JOHN DEERE
AG & TURF DIVISION

John Deere Tractor
X750, X754, X758

OMM166906 J2

OPERATOR'S MANUAL

JOHN DEERE

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

California Proposition 65 Warning

North American Version
Printed in U.S.A.

Thank You for Purchasing a John Deere Product

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

Using Your Operator's Manual

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

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

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

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

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

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

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

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

Special Messages

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

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

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

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

Attachments for Your Machine

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

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

Record Identification Numbers

X750, X754, X758

PIN (010001-)

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:

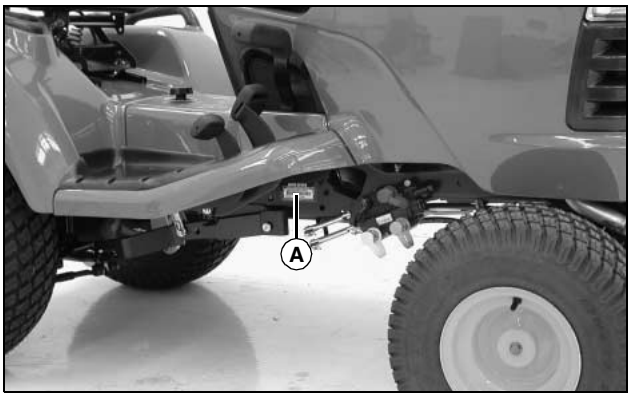
_____

DEALER NAME:

_____

DEALER PHONE:

_____



MX13553

PRODUCT IDENTIFICATION NUMBER (A):

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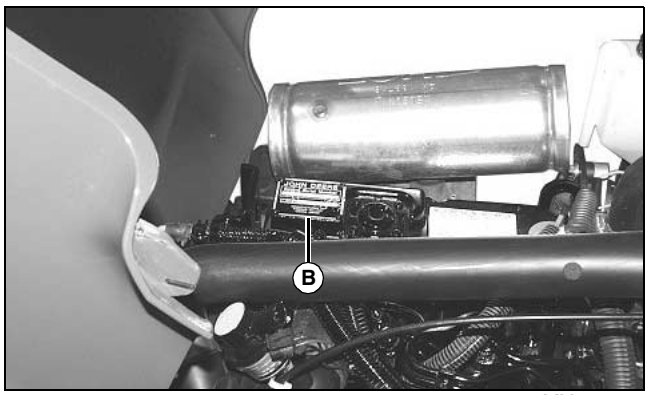

MX21823

ENGINE SERIAL NUMBER (B):

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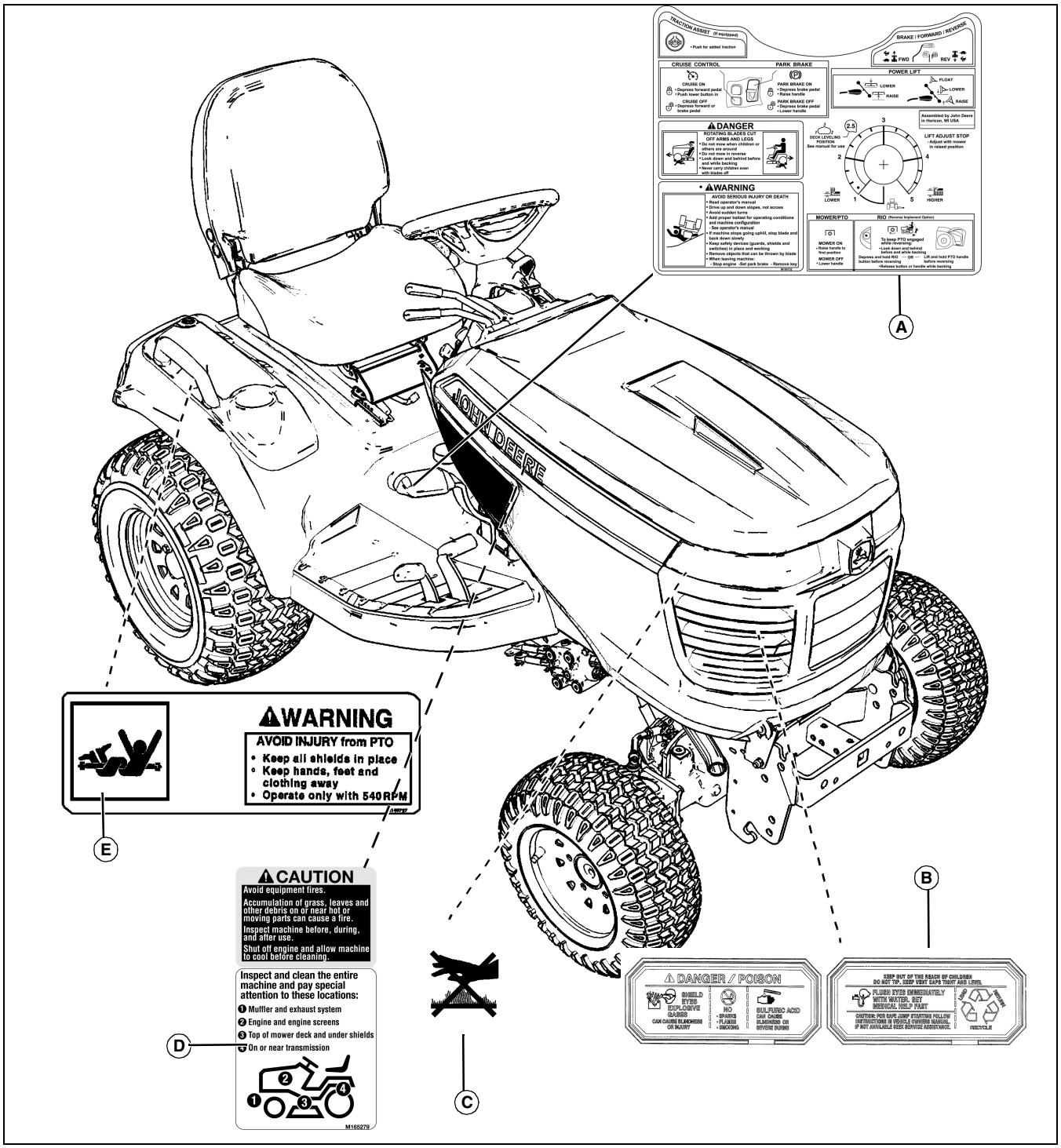
OMM166906 J2 - English

Safety Label Location



MX51748

E - WARNING M146727

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

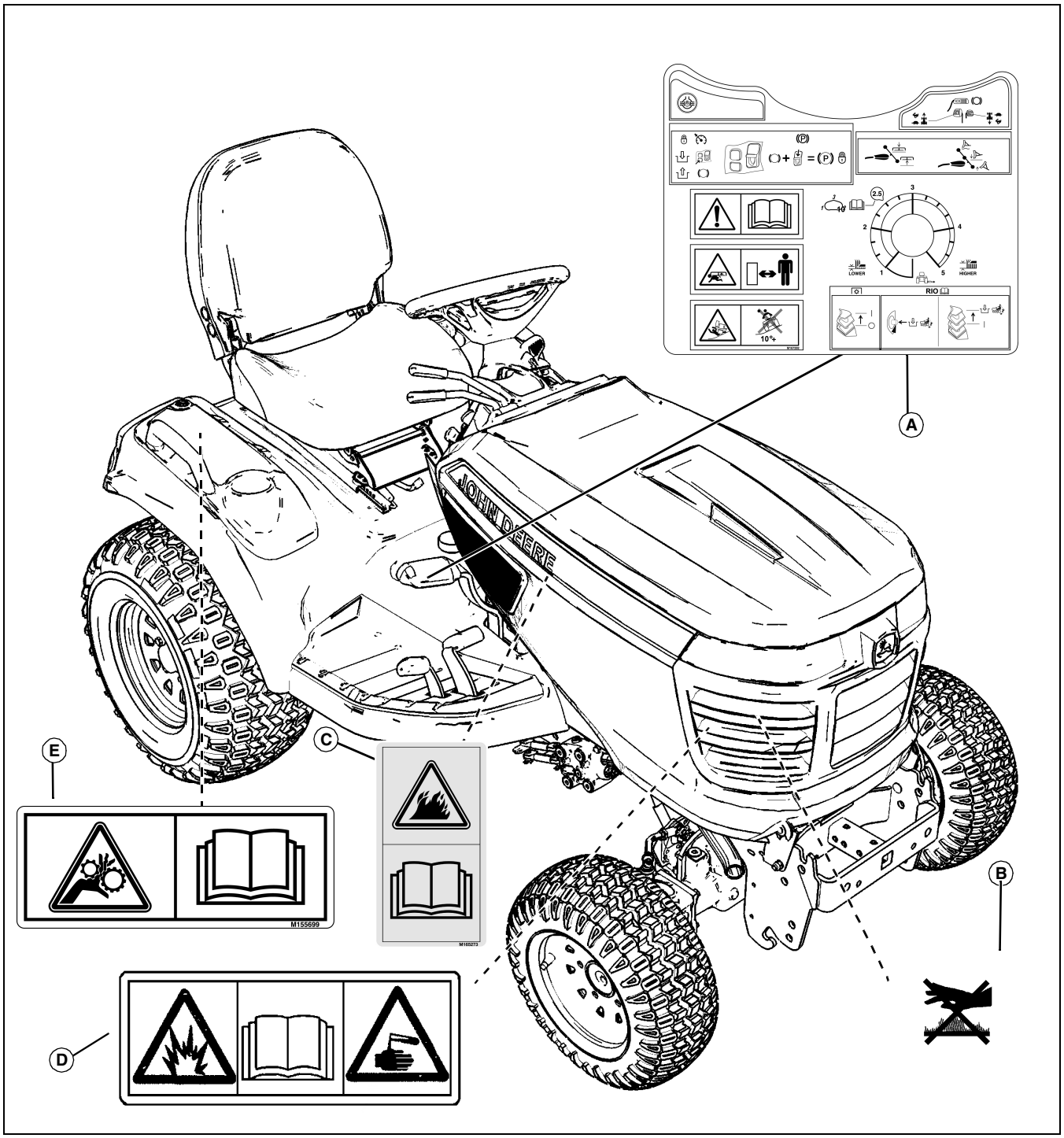
A - DANGER M165732

B - DANGER AM131035 (ON BATTERY)

C - CAUTION (MOLDED INTO MUFFLER)

D - CLEANOUT M165279

Pictorial Safety Label Location



MX51748

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

Pictorial labels are required for certain parts of the world. Your machine may not be equipped with these labels.

