

JOHN DEERE
WORLDWIDE COMMERCIAL & CONSUMER
EQUIPMENT DIVISION

ProGator® Utility Vehicle
2020
2030
OMM144058 L0
OPERATOR'S MANUAL



Export Version
Litho in U.S.A.



DCY



OMM144058

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.

This manual and safety signs on your machine may also be available in other languages (see your John Deere 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 arrow (----->), 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 vehicle is designed solely for use in customary utility operations, for park and amenity area maintenance 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 vehicle 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

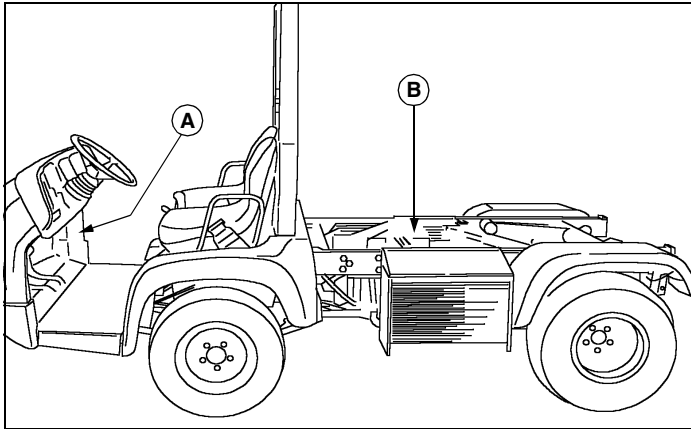
ProGator® Utility Vehicle

2020 Serial No. (020001 -)

2030 Serial No. (020001 -)

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.



DATE OF PURCHASE:

DEALER NAME:

DEALER PHONE:

PRODUCT IDENTIFICATION NUMBER (A):

ENGINE SERIAL NUMBER (B):

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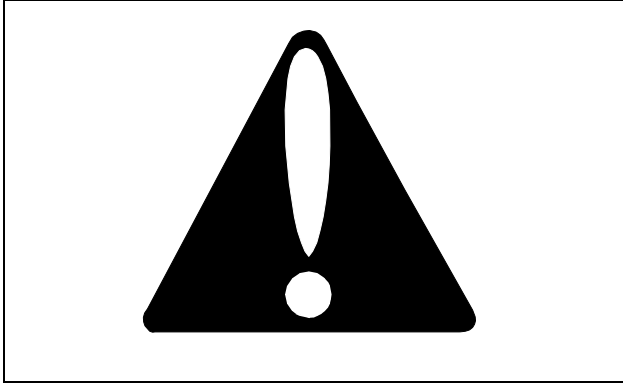
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Consumer Equipment Division
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OMM144058 L0 - English

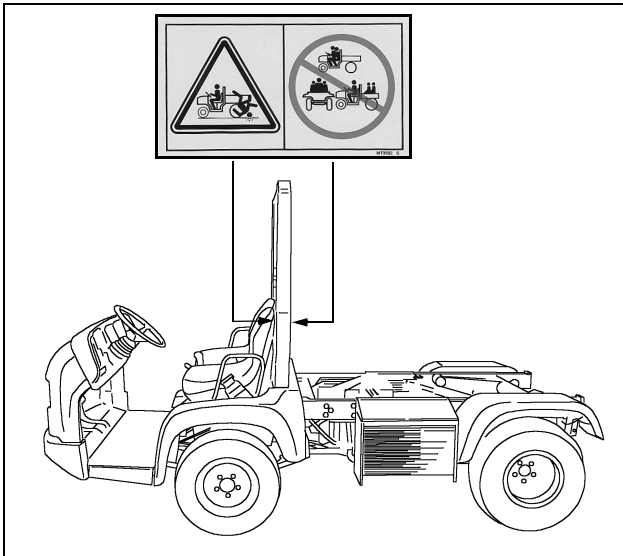
SAFETY

Pictorial Safety Signs



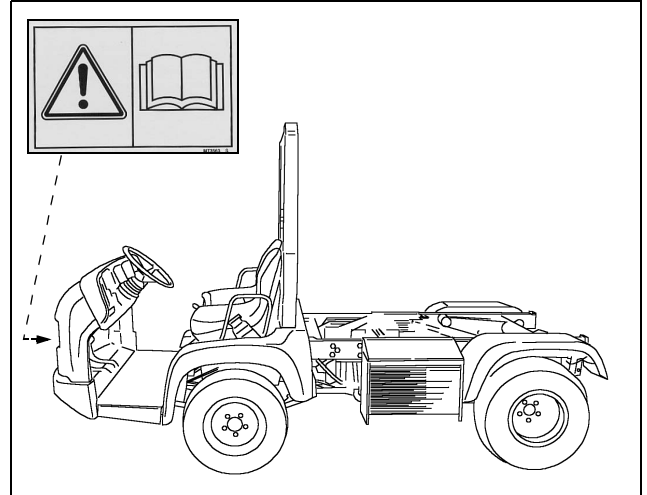
At several important places on this machine safety signs are affixed intended to signify potential danger. The hazard is identified by a pictorial in a warning triangle (▲). An adjacent pictorial provides information how to avoid personal injury. These safety signs, their placement on the machine and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

Warning: Riders Can Fall Off And Be Killed



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

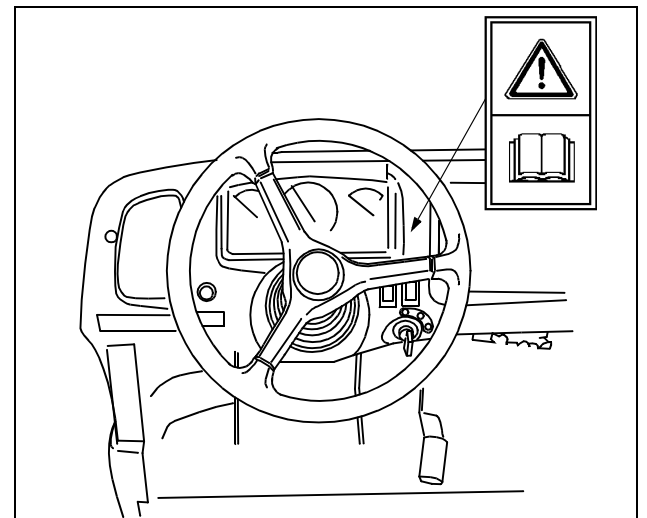
Read Operator's Manual



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.

Read Operator's Manual

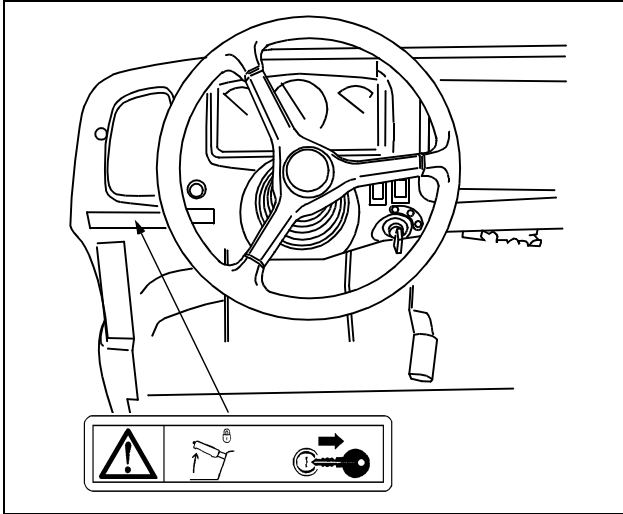


This operator's manual contains important information necessary for safe machine operation. Observe all safety rules to avoid accidents.

SAFETY

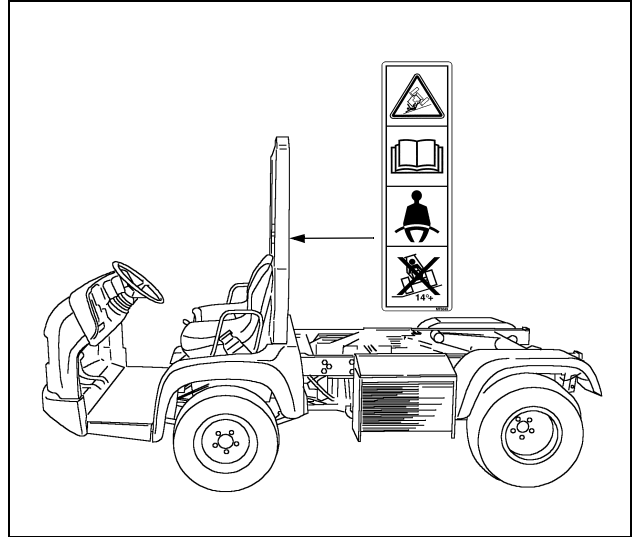
Caution

Before leaving vehicle:



- Stop engine
- Set park brake
- Remove key

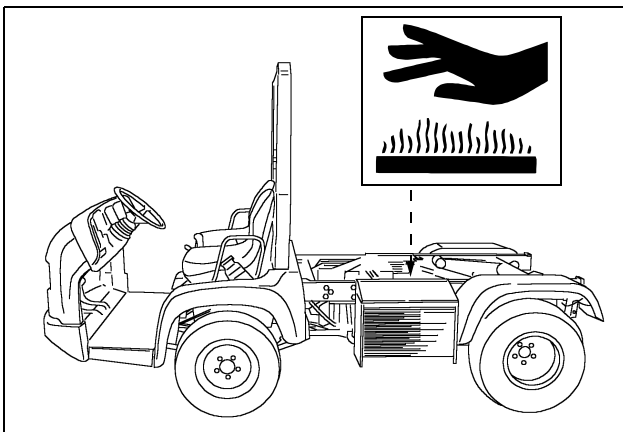
Avoid Injury From Tipping



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.

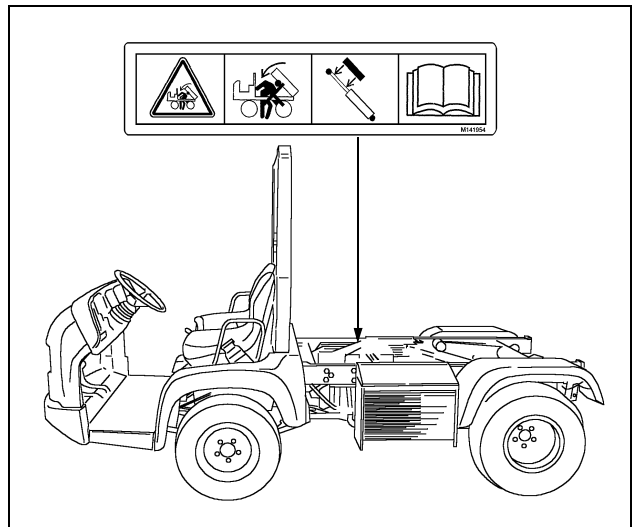
Avoid Injury From Hot Surface



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

Do not touch the vehicle muffler, it may be hot.

Avoid Injury From Crushing

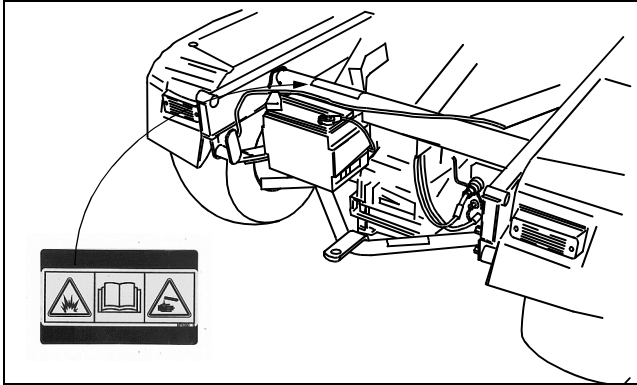


Picture Note: Labels are located on each vehicle frame side rail.

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

SAFETY

Avoid Injury From Battery Gases and Acids



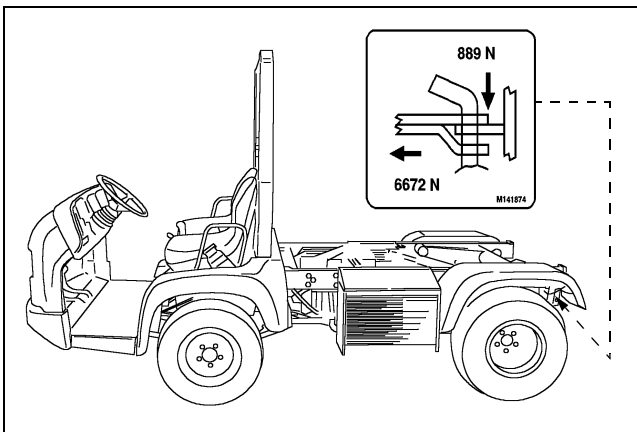
Explosive Gases

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.

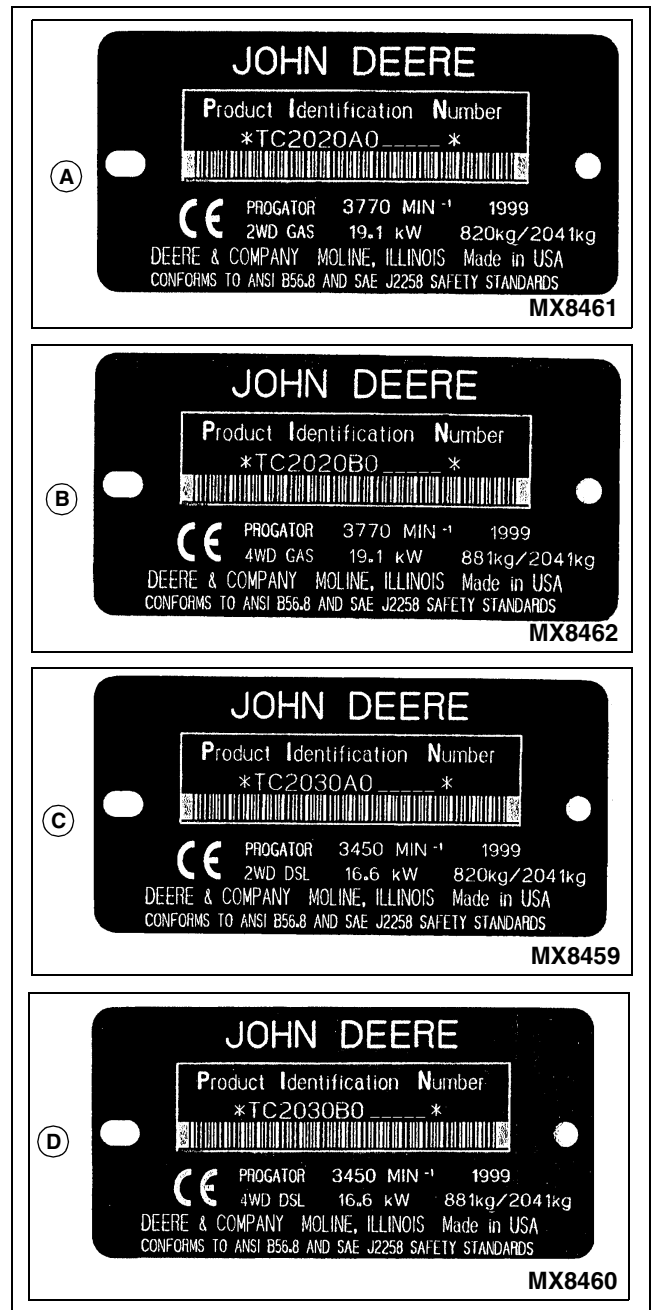
Drawbar Load



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/EEC (89/392 EEC) Standards.

SAFETY

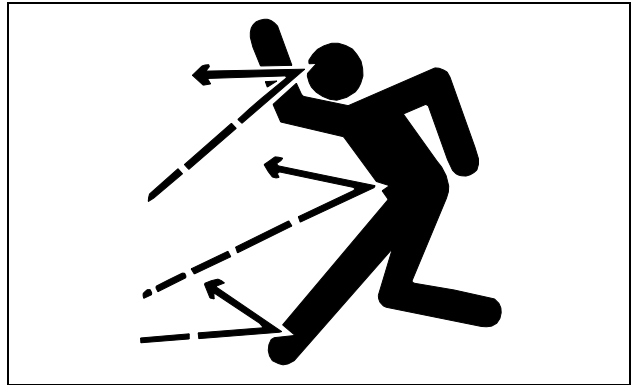
Operator Training Required



Study Operating section of this manual before operating the vehicle.

- The owner of the machine is responsible for training the users of the machine.
- The owner/user can prevent accidents with proper use of the machine. The owner/user is responsible for accidents or injuries occurring to themselves, other people or property.
- Do not allow operation of the machine by untrained persons.
- Read the operator manual and study the safety and operation sections before operating the machine.
- If the operator of the machine cannot read or understand this manual, the machine owner is responsible 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 practice is required to learn the moving, stopping, turning and other operating characteristics of the machine.

Operate Safely



- Inspect machine 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.
- Check before each use that operator presence controls are functioning correctly. Test safety systems. Do not operate unless they are functioning correctly.
- Do not misuse the ProGator® Utility Vehicle, it is a utility vehicle not a recreation vehicle.
- 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 or refuse in the battery storage compartment, especially around brake linkage which attaches to axle housing on each side of the transaxle.
- Always use both hands for steering.
- Do not change the engine governor setting or overspeed the engine.
- Know location of controls and how and what they operate.
- Never operate utility vehicle while standing.
- Never operate utility vehicle with the cargo box or any attachment raised.
- Check brake action before beginning vehicle operation. Adjust or service the brakes as necessary.
- Stop machine if anyone enters the area.
- If you hit an object, stop and inspect the machine. Make repairs before you operate. Keep machine and attachments properly maintained and in good working order.
- To provide adequate braking ability and traction, do not tow any attachment or loaded trailer unless the utility vehicle cargo box is loaded.
- Keep people and pets out of the work area. Stop the vehicle if anyone enters the area. If an object is hit, stop

SAFETY

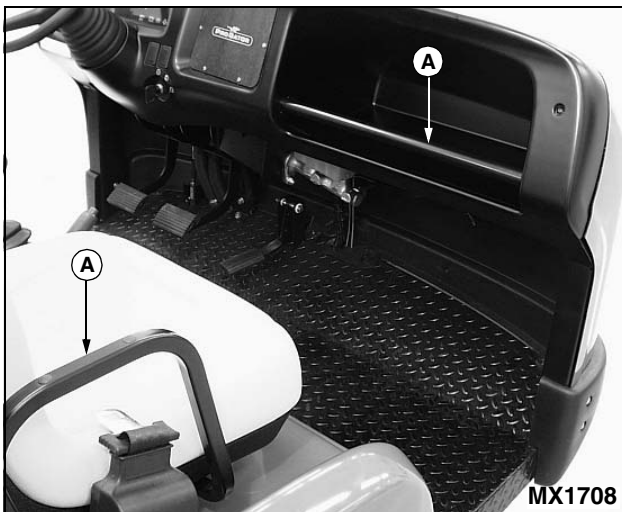
and inspect the vehicle for damage. Make repairs before operating. Keep the vehicle properly maintained and in good working order.

- Keep headlight and taillight lenses clean.
- Do not leave vehicle unattended when it is running.
- Only operate during daylight or with good artificial light.
- This vehicle is not intended for use on highways or public roadways. It is to be used for off-road use only.
- Avoid sudden starts, stops, or turns.
- Always use a level turn-around area.
- Do not wear radio or music headphones while operating the vehicle. Safe operation requires your full attention.
- Be careful of traffic when operating near roadways. Use care when approaching blind corners, shrubs, trees, or other objects that may obscure vision.

Parking Safely

1. Stop machine on a level surface, not on a slope.
2. Disengage PTO.
3. Lower attachments completely.
4. Lock park brake.
5. Stop engine.
6. Remove key.
7. Wait for engine and all moving parts to stop before you leave the operator's station.

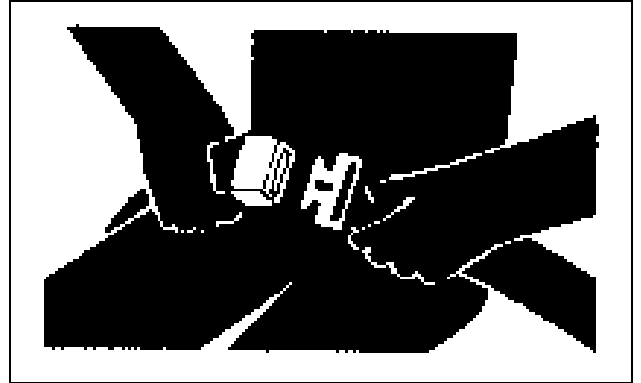
Use Hand Holds



Hand holds (A) are provided for operator and passenger

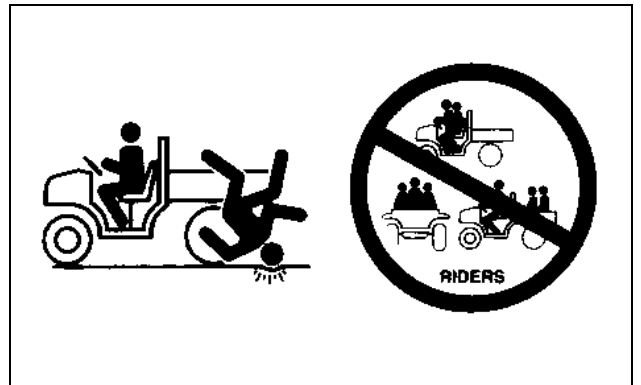
balance when driving over rough terrain. Use dash bar and side rails on seats for stability.

Use Seat Belt Properly



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

Protect Children and Prevent Accidents



Protect Children:

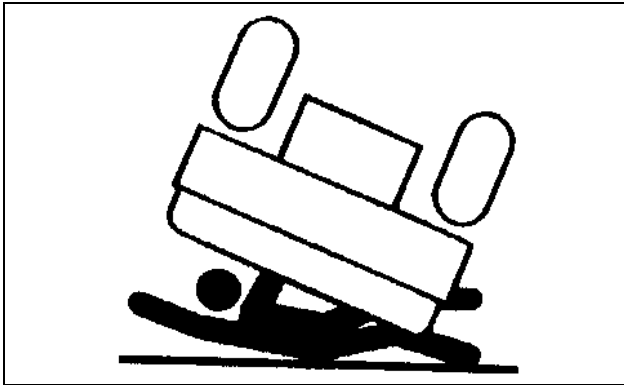
- Never assume that children will remain where you last saw them. Stay alert to the presence of children.
- If the vehicle is equipped with a cargo box, never carry children in the cargo box area. Do not allow children to ride in a utility vehicle cargo box or on any attachment. Do not tow children in a cart or trailer.
- Use extra care when coming to blind corners, shrubs, trees, or other objects that may block vision.
- Do not let children or an untrained person operate the vehicle.
- Before backing or turning, look behind and around the utility vehicle for children.

