

JOHN DEERE
WORLDWIDE COMMERCIAL & CONSUMER
EQUIPMENT DIVISION

ProGator™ Utility Vehicle
2020 and 2030

OMM149077 I5

OPERATOR'S MANUAL



JOHN DEERE

Export Version
Litho in U.S.A.



DCY



OMM149077

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.

Machine Use

This machine is designed solely for use in customary utility operations, park and amenity area maintenance, for appropriate agricultural and forestry operations, and for winter work. Use in any other way is considered as contrary to the intended use.

The manufacturer accepts no liability for damage or injury resulting from this misuse, and these risks must be borne solely by the user. Compliance with and strict adherence to

the conditions of operation, service and repair as specified by the manufacturer also constitute essential elements for the intended use.

This machine should be operated, serviced and repaired only by persons familiar with all its particular characteristics and acquainted with the relevant safety rules (accident prevention). The accident prevention regulations, all other generally recognized regulations on safety and occupational medicine and the road traffic regulations must be observed at all times.

Setting fuel delivery beyond published factory specifications or otherwise overpowering will result in loss of warranty protection for this machine.

Any arbitrary modifications carried out on this machine will relieve the manufacturer of all liability for any resulting damage or injury.

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.

PRODUCT IDENTIFICATION

Record Identification Numbers

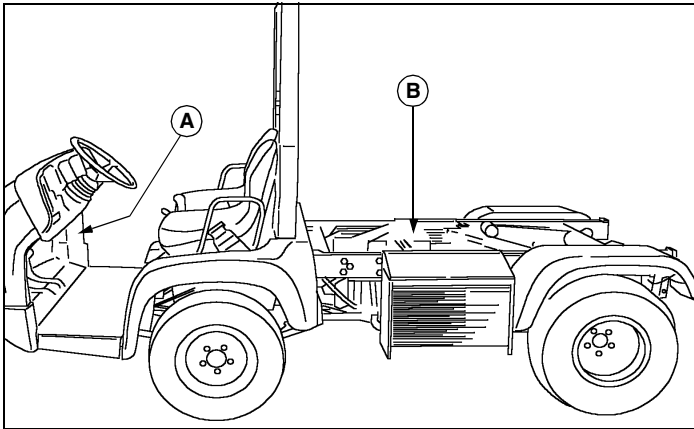
Utility Vehicle ProGator™

2020 Serial No. (035000 -)

2030 Serial No. (035000 -)

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

You will need to locate the model and serial number for the machine and for the engine of your machine and record the information in the spaces provided below.



Intro

DATE OF PURCHASE:

DEALER NAME:

DEALER PHONE:

PRODUCT IDENTIFICATION NUMBER (A):

ENGINE SERIAL NUMBER (B):

TABLE OF CONTENTS

Safety Labels	1
Safety	4
Operating	11
Replacement Parts	26
Service Intervals	27
Service Engine	29
Service Transmission.....	42
Service Hydraulics.....	46
Service Steering & Brakes.....	49
Service Electrical.....	52
Service Miscellaneous.....	56
Troubleshooting	62
Storage	67
Specifications	69
Declaration of Conformity	74
Index.....	75

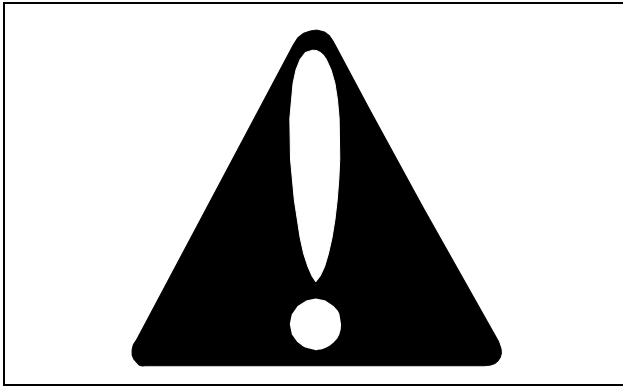
All information, illustrations and specifications in this manual are based on the latest information at the time of publication. The right is reserved to make changes at any time without notice.

COPYRIGHT© 2005
Deere & Co.
John Deere Worldwide Commercial and
Consumer Equipment Division
All rights reserved
Previous Editions
COPYRIGHT©

OMM149077 I5 - English

SAFETY LABELS

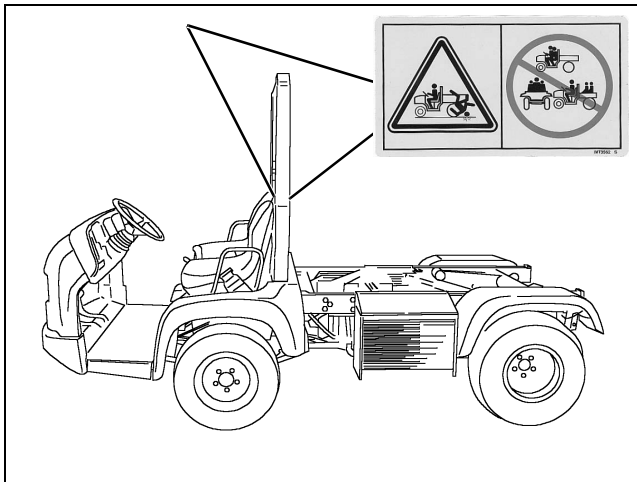
Pictorial Safety Signs



Safety-Alert Symbol

At several important places on this machine safety signs are affixed intended to signify potential danger. The hazard is identified by a pictorial in a warning triangle. An adjacent pictorial provides information how to avoid personal injury. These safety signs, their placement on the machine and a brief explanatory text are shown in this Safety section.

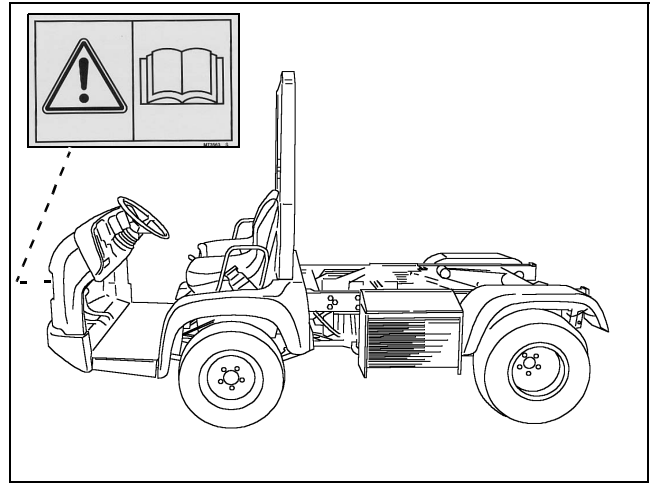
Riders Can Fall Off And Be Killed



MT3562

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

Read Operator's Manual

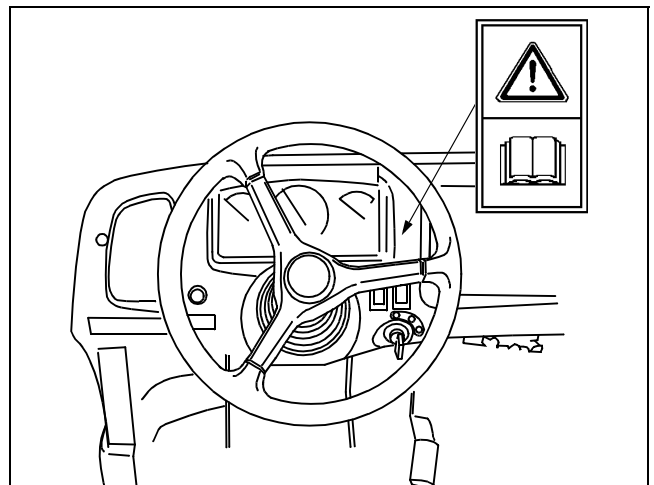


MT3563

To avoid brake failure use brake fluid specified in the Operating Manual.

Clean filler cap before removing. use only DOT3 brake fluid from a sealed container.

Safe Machine Operation

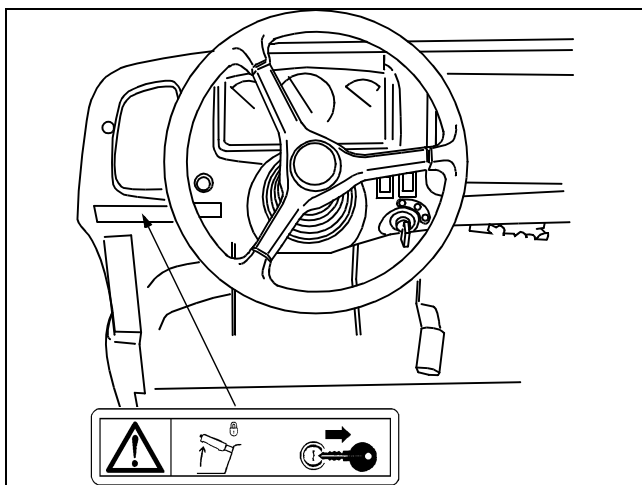


M142773

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

SAFETY LABELS

Caution

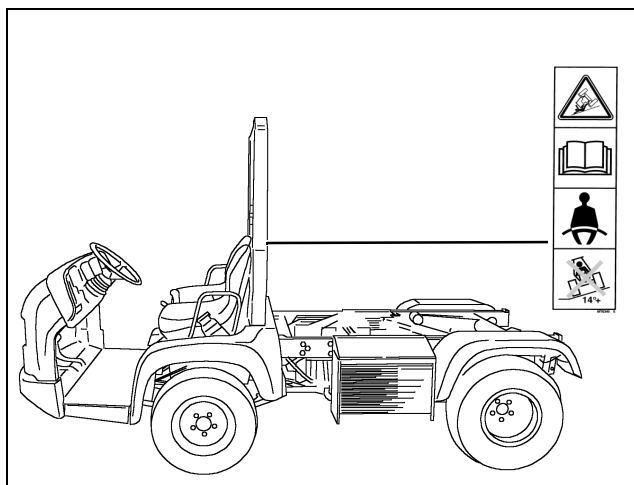


M120056

Before leaving vehicle:

- Stop engine
- Set park brake
- Remove key

Avoid Injury From Tipping

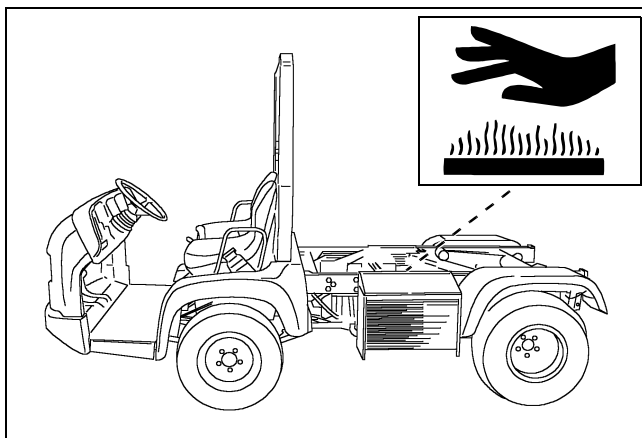


MT6349

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

Do not drive where tractor could slip or tip. Do not drive on a slope with more than a 14° incline.

Avoid Injury From Hot Surface

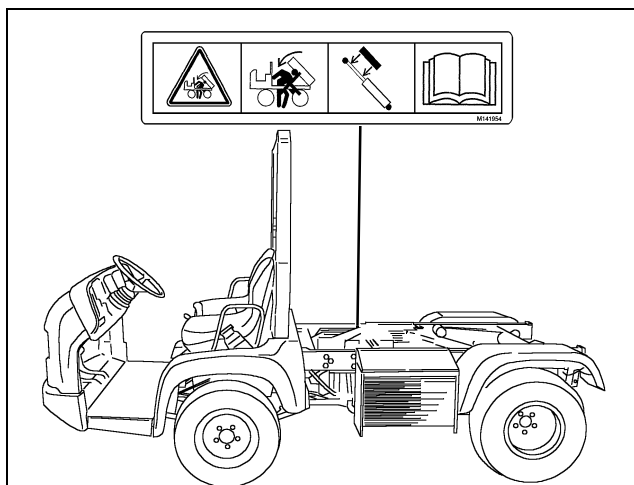


MIF

Picture Note: Stamped into the top of the vehicle muffler.

DO NOT touch the vehicle muffler; it may be hot.

Avoid Injury From Crushing



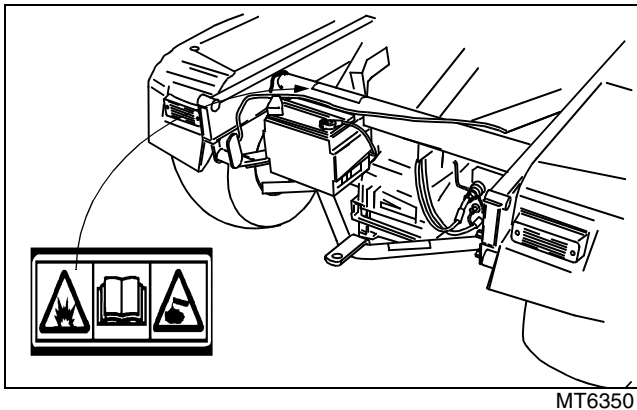
M141594

Picture Note: Labels are located on each vehicle frame side rail.

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

SAFETY LABELS

Avoid Injury From Battery Gases and Acid



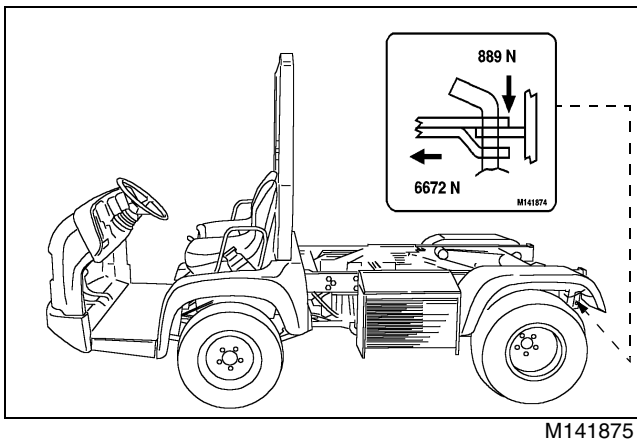
Explosive Gases

Cigarettes, flames or sparks could cause the batteries to explode. Always shield eyes and face from the batteries. Do not charge or use booster cables or adjust poor connections without proper instruction and training. Keep vent caps tight and level.

Causes Severe Burns

Contains sulfuric acid. Avoid contact with skin, eyes or clothing. In event of an accident, flush with water and call a physician immediately. Keep out of reach of children.

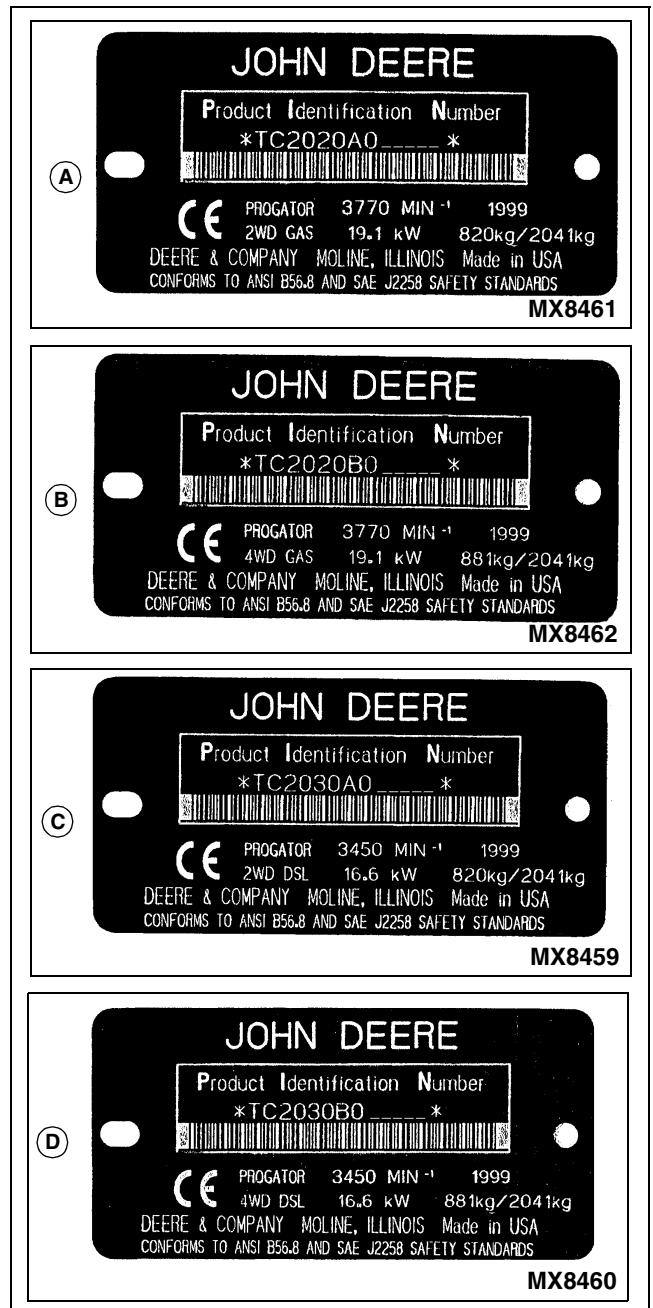
Drawbar Load



Do not exceed recommended drawbar loads stated on label.

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

CE Certification and Specification Label



A - 2020 - 2WD

B - 2020 - 4WD

C - 2030 - 2WD

D - 2030 - 4WD

The label on your machine indicates that this model has been certified and is in compliance with European Directive 98/37/EC (89/392 EEC) Standards.

SAFETY

Supervisor Safety Responsibilities

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

Operator Training Required

- The owner of the machine is responsible for training the users and mechanics of the machine.
- The owner/user can prevent and is responsible for accidents or injuries occurring to themselves, other people, or property.
- Do not allow operation or service of the machine by untrained adults.
- Do not let children operate the machine. Local regulations may restrict the age of the operator.
- The operator or user is responsible for accidents or hazards occurring to other people or their property.
- All drivers should seek and obtain professional and practical instruction. Such instruction should emphasize:
 - the need for care and concentration when working with ride-on machines.
 - control of a ride-on machine sliding on a slope will not be regained by the application of the brake.
- The main reasons for loss of control are:
 - insufficient wheel grip;
 - being driven too fast;
 - inadequate braking;
 - the type of machine is unsuitable for its task;
 - lack of awareness of the effect of ground conditions, especially slopes;
 - incorrect hitching and load distribution.
- Read the operator's manual and study the safety and operation sections before operating the machine.
- If the operator of the machine cannot read or understand this manual, it is the machine's owner responsibility to explain this material to the operator. This publication is available in other languages.
- Operate the machine in an open, unobstructed area under the direction of an experienced operator.

- Learn the use of all controls.
- Operator experience is required to learn the moving, stopping, turning and other operating characteristics of the machine.

Operating Safely

- Read, understand and follow all instructions in the operator's manual and on the machine before starting.
- Do not misuse the utility vehicle. It is a utility vehicle, not a recreation vehicle.
- The utility vehicle is not intended for use on highways or public roads. It is to be used for off-road use only.
- Slow down and be careful of traffic when operating near or crossing roadways. Use care when approaching blind corners, shrubs, trees, or other objects that may obscure vision.
- The operator should always make sure that the passenger is aware of correct safety procedures while riding in the utility vehicle.
- The passenger should always use the hand holds.
- Horseplay or recreational riding can lead to accidents, severe bodily injury or death.
- Sit on the center of the seat and keep both feet within the foot platform perimeter. Clean foot platform if dirty, and remove any debris from around foot controls.
- Check for debris in engine compartment, especially around brake linkage on each side of the transaxle.
- Always use both hands for steering.
- Know location of controls and how and what they operate.
- Never operate utility vehicle while standing.
- Never operate utility vehicle with the cargo box raised.
- Check brake action before beginning vehicle operation. Adjust or service the brakes as necessary.
- To provide adequate braking ability and traction, do not tow any attachment or loaded trailer unless the cargo box is fully loaded.
- Inspect vehicle before operating. Be sure hardware is tight. Repair or replace damaged, badly worn, or missing parts. Be sure guards and shields are in good condition and fastened in place. Make any necessary adjustments before operating.
- Do not leave vehicle unattended when it is running.
- Operate during daylight or with good artificial light and if you drive at night, use the lights.
- Do not operate vehicle if under the influence of alcohol

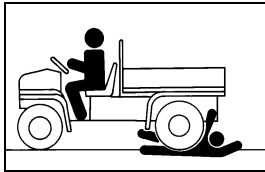
SAFETY

or other drugs.

- Avoid sudden starts, stops, or turns.
- Always use a level turn-around area.
- Do not wear radio or music headphones. Safe service and operation require your full attention.

Parking Safely

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

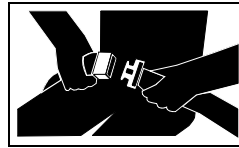


Protect Children and Prevent Accidents

- Never assume that children will remain where you last saw them. Stay alert to the presence of

children.

- Never carry children in the cargo box area. Do not let children ride in the cargo box of the utility vehicle or any attachment. Do not tow children in a cart or trailer.
- Use extra care when approaching blind corners, shrubs, trees, or other objects that may block vision.
- Before backing or turning, look behind and around the utility vehicle for children.
- Be alert at all times. Drive forward and in reverse carefully. People, especially children, can move quickly into an area of operation.
- Back up carefully. Look behind the vehicle, especially for children, before backing up.
- Misuse and recreational riding can lead to accidents, severe bodily injury or death.
- The utility vehicle should not be operated by anyone under the age of 16 years.
- Do not let children or an untrained person operate the vehicle.



Use Seat Belt Properly

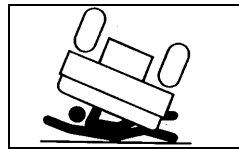
- Use a seat belt when you operate with a Roll-Over Protective Structure (ROPS) to minimize chance of injury from an accident, such as an

overturn.

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

Keep ROPS Installed Properly

- Make certain all parts of the ROPS are installed correctly if the ROPS structure is loosened or removed for any reason. All ROPS hardware should be tightened to the proper torque per manufacturer's recommendations.
- Any alteration of the ROPS must be approved by the manufacturer. The protection provided by the ROPS will be impaired if the ROPS is subjected to structural damage, is involved in an overturn incident, or is in any way altered by welding, bending, drilling, or cutting.
- Never attempt to repair a damaged or altered ROPS. It must be replaced to maintain the manufacturer's certification of the structure.



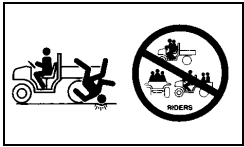
Avoid Tipping

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

- Do not misuse the utility vehicle. The utility vehicle is not designed for recreational riding.
- Drive very slowly when turning. Sharp turns could cause the utility vehicle to tip over.
- Reduce speed and exercise extreme caution on slopes or on rough ground.
- Do not overload vehicle and avoid shifting loads. Reduce load when operating over rough or hilly terrain.

SAFETY

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



Keep Riders Off Vehicle

- Seating is provided for operator and one passenger.

- Never allow riders in the cargo box or other areas where seats are not provided.

- Riders on vehicle are subject to injury such as being struck by foreign objects or being thrown off of the vehicle and severely injured or killed.
- Riders affect the operator's ability to control the vehicle as well as its center of gravity. Also, riders could obstruct the operator's view resulting in the vehicle being operated in an unsafe manner.

Transport Loads Safely

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

Towing Loads Safely With Utility Vehicle

- To provide adequate braking ability and traction, weight of towed load (trailer plus cargo) must never exceed the vehicle payload (operator plus passenger plus cargo box load).
- Do not tow a load that exceeds the maximum allowable towing load for this vehicle, as specified in this operator's manual.

- Stopping distance increases with speed and weight of towed load. Travel slowly and allow extra time and distance to stop.
- Tow load at a speed slow enough to maintain control.
- Excessive towed load can cause loss of traction and loss of control on slopes. Reduce towed weight when operating on slopes.
- Never allow children or others in or on towed equipment.
- Use only approved hitches. Tow only with a machine that has a hitch designed for towing. Do not attach towed equipment except at the approved hitch point.
- Follow the manufacturer's recommendations for weight limits for towed equipment and towing on slopes.
- If you cannot back up a slope with a towed load, the slope is too steep to operate on with the towed load. Reduce the towed load or do not operate.
- Do not turn sharply. Use additional caution when turning or operating under adverse surface conditions. Use care when reversing.
- Do not shift to neutral and coast downhill.