A - DANGER M167292

B - CAUTION (MOLDED INTO MUFFLER)

C - CAUTION M165273

D - DANGER M133159 (ON BATTERY))

E - WARNING M155699

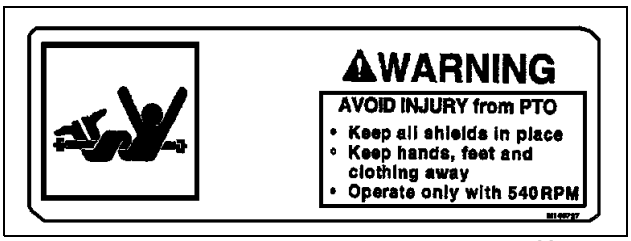
Understanding The Machine Safety Labels

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

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

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

WARNING: AVOID INJURY from PTO



M146727

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

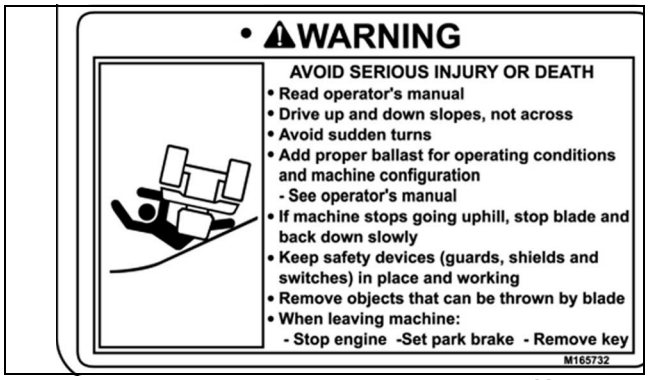
Label M165732 Danger Rotating Blades

M165732a

DANGER ROTATING BLADES

- Do not mow when children or others are around
- Do not mow in reverse
- Look down and behind before and while backing
- Never carry children even with blades off

Label M165732 Warning Avoid Serious Injury

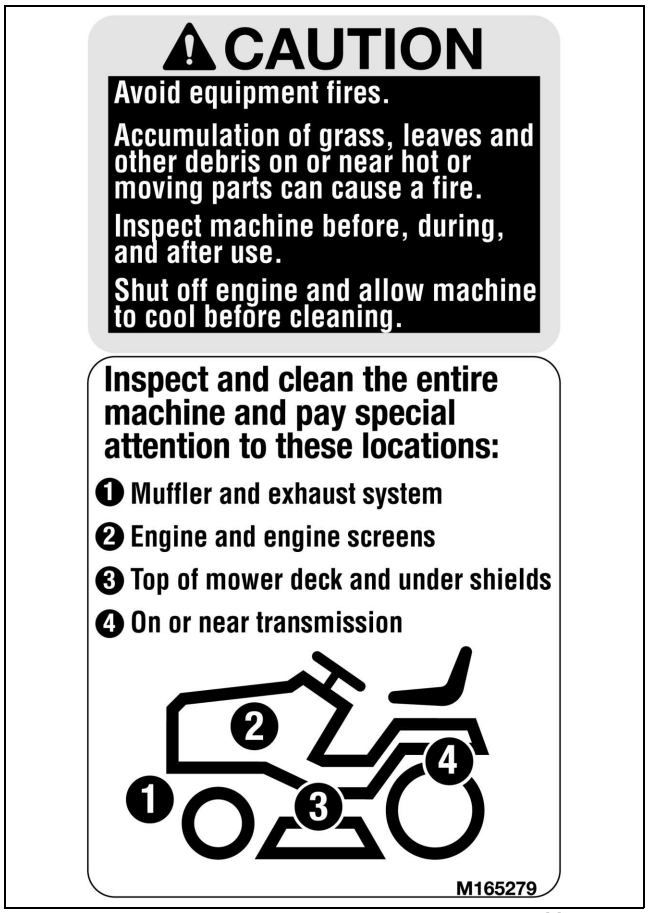


M165732a

AVOID SERIOUS INJURY OR DEATH

- Read operator's manual
- Drive up and down slopes, not across
- Avoid sudden turns
- Add proper ballast for operating conditions and machine configuration-See operator's manual
- If machine stops going uphill, stop blade and back down slowly
- Keep safety devices (guards, shields and switches) in place and working
- Remove objects that can be thrown by blade
- When leaving machine:
    - -Stop Engine
    - -Set parking brake
    - -Remove key

Prevent Equipment Fires



M165279

• Avoid equipment fires.

• Accumulation of grass, leaves and other debris on or near hot or moving parts can cause a fire.

• Inspect machine before, during, and after use.

• Shut off engine and allow machine to cool before cleaning.

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

1. Muffler and exhaust system
2. Engine and engine screens
3. Top of mower deck and under shields
4. On or near transmission

CAUTION

MIF

Picture Note: Molded onto muffler.

No-text warning: Hot Surface.

• Do not touch engine muffler, it may be hot.

DANGER: POISON

MX13578

• Shield eyes, explosive gases can cause blindness or injury.

• No sparks, flames, smoking.

• Sulfuric acid can cause blindness or severe burns.

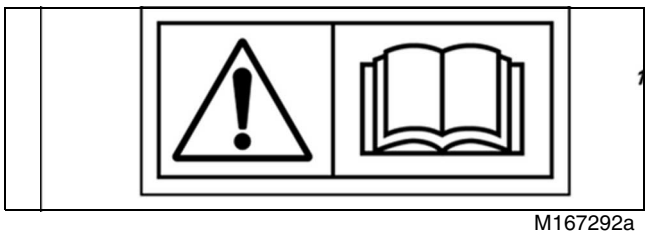
• Keep out of the reach of children.

• Do not tip.

• Keep vent caps tight and level.

• Flush eyes immediately with water. Get medical help fast.

M167292 Read Operator's Manual



M167292a

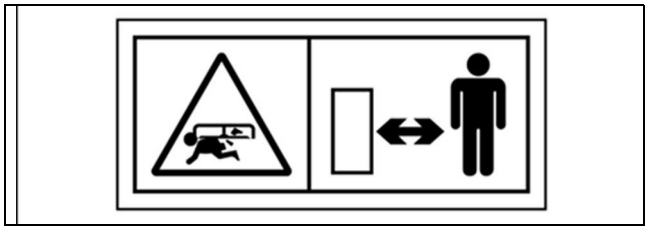
READ OPERATOR'S MANUAL

• This operator's manual contains important information necessary for safe machine operation.

• Carefully read operator's manual before operating machine.

• Observe all safety rules to avoid accidents.

M167292 Keep Children Away



M167292a

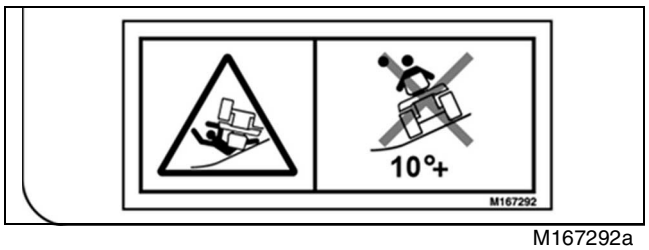
KEEP CHILDREN AWAY FROM MOWER

• Mower can cause dismemberment or death.

• Stay a safe distance from the machine.

• Make sure children stay clear of mower at all times when engine is running.

M167292 Avoid Tipping



M167292a

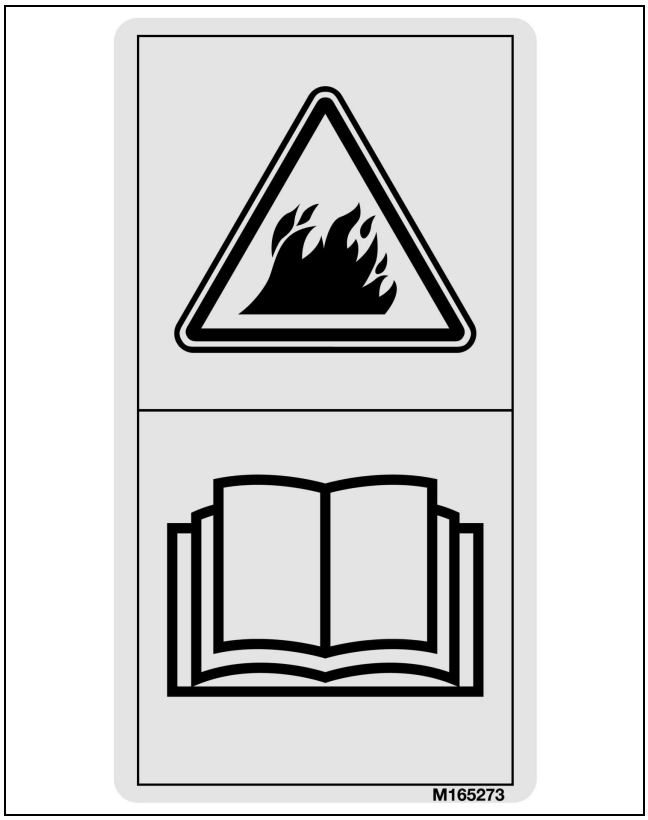
AVOID INJURY FROM TIPPING

• Do not drive where tractor could slip, tip, or rollover.

• In some configurations, do not drive or operate on a slope of more than 10 degrees.

• Refer to the Operating on Slopes section for more information.

Prevent Equipment Fires



M165273

• Clean and inspect the entire machine.

• Carefully read Operator's Manual Machine Cleanout section for details.

Operating Safely

This cutting machine is capable of amputating hands and feet and throwing objects. Failure to observe the following safety instructions could result in serious injury or death.

• Read, understand and follow all instructions on the machine and in manuals provided, and view safety video, before starting. Be thoroughly familiar with the controls and the proper use of the machine before starting.

• Do not put hands or feet near rotating parts or under the machine. Keep clear of the discharge opening at all times.

• Only allow responsible adults, who are familiar with the instructions, to operate this machine. Local regulations may restrict the age of the operator.

• Clear the area of objects such as rocks, wire and toys which could be thrown by the blades.

• Be sure the area is clear of bystanders before operating. Stop machine if anyone enters the area.

• Never carry passengers.

• Do not mow in reverse unless absolutely necessary. Always look down and behind before and while backing.

• Never direct discharged material toward anyone. Avoid discharging material against a wall or obstruction. Material may ricochet back toward the operator. Stop the blades when crossing gravel surfaces.

• Do not operate the machine without the entire grasscatcher, discharge guard, or other safety devices in place and working. Never operate with the discharge deflector raised, removed, or altered, unless using a grasscatcher.

• Slow down before turning.

• Never leave a running machine unattended. Always turn off blades, lock park brake, stop engine and remove key before dismounting.

• Disengage blades when not mowing. Shut off engine and wait for all parts to come to a complete stop before cleaning the machine, removing the grasscatcher, or unclogging the discharge chute.

• Operate machine only in daylight or good artificial light.

• Do not operate the machine while under the influence of alcohol or drugs.

• Watch for traffic when operating near or crossing roadways. Stop blades before crossing roads or sidewalks.

• Use extra care when loading or unloading the machine into a trailer or truck.

• Always wear safety goggles or safety glasses with side shields when operating machine.

• Data indicates operators 60 years and above are involved in a large percentage of riding mower-related injuries. These operators should evaluate their ability to operate the riding mower safely enough to protect themselves and others from serious injury.

• Follow the manufacturer's recommendation for wheel weights or counterweights.

• Inspect machine before you operate. 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 you operate.

• Before using, always visually inspect to see that the blades, blade bolts and the mower assembly are not worn and damaged. Replace worn and damaged blades and bolts in sets to preserve balance.

• Make sure spark plug, muffler, fuel cap and air cleaner are in place before starting the engine.

