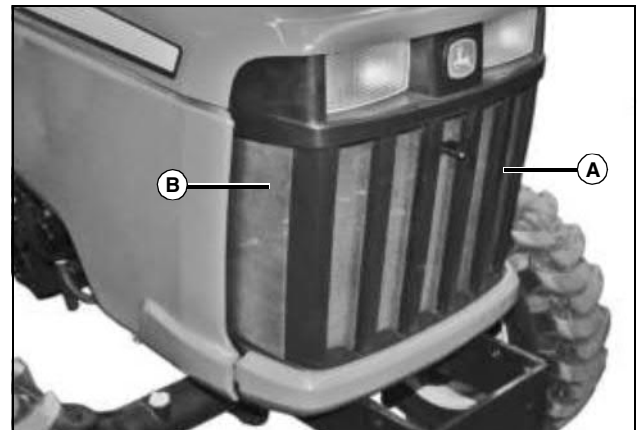
Fuel Injection Nozzles

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

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

Cleaning Grille and Side Screens

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



MX27088

1. Check grille (A) and side screens (B), on both sides, for dirt, grass clippings and debris.
2. Clean with a brush or cloth.

Cleaning Radiator Screen and Fins



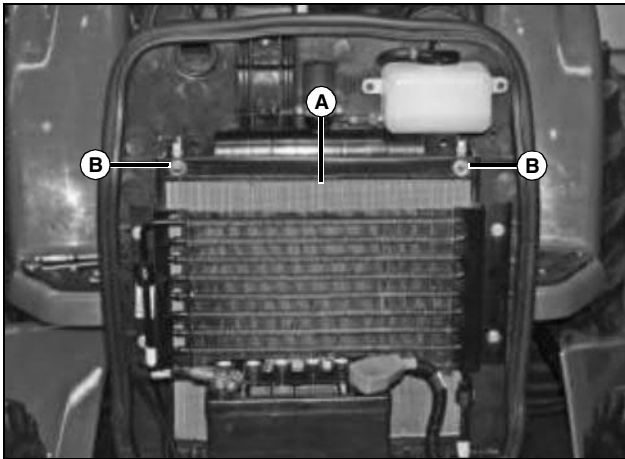
CAUTION: Avoid injury! Compressed air can cause debris to fly a long distance.

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

IMPORTANT: Avoid damage! The radiator cooling screen must be clean to prevent engine from overheating and to allow adequate air intake.

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

Service Engine



MX27072

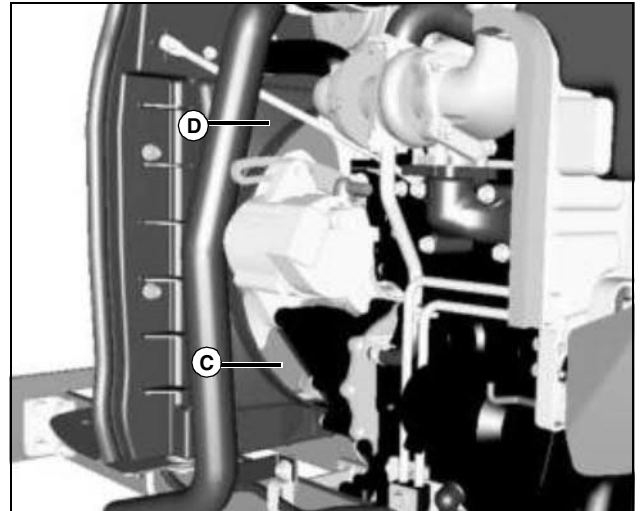
3. Lift and remove radiator screen (A) off of clips (B) on top of radiator.

4. Clean screen with compressed air, brush or cloth, or screen may be carefully washed to remove dirt and debris.

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

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

Reduce compressed air pressure to 210 kPa (30 psi) when cleaning radiator and cooling fins. Spray compressed air straight into radiator. Do not spray radiator on an angle or cooling fins will be bent.



MX40660



MX27071

5. Remove all dirt and debris from radiator fins (C), and fan shroud (D) using compressed air or water.

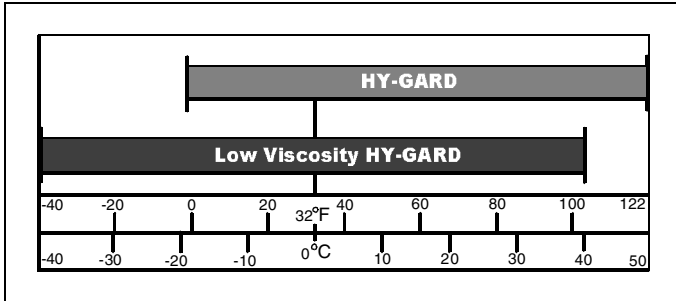
6. Install radiator screen.

7. Lower hood.

Service Transmission

Transmission and Hydraulic Oil

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



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

John Deere Low Viscosity HY-GARD™ transmission/hydraulic fluid is recommended. John Deere HY-GARD transmission/hydraulic fluid may also be used for temperatures above -18° C (0° F).

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

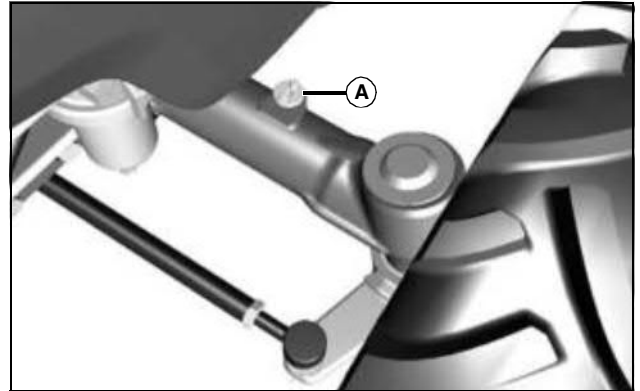
Checking Front Axle Oil Level

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

NOTE: Check front axle oil level with machine parked on level surface.

1. Park machine safely. (See Parking Safely in the SAFETY section.) Allow machine to cool down for at least one hour.

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



MX40812

2. Loosen and remove dipstick (A) located on right side of front axle.

3. Wipe dipstick clean with a rag. Install and tighten dipstick.



MX4775

4. Remove dipstick again. Oil level should be indicated on the dipstick, but not above the full line (B). If oil level is low:

- Add recommended oil through dipstick fill opening until oil level is correct.
- Install and tighten dipstick.

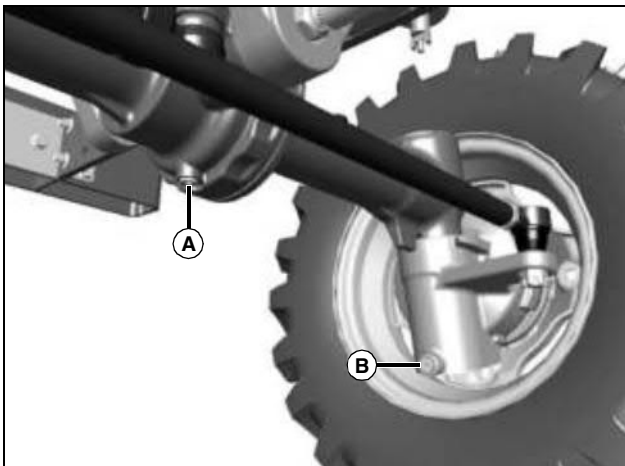
5. Check front axle oil level again after the first several hours of operation.

Changing Front Axle Oil

1. Operate machine to warm front axle oil.

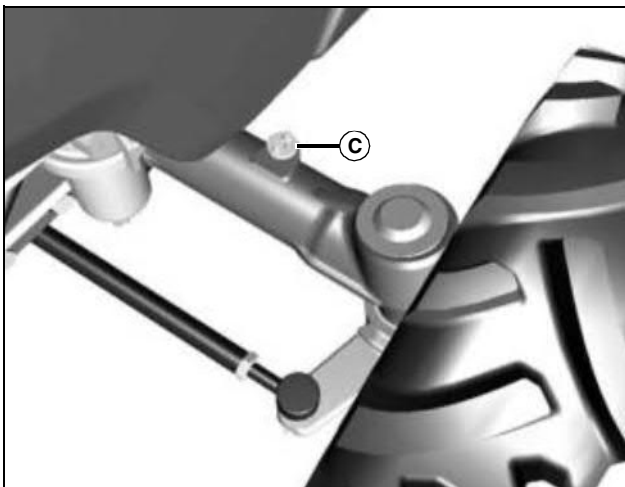
2. Park machine safely. (See Parking Safely in the SAFETY section.)