Help Prevent Serious Or Fatal Accidents:

SAFETY

- Be alert at all times, drive forward and in reverse carefully. People, especially children, can move quickly into an area of operation.
- Back carefully. Look behind the vehicle, especially for children, before backing up.
- Do not operate vehicle if under the influence of alcohol or other drugs.
- Misuse and recreational riding can lead to accidents, severe bodily injury or death.

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 this utility vehicle. This utility vehicle is not designed for recreational riding.
- Use of a helmet and/or protective gear is recommended for certain operating conditions.
- 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.
- Stay alert for holes, rocks, loose terrain, wet or slippery surfaces and other hidden hazards in the terrain.
- Do not stop or start suddenly when going uphill or downhill. Be especially cautious when changing direction on slopes.
- 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 this utility vehicle.

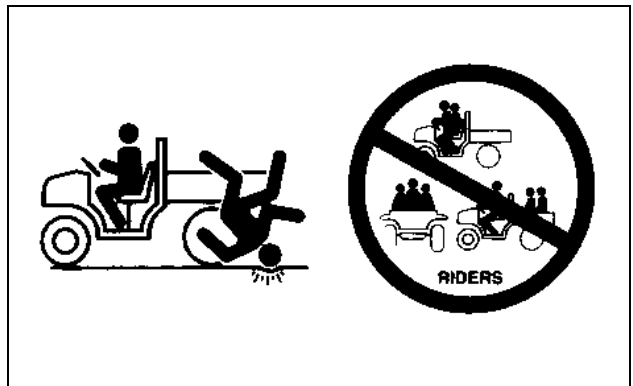
Stay Clear Of Rotating Drivelines



Entanglement in rotating driveline can cause serious injury or death:

- Keep hands, feet, and clothing away from power driven parts.
- Wear close fitting clothing.
- Stop the engine and be sure PTO driveline is stopped before getting near it.

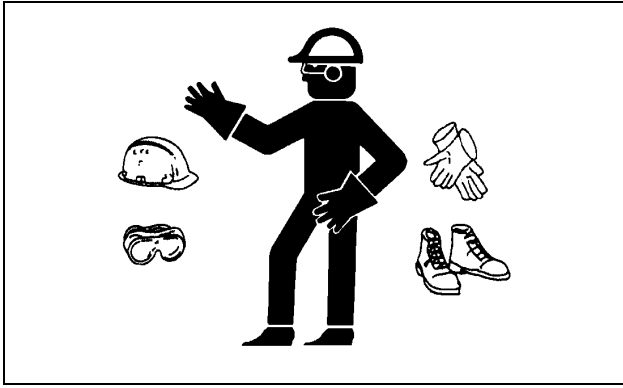
Keep Riders Off Vehicle



- Seating is provided for operator and one passenger. No riders are allowed in cargo box or anywhere else on vehicle.
- 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 operators 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.

Wear Appropriate Clothing

SAFETY



- Wear close fitting clothing and safety equipment appropriate for the job.
- Wear a suitable protective device such as earplugs. Loud noise can cause impairment or loss of hearing.
- Do not wear radio or music headphones. Safe service and operation requires your full attention.

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

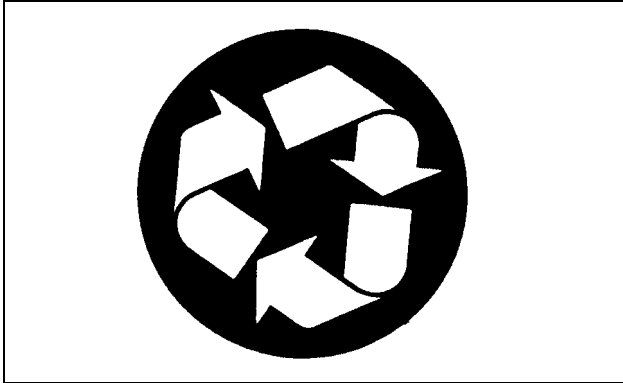


- Understand service procedure before doing work. Keep area clean and dry.
- Never lubricate, service, or adjust machine while it is moving. Keep safety devices in place and in working condition. Keep hardware tight.
- Keep hands, feet, clothing, jewelry, and long hair away from any moving parts, to prevent them from getting caught.
- Disengage all power and stop the engine. Lock park brake and remove the key. Let machine cool.
- Disconnect battery or remove spark plug wire before making any repairs.
- Before servicing the machine, carefully release pressure from any components with stored energy, such as hydraulic components.
- Keep all nuts and bolts tightened.
- Securely support any machine elements that must be raised for service work.
- 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 compartment.
- Charge batteries in an open, well-ventilated area, away from sparks. Unplug battery charger before connecting or disconnecting from the battery. Use insulated tools.
- Do not modify machine or safety devices. Unauthorized modifications may impair its function and safety.

SAFETY

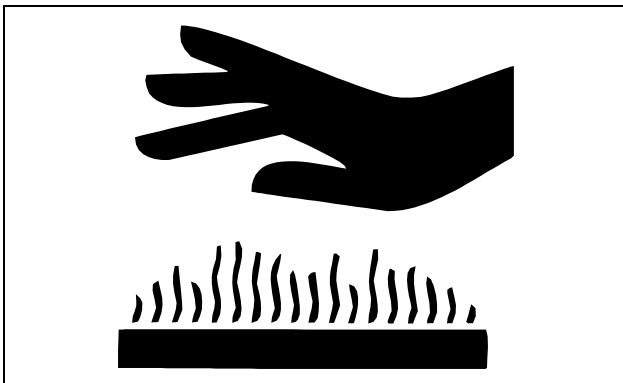
- Do not wear radio or music headphones while servicing the machine. Safe service requires your full attention.

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 John Deere distributor to learn how to recycle or get rid of waste products.

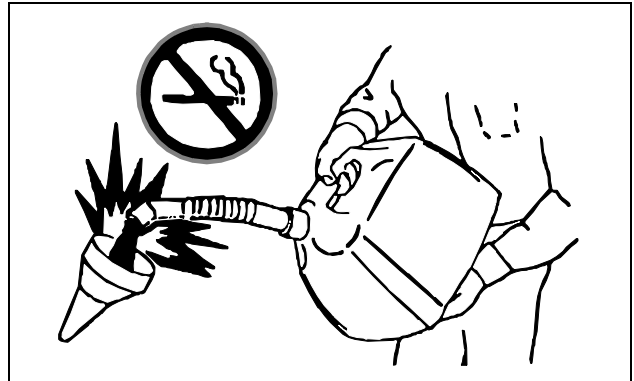
Prevent Fires



- Never remove fuel cap, or add fuel with engine running or hot. Allow engine to cool for several minutes.
- Never store equipment with fuel in the tank inside a building where fumes may reach an open flame or spark.
- Allow engine to cool before storing in any enclosure.
- To reduce fire hazard, keep engine free of grass, leaves, or excessive grease.

Handling Fuel Safely

Fuel and fuel vapors are highly flammable:



- Do not refuel machine while you smoke, when machine is near an open flame or sparks, or when engine is running. Stop engine and allow to cool before filling.
- Never remove the fuel cap or add fuel with the engine running.
- Never fill fuel tank or drain fuel from a machine in an enclosed area. Fill fuel tank outdoors.
- Prevent fires. Clean up spilled fuel immediately.
- Do not store machine with fuel in tank in a building where fumes may reach an open flame or spark.
- Prevent fire and explosion caused by static electric discharge. Use only non-metal, portable fuel containers approved by the Underwriter's Laboratory (U.L.) or the American Society for Testing & Materials (ASTM). If using a funnel, make sure it is plastic and has no screen or filter.



- Static electric discharge can ignite gasoline vapors in an ungrounded fuel container. Remove the fuel container from the bed of a vehicle or the trunk of a car and place on the ground away from the vehicle before filling. Keep nozzle in contact with container opening while filling.
- When practical, remove equipment from trailers or truck

SAFETY

beds and refuel them on the ground. If this is not possible, use a portable, plastic fuel container to refuel equipment on a truck bed or trailer.

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

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. 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.

Using the Lift Cylinder Safety Support

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

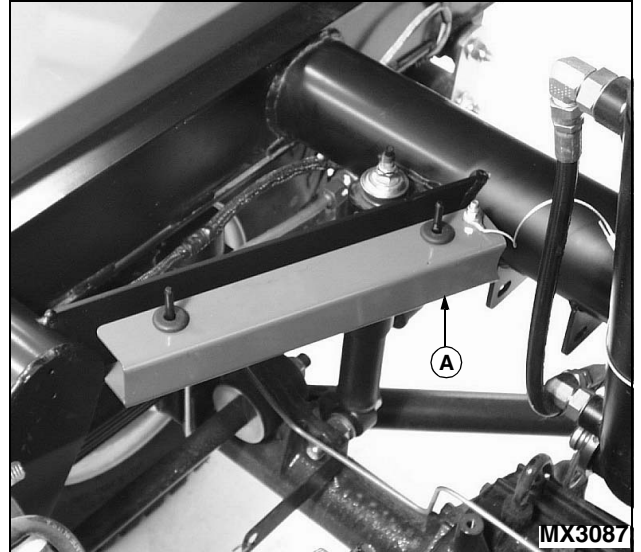


CAUTION: Avoid injury!

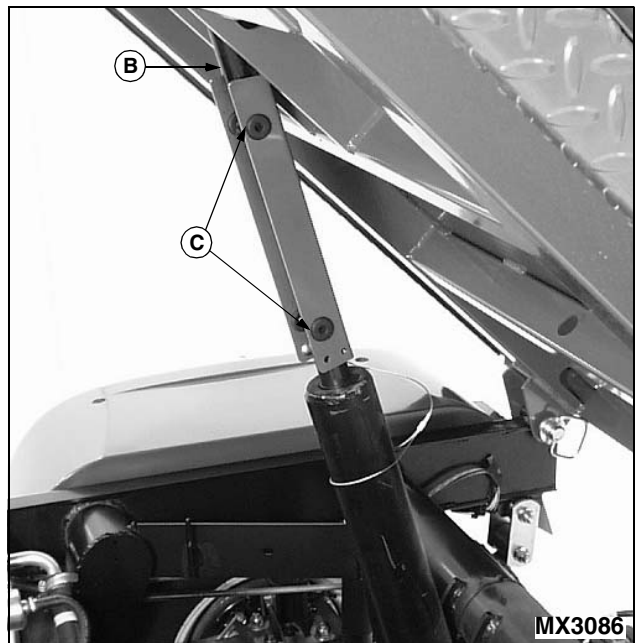
- Do not perform a service function under a raised attachment without the lift cylinder safety support properly installed.
- Empty all material from any attachment before servicing the vehicle.

Installing:

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



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



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.

SAFETY

3. Lower attachment.

Attachments

- Use approved attachments only.
 - Traction is reduced without an attachment installed.
- Operate only on level ground and slowly without an attachment.

Check 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.

OPERATING

Daily Operating Checklist

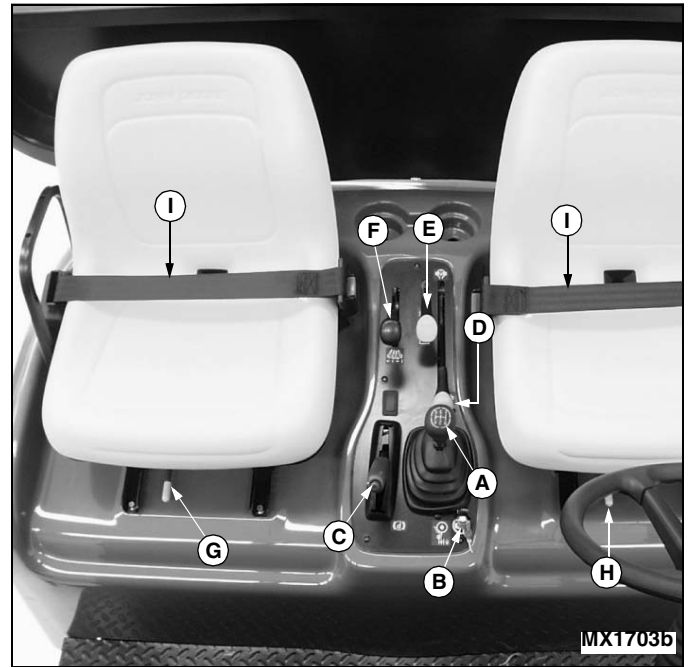
- ☐ Test safety systems.
- ☐ Check tire pressure.
- ☐ Check fuel level.
- ☐ Check engine oil level.
- ☐ Check transmission oil level.
- ☐ Check auxiliary hydraulic oil level, if equipped.
- ☐ Check coolant level.
- ☐ Remove grass and debris from machine.
- ☐ Clean air intake screen.
- ☐ Check area below machine for leaks.

Dash and Foot Controls



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

Console and Miscellaneous Controls



- A - Gear Shift Lever
- B - 5th Gear Lockout Switch
- C - Park Brake 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.

OPERATING



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.



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

Using Seat Belts



CAUTION: Avoid injury!

- Use a seat belt when operating a vehicle with a Roll-Over Protective Structure (ROPS) or a cab.

To Connect The Seat Belt:



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

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

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

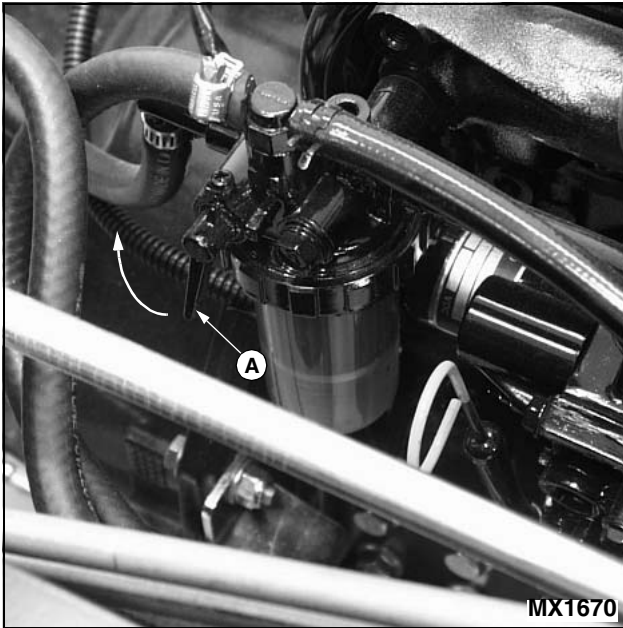
To Disconnect The Seat Belt:

- 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.

OPERATING



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:

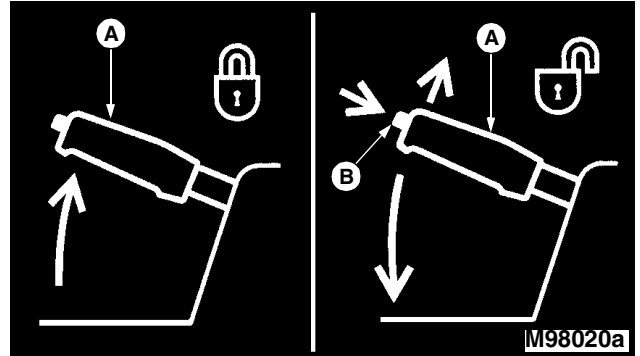
- Fuel shut-off valve must be in the full open position for proper fuel delivery to the engine.

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:



- 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.

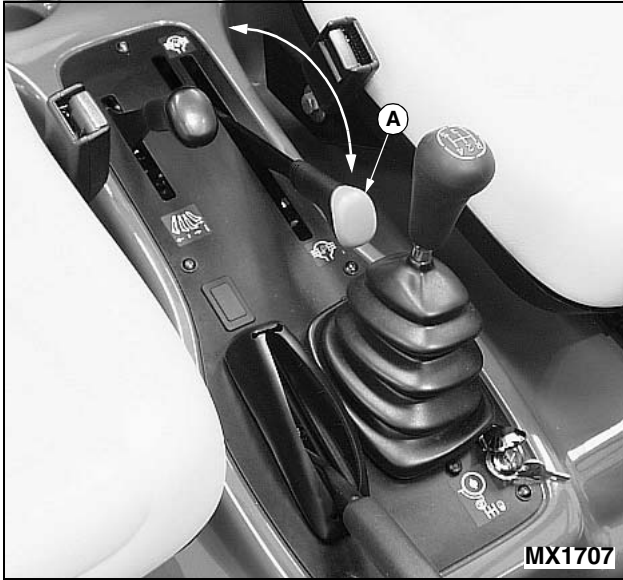
IMPORTANT: Avoid damage! Do not engage differential lock when the vehicle is traveling at high speeds.

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

To Engage Differential Lock:

- Stop or slow vehicle down.

OPERATING



- 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:



- 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



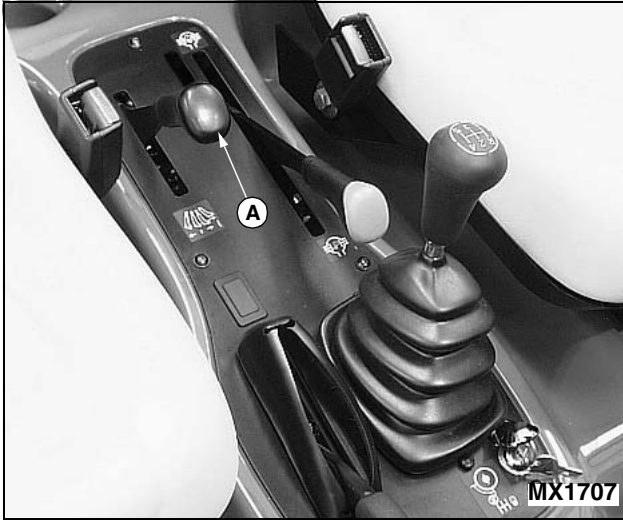
CAUTION: Avoid injury!

- 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.

OPERATING



2. Pull and hold back lever (A).
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.

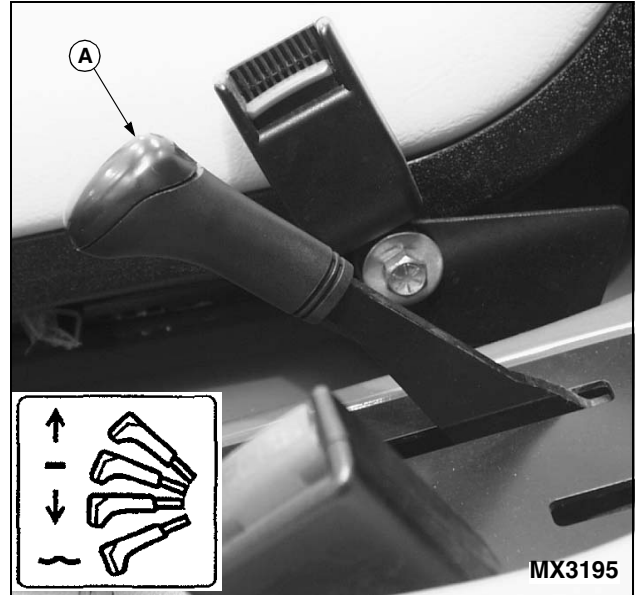
NOTE: When operating the vehicle with the auxiliary hydraulic PTO engaged, it is recommended that the lift cylinder lever be held down momentarily after the attachment has been lowered. This will firmly seat the load check for the lift cylinder spool which locks the lift cylinder in position.

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.



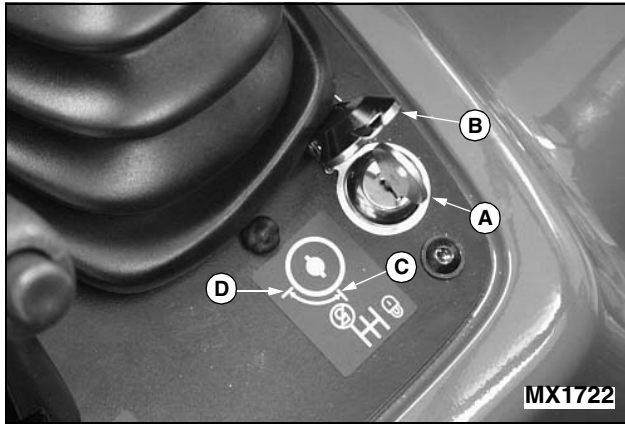
1. Push lever (A) down, through "lower" position and with additional force, push lever down past detent to lock lever into float position.
2. Pull up lever to release float position.
3. Release lever. Lever will return to the neutral position, and attachment will be held in position, with the lift cylinder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

Using the 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.

OPERATING



Picture Note: Key position shown with 5th gear locked out.

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

To Lockout 5th Gear:

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

1. Move gear shift lever to any position except 5th gear.
2. Raise switch cover (B).
3. Install key into key switch.
4. Turn key to position (C).

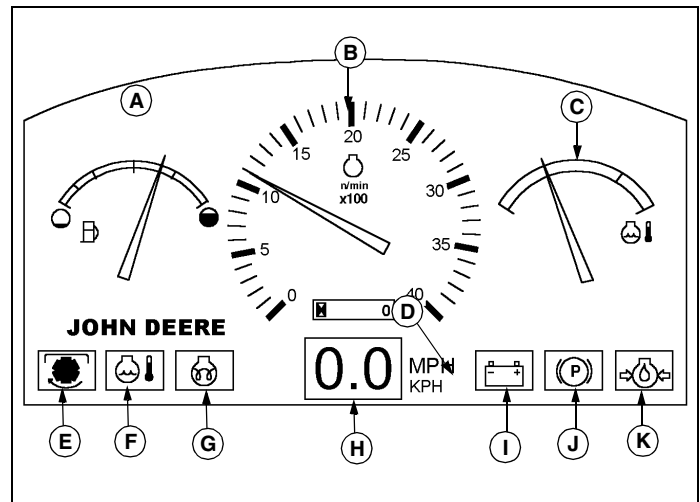
IMPORTANT: Avoid damage! Do not operate the vehicle with the key left in the lock. The switch cover must be allowed to close to prevent water, sand and other contaminants from entering the lock.