• Be sure all drives are in neutral and parking brake is locked before starting engine. Only start engine from the operator's position.

• Do not change the engine governor settings or overspeed the engine. Operating the engine at excessive speed can increase the hazard of personal injury.

• If you hit an object or if abnormal vibration occurs, stop the machine and inspect it. Make repairs before you operate.

• Use only accessories and attachments approved by the manufacturer of the machine. Keep safety labels visible when installing accessories and attachments.

• Do not wear radio or music headphones. Safe service and operation requires your full attention.

• When machine is left unattended, stored, or parked, lower the mower deck unless a positive mechanical lock is used.

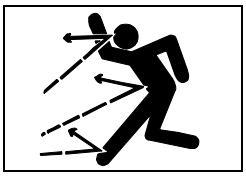
Using a Spark Arrestor

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

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

of fire pursuant to Section 4443. Cal. Pub. Res. Code 4442.5.

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



Checking Mowing Area

• Clear mowing area of objects that might be thrown. Keep people and pets out of mowing area.

• Low-hanging branches and similar obstacles can injure the operator or interfere with mowing operation. Before mowing, identify potential obstacles such as low-hanging branches, and trim or remove those obstacles.

• Study mowing area. Set up a safe mowing pattern. Do not mow where traction or stability is doubtful.

• Test drive area with mower lowered but not running. Slow down when you travel over rough ground.

Parking Safely

1. Stop machine on a level surface, not on a slope.

2. Disengage mower blades or any other attachments.

3. Lower attachments to the ground.

4. Lock the park brake.

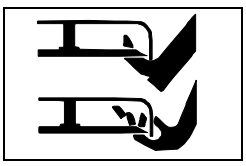
5. Stop the engine.

6. Remove the key.

7. Wait for engine and all moving parts to stop before you leave the operator's seat.

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

9. Disconnect the negative battery cable or remove the spark plug wire(s) (for gasoline engines) before servicing the machine.



Rotating Blades are Dangerous

HELP PREVENT SERIOUS OR FATAL ACCIDENTS:

• Rotating blades can cut off arms and legs, and throw objects. Failure to observe safety instructions could result in serious injury or death.

• Keep hands, feet and clothing away from mower deck when engine is running.

• Be alert at all times, drive forward and in reverse carefully. People, especially children can move quickly into the mowing area before you know it.

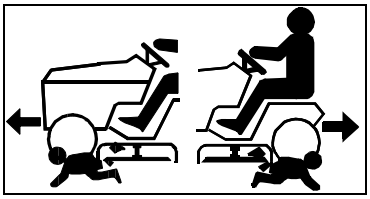
• Before backing up, stop mower blades or attachments and look down and behind the machine carefully, especially for children.

• Do not mow in reverse.

• Shut off blades when you are not mowing.

• Park machine safely before leaving the operator's station for any reason including emptying the grasscatchers or unplugging the chute.

• The mower blades should stop in approximately five seconds when the mower is disengaged. If you believe that your blades may not be stopping in that period of time, take your machine to your authorized dealer where they can safely check and service your machine.



Protect Children

• Death or serious injury can occur when young children associate having fun with a lawn mowing machine simply because someone has given them a ride on a machine.

• Children are attracted to lawn mowing machines and mowing activities. They don't understand the dangers of rotating blades or the fact that the operator is unaware of their presence.

• Children who have been given rides in the past may suddenly appear in the mowing area for another ride and be run over or backed over by the machine.

• Tragic accidents with children can occur if the operator is not alert to the presence of children, especially when a child approaches a machine from behind. Before and while backing up, stop mower blades and look down and behind the machine carefully, especially for children.

• Never carry children on a machine or attachment, even with the blades off. Do not tow children in a cart or trailer. They can fall off and be seriously injured or interfere with safe machine operation.

• Never use the machine as a recreational vehicle or to entertain children.

• Never allow children or an untrained person operate the machine. Instruct all operators not to give children a ride on the machine or in an attachment.

• Keep children indoors, out of the mowing area, and in the watchful eye of a responsible adult, other than the operator,

when a mower is being operated.

• Stay alert to the presence of children. Never assume that children will remain where you last saw them. Turn the machine off if a child enters the work area.

• Use extreme care when approaching blind corners, shrubs, trees, or other objects that may block your view of a child.

Operating on Slopes

NOTE: Make a photocopy of this page and cut out angle chart (A) to use for measuring slope angle.

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

Identify Slopes for Safe Operation

• Follow safe procedures for operation on slopes. Measure slopes of all moving sites to determine which slopes are safe for mowing with a ride-on mower. Always use common sense and good judgement when performing this survey.

Measuring Slopes

• Suggested Method 1: Lay a straight piece of sturdy lumber 1.2 m (4 ft) long on the slope and measure the angle of the slope with an angle indicator or protractor level.

• Suggested Method 2: Refer to the slope gauge provided with this manual.

Operate Safely on Slopes

• Exceeding the recommended maximum slope angle increases the risk of rollover accidents that can result in serious injury or death.

• Never mow or operate ride-on mower on slope angles greater than 18° with the lawn ride-on mower in its basic configuration. The basic configuration is the ride-on mower with mower deck and not other attachments. (A 18° slope is a slope that rises 1.98 m (6.5 ft) over a horizontal distance of 6.1 m (20 ft).)

• When using attachments, never mow or operate the ride-on mower on slope angles greater than 10°. The addition of a weather enclosure, material collection system, or other attachments will increase the risk of a rollover. (A 10° slope is a slope that rises 1 m (3.5 ft) over a horizontal distance of 6.1 m (20 ft).)

• On slope angles of 10° or less, the risk of rollover is low, but as the slope angle increases to the recommended maximum, the risk increases to a medium level.

• Always consider potential turf conditions and slope angles when determining the risk of loss-of-control and tip-over accidents.

• Drive slowly when mowing or operating on slopes.

• If you feel uneasy on a hillside, do not mow or operate on it.

• Mow up and down slopes, not across.

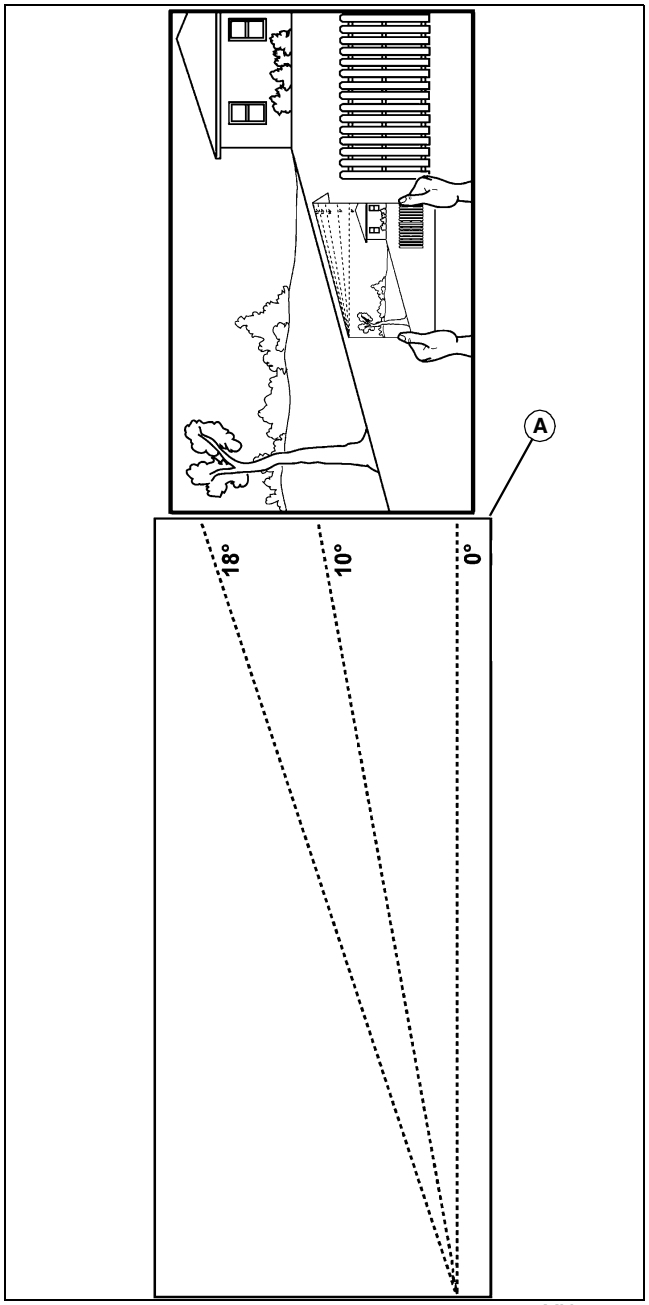
• Watch for holes, ruts, bumps, rocks, or other hidden objects. Uneven terrain could overturn the ride-on mower. Tall grass can hide obstacles.

• Drive slowly so you will not have to stop while on a slope.

• Do not mow on wet grass. Tires may lose traction. Tires may slip on slopes even though the brakes are functioning properly.

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

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



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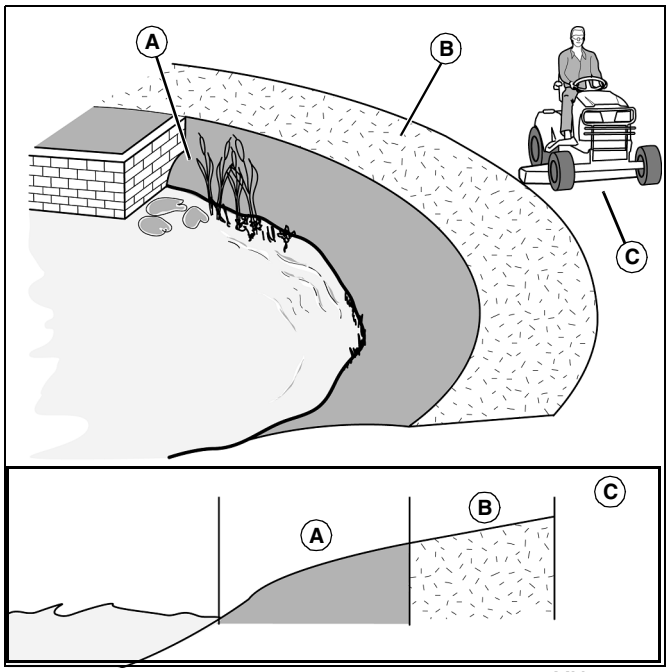
Operating Near Hazards



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Picture Note: Example side view of slope and hazards, showing areas (A), (B), and (C).

• Do not mow or operate machine in areas adjacent to hazards that may cause the machine to roll over. The machine could suddenly lose traction, slide, and/or roll over if a wheel goes over the edge or if the edge breaks away.

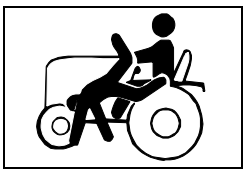
• Hazards (A) include but are not limited to:

- Drop-offs, ditches, embankments, or bodies of water.
- Areas of unsafe slope, soft ground, edges along bodies of water, or area with holes, ruts, bumps, or other hidden objects.