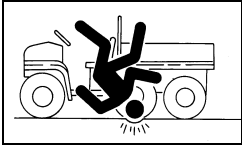
Before Driving

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

Be sure to check condition of tires and wheels, wheel hardware torque, and maintain proper tire pressure.

6. Securely anchor all loads.

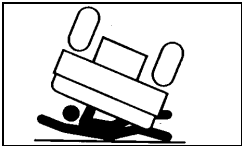
SAFETY



Driving On Rough Terrain

- Use existing trails. Avoid terrain such as dangerous slopes and impassable swamps. Watch carefully for bumps, holes, ruts, or obstacles.

- Look ahead at terrain. Know what is coming and be prepared to react. Be alert for hazards.
- Keep front wheels straight at crest of hill or going over bumps.
- Reduce speed according to trail, terrain, and visibility conditions.
- The passenger should always use the hand holds.

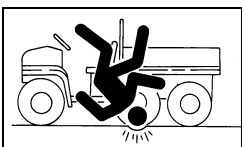


Climbing Or Descending A Hill

- Always use the brakes when going down slopes, the utility vehicle can speed up (freewheel) going down a

slope. Engine or clutch braking effect is minimal.

- Balance loads evenly and secure them. Braking could shift the load and affect vehicle stability.
- Sit on center of seat and keep both feet within foot platform.
- Never drive past the limit of visibility. Slow down near crest of hill until getting a clear view of the other side.
- Keep front wheels straight at crest of hill or going over bumps.
- Do not stop or start suddenly when going uphill or downhill. Be especially cautious when changing direction on slopes.
- If vehicle stops or loses power going up a hill, lock park brake to hold vehicle on slope. Maintain direction of travel and release brake slowly. Back straight down hill slowly while maintaining control. Do not turn vehicle sideways. Vehicle is more stable in a straight forward or rearward position.
- When descending a hill, remove foot from accelerator and apply brakes to reduce speed and maintain control.



Driving Across Slopes

- Reduce speed and use caution on slopes and in sharp turns.
- Stay alert for holes, rocks and other

hidden hazards in the terrain.

- When riding on soft terrain, turn front wheels slightly

uphill to keep utility vehicle on a straight line across the hill.

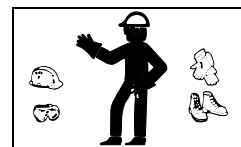
- If utility vehicle begins to tip, turn front wheel downhill to gain control before proceeding.

Riding Through Water

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

Checking Wheel Hardware

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



Wear Appropriate Clothing

- Wear close fitting clothing and safety equipment appropriate for the job.

• Certain operating conditions may dictate that the operator and any passenger wear appropriate safety equipment while operating the vehicle. Be prepared for any existing and potential conditions before operating machine.

- Local safety or insurance regulations may require additional safety equipment such as eye protection or a hard hat.
- Always wear substantial footwear and long trousers. Do not operate the equipment when barefoot or wearing open sandals.

SAFETY



Stay Clear of Rotating Drivelines

Entanglement in rotating driveline can cause serious injury or death.

- Wear close fitting clothing.

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



Avoid High Pressure Fluids

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

and lines.

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



Practice Safe Maintenance

- Only qualified, trained adults should service this machine.

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

- Never lubricate, service, or adjust machine while it is moving. Keep safety devices in place and in working condition.
- Keep hands, feet, clothing, jewelry, and long hair away from any moving parts, to prevent them from getting caught.
- Disconnect battery or remove spark plug wire before making any repairs.
- Keep all nuts and bolts tightened.

- Securely support any machine elements that must be raised for service work. Lock service latches before working on machine with raised attachments.
- Never run engine unless park brake is locked.
- Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts. Replace all worn or damaged safety and instruction decals.
- To prevent fires, remove any buildup of grease, oil, or debris from the machine, especially the engine.
- Do not modify machine or safety devices. Unauthorized modifications may impair its function and safety.
- Do not wear radio or music headphones while servicing the machine. Safe service requires your full attention.
- Disconnect battery ground cable (-) on the machine or remove attachment from machine before welding on the machine.

Prevent Fires

- Remove grass and debris from engine compartment and muffler area, before and after operating machine.
- Always shut off fuel when storing or transporting machine, if the machine has a fuel shutoff.
- Do not store machine near an open flame or source of ignition, such as a water heater or furnace.
- Check fuel lines, tank, cap, and fittings frequently for cracks or leaks. Replace if necessary.

Do Not Modify Machine

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

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



Tire Safety

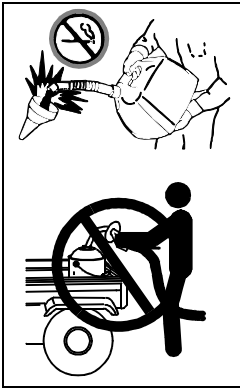
Explosive separation of a tire and rim parts can cause serious injury or death:

- 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.

SAFETY

Welding can structurally weaken or deform the wheel.

- When inflating tires, use a clip-on chuck and extension hose long enough to allow you to stand to one side and NOT in front of or over the tire assembly.
- Check tires for low pressure, cuts, bubbles, damaged rims or missing lug bolts and nuts.



Handling Fuel Safely

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

- Extinguish all cigarettes, cigars, pipes, and other sources of ignition.
- Use only approved non-metal, portable fuel containers. If using a funnel, make sure it is plastic and has

no screen or filter.

- Never remove the fuel tank cap or add fuel with the engine running. Allow engine to cool before refueling.
- Never add fuel to or drain fuel from the machine indoors. Move machine outdoors and provide adequate ventilation.
- Clean up spilled fuel immediately. If fuel is spilled on clothing, change clothing immediately. If fuel is spilled near machine, do not attempt to start the engine but move the machine away from the area of spillage. Avoid creating any source of ignition until fuel vapors have dissipated.
- Never store the machine or fuel container where there is an open flame, spark, or pilot light such as on a water heater or other appliance.
- Prevent fire and explosion caused by static electric discharge. Static electric discharge can ignite fuel vapors in an ungrounded fuel container.
- Never fill containers inside a vehicle or on a truck or trailer bed with a plastic liner. Always place containers on the ground away from your vehicle before fueling.
- Remove fuel-powered equipment from the truck or trailer and refuel it on the ground. If this is not possible, then refuel such equipment with a portable container, rather than from a fuel dispenser nozzle.
- Keep the nozzle in contact with the rim of the fuel tank or container opening at all times until the fueling is complete. Do not use a nozzle lock-open device.
- Never overfill fuel tank. Replace fuel tank cap and tighten securely.
- Replace all fuel container caps securely after use.

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

Handling Waste Product and Chemicals

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

- Do not use beverage containers for waste fluids - someone may drink from them.
- See your local Recycling Center or authorized dealer to learn how to recycle or get rid of waste products.

Using the Lift Cylinder Safety Support

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

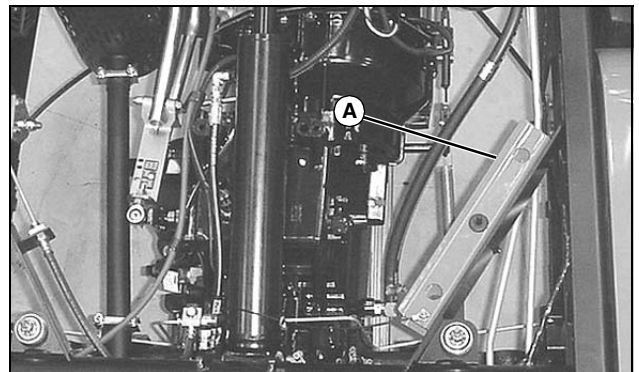


CAUTION: Avoid injury!

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

Installing:

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



MX14992

4. Remove safety support (A) from stored position in the rear of the vehicle on the right side.

SAFETY



MX14982

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

Removing:

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

OPERATING

Daily Operating Checklist

- ☐ Test safety systems.
- ☐ Check tire pressure.
- ☐ Check fuel level.
- ☐ Check engine oil level.
- ☐ Check transmission oil level.
- ☐ Check coolant level.
- ☐ Clean operator's station and engine compartment.
- ☐ Check air restriction indicator.
- ☐ Check that air intake is clear.
- ☐ Check area below machine for leaks.
- ☐ Check brakes and park brake operation.

Avoid Damage to Plastic and Painted Surfaces

- Do not wipe plastic parts unless rinsed first.
- 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.

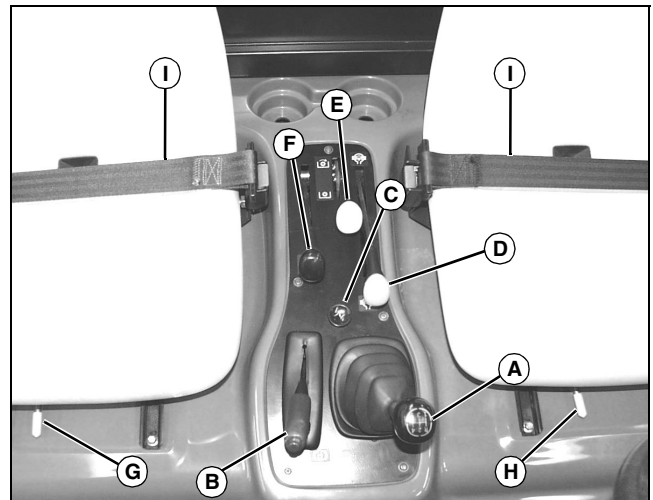
Dash and Foot Controls



MX1673

- A - Instrument Panel**
- B - Horn**
- C - Light Switch**
- D - Key Switch**
- E - Clutch Pedal**
- F - Brake Pedal**
- G - Accelerator Pedal**

Console and Miscellaneous Controls



MX20988

OPERATING

Picture Note:

- A - Gear Shift Lever
- B - Park Brake Lever
- C - Choke Lever
- D - Differential Lock Lever
- E - Hydraulic PTO Lever (Optional)
- F - Lift Cylinder Lever
- G - Passenger Seat Adjustment Lever
- H - Operator Seat Adjustment Lever
- I - Seat Belt

Adjusting Vehicle Seats

1. Sit on the operator or passenger seat.



MX1709

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

Using Light Switch

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



MX1673

1. Turn key switch (A) to run position.
2. Push in on top of rocker switch (B) to turn lights on.
3. Push in on bottom of rocker switch to turn lights off.

Using Seat Belts



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

To Connect the Seat Belt:



MX1703

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

OPERATING

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

- Insert buckle into latch (B) on other side of seat. When properly inserted into the latch a click should be heard.

To Disconnect the Seat Belt:

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

Using Fuel Shut-Off Valve (Diesel Models)

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



MX1670

Picture Note: Fuel shut-off valve shown in the open position.

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

“C” (Closed) Position:

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

“O” (Open) Position:

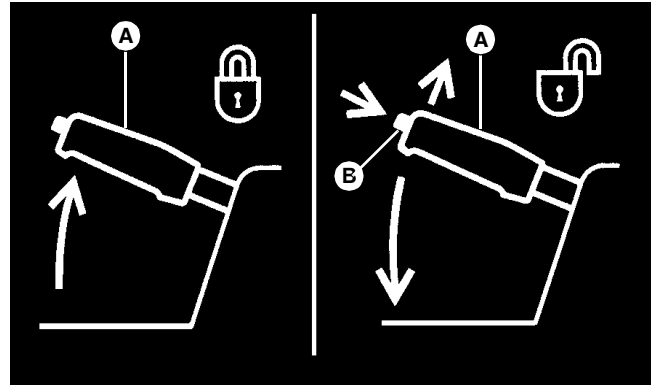
- Fuel shut-off valve must be in the full open position for proper fuel delivery to the engine.

Using the Park Brake



CAUTION: Avoid injury! Always lock the park brake when the utility vehicle is left unattended. The vehicle may begin to move without an operator present if park brake is not locked.

To Lock Park Brake:



M98020a

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

To Unlock Park Brake:

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

Using the Differential Lock Lever



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

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

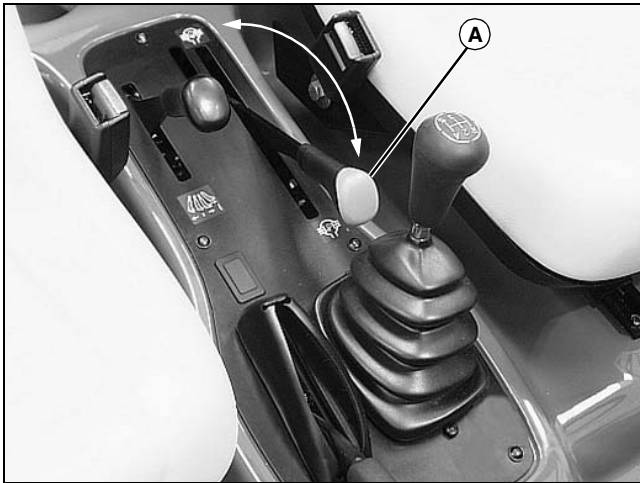
IMPORTANT: Avoid damage! To prevent damage to differential, do not engage differential lock at high speeds.

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

OPERATING

To Engage Differential Lock:

- Stop or slow vehicle down.



MX14971

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

To Disengage Differential Lock:

- Lower differential lock lever (A).

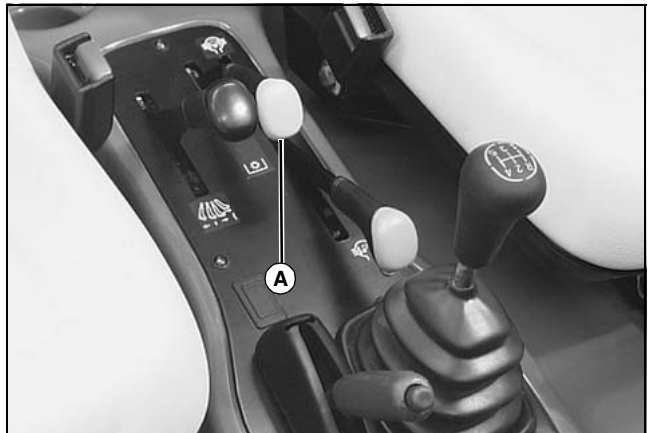
Using the Hydraulic PTO Control Lever

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

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

Check the auxiliary hydraulic oil level before each use.

To Engage the Hydraulic PTO:



MX14972

- Pull up lever (A) to the on position.

To Disengage the Hydraulic PTO:

- Push lever (A) down to the off position.

Using the Lift Cylinder Lever



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

Do not perform a service function under a raised attachment without the lift cylinder safety support properly installed.

To Raise Attachment:

1. Start engine.



MX14971

2. Pull and hold back lever (A).

OPERATING

3. Release lever. Lever will return to the neutral position, and attachment will be held in position with the lift cylinder locked in place.

To Lower Attachment:

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

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

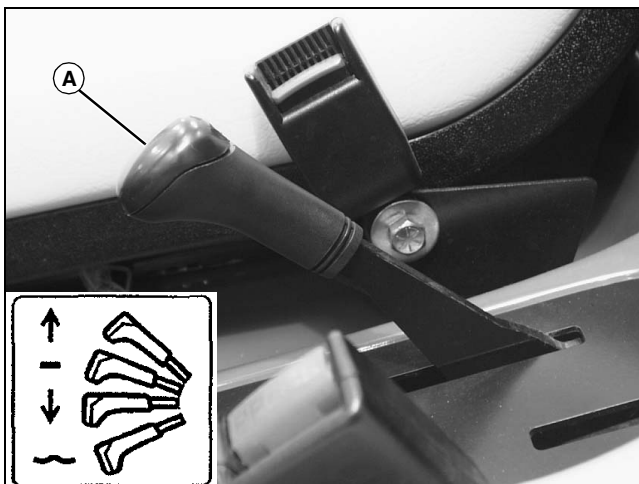
NOTE: When operating the vehicle with the auxiliary hydraulic PTO engaged, it is recommended that the lift cylinder lever be held down momentarily after the attachment has been lowered. This will firmly seat the load check for the lift cylinder spool which locks the lift cylinder in position.

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

To Allow Attachment to Float:

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

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



MX7269, MX3195

1. Push lever (A) down, through "lower" position, and with additional force, push lever down past detent to lock lever into float position.

2. Pull up lever to release float position.

3. Release lever. Lever will return to the neutral position, and attachment will be held in position, with the lift cylinder locked in place.

Using the 4th and/or 5th Gear Lockout



CAUTION: Avoid injury! Operating at high speed may cause loss of control, load shifting and/or tipping. Do not operate at higher speeds when hauling loads, when operating around obstacles, when turning and when operating on any hazardous off-road conditions.

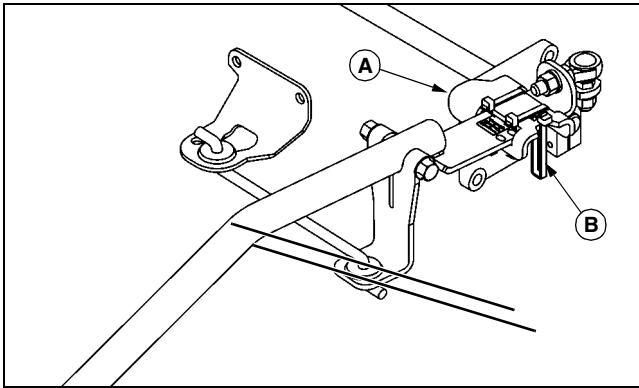
Do not attempt to set the fourth and/or fifth gear lockout while the gear shifter is being operated. Make sure that operator or passenger seats are not occupied and that no other person is in the vicinity of the shift lever when fourth and/or fifth gear lockout control is being set.

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

Activation of the fourth and/or fifth gear lockout on a ProGator vehicle with a cargo box or other similar attachment installed will require that the lift cylinder be operated to raise the attachment. Do not attempt to activate the fourth and/or fifth gear lockout under a raised attachment without the lift cylinder safety support properly installed. After an attachment is raised, be sure to return the key switch to the STOP position before setting the fourth and/or fifth gear lockout.

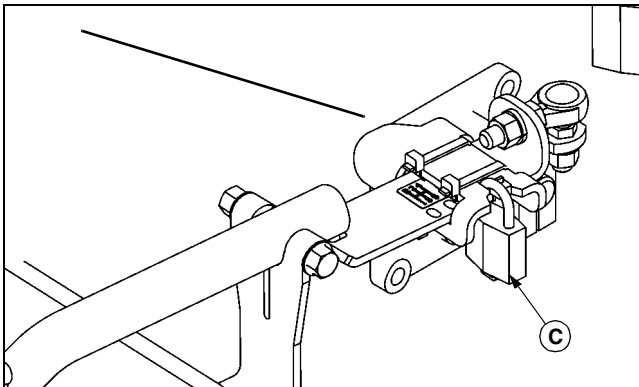
NOTE: Setting the gear lockout requires access to the transmission shift input shaft located on the left side of the transmission, above the rear axle. If an attachment is installed, empty attachment, raise to service position, park safely (see Using the Lift Cylinder Safety Support in the Safety section)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

OPERATING



MX14974

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

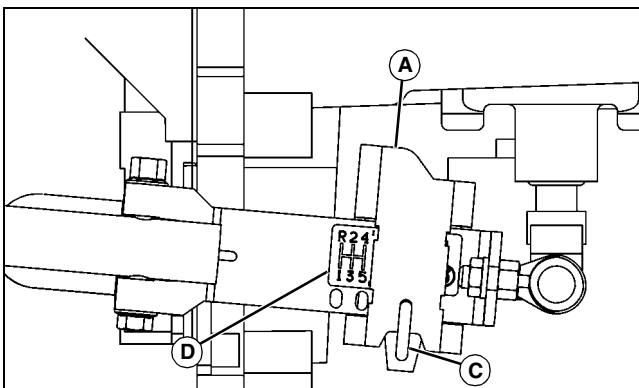


MX14975

The lockout feature was set at the factory (locked in position with a tie band) to allow the use of all gears. Use of the lockout feature requires removal of the factory tie band (B) and installation of a padlock (C) 4.8 mm (3/16 in.) diameter shackle.

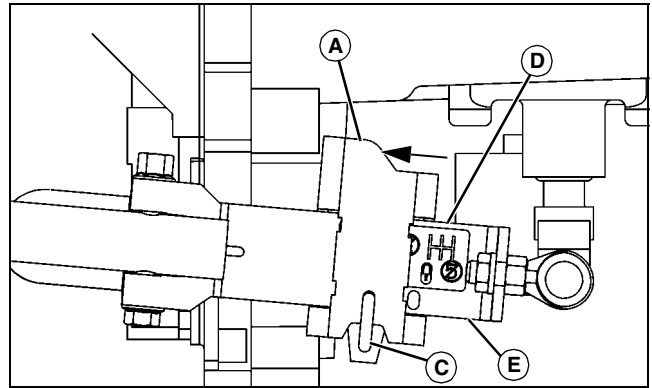
NOTE: Padlock not supplied with the vehicle.

To Lock Out 5th Gear:



MX14976

Picture Note: Label (D) indicates all gears available.



MX14977

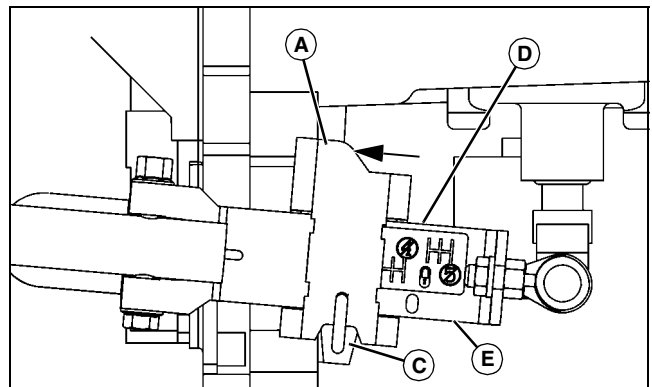
NOTE: Lock will not operate if vehicle transmission is already in 5th gear.

1. Move gearshift lever to any position except 5th gear.
2. Using padlock key, unlock padlock (C) and remove from lock channel (A).
3. Slide lock channel (A) forward, aligning slot with next hole in shift bracket (E).

NOTE: When lock channel is moved, label (D) indicates correct position for 5th gear lockout.

4. Install padlock (C) in lock channel (A) slot.
5. Remove safety support and lower attachment.

To Lock Out 4th and 5th Gear:



MX14978

NOTE: Lock will not operate if vehicle transmission is already in 4th or 5th gear.

1. Move gearshift lever to any position except 4th or 5th gear.
2. Using padlock key, unlock padlock (C) and remove from lock channel (A).
3. Slide lock channel (A) forward, aligning slot with next hole in shift bracket (E).

NOTE: When lock channel is moved, label (D) indicates correct position for 4th and 5th gear lockout.

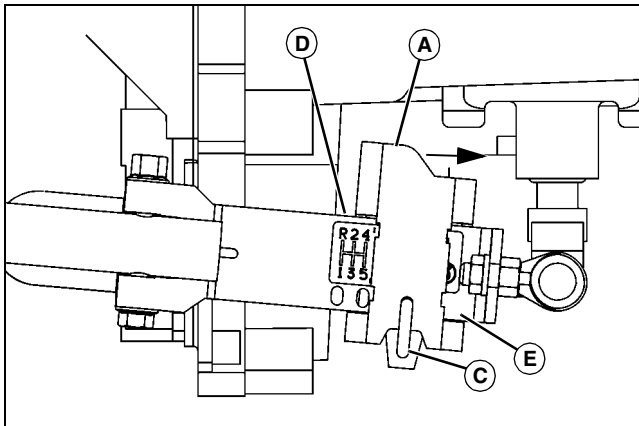
4. Install padlock (C) in lock channel (A) slot.