5. Remove key.

To Unlock 5th Gear:

1. Move gear shift lever to any position.
2. Raise switch cover (B).
3. Install key into key switch.
4. Turn key to position (D).
5. Remove key.

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 100's. 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 only glow 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

OPERATING

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.

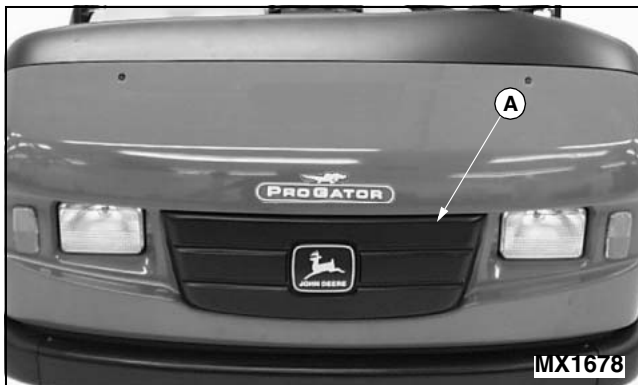
Battery Discharge Indicator (I) will glow when the key switch is turned to the run position. This is an indication that the alternator is not producing adequate current. Stop engine and determine cause.

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

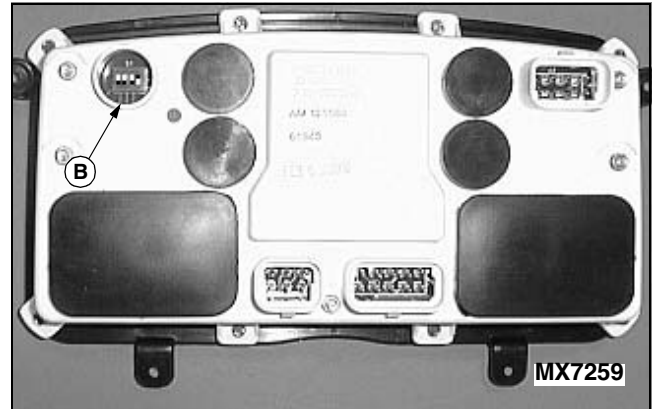
Engine Oil Pressure Indicator (K) will glow when engine oil pressure is low. If lamp glows when engine is running, stop engine immediately. This is an indication that the engine may be low on oil, or major engine damage may have occurred.

Switching Engine Speedometer

1. Disconnect the battery negative cable.

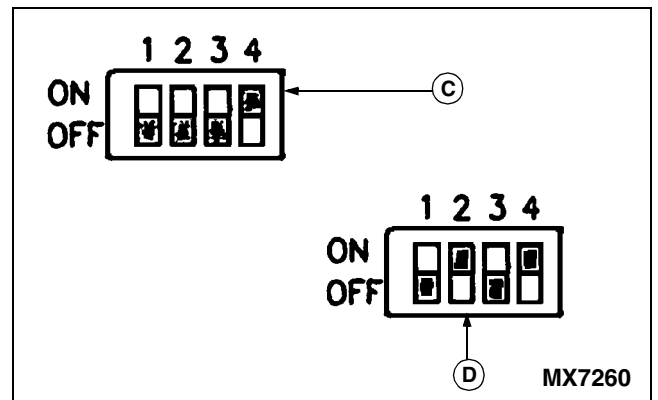


2. Remove front grill (A).



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.



4. Toggle the switches from factory configuration for MPH (C) to KPH (D), using a screwdriver to reach each switch.
5. Install the front grill.
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.

OPERATING



The functions of the clutch pedal (A) are:

- Connects and disconnects engine power to the transmission.
- Operates in conjunction with the gear shift lever to shift gears.

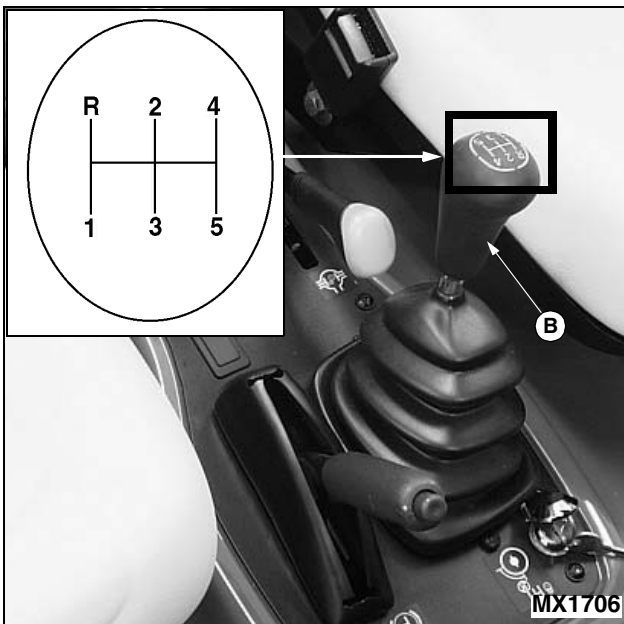
To Disengage The Clutch:

- 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 Gear Shift Lever



The gear shift lever (B) is located on a console to the right of the operator seat. The gear shift lever provides five

forward travel speeds and one reverse speed.

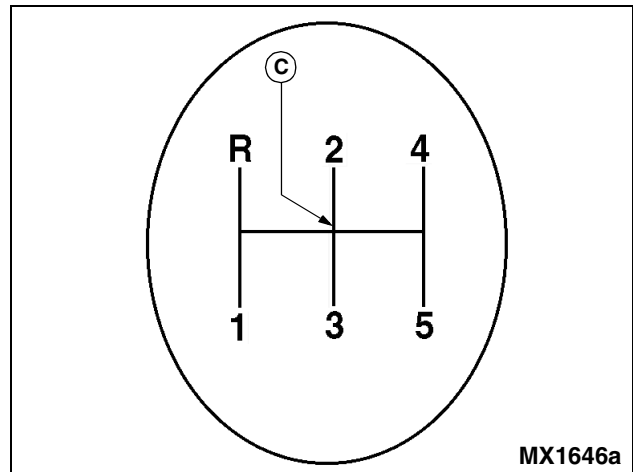
Select a gear on the gear shift lever that matches desired speed and direction. First and second gears are very low and should be used when hauling heavy loads.

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

1. Lock park brake.

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



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

OPERATING

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.

7. Shift gears while moving:

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

Reverse Travel

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

Starting the Engine



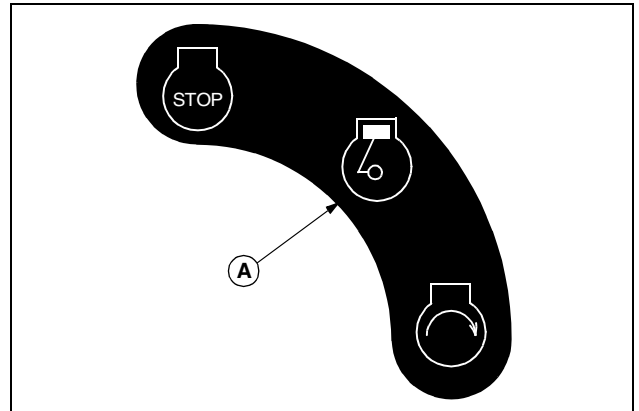
CAUTION: Avoid injury! Engine exhaust fumes contain carbon monoxide and can cause serious illness or death.

Move the vehicle 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.

1. **Diesel Models:** Open fuel shut-off valve.
2. Lock park brake.
3. Push hydraulic PTO lever to the off (☒) position.
4. Move the gear shift lever to the neutral position.



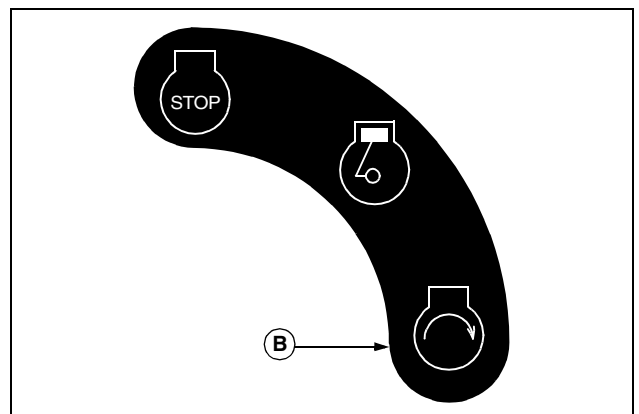
5. Turn key switch to the run position (A).

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! Do not operate starter more than 20 seconds at a time or damage may occur.

If engine does not start, wait two minutes before trying again. If engine will not start, refer to the Troubleshooting section.



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

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.

OPERATING

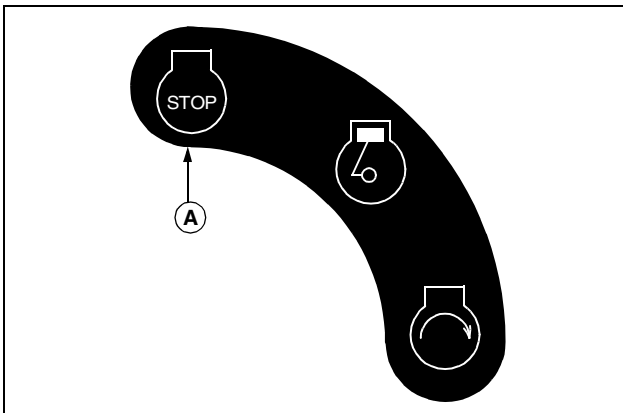
- Park brake indicator light should go out.

Stopping the Engine



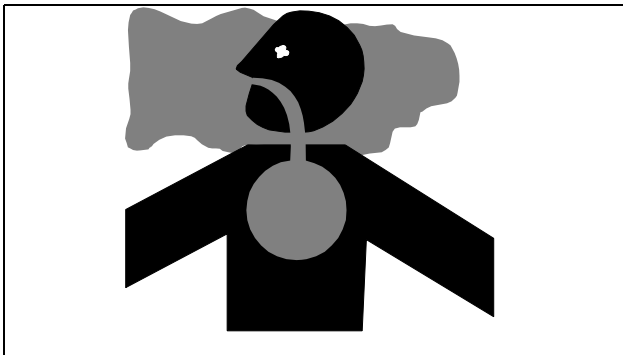
CAUTION: Avoid injury! Always lock the park brake when the utility vehicle is left unattended. The vehicle may begin to move without an operator present if park brake is not locked. If the gear shift lever is moved to the neutral position the vehicle will free-wheel.

1. Release accelerator pedal and allow engine to slow idle.
2. Depress the clutch pedal and the foot brake.
3. Place gear shift lever in first or reverse gear.
4. Lock park brake.



5. Turn key switch to the stop position (A).
6. Remove key.

Testing Safety Interlock System



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

Move the vehicle 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.**

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

If there is a malfunction during one of these procedures, Do not operate machine. See your John Deere 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 gear shift 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 John Deere Dealer.)

Testing Neutral Switch

1. Operator on seat.
2. Lock park brake.
3. Move the gear shift lever to the "R" (reverse) position.
4. Turn the key switch to the start position.

Result: Engine must not crank.

5. Repeat starting procedure with shift lever in each gear.

OPERATING

6. Engine must not crank.
7. Move the gear shift lever to the neutral position.
8. Turn the key switch to the start position.

Result: Engine should crank. If the engine should start with the gear shift lever in any position other than the neutral position, there is a problem with the safety interlock circuit. (See your John Deere Dealer.)

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 gear shift 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 John Deere 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 gear shift 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 of 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 gear shift lever to the neutral position.



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 exceeding 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.

OPERATING

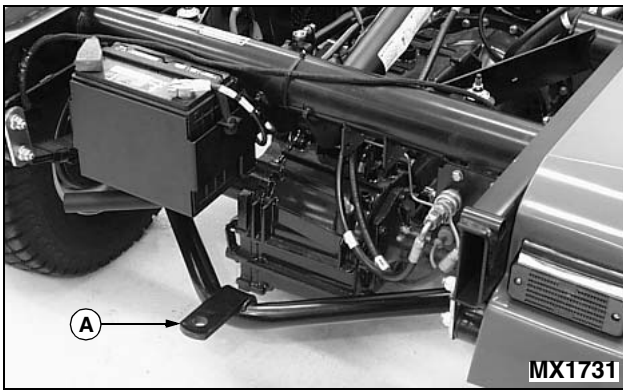
Towing Loads



CAUTION: Avoid injury! Always tow a load slowly enough to maintain control and avoid tipping.

To provide adequate braking ability and traction, do not tow a load unless utility vehicle cargo box is loaded or attachment is installed.

- 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.



- 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.

Transporting Utility Vehicle



CAUTION: Avoid injury! Use caution when operating machine at transport speeds. Reduce speeds if towed load weighs more than towing machine, and is not equipped with brakes. Consult towed equipment operator's manual for recommended transport speeds.

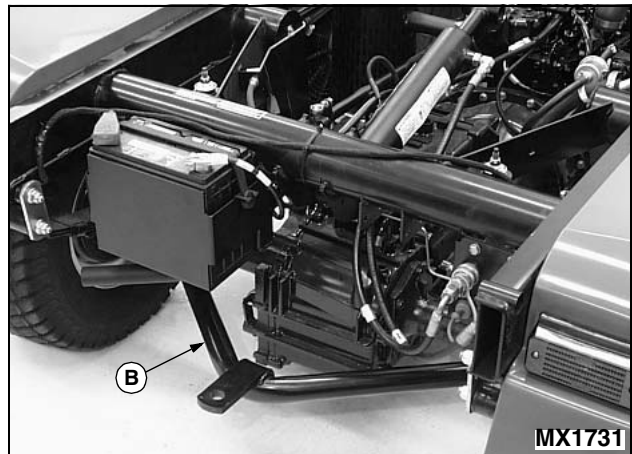
Use additional caution when transporting towed loads under adverse surface conditions, especially when turning, and on inclined surfaces.

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.

OPERATING

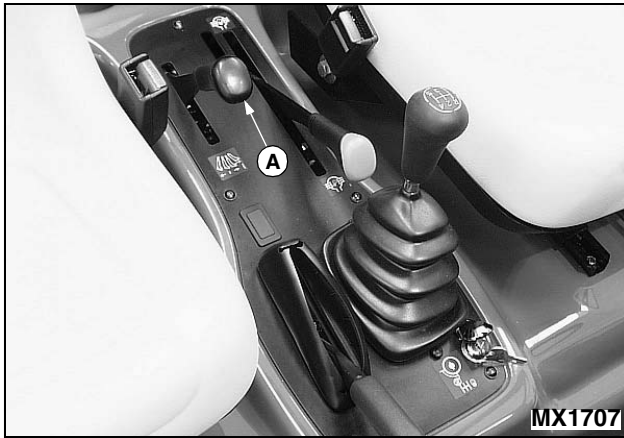
Raising and Lowering the Cargo Box



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.

1. Start engine.



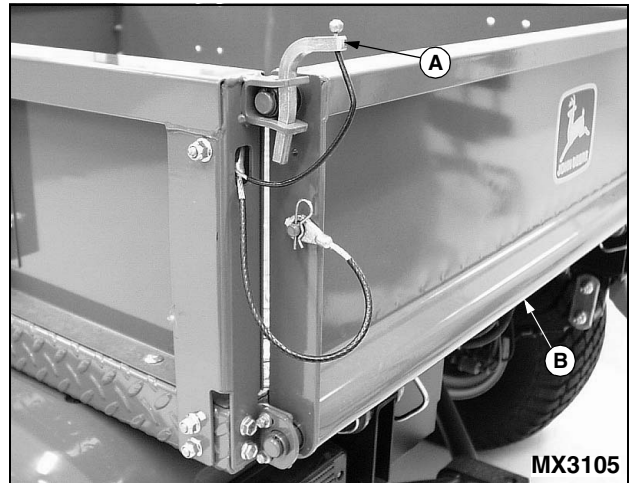
2. Pull and hold back lift cylinder lever (A) to raise cargo box.

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.

Operating the Cargo Box Tailgate

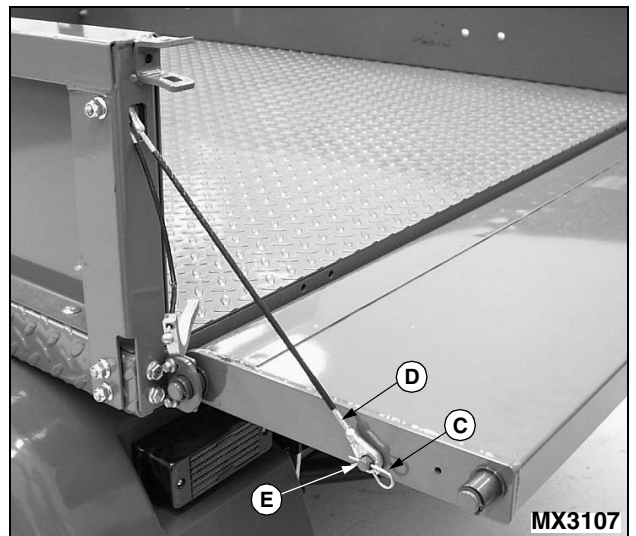


1. Pull up and remove each tailgate latch pin (A).
2. Lower tailgate (B).



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.

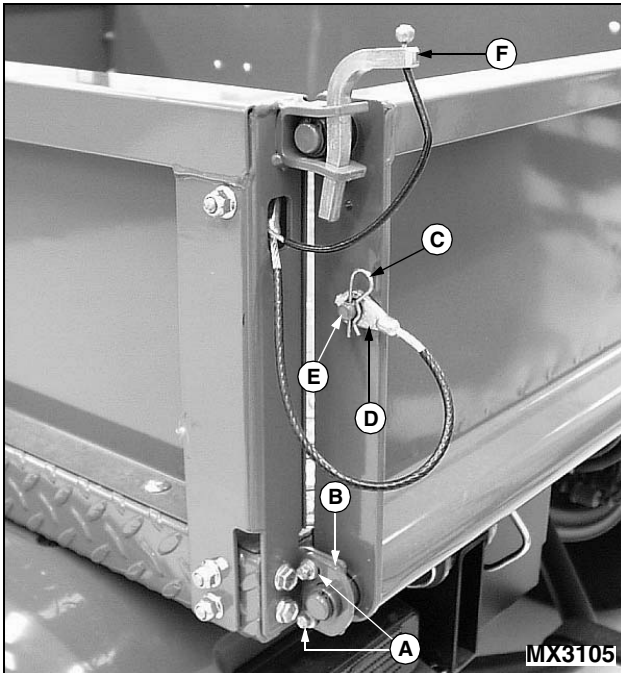


3. Remove spring locking pin (C) and cable (D) from each drilled stud (E) to fully lower tailgate.

OPERATING

Removing the Cargo Box Tailgate

1. Close the tailgate and latch both sides.



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.

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 your machine serial number and engine serial number. These are the numbers that you recorded in the Product Identification section of this manual.

ITEM	PART NUMBER
Light Bulbs	
• Headlight	AM118013
• 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.)

Part Numbers

ITEM	PART NUMBER
Air Cleaner Assembly-All Models	
• Primary Element	M113621
• Secondary Element	M123378
Engine Oil Filter - All Models	M806418
Transmission Oil Strainer	M800489
Hydraulic Oil Filter	M131053
Spark Plug - Gas Models	M805853
Battery	TY21755
Fuel Filter	
• Gas Models	AM876035
• Diesel Models	CH15553
Key-5th Gear Lockout	M142370
Fuses	
• 10 amp	57M7121
• 25 amp	99M7069

SERVICE INTERVALS

Servicing Your Machine

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

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

- Engine components may become dirty or plugged when operating in extreme heat, dust or other severe conditions.
- Engine oil and spark plugs may lose efficiency if vehicle is operated constantly at slow or low engine speeds or with frequent short trips.

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.

Break-in—After First 10 Hours

- Check tire pressure.
- Check tightness of wheel hardware.
- Check for loose hardware.

Break-in—After First 50 Hours

- Change engine oil and filter.
- Change transmission oil and filter.
- Clean transmission oil strainer.
- 4WD Models: Check front axle oil.
- 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.

Every 100 Hours

- Check tightness of wheel hardware.
- Change engine oil and filter.
- 4WD Models: Lubricate driveshaft—three fittings.
- 4WD Models: Check front axle oil.
- Check air cleaner elements.
- Gas Models: Clean and gap spark plugs.
- Check battery electrolyte level.

Every 200 Hours

- Change engine oil and filter.
- Diesel Models: Clean fuel sediment bowl.
- Check and clean radiator cooling fins.
- Clean oil cooler coils—auxiliary hydraulic kit.
- Check battery electrolyte level.
- Check alternator belt wear and tension.
- Check air intake hose, hydraulic hoses, radiator hoses and clamps.

Every 450 Hours

- Change transmission oil and filter.
- Change hydraulic oil and filter—auxiliary hydraulic kit (optional).
- 4WD Models: Change front axle oil.
- Change hydraulic oil and filter—auxiliary reservoir tank.
- Check toe-in adjustment (See the technical manual or your John Deere dealer.)

Yearly

- Check coolant freeze point and clarity.
- Replace fuel filter.
- Clean battery.

SERVICE INTERVALS

Every 2000 Hours or Two Years

- Change engine coolant, if using COOL-GARD™ PRE-DILUTED SUMMER COOLANT (TY16036).

Every 3000 Hours or Three Years

- Change engine coolant, if using COOL-GARD™ CONCENTRATED SUMMER COOLANT (TY16034).

As Needed

- Replace alternator belt.
- Replace air cleaner elements.
- Replace fuses.
- Clean or replace battery.
- Replace light bulbs.
- Check tire pressure.
- Add brake fluid.
- Adjust park brake linkage. (See the technical manual or your John Deere dealer.)
- 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.)

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 John Deere 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 and mower engagement lever disengaged. 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 John Deere dealer.