Service Transmission



MX40811

3. Position drain pan under differential drain plug (A).
4. Remove differential drain plug and allow oil to drain.
5. Position drain pan under axle drain plug (B) on both sides of front axle.
6. Remove axle drain plugs and allow oil to drain.
7. Install and tighten all three drain plugs after all oil has drained.



MX40812

8. Remove dipstick (C) located on right side of front axle.
9. Add recommended oil into dipstick filler opening.
10. Install and tighten dipstick.

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

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

11. Check front axle oil level.

Adjusting Front Axle Thrust Bolt Torque

NOTE: Adjust bolt torque at the required service interval to prevent excessive forward and rearward movement of the front axle.

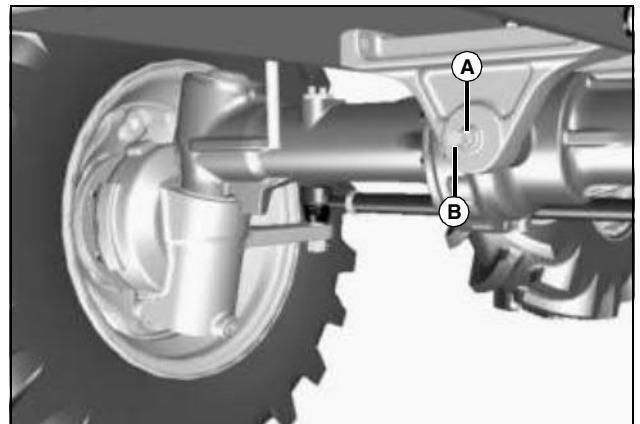
1. Park machine safely. (See Parking Safely in the Safety section.)



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.

2. Raise front axle off ground to take machine weight off the front axle.



MX40861

3. Loosen jam nut (A).
4. Tighten bolt (B) to 14 N•m (10 lb-ft). Do not overtighten.
5. Oscillate axle from stop to stop. Check torque.
6. Tighten back the jam nut.
7. Lower front axle back to ground.

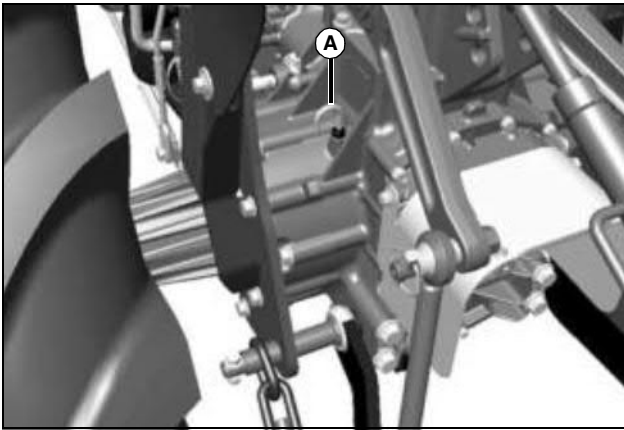
Checking Transmission Oil Level

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

NOTE: Check transmission oil level with machine parked on level surface.

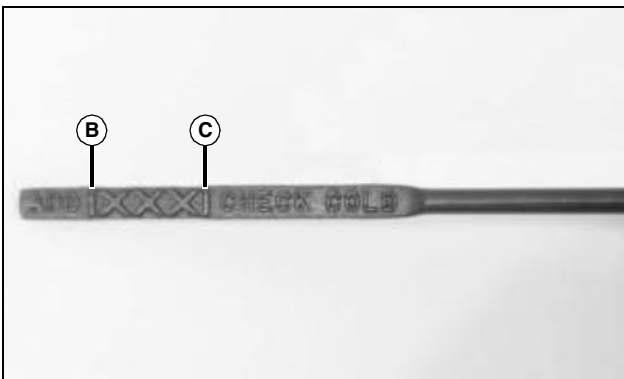
1. Park machine safely. (See Parking Safely in the SAFETY section.) Allow machine to cool down for at least one hour.

Service Transmission



MX40663

2. Remove dipstick (A) located at left side of transaxle. Wipe dipstick with a clean rag.
3. Install dipstick.



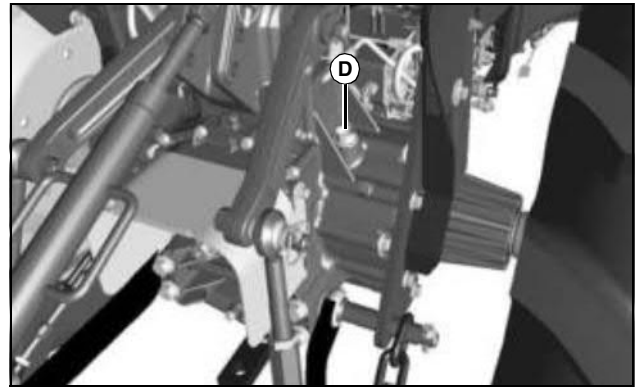
MX4777

4. Remove dipstick and check oil level. Oil level should be between the minimum (B) and maximum (C) lines.

IMPORTANT: Avoid damage! Help prevent dirt and other contaminants from entering the transmission. Clean area around fill cap before removing.

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

5. If oil level is low:



MX40664

- Remove oil fill cap (D) located at right side of transaxle. Add recommended oil at fill cap location.
6. Install and tighten fill cap.
 7. Recheck oil level.

Changing Transmission Oil and Hydraulic Suction Oil Filter



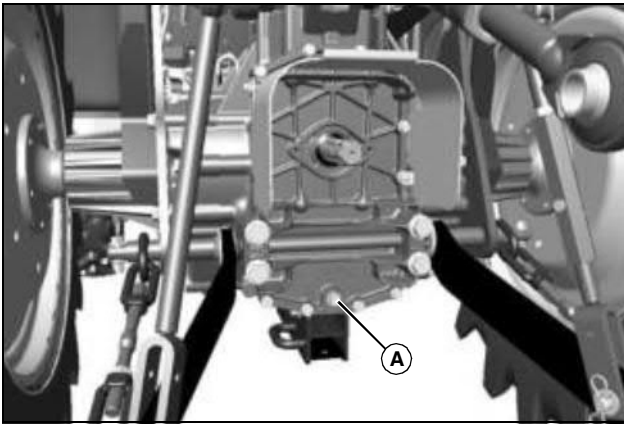
CAUTION: Avoid injury! Touching hot surfaces can burn skin. The engine, components, and fluids will be hot if the engine has been running. Allow the engine to cool before servicing or working near the engine and components.

IMPORTANT: Avoid damage! If there is evidence of severe oil contamination, it may be necessary to change the oil several times. Contamination of hydraulic fluid could cause transmission damage or failure.

Severe or unusual conditions may require a more frequent service interval.

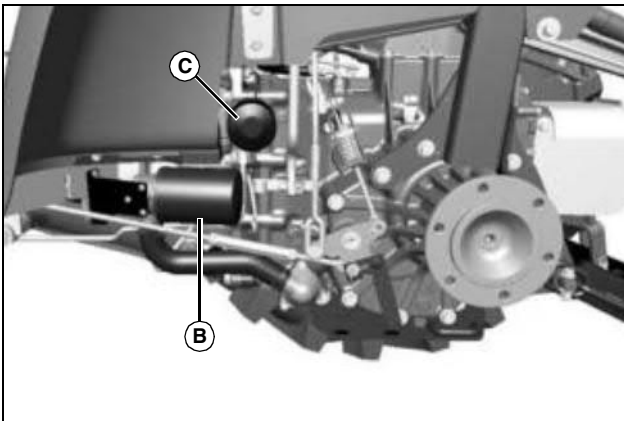
1. Drive tractor a few minutes to warm and mix transmission oil.
2. Park machine safely. (See Parking Safely in the SAFETY section.)

Service Transmission



MX40813

3. Position drain pan under transmission drain plug (A) at rear cover and suction filter assembly and spin-on pressure filter at left side of transmission. Remove plug and allow oil to drain.