OPERATING

5. Remove safety support and lower attachment.

To Unlock 4th and/or 5th Gear:

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



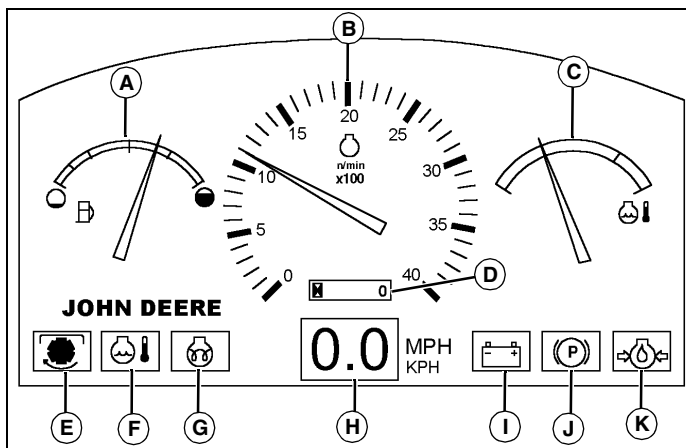
MX14976

1. Using padlock key, unlock padlock (C) and remove from lock channel (A).
2. Slide lock channel (A) forward, aligning slot with last hole in shift bracket (E).

NOTE: When lock channel is moved, label (D) indicates all gears available.

3. Install padlock (C) in lock channel (A) slot.
4. Remove safety support and lower attachment.

Instrument Panel



A - Fuel Gauge

- B - Tachometer
- C - Coolant Temperature Gauge
- D - Hour Meter
- E - PTO Indicator
- F - Coolant Temperature Indicator
- G - Glow Plug Circuit Indicator (Diesel Model)
- H - Speedometer LED Display
- I - Battery Low Voltage Indicator
- J - Park Brake Indicator
- K - Engine Oil Pressure Indicator

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

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

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

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

PTO Indicator (E) will glow only when the hydraulic PTO lever is engaged.

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

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

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

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

Park Brake Indicator (J) will glow when the park brake is locked.

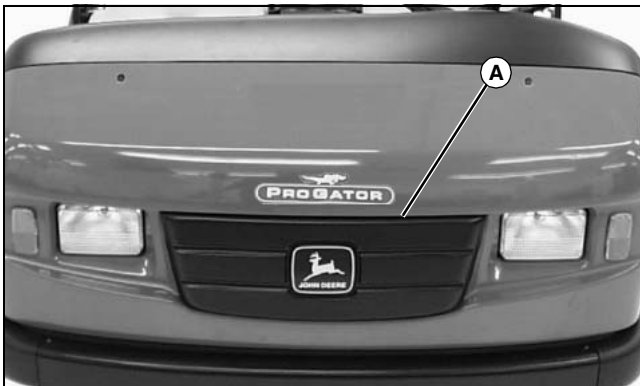
Engine Oil Pressure Indicator (K) will glow when engine

OPERATING

oil pressure is low. If lamp glows when engine is running, stop engine immediately. This is an indication that the engine may be low on oil, or major engine damage may have occurred.

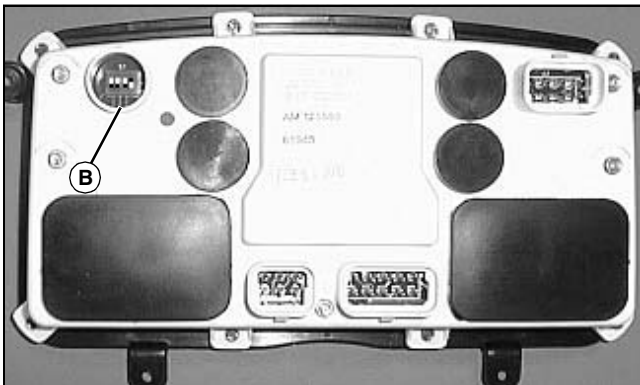
Switching Engine Speedometer

1. Disconnect the battery negative cable.



MX1678

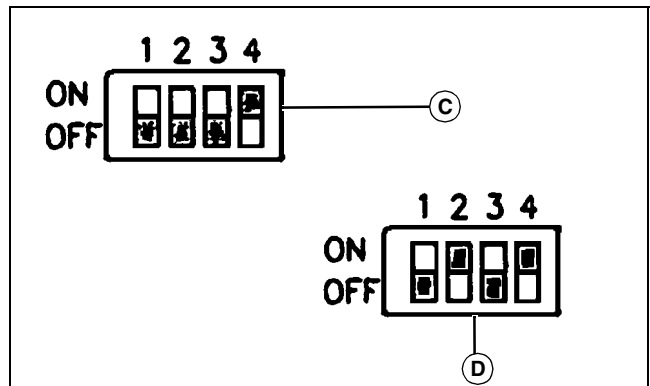
2. Remove front grille (A).



MX7529

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

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



MX7260

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

Operating the 5-Speed Synchronized Transmission

Using the Clutch Pedal

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

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



MX1673

The functions of the clutch pedal (A) are:

- Connects and disconnects engine power to the transmission.

OPERATING

- Operates in conjunction with the gearshift lever to shift gears.

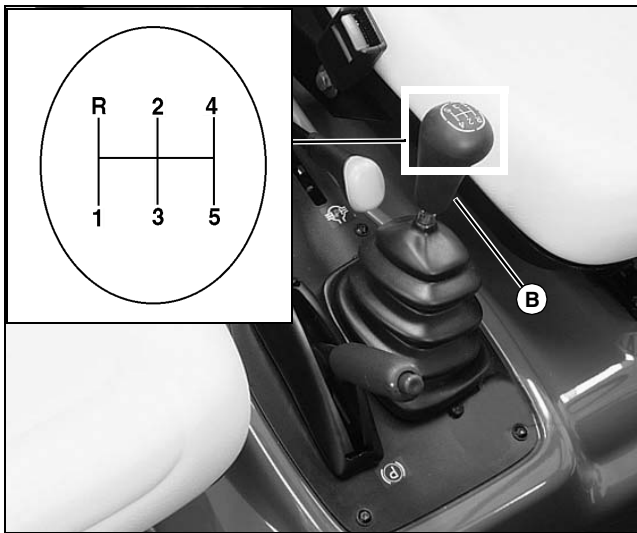
To Disengage the Clutch:

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

To Engage the Clutch:

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

Using the Gearshift Lever



MX1646a MX14973

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

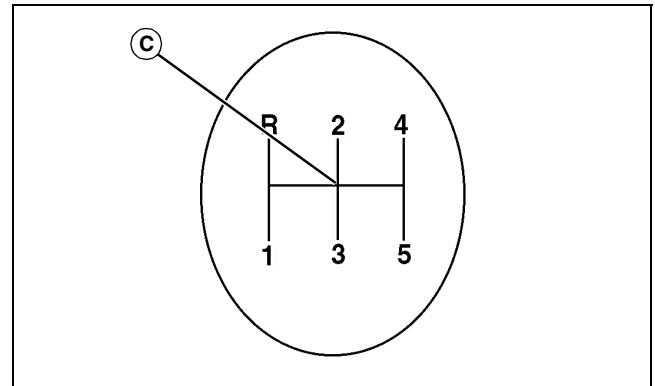
Select a gear on the gearshift lever that matches desired speed and direction. First and second gears are very low and should be used when hauling heavy loads.

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

Forward Travel

- Lock park brake.

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



MX1646a

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

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

- Shift gears while moving:
 - Depress clutch and shift to next gear.
 - Slowly release clutch.

Reverse Travel

- Stop vehicle completely.
- Depress clutch.
- Move gearshift lever to reverse.
- Slowly release clutch.

OPERATING

Starting the Engine



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

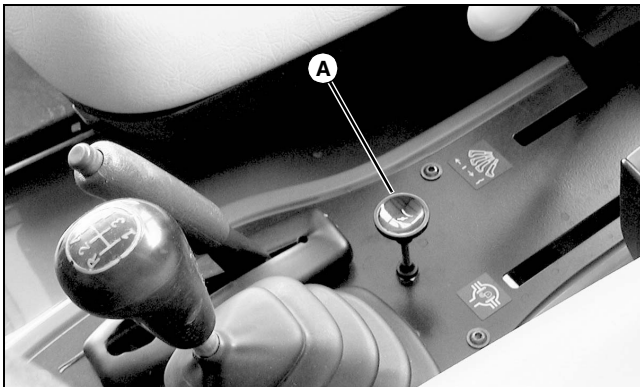
Move the machine to an outside area before running the engine.

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.**

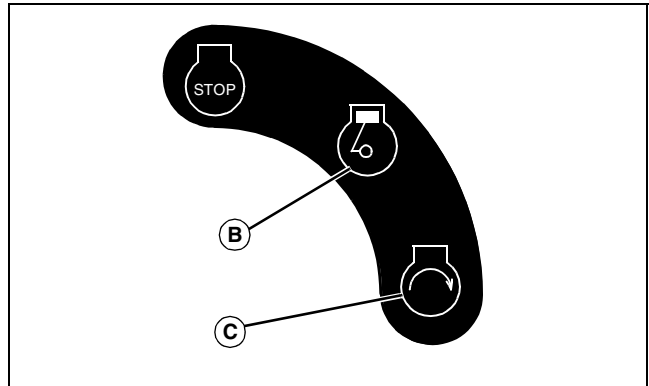
NOTE: Diesel Models: Make sure fuel shut-off valve is open.

1. Lock park brake.
2. Push hydraulic PTO lever to the off position.
3. Move the gearshift lever to the neutral position.



MX20989

4. **Gas Models with Manual Choke:** Pull the choke knob (A) out to aid in starting the engine when cold. As engine warms up, push choke knob in until fully open. When starting a hot engine, choke knob should be pushed in.



MIF

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

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

7. Turn key switch to the start position (C).

NOTE: Engine is calibrated at the factory to slow idle at 1450 rpm $\pm$ 50 when started.

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

Stopping the Engine

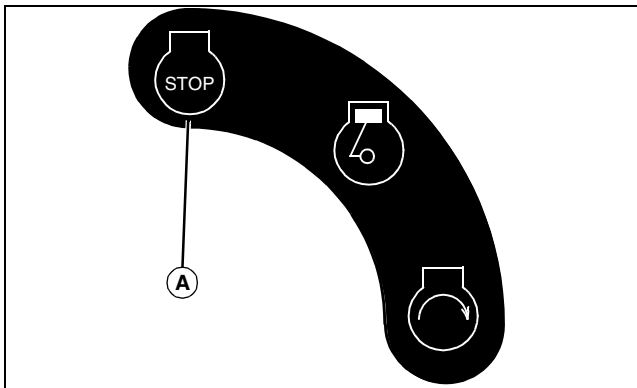


CAUTION: Avoid injury! Always lock the park brake when the utility vehicle is left unattended. The vehicle may begin to move without an operator present if park brake is not locked. If the gearshift lever is moved to the neutral position the vehicle will free-wheel.

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

OPERATING

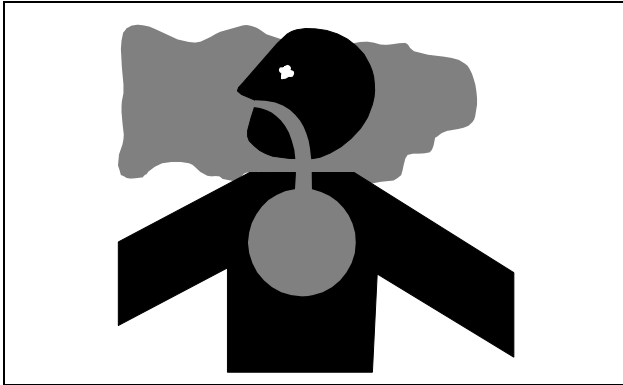
NOTE: Gasoline engine has a time delay between turning key switch to the stop position and when engine stops. Make sure engine has stopped before leaving vehicle.



MIF

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

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 Seat and Park Brake Switches

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

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

Testing Neutral Switch

1. Operator on seat.
2. Lock park brake.
3. Move the gearshift lever to the "R" (reverse) position.
4. Turn the key switch to the start position.
5. Engine must not crank.
6. Repeat starting procedure with shift lever in each gear.
7. Engine must not crank.
8. Move the gearshift lever to the neutral position.
9. Turn the key switch to the start position.

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

OPERATING

Testing Auxiliary Hydraulic System Switch



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

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

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

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

Operating Vehicle Engine with Operator Off the Seat



CAUTION: Avoid injury!

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

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

To keep engine running when operator is off the seat:

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

Towing the Utility Vehicle



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

1. Move gearshift lever to the neutral position.



MX1732 MX1679

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



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

4. Tow vehicle slowly and carefully to desired location.

Towing Loads



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

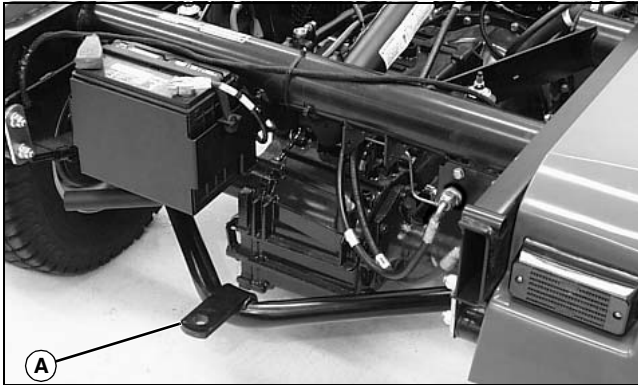
Do not tow a load that exceeds the maximum allowable towing load for this vehicle, as specified in this operator's manual.

- To provide adequate braking ability and traction, weight of towed load (trailer plus cargo) must never exceed the vehicle payload (operator plus passenger plus cargo box load).
- Do not tow a load that exceeds the maximum allowable

OPERATING

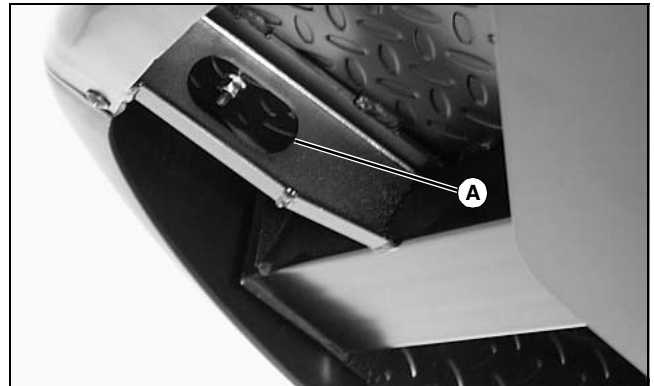
towing load for this vehicle, as specified in this operator's manual.

- Do not tow a load with this vehicle that exceeds 680 kg (1500 lb).
- Do not exceed a tongue weight of 90.7 kg (200 lb).
- Tow load at a speed slow enough to maintain control.

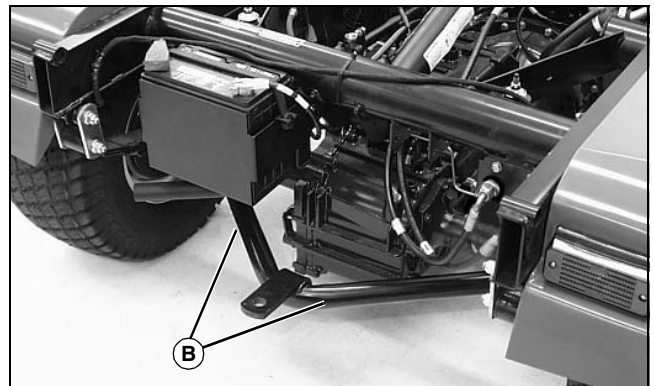


MX14985

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



MX1732



MX14985

Transporting Utility Vehicle



CAUTION: Avoid injury! Use caution when operating vehicle at transport speeds. Reduce speeds if towed load weighs more than vehicle, and is not equipped with brakes. 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.

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

- The tie downs should be attached to oval slots (A) provided on both sides of the main frame under the front of the vehicle and both sides of the hitch assembly (B) at the rear of the vehicle.
- Both front and rear straps must be directed down and outward from the vehicle.

6. When transporting the utility vehicle on a road or highway, use accessory lights and devices for adequate warning to operators of other vehicles. Check local, state, provincial, or federal laws.

Raising and Lowering the Cargo Box



CAUTION: Avoid injury!

- Make sure the vehicle is on a hard, level surface and the park brake is locked before raising the cargo box. If the vehicle is facing uphill with the cargo box raised, the weight of the cargo box may cause the vehicle to tip.
- Do not perform a service function under a raised attachment without the lift cylinder safety support properly installed.
- Empty all material from the cargo box before servicing the vehicle.

OPERATING

1. Start engine.



MX1707

2. Pull and hold back lift cylinder lever (A) to raise cargo box.

NOTE: The lift cylinder will retract and the cargo box will lower with the engine running or the engine stopped.

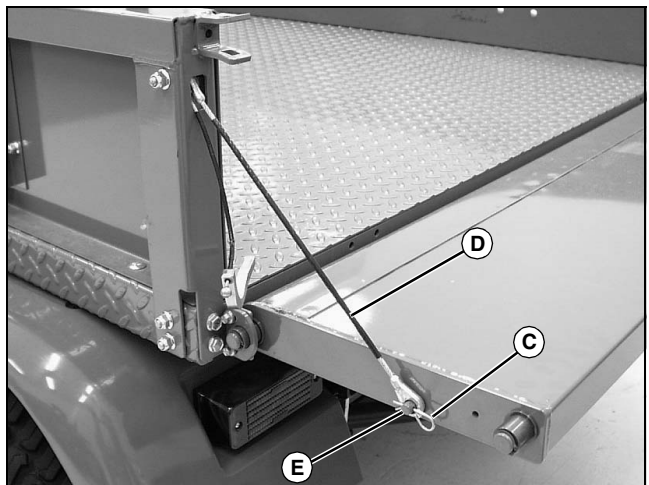
Pushing the lever down beyond the lower position into the detented float position will cause the box to drop more slowly than in the lower position, as the circuit is restricted to avoid a sudden drop.

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



CAUTION: Avoid injury! Do not operate the vehicle with the tailgate fully lowered. In a fully lowered position the tailgate will obstruct vehicle taillights causing a possible rear collision.

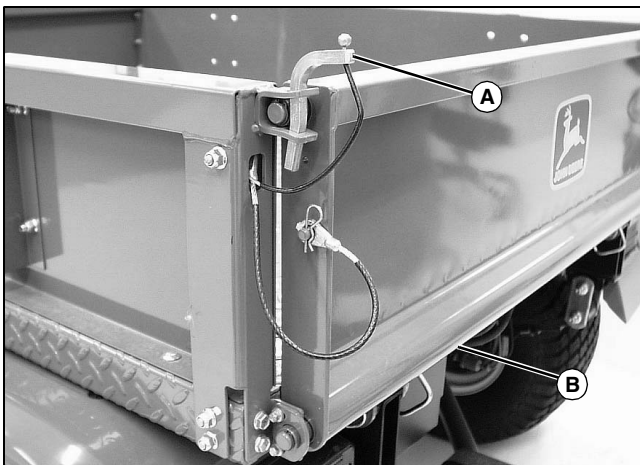
IMPORTANT: Avoid damage! The tailgate fully lowered can contact the rear fenders and cause structural damage. Do not operate utility vehicle with the tailgate fully lowered.



MX3107

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

Operating the Cargo Box Tailgate



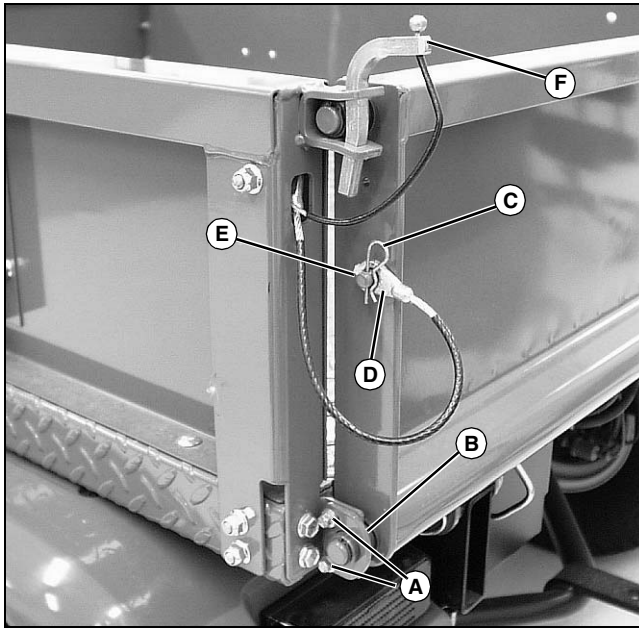
MX3105

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

Removing the Cargo Box Tailgate

1. Close the tailgate and latch both sides.

OPERATING



MX3105

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

Using Mechanical Front Wheel Drive (MFWD)

The bi-directional clutch senses slippage of the rear wheels and engages the mechanical front wheel drive (MFWD) to enable the powertrain to drive all four wheels for improved traction.

If back tires slip during a direction change, or front tires lock-up under hard braking, it is possible to lock-up the bi-directional 4WD clutch in a back-driving condition. This will cause front tires to scrub or drag causing turf damage, poor handling, and if not disengaged may lead to pre-mature front end (MFWD) failure.

To disengage back-driving condition:

- Bring the vehicle to a complete stop.
- Change direction; drive the vehicle 2 - 3 m (8 - 10 ft.).
- Change direction and continue in the desired direction.

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-All Models	M113621
• Primary Element	M123378
• Secondary Element	
Engine Oil Filter - All Models	M806418
Transmission Oil Strainer	M800489
Hydraulic Oil Filter	M131053
Battery	AM125463
Fuel Filter	
• Gas Models	AM876035
• Diesel Models	CH15553
Fuses	
• 10 amp	57M7121
• 25 amp	99M7069
Ignition Key	AM131841

Item	Part Number
Light Bulbs	
• Headlight	AH166909
• Stoplight/Taillight	AR48041
• Indicator Light	57M7926
Alternator Belt - All Models	M802026

(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! If BIO HY-GARD™ transmission and hydraulic oil is used in any application, the service intervals should be completed twice as often as the service intervals listed in operator's manual.

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 may lose efficiency if vehicle is operated constantly at slow or low engine speeds or with frequent short trips.**

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

Break In - After First 10 Hours

- Check/tighten wheel lug nuts and drum bolt torques.
- Check for loose hardware.

Break-In - After First 50 Hours

- Change engine oil and filter.
- Change transmission oil and filter.
- Clean transmission oil strainer.
- Check brake fluid level.
- Check air intake hose, hydraulic hoses, radiator hoses and clamps.
- Check alternator belt wear and tension.
- Change hydraulic oil and filter - auxiliary hydraulic tank (optional).
- 4WD Models: Check front axle oil.
- Check and adjust park brake.

Before Each Use

- Check engine oil level.
- Check transmission oil level.
- Check coolant level.
- Check hydraulic oil level - auxiliary oil reservoir tank.
- Test safety interlock system.

After Each Use

- Clean debris from operator station.
- Clean air intake screen and fan shroud.
- Check for loose, missing, or damaged parts.
- Check fuel gauge; fill if necessary.

Every 100 Hours

- Check/tighten wheel lug nuts and drum bolt torques.
- Clean battery and check battery fluid level.
- Check air cleaner elements, replace as needed.
- 4WD Models: Grease driveshaft - three fittings.
- 4WD Models: Check front axle oil.

Every 200 Hours

- Check and clean radiator cooling fins.
- Clean oil cooler coils - auxiliary hydraulic kit.
- Change engine oil and filter.
- Check alternator belt wear and tension, adjust or replace as needed.
- Check air intake hose, hydraulic hoses, radiator hoses and clamps, tighten or replace as needed.

Every 500 Hours

- Check toe-in adjustment. (See the technical manual or your John Deere dealer.)
- Change transmission oil and filter. Also clean filter screen.
- Change hydraulic oil and filter - auxiliary hydraulic kit.
- Check and adjust park brake.
- 4WD Models: Change front axle oil.

Yearly

- Check roll-over protection system (ROPS) hardware for proper torque.
- Check coolant freeze point and clarity.
- Replace fuel filter. Diesel Model: Also, drain water and clean fuel sediment bowl.

SERVICE INTERVALS

Every 1500 Hours or Two Years

- Diesel Model: Check fuel injectors. (See the technical manual or your John Deere dealer.)
- Check valve clearance. (See the technical manual or your John Deere dealer.)
- Gas Models: Replace and gap spark plugs.