Avoid Fumes



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

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

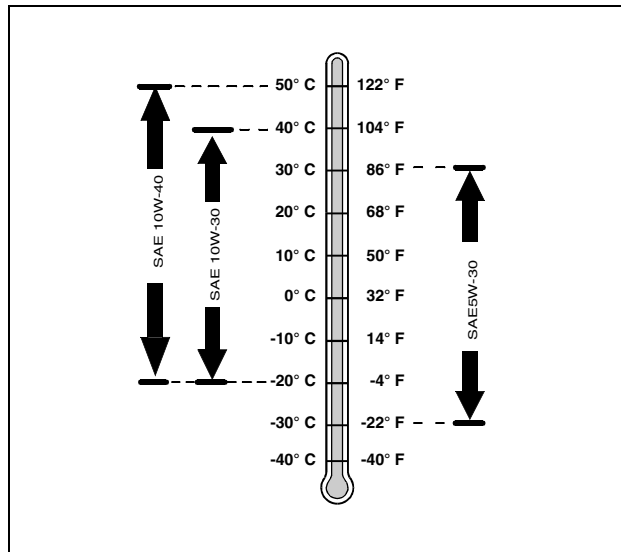
Do not run an engine in an enclosed area without adequate ventilation.

- **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 (Gas)

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:

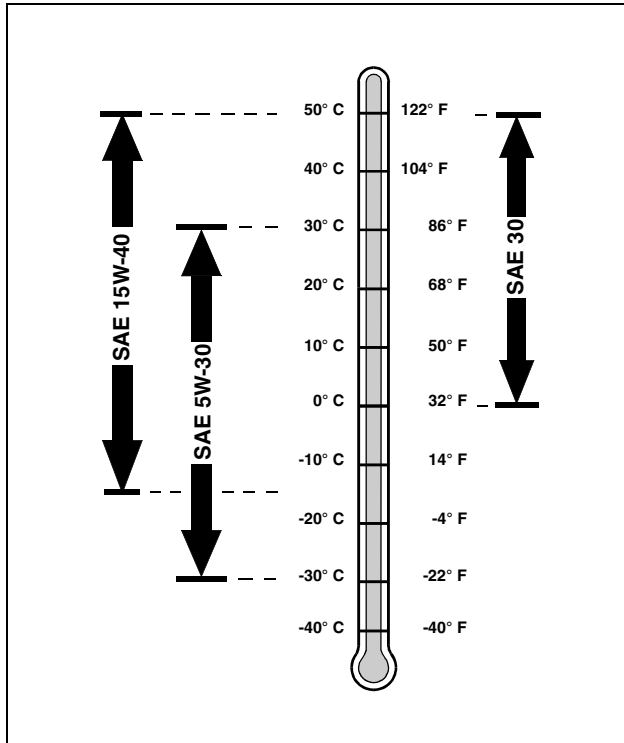
- API Service Classification SG or higher

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:

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- 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.

Checking Engine Oil Level

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

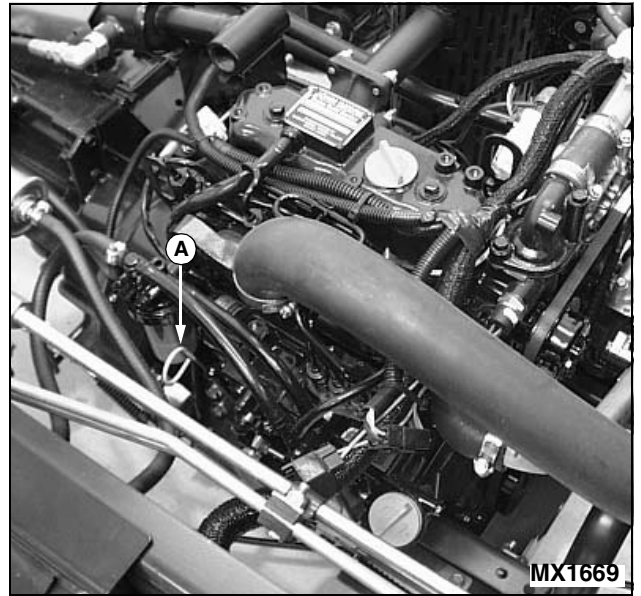
- Check oil level before operating.
- Check oil level when the engine is cold and not running.
- Keep level between the FULL and the ADD marks.
- Shut off engine before adding oil.

NOTE: Check oil twice a day if you run engine over 4 hours in a day.

Make sure engine is cold when checking engine oil level.

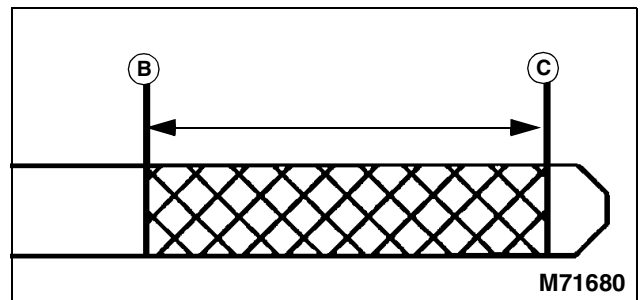
1. Raise attachment to service position. (See Using the Lift Cylinder Safety Support in the Safety section.)
2. Park vehicle safely. (See Parking Safely in the Safety section.)

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



Picture Note: Diesel engine shown.

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



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.

SERVICE ENGINE

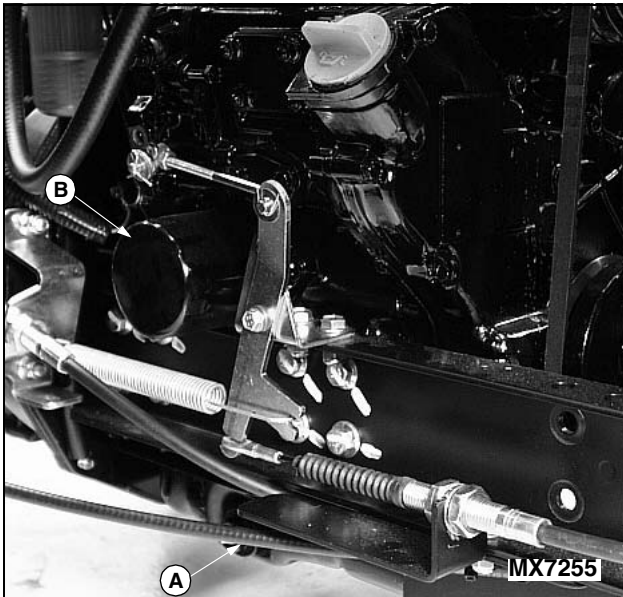
7. Lower attachment.

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.

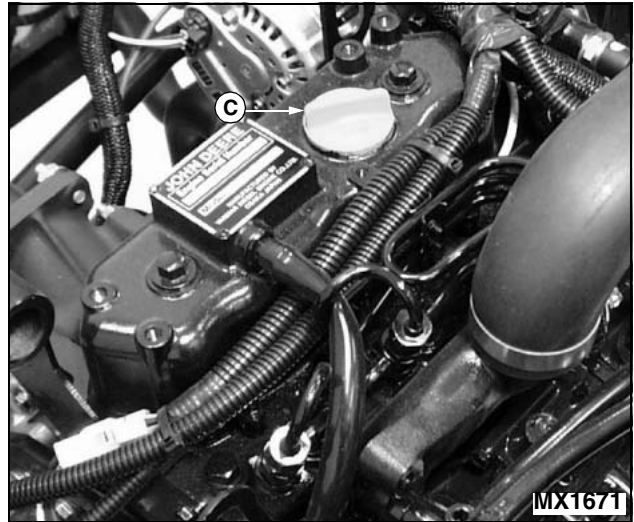
1. Run engine to warm the oil.
2. Raise attachment to service position. (See Using the Lift Cylinder Safety Support in the Safety section.)
3. Park vehicle safely. (See Parking Safely in the Safety section.)
4. Place container under the oil drain location.



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.

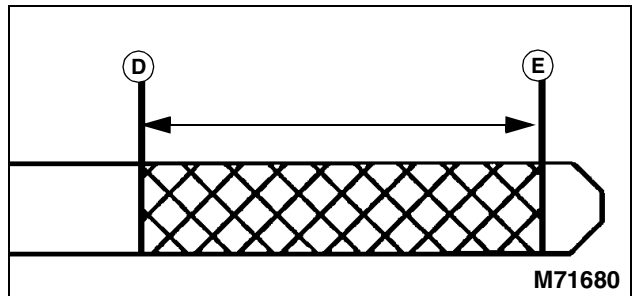
NOTE: An additional oil fill cap location is located on the right side of the engine.



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! Help prevent dirt and other contaminants from entering the oil dipstick tube location. Clean area around dipstick before removing.

17. Remove dipstick. Wipe with a clean cloth.
18. Install dipstick in tube.



19. 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

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proper level.

20. Install dipstick.

21. Lower attachment.

Checking Spark Plugs

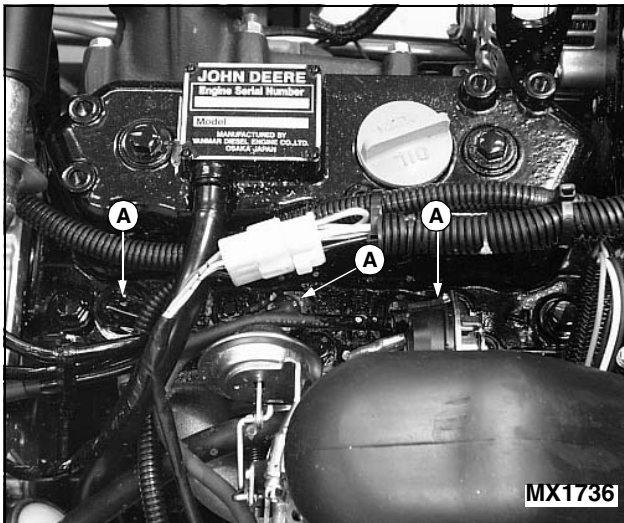


CAUTION: Avoid injury! Touching hot surfaces can burn skin. The engine and components will be hot if the engine has been running. Allow the engine to cool before servicing.

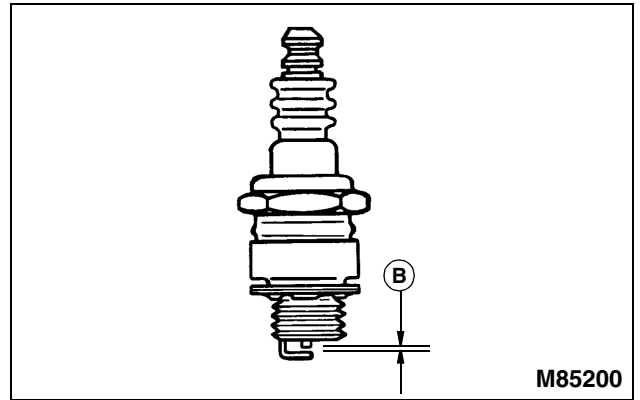
Wear personal eye protection when using compressed air for cleaning purposes

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.



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.

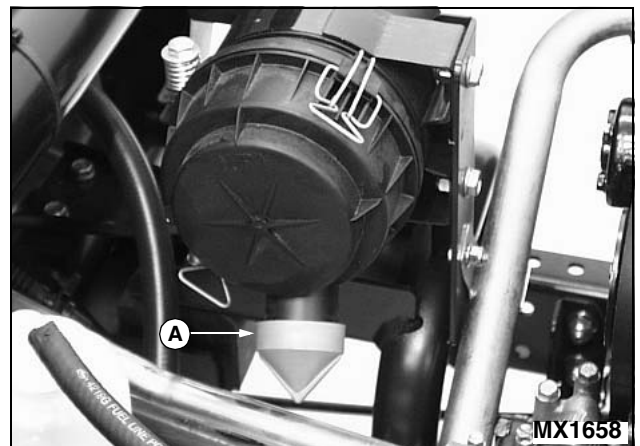


6. Check and adjust spark plug gap (B) to 0.76 mm (0.030 in.).
7. Install spark plugs.
 - Tighten to 20 N•m (15 lb-ft).
8. Install each spark plug wire.
9. Lower attachment.

Cleaning Rubber Dust Unloading Valve

IMPORTANT: Avoid damage! Never 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.)



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

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Cleaning Air Intake Screen

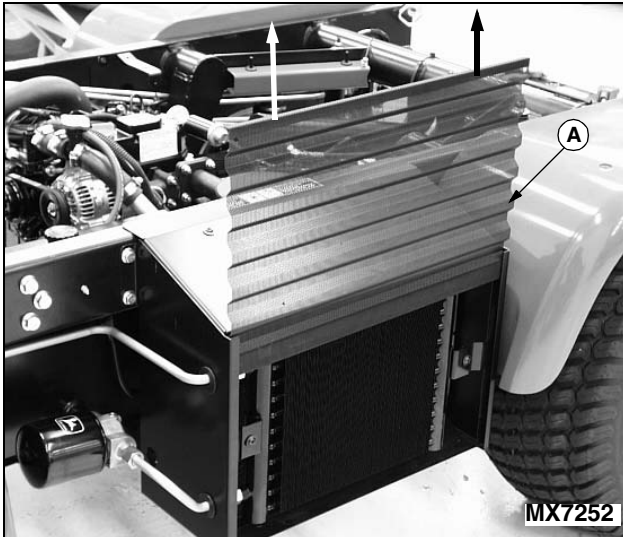


CAUTION: Avoid injury! Touching hot surfaces can burn skin. The engine and components will be hot if the engine has been running. Allow the engine to cool before servicing.

Wear personal eye protection when using compressed air for cleaning purposes.

IMPORTANT: Avoid damage! A dirty air intake screen can cause engine overheating. The air intake screen must be kept 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.)



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

Cleaning Radiator Cooling Fins and Fan Shroud

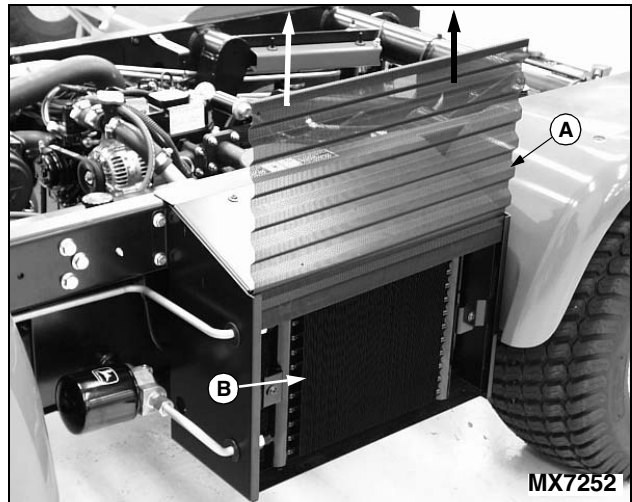


CAUTION: Avoid injury! Touching hot surfaces can burn skin. The engine and components will be hot if the engine has been running. Allow the engine to cool before servicing.

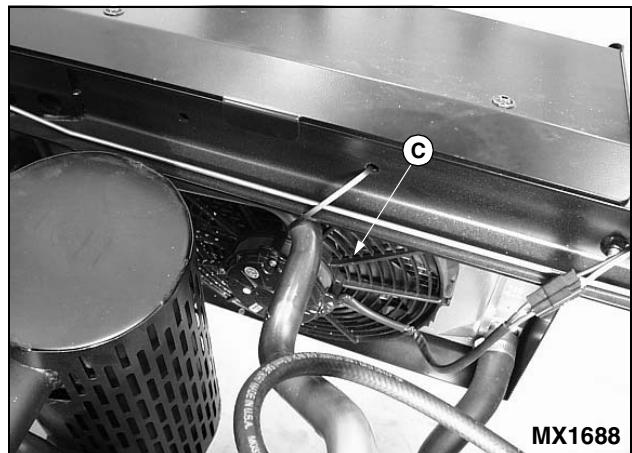
Wear personal eye protection when using compressed air for cleaning purposes.

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



3. Remove air intake screen (A).



4. Remove dirt and debris from the radiator cooling fins (B)

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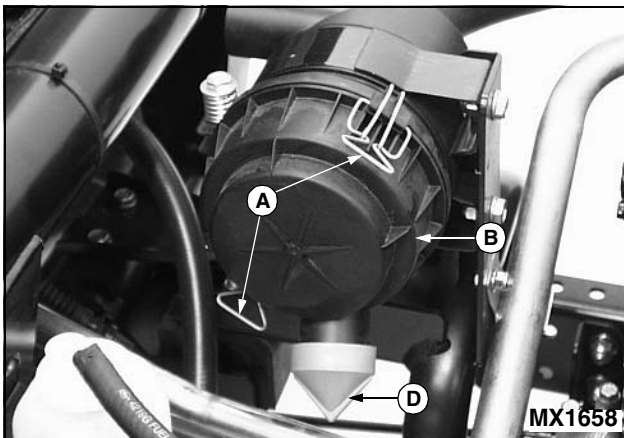
and fan shroud (C) using compressed air or water.

5. Check radiator fins for damage.
6. Install air intake screen.
7. Lower attachment.

Servicing Air Cleaner Element

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.)



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

Replacing Primary Air Filter Element



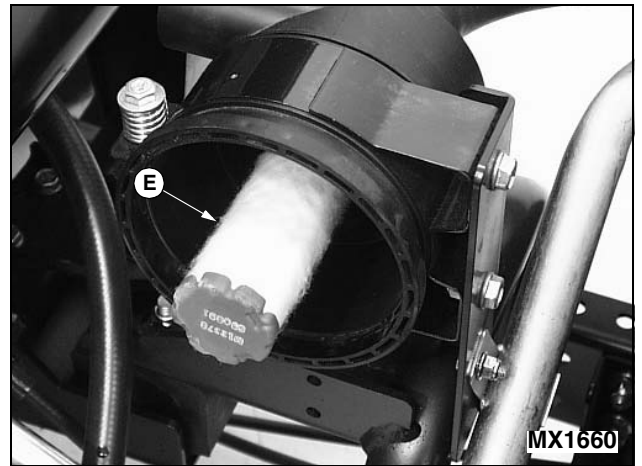
1. Remove and discard primary element (C). Replace with a new primary filter element.
2. Install air cleaner canister cover (B).

- 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.

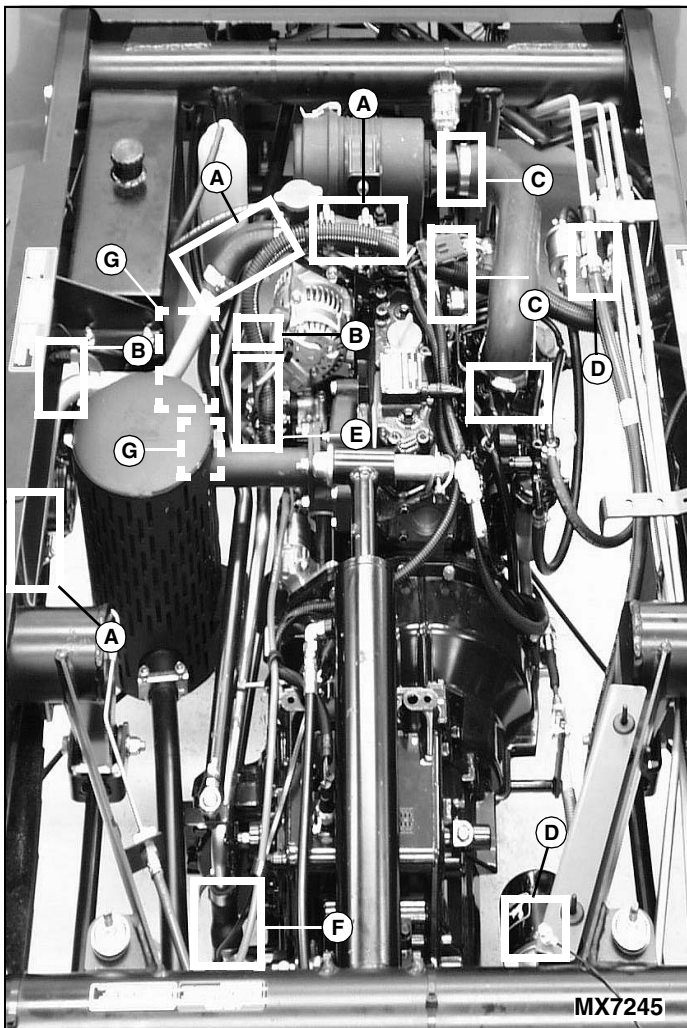


3. Remove and discard secondary air filter element (E). Replace with a new secondary air filter element.
4. Install primary air filter element.
5. Replace air cleaner canister cover.
6. Lower attachment.

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.)

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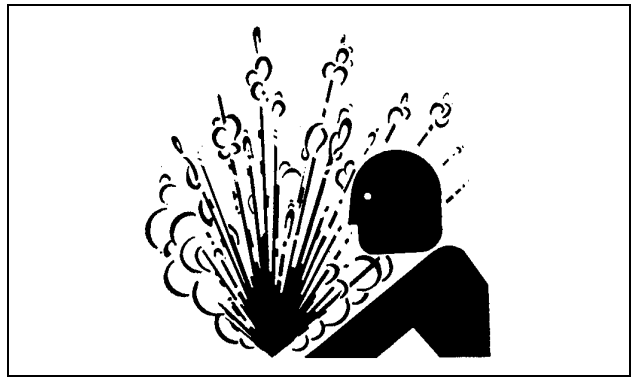


- A - Upper Radiator Hoses (6 Clamps)
- B - Lower Radiator Hoses (4 Clamps)
- C - Air Intake Hose (2 Clamps)
- D - Hydraulic Hose (2 Clamps)
- E - Hydraulic Suction Manifold (4 Clamps)
- F - Hydraulic Hose (2 Clamps)
- G - Hydraulic Hose (8 Clamps)

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

4. Lower attachment.

Service Cooling System Safely



CAUTION: Avoid injury! Explosive release of fluids from pressurized cooling system can cause serious burns:

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

Recommended Engine Coolant

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.

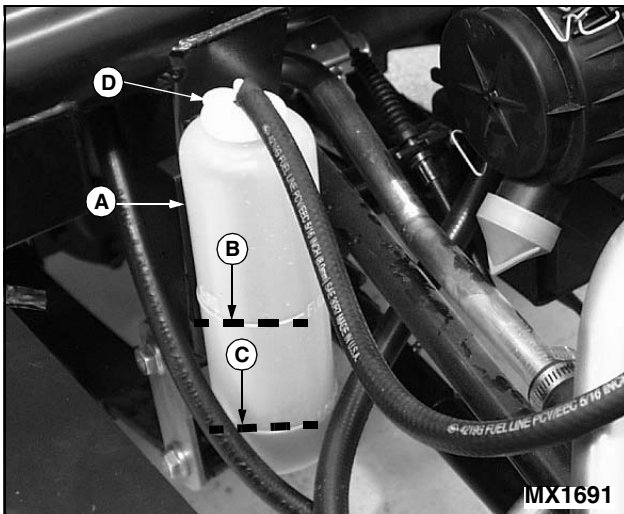
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Checking Coolant Level

IMPORTANT: Avoid damage!