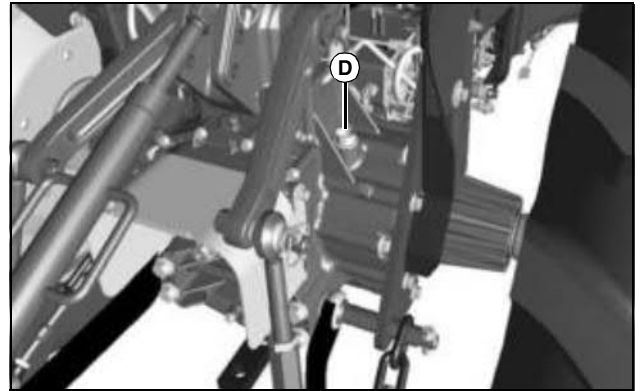
MX40814

Picture Note: Shown with left rear tire removed for better view.

4. Remove suction filter (B) and allow oil to drain.
5. Remove and HST filter (C) and allow oil to drain.
6. Install transmission drain plug.
7. Replace both filters.

IMPORTANT: Avoid damage! Help prevent dirt and other contaminants from entering the transmission. Clean area around fill cap before removing.

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



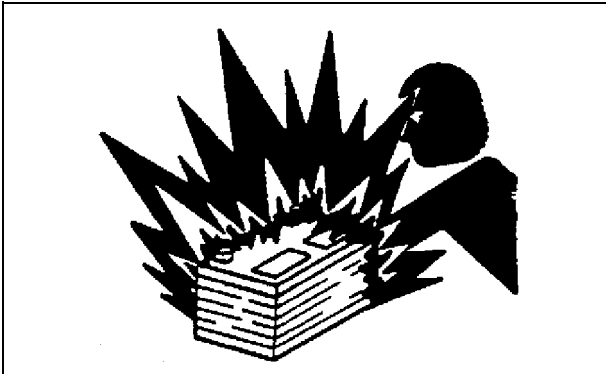
MX40664

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

Service Electrical

WARNING: 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.**

Service the Battery Safely



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.

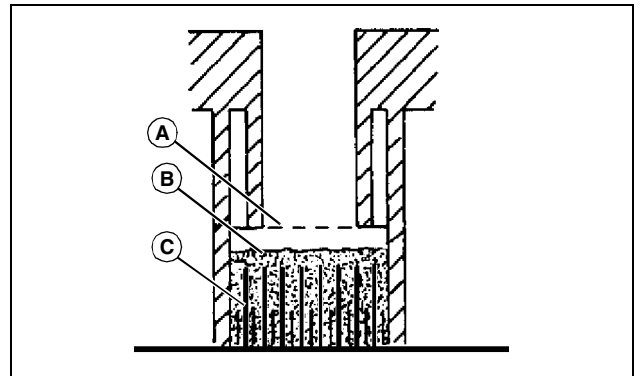
The battery produces a flammable and explosive gas. The battery may explode:

- 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.

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.



M39772

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.

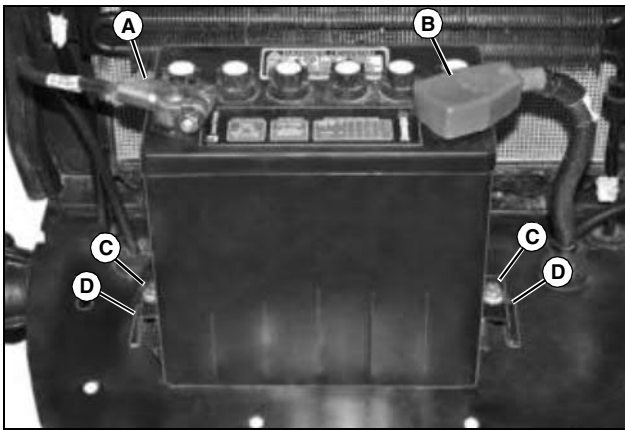
4. Add only distilled water if necessary.
5. Install battery cell caps.

Removing and Installing Battery

Removing:

1. Park machine safely. (See Parking Safely in the SAFETY Section.)
2. Raise hood.

Service Electrical



MX27089

Picture Note: Shown with grille removed.

3. Disconnect negative (-) battery cable (A).
4. Push red cover (B) back away from positive (+) battery cable and remove cable from battery.
5. Loosen bolts (C) and remove battery compartment hold-down brackets (D).
6. Remove battery.

Installing:

1. Install battery into machine.
2. Connect positive (+) cable to battery positive (+) terminal first, then negative (-) cable to battery negative (-) terminal.
3. Apply spray lubricant to terminals to prevent corrosion.
4. Slide red cover over positive battery cable.
5. Install battery compartment hold-down brackets and bolts. Do not overtighten.
6. Lower hood.

Cleaning 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.

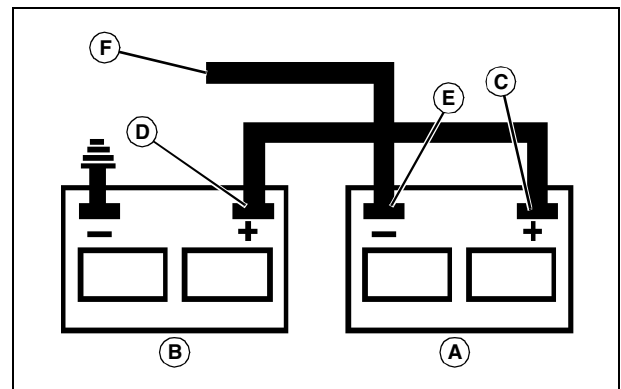
8. Apply spray lubricant to terminal to prevent corrosion.

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.



M71044

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

Service Electrical

from battery.

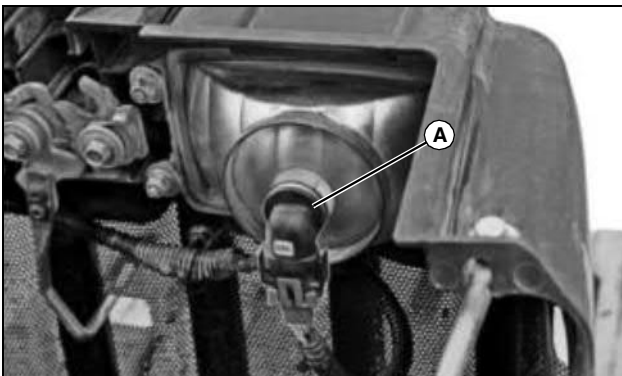
5. Start the engine of the disabled machine and run machine for several minutes.
6. Carefully disconnect the booster cables in the exact reverse order: negative cable first and then the positive cable.

Replacing Headlight Bulb



CAUTION: Avoid injury! Halogen light bulb contains gas under pressure. The bulb may shatter if the glass is scratched or dropped. Wear eye protection and handle bulb with care when replacing.

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



MX27090

Picture Note: Harness (A) shown in locked position.



MX27091

Picture Note: Harness (A) shown in unlocked position.

3. Rotate harness (A) counter-clockwise to unlock, and carefully remove from light.

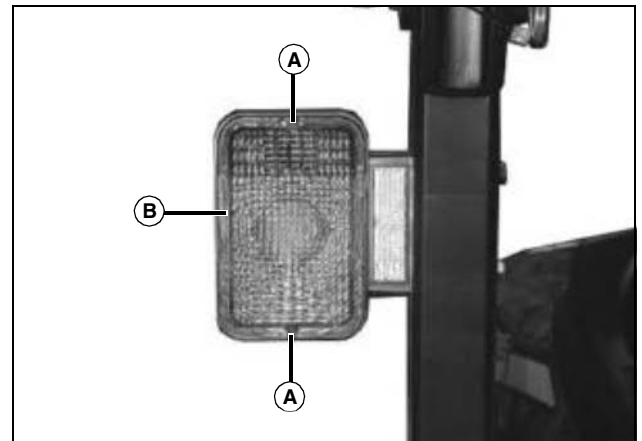
NOTE: Do not touch the new bulb with bare hands. Use a clean cloth to install, and hold the bulb only by the metal base.

4. Remove bulb from harness and install new bulb.
5. Install harness into light and rotate clockwise to lock in place.
6. Check operation of headlights.
7. Lower hood.