• Maintain a buffer area (B) at least as wide as the machine between hazards (A) and the mowing area (C). Do not mow or operate the machine in the hazard area or buffer area.

• Only mow or operate the machine in the mowing area (C). Do not exceed the recommended slope operating angle. Refer to the "Operate Safely on Slopes" section.

• Use a walk-behind mower or string trimmer in and around areas (A) and (B).

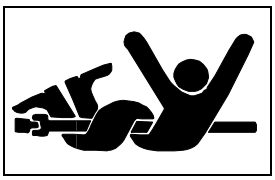


Keep Riders Off

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

• Riders on the machine or attachment may be struck by foreign objects or thrown off the machine causing serious injury.

• Riders obstruct the operator's view resulting in the machine being operated in an unsafe manner.



Stay Clear of Rotating Drivelines

Entanglement in rotating driveline can cause serious injury or death.

• Wear close fitting clothing.

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

Checking Wheel Hardware

• A serious accident could occur causing serious injury if wheel hardware is not tight.

• Check wheel hardware tightness often during the first 100 hours of operation.

• Wheel hardware must be tightened to specified torque using the proper procedure anytime it is loosened.

Towing Loads Safely

• Stopping distance increases with speed and weight of towed load. Travel slowly and allow extra time and distance to stop.

• Total towed weight must not exceed combined weight of pulling machine, ballast and operator. Use counterweights or wheel weights as described in the attachment or pulling machine operator's manual.

• Excessive towed load can cause loss of traction and loss of control on slopes. Reduce towed weight when operating on slopes.

• Never allow children or others in or on towed equipment.

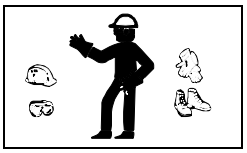
• Use only approved hitches. Tow only with a machine that has a hitch designed for towing. Do not attach towed equipment except at the approved hitch point.

• Follow the manufacturer's recommendations for weight limits for towed equipment and towing on slopes.

• Towed attachments will increase the risk of rollover. Refer to the "Operating on Slopes" section for more information.

• Do not turn sharply. Use additional caution when turning or operating under adverse surface conditions. Use care when reversing.

• Do not shift to neutral and coast downhill.



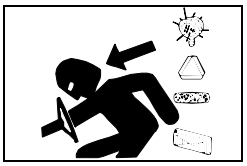
Wear Appropriate Clothing

• Always wear eye protection when operating the machine.

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

• While operating this machine, always wear substantial footwear and long trousers. Do not operate the equipment when barefoot or wearing open sandals.

• Wear a suitable protective device such as earplugs. Loud noise can cause impairment or loss of hearing.



Driving Safely on Public Roads

Avoid personal injury or death resulting from a collision with another vehicle on public roads:

• Use safety lights and devices. Slow moving machines when driven on public roads are hard to see, especially at night.

• Whenever driving on public roads, use flashing warning lights and turn signals according to local regulations. Extra flashing warning lights may need to be installed.

Practice Safe Maintenance

• Only qualified, trained adults should service this machine. Understand service procedure before doing work.

• Never operate machine in a closed area where dangerous carbon monoxide fumes can collect.

• Keep all nuts and bolts tight, especially blade attachment bolts, to be sure the equipment is in safe working condition.

• Never tamper with safety devices. Check their proper operation regularly.

• Keep machine free of grass, leaves or other debris build-up. Clean up oil or fuel spillage and remove any fuel-soaked debris. Allow the machine to cool before storing.

• If you strike a foreign object, stop and inspect the machine. Repair, if necessary, before restarting.

• Never make any adjustments or repairs with the engine running. Wait for all movement to stop on machine before adjusting, cleaning or repairing.

• Check grasscatcher components and the discharge guard frequently and replace with manufacturer's recommended parts, when necessary. Grasscatcher components are subject to wear, damage, and deterioration which could

expose moving parts or allow objects to be thrown.

• Mower blades are sharp. Wrap the blade or wear gloves, and use extra care when servicing them. Only replace blades. Never straighten or weld them.

• Check brake operation frequently. Adjust and service as required.

• Maintain or replace safety and instruction labels, as necessary.

• On multi-bladed machines, take care as rotating one blade can cause other blades to rotate.

• Keep hands, feet, clothing, jewelry, and long hair away from any moving parts, to prevent them from getting caught.

• Lower any attachments to the ground before cleaning or servicing machine. Disengage all power and stop the engine. Lock park brake and remove the key. Let machine cool.

• Securely support any machine elements that must be raised for service work. Use jack stands or lock service latches to support components when needed.

• Disconnect battery or remove spark plug wire (for gasoline engines) before making any repairs. Disconnect negative terminal first and positive last. Install positive terminal first and negative last.

• Before servicing machine or attachment, carefully release pressure from any components with stored energy, such as hydraulic components or springs.

• Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts.

• Charge batteries in an open, well-ventilated area, away from sparks. Unplug battery charger before connecting or disconnecting from the battery. Wear protective clothing and use insulated tools.

• Do not strike the flywheel with a hammer or hard object because the flywheel may later shatter during operation.

• If equipped with hydraulic lift - release hydraulic pressure by lowering attachment or cutting units to the ground or to a mechanical stop and move hydraulic control levers back and forth.

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.

Prevent Fires

• Besides routine maintenance, one of the best ways to keep your John Deere equipment running efficiently and to reduce fire risk is to regularly remove debris buildup from the machine.

• Please review these recommendations with all operators. See your John Deere dealer with questions.

• Always follow all safety procedures posted on the machine and in this operator manual. Before carrying out any inspection or cleaning, always shut off engine, set parking brake and remove ignition key.

• After operating, allow machine to cool in an open area before cleaning or storing. Do not park machine near flammable materials such as wood, cloth or chemicals.

• Empty any grasscatcher bags or containers completely before storing.

• Frequency of these inspections and cleaning will vary depending on a number of factors including operating conditions, machine configuration, operating speeds and weather conditions particularly dry, hot and windy conditions. When you are operating in these conditions, inspect and clean these areas frequently throughout the day.

• Wind direction, terrain type and moisture content of surrounding vegetation can effect where and how much debris accumulates.

• Debris can accumulate anywhere on the machine, especially on horizontal surfaces.

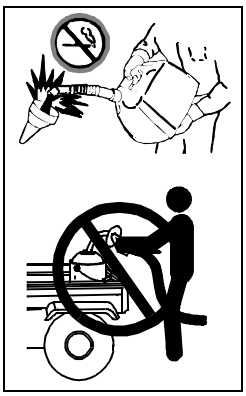
• Keeping engine area clean will provide the greatest impact on fire prevention. Other areas requiring regular inspection and cleaning include behind wheel rims, wire

harness, hose/line routings, mowing attachments, etc. Compressed air, leaf blowers or high pressured water can assist keeping these areas clean.

• Excess lubrication or fuel/oil leaks or spills on the machine can also serve as collection sites for debris. Prompt machine repair and oil/fuel cleanup will minimize the potential for debris collection and reduced cooling throughout machine life.

• Bearing failures or overheating can result in a fire. To reduce this risk, always follow the instructions in the machine operator's manual regarding lubrication intervals and locations. Washing the machine while warm may also reduce bearing life and increase potential for premature bearing failure.

• Always shut off fuel when storing or transporting machine, if the machine has a fuel shutoff.



Handling Fuel Safely

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

• Extinguish all cigarettes, cigars, pipes, and other sources of ignition.

• Use only an approved fuel container. Use only non-metal, portable fuel containers approved by the Underwriter's Laboratory (U.L.) or the American Society for Testing & Materials (ASTM). If using a funnel, make sure it is plastic and has no screen or filter.

• Never remove the fuel tank cap or add fuel with the engine running. Allow engine to cool before refueling.

• Never add fuel to or drain fuel from the machine indoors. Move machine outdoors and provide adequate ventilation.

• Clean up spilled fuel immediately. If fuel is spilled on clothing, change clothing immediately. If fuel is spilled near machine, do not attempt to start the engine but move the machine away from the area of spillage. Avoid creating any source of ignition until fuel vapors have dissipated.

• Never store the machine or fuel container where there is an open flame, spark, or pilot light such as on a water heater or other appliance.

• Prevent fire and explosion caused by static electric discharge. Static electric discharge can ignite fuel vapors in an ungrounded fuel container.

• Never fill containers inside a vehicle or on a truck or trailer bed with a plastic liner. Always place containers on the ground away from your vehicle before fueling.

• Remove fuel-powered equipment from the truck or trailer and refuel it on the ground. If this is not possible, then refuel such equipment with a portable container, rather than from a fuel dispenser nozzle.

• Keep the nozzle in contact with the rim of the fuel tank or container opening at all times until the fueling is complete. Do not use a nozzle lock-open device.

• Never overfill fuel tank. Replace fuel tank cap and tighten securely.

• Replace all fuel container caps securely after use.

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

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.

Handling Waste Product and Chemicals

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

• Do not use beverage containers for waste fluids - someone may drink from them.

• See your local Recycling Center or authorized dealer to learn how to recycle or get rid of waste products.

• A Material Safety Data Sheet (MSDS) provides specific details on chemical products: physical and health hazards, safety procedures, and emergency response techniques. The seller of the chemical products used with your machine is responsible for providing the MSDS for that product.

Prevent Fires

• Besides routine maintenance, one of the best ways to keep your John Deere equipment running efficiently and to reduce fire risk is to regularly remove debris buildup from the machine.

• Please review these recommendations with all operators. See your John Deere dealer with questions.

• Always follow all safety procedures posted on the machine and in this operator manual. Before carrying out any inspection or cleaning, always shut off engine, set parking brake and remove ignition key.

• After operating, allow machine to cool in an open area before cleaning or storing. Do not park machine near flammable materials such as wood, cloth or chemicals.

• Empty any grasscatcher bags or containers completely before storing.

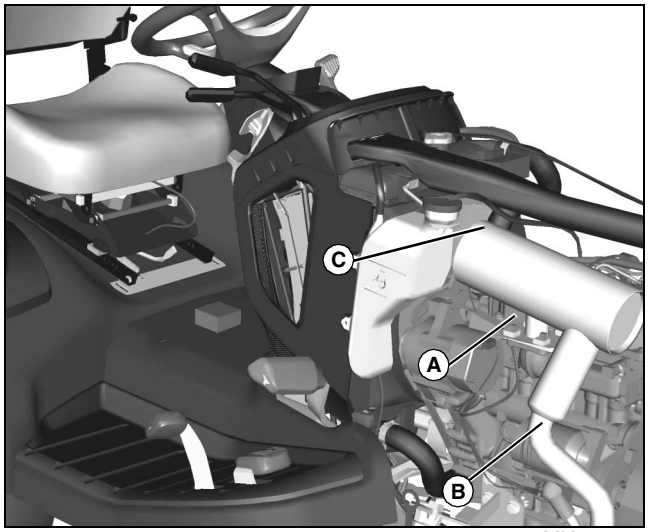
• Frequency of these inspections and cleaning will vary depending on a number of factors including operating conditions, machine configuration, operating speeds and weather conditions particularly dry, hot and windy conditions. When you are operating in these conditions, inspect and clean these areas frequently throughout the day.