Every 2000 Hours or Two Years

- Change brake fluid.
- Change engine coolant and thermostat, if using COOL-GARD™ CONCENTRATE ANTIFREEZE (TY16036).

Every 3000 Hours or Three Years

- Diesel Model: Check fuel injection pump. (See the technical manual or your John Deere dealer.)
- Change engine coolant and thermostat, if using COOL-GARD™ PREDILUTED ANTIFREEZE (TY16034).

As Needed

- Check brake fluid level, add brake fluid if needed.
- Diesel Model: Drain water and clean fuel sediment bowl.
- Adjust clutch pedal linkage. (See the technical manual or your John Deere dealer.)
- Adjust accelerator pedal linkage. (See the technical manual or your John Deere dealer.)
- Grease front wheel bearings. (See the technical manual or your John Deere dealer.)
- Replace battery.

SERVICE ENGINE

Adjusting Carburetor

NOTE: Carburetor is calibrated by the engine manufacturer and is not adjustable.

If engine is operated at altitudes above 1829 m (6,000 ft), some carburetors may require a special high altitude main jet. See your authorized dealer.

If engine is hard to start or runs rough, check the troubleshooting section of this manual.

Possible engine surging will occur at high throttle with transmission in "N" neutral. This is a normal condition due to the emission control system.

After performing the checks in the troubleshooting section and your engine is still not performing correctly, contact your authorized dealer.

Avoid Fumes



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

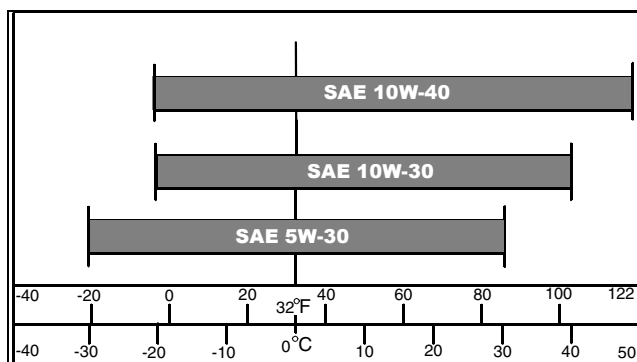
Move the machine to an outside area before running the engine.

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 - Gasoline Models

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



The following John Deere oils are preferred:

- TURF-GARD™
- PLUS-4™

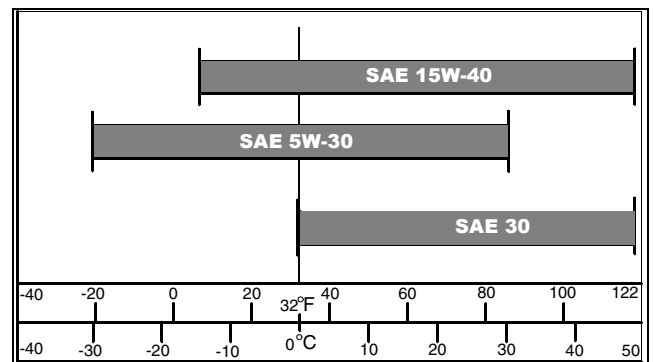
Other oils may be used if above John Deere oils are not available, provided they meet the following specification:

- API Service Classification SG or higher

Engine Oil - Diesel Model

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® (SAE 15W-40)
- TORQ-GARD SUPREME® (SAE 30)
- TORQ-GARD SUPREME® (SAE 5W-30)
- PLUS-4®

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

- SAE 15W-40 - API Service Classification CF-4 or higher.
- SAE 5W-30 - API Service Classification CC or higher.
- SAE 10W-30 - API Service Classification CF or higher.
- SAE 30 - API Service Classification CF or higher.

SERVICE ENGINE

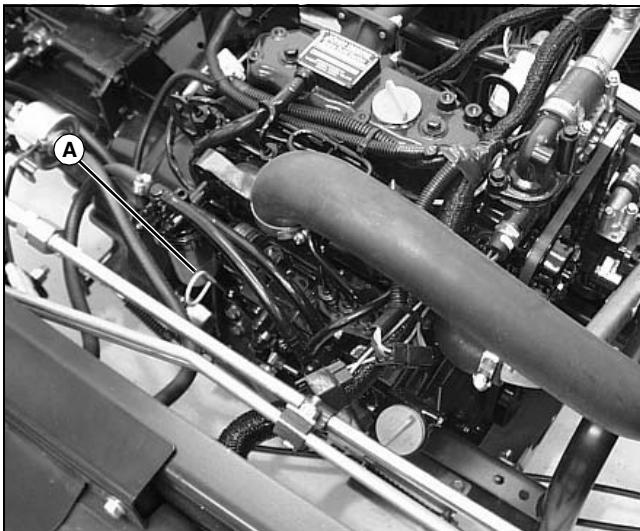
Checking Engine Oil Level

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

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

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

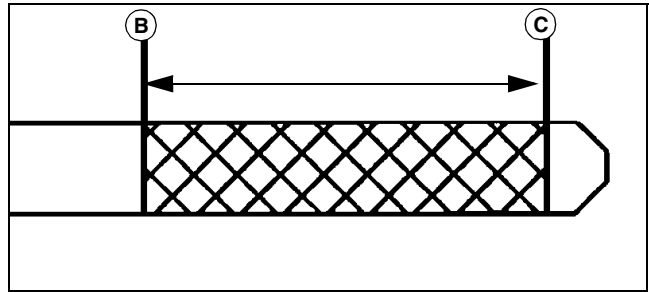
1. Raise attachment to service position. (See Using the Lift Cylinder Safety Support in the Safety section.)
2. Park vehicle safely. (See Parking Safely in the Safety section.)



MX1669

Picture Note: Diesel engine shown.

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



M71680

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

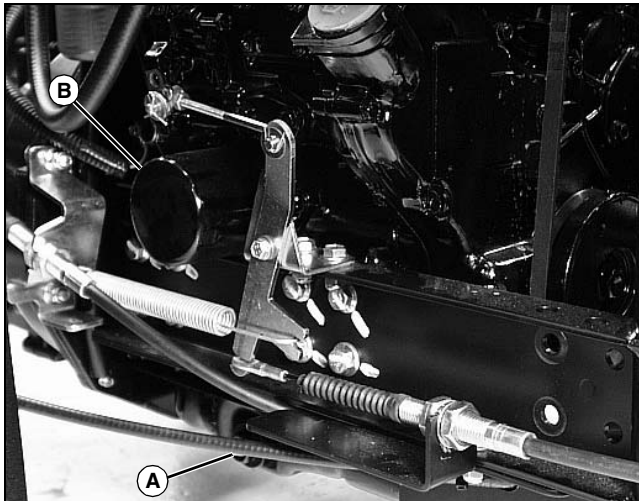
Changing Engine Oil and Filter

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

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

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

SERVICE ENGINE



Picture Note: Diesel engine shown.

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

NOTE: An additional oil fill cap location is located on the right side of the engine.

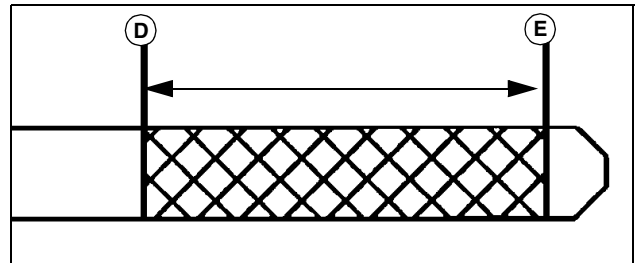


10. Remove oil fill cap (C) on top of engine.
11. Add approximately 2.1 L (2.2 qt) of oil.
12. Install oil fill cap.
13. Start engine.
 - Run engine at a slow throttle speed for approximately two minutes.

14. Check area under engine for oil leaks.
15. Stop engine.
16. After approximately two minutes check engine oil level.

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

17. Remove dipstick. Wipe with a clean cloth.



18. Remove dipstick. Check oil level on dipstick; oil level should be between levels (D) and (E) on the dipstick.
 - If oil is low, add oil to bring oil level no higher than level (D) on the dipstick.
 - If oil level is above level (D) on the dipstick, drain to proper level.
19. Install dipstick in tube.
20. Install dipstick.
21. Lower attachment.

Checking Spark Plugs

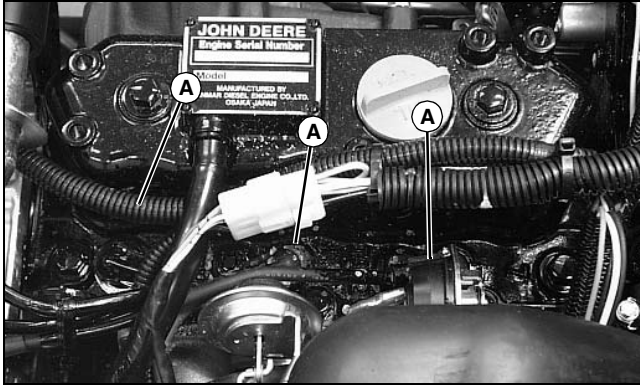


CAUTION: Avoid injury! Touching hot surfaces can burn skin. The engine, components, and fluids will be hot if the engine has been running. Be cautious and wear protective clothing when servicing or working near a hot engine and components.

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

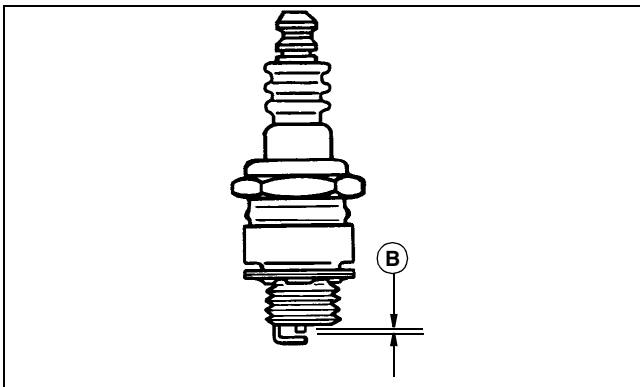
1. Raise attachment to service position. (See Using the Lift Cylinder Safety Support in the Safety section.)
2. Park vehicle safely. (See Parking Safely in the Safety section.)
3. Clean area around each spark plug.

SERVICE ENGINE



MX1736

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



M85200

6. Check and adjust spark plug gap (B) to 0.76 mm (0.030 in.).
7. Install spark plugs.
 - Tighten to 20 N•m (15 lb-ft).
8. Install each spark plug wire.
9. Lower attachment.

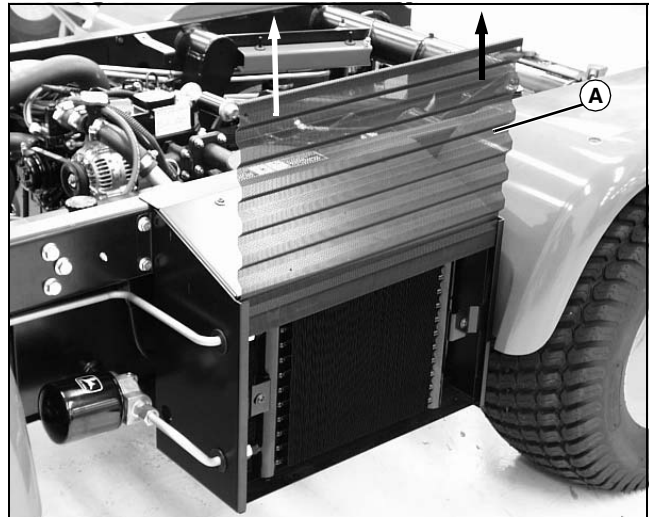
Cleaning Radiator Screen



CAUTION: Avoid injury! Touching hot surfaces can burn skin. The engine, components, and fluids will be hot if the engine has been running. Be cautious and wear protective clothing when servicing or working near a hot engine and components.

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

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



MX7252

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

Cleaning Radiator Cooling Fins and Fan Shroud



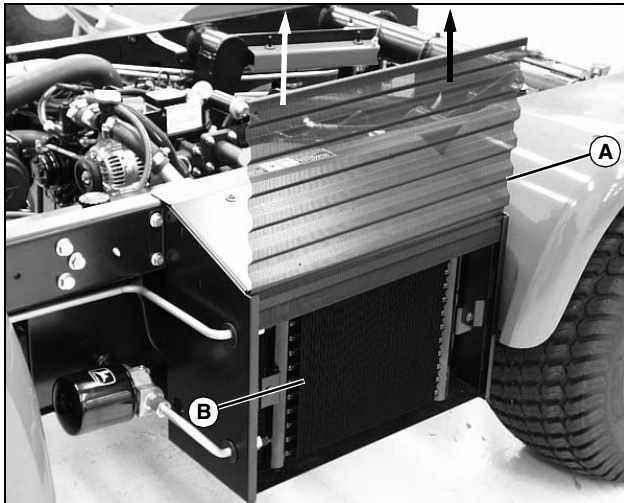
CAUTION: Avoid injury! Compressed air can cause debris to fly a long distance.

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

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

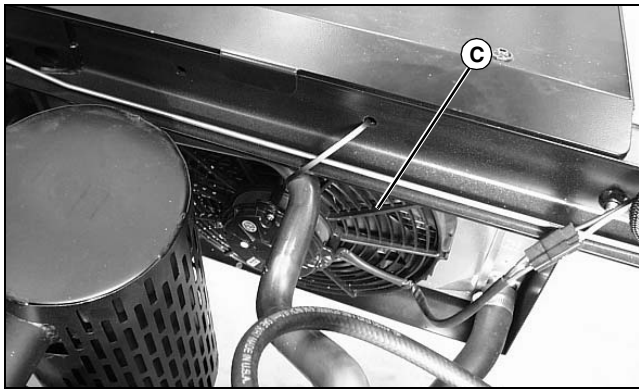
1. Raise attachment to service position. (See Using the Lift Cylinder Safety Support in the Safety section.)
2. Park vehicle safely. (See Parking Safely in the Safety section.)

SERVICE ENGINE



MX7252

3. Remove radiator screen (A).



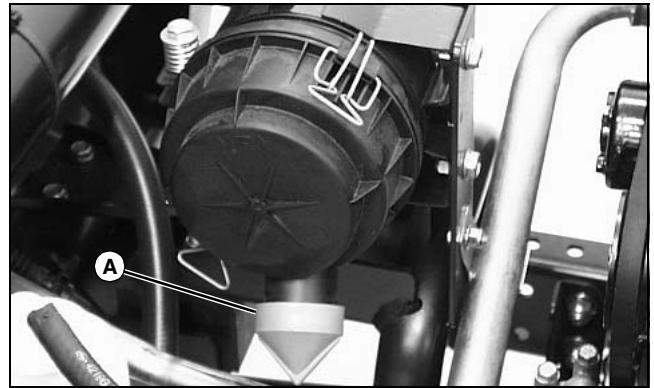
MX1688

4. Remove dirt and debris from the auxiliary hydraulics, oil cooler, radiator cooling fins (B) and fan shroud (C) using compressed air or water.
5. Check radiator fins for damage.
6. Install radiator screen.
7. Lower attachment.

Cleaning Rubber Dust Unloading Valve

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

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



MX1658

3. Remove dust unloading valve (A) and clean. Replace if damaged.
4. Install dust unloading valve.
5. Lower attachment.

Servicing Air Cleaner Element

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

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

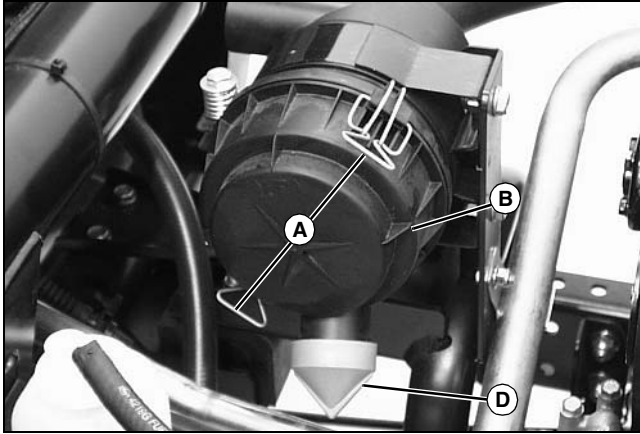
Checking Air Cleaner Element

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

SERVICE ENGINE

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

Check filter element more frequently if operating in dusty conditions.



MX1658

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

Replacing Primary Air Filter Element

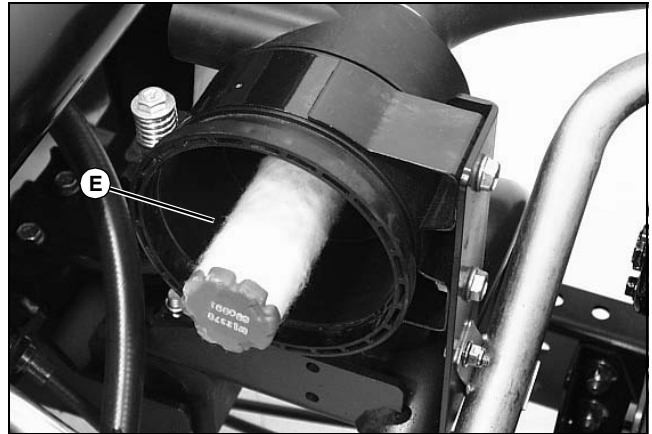


MX1659

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

Replacing Secondary Air Filter Element

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



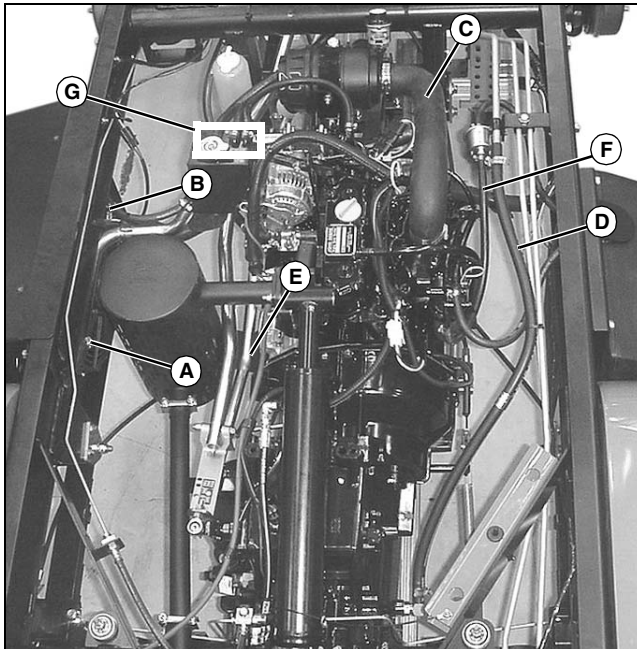
MX1660a

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

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

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

SERVICE ENGINE

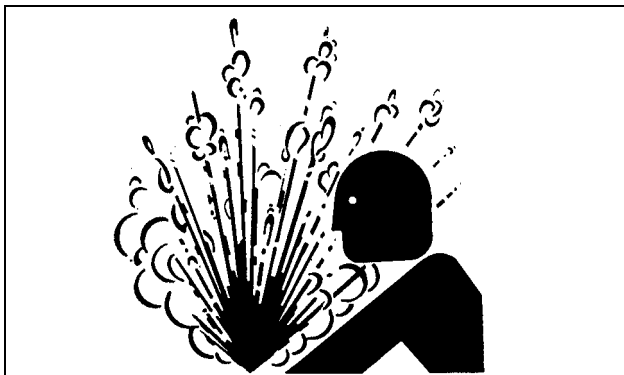


MX14992

- A - Upper Radiator Hoses (4 Clamps)
- B - Lower Radiator Hoses (6 Clamps)
- C - Air Intake Hose (2 Clamps)
- D - Hydraulic Hose (2 Clamps)
- E - Hydraulic Suction Hose (6 Clamps)
- F - Fuel Hose (4 Clamps)
- G - Coolant Hoses (8 Clamps)

3. Check hoses for leaking or damage and adjustable clamps for tightness. Replace if necessary.
4. Lower attachment.

Service Cooling System Safely



TS281



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.

Recommended Engine Coolant

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

- Do not operate engine with plain water.
- Use ethylene-glycol based antifreeze approved for use in aluminum radiators or aluminum engines.
- Do not exceed a 50% mixture of coolant and water.
- Do not pour coolant or water into the radiator when the engine is hot.

The following John Deere coolants are preferred:

- COOL-GARD® PRE-DILUTED SUMMER COOLANT (TY16036).
- COOL-GARD® CONCENTRATED SUMMER COOLANT (TY16034).

If neither of the recommended coolants is available, use a glycol base coolant that meets the following specification:

- ASTM D4985 (JDM H24A2).

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.

If using concentrate, mix approximately 50 percent antifreeze with 50 percent distilled or deionized water before adding to cooling system. This mixture will provide freeze protection to -37 degrees C (-34 degrees F).

Certain geographical areas may require lower temperature protection. See the label on your antifreeze container or consult your John Deere dealer to obtain the latest information and recommendations. Never exceed the maximum dilution rate for the coolant you are using. Exceeding the maximum rate will greatly reduce the coolant effectiveness.

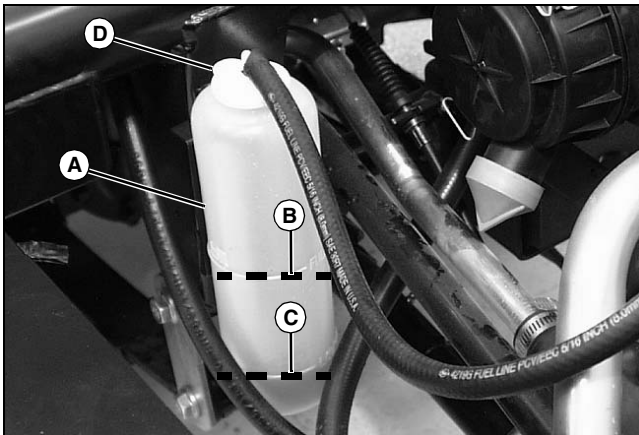
SERVICE ENGINE

Checking Coolant Level

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

- Do not operate engine with plain water.
- Use ethylene-glycol based antifreeze approved for use in aluminum radiators or aluminum engines.
- Do not exceed a 50% mixture of coolant and water.
- Do not pour coolant or water into the radiator when the engine is hot.

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



MX1691

3. Check recovery bottle (A) coolant level:
 - If engine is warm, coolant level should be between the "FULL" line (B) and the "LOW" line (C).
 - If engine is cold, coolant level should be at the "LOW" line (C) on the recovery bottle.
4. Remove recovery bottle cap (D) to add coolant.
5. If coolant is low, add specified ratio of antifreeze and water.
6. Install and tighten recovery bottle cap.
7. Clean debris from the air intake screen, fan shroud, radiator cooling fins and auxiliary oil cooler coils.
8. Check condition of coolant system hoses and clamps. Check for leaks or loose connections.

Servicing Cooling System

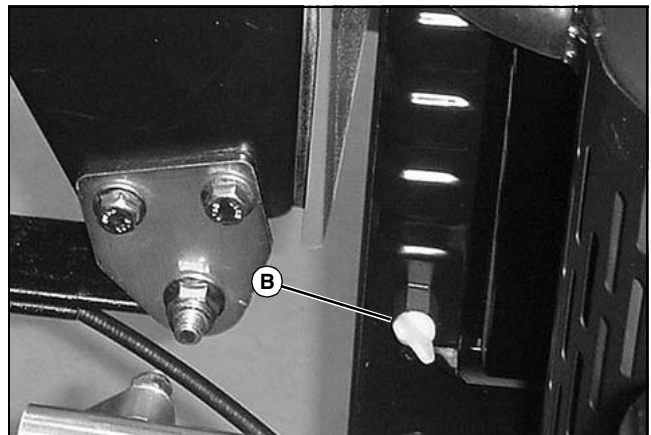
Draining Cooling System

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



MX14993

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



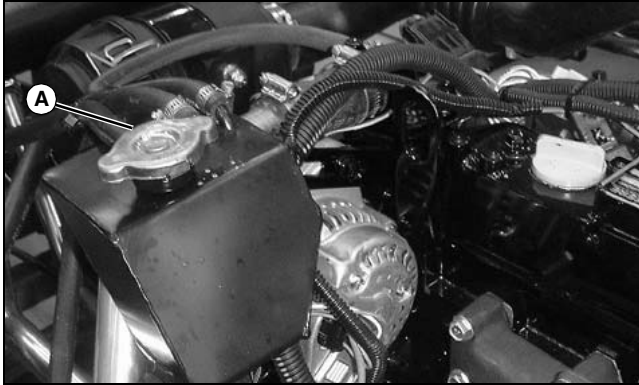
MX14994

5. Open radiator petcock (B). Drain coolant into a pan.
6. When coolant drains from the recovery bottle, remove radiator cap.
7. After all coolant has drained, close radiator petcock.
8. Flush cooling system.