Replacing Light Bulbs

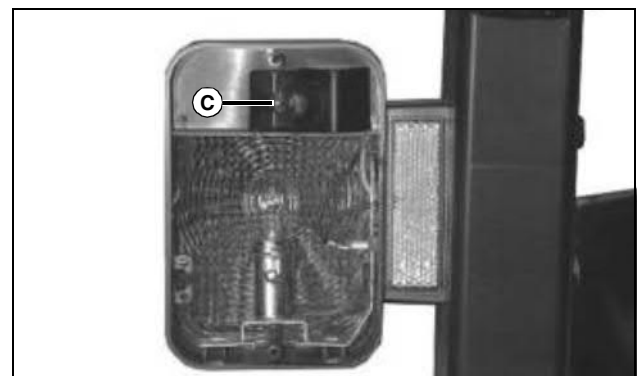
Replacing Taillight Bulb

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



MX20946

2. Remove two screws (A) and lens (B).



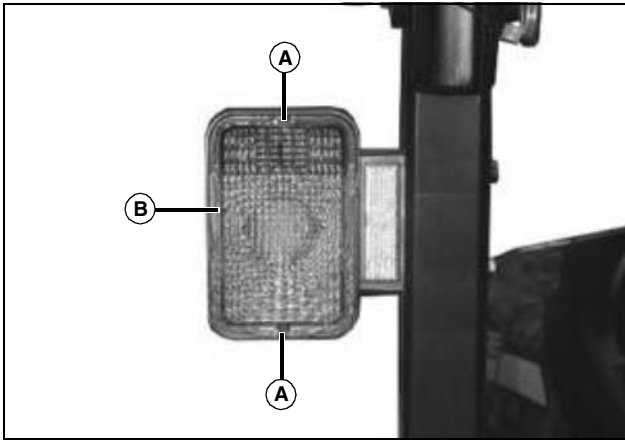
MX20947

3. Pull bulb (C) straight out to remove. Do not twist bulb.
4. Push new bulb into socket.
5. Check operation of taillights.
6. Install lens and screws.

Service Electrical

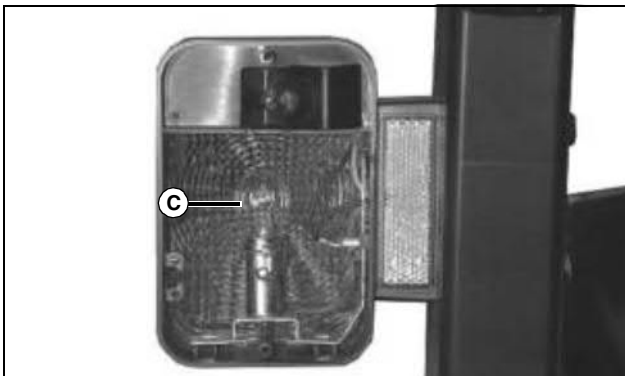
Replacing Warning Light Bulb

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



MX20946

2. Remove two screws (A) and lens (B).



MX20947

3. Push down and rotate bulb (C) to remove. Do not twist bulb.

4. Push down and rotate new bulb into socket.

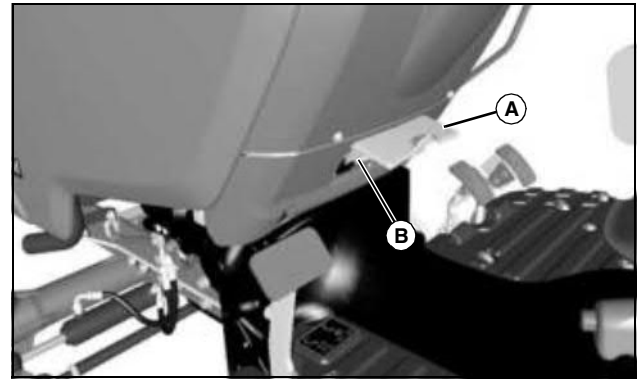
5. Check operation of warning lights.

6. Install lens and screws.

Replacing Fuses

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

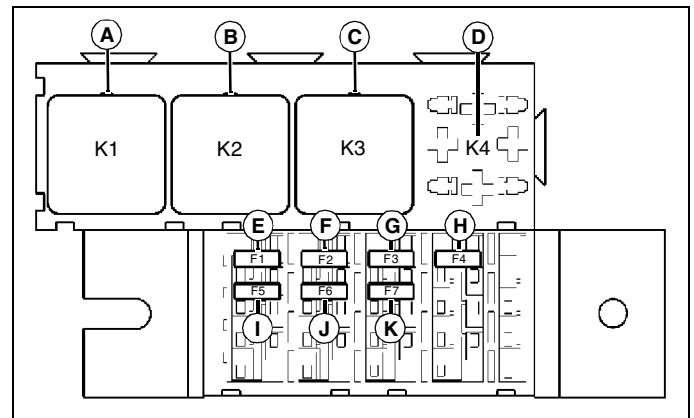
1. Park machine safely. (See Parking Safely in the SAFETY section.)



MX40658

2. Remove cover (A) in front panel to access fuse block (B) through opening.

3. Fuse identification:



MX40659

Position	Circuit	Fuse Size
K1 (A)	Fuel Shutoff Relay	N/A
K2 (B)	Starting Relay	N/A
K3 (C)	Glow Plug Relay	N/A
K4 (D)	Not Used	N/A
F1 (E)	Key Switch/Display	20 amp
F2 (F)	Light Switch (All)	30 amp
F3 (G)	Headlights	10 amp
F4 (H)	Display / Tail Lights	10 amp
F5 (I)	All Switched Power	10 amp
F6 (J)	Cruise (option)	10 amp
F7 (K)	Work Light	20 amp

4. Pull defective fuse from socket.

5. Push new fuse into socket.

Service Miscellaneous

Using Proper Fuel (Diesel)

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

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

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

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

Required fuel properties

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

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

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

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

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

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

Sulfur content

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

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

Using Bio-Diesel Fuel

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

The current maximum allowable bio-diesel concentration is a 5% blend (also known as B5) in petroleum diesel fuel.

Concentrations up to B20 may be used if machine is modified with genuine John Deere B20 kit. Use of B6-B20

fuel will require maintenance interval changes from some components, and special procedures for fuel handling and machine storage.

To learn of any changes to the recommendations for bio-diesel usage with your diesel engine, ask your John Deere dealer or reference the Services and Support link on the John Deere Commercial and Consumer Equipment website.

Handling and Storing Diesel Fuel



CAUTION: Avoid injury! Handle fuel carefully. Do not fill the fuel tank when engine is running. Do not smoke while you fill the fuel tank or service the fuel system.

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

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

Filling Fuel Tank



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

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

Service Miscellaneous

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

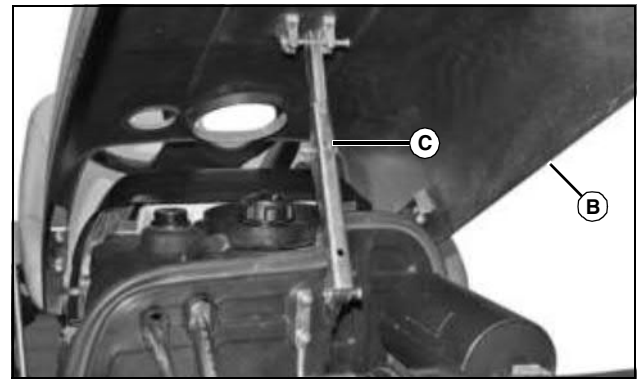
- Clean dirt and debris from the fuel tank opening.
- Use clean, fresh, stabilized fuel.
- Fill the fuel tank at the end of each day's operation to keep condensation out of the fuel tank.
- Use a non-metallic funnel with a plastic mesh strainer when filling the fuel tank or container.

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

1. Park machine safely. (See Parking Safely in the SAFETY section.)
2. Allow engine to cool.
3. Remove any trash 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.
6. Install fuel tank cap.
 - Gas models: Turn cap until clicks.



MX27074



MX27075

Raising and Lowering Hood

Raising

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

2. Pull hood release lever (A) to the left.
3. Raise hood (B) until support rod (C) locks into place.

Lowering

1. Lift hood (B) slightly to remove weight from support rod (C).
2. Pull support rod toward front of tractor and lower hood.