• Wind direction, terrain type and moisture content of surrounding vegetation can effect where and how much debris accumulates.

• Debris can accumulate anywhere on the machine, especially on horizontal surfaces.

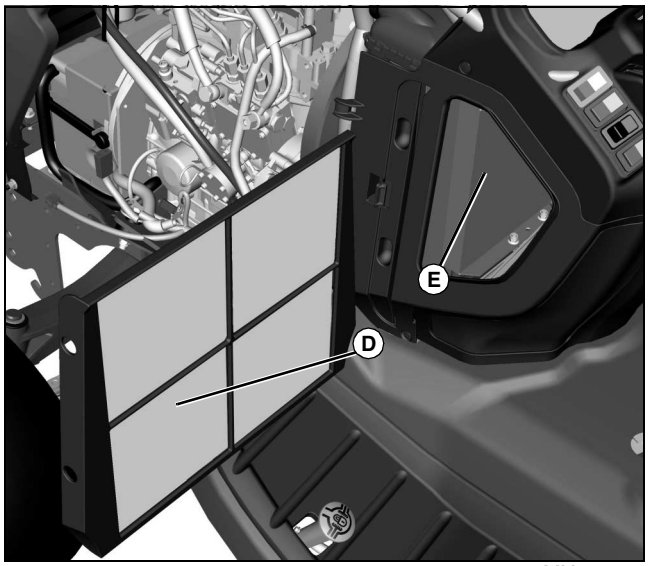
• Keeping engine area clean will provide the greatest impact on fire prevention. Other areas requiring regular inspection and cleaning include behind wheel rims, wire harness, hose/line routings, mowing attachments, etc. Compressed air, leaf blowers or high pressured water can assist keeping these areas clean.

• Primary areas that must be inspected and cleaned on the machine include (See Safety Label Section):



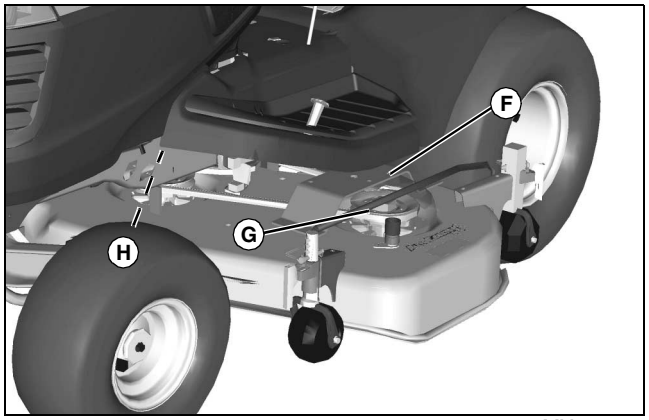
MX51744

a. Exhaust manifold (A), muffler pipe (B), muffler (C) and muffler shield.



MX51562

b. Engine intake screens (D), cooling fins and oil cooler (E).

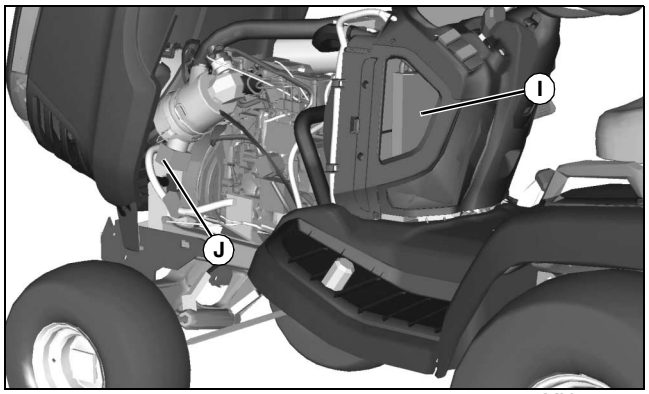


MX52077

Picture Note: Shown with 48 inch deck.

c. Top of mower deck, under shields (F), including spindle (G) and belt areas.

d. On or near transmission and driveline (H) (if equipped).



MX52078

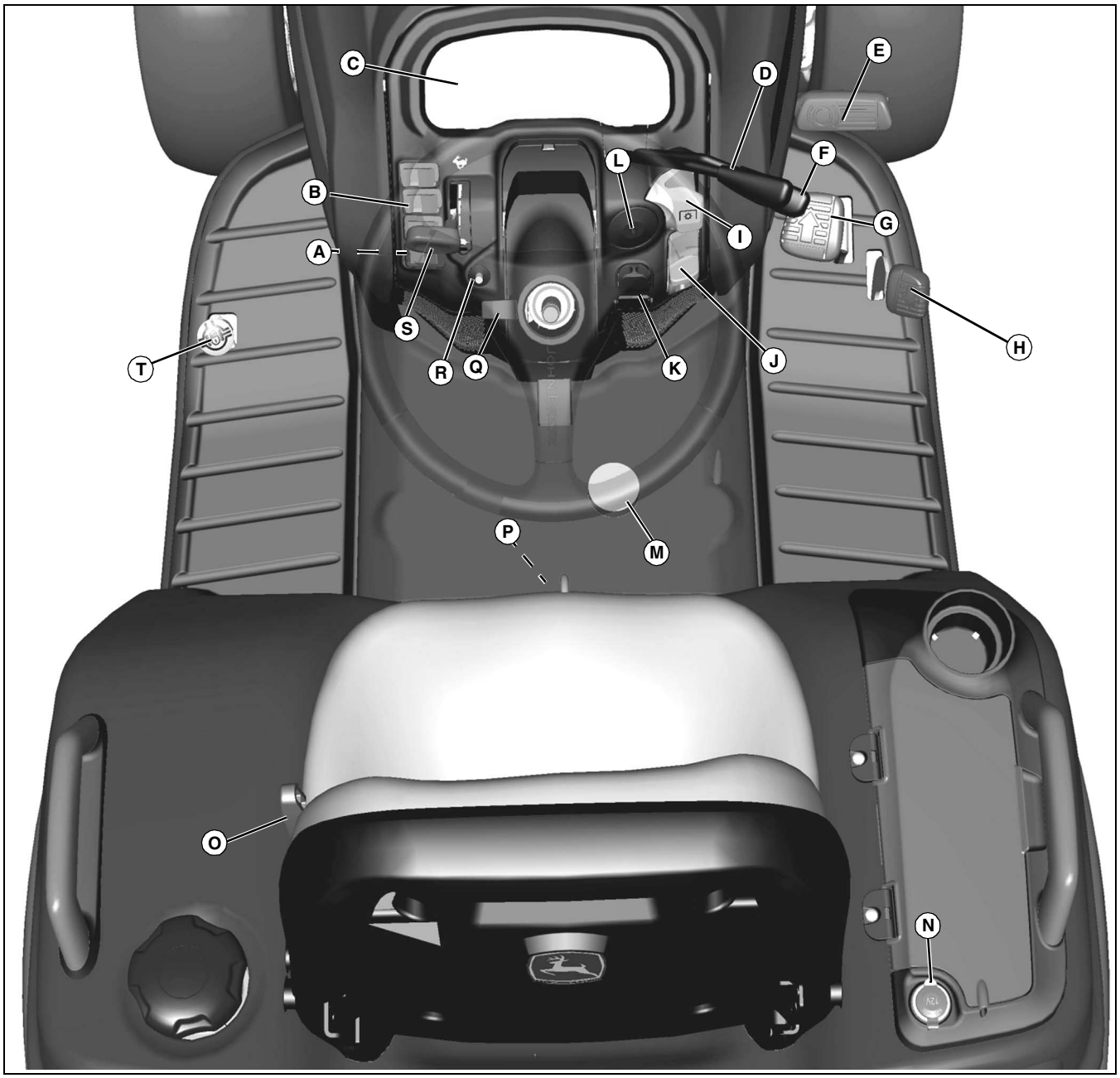
e. Under left side panel (I), and all wiring, including the battery (J) and related wiring harnesses.

• Excess lubrication or fuel/oil leaks or spills on the machine can also serve as collection sites for debris. Prompt machine repair and oil/fuel cleanup will minimize the potential for debris collection and reduced cooling throughout machine life.

• Bearing failures or overheating can result in a fire. To reduce this risk, always follow the instructions in the machine operator's manual regarding lubrication intervals and locations. Washing the machine while warm may also reduce bearing life and increase potential for premature bearing failure.

• Always shut off fuel when storing or transporting machine, if the machine has a fuel shutoff.

Operator Station Controls



MX51743

A - Light Switch
B - 12V Accessory Outlet Switch
C - Instrument Panel (Gauges and Indicator Lights)
D - Hydraulic Control Lever, Upper
E - Brake Pedal
F - Hydraulic Control Lever, Lower
G - Forward Control Pedal
H - Reverse Control Pedal
I - PTO/RIO Switch
J - Park Brake Lock
K - Cruise Control Switch
L - Key Switch
M - Mower Height Control Knob
N - 12V Accessory Outlet
O - Seat Back Recline Handle
P - Seat Slide Lever
Q - Tilt Steering Lever
R - RIO Switch
S - Throttle Lever
T - Traction Assist Pedal

Daily Operating Checklist

❑ Test safety systems.

❑ Check air cleaner.

❑ Check engine oil level.

❑ Check transaxle oil level.

❑ Check coolant level.

❑ Check air intake screens and radiator screen (Be sure engine is off when cleaning screens).

❑ Check for water in fuel filter water separator.

❑ Remove grass and debris from engine compartment and muffler area, and on top of mower deck, before and after operating machine.

❑ Check area below machine for leaks.

❑ Check operation of taillights.

Avoid Damage to Plastic and Painted Surfaces

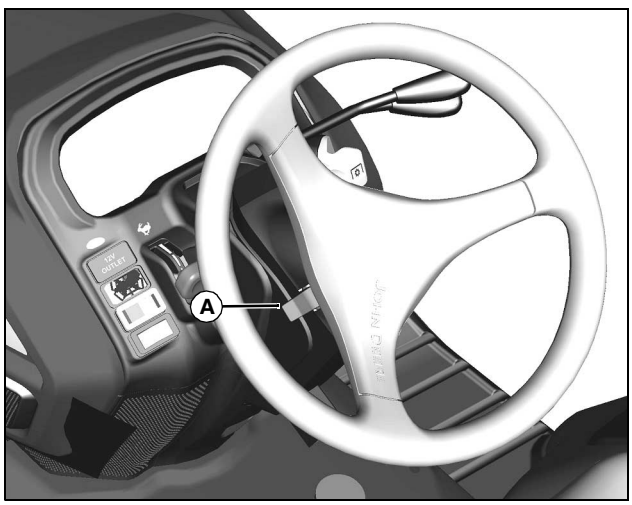
• Do not wipe plastic parts unless rinsed first. Using a dry cloth may cause scratches.

• Insect repellent spray may damage plastic and painted surfaces. Do not spray insect repellent near machine.

• Be careful not to spill fuel on machine. Fuel may damage surface. Wipe up spilled fuel immediately.

• Prolonged exposure to sunlight will damage hood surfaces.