- Do not operate engine without coolant.
- Do not pour coolant into the radiator when the engine is hot.
- Use antifreeze approved for use in aluminum engine.
- To prevent engine overheating, do not exceed more than 50 percent antifreeze in 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.)



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.

Draining Cooling System



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.

IMPORTANT: Avoid damage!

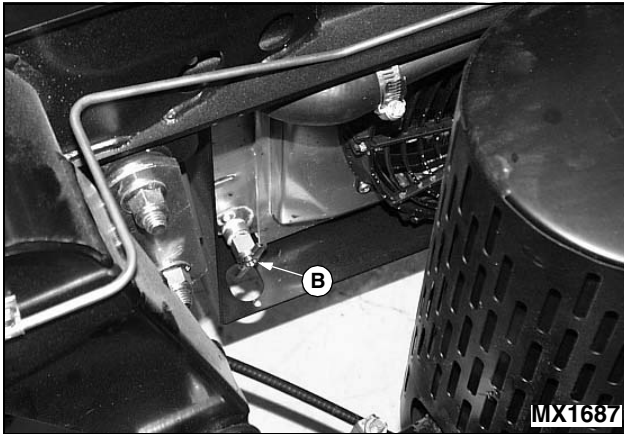
- Do not operate engine without coolant.
- Do not pour coolant into the radiator when the engine is hot.

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.)



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

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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



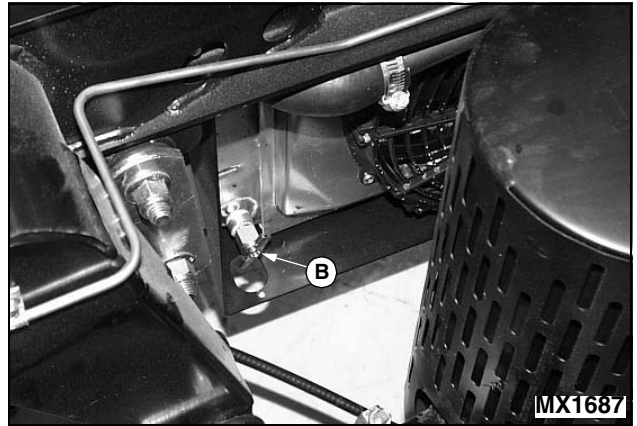
CAUTION: Avoid injury! Engine and coolant will be hot.

Turn radiator cap using a thick rag or glove to protect your hand.

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



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



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

Filling Cooling System

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

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

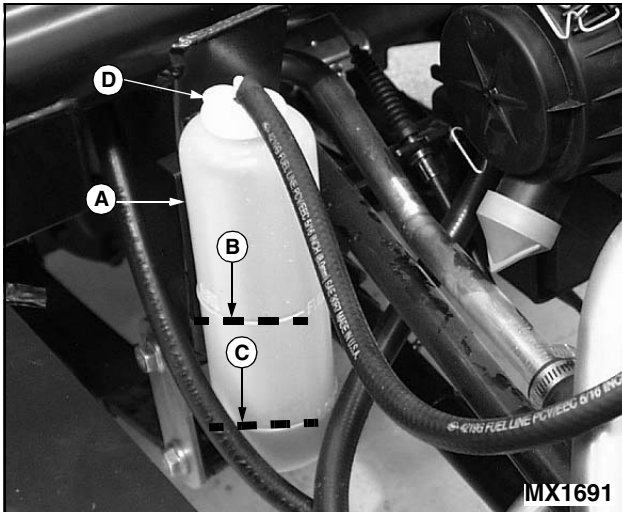
NOTE: John Deere COOL-GARD coolant is recommended when adding coolant to the cooling system.

Follow the directions on the container for correct mixture ratio.

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 distributor 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.

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4. Stop engine.



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)

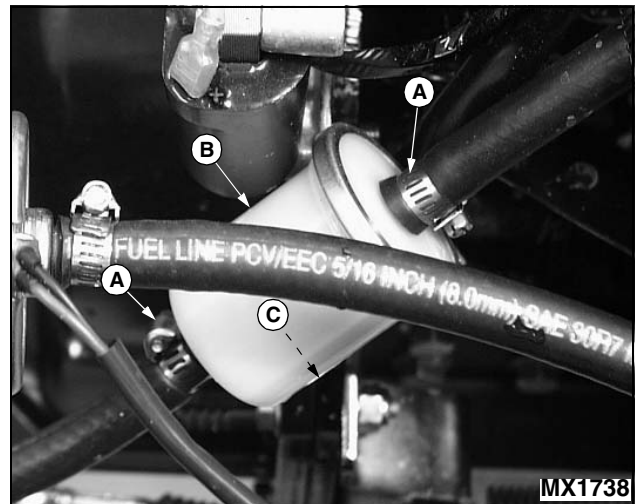


CAUTION: Avoid injury! Fuel vapors are explosive and flammable:

- 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.)



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 the 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)

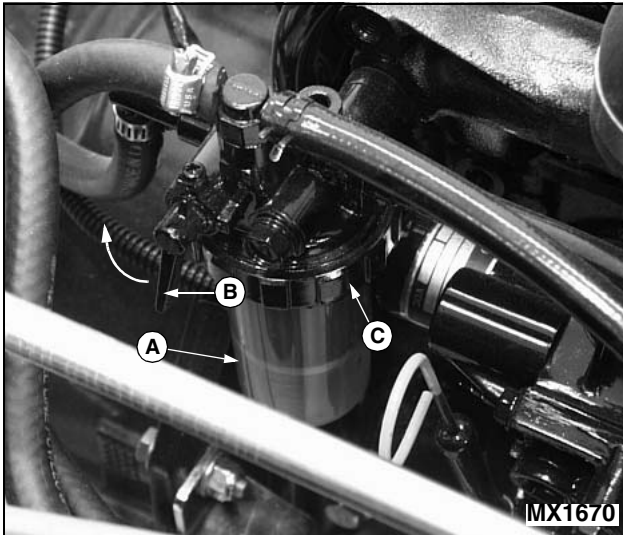


CAUTION: Avoid injury! Keep cigarettes, sparks, and flames away from fuel system. Make sure engine is cool.

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.)

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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.

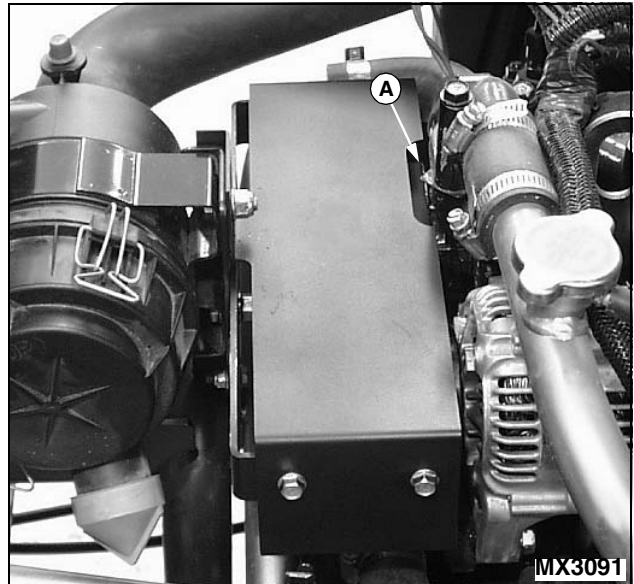
Checking and Adjusting Alternator Belt



CAUTION: Avoid injury! Avoid injury due to entanglement or contact with a rotating belt or sheave. Stop engine and wait for all moving parts to stop.

Checking Belt Tension

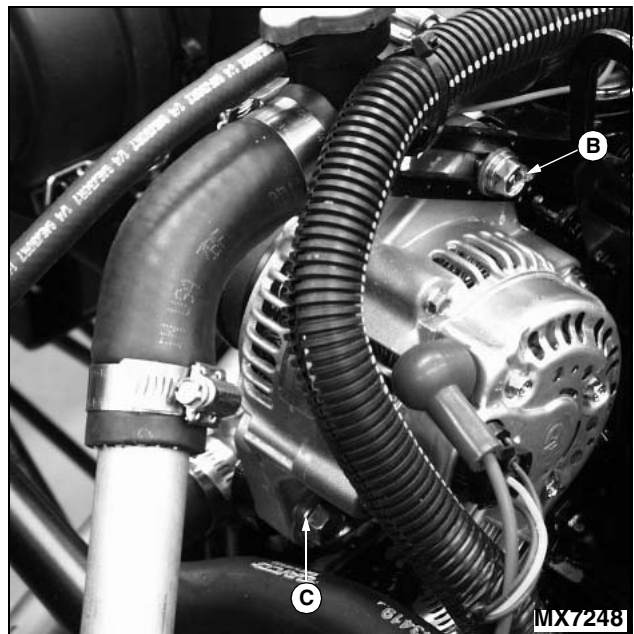
1. Raise attachment to service position. (See Using the Lift Cylinder Safety Support in the Safety section.)
2. Park vehicle safely. (See Parking Safely in the Safety section.)



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



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).

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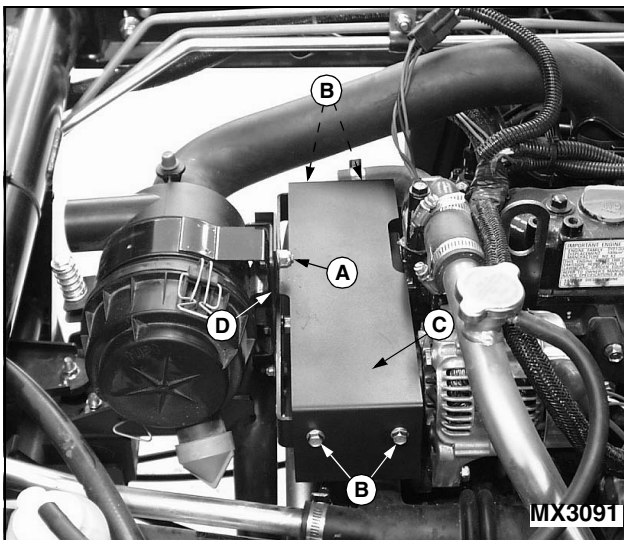
5. Check belt tension:
 - Apply thumb pressure to the belt approximately halfway between the sheaves. Belt should deflect inward approximately 10 mm (3/8 in.).
6. Lower attachment.

Replacing Alternator Belt (Gas Models)

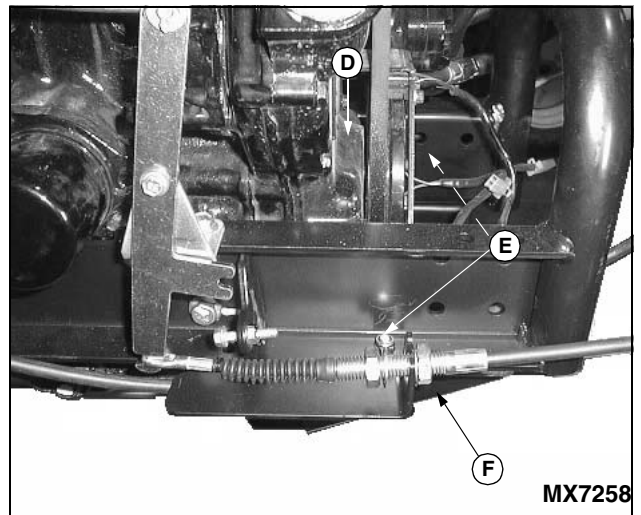


CAUTION: Avoid injury! Avoid injury due to entanglement or contact with a rotating belt or sheave. Stop engine and wait for all moving parts to stop.

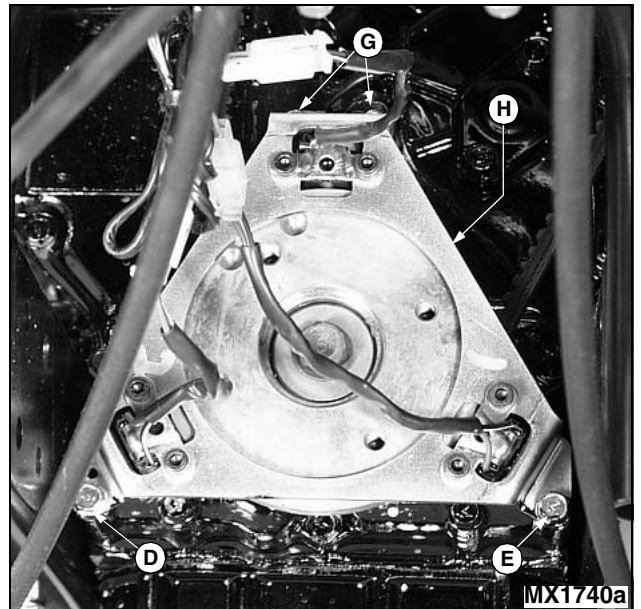
1. Raise attachment to service position. (See Using the Lift Cylinder Safety Support in the Safety section.)
2. Park vehicle safely. (See Parking Safely in the Safety section.)



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

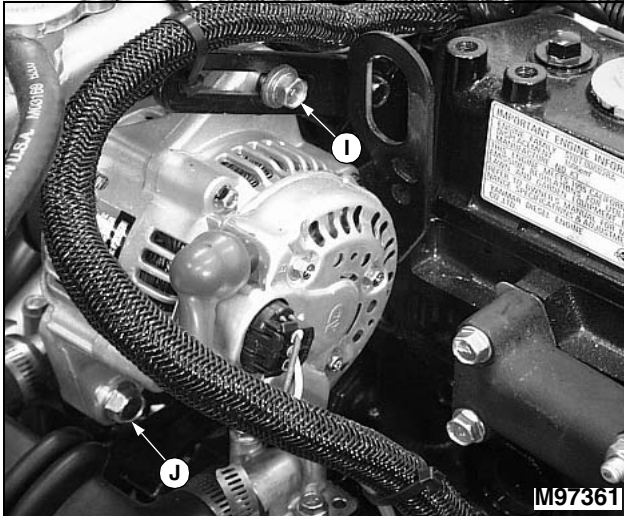


4. Remove two hex bolts (E), flanged lock nuts and skid plate (F) mounted under the vehicle in front of the engine.



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

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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. Install belt shield.

18. Lower attachment.

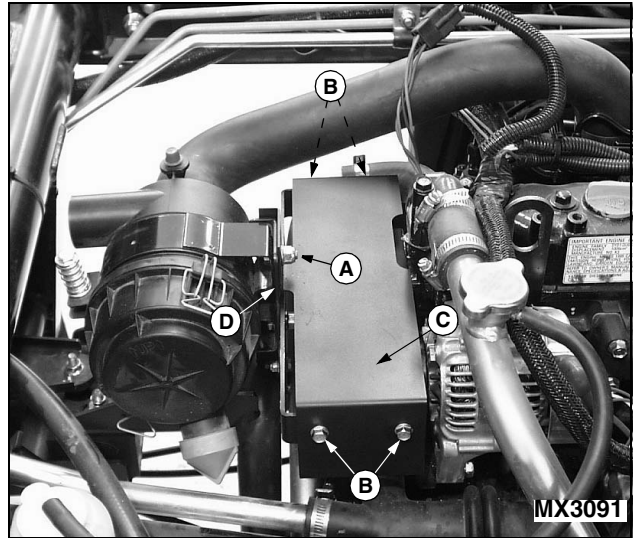
Replacing Alternator Belt (Diesel Models)



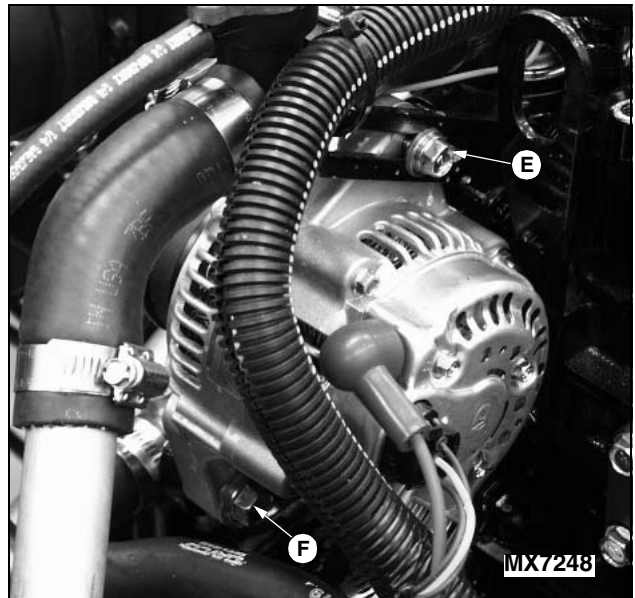
CAUTION: Avoid injury! Avoid injury due to entanglement or contact with a rotating belt or sheave. Stop engine and wait for all moving parts to stop.

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.)



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



4. Loosen adjustment bolt (E).
5. Remove 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 mounting bolt (F). Do not tighten.
10. Apply outward pressure to the alternator housing.
11. Tighten adjustment bolt (E) and mounting bolt (F).
12. Check belt tension:

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- Apply thumb pressure to the belt approximately halfway between the sheaves. Belt should deflect inward approximately 10 mm (3/8 in.).

13. Install belt shield.

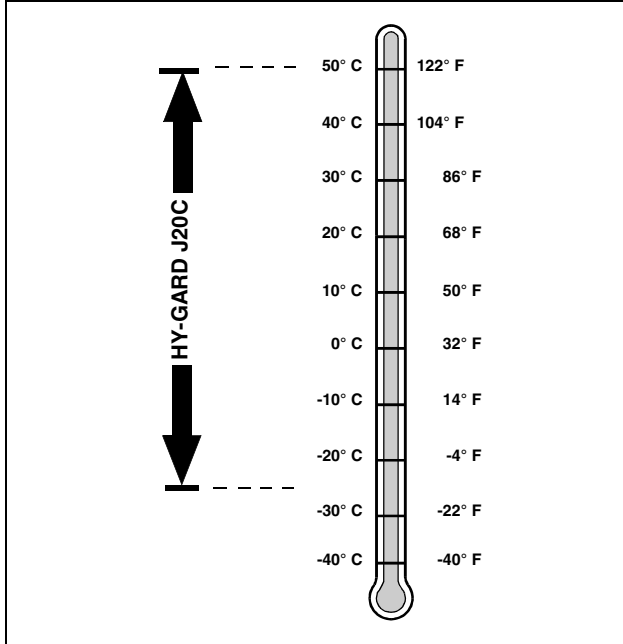
14. Lower attachment.

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 oil is preferred:



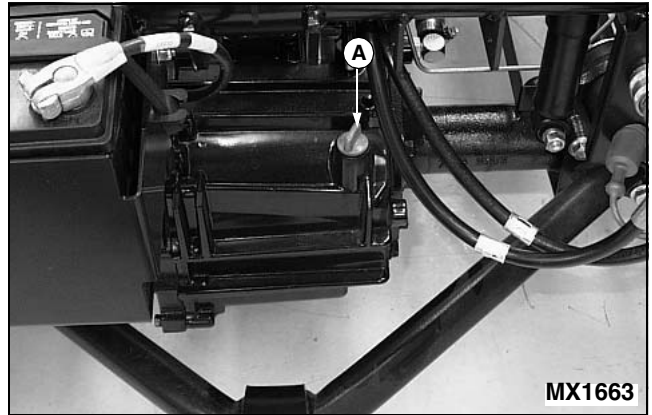
- HY-GARD® (JDM J20C)

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

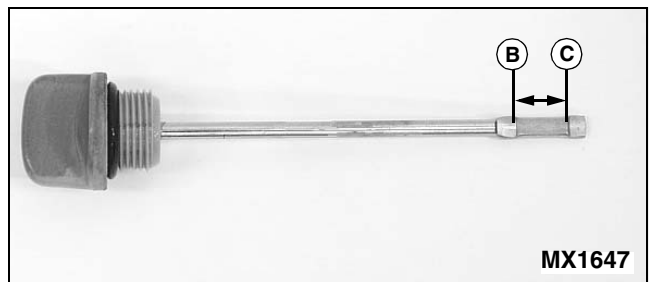
Checking Transmission Oil Level

IMPORTANT: Avoid damage! Check transmission oil level when oil is cold. Engine must not be running.

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



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.



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

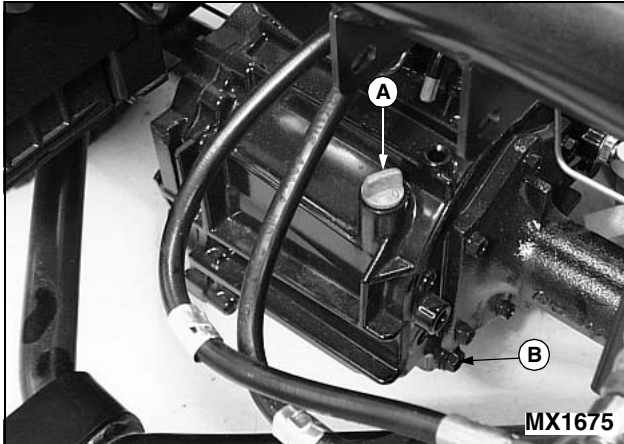
IMPORTANT: Avoid damage! Contamination of transmission oil could cause transmission damage or failure. Do not remove fill cap/dipstick unless absolutely necessary.

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

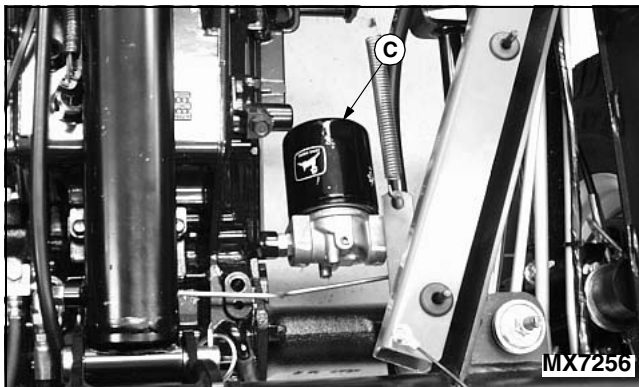
1. Raise attachment to service position. (See Using the Lift Cylinder Safety Support in the Safety section.)
2. Park vehicle safely. (See Parking Safely in the Safety section.)