Checking Wheel Bolts and Hardware



CAUTION: Avoid injury! Check rim, hub, and axle hardware periodically to prevent possible machine roll-over.

When machine is new or anytime wheel hardware is loosened, tighten all bolts after one hour of operation and every four hours thereafter until proper torque values are maintained.

Tightness of wheel hardware must be maintained according to service interval recommendations. Check wheel bolt tightness as follows:

Front Wheel Bolts

Tighten front wheel bolts alternately to 140 N•m (103 lb-ft).

Service Miscellaneous

Rear Wheel Bolts

Tighten rear wheel bolts alternately to 140 N•m (103 lb-ft).

Removing and Installing Wheels



CAUTION: Avoid injury! Remove wheels safely.

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

Front Wheel Removal

1. Loosen lug nuts slightly before raising front axle.
2. Raise front of machine and lower onto support stands so that machine is supported by front axle.
3. Remove lug bolts and wheel.

NOTE: If the front wheels are being removed to perform work on the front axles, lower machine onto suitable stands that will support the machine by the frame.

Front Wheel Installation

1. Install wheels onto axle, insert lug bolts and lightly tighten bolts.
2. Raise front of machine, remove support stands and lower machine to floor.
3. Tighten lug bolts to 140 N•m (103 lb-ft).

Rear Wheel Removal

1. Loosen lug bolts slightly before raising machine rear axle.
2. Raise rear of machine and lower onto support stands so that machine is supported by rear axle.
3. Remove lug bolts and wheel.

Rear Wheel Installation:

1. Install wheels onto axle, insert lug bolts and lightly tighten bolts.
2. Raise rear of machine, remove support stands and lower machine to floor.
3. Tighten lug bolts to 140 N•m (103 lb-ft).

Checking Tire Pressure



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

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

1. Check tires for damage.
2. See tire pressures in SPECIFICATIONS.
3. Check tire pressure with an accurate gauge.
4. Add or remove air, if necessary

Selecting Front Tire Rolling Direction



CAUTION: Avoid injury! Remove wheels safely.

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

Machines equipped with directional type tires (such as bar tires) have directional arrows located on the tire sidewall. Under most conditions, tires should be installed with the directional arrow pointing in the direction of travel.

If machine is mainly used for loader operations, lug direction may be reversed to increase tire life and improve traction while backing out of dirt piles.

Move wheel from one side of machine to the other to change tire rolling direction.

Service Miscellaneous

Changing Wheel Spacing and Tread Width

In special cases, front tires can be set to the wide position; however, the wide position cannot be used for loader operation. Using the wide position during loader operation will reduce front axle life.

Rear tires can be mounted in one position only.



CAUTION: Avoid injury! Remove wheels safely.

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

IMPORTANT: Avoid damage! Always make sure tires rotate in proper direction. Arrows on sidewall should point in direction of forward rotation.

Mounting Guidelines

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

Rear Tire Tread Width Dimensions

Rear Tire Size	Tread Width
15.00-19.5 R4 GA	1,08 m (42.8 in.)
41x14.00-20 R3 GA	1,10 m (43.5 in.)
11.2-24 R1 GA	1,15 m (45.2 in.)

Front Tire Tread Width Dimensions

Front Tire Size	Position	Tread Width
25x8.50-14 4PR R4 GA	(Narrow)	1,08 m (42.8 in.)
27x8.50-15 4PR R3 GA	(Narrow)	1,06 m (41.7 in.)
7.00-14 4PR R1 GA	(Narrow)	1,06 m (41.7 in.)
25x8.50-14 4PR R4 GA	(Wide)	1,25 m (49.4 in.)
27x8.50-15 4PR R3 GA	(Wide)	1,28 m (50.5 in.)
7.00-14 4PR R1 GA	(Wide)	1,28 m (50.3 in.)

* Do not install tires with chains in this position.

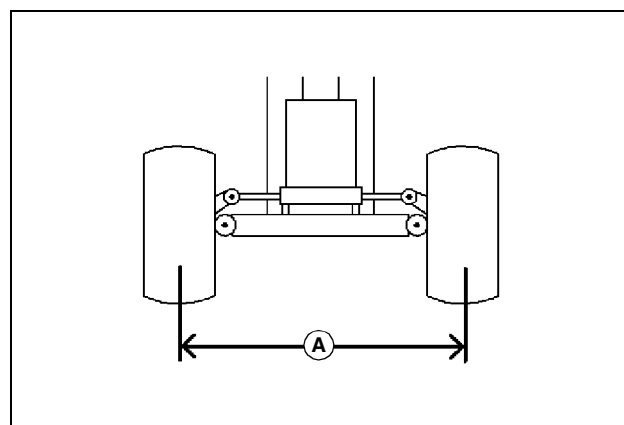
Checking and Adjusting Toe-In

1. Stop machine on a firm, level surface.
2. Disengage MFWD if equipped.
3. Turn steering wheel so front wheels are pointing straight ahead.
4. Park machine safely. (See Parking Safely in the SAFETY section.)

Checking Toe-In

NOTE: If front axle is equipped with bar tires, use an outside bar of each tire or an inside bar of each tire for marking the center line.

1. Mark the center line of each tire at hub height and to the front of the axle using chalk.

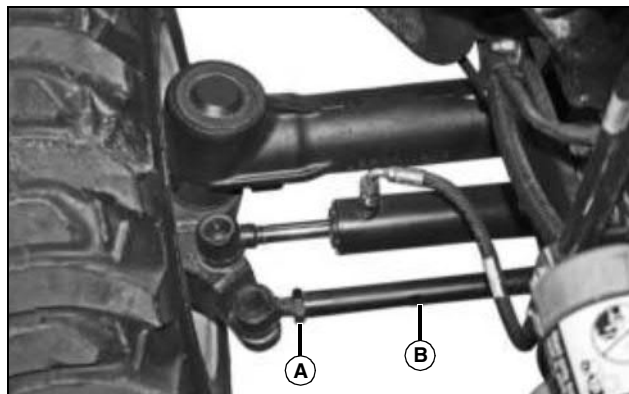


MX22981

2. Measure and record distance (A) between the center lines of each tire.
3. Drive machine forward or rearward slightly until chalk mark moves 180° to the rear of the axle.
4. Park machine safely. (See Parking Safely in the SAFETY section.)
5. Measure and record distance (A) again between the chalk marks.
6. Determine the difference between front and rear measurements. Distance (A) may be larger at front or rear measurement but should not exceed 3 mm (1/8 in.). Adjust toe-in if necessary.

Service Miscellaneous

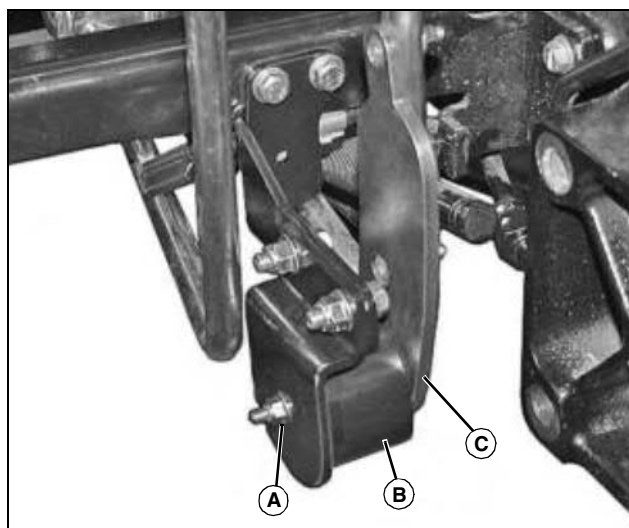
Adjusting Toe-In



MX27092

1. Loosen jam nuts (A) on both ball joints.
2. Rotate tie rod (B) clockwise or counterclockwise to adjust the amount of toe-in. Adjust tie rod until toe-in measurement is within correct specification.
 - Rotating threaded rod in 1/2 turn increments equals 1.5 mm (1/16 in.).
3. Tighten jam nuts to 120 N•m (88 lb-ft).
4. Check toe-in setting. Repeat procedure if further adjustment is required.

Adjusting Cruise Control (If equipped)



MX27234

1. Loosen M6 flange locknut (A) until there is a 5 - 10mm gap between magnet (B) and guide plate (C). A small gap should always be maintained between magnet and guide plate.
2. Sit on operators seat, unlock park brake and turn key to ON position. Do not start engine.