Adjusting Tilt Steering Wheel



MX51572

1. Pull up on tilt steering lever (A).

2. Push or pull steering wheel to a comfortable operating position.

3. Release lever.

4. Check to be sure steering wheel is locked in position.

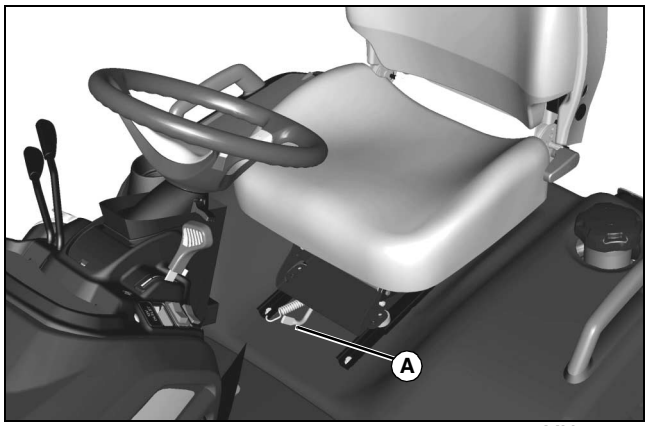
Adjusting Seat (Standard)

Tiltable Back

MX51735

1. Lift handle (A) to adjust back rest angle.

Adjusting Seat Position With The Slide Adjustment Lever (All Models)



MX51528

Picture Note: X750 model shown.

1. Move seat adjustment lever (A) to the left.

2. Slide seat forward or backward to desired position.

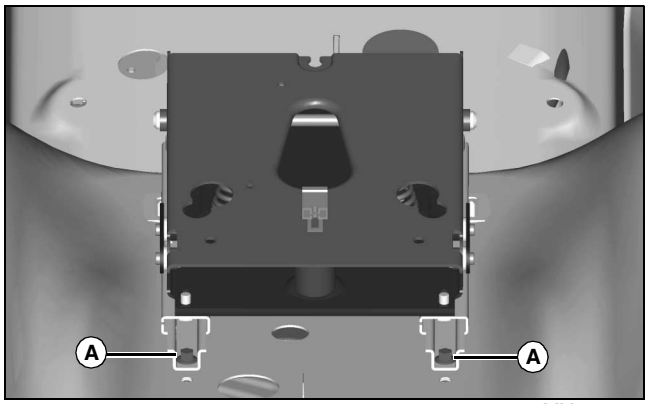
3. Release lever.

4. Check to be sure seat is locked in position.

Changing Slide Rail Position (All Models)

The slide rails can be secured to the fenderdeck in two

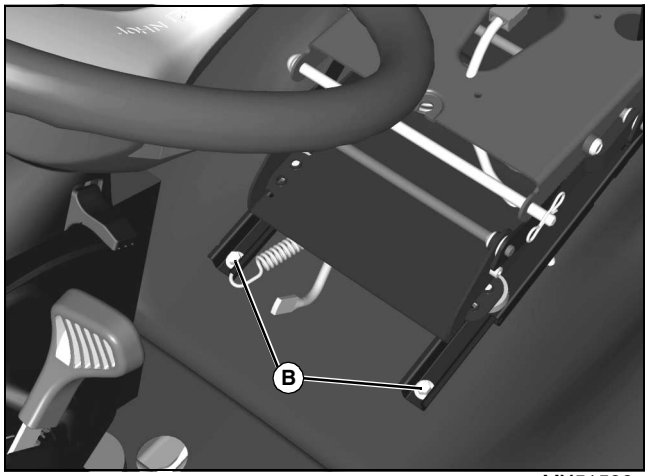
different sets of mounting holes. This provides an additional front / rear adustment to extend the range of the basic slide adjustment.



MX51530

Picture Note: X750 model shown.

1. Remove and retain two bolts (A) at rear of slide rails.



MX51529

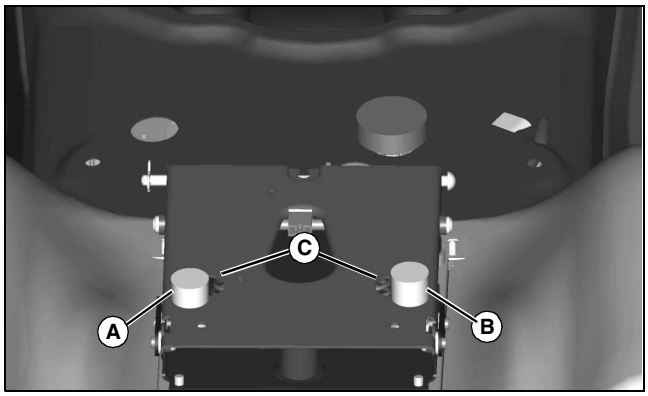
Picture Note: X750 model shown.

2. Loosen two bolts (B) at front of slide rails.

3. Slide to front or back as desired..

4. Install two bolts, removed earlier, at rear of slide rails, then tighten all hardware.

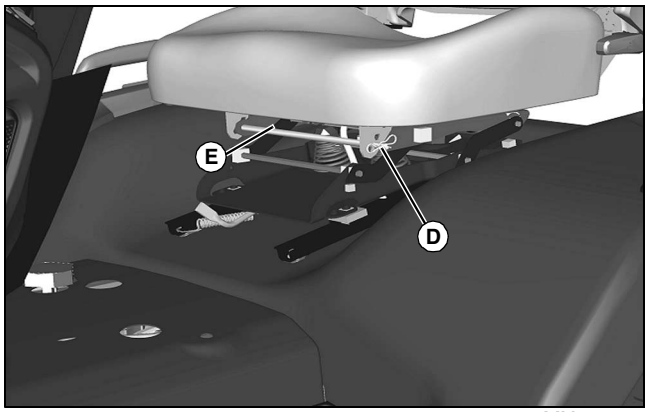
Adjusting Seat Height and Suspension



MX51531

Picture Note: Two different heights shown to illustrate difference. Be sure both rubber stops are set at same height.

1. Rubber stops (A,B) may be reversed to position seat at two different heights, low (A) and high (B). To change height - Slide stops out of retaining slots into larger holes (C), flip stops, and slide back into retaining slots to secure.



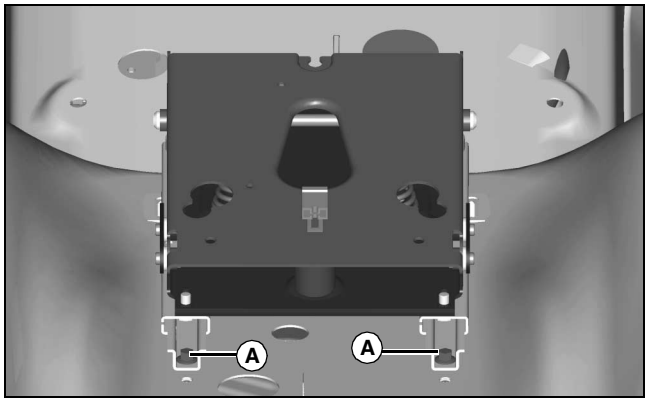
MX51532

2. Seat bracket may be positioned at three different heights. To adjust - Remove locking clip (D) and seat rod (E). Position seat bracket to align a different mounting hole with seat base, and install seat rod and locking clip to secure.

Changing Seat Suspension Position on Slide Rails

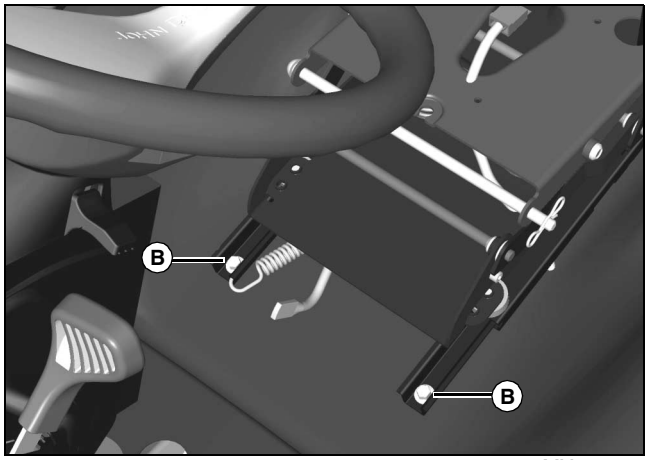
The seat suspension has two sets of holes for mounting onto the slide rails. This provides an additional range of front / rear adustment to extend the range of the basic slide adjustment and the two slide rail to fenderdeck mounting positions.

1. Disconnect seat wire harness and remove seat.



MX51530

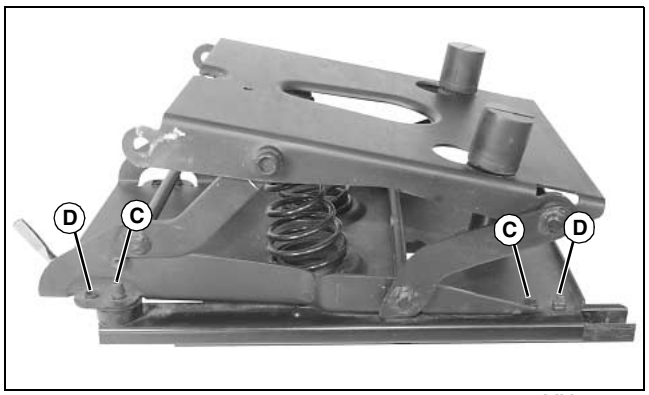
2. Remove two bolts (A) in rear of slide rail.



MX51529

3. Remove two bolts (B) in front of slide rail.

4. Remove seat suspension and slide rails from machine.



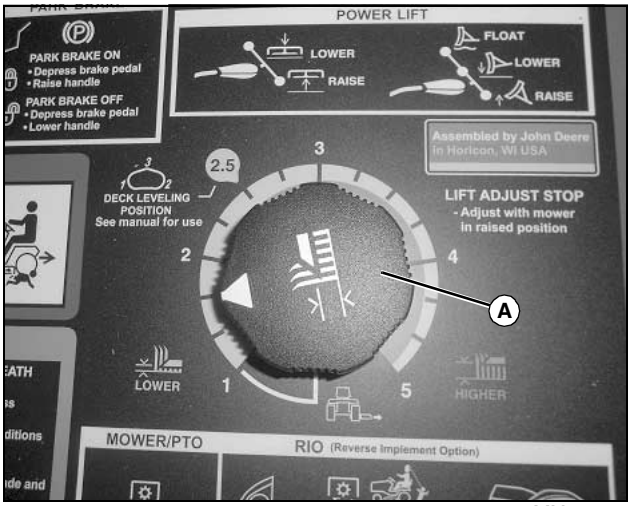
MX39543

5. Remove four bolts (C) securing seat suspension to slide rails. Use the slide adjustment as necessary to access the front and rear bolts from below.

6. Move slide rails and install bolts in forward mounting holes (D). Use the slide adjustment as necessary to access the front and rear mounting holes from below.

7. Install seat suspension and slide rails on machine with four bolts, removed earlier.

Using Mower Height Control Knob



MX52097

Use mower height control knob (A) to adjust mower cutting height, and lock mower deck lift arms in raised position. See your mower deck operator's manual for instructions.