Flushing Cooling System

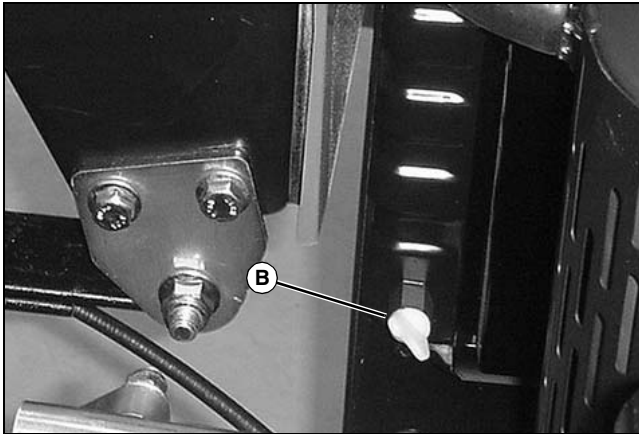
1. Fill cooling system with clean water and John Deere Cooling System Cleaner, or John Deere Cooling System Quick Flush or an equivalent. Follow directions on the can.

SERVICE ENGINE



MX14993

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

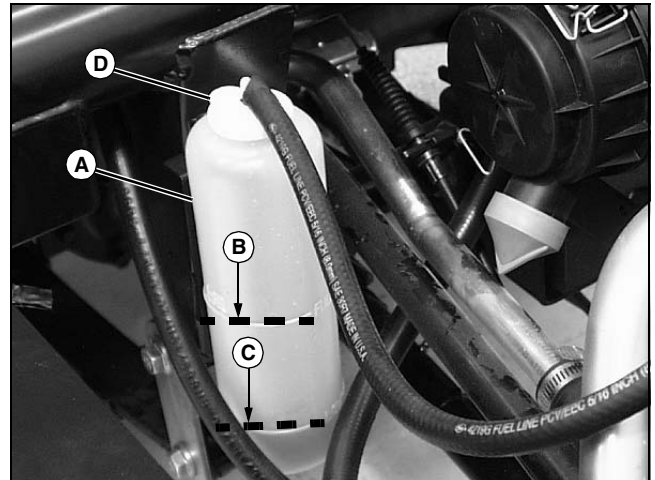


MX14994

5. Open radiator petcock (B).
 - Drain cooling system immediately before rust and dirt settle.
6. Close radiator petcock.

Filling Cooling System

1. Fill cooling system with approximately 3.8 L (4.1 qt) of coolant.
 - Certain geographical areas may require protection from lower temperatures. See the label on your antifreeze container or consult your John Deere dealer to obtain the latest information and recommendations.
 - John Deere Cooling System Sealer or its equivalent may be added to the radiator to seal leaks. Do not use any other additives in the cooling system.
2. Install and tighten radiator cap.
3. Run engine until it reaches operating temperature.
4. Stop engine.



MX1691

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

Replace Fuel Filter (Gas Models)



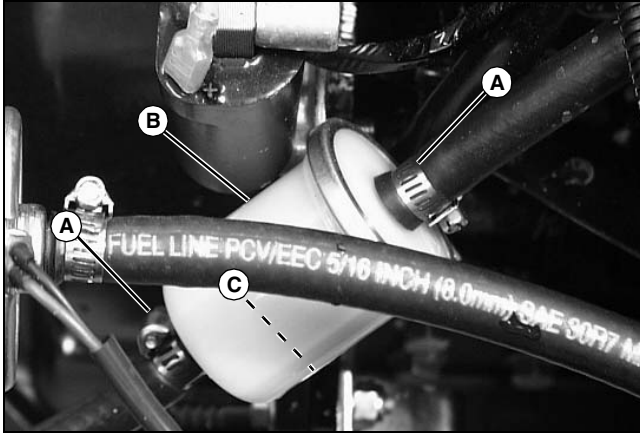
CAUTION: Avoid injury! Fuel vapors are explosive and flammable:

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

NOTE: Change filter when fuel is low.

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

SERVICE ENGINE



MX1738

3. Slide hose clamps (A) away from filter (B) located on the right side of the engine.

4. Disconnect hoses from filter.

NOTE: When installing a new fuel filter, make sure the filter arrow (C) is pointed in the direction of fuel flow.

5. Install new filter.

6. Connect hoses to new filter.

7. Install hose clamps.

8. Lower attachment.

Servicing Fuel Filter Sediment Bowl (Diesel Models)



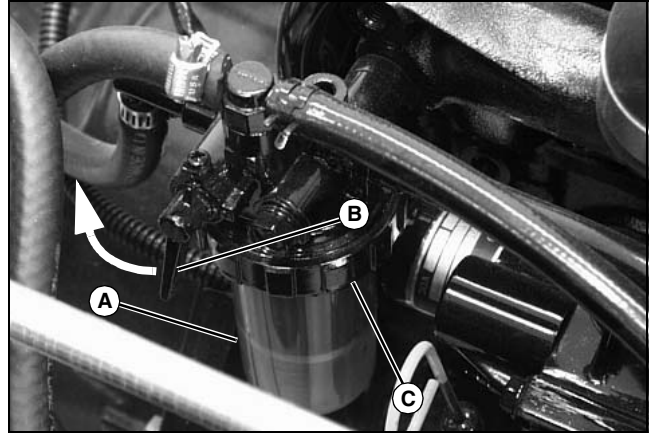
CAUTION: Avoid injury! Fuel vapors are explosive and flammable:

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

Checking

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

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



MX1670

3. Visually check for water and deposits in the sediment bowl (A).

4. If necessary, clean bowl and replace filter.

Cleaning and Replacing

1. Close fuel shut-off valve (B).

2. Turn collar (C) to remove bowl and filter. Discard filter.

3. Clean bowl.

4. Install new filter and bowl.

5. Tighten collar.

6. Open fuel shut-off valve.

7. Lower attachment.

Checking and Adjusting Alternator Belt



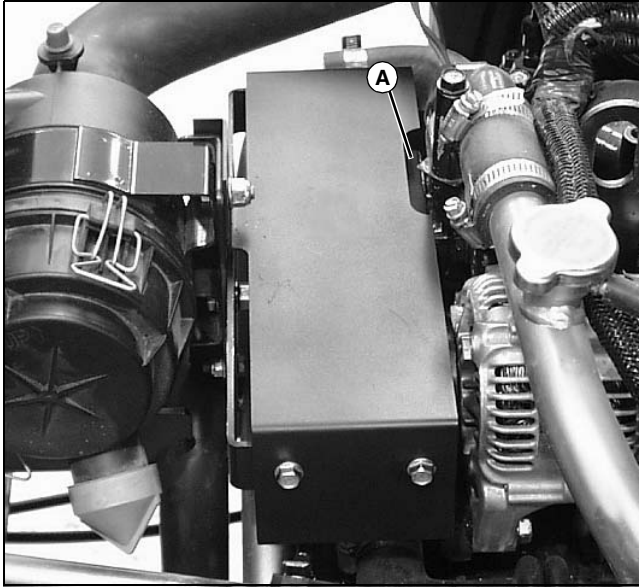
CAUTION: Avoid injury! Entanglement in a belt or sheave can cause serious injury. Stop engine and wait for all moving parts to stop.

Check Belt Tension

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

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

SERVICE ENGINE

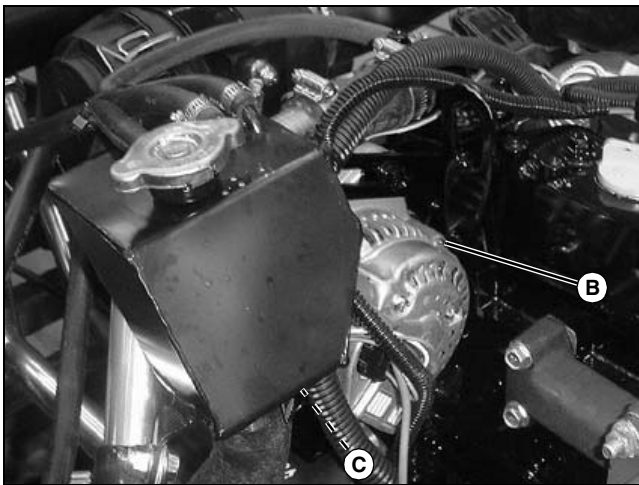


MX3091

3. Check alternator belt (A) through shield opening:

- Inspect belt for excessive wear, damage or stretching while in position on the sheaves.
- Apply thumb pressure to the belt approximately halfway between the sheaves. Belt should deflect inward approximately 10 mm (3/8 in.).

Adjusting Belt Tension



MX14993

1. Loosen adjustment bolt (B).
2. Loosen alternator mounting bolt (C).
3. Apply outward pressure to the alternator housing.
4. Tighten alternator adjustment bolt (B) and mounting bolt (C).
5. Check belt tension:
 - Apply thumb pressure to the belt approximately halfway between the sheaves. Belt should deflect inward

approximately 10 mm (3/8 in.).

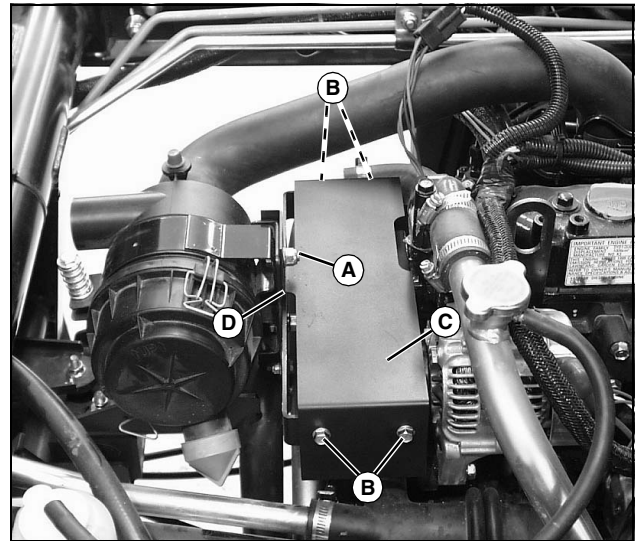
6. Lower attachment.

Replacing Alternator Belt (Gas Models)



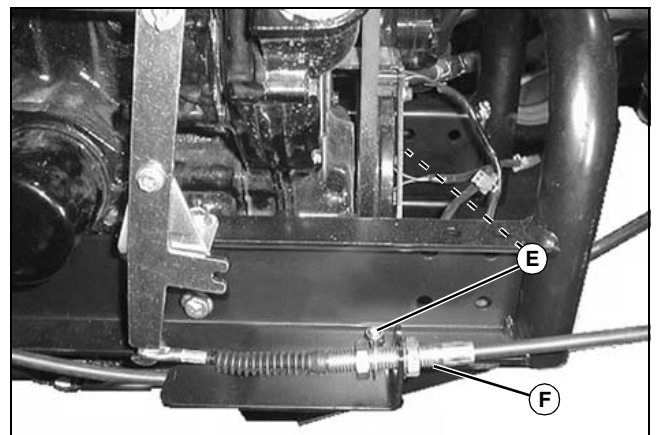
CAUTION: Avoid injury! Entanglement in a belt or sheave can cause serious injury. Stop engine and wait for all moving parts to stop.

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



MX3091

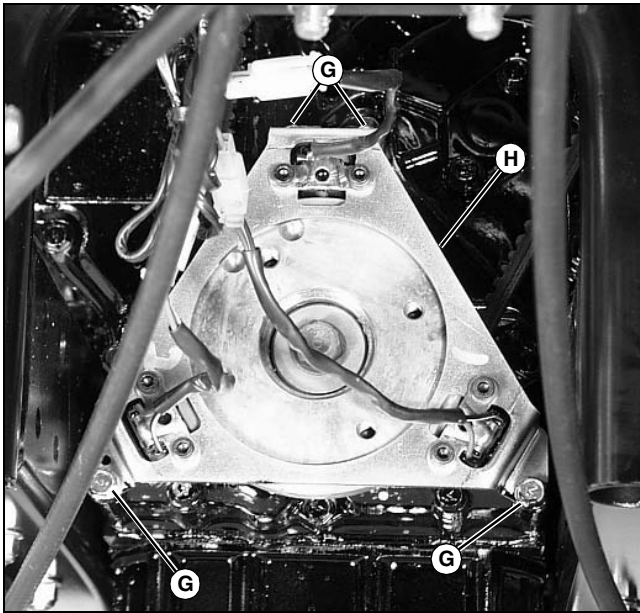
3. Remove nut (A), four screws (B) and belt shield (C) from the air cleaner support bracket (D).



MX14979

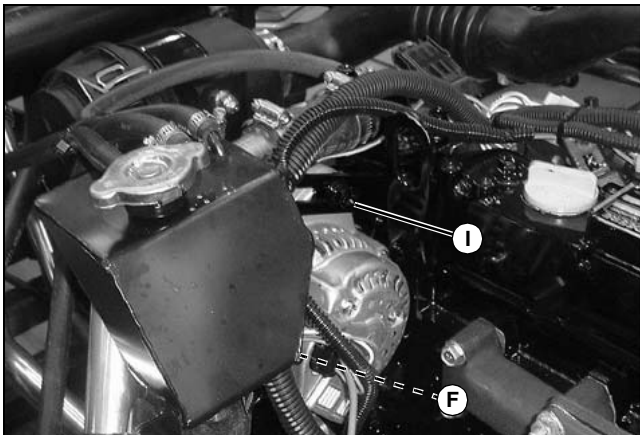
4. Remove two hex bolts (E), flanged lock nuts and skid plate (F) mounted under the vehicle in front of the engine.

SERVICE ENGINE



MX1740a

5. Remove four cap screws (G) and pulser bracket (H) .



MX14993

6. Loosen alternator adjustment bolt (I).
7. Remove alternator mounting bolt (J).
8. Apply inward pressure to the alternator housing.
9. Remove worn belt from the alternator sheave and both engine sheaves.
10. Install new belt.
11. Install alternator mounting bolt (J). DO NOT tighten.
12. Apply outward pressure to the alternator housing.
13. Tighten adjustment bolt (I) and mounting bolt (J).
14. Check belt tension:
- Apply thumb pressure to the belt approximately halfway between the sheaves. Belt should deflect inward approximately 10 mm (3/8 in.).
15. Install pulser bracket with four cap screws.

NOTE: Install bolts from inside to the outside of the skid plate.

16. Install skid plate with two hex bolts and flanged lock nuts removed earlier.

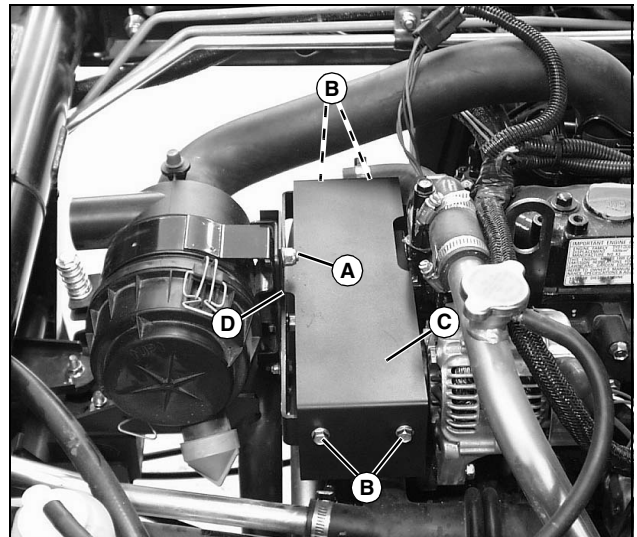
17. Lower attachment.

Replacing Alternator Belt (Diesel Models)



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

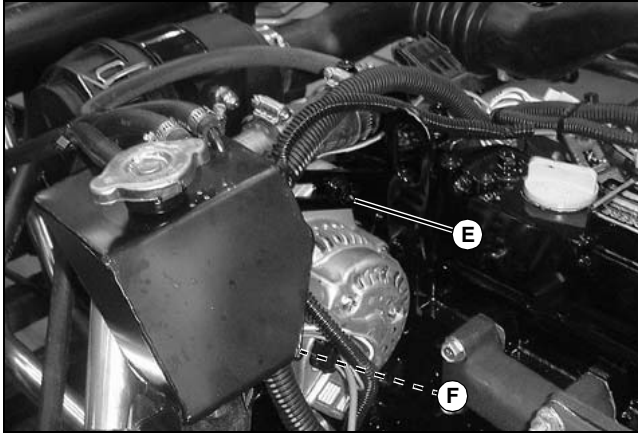
1. Raise attachment to service position. (See Using the Lift Cylinder Safety Support in the Safety section.)
2. Park vehicle safely. (See Parking Safely in the Safety section.)



MX3091

3. Remove nut (A), four screws (B) and belt shield (C) from the air cleaner support bracket (D).

SERVICE ENGINE



MX14993

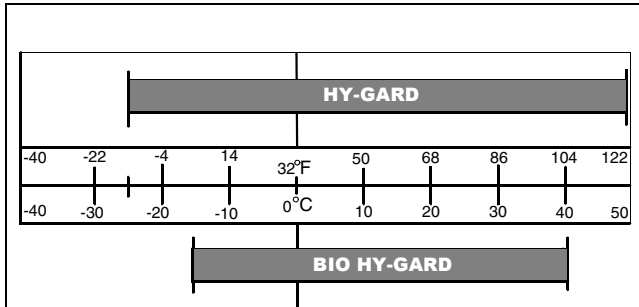
4. Loosen adjustment bolt (E).
5. Remove alternator mounting bolt (F).
6. Apply inward pressure to the alternator housing.
7. Remove worn belt from the alternator sheave and both engine sheaves.
8. Install new belt.
9. Install alternator mounting bolt (F). DO NOT tighten.
10. Apply outward pressure to the alternator housing.
11. Tighten alternator adjustment bolt (E) and mounting bolt (F).
12. Check belt tension:
 - Apply thumb pressure to the belt approximately halfway between the sheaves. Belt should deflect inward approximately 10 mm (3/8 in.).
13. Lower attachment.

SERVICE TRANSMISSION

Transmission Oil

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

The following John Deere transmission and hydraulic oils are preferred:



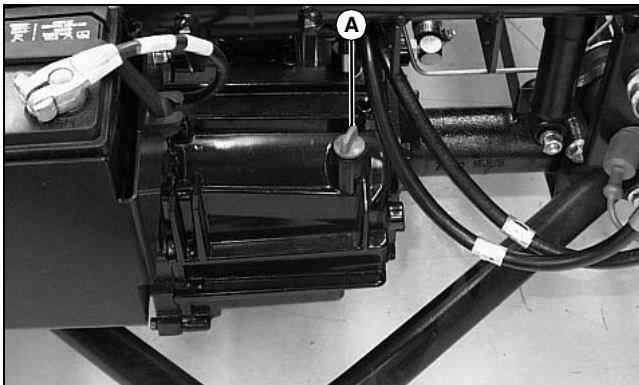
- HY-GARD™ (JDM J20C)
- BIO HY-GARD™

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

Checking Transmission Oil Level

IMPORTANT: Avoid damage! Hot hydraulic oil will expand and show incorrect oil level. Check level in reservoir when engine is off and oil is cold.

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

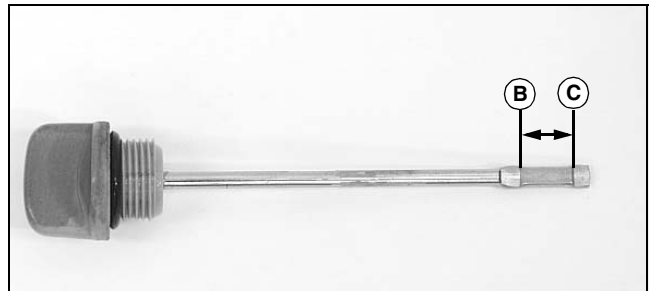


MX1663

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

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

4. Install fill cap/dipstick.



MX1647

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

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

6. Install fill cap/dipstick.

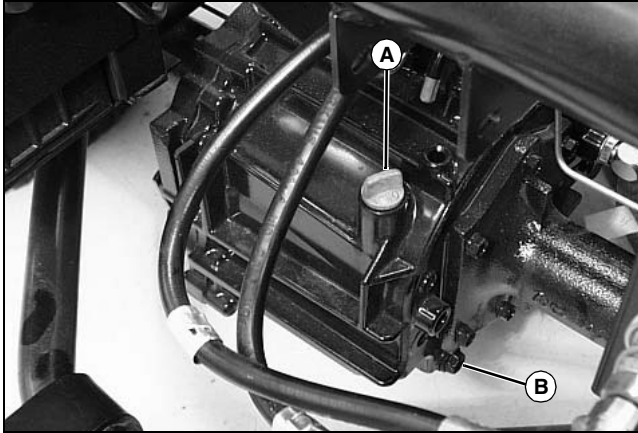
Changing Transmission Oil and Filter

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

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

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

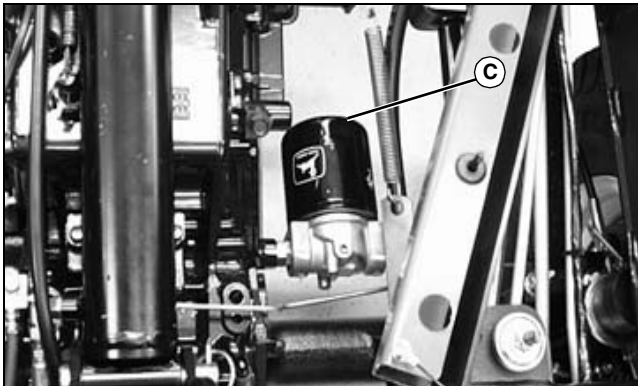
SERVICE TRANSMISSION



MX1675

3. Thoroughly clean area around the transmission fill cap/dipstick (A). Remove fill cap/dipstick.
4. Locate drain plug (B) under right side of transmission.
5. Remove drain plug. Allow oil to drain into a drain pan with at least a 10.6 L (2.8 gal) capacity.

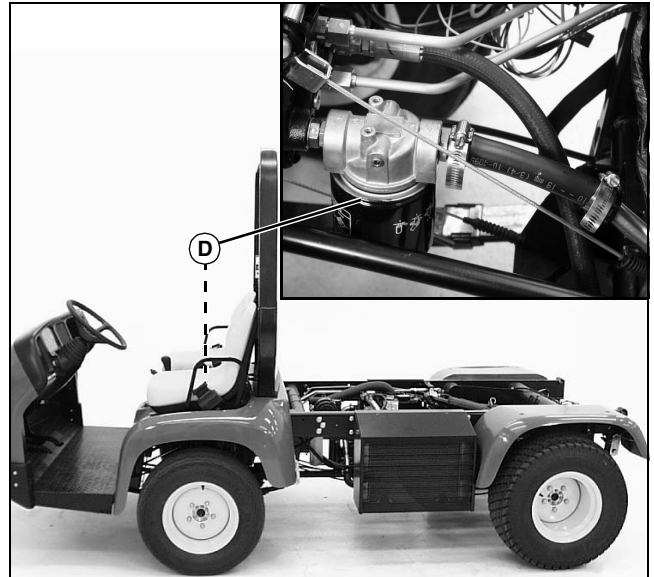
NOTE: If the vehicle is equipped with an auxiliary hydraulic kit, the transmission filter (C) is relocated to the right side of the vehicle.