SERVICE TRANSMISSION

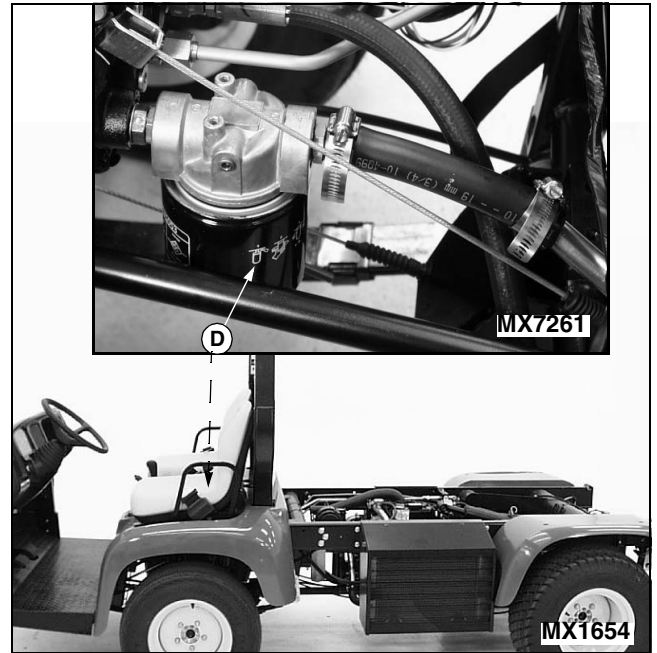
- Allow the engine and transmission to cool.



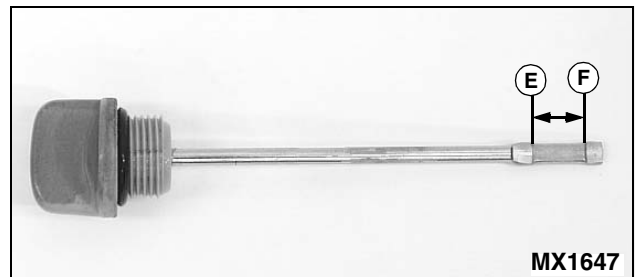
3. Thoroughly clean area around the transmission fill cap/dipstick (A). Remove fill cap/dipstick.
4. Locate drain plug (B) under right side of transmission.
5. Remove drain plug. Allow oil to drain into a drain pan with at least a 10.6 L (2.8 gal) capacity.
6. Locate transmission oil filter:



- Units equipped with an auxiliary hydraulic kit - The transmission filter (C) is located on the right side of the vehicle.



- Units **not** equipped with an auxiliary hydraulic kit - The transmission filter (D) is located in the center of vehicle, directly behind the 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. Install and tighten drain plug.
 10. Add approximately 10.6 L (2.8 gal) of oil into fill opening.
- NOTE: Do not tighten dipstick. Allow threads to rest on top of transmission housing.**
11. Install fill cap/dipstick.



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

SERVICE TRANSMISSION

level.

13. Install fill cap/dipstick.

14. Lower attachment.

Clean Transmission Oil Strainer

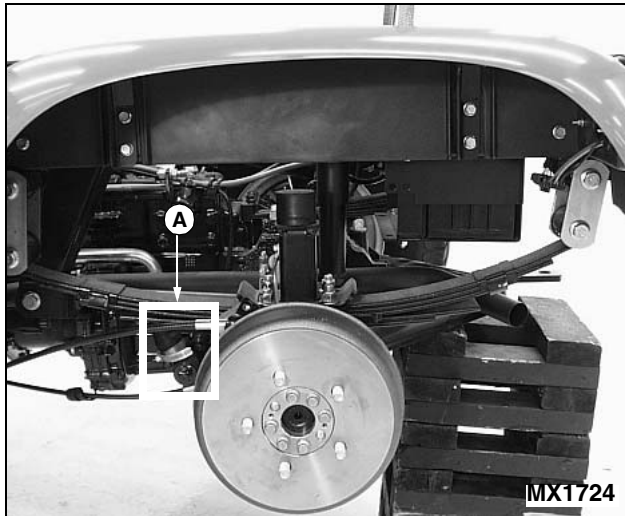


CAUTION: Avoid injury! Use caution when cleaning the oil strainer. During periods of machine operation the transmission oil can get hot.

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

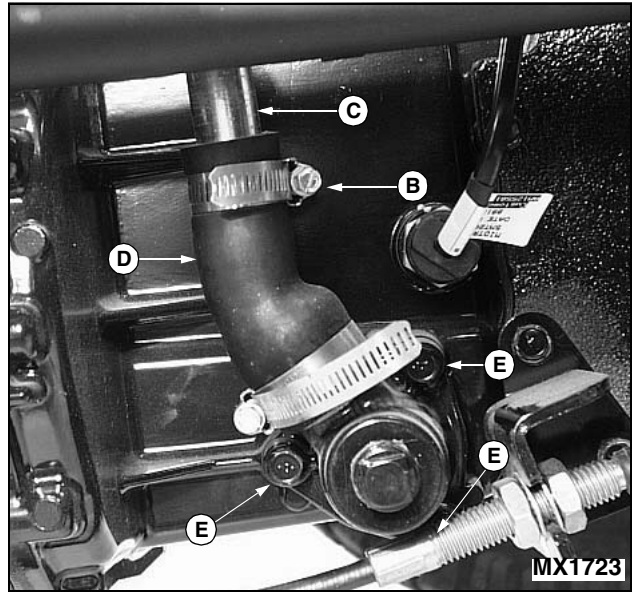
1. Change transmission oil and filter.

NOTE: Left rear wheel removed for photo clarity only.

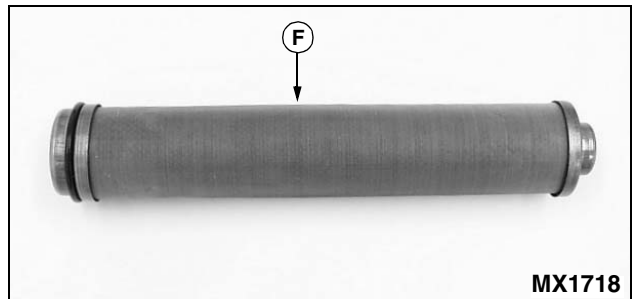


2. Locate strainer housing (A) on the left side of vehicle.

NOTE: Use drain pan to catch dripping oil.



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.



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.

Lubricating the Drive Shaft (4WD Models)

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



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

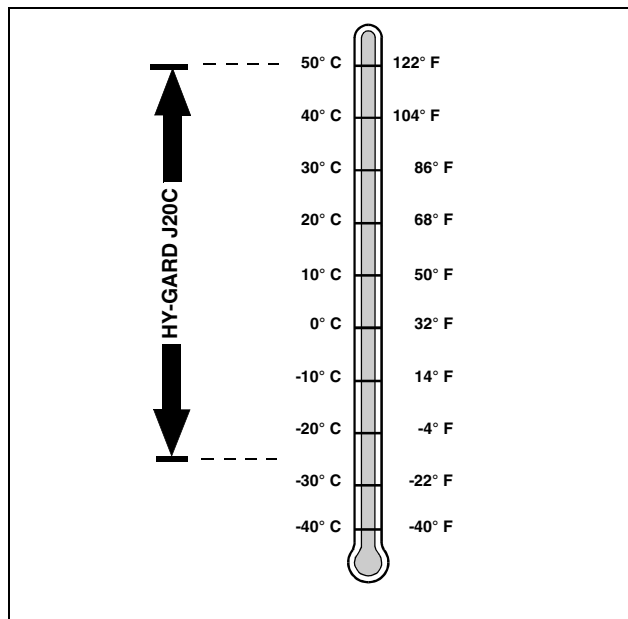
SERVICE - HYDRAULICS

Hydraulic Oil

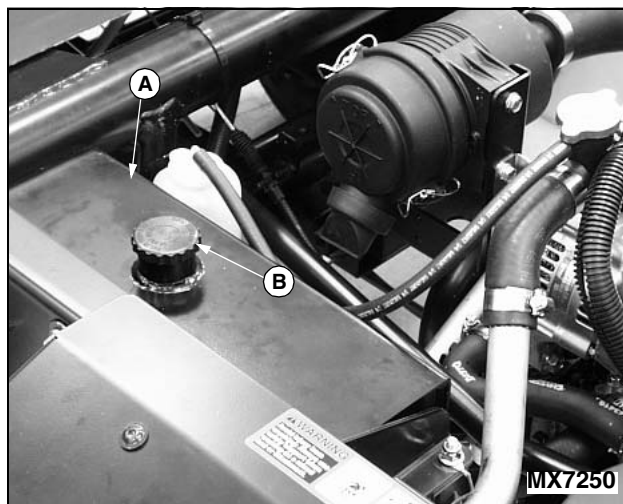
Use oil viscosity based on the expected air temperature range during the period between oil changes.

The following John Deere transmission and hydraulic oil is preferred:

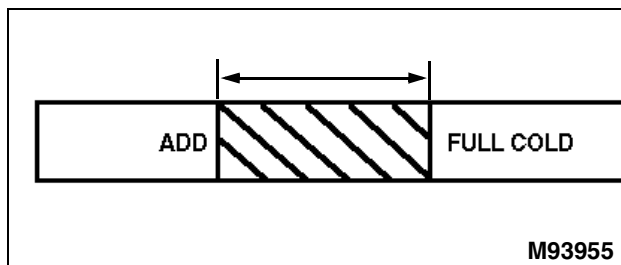
- HY-GARD® (JDM J20C)



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 BIO-HYGARD® in this oil reservoir. Do not use engine oil or "Type F" (Red) Automatic Transmission Fluid in this reservoir.



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.



- 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.

Check Hydraulic Oil Level

NOTE: This service procedure should be performed on 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.)

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.

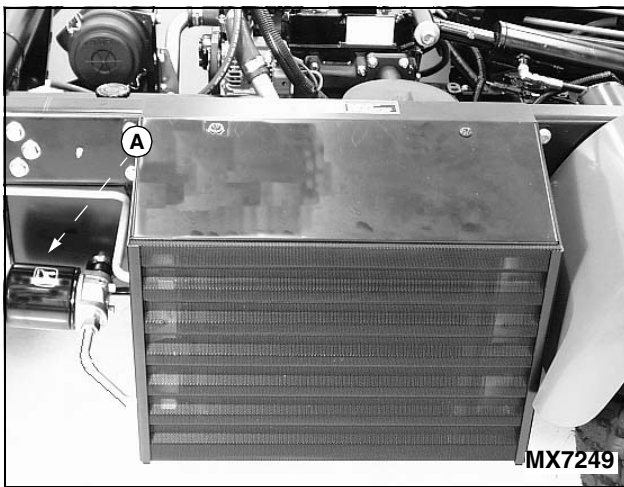
IMPORTANT: Avoid damage! Prevent contamination of hydraulic oil. Do not open the oil reservoir cap unless absolutely necessary.

Do not overfill the hydraulic oil reservoir. Oil expands during operation and could overflow.

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

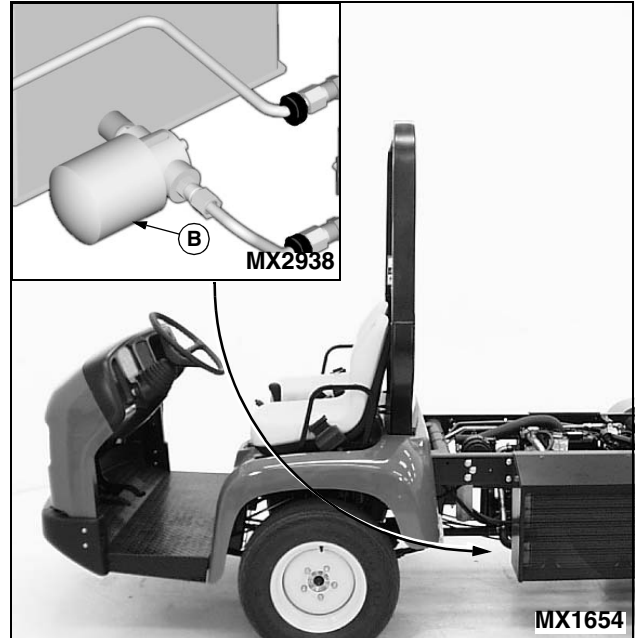
NOTE: This service procedure should be performed on vehicles equipped with the auxiliary hydraulic kit.

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.)
 - Allow the engine and the oil reservoir to cool.

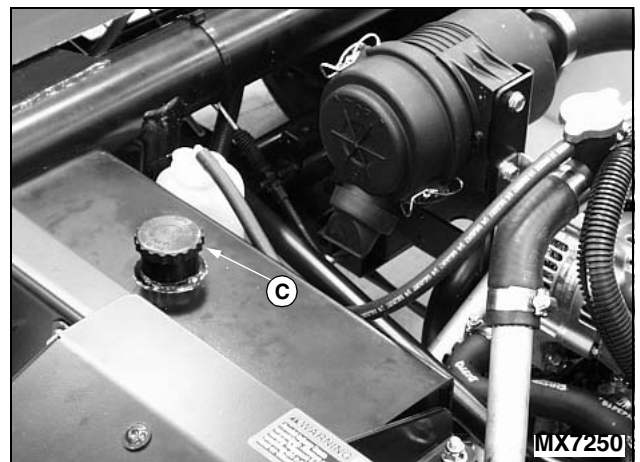


3. Locate drain plug (A) under the oil reservoir on the left side of the vehicle.
4. Place container under the oil drain location.
5. Remove drain plug. Allow oil to drain into a container

with at least a 13.2 L (3.5 gal) capacity.

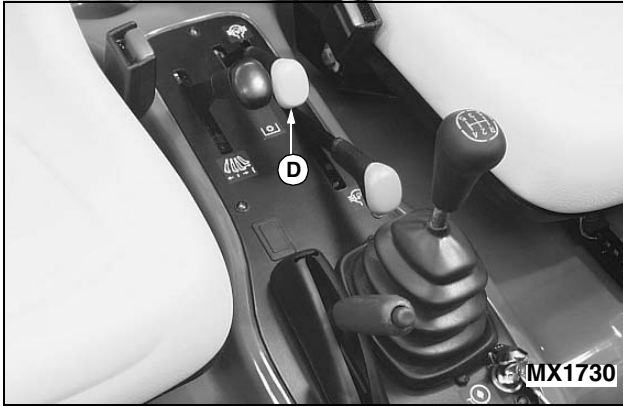


6. Remove hydraulic oil filter (B) from left side of vehicle.
7. Turn filter counterclockwise to remove. Use a drain pan to catch dripping oil.
8. Apply a film of clean oil on gasket of new filter.
9. Turn filter clockwise until gasket makes contact with the mounting surface. Tighten 1/2 to 3/4 turn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



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

SERVICE - HYDRAULICS



15. Cycle the hydraulic PTO lever (D) for approximately one or two minutes. Check for leaks.

16. Stop engine.

17. Check oil level. Add oil as necessary.

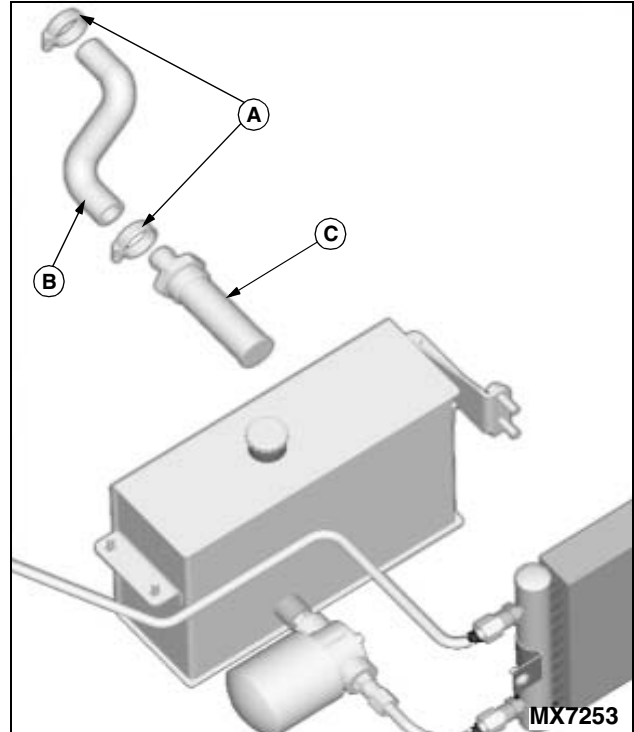
18. Lower attachment or cargo box.

Clean Hydraulic Oil Reservoir Strainer

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

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

1. Change hydraulic oil and filter.



2. Loosen adjustable hose clamp (A).
3. Remove rubber hose (B) from strainer (C).
4. Remove strainer from the hydraulic oil tank.
5. Clean strainer with solvent or mineral spirits and allow to dry.
6. Install strainer into the hydraulic oil tank.
7. Install rubber hose onto strainer.
8. Tighten adjustable hose clamp.

Cleaning Oil Cooling Coils



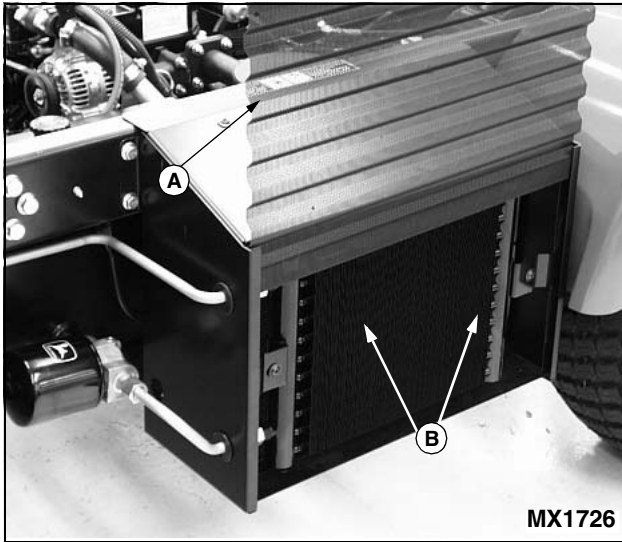
CAUTION: Avoid injury! Wear personal eye protection when using compressed air for cleaning purposes.

IMPORTANT: Avoid damage! Keep cooling coils clean to prevent engine overheating.

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.)

SERVICE - HYDRAULICS



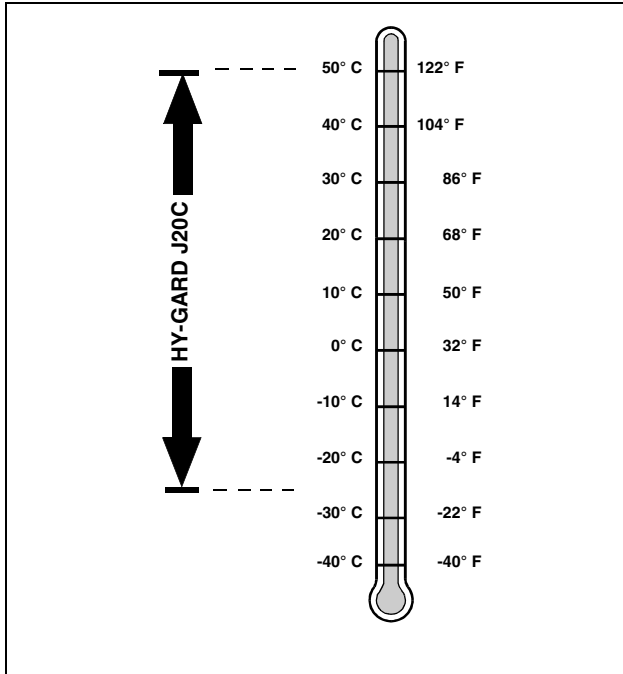
3. Lift air intake screen (A) from position in front of the engine radiator.
4. Remove dirt and debris from the oil cooling coils (B) using compressed air or water. Check coils for damage.
5. Install air intake screen.
6. Lower attachment.

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)

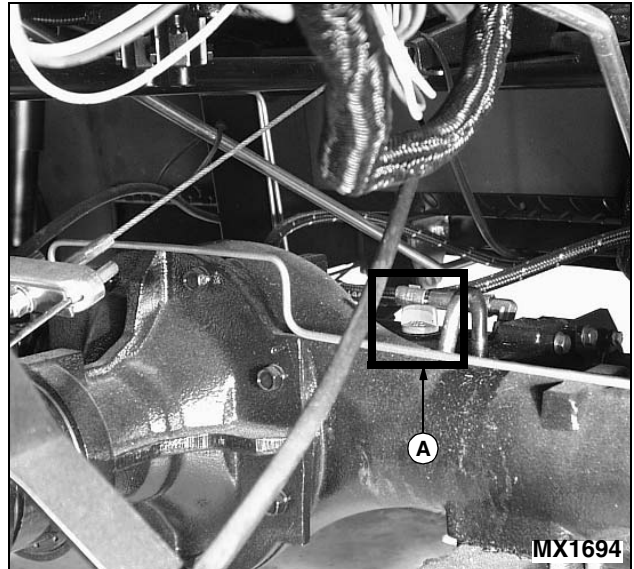
IMPORTANT: Avoid damage! Only use a quality oil in this front axle gear case. Do not mix any other oils in this gear case. Do not use BIO-HY-GARD® in this gear case.

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.)

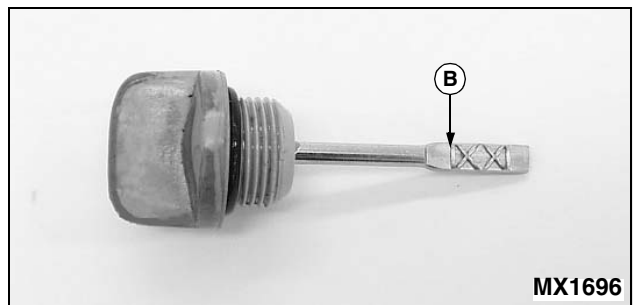
IMPORTANT: Avoid damage! Help prevent contaminants from entering the oil dipstick location. Clean area around dipstick before removing.



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.