IMPORTANT: Avoid damage! To avoid machine damage when operating without a mower deck, fully raise mower deck lift arms and turn mower height control knob clockwise to highest setting to lock lift arms in raised position.

Adjusting Mower Level Using Deck Leveling Gauge - Method 1

CAUTION: Avoid injury! Rotating blades are dangerous. Before adjusting or servicing mower:

- **Disconnect spark plug wire(s) or battery negative (-) cable to prevent engine from starting accidently.**
- **Always wear gloves when handling mower blades or working near blades.**

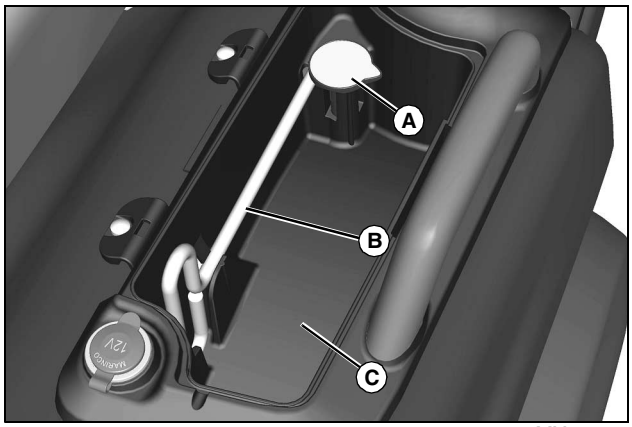
IMPORTANT: Avoid damage! Mower deck lift system can be damaged if lift arms are not adjusted correctly. Check adjustment each time mower is installed to allow gap between lift arms and frame stop at full lift height.

1. Park machine safely on a level surface. (See Parking Safely in the SAFETY section).

2. Inflate tires to the correct pressure.

3. Raise mower deck to highest (transport) position by

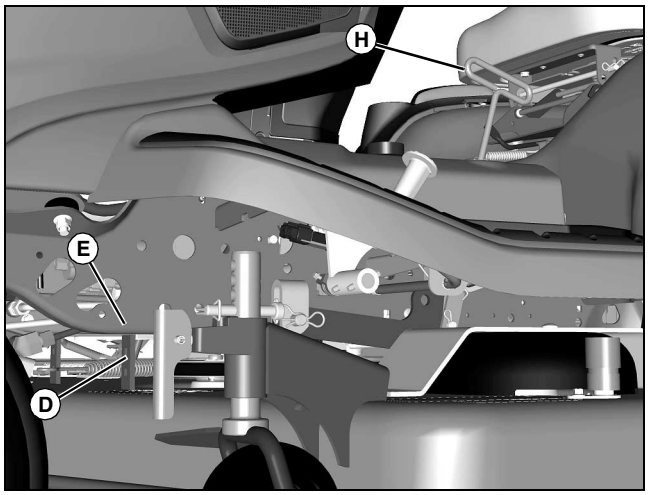
pulling back on upper hydraulic lever.



MX51571

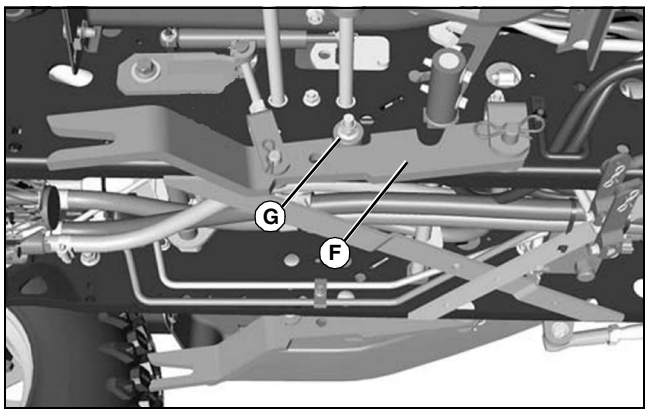
Picture Note: Tool box lid has been removed for clarity.

4. Remove the mower deck level gauge (A) and exact adjust wrench (B) stored in the tractor tool box (C).



MX52107

Picture Note: 54HC and 60HC decks.



MX51746

Picture Note: 48C, 54C and 62C decks.

5. Check that the lift system does not hit the up stop limits prior to full deck height. If needed, adjust yokes on both sides of mower until there is a slight gap of at least 1.6 mm (1/16 in.) on both sides of the tractor between:

- Deck up stop (D) and frame (E) (54HC and 60HC Decks).
- Lift arms (F) and the frame up stop (G) (48C, 54C, and 62C Decks).

To Adjust:

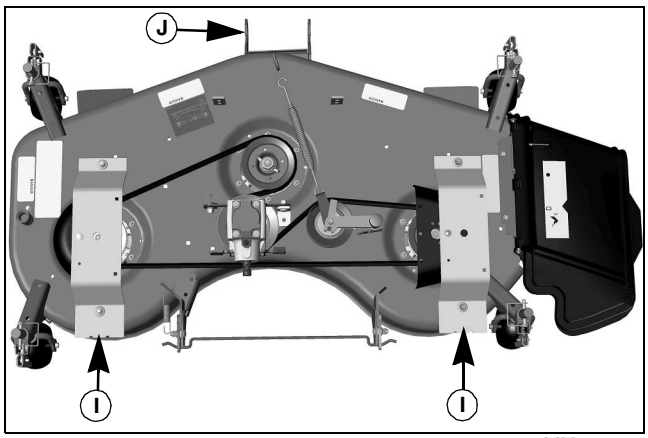
a. Insert exact adjust wrench (H) into adjustment nut above draft arm.

b. Turn wrench clockwise to raise lift arm.

c. Turn wrench counterclockwise to lower lift arm.

6. Set the mower height control knob to 2.5, then lower deck against the stop by pushing forward on the upper hydraulic lever.

7. Adjust mower deck gage anti-scalping wheels as necessary so they do not contact the ground surface.

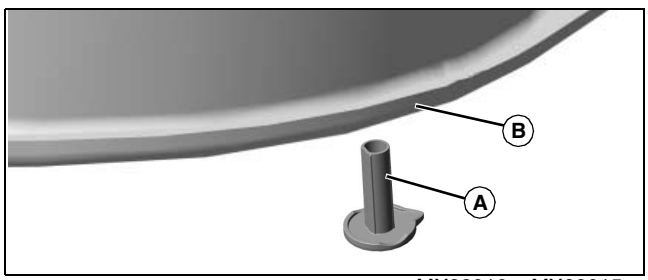


MX52108

8. The location of adjustment points will vary slightly between decks:

- Two adjustment points (I) are located on the left and right rear of deck rim in front of the rear tires.
- The third adjustment point (J) is located on the front left deck hanger bracket.

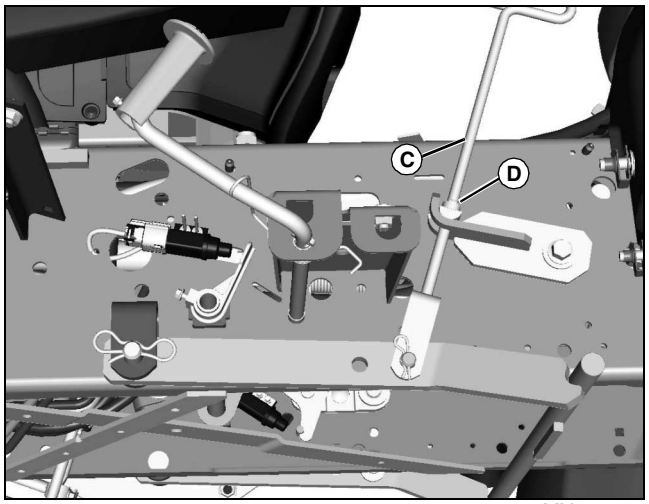
Adjust Mower Level (Side-to-Side):



MX22016a, MX22015a

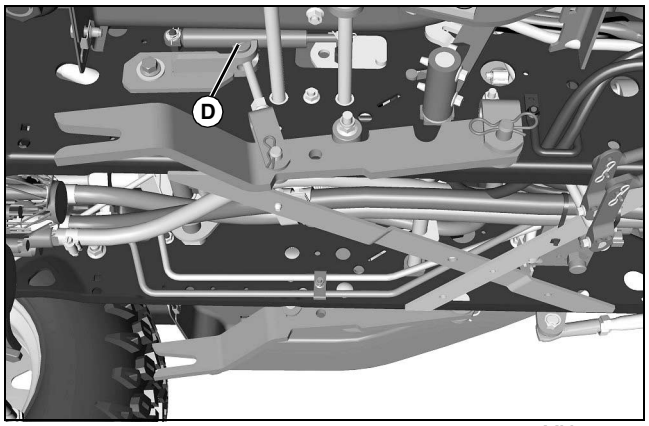
1. Place gauge (A) under the deck at the left rear portion of

the rim (B).



MX51551

Picture Note: 54HC and 60HC decks. Left hand side shown



MX51561

Picture Note: 48C, 54C and 62C decks. Right hand side shown.

2. Adjust deck height on left side of tractor until gauge just slips under the deck rim.

a. Insert exact adjust wrench (C) into adjustment nut (D) above draft arm.

b. Turn wrench clockwise to raise lift arm.

c. Turn wrench counterclockwise to lower lift arm.

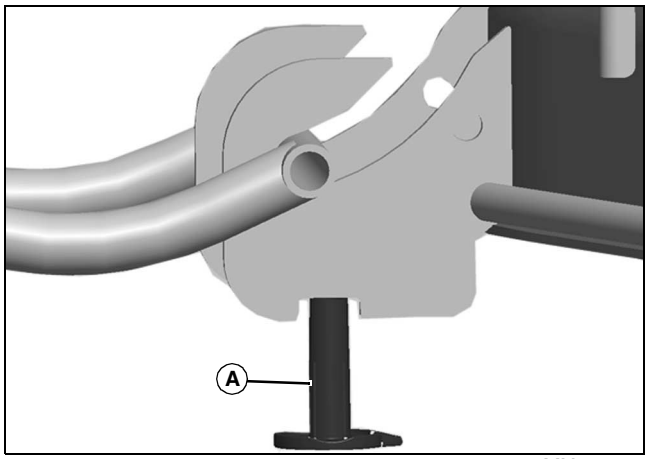
3. Place gauge on the floor under the deck at right rear portion of the rim.

4. Adjust deck height on the right side of tractor until gauge slips under the deck rim.

NOTE: If an adjustment of more than 1/8 in. is required, adjust both points alternately. A large adjustment on one side can move the other side in the opposite direction.

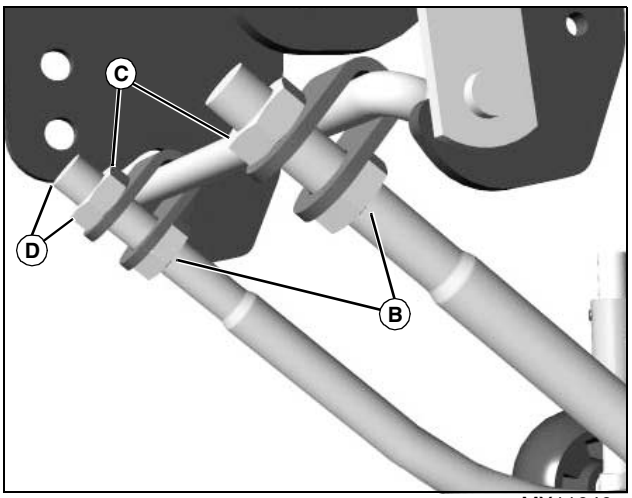
5. Repeat adjustment as necessary.