3. Press forward travel pedal and press switch to activate cruise control. Ensure that magnet (B) engages guide plate (C) and secures forward travel pedal.
4. Press switch to deactivate cruise control. Magnet should disengage guide plate and travel pedal should return to neutral.
5. If magnet fails to engage or disengage, readjust gap between magnet and guide plate by loosening or tightening the M6 flange locknut (A).
6. Check brake disengagement:
 - a. Sit on operators seat, unlock park brake and turn key to ON position. Do not start engine.
 - b. Press forward travel pedal and press switch to activate cruise control. Ensure that magnet engages guide plate and secures forward travel pedal.
 - c. If brake does not disengage forward travel pedal, adjust brake switch.
7. If cruise control does not engage or disengage properly during operation, perform previous steps to adjust.

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.

Service Miscellaneous

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.

Troubleshooting

Using Troubleshooting Chart

If you are experiencing a problem that is not listed in this chart, see your John Deere distributor for service.

When you have checked all the possible causes listed and you are still experiencing the problem, see your John Deere distributor.

Engine

If	Check
Engine Will Not Crank	Transmission gear shift lever not in neutral position. PTO engaged. Battery low on charge. Poor battery or ground connection Blown fuse. Electrical problem.
Engine Will Not Start	Wrong engine oil viscosity. Engine hand throttle lever not pushed forward. Cold start system not being used, or malfunctioning. Stale fuel / improper fuel / fuel level. Plugged fuel filter. Dirty or faulty fuel injectors. Failed fuel solenoid.
Engine Runs Rough Or Stalls	Engine hand throttle lever not pushed forward. Plugged fuel filter. Plugged air intake system. Fuel cap vent dirty. Faulty seat switch. Stale or improper fuel / fuel level / water in fuel. Dirty or faulty fuel injectors. Low coolant temperature. See your John Deere Dealer. Fuel pump not functioning properly. See your John Deere Dealer.
Engine Knocks	Engine oil level low. Low coolant temperature. See your John Deere Dealer. Engine overheating. Idle speed too slow. Poor fuel quality or improper fuel.

Troubleshooting

If	Check
Engine Overheats	<p>Low coolant level.</p> <p>Cooling system needs flushing.</p> <p>Defective radiator cap.</p> <p>Defective thermostat.</p> <p>Defective water temperature indicator or sender.</p> <p>Low oil level.</p> <p>Loose or defective alternator belt.</p> <p>Do not operate at slow idle, operate at fast idle.</p> <p>Dirty grille, radiator screen, or radiator cooling fins.</p> <p>Operating at too fast ground speed for conditions.</p>
Engine Lacks Power	<p>Brakes dragging.</p> <p>Misadjusted rockshaft feedback linkage.</p> <p>Improper type of fuel.</p> <p>Plugged air intake system.</p> <p>Plugged fuel filter.</p> <p>Engine overheating. Operating at too fast ground speed for conditions.</p> <p>Engine oil viscosity too high.</p> <p>Low coolant temperature. See your John Deere Dealer.</p> <p>Dirty or faulty fuel injectors. See your John Deere Dealer.</p> <p>Implement improperly adjusted. See implement operator's manual.</p> <p>Improper ballast - adjust load.</p> <p>Rockshaft stop valve closed.</p>
Low Oil Pressure	<p>Engine oil level low.</p> <p>Plugged oil filter.</p> <p>Improper type of oil.</p> <p>Faulty pressure regulating valve.</p>
Engine Uses Too Much Oil	<p>Find and correct oil leaks.</p> <p>Incorrect engine oil.</p> <p>Plugged air intake filter.</p>
Engine Emits White Smoke	<p>Improper type of fuel.</p> <p>Low engine temperature.</p> <p>Defective thermostat. See your John Deere Dealer.</p>
Engine Emits Black Or Gray Exhaust Smoke	<p>Improper type of fuel.</p> <p>Plugged air intake system.</p> <p>Operating at too fast ground speed for conditions.</p> <p>Dirty or faulty fuel injectors. See your John Deere Dealer.</p>

Troubleshooting

If	Check
High Fuel Consumption	<p>Improper type of fuel.</p> <p>Plugged air intake system.</p> <p>Operating at too fast ground speed for conditions.</p> <p>Dirty or faulty fuel injectors. See your John Deere Dealer.</p> <p>Implement improperly adjusted, causing drag on machine. See implement operator's manual.</p> <p>Plugged crankcase vent tube or baffle.</p> <p>Brakes dragging.</p>

Electrical System

If	Check
Battery Will Not Charge	<p>Loose or corroded connections.</p> <p>Defective battery.</p> <p>Dead cell in battery.</p> <p>Loose or defective alternator belt.</p> <p>Defective alternator.</p> <p>Check 3 pin connector on alternator is plugged in properly.</p>
Battery Discharge Indicator Stays On With Engine Running	<p>Low engine speed.</p> <p>Defective battery.</p> <p>Defective alternator.</p> <p>Loose or defective alternator belt.</p> <p>Check 3 pin connector on alternator is plugged in properly.</p>
Starter Will Not Work	<p>Loose or corroded battery connections.</p> <p>Blown fuse.</p> <p>Starter solenoid connector pulled off or corroded.</p> <p>Low battery power.</p> <p>Neutral start switch faulty. See your John Deere Dealer.</p> <p>Key switch or starter faulty. See your John Deere Dealer.</p> <p>PTO engaged or faulty switch.</p>
Starter Turns Slowly	<p>Low battery power - charge battery.</p> <p>Engine oil viscosity too heavy.</p> <p>Loose or corroded battery connections.</p>
Light Circuit Not Working	<p>Blown fuse.</p>

Troubleshooting

Machine

If	Check
Operation Sluggish, Slow	Suction side filter may need replacement.
Poor Hydraulic Performance	Suction side filter may need replacement. Water in oil.
Excessive Machine Vibration	Engine speed too slow. Throttle linkage out of adjustment.
Machine Will Not Move With Engine Running	Electrical problems. Park brake locked. Transmission oil level low. Transmission oil cold - allow engine to warm. Transmission range shift lever in neutral position. Suction side filter may need replacement. Operator not in seat.
3-point Hitch Fails To Lift	Low oil level. Worn hydraulic pump. Rate of drop valve closed. Excessive load on hitch. Hydraulic oil too cold. Hydraulic oil suction filter plugged.
3-point Hitch Lifts Slowly	Suction side filter may need replacement. Worn hydraulic pump.
3-point Hitch Drops Slowly Or Does Not Drop	Rate-of-drop valve closed. Rate-of-drop valve set too slowly.
3-point Hitch Drops Too Fast	Rate-of-drop set too fast. Load too heavy.
Noise Is Coming From PTO During Operation	Noise may occur at low engine speeds, increase to rated engine speed.

Brakes

If	Check
Rear Wheel Brakes Not Working	Brakes out of adjustment. Worn or damaged brake linkage. See your John Deere Dealer.

Troubleshooting

Steering

If	Check
Steering Not Working	Suction side filter may need replacement. Improper tire inflation. Low oil level. Excessive play in steering. See your John Deere Dealer. Worn hydraulic pump.

Storage

Storing Safety



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

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

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 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 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 engine air intake screen.
 4. Clean the engine and engine compartment.
 5. Remove battery.
 6. Clean the battery and battery posts. Check the electrolyte level on batteries requiring maintenance.
 7. Close fuel shut-off valve, if your machine is equipped.
 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.
 10. Store the vehicle in a dry, protected place. If vehicle is stored outside, put a waterproof cover over it.

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

Preparing Fuel and Engine For Storage

Fuel:

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

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

If you are not using Stabilized Fuel:

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

NOTE: 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. Turn key to OFF position.