MX7256

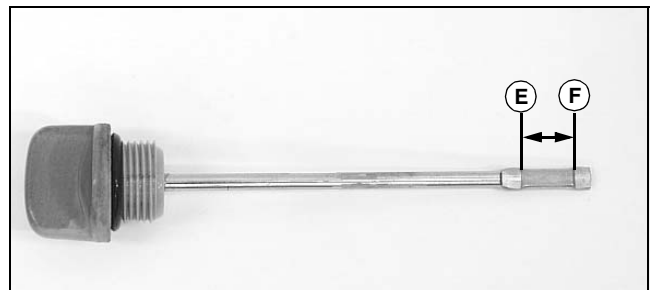
6. Locate transmission oil filter (C) on the right side of vehicle on the transaxle.

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



MX7261 MX1654

- a. Locate transmission oil filter (D) on standard machine in the center behind control valve.
 7. Turn filter counterclockwise to remove. Use a drain pan to catch dripping oil.
 8. Install new filter.
 - Apply a film of clean oil on gasket of new filter.
 - Turn filter clockwise until gasket makes contact with the mounting surface. Tighten 1/2 to 3/4 turn after gasket contact.
 9. Clean transmission oil strainer.
 10. Install and tighten drain plug, torque to 49 N•m (36 lb-ft).
 11. Add approximately 8.5 L (2.25 gal) of oil into fill opening.
- NOTE: DO NOT tighten dipstick. Allow threads to rest on top of transmission housing.**
12. Install fill cap/dipstick.



MX1647

13. Remove fill cap/dipstick. Check oil level on dipstick; oil level should be between levels (E) and (F) on the dipstick.
 - If oil is low, add oil to bring oil level no higher than

SERVICE TRANSMISSION

level (E) on the dipstick.

- If oil is above level (E) on the dipstick, drain to proper level.

14. Install fill cap/dipstick.

15. Lower attachment.

Clean Transmission Oil Strainer

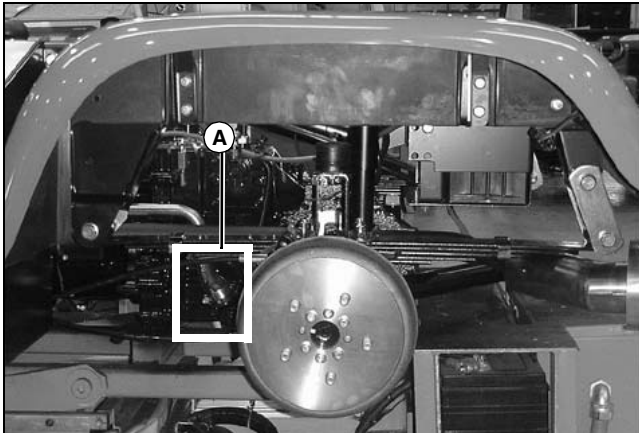


CAUTION: Avoid injury! Use caution when cleaning the oil strainer. During periods of machine operation the transmission oil can get hot.

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

1. Change transmission oil and filter.

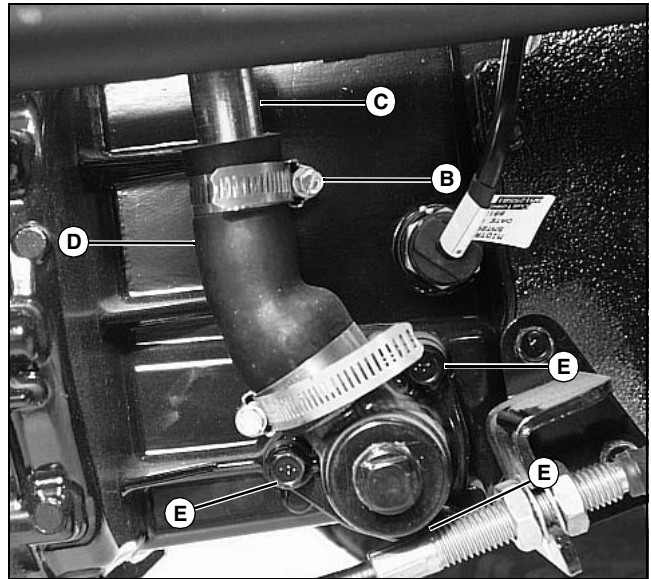
NOTE: Left rear wheel removed for photo clarity only.



MX14995

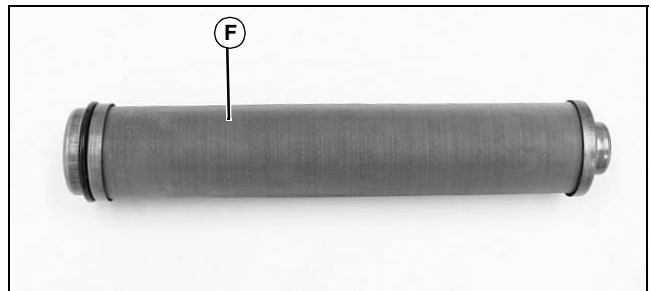
2. Locate strainer housing (A) on the left side of vehicle.

NOTE: Use drain pan to catch dripping oil.



MX1723

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



MX1718

7. Clean strainer (F) with solvent or mineral spirits and allow to dry.
8. Install strainer into the strainer housing.
9. Install strainer housing.
10. Install and tighten three hex bolts (E).
11. Install rubber hose (D) onto hydraulic line (C).
12. Tighten adjustable hose clamp (B).

SERVICE TRANSMISSION

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.

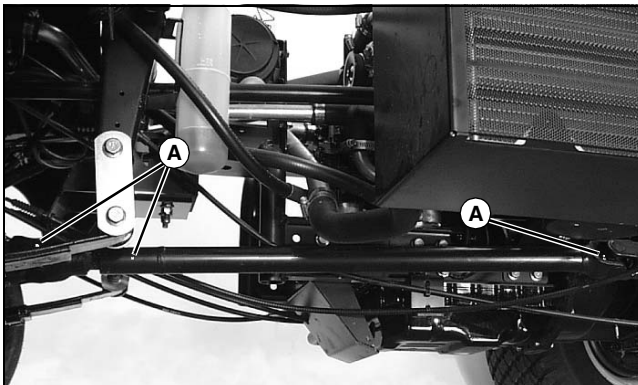
Wet or high speed conditions may require use of a special-use grease. Contact your Servicing dealer for information.

The following lubricant is preferred:

- SUPER LUBE® lubricant.¹

Lubricating the Drive Shaft (4WD Models)

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



MX1702

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

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

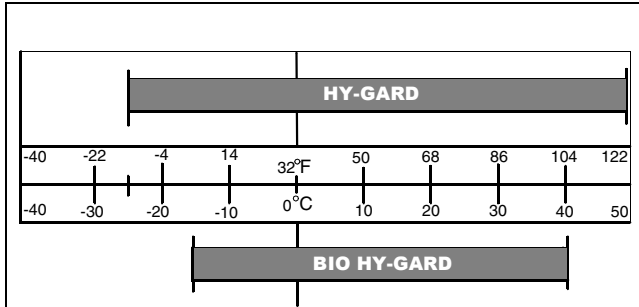
SERVICE HYDRAULICS

Hydraulic Oil

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

The following John Deere transmission and hydraulic oil is preferred:

- HY-GARD™ (JDM J20C)
- BIO HY-GARD™



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

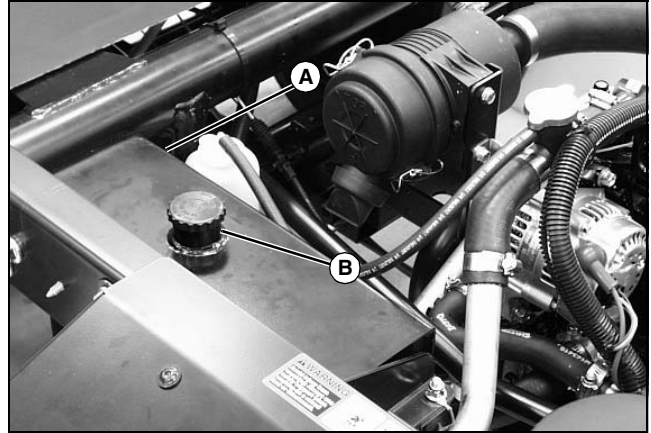
Check Hydraulic Oil Level

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

IMPORTANT: Avoid damage! Check oil level in reservoir tank when oil is cold.

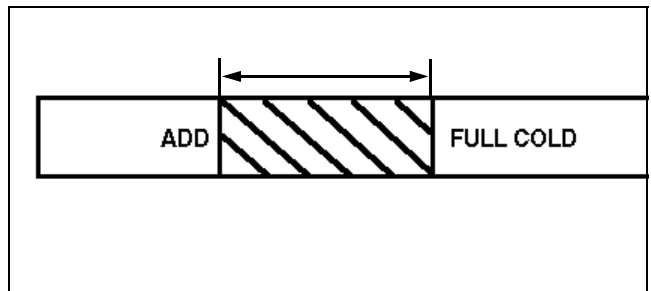
Do not overfill oil reservoir tank. Oil will expand during operation and could overflow.

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



MX7250

3. Locate auxiliary oil reservoir (A) on left side of vehicle.
4. Thoroughly clean area around dipstick cap (B).
5. Remove dipstick cap (B) from the oil reservoir tank. Visually check level of oil.



M93955

- Oil must be between the “ADD” and “FULL COLD” marks on the dipstick.
6. Add oil, if necessary.
 7. Install and tighten dipstick cap.
 8. Lower attachment.

SERVICE HYDRAULICS

Changing the Hydraulic Oil and Filter



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

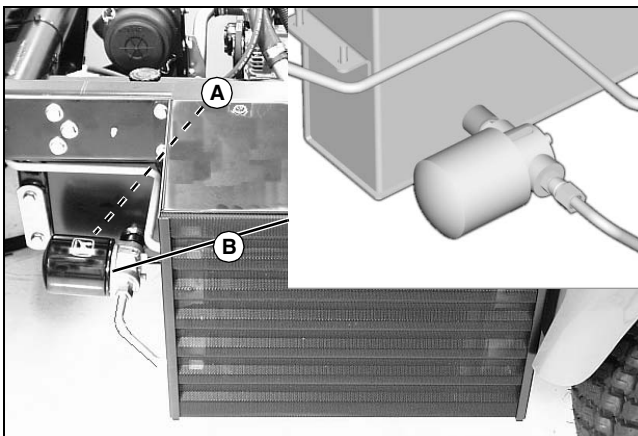
Use caution when filling and draining hydraulic oil. During periods of machine operation the hydraulic oil reservoir can get hot. Allow engine and oil reservoir to cool before servicing.

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

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

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

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



MX7249, MX7251

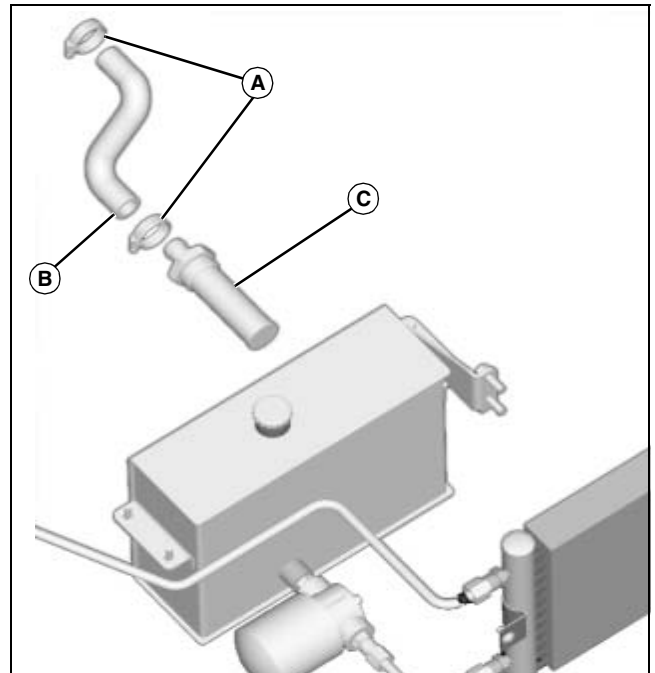
4. Locate drain plug (A) under the oil reservoir on the left side of the vehicle.
5. Place container under the oil drain location.
6. Remove drain plug. Allow oil to drain into a container with at least a 13.2 L (3.5 gal) capacity.

7. Remove hydraulic oil filter (B) located on left side of vehicle when hydraulic kit is installed.
8. Turn filter counterclockwise to remove. Use a drain pan to catch dripping oil.
9. Apply a film of clean oil on gasket of new filter.
10. Turn filter clockwise until gasket makes contact with the mounting surface. Tighten 1/2 to 3/4 turn after gasket contact.
11. Install drain plug. Do not overtighten.
12. Clean hydraulic oil reservoir strainer:

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

Routinely clean strainer when changing the hydraulic oil and filter. Strainer should be serviced when the hydraulic oil tank is empty.

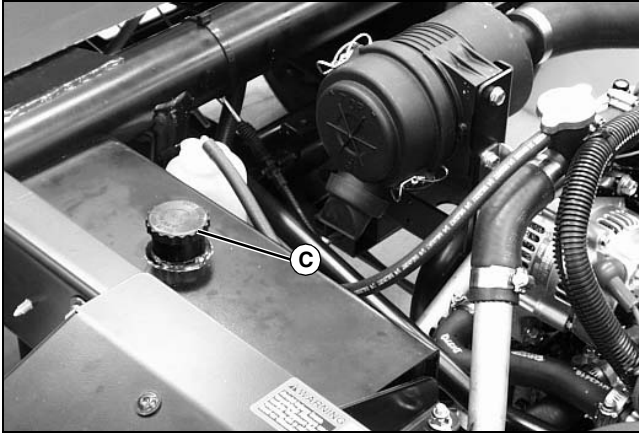
- a. Change hydraulic oil and filter.



MX7253

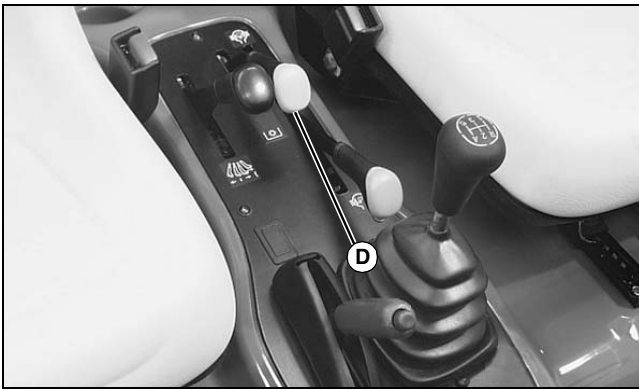
- b. Loosen adjustable hose clamp (A).
- c. Remove rubber hose (B) from strainer (C).
- d. Remove strainer from the hydraulic oil tank.
- e. Clean strainer with solvent or mineral spirits and allow to dry.
- f. Install strainer into the hydraulic oil tank.
- g. Install rubber hose onto strainer.
- h. Tighten adjustable hose clamp.

SERVICE HYDRAULICS



MX7250

13. Thoroughly clean area around dipstick cap (C).
14. Remove dipstick cap from the oil reservoir tank.
15. Fill oil reservoir with approximately 13.2 L (3.5 gal) of oil.
16. Start engine.



MX14972

17. Cycle the hydraulic PTO lever (D) for approximately three seconds. Check for leaks.
18. Stop engine.
19. Check oil level. Add oil as necessary.
20. Lower attachment or cargo box.

Cleaning Oil Cooler



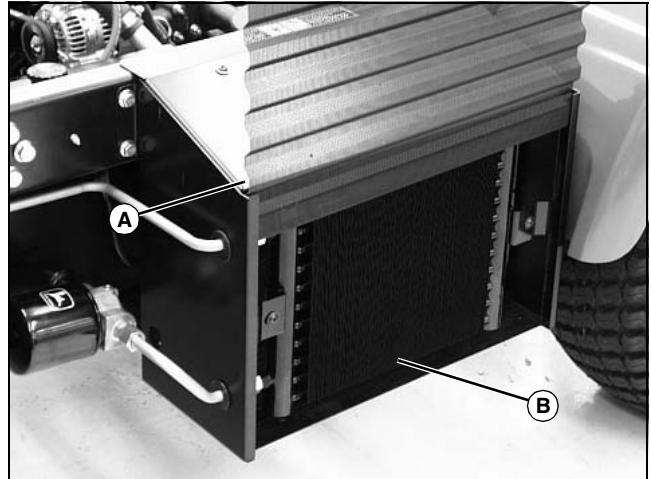
CAUTION: Avoid injury! Compressed air can cause debris to fly a long distance.

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

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

NOTE: This service procedure should be performed on vehicles equipped with auxiliary hydraulic kit.

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



MX1726

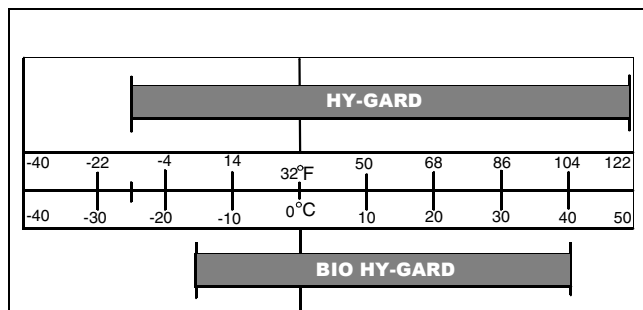
3. Lift air intake screen (A) from position in front of the engine radiator.
4. Remove dirt and debris from the oil cooling coils (B) using compressed air or water. Check coils for damage.
5. Install air intake screen.
6. Lower attachment.

SERVICE STEERING & BRAKES

Front Axle Oil

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

The following John Deere transmission and hydraulic oil is preferred:



- HY-GARD™ (JDM J20C)
- BIO HY-GARD™

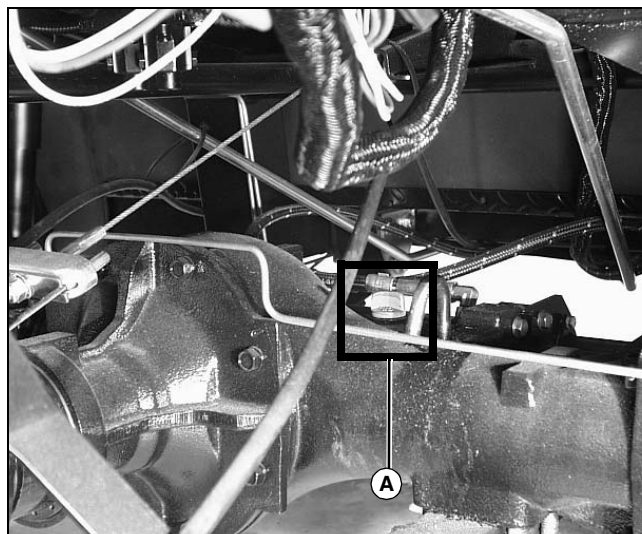
IMPORTANT: Avoid damage! Only use a quality oil in this gear case. Do Not mix any other oils in this gear case.

Checking the Front Axle Oil Level (4WD Models)

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

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

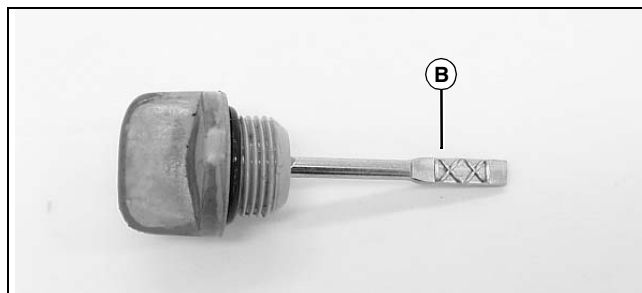
IMPORTANT: Avoid damage! Dirt and debris in oil may cause damage. Help prevent contaminants from entering the oil dipstick location. Clean area around dipstick before removing.



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

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

4. Install dipstick into the axle housing.

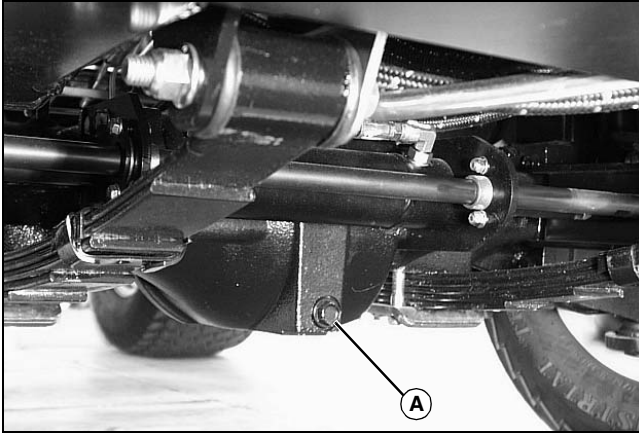


5. Remove dipstick. Oil level should be at level (B) on the dipstick.
 - If oil is low, add oil. Oil level should be to the top of the XX area (B) on the dipstick.
6. Install and tighten dipstick.

Changing the Front Axle Oil (4WD Models)

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

SERVICE STEERING & BRAKES

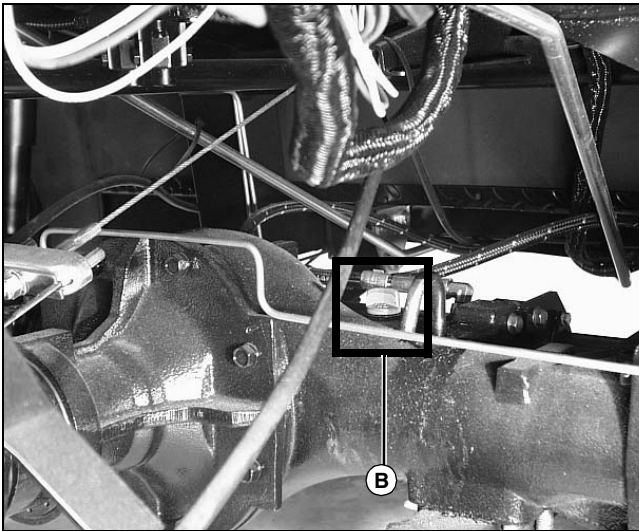


MX1695

3. Remove differential drain plug (A) to drain oil.

4. Install and tighten drain plug.

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



MX1694

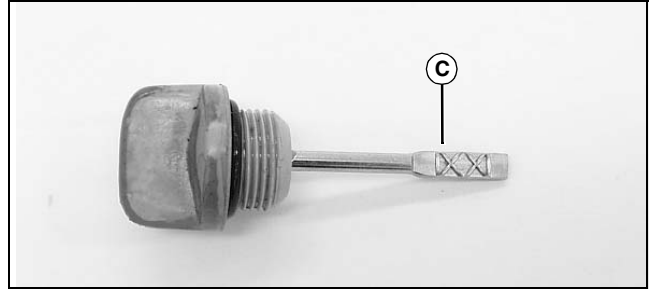
5. Unscrew dipstick (B) and remove it from the differential housing.

6. Add approximately 3.3 L (3.5 qt) of oil through the dipstick opening.

7. Wipe dipstick dry with a clean cloth.

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

8. Install dipstick.



MX1696

9. Remove dipstick. Oil level should be at level (C) on the dipstick.

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

10. Install and tighten dipstick.

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

Brake Fluid

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

- Brake Fluid - DOT3

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

- DOT3 certified.
- Conforms to Motor Vehicle Safety Standard No. 116.
- Minimum wet boiling point 140°C (284°F).
- Minimum dry boiling point 232°C (450°F) to prevent vapor lock.

Check Brake Fluid Level

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

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

Use only DOT3 brake fluid from a sealed container.

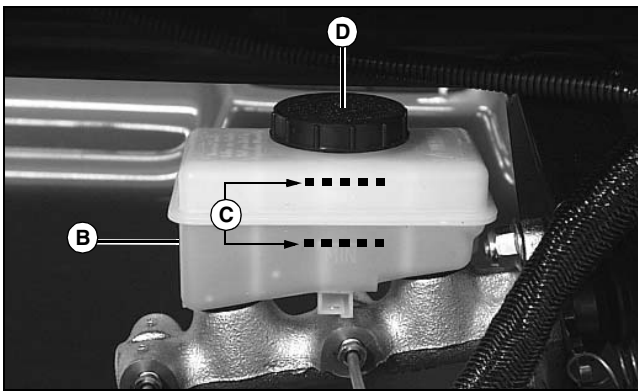
1. Park vehicle safely. (See Parking Safely in the Safety section.)