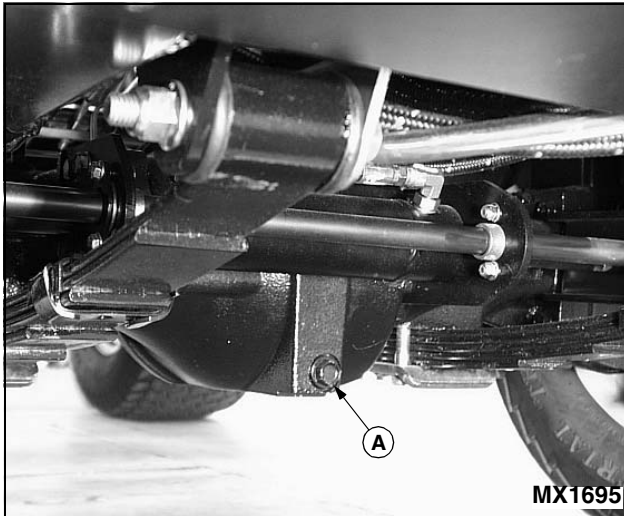
- If oil is low, add oil. Oil level should be to the top of the XX area (B) on the dipstick.

6. Install and tighten dipstick.

Changing the Front Axle Oil (4WD Models)

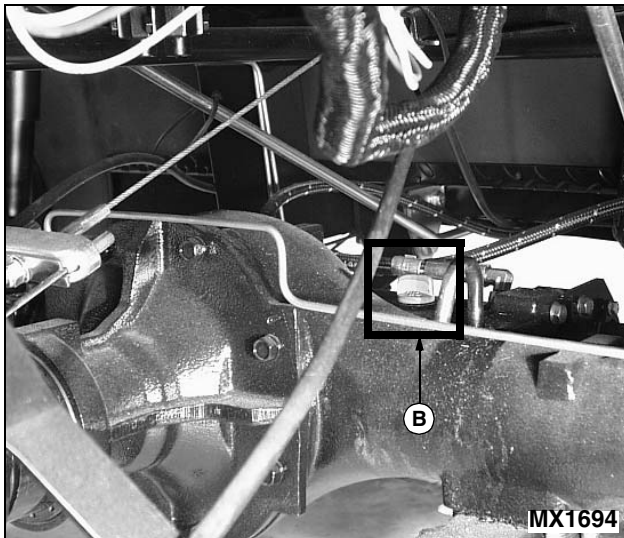
1. Park vehicle safely. (See Parking Safely in the Safety section.)
2. Place container under the oil drain location.

SERVICE STEERING & BRAKES



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

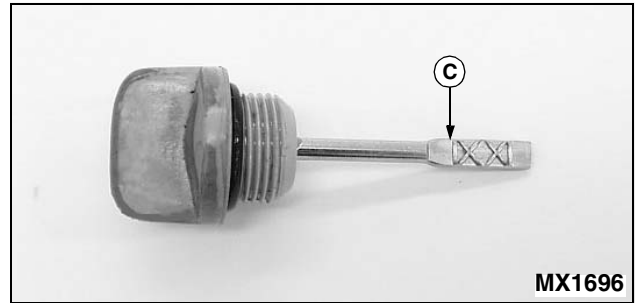
IMPORTANT: Avoid damage! Help prevent contaminants from entering the oil dipstick location. Clean area around dipstick before removing.



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.



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 (B) 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 John Deere heavy duty brake fluid is **PREFERRED** for all drum and disc brakes:

- **Brake Fluid-DOT3 (TY15975)**

Other brake fluids may be used if the above John Deere brake fluid is not available and 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

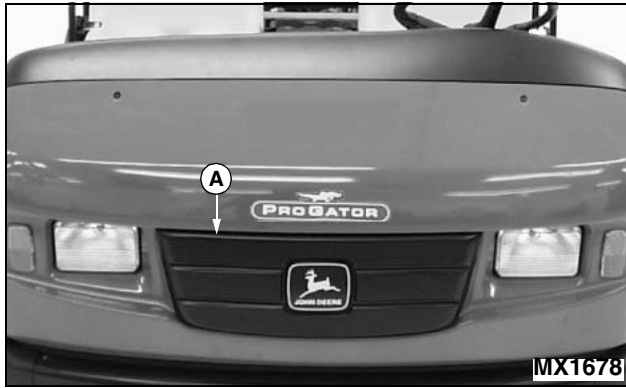
IMPORTANT: Avoid damage! Avoid contamination of the brake fluid. Thoroughly clean area around the filler cap before removing. Do not open the brake fluid reservoir cap unless absolutely necessary.

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

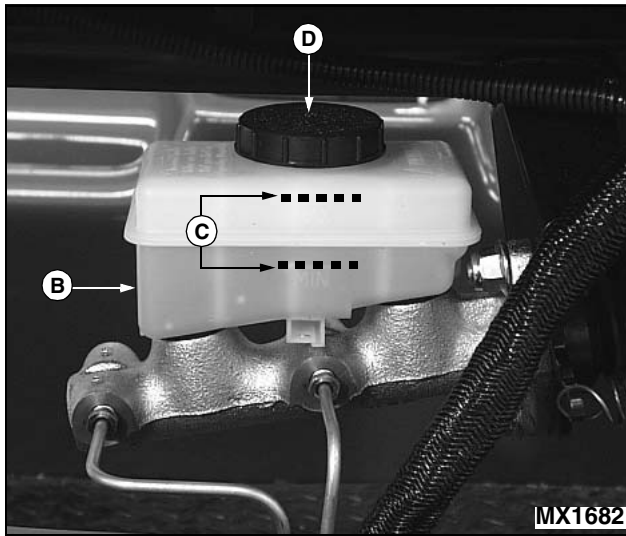
Use only DOT3 brake fluid from a sealed container.

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

SERVICE STEERING & BRAKES



2. Remove front grill (A).



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 to midpoint of the reservoir fill lines.
5. Install reservoir cap.
6. Install front grill.

SERVICE ELECTRICAL

Removing and Installing the Battery

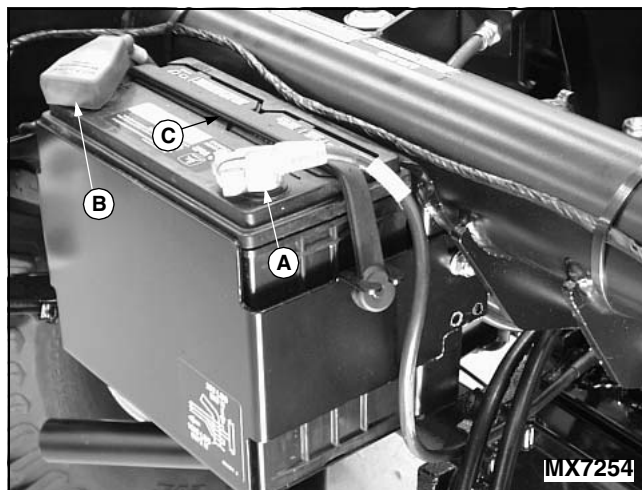


CAUTION: Avoid injury! The battery produces a flammable and explosive gas. The battery may explode:

- 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.

Removing:

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.)

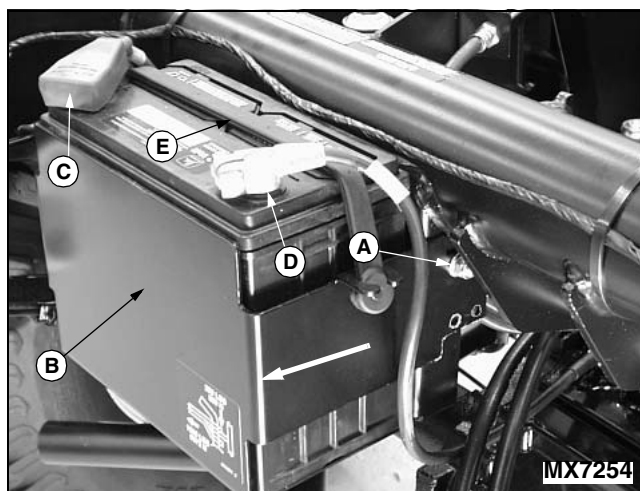


3. Disconnect negative (–) battery cable (A).
4. Push red cover (B) away from positive (+) battery cable and remove cable from battery.
5. Remove black rubber strap (C).
6. Remove battery.

Installing:

NOTE: The service battery is slightly deeper and will require moving the battery bracket out. The battery bracket has two sets of mounting holes.

1. Adjust battery bracket to accommodate service battery, if necessary.



- a. Remove hardware (A) from both sides of bracket.
 - b. Slide bracket (B) out and align second hole with hole in mounting bracket.
 - c. Install hardware and tighten.
2. Place battery on battery tray.
 3. Connect positive (+) cable (C) to battery first, then negative (–) cable (D).
 4. Apply general purpose grease or silicone spray to terminal to help prevent corrosion.
 5. Slide red cover over positive battery cable.
 6. Install black rubber strap (E).

Checking Battery Electrolyte Level (Maintenance-Type Battery)



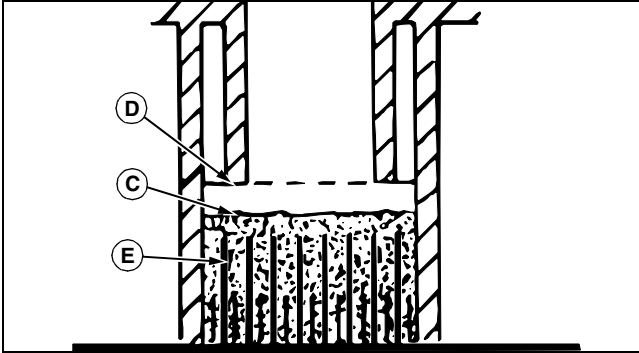
CAUTION: Avoid injury! Battery electrolyte contains sulfuric acid. It is poisonous and can cause serious burns:

- 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.

NOTE: Add only distilled water to replace normal electrolyte loss.

SERVICE ELECTRICAL

1. Park the vehicle safely. (See Parking Safely in the SAFETY section.)
2. Remove battery from vehicle and set it on a level surface.
3. Remove battery cell caps. Make sure cap vents are not plugged.



4. Check electrolyte level. Electrolyte (C) should be approximately halfway between bottom of filler neck (D) and top of plates (E).

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

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

Cleaning Battery and Terminals



CAUTION: Avoid injury! 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.

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. Disconnect and remove battery.
4. 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.
5. Rinse the battery with plain water and let dry.
6. Clean terminals and battery cable ends with wire brush until bright.
7. Apply petroleum jelly or silicone spray to terminal to prevent corrosion.
8. Install battery.
9. Lower attachment.

Using Booster Battery

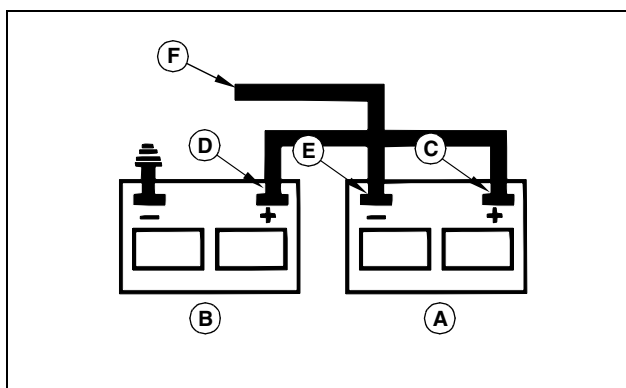


SERVICE ELECTRICAL



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

- Do not attempt to jump start a frozen battery. Warm to 16 degrees C (60 degrees F).
- Do not smoke near battery.
- Wear eye protection and gloves.
- Keep sparks and flames away.
- 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.



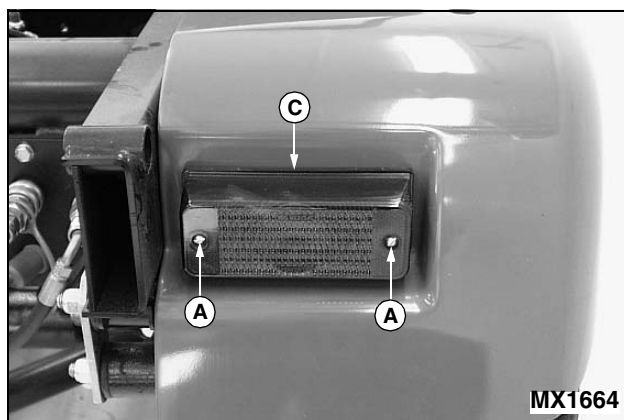
A - Booster Battery

B - Disabled Vehicle Battery

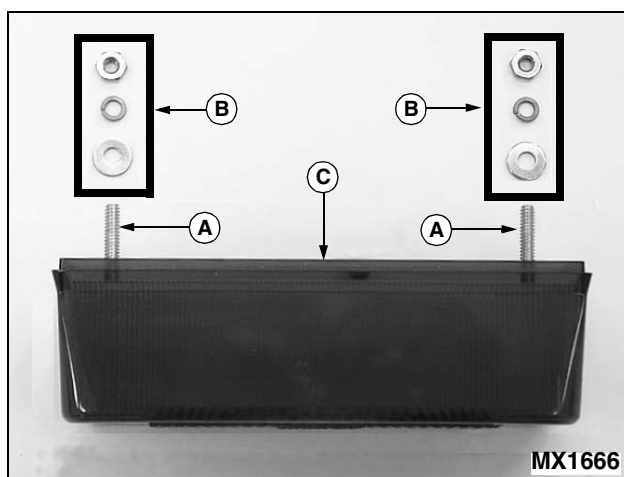
1. Connect positive (+) booster cable to booster battery (A) positive (+) post (C).
2. Connect the other end of positive (+) booster cable to the disabled vehicle battery (B) positive (+) post (D).
3. Connect negative (-) booster cable to booster battery negative (-) post (E).
4. Connect the other end (F) of negative (-) booster cable to a metal part of the disabled machine frame 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.)



2. Remove two screws (A), attaching hardware (B) and lens (C) from the combination stoplight/taillight assembly.

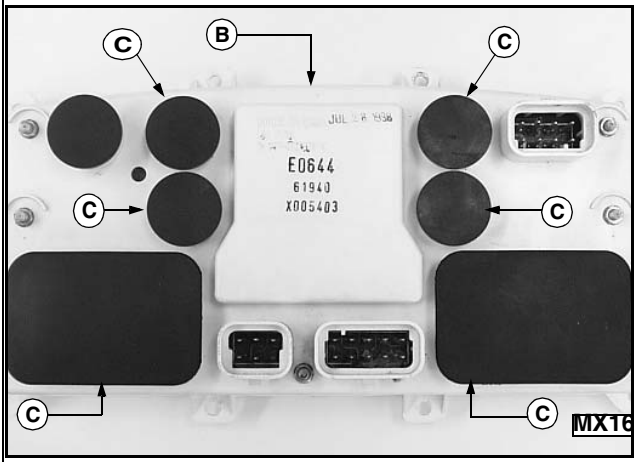
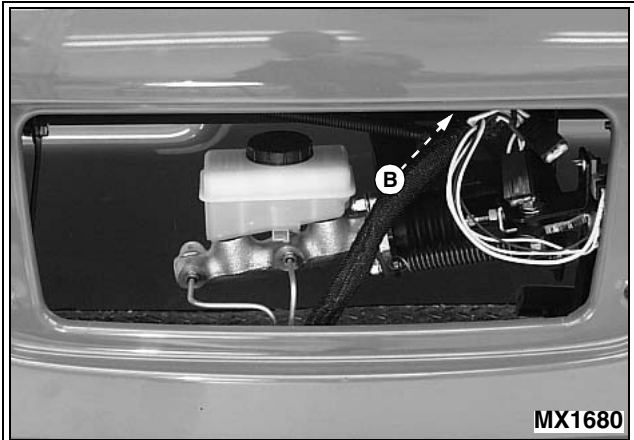


3. Remove defective bulb.
 - Rotate bulb counterclockwise approximately 1/3 turn and remove from the socket.
4. Install new bulb into the socket.
 - Push down top of bulb and rotate clockwise into a locked position.
5. Check operation of lights.
6. Install lens.

Replacing Indicator Light Bulb

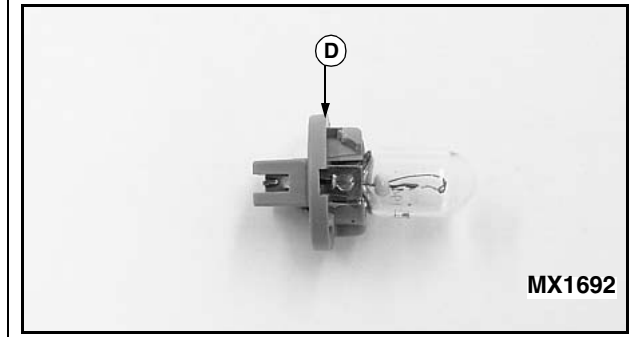
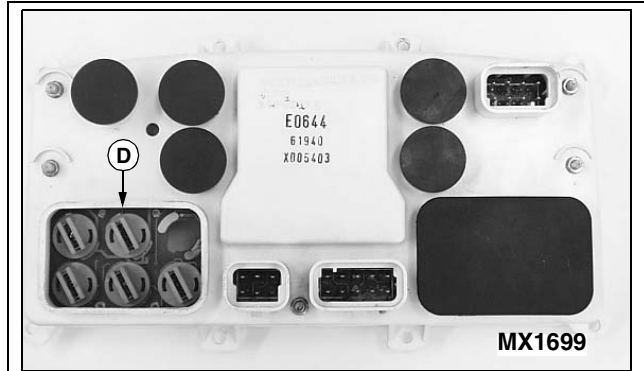
1. Park vehicle safely. (See Parking Safely in the Safety section.)
2. Remove front grill.

SERVICE ELECTRICAL



Picture Note: Instrument panel housing removed for photo clarity.

3. Locate rear of instrument panel housing (B).
4. Remove rubber plugs (C) to locate indicator bulb light assemblies.

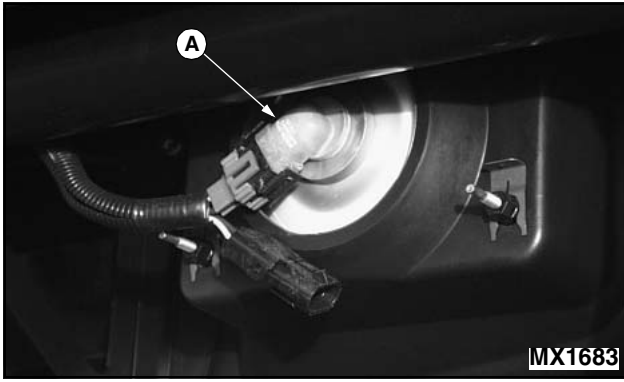


5. Remove defective bulb assembly (D) from the instrument panel housing.
 - Rotate bulb assembly counterclockwise approximately 1/3 turn and remove from the housing socket.
6. Install new bulb assembly into housing socket and rotate clockwise into a locked position.
7. Check operation of lights.
8. Install rubber plug.
9. Install front grill.

Replacing Headlight Bulb

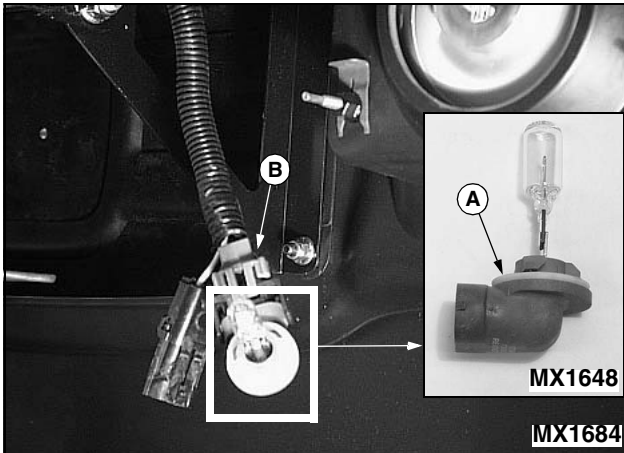
1. Park vehicle safely. (See Parking Safely in the Safety section.)
2. Locate headlight housing under the vehicle dash.

SERVICE ELECTRICAL



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

IMPORTANT: Avoid damage! Prevent premature failure when inspecting or replacing the headlight bulb assembly. Do not touch the assembly glass component with bare skin surfaces.



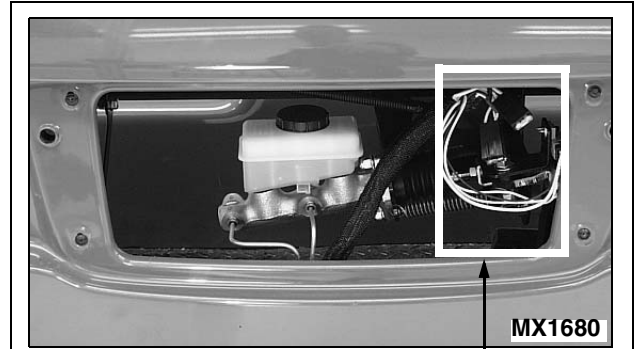
4. Disconnect wiring harness (B) from the bulb assembly.
5. Connect wiring harness to the replacement bulb assembly (A).
6. Install new headlight bulb assembly into housing socket and rotate into a locked position.
7. Check operation of lights.

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 grill.

3. Fuse identification:



- 25 amp fuse (A) - Light Circuit
- 10 amp fuse (B) - Starter Circuit

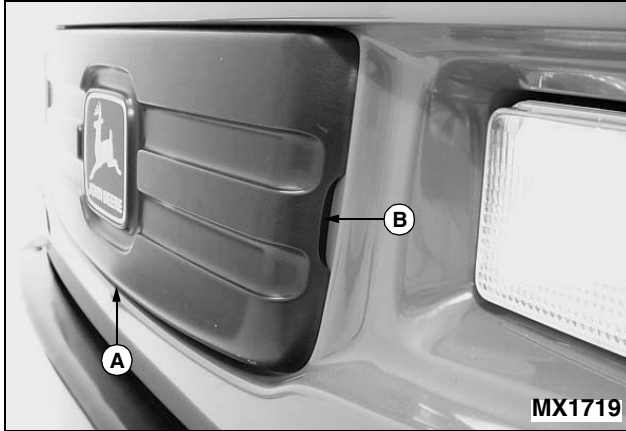
4. Replace defective fuse.
- Remove defective fuse from fuse holder.
 - Push in a new fuse.
5. Install access panel.