Removing Machine From Storage

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

Specifications

Engine

Manufacturer	Yanmar
Model Number (3032E)	3TNV88
Model Number(3038E)	3TNV84T
Type	Diesel
Gross Horsepower (3032E)	23.1 kW (31.0 hp)
Gross Horsepower (3038E)	27.1 kW (36.3 hp)
Manufacturer's Estimated PTO Horsepower	17.9 kW (25 hp)
Low Idle Speed	950 rpm
Rated Engine Speed	2400 rpm
High Idle Speed	2600 rpm
Operating Range	1200 - 2600 rpm
Engine Torque @ Rated Speed (3032E)	85 N•m (62.7 lb-ft)
Engine Torque @ Rated Speed (3038E)	99.1 N•m (73.0 lb-ft)
Maximum Torque @ 1680 rpm (3032E)	108 N•m (80 lb-ft)
Maximum Torque @ 1680 rpm (3038E)	120 N•m (88.5 lb-ft)
Displacement (3032E)	1.6 L (97.6 cu in.)
Displacement (3038E)	1.5 L (91.5 cu in.)
Cylinders	3
Bore and Stroke (3032E)	88 x 90 mm (3.5 x 3.54 in.)
Bore and Stroke (3038E)	84 x 90 mm (3.3 x 3.54 in.)
Compression Ratio	19:1
Lubrication	Pressurized
Cooling System	Water Pump
Oil Filter	Single Element
Air Cleaner	Dry Type with Safety Element
Starting Aid (3032E)	Glow Plug
Starting Aid (3038E)	Air Heater

Electrical System

Type	12 Volt
Battery Capacity	500 Cold Cranking Amps at -18°C (0°F)
Battery Size	22NF
Alternator	40 Amp
Starter Size	1.4 kW (1.9 hp)

Fuel System

Fuel Filter	Replaceable Element
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Specifications

Fuel	Diesel
Fuel Pump	In-Line with Electric Shutoff
Fuel Delivery	Direct Injection, Self Bleeding

Drive Train

Transmission	2 Range Hydrostatic
Number Of Speeds	Infinite Forward, Infinite Reverse
Mechanical Front Wheel Drive	Standard
Capability for MFWD	All Ranges
Rear Final Drive Type	Spur Gear
Differential Lock	Mechanical
Brakes Type	Wet Disk
Steering	Power, Hydrostatic
Front Axle Operating Capacity	800 kg (1764 lb)
Rear Axle Operating Capacity	1200 kg (2646 lb)
Drawbar Tongue Capacity	400 kg (882 lb)

Hydraulic System

Type of System	Open Center
Power Steering	Standard
Pump Type	Tandem Gear Pump
Working Pressure	17240 kPa (2500 psi)
Steering Pressure	10342 kPa (1500 psi)
Pump Capacity (Main) @ Rated Speed	20.2 L/min (5.3 gpm)
Pump Capacity (Power Steering) @ Rated Speed	15.0 L/min (4.0 gpm)
Total Flow of Pumps @ Rated Speed	35.2 L/min (9.3 gpm)

3 Point Hitch

Type	Category 1
Lift Capacity (24-in. behind link arms)	615 kg (1356 lb)
Dimension - Lower Link Ball Socket ID	22 mm (7/8 in.)
Dimension - Upper Link Pin Hole ID	19 mm (3/4 in.)
Dimension - Normal Width @ Lower Hitch Pins	68.6 cm (27 in.)
Dimension - Normal Height From Center Pin to Hitch Pin	45.7 cm (18 in.)

PTO

Type	Independent
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Specifications

Clutch Type	Wet Disk
Brake Type	Wet Disk
Speed (Rear PTO rpm @ Rated Engine Speed)	540 rpm

Fluid Capacities

Fuel Tank	24.2 L (6.4 gal)
Cooling System	4.2 L (1.1 gal)
Crankcase w/ Filter	4.5 L (1.2 gal)
Transmission and Hydraulic System	21 L (5.5 gal)
Front Axle	3.8 L (1.0 gal)

Ground Speeds

Note: All ground speeds shown are with machine equipped with R4 tires and operated at 2500 engine RPM.

Forward and Reverse (Low Range)	9.3 km/h (5.8 mph)
Forward and Reverse (High Range)	20.0 km/h (12.4 mph)

Tires

Front	7.00-14 4PR R1 (Standard)
Rear	11.2-24 4PR R1 (Standard)
Front	25x8.5-14 4PR R4 (Optional)
Rear	15.00-19.5 4PR R4 (Optional)
Front	27x8.5-15 4PR R3 (Optional)
Rear	41x14.0-20 4PR R3 GA (Optional)

Tire Inflation Pressures

NOTE: Minimum / Maximum pressures given. Minimum pressure is for unloaded, unballasted tractor.

Front (7.00-14 4PR R1)	138 kPa/160 kPa (20 psi/24 psi)
Rear (11.2-24 4PR R1)	83 kPa/120 kPa (12 psi/18 psi)
Front (25x8.5-14 4PR R4)	138 kPa/240 kPa (20 psi/35 psi)
Rear (15.00-19.5 4PR R4)	83 kPa/140 kPa (12 psi/20 psi)
Front (27x8.5-15 4PR R3)	138 kPa/210 kPa (20 psi/30 psi)
Rear (41x14.0-20 4PR R3 GA)	69 kPa/170 kPa (10 psi/25 psi)

Tire Loads

NOTE: Maximum load capacity for single tire.

Front (7.00-14 4PR R1)	350 kg (772 lb)
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Specifications

Rear (11.2-24 4PR R1)	780 kg (1720 lb)
Front (25x8.5-14 4PR R4)	507 kg (1118 lb)
Rear (15.00-19.5 4PR R4)	1416 kg (3122 lb)
Front (27x8.5-15 4PR R3)	700 kg (1543 lb)
Rear (41x14.0-20 4PR R3)	1842 kg (4061 lb)

Dimensions

Wheelbase	1,52 m (60 in.)
Overall Length w/ 3-Point Hitch	2,02 m (111 in.)
Overall Width (minimum)	1,43 m (56.5 in.)
Overall Width (maximum)	1,47 m (58 in.)
Height From Ground	
To Top of Hood	1,23 m (51 in.)
To Top of ROPS	2,09 m (82.3 in.)

Weight

With ROPS, 3-Point Hitch and all fluids	987 kg (2175 lb)
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Recommended Lubricants

Engine Oil	John Deere Plus-50 or TORQ-GARD SUPREME (See SERVICE ENGINE for more information.)
Grease	John Deere Multi-Purpose SD Polyurea Grease
.....	John Deere Multi-Purpose HD Lithium Complex Grease
Transmission Oil	Low Viscosity HY-GARD (JDM J20D)
Front Axle Oil	Low Viscosity HY-GARD (JDM J20D)

(Specifications and design subject to change without notice.)

Specifications

Torque Values - Metric Hardware

Torque Values (Dry)							Torque Values (Lubricated)						
Size	Class 7		Class 8.8		Class 10.9		Size	Class 7		Class 8.8		Class 10.9	
	N•m	lb-ft	N•m	lb-ft	N•m	lb-ft		N•m	lb-ft	N•m	lb-ft	N•m	lb-ft
M6			11	8.1	17	12.5	M6			9	6.6	13	9.6
M8	29	21	35	26	41	30	M8	23	17	25	18.5	29	21.4
M10	59	44	67	49	80	59	M10	44	33	51	38	61	45
M12	98	72	113	83	132	97	M12	78	58	83	61	103	76
M14	147	108	167	123	201	148	M14	118	87	127	94	152	112
M16	206	152					M16	167	123				
<ul style="list-style-type: none"> • Use 80% of the value when tightening part is aluminum. • Use 60% of the value for 4T bolts and lock nuts. 							<ul style="list-style-type: none"> • Use 80% of the value when tightening part is aluminum. • Use 60% of the value for 4T bolts and lock nuts. 						

Torque Values - Inch Fastener Hardware

Torque Values (Dry)							Torque Values (Lubricated)						
Size	Grade 2 ¹		Grade 5		Grade 8		Size	Grade 2 ²		Grade 5		Grade 8	
	N•m	lb-ft	N•m	lb-ft	N•m	lb-ft		N•m	lb-ft	N•m	lb-ft	N•m	lb-ft
1/4	7.4	5.5	12	9	17	12.5	1/4	6.1	4.5	9.5	7	13.6	10
5/16	15	11	24	18	35	26	5/16	12.2	9	20	15	28	21
3/8	27	20	45	33	62	46	3/8	22	16	35	26	49	36
7/16	43	32	70	52	102	75	7/16	35	26	56	41	79	58
1/2	68	50	108	80	156	115	1/2	53	39	85	63	122	90
9/16	95	70	156	115	217	160	9/16	76	56	122	90	176	130
5/8	136	100	217	160	305	225	5/8	106	78	170	125	217	160
3/4	238	175					3/4	190	140				
<ul style="list-style-type: none"> • Use 80% of the value when tightening part is aluminum. • Use 60% of the value for 4T bolts and lock nuts. 							<ul style="list-style-type: none"> • Use 80% of the value when tightening part is aluminum. • Use 60% of the value for 4T bolts and lock nuts. 						