SERVICE STEERING & BRAKES



MX1678

2. Pull front grill (A) straight out and remove.

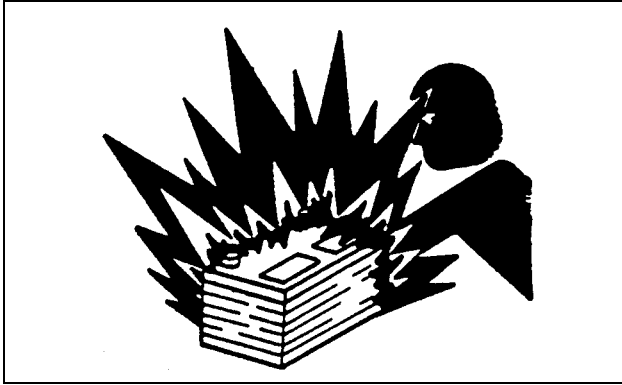


MX1682

3. Visually check the see-through reservoir (B) for the appropriate amount of fluid.
 - Fluid levels must be maintained between the “MAX” maximum and “MIN” minimum fill lines (C).
 - If the fluid level is above the “MIN” minimum fill line, Do not open the cap.
4. If fluid is low:
 - Carefully clean area around reservoir cap (D). Unscrew cap.
 - Add fluid until level is midway between the reservoir fill lines.
5. Install reservoir cap; wipe up any spills.
6. Install front grille.

SERVICE ELECTRICAL

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.

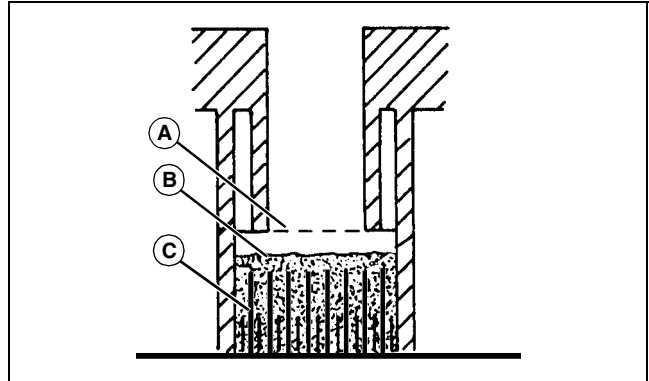
Checking Battery Electrolyte Level

NOTE: Add only distilled water to replace battery electrolyte.

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

NOTE: Not necessary to remove battery if cargo bed and/or attachment is not installed.

2. Remove battery from vehicle and set it on a level surface.
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. Rinse the battery with plain water and dry.
4. Remove battery cell caps. Make sure cap vents are not plugged.



M39772

5. 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.

6. Add only distilled water if necessary.
7. Install battery cell caps.

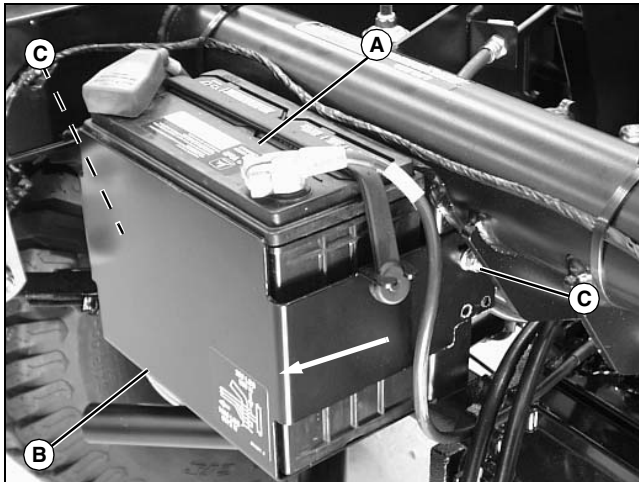
Cleaning Battery and Terminals

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 posts using washers and nuts.
8. Apply general purpose grease or silicone spray to terminal to prevent corrosion.

SERVICE ELECTRICAL

Replacing Battery

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



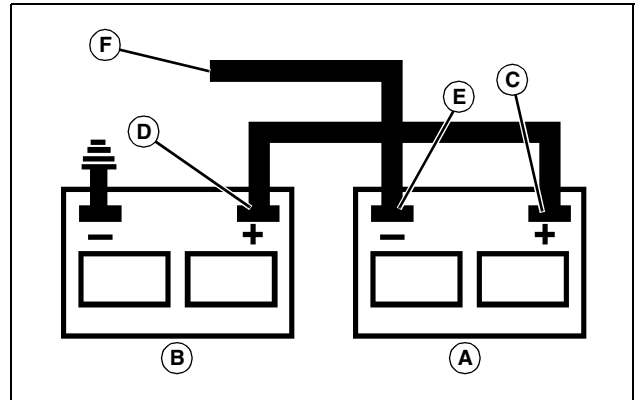
1. Remove battery (A) from bracket (B).
2. Remove hardware (C) from both sides and bottom of bracket.
3. Slide bracket (B) out to the other hole in bracket to allow the deeper service battery to fit.
4. Install hardware removed earlier and tighten.
5. Install battery.

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.



A - Booster Battery

B - Disabled Vehicle Battery

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

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

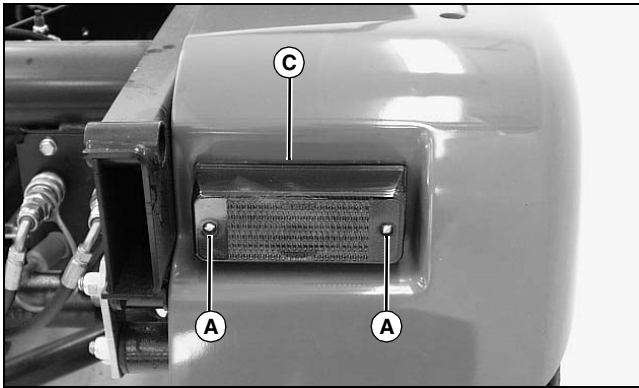
Install negative booster cable away from moving parts in the engine compartment, such as belts and fan blades.

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

Replacing Stoplight/Taillight Bulb

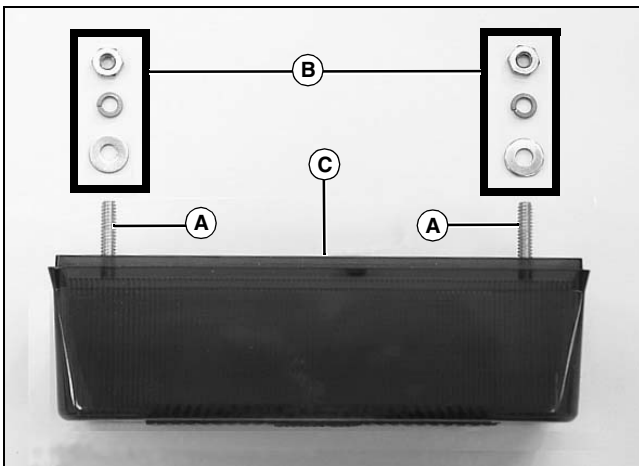
1. Park vehicle safely. (See Parking Safely in the Safety section.)

SERVICE ELECTRICAL



MX1664

2. Remove two screws (A).



MX1666

3. Remove attaching hardware (B) and lens (C) from the combination stoplight/taillight assembly.

4. Remove defective bulb.

- Rotate bulb counterclockwise approximately 1/3 turn and remove from the socket.

5. Install new bulb into the socket.

- Push down top of bulb and rotate clockwise into a locked position.

6. Check operation of lights.

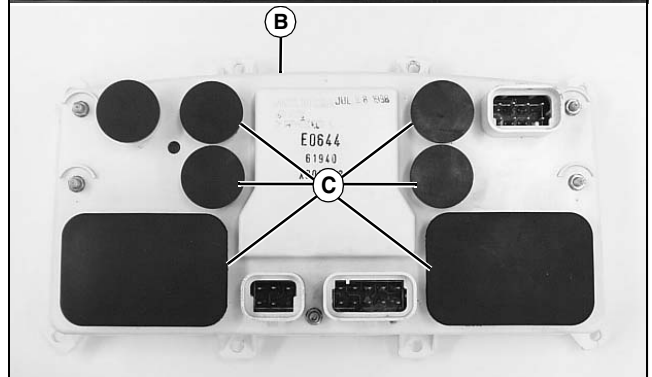
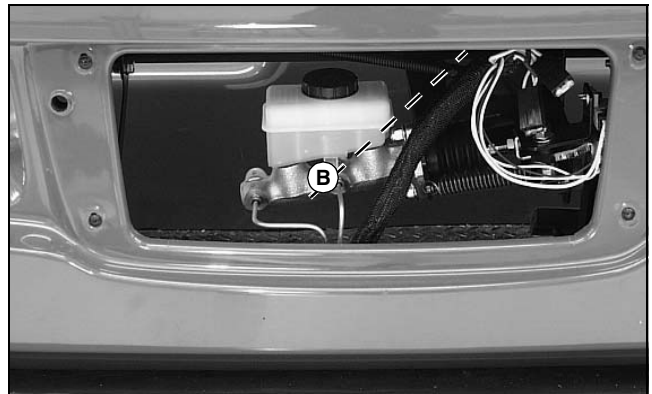
7. Install lens.

Replacing Indicator Light Bulb

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

2. Remove front grille.

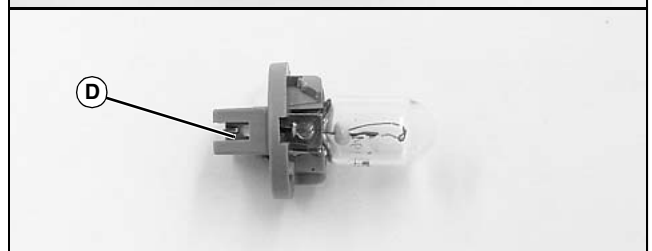
NOTE: Instrument panel housing removed for photo clarity.



MX1680 MX1698

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

4. Remove rubber plugs (C) to locate indicator light bulb assemblies.



MX1699 MX1692

5. Remove defective bulb assembly (D) from the instrument panel housing.

- Rotate bulb assembly counterclockwise approximately 1/3 turn and remove from the housing

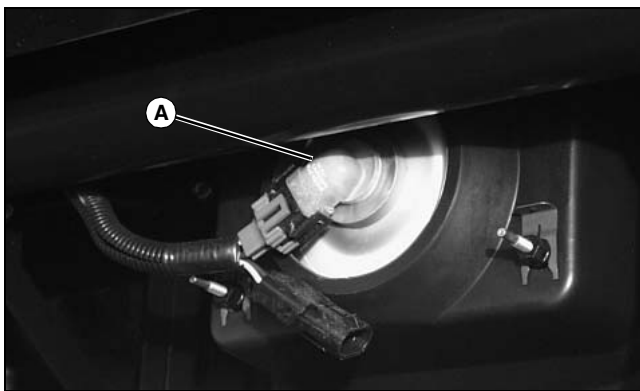
SERVICE ELECTRICAL

socket.

6. Install new bulb assembly into housing socket and rotate clockwise into a locked position.
7. Check operation of lights.
8. Install rubber plug.
9. Install front grille.

Replacing Headlight Bulb

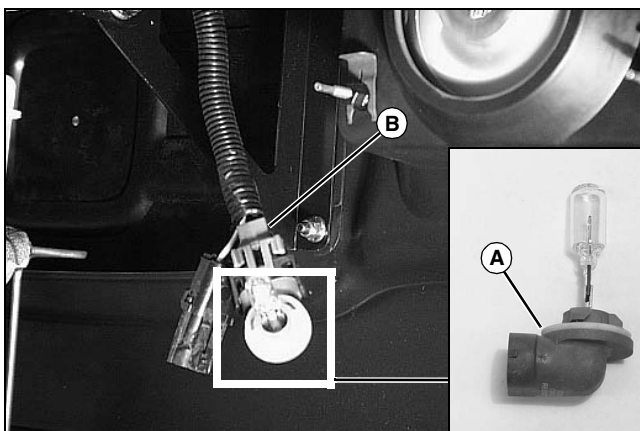
1. Park vehicle safely. (See Parking Safely in the Safety section.)
2. Locate headlight housing under the vehicle dash.



MX1683

3. Rotate bulb assembly (A) counterclockwise approximately 1/3 turn and remove from the socket.

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



MX1648 MX1684

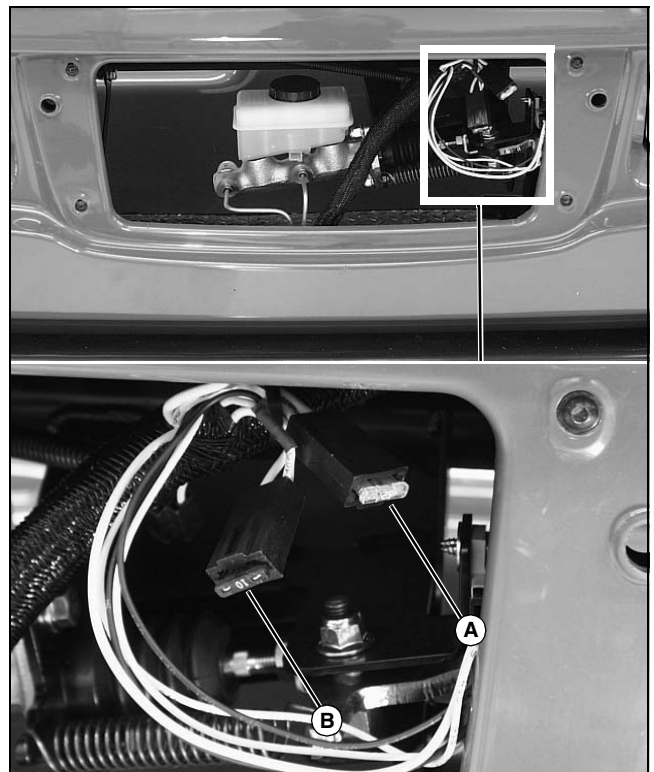
4. Disconnect wiring harness (B) from the bulb assembly.
5. Connect wiring harness to the replacement bulb assembly (A).

6. Install new headlight bulb assembly into housing socket and rotate into a locked position.
7. Check operation of lights.

Checking and Replacing Fuses

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

1. Park vehicle safely. (See Parking Safely in the Safety section.)
2. Remove front grille.
3. Fuse identification:



MX1680 MX1681

- 25 amp fuse (A) - Light Circuit
 - 10 amp fuse (B) - Starter Circuit
4. Replace defective fuse.
 - Remove defective fuse from fuse holder.
 - Push in a new fuse.
 5. Install front grille.

SERVICE MISCELLANEOUS

Using Proper Fuel

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.

Contact 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) below the expected low temperature OR **Cloud Point** at least 5°C (9°F) below the expected low temperature.

Fuel lubricity should pass a minimum load level of 3100 grams as measured by ASTM D6078 or maximum scar diameter of 0.45 mm as measured by ASTM D6079 or ISO 12156-1.

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.
- Sulfur content less than 0.05% (500 ppm) is recommended for best performance.
- Diesel fuel sulfur content greater than 0.5% (5000 ppm) should not be used.

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

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.

IMPORTANT: Avoid damage! The fuel tank is vented through the filler cap. If a new cap is required, always replace it with an original vented cap.

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

Using Proper Fuel (Gas)

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

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

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

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

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

Condensation may collect in the fuel tank because of a variety of operating or environmental conditions and, over

SERVICE MISCELLANEOUS

time, may affect your machine's operation. Fill fuel tank at the end of daily use and store fuel in plastic containers to reduce condensation.

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

Filling Fuel Tank



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

- Shut engine off before filling fuel tank.
- 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.
- Use clean approved plastic funnel without screen or filter to prevent static electric discharge.

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

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

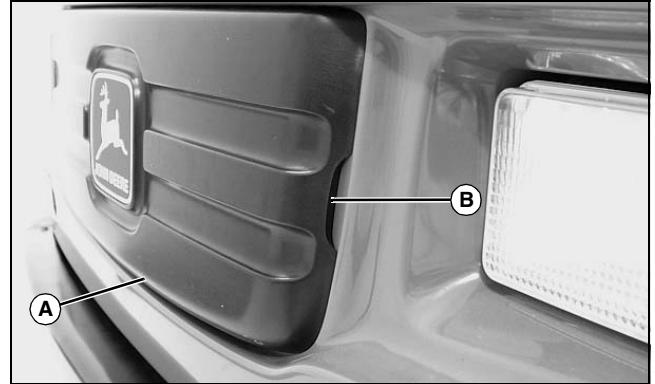
Fill fuel tank at the end of each day's operation to prevent condensation and freezing during cold weather.

1. Park machine safely. (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.
6. Install fuel tank cap.

Removing and Installing Front Grille

Remove Grille

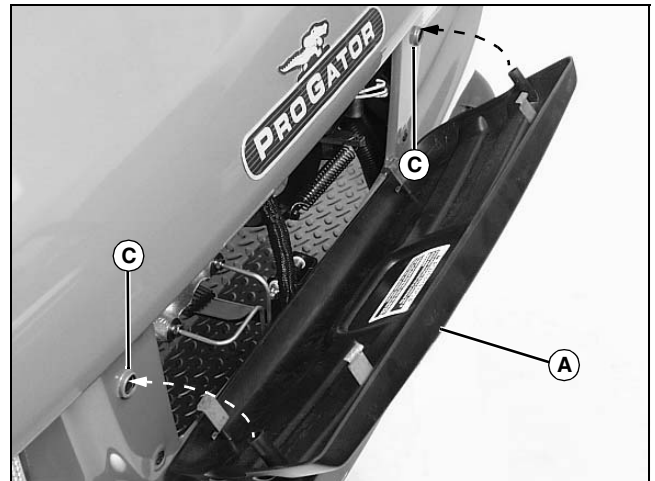
1. Park vehicle safely. (See Parking Safely in the Safety section.)



MX1719

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

Install Grille



MX3006

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

Removing and Installing Rear Wheel Assembly

Removing

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

SERVICE MISCELLANEOUS

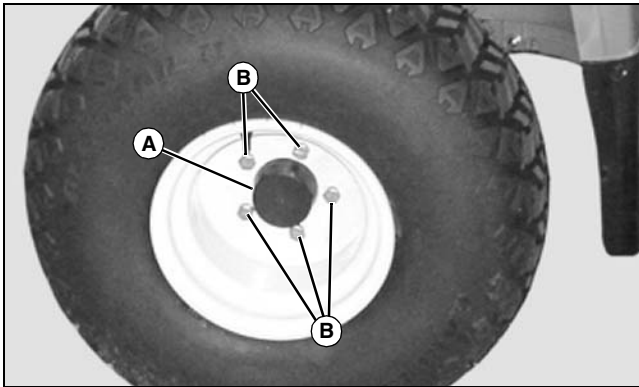


CAUTION: Avoid injury! The machine can fall or slip from an unsafe lifting device or supports.

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

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

2. Raise machine with a safe lifting device and lower machine onto jack stands or other stable supports. Block wheels remaining on the ground to prevent machine movement.



MX31037

Picture Note: Wheel may or may not have a cap (A) to remove when removing the wheel.

3. Remove the wheel bolts (B).
4. Remove the wheel assembly.



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.

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

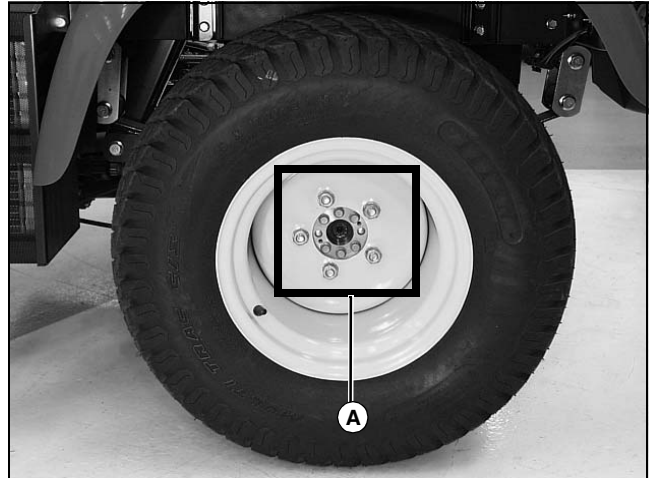
Installing

1. Apply multipurpose grease to spindle shaft before installing wheel assembly.
2. Install wheel assembly with valve stem to the outside.
3. Tighten wheel bolts evenly in alternating sequence until snug.

4. Lower machine completely to the ground.
5. Tighten wheel bolts to 88 N•m (65 lb-ft).

Tightening Wheel Hardware

NOTE: Tighten nuts after first ten hours of operation and every 100 hours thereafter.



MX1710

- Tighten front and rear wheel nuts (A) alternately to 115 N•m (85 lb-ft.).

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.
- Do not spray insect repellent near machine.

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."

SERVICE MISCELLANEOUS

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

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

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.

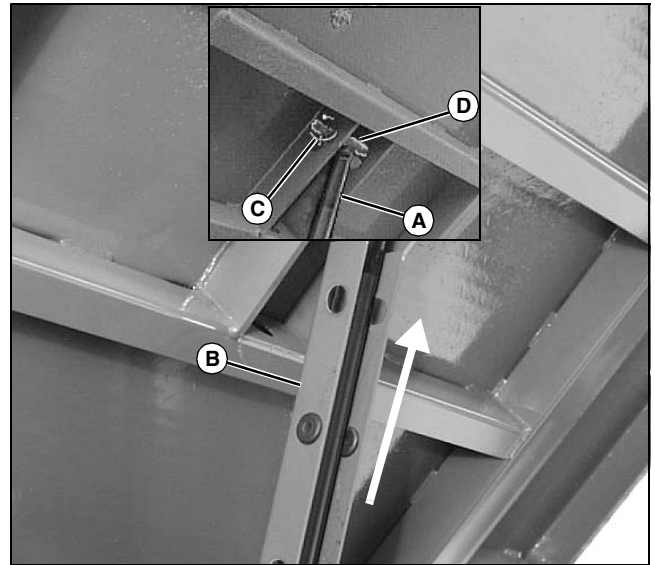
Removing the Cargo Box



CAUTION: Avoid injury!

- Do not attempt removal of the cargo box without the lift cylinder safety support properly installed.
- Empty all material from the cargo box before removing.

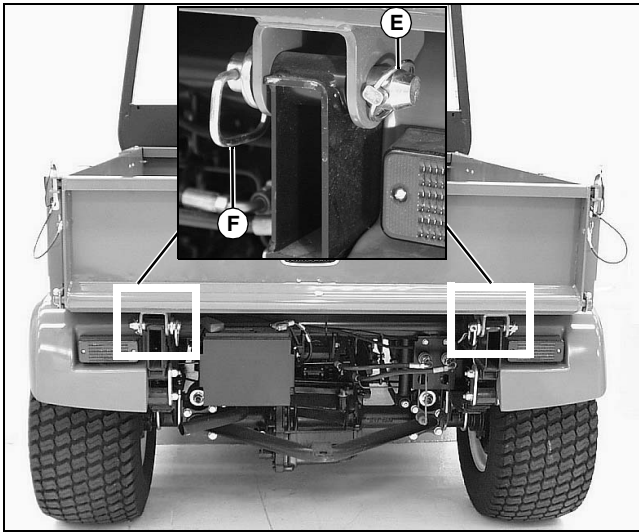
1. Empty cargo box.
2. Park vehicle on a hard, level surface.
3. Lock park brake and start engine.
4. Raise the cargo box.



MX7257a MX14983

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

SERVICE MISCELLANEOUS



MX3103 MX3101

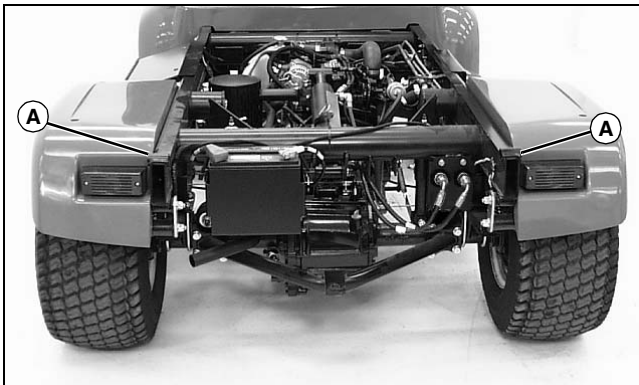
13. Remove quick-lock pins (E) and drilled pins (F) securing the rear of the cargo box to the frame.