SERVICE MISCELLANEOUS

Removing and Installing the Front Grill

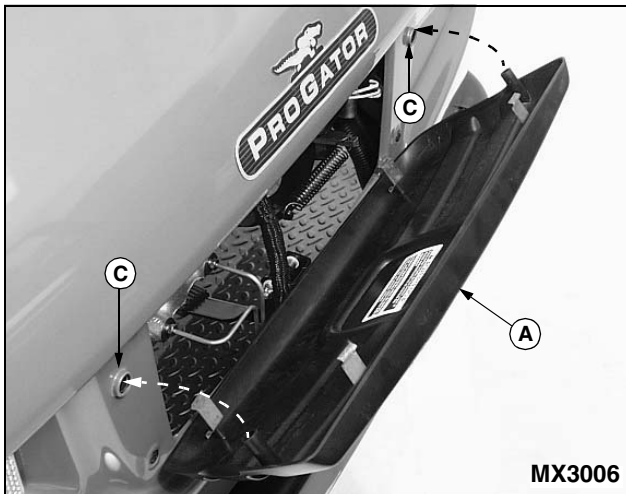
Remove Grill

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



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

Install Grill



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

Tightening Wheel Hardware

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



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

Filling Fuel Tank

Use regular grade 87 octane unleaded fuel.

Add John Deere fuel stabilizer to fuel before using it in your machine to prevent engine damage due to stale fuel. Follow directions on stabilizer container.

NOTE: Fill the fuel tank at the end of each day's operation to help keep condensation out of the fuel tank.



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

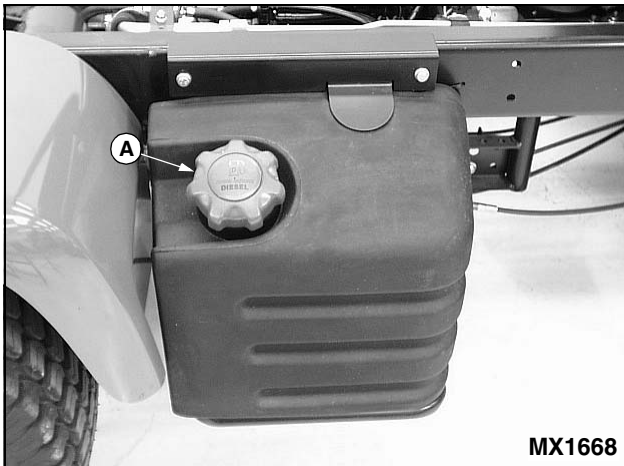
- Shut engine off before filling fuel tank.
- Do not smoke while handling fuel.
- Keep fuel away from flames or sparks
- Fill fuel tank outdoors or in well ventilated area.
- Clean up spilled fuel immediately.
- Use clean approved non-metal container to prevent static electric discharge.
- Use clean approved plastic funnel without screen or filter to prevent static electric discharge.

SERVICE MISCELLANEOUS

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

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

1. Park vehicle safely. (See Parking Safely in the Safety section.)
2. Allow engine to cool.



3. Remove fuel tank cap (A) slowly to allow any pressure built up in tank to escape.
4. Fill fuel tank only to bottom of filler neck.
5. Install fuel tank cap.

Cleaning and Repairing Plastic Surfaces

Your John Deere dealer has the professional materials needed to properly remove surface scratches from any plastic surfaces, do not attempt to paint over marks or scratches in plastic parts.

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.
- Do not spill fuel on plastic surfaces. Wipe up fuel immediately.

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

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

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

Cleaning and Repairing Metal Surfaces

Cleaning:

Follow automotive practices to care for your tractor painted metal surfaces. Use a high-quality automotive wax regularly to maintain the factory look of your tractor'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 John Deere dealer to fill scratches. Follow

SERVICE MISCELLANEOUS

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.

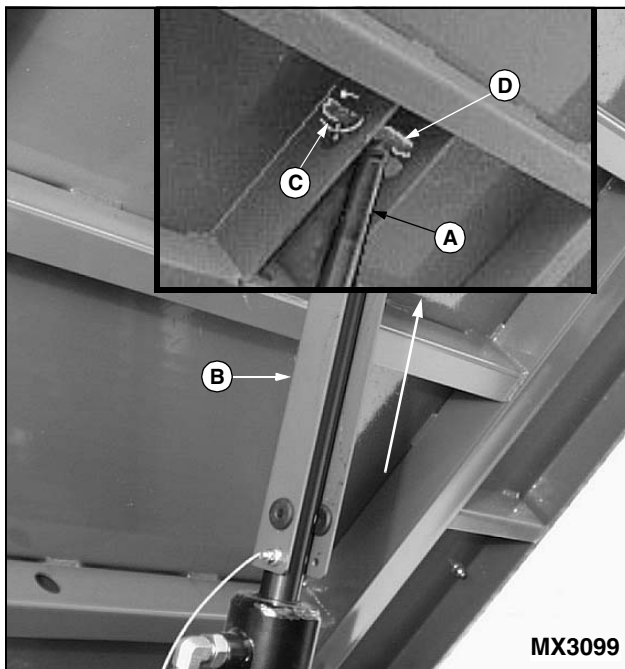
Removing the Cargo Box



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.



- 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 flip pin (C) cylinder pin (D) and washer.
 - b. Install cylinder pin and spring locking pin back into

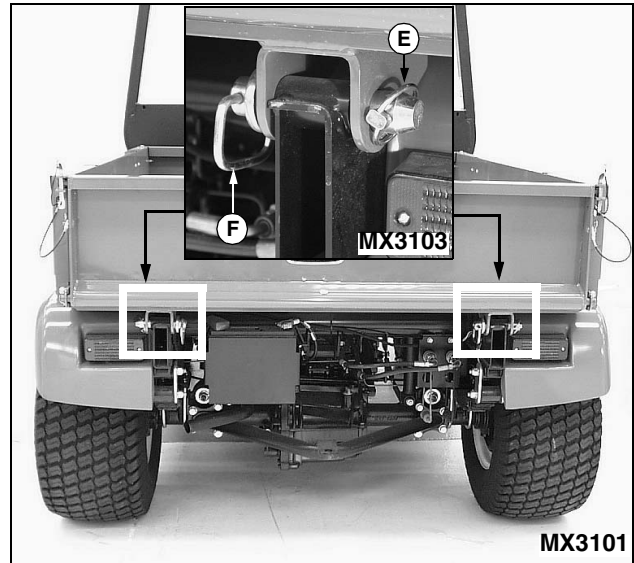
the lift cylinder for storage.

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.



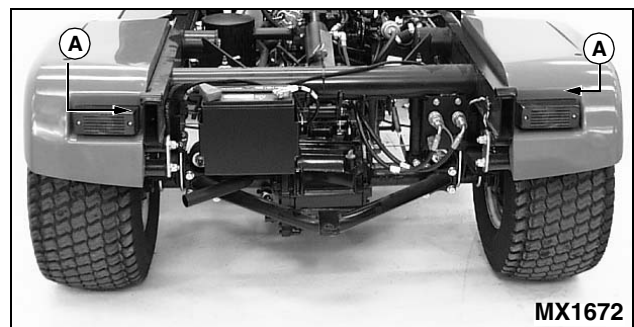
13. Remove quick-lock pins (E) and drilled pins (F) securing the rear of the cargo box to the frame.

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

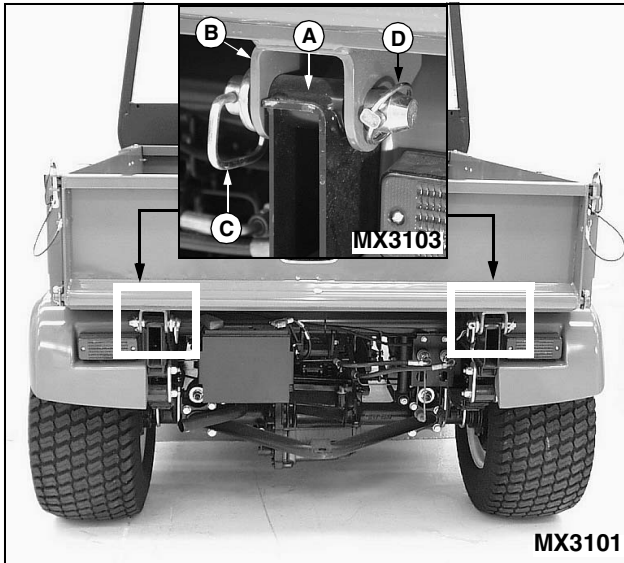
1. Park vehicle safely. (See Parking Safely in the Safety section.)



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.

SERVICE MISCELLANEOUS



NOTE: Washer must be installed on cylinder pin on same side as flip pin.

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

10. Lower cargo box.

11. Stop engine.

- 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).

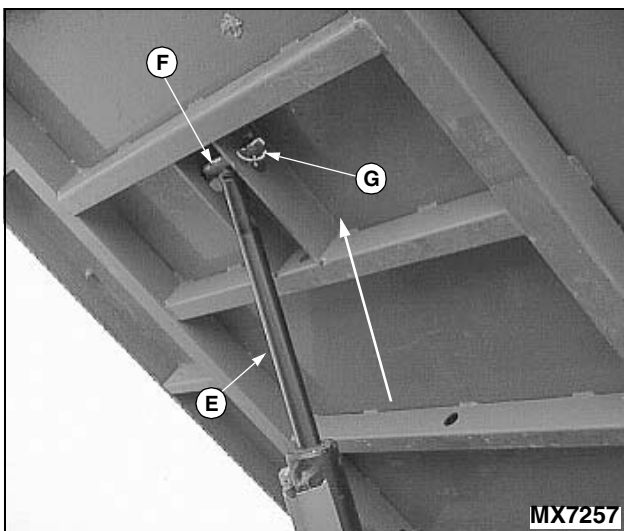


CAUTION: Avoid injury! Make sure cargo box is safely supported in the raised position before connecting the lift cylinder to the bottom of the cargo box.

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

6. Remove flip pin, cylinder pin and washer stored in the lift cylinder.

7. Start engine.



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.

TROUBLESHOOTING

Using Troubleshooting Chart

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

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

Engine

IF	CHECK
Engine Will Not Crank Or Start	Wrong engine oil viscosity. Stale fuel / improper fuel / low fuel level. Fuel is dirty / replace fuel filter. Diesel Models: Open fuel shut-off valve. PTO indicator light lit—disengage hydraulic PTO lever. Defective fuse. Air cleaner filter element(s) plugged. Put gear shift 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 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 distributor.) Gas Models: Spark plug not gapped correctly. Gas Models: Faulty spark plug - replace spark plug. Improper idle speed adjustment. Stale or dirty fuel. Plugged fuel line - clean fuel line. Valves not seating correctly - adjust valves. (See your technical manual or your John Deere distributor.)
Engine Backfires	Gas Models: Faulty spark plug - replace spark plug. Intake valve sticking - adjust valves. (See your technical manual or your John Deere distributor.)
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 John Deere Dealer. Improper valve clearance. See your John Deere Dealer. Dirty or faulty fuel injectors. See your John Deere Dealer. Injection pump out of time. See your John Deere Dealer.
Engine Knocks	Stale or low octane fuel. Engine oil level low. Engine overload - reduce load. Improper idle speed adjustment. Injection pump out of time. See your John Deere Dealer. Low coolant temperature. See your John Deere Dealer.
Low Oil Pressure	Engine oil level low. Plugged oil filter. Improper type of oil. Oil leaks.
Engine Uses Too Much Oil	Improper type fuel. Low engine temperature. Defective thermostat. See your John Deere Dealer. Engine out of time. See 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 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

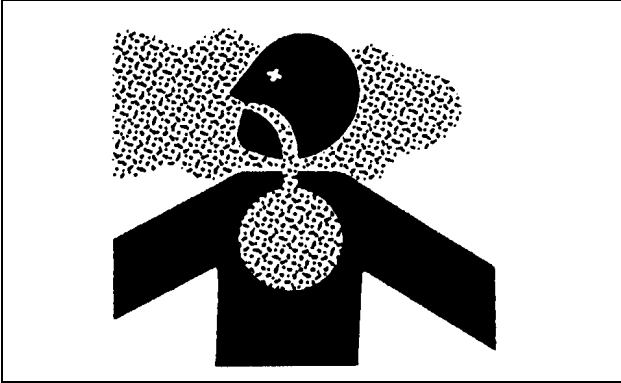
IF	CHECK
Starter Does Not Work Or Will Not Turn Engine	Clean and tighten all electrical connections. Put gear shift lever in NEUTRAL position. Defective fuse. Low battery output—check electrolyte level. Charge/replace battery. Battery cables loose or corroded—clean and tighten battery cables. Failed key switch or starter motor. (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 or defective alternator belt.

TROUBLESHOOTING

IF	CHECK
Battery Will Not Charge	Battery cables loose or corroded—clean and tighten battery cables. 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.

STORAGE

Storing Safety



CAUTION: Avoid injury! Engine exhaust fumes can cause sickness or death.

- If it is necessary to run an engine in an enclosed area, use an exhaust pipe extension to remove the fumes. Always try to work in a well ventilated area.
- Do not store vehicle with fuel in the tank inside a building where fumes may reach an open flame or spark.
- Allow engine to cool before storing in any enclosure.
- Remove the battery and store it in a cool dry place where it will not freeze, and where children cannot reach it.

Preparing Machine for Storage

1. Repair any worn or damaged parts. Replace parts if necessary. Tighten loose hardware.
2. Repair scratched or chipped metal surfaces to prevent rust.
3. Wash the machine and apply wax to metal and plastic surfaces.
4. Run machine for five minutes to dry belts and pulleys.
5. Apply light coat of engine oil to pivot and wear points to prevent rust.
6. Lubricate grease points.
7. Check tire pressure.

Storing the Vehicle

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

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

1. Put appropriate John Deere Fuel Conditioner and Stabilizer or an equivalent in fuel tank. Follow directions on the product label.
 2. Run engine for at least 10 minutes to be sure stabilizer gets into the fuel system.
 3. Change engine oil and filter when engine is warm.
 4. **Gas Models Only:**
 - Remove spark plugs.
 - Put 30 ml (1 oz.) of clean engine oil into each cylinder.
 - Install spark plugs. Do not install wires.
 - Crank engine several times to distribute oil.
 5. Repair worn or damaged parts. Install new parts if necessary.
 6. Service air cleaner.
 7. Wash vehicle.
 8. **4WD Models:** Lubricate driveshaft.
 9. Clean engine and area around it. Remove oil, grease, and dirt.
 10. Check engine compartment hoses.
 11. Check engine coolant level and freeze point.
 12. Clean air intake screen.
 13. Clean radiator cooling fins.
 14. Clean oil cooler coils—auxiliary oil reservoir tank.
 15. Apply paint to areas that need it to prevent rust.
- CAUTION: Avoid injury! Battery contains acid that is poisonous and corrosive. Store battery in an area out of the reach of children.**
16. Remove and clean battery. Check electrolyte level. Charge battery. Store battery in a cool, dry place to preserve battery life.
 17. Store vehicle in a dry, protected place. If storing vehicle outside, put a waterproof cover over it.
 18. Put blocks or stands under vehicle to take weight off tires. Let 1/3 of air out of tires.
 19. Clean alternator belt with a damp rag. Check belt for

STORAGE

damage.

20. Check and adjust alternator belt tension.

21. **Diesel Model:** Close fuel sediment bowl shut-off valve.

22. Apply multipurpose lubricant on exposed cylinder rods.

23. Replace fuel filter.

Removing Vehicle From Storage

1. Check tire pressure.

- Correct tire pressure is between 69-83 kPa (10-12 psi).

2. Check and tighten wheel hardware.

- Tighten wheel hardware alternately to 115 N•m (85 lb-ft.).

3. Check battery electrolyte level. Charge battery if necessary. Install battery.

4. Connect spark plug wires.

5. Check engine oil level.

6. Check transmission oil level.

7. **4WD Models:** Check front axle oil level.

8. Check hydraulic oil level in reservoir.

9. **4WD Models:** Lubricate driveshaft.

10. Check hoses (air intake, fuel, hydraulic, cooling system), clamps, and connections.

11. Be sure shields and guards are in place.

12. **Diesel Model:** Open fuel sediment bowl shut-off valve.

13. Fill fuel tank with fresh clean fuel.



CAUTION: Avoid injury! Engine exhaust fumes can cause sickness or death. Start engine only in a well-ventilated place.

14. Run engine five minutes at slow-medium idle before putting engine under load.

ASSEMBLY

Delivery Instructions

Prior to delivery, perform the listed service checks, clean the utility vehicle and review this manual with the owner/operator. Make sure the owner/operator can safely operate this utility vehicle.

Check Fluid Levels

IMPORTANT: Avoid damage! Check all fluid levels before attempting to start the utility vehicle.

Utility vehicle should be parked on a hard, level surface with the park brake locked and the key switch in the “STOP” position.

1. **CHECK RADIATOR COOLANT LEVEL.** If engine is warm, coolant level should be between the “FULL” line and the “LOW” line on the coolant recovery bottle. If engine is cold, coolant level should be at the “LOW” line on the coolant recovery bottle. Add specified ratio of antifreeze and water as necessary. See **Checking Coolant Level** in the **Service Engine** section for additional information.

IMPORTANT: Avoid damage! If oil level is at or below “L” mark, do not start engine.

2. **CHECK ENGINE OIL LEVEL.** Oil level should be between the ADD and FULL marks on the dipstick. Add oil as necessary. See **Checking Engine Oil Level** in the **Service Engine** section for additional information.

IMPORTANT: Avoid damage! Do not start engine if transmission oil level is low.

3. **CHECK TRANSMISSION OIL LEVEL.** Transmission oil level should be to the top of the FULL line on the transmission dipstick. Add oil as necessary. See **Checking Transmission Oil Level** in the **Service Transmission** section for additional information.

4. **CHECK FRONT AXLE OIL LEVEL.** Front axle oil level should be to the top of the XX area of dipstick. Do not tighten dipstick when checking oil. Add oil as necessary. See **Checking the Front Axle Oil Level** in **Service Transmission** section for additional information.

Checking the Battery



CAUTION: Avoid injury! Keep sparks, lighted matches, and open flame away from the top of battery. Battery gas can explode.

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

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

NOTE: Battery was filled with acid and charged when it left the factory. To extend battery life, check voltage prior to delivery. Fully charge the battery if voltage is less than 12.6 volts.

For additional battery information see the Service-Electrical section in this manual.

1. If engine will not turn over and headlights are dim or will not turn on—charge the battery.
2. Charge the battery for a minimum of 30 minutes at 5—10 amps. If your battery charger has a Deep Cycle or Maintenance Free setting, use this setting to charge the battery.

Check Safety Interlock System

For a complete checkout procedure of the safety interlock system, see **Testing the Safety Interlock System** in the **Operating** section.

Check Wheel Hardware Torque

For complete instructions and specifications on how to properly torque the wheel bolts, see **Tightening Wheel Hardware** in the **Service-Miscellaneous** section.

ASSEMBLY

Check Tire Pressure



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

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

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

Install Cargo Box

For complete instructions on installing the cargo box, see **Installing the Cargo Box** in the **Service-Miscellaneous** section.

SPECIFICATIONS

Engine (Model 2020-Gas)

Manufacturer	Yanmar
Model Number	3TG72
Horsepower @ 3400 rpm	19.1 kW (25.6 hp)
Displacement	879 cm3 (53.6 cu. in.)
Cylinders	Three
Cycle	Four
Slow Idle RPM ($\pm$ 50).	1450 RPM
Fast Idle RPM ($\pm$ 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
Horsepower @ 3200 rpm	16.6 kW (22.2 hp)
Displacement	1006 cm3 (61.4 cu. in.)
Cylinders	Three
Cycle	Four
Slow Idle RPM ($\pm$ 50).	1450 rpm
Fast Idle RPM ($\pm$ 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

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	69-97 kPa (10-14 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	69-97 kPa (10-14 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)
Gear 4	24.1 km/h (15 mph)

SPECIFICATIONS

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 With Optional Cargo Box	328.4 cm (129.3 in.)
Overall Length Without 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	84 cm (33 in.)
Inside Clearance Circle—4WD	274 cm (108 in.)
Outside Clearance Circle—2WD	498 cm (196 in.)
Outside Clearance Circle—4WD	630 cm (248 in.)

Weight (Without Attachment)

Model 2020 2WD with Standard Tires	829.2 kg (1828 lb)
Model 2020 4WD with Standard Tires	849.1 kg (1872 lb)
Model 2030 2WD with Standard Tires	829.2 kg (1828 lb)
Model 2030 4WD with Standard Tires	849.1 kg (1872 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)	3.3L (3.5 qt)

Towing

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

SPECIFICATIONS

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™
Engine Oil–Diesel Models	John Deere Multi-Purpose HD Lithium Complex Grease
.....	John Deere Multi-Purpose SD Polyurea Grease

(Specifications and design subject to change without notice.)

Sound Measurement

Sound Pressure per: 79/113 EEC

Sound Power per: 4 Meter Hemispheric Method

Sound Measurement, Engine RPM

2020	3570
2030	3450

Sound Power L_{WA}

2020	97 dB(A)
2030	101 dB(A)

Operators Ear

2020	79 dB(A)
2030	83dB(A)

SPECIFICATIONS

Vibration

Maximum weighted acceleration m/s^2 (Hand/arm measured per ISO5349)

2020	4.6
2030	3.8

Whole body - The weighted root means square acceleration to which the whole body is subjected ranges from 0.98 to 1.99 m/s^2 measured 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 thru actual field data according to STD Procedure in ISO2631/1.)

DECLARATION OF CONFORMITY

2020 and 2030 ProGator

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

I, the undersigned:

declare that these machines

Type 2020 ProGator (Gas)

Serial Number TC2020A0 & TC2020B0

Type 2030 ProGator (Diesel)

Serial Number TC2030A0 & TC2030B0

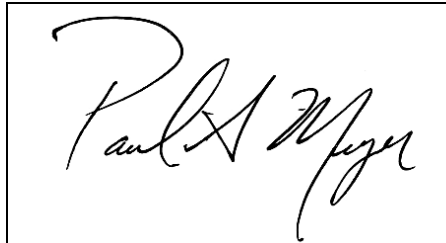
comply with the applicable requirements of:

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

EMC Directive 89/336/EEC

Done at:

John Deere Horicon Works 30 August 1999

A rectangular box containing a handwritten signature in black ink. The signature is cursive and appears to read "Paul A. Meyer".

PAUL A. MEYER

VICE PRESIDENT, MANUFACTURING AND PRODUCT DEVELOPMENT

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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