1. Grade 2 applies for hex cap screws (not hex bolts) up to 152mm (6 in.) long.

2. Grade 2 applies for hex cap screws (not hex bolts) up to 152mm (6 in.) long.

Warranty

Product Warranty

Product warranty is provided as part of John Deere's support program for customers who operate and maintain their equipment as described in this manual.

Engine related warranties stated in this manual refer only to emissions-related parts and components of your engine. The complete engine warranty, less emission-related parts and components, is provided separately as the "Limited Warranty for New John Deere Equipment".

John Deere, Federal And California Emission Control System Warranty (Non-Road Diesel)

Your Warranty Rights and Obligations

The United States Environmental Protection Agency (EPA), the California Air Resources Board (CARB) and John Deere are pleased to explain the emission control system warranty on your 1995 and later non-road diesel equipment engine. In California, 1995 and later non-road diesel equipment engines must be designed, built and equipped to meet the State's stringent anti-smog standards. In other states, 1997 and later model year equipment engines must be designed, built and equipped to meet the U.S. EPA regulations for non-road diesel engines. John Deere must warrant the emission control system on your non-road diesel equipment engine for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your non-road diesel equipment engine.

Your emission control system may include parts such as the fuel-injection system and the air induction system. Also included may be connectors and other emission related assemblies.

Where a warrantable condition exists, John Deere will repair your non-road diesel equipment engine at no cost to you including diagnosis, parts and labor.

John Deere Emission Control System Warranty Coverage

In California, 1995 and later non-road diesel equipment engine emissions control-related parts are warranted by John Deere for five years or 3000 hours of operation, whichever occurs first. In other states, 1997 and later non-road diesel equipment engine emissions control-related parts are warranted by John Deere for five years or 3000 hours of operation, whichever occurs first. If any emission related part on your engine is defective, the part will be repaired or replaced by John Deere.

Owner's Warranty Responsibilities

As the non-road diesel equipment engine owner, you are responsible for the performance of the required maintenance listed in your owner's manual. John Deere recommends that you retain all receipts covering maintenance on your non-road diesel equipment engine, but John Deere cannot deny warranty solely for lack of receipts or for your failure to ensure all scheduled maintenance is performed.

As the non-road diesel equipment engine owner, you should however be aware that John Deere may deny you warranty coverage if your non-road diesel equipment engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

You are responsible for presenting your non-road diesel equipment engine to an authorized John Deere Turf & Utility Retailer as soon as a problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

If you have any questions regarding your warranty rights and responsibilities, you should contact your John Deere Turf & Utility Retailer, or the John Deere Customer Contact Center, 1-800-537-8233, or e-mail John Deere from www.Deere.com.

Length of Warranty Coverage

John Deere warrants to the initial owner and each subsequent purchaser that the non-road diesel equipment engine is:

- Designed, built and equipped so as to conform with all applicable regulations adopted by the California Air Resources Board (CARB) for 1995 and later equipment engines, and all applicable regulations of the United States Environmental Protection Agency (EPA) for 1997 and later equipment engines; and
- Free from defects in materials and workmanship which can cause the failure of an emission warranted part for a period of five years or 3000 hours of operation, whichever occurs first, after the engine is delivered to the initial retail purchaser. John Deere is liable for damages to other engine components caused by the failure of a warranted part during the warranty period. If any emission related part on your engine is defective, the part will be repaired or replaced by John Deere.

Warranted Parts

Coverage under this warranty extends only to the parts listed below (the emission control system parts) to the extent these parts were present on the engine purchased.

Fuel Metering System:

- Fuel injection system.

Air Induction System:

- Air Cleaner
- Turbocharger system.
- Intake manifold.

Diesel System:

- Exhaust manifold.

Miscellaneous Items Used in Above Systems:

- Hoses, belts, connectors and assemblies.

Since emission related parts may vary slightly from model to model, certain models may not contain all of these parts and certain models may contain functionally equivalent parts.

Warranty Service and Charges

Warranty service shall be provided during customary business hours at any authorized John Deere Turf & Utility Retailer. Repair or replacement of any warranted part will be performed at no charge to the owner, including diagnostic labor which leads to the determination that a warranted part is defective, if the diagnostic work is performed at an authorized John Deere Turf & Utility Retailer. Any parts replaced under this warranty shall become the property of John Deere.

Maintenance Warranty Coverage

- a) Any warranted part which is not scheduled for replacement as required maintenance shall be warranted as to defects for the warranty period. Any such part repaired or replaced under the warranty shall be warranted for the remaining warranty period.
- b) Any warranted part which is scheduled only for regular inspection to the effect of "repair or replace as necessary" shall be warranted as to defects for the warranty period. Any such part repaired or replaced under the warranty shall be warranted for the remaining warranty period.
- c) Any warranted part which is scheduled for replacement as required maintenance shall be warranted as to defects only for the period of time up to the first scheduled replacement for that part. Any such part repaired or replaced under the warranty shall be warranted for the remainder of the

Warranty

period prior to the first scheduled replacement point for that part.

d) Normal maintenance, replacement or repair of emission control devices and systems, which are being done at the customer's expense, may be performed by any repair establishment or individual; however, warranty repairs must be performed by an authorized John Deere Turf & Utility Retailer.

e) Any replacement part that is equivalent in performance and durability may be used in the performance of any non-warranty maintenance or repairs, and shall not reduce the warranty obligations of John Deere.

Consequential Warranty Coverage

Warranty coverage shall extend to the failure of any engine components caused by the failure of any warranted part still under warranty.

Limitations

This Emission Control System Warranty shall NOT cover any of the following:

a) Repair or replacement required as a result of (i) misuse or neglect, (ii) improper maintenance or unapproved modifications, (iii) repairs improperly performed or replacements improperly installed, (iv) use of replacement parts or accessories not conforming to John Deere specifications which adversely affect performance and/or durability, (v) alterations or modifications not recommended or approved in writing by John Deere.

b) Replacement parts, other services and adjustments necessary for normal maintenance.

c) Transportation to and from the John Deere Turf & Utility Retailer, or service calls made by the Retailer.

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. This warranty does not cover inconvenience or loss of use of the non-road diesel equipment engine or transportation of the engine to or from the John Deere Turf & Utility Retailer. 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 NON-ROAD DIESEL ENGINE FOR ANY OTHER PURPOSE.

b) NO EXPRESS EMISSION CONTROL SYSTEM WARRANTY IS GIVEN BY JOHN DEERE WITH RESPECT TO THE 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 is authorized to modify this Federal, California and John Deere Emission Control System Warranty.

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.)

Limited Battery Warranty

NOTE: Applicable in North America only. For complete machine warranty, reference a copy of the John Deere warranty statement. Contact your John Deere dealer to obtain a copy.

TO SECURE WARRANTY SERVICE

The purchaser must request warranty service from a John Deere dealer authorized to sell John Deere batteries, and present the battery to the dealer with the top cover plate codes intact.

FREE REPLACEMENT

Any new battery which becomes unserviceable (not merely discharged) due to defects in material or workmanship within 90 days of purchase will be replaced free of charge. Installation costs will be covered by warranty if (1) the unserviceable battery was installed by a John Deere factory or dealer, (2) failure occurs within 90 days of purchase, and (3) the replacement battery is installed by a John Deere dealer.

PRO RATA ADJUSTMENT

Any new battery which becomes unserviceable (not merely discharged) due to defects in material or workmanship more than 90 days after purchase, but before the expiration of the applicable adjustment period, will be replaced upon payment of the battery's current list price less a pro rata credit for unused months of service. The applicable adjustment period is determined from the Warranty Code printed at the top of the battery and chart below. Installation costs are not covered by warranty after 90 days from the date of purchase.

THIS WARRANTY DOES NOT COVER

- 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.

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.

PRO RATA MONTHS OF ADJUSTMENT

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

Warranty

Warranty Code	Warranty Period
A	40 Months
B	36 Months
C	24 Months

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