14. Carefully remove cargo box from the vehicle.

15. Install drilled pins and quick-lock pins back into vehicle brackets for storage.

Installing the Cargo Box

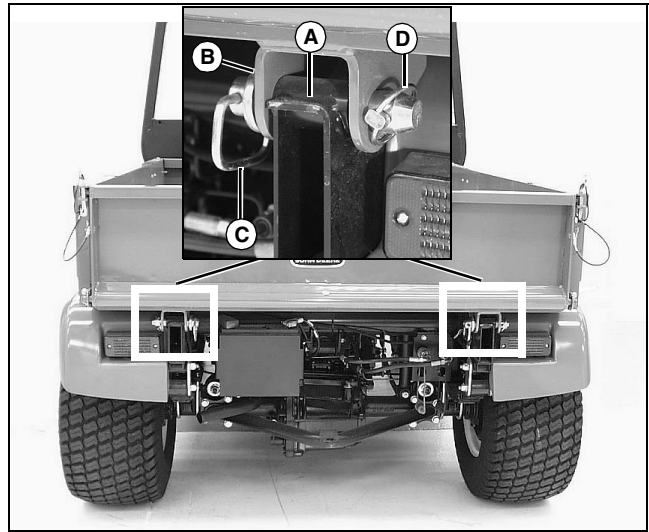
1. Park vehicle safely. (See Parking Safely in the Safety section.)



MX14984

2. Remove quick-lock pins and drilled pins stored in brackets (A) at the rear of the vehicle.

3. Carefully position cargo box on top of vehicle frame with a safe lifting device.



MX3103 MX3101

- Align cargo box tabs (B) and brackets (A) at the rear of the vehicle.

4. Secure rear of cargo box to the frame with drilled pins (C) and quick-lock pins (D).

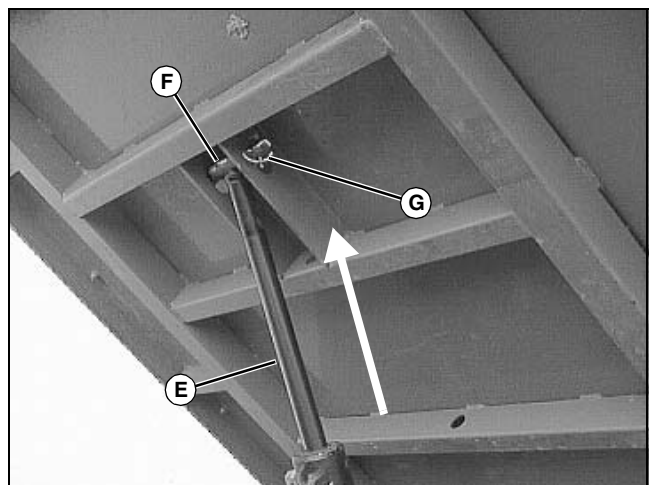


CAUTION: Avoid injury! Make sure cargo box is safely supported in the raised position before connecting the lift cylinder to the bottom of the cargo box.

5. Raise front of cargo box with a safe lifting device.

6. Remove quick-lock pin, cylinder pin and washer stored in the lift cylinder.

7. Start engine.



MX7257

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

SERVICE MISCELLANEOUS

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

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

10. Lower cargo box.

11. Stop engine.

TROUBLESHOOTING

Using Troubleshooting Chart

If you are experiencing a problem that is not listed in this chart, see your authorized dealer for service.

When you have checked all the possible causes listed and you are still experiencing the problem, see your authorized dealer.

Engine

IF	CHECK
Engine Will Not Crank Or Start	Wrong engine oil viscosity. Stale fuel/improper fuel/low fuel level. Fuel is dirty - replace fuel filter, drain and clean fuel tank, refill tank with clean fresh fuel. Diesel Models: Open fuel shut-off valve. PTO indicator light lit - disengage hydraulic PTO lever. Defective fuse. Air cleaner filter element(s) plugged. Put gearshift lever in neutral position. Gas Models: Spark plug wire(s) loose or disconnected. Gas Models: Check spark plug gap. Battery low - charge battery. Battery cables loose or corroded - clean and tighten battery cables.
Engine Misses Under Load	Gas Models: Spark plug not gapped correctly. Gas Models: Faulty spark plug - replace spark plug. Stale or dirty fuel. Plugged fuel filter - replace fuel filter. Check electrical connections.
Engine Hard To Start	Gas Models: Clean/adjust carburetor. (See your technical manual or your John Deere dealer). Stale or dirty fuel. Gas Models: Check/replace failing spark plug. Gas Models: Check spark plug gap. Air cleaner filter element(s) plugged. Check/clean electrical connections. Check for air lock in fuel line. Disconnect fuel line from fuel filter. Fuel should flow.

TROUBLESHOOTING

IF	CHECK
Engine Overheats	Air cleaner element plugged - replace filter element. Clean radiator air intake screen, fan shroud and cooling fins. Clean oil cooler coils (optional). Check engine oil level - add oil. Low coolant level. Cooling system needs flushing. Defective radiator cap. Defective fan switch Defective thermostat. Loose or defective alternator belt. Do not operate at slow idle, operate at fast idle. Operating at too fast ground speed for conditions.
Engine Will Not Slow Idle	Gas Models: Clean/adjust carburetor. (See your technical manual or your John Deere dealer.) Gas Models: Spark plug not gapped correctly. Gas Models: Faulty spark plug - replace spark plug. Improper idle speed adjustment. (See your technical manual or your John Deere dealer.) Stale or dirty fuel. Plugged fuel line - clean fuel line. Valves not seating correctly - adjust valves. (See your technical manual or your John Deere dealer.)
Engine Backfires	Gas Models: Faulty spark plug - replace spark plug. Intake valve sticking - adjust valves. (See your technical manual or your John Deere dealer.)
Engine Vapor Locks	Replace fuel filter.
Engine Runs Rough	Dirty or faulty fuel injectors. Plugged fuel line - clean fuel line. Diesel Models: Fuel shut-off valve partially closed. Stale or dirty fuel. Replace fuel filter. Air cleaner filter element(s) plugged. Check/clean electrical connections. Gas Models: Faulty spark plug - replace spark plug. Gas Models: Clean/adjust carburetor. (See your technical manual or your John Deere dealer.) Faulty seat switch.

TROUBLESHOOTING

IF	CHECK
Engine Lacks Power	Improper fuel. Too much oil in engine - drain to correct level. Air cleaner filter element(s) plugged. Engine overload - reduce load. Engine overheating - clean radiator screen, fan shroud, cooling fins and oil cooler coils (optional). Gas Models: Faulty spark plug - replace spark plug. Replace fuel filter. Engine overheating. Operating at too fast ground speed for conditions. Low coolant temperature. (See your technical manual or your John Deere dealer). Improper valve clearance. (See your technical manual or your John Deere dealer). Diesel Models: Dirty or faulty fuel injectors. (See your technical manual or your John Deere dealer). Diesel Models: Injection pump out of time. (See your technical manual or your John Deere dealer).
Engine Knocks	Engine oil level low. Engine overload - reduce load. Improper idle speed adjustment. Low coolant temperature. (See your technical manual or your John Deere dealer). Gasoline Models: Stale or low octane fuel. Diesel Models: Injection pump out of time. (See your technical manual or your John Deere dealer).
Low Oil Pressure	Engine oil level low. Excessive bearing or oil pump wear. Plugged oil filter. Improper type of oil. Oil leaks.
Engine Uses Too Much Oil	Improper type fuel. Excessive ring or cylinder wear. Low engine temperature. Defective thermostat. (See your technical manual or your John Deere dealer). Engine out of time. (See your technical manual or your John Deere dealer).
Engine Emits Black Or Gray Exhaust Smoke.	Improper type fuel. Plugged air intake system. Operating at too fast ground speed for conditions. Dirty or faulty fuel injectors. (See your technical manual or your John Deere dealer).

TROUBLESHOOTING

Steering

IF	CHECK
Steering Not Working Correctly	Check tire inflation pressure. Transmission oil level low - check oil level. 4WD Models: Front axle oil level low - check oil level. Check and align toe-in adjustment. (See your technical manual or your John Deere dealer.)

Brakes

IF	CHECK
Brakes Not Working Correctly	Brake fluid level low - check fluid level. Adjust brakes. (See your technical manual or your John Deere dealer.) Replace worn brake shoes. (See your technical manual or your John Deere dealer.) Repair/replace worn or damaged brake linkage. (See your technical manual or your John Deere dealer.)

Electrical System

IF	CHECK
Starter Does Not Work Or Will Not Turn Engine	Clean and tighten all electrical connections. Put gearshift lever in "neutral" position. Defective fuse. Low battery output - check electrolyte level. Charge/replace battery. Battery cables loose or corroded - clean and tighten battery cables. Failed key switch, starter motor or safety interlock switches. (See your technical manual or your John Deere dealer.)
Starter Turns Slowly	Low battery output - check electrolyte level. Low battery power - charge battery. Engine oil viscosity too heavy. Battery cables loose or corroded - clean and tighten battery cables.
Battery Low Voltage Indicator Remains On With Engine Running	Low engine speed. Defective battery Defective alternator. Loose connections or corroded connectors. Loose or defective alternator belt.

TROUBLESHOOTING

IF	CHECK
Battery Will Not Charge	Battery cables/connection loose or corroded - clean and tighten battery cables and alternator connections. Defective battery - check electrolyte level. Dead battery cell. Loose or defective alternator belt. Defective alternator.
Lights Do Not Work	Defective fuse. Loose or defective bulb. Loose switch connection.

Mechanical Front Wheel Drive (MFWD)

IF	CHECK
Front Tires Scrub Or Bind	Check engagement of bi-directional clutch.

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.

Preparing Machine for Storage

1. Repair any worn or damaged parts. Replace parts if necessary. Tighten loose hardware.
2. Repair scratched or chipped metal surfaces to prevent rust.
3. Remove grass and debris from machine.
4. Clean under the deck and remove grass and debris from inside chute and bagger.
5. Wash the machine and apply wax to metal and plastic surfaces.
6. Run machine for five minutes to dry belts and pulleys.
7. Apply light coat of engine oil to pivot and wear points to prevent rust.
8. Lubricate grease points and 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. (See Parking Safely in the SAFETY section.)

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

2. Turn on engine and allow to run until it runs out of fuel.

3. For machines equipped with key switch, turn key to off position.

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

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

4. Mix fresh fuel and fuel stabilizer in 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 carburetor on gas engine or fuel injectors on diesel engine.

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. On gas engines:
 - Remove spark plugs. Put 30 mL (1 oz) of clean engine oil in cylinder(s).
 - Install spark plugs, but do not connect spark plug wires.
 - Crank the engine five or six times to allow oil to be distributed.
5. Clean the engine and engine compartment.
6. Remove battery.
7. Clean the battery and battery posts. Check the electrolyte level, if your battery is not maintenance free.
8. Close fuel shut-off valve, if your machine is equipped.
9. Store the battery in a cool, dry place where it will not freeze.

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

10. Charge the battery.

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

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

STORAGE

Removing Machine From Storage

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

SPECIFICATIONS

Engine (Model 2020-Gas)

Manufacturer	Yanmar
Model Number	3TG72
Displacement	879 cm ³ (53.6 cu. in.)
Cylinders	Three
Cycle	Four
Slow Idle RPM (± 50)	1450 rpm
Fast Idle RPM (± 50)	3570 rpm
Oil Filter	Full Flow, Replaceable
Lubrication	Full Pressure
Cooling	Liquid
Air Cleaner	Canister Type w/ Secondary Element

Engine (Model 2030-Diesel)

Manufacturer	Yanmar
Model Number	3TNE74
Displacement	1006 cm ³ (61.4 cu. in.)
Cylinders	Three
Cycle	Four
Slow Idle RPM (± 50)	1450 rpm
Fast Idle RPM (± 50)	3450 rpm
Oil Filter	Full Flow, Replaceable
Lubrication	Full Pressure
Cooling	Liquid
Air Cleaner	Canister Type w/ Secondary Element

Fuel System (Gas Models)

Fuel Type	Regular Unleaded
Fuel Filter	Replaceable Element
Fuel Pump	Electric

Fuel System (Diesel Models)

Fuel Type	Diesel Fuel
Fuel Filter	Replaceable Element
Fuel Pump	Mechanical

SPECIFICATIONS

Electrical System

Type	Flywheel, Alternator
Alternator Capacity	55 amp
Battery Voltage	12 volts DC
Cold Cranking Amps @ 0°F	500
Ignition	CDI

Steering and Brakes

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

Tires

Front (Standard)

Size	23x10.50-12
Ply Rating	4
Pressure	69-110 kPa (10-16 psi)

Rear (Standard)

Size	26x12.00-12
Ply Rating	4
Pressure	69-97 kPa (10-14 psi)

Rear (Optional)

Size	26x14.00-12
Ply Rating	4
Pressure	69-110 kPa (10-16 psi)

Transmission

Manufacturer	Kanzaki
Type	5-speed, synchro-mesh
4WD Option	Automatic, on-demand

Ground Speeds (All Models Equipped with Standard Rear Tires)

Gear 1	4.5 km/h (2.8 mph)
Gear 2	7.4 km/h (4.6 mph)
Gear 3	12.7 km/h (7.9 mph)

SPECIFICATIONS

Gear 4	24.1 km/h (15 mph)
Gear 5	30.7 km/h (19.1 mph)
Reverse	5.8 km/h (3.6 mph)

Dimensions

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

Turning Circle Clearance

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

Weight (Without Attachment)

Model 2020 2WD w/ Standard Tires	802 kg (1768 lb)
Model 2020 4WD w/ Standard Tires	867 kg (1912 lb)
Model 2030 2WD w/ Standard Tires	820 kg (1808 lb)
Model 2030 4WD w/ Standard Tires	877 kg (1934 lb)

Fluid Capacities

Fuel Tank	30.3 L (8 gal)
Cooling System (Total)	3.8 L (4.1 qt)
Crankcase with Oil Filter (Gas Models)	2.1 L (2.2 qt)
Crankcase with Oil Filter (Diesel Models)	2.1 L (2.2 qt)
Transmission Oil System (Total)	10.6 L (2.8 gal)
Front Axle Oil (4WD Models)	3.3 L (3.5 qt)

Towing

Maximum Towing Capacity (Rear Hitch)	680.4 kg (1500 lb)
--	--------------------

SPECIFICATIONS

Maximum Tongue Weight (Rear Hitch) 90.7 kg (200 lb)

Cargo Box

Overall Length, Inside 165 cm (65 in.)
Overall Width, Inside 128.4 cm (50.5 in.)
Overall Depth, Inside 26.8 cm (10.5 in.)
Weight 144.2 kg (318 lb)
Payload Capacity 907 kg (2000 lb)
Maximum Lift Capacity w/ Hydraulic Power Lift 907 kg (2000 lb)
Bedliner Optional
Automatic Tailgate Release Optional

Recommended Lubricants

Engine Oil - Gas Models John Deere TURF-GARD™ SAE 10W-30
Engine Oil - Diesel Models John Deere PLUS 50™ SAE 15W-40
. John Deere TORQ-GARD SUPREME™ SAE 5W-30
Engine Coolant COOL-GARD™ PRE-DILUTED SUMMER COOLANT
. COOL-GARD™ CONCENTRATED SUMMER COOLANT
Transmission/Hydraulic Oil John Deere J20C HY-GARD™
Grease John Deere Multi-Purpose HD Lithium Complex Grease
. John Deere Multi-Purpose SD Polyurea Grease
4WD Front Axle Oil John Deere HY-GARD™ (JDM J20C)

Sound Measurements

Averaged Sound Level at Work Station According to ISO11201:1995

2020 79 dB(A) at 3570 r/min engine speed
2030 83 dB(A) at 3450 r/min engine speed

Sound Power Level (LWA) According to ISO11201:1995

2020 97 dB(A) at 3570 r/min engine speed
2030 101 dB(A) at 3450 r/min engine speed

Vibration Measurements

Hand/Arm Measured Per ISO5349

2020 4.6 m/s² at 3570 r/min engine speed
2030 3.8 m/s² at 3450 r/min engine speed

NOTE: The value listed above represents the maximum weighted root mean square acceleration.

SPECIFICATIONS

Whole Body Measured Per ISO 2631/1

2020	0.98 to 1.99 m/s ²
2030	0.98 to 1.99 m/s ²

NOTE: The range listed above represents the weighted root means square acceleration to which the whole body is subjected on a representative machine during actual mowing and transport conditions. The acceleration value depends upon the roughness of the ground, the speed at which the tractor is operating and the operator weight and driving habits. Measurements were obtained through actual field data according to STD Procedure in ISO 2631/1.

DECLARATION OF CONFORMITY

2020 and 2030 ProGator

Manufacturer

Deere & Company
John Deere Road
Moline, IL 61265-8098 USA

Owner of Technical Documentation

Reinhard Frank
Deere & Company
John Deere Werke Mannheim
Windeckstr. 90
Mannheim, Germany D-68163

Notified Body

AV Technology Limited
AVTECH House
Birdhall Lane
Cheadle Heath
Stockport Cheshire
SK3 0XU United Kingdom

I, the undersigned:
declare that these machines

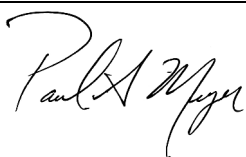
Type 2020 ProGator (Gas)
Type 2030 ProGator (Diesel)
Serial Number See Product Identification Page

comply with the applicable requirements of:

Machine Directive 98/37/EEC (89/392/EEC)
EMC Directive 89/336/EEC

Done at:

John Deere 30 August 1999



PAUL A. MEYER
VICE PRESIDENT, ENGINEERING & SUPPLY MANAGEMENT

INDEX

A		Filter (Gas Models), Replace Fuel	37
Air Cleaner Element, Servicing	33	Filter, Changing Engine Oil	30
Air Intake Hose, Hydraulic Hoses, Radiator Hoses and Clamps, Check	34	Filter, Changing Transmission Oil and	42
Alternator Belt (Diesel Models), Replacing	40	Filter, Changing the Hydraulic Oil and	47
Alternator Belt (Gas Models), Replacing	39	Fluid, Brake	50
Alternator Belt, Checking and Adjusting	38	Fluid, Checking Brake	50
B		Front Axle Oil	49
Battery and Terminals, Cleaning	52	Front Axle Oil (4WD Models), Changing the	49
Battery, Replacing	53	Front Axle Oil Level (4WD Models), Checking the	49
Battery, Using Booster	53	Fuel Filter (Gas Models), Replace	37
Belt (Diesel Models), Replacing Alternator	40	Fuel Safety	9
Belt (Gas Models), Replacing Alternator	39	Fuel Sediment Bowl (Diesel Models), Servicing	38
Belt, Checking and Adjusting Alternator	38	Fuel Shut-Off Valve (Diesel Models), Using	13
Brake Fluid, Checking	50	Fuel Storage	67
Brake, Using the Park	13	Fuel Tank, Filling	57
Bulb, Replacing Headlight	55	Fuel, Using Proper	56
Bulb, Replacing Indicator Light	54	Fuses, Checking and Replacing	55
Bulb, Replacing Stoplight, Taillight	53	G	
C		Gear Lockout, Using	15
Carburetor, Adjusting	29	Gearshift Lever, Using	19
Cargo Box Tailgate, Operating the	24	Grease	45
Cargo Box Tailgate, Removing the	24	Grille, Removing and Installing Front	57
Cargo Box, Installing	60	H	
Cargo Box, Raising and Lowering	23	Hydraulic Hoses, Radiator Hoses and Clamps, Check Air Intake Hose	34
Cargo Box, Removing	59	Hydraulic Oil	46
Clutch Pedal, Using	18	Hydraulic Oil Level, Check	46
Coils, Cleaning Oil Cooling	48	Hydraulic Oil and Filter, Changing the	47
Console Controls	11	I	
Controls, Console and Miscellaneous	11	Instrument Panel	17
Controls, Dash and Foot	11	L	
Coolant Level, Checking	36	Lever, Using the Differential Lock	13
Coolant, Engine	35	Lift Cylinder Lever, Using	14
Cooling System, Servicing	36	Lift Cylinder Safety	9
D		Light Switch, Using	12
Daily Operating Checklist	11	Literature, Service	26
Dash and Foot Controls	11	M	
Decals, Safety	1	Metal Surfaces, Repairing and Cleaning	59
Differential Lock Lever, Using the	13	N	
Drive Shaft (4WD Models), Lubricating the	45	Neutral Switch, Testing	21
E		O	
Electrolyte Level, Checking Battery	52	Oil - Diesel Model, Engine	29
Element, Servicing Air Cleaner	33	Oil (4WD Models), Changing the Front Axle	49
Engine Oil	29	Oil Cooling Coils, Cleaning	48
Engine Oil - Diesel Model	29	Oil Level (4WD Models), Checking the Front Axle	49
Engine and Fuel Storage, Preparing	67	Oil Level, Check Hydraulic	46
Engine with Operator Off the Seat, Operating Vehicle ...	22	Oil Level, Checking Transmission	42
Engine, Starting the	20	Oil Strainer, Clean Transmission	44
Engine, Stopping	20	Oil and Filter, Changing Transmission	42
F		Oil and Filter, Changing the Hydraulic	47

INDEX

Oil, Changing Engine	30	Transporting Utility Vehicle	23
Oil, Checking Engine	30	Troubleshooting Chart	62
Oil, Engine	29	V	
Oil, Front Axle	49	Valve, Cleaning Rubber Dust Unloading	33
Oil, Hydraulic	46	W	
Oil, Transmission	42	Wheel Assembly, Removing and Installing	57
Operating Checklist, Daily	11	Wheel Hardware, Tightening	58
P			
PTO Control Lever, Using	14		
Panel, Instrument	17		
Park Brake Switches, Testing Seat and	21		
Park Brake, Using the	13		
Parking Safely	5		
Parts Catalog	26		
Parts, Replacement	26		
Plastic And Painted Surfaces, Avoid Damage To	11		
Plastic Surfaces, Cleaning	58		
R			
Radiator Hoses, Air Intake Hose, Hydraulic Hoses			
Check Hoses and Clamps	34		
Rubber Dust Unloading Valve, Cleaning	33		
S			
Safety Labels	1		
Safety Systems, Testing	21		
Safety, Operating	4		
Safety, Tire	8		
Seat Belts, Using	12		
Seat and Park Brake Switches, Testing	21		
Seats, Adjusting Vehicle	12		
Service Literature	26		
Service Safety	8		
Specifications	69		
Storage, Preparing Fuel and Engine for	67		
Storage, Preparing Machine for	67		
Storage, Removing Machine from	68		
Storing Safety	67		
Strainer, Clean Transmission Oil	44		
Switch, Testing Auxiliary Hydraulic System	22		
Switch, Testing Neutral	21		
T			
Tailgate, Operating the Cargo Box	24		
Tailgate, Removing the Cargo Box	24		
Technical Manual	26		
Testing Auxiliary Hydraulic System Switch	22		
Testing Neutral Switch	21		
Testing Safety Systems	21		
Testing Seat and Park Brake Switches	21		
Towing Loads	22		
Towing the Utility Vehicle	22		
Transmission Oil Level, Checking	42		
Transmission Oil Strainer, Clean	44		
Transmission Oil and Filter, Changing	42		
Transmission, Operating	18		

NOTES

NOTES

SERVICE STATEMENT

John Deere Parts



We help minimize downtime by putting genuine John Deere parts in your hands in a hurry.

That's why we maintain a large and varied inventory - to stay a jump ahead of your needs.

Well-Trained Technicians



School is never out for John Deere service technicians.

Training schools are held regularly to be sure our personnel know your equipment and how to maintain it.

Result? - Experience you can count on!

The Right Tools



Precision tools and testing equipment enable our Service Department to locate and correct troubles quickly... to save you time and money.

Prompt Service



Our goal is to provide prompt, efficient care when you want it and where you want it.

We can make repairs at your place or at ours, depending on the circumstances: see us, depend on us.

JOHN DEERE SERVICE SUPERIORITY: We'll be around when you need us.

SERVICE RECORD

Record Service Dates

Oil Change	Oil Filter Change	Lubricate Machine	Air Cleaner Element Check/Clean	Fuel Filter Change	Coolant Change