Adjust Mower Level (Front-to-Back):



MX51742

1. Place gauge (A) at the third adjustment point under front left deck hanger bracket.



MX11040a

2. Raise or lower the front of the deck as necessary until gauge just slips under the front deck hanger bracket adjustment point.:

- Loosen two rear nuts (B) on front deck hanger.
- Turn two front nuts (C) clockwise to raise front of mower deck; turn counterclockwise to lower front of mower deck
- Measure distance (D) from end of nut to end of bolt. This measurement should be the same on each side of the front deck hanger.
- Tighten rear nuts after making adjustment.

3. Return the gauge and exact adjust wrench to their storage positions.

Adjusting Mower Level Using Deck Leveling - Method 2

CAUTION: Avoid injury! Rotating blades are dangerous. Before adjusting or servicing mower:

• Disconnect spark plug wire(s) or battery negative (-) cable to prevent engine from starting accidently.

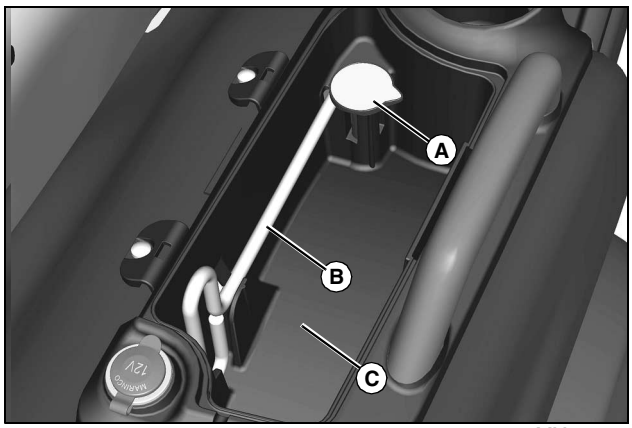
• Always wear gloves when handling mower blades or working near blades.

IMPORTANT: Avoid damage! Mower deck lift system can be damaged if lift arms are not adjusted correctly. Check adjustment each time mower is installed to allow gap between lift arms and frame stop at full lift height.

1. Park machine safely on a level surface. (See Parking Safely in the SAFETY section).

2. Inflate tires to the correct pressure.

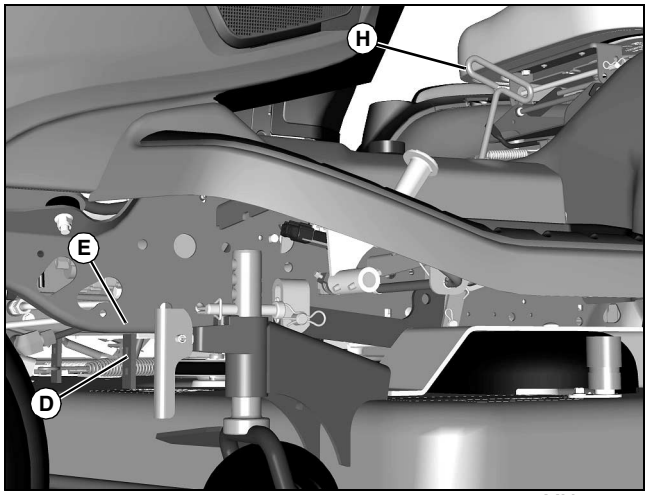
3. Raise mower deck to highest (transport) position by pulling back on upper hydraulic lever.



MX51571

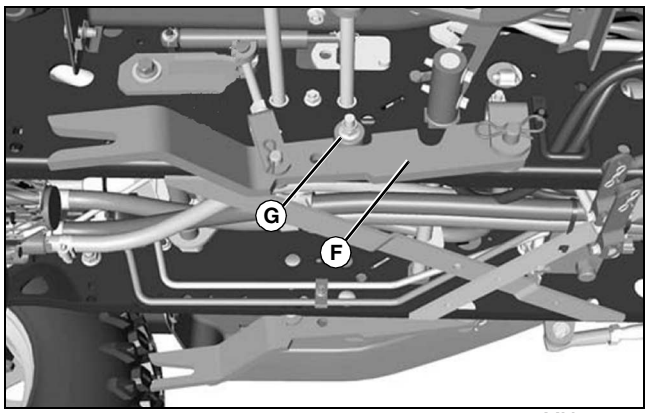
Picture Note: Tool box lid has been removed for clarity.

4. Remove the mower deck level gauge (A) and exact adjust wrench (B) stored in the tractor tool box (C).



MX52107

Picture Note: 54HC and 60HC decks.



MX51746

Picture Note: 48C, 54C and 62C decks.

5. Check that the lift system does not hit the up stop limits prior to full deck height. If needed, adjust yokes on both sides of mower until there is a slight gap of at least 1.6 mm (1/16 in.) on both sides of the tractor between:

- Deck up stop (D) and frame (E) (54HC and 60HC Decks).
- Lift arms (F) and the frame up stop (G) (48C, 54C, and 62C Decks).

To adjust:

a. Insert exact adjust wrench (H) into adjustment nut above draft arm.

b. Turn wrench clockwise to raise lift arm.

c. Turn wrench counterclockwise to lower lift arm.

6. Set the mower height control knob set at 2.5, then lower deck against stop.

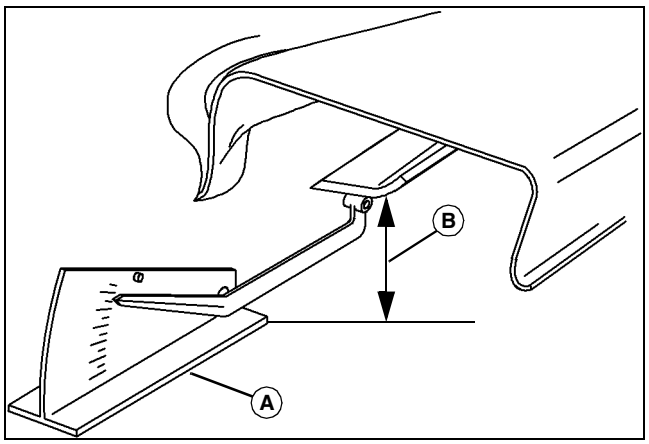
7. Adjust mower deck gage anti-scalping wheels as necessary so they do not contact the ground surface.

Adjust Mower Level (Side-to-Side):

1. Turn left blade parallel to axle.

2. Hold drive belt and turn right blade parallel to axle.

NOTE: The difference between blade measurements must not be more than 3 mm (1/8 in).

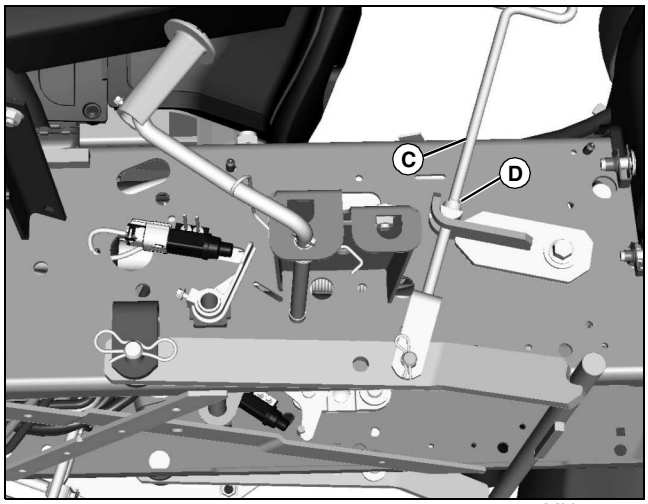


MX11181

Picture Note: A convenient leveling gauge (A) is available from your John Deere dealer.

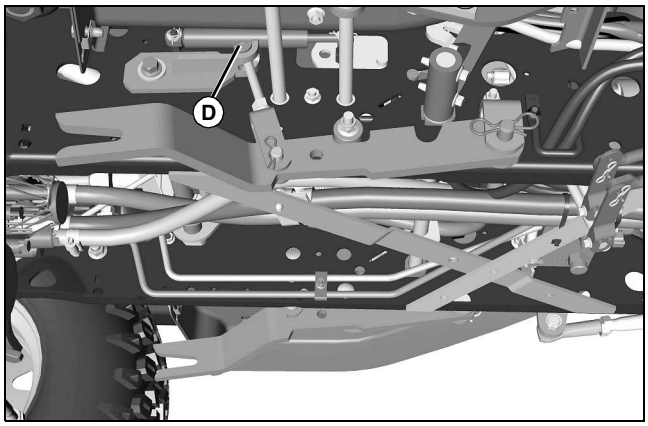
3. Measure distance from each outside blade tip (B) to the level surface.

NOTE: If an adjustment of more than 3 mm (1/8 in.) is required, adjust both points alternately. A large adjustment on one side can move the other side in the opposite direction.



MX51551

Picture Note: 54HC and 60HC decks. Left hand side shown



MX51561

Picture Note: 48C, 54C and 62C decks. Right hand side shown.

4. . Raise or lower left or right sides of the deck until the outside blade tips are between 6.35 - 7.62 cm (2.5 - 2.75 in.) from the level surface, and within 3 mm (1/8 in.) vertical height of each other:

   a. Insert exact adjust wrench (C) into adjustment nut (D) above draft arm.

   b. Turn wrench clockwise to raise lift arm.

   c. Turn wrench counterclockwise to lower lift arm.

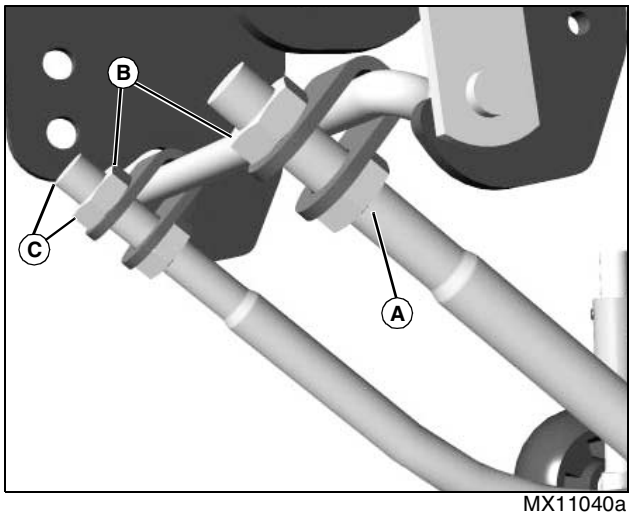
5. Repeat adjustment as necessary.

Adjust Mower Level (Front-to-Back):

1. Turn left blade so tip points straight forward.

2. Measure distance between the front blade tip to the level

surface.



MX11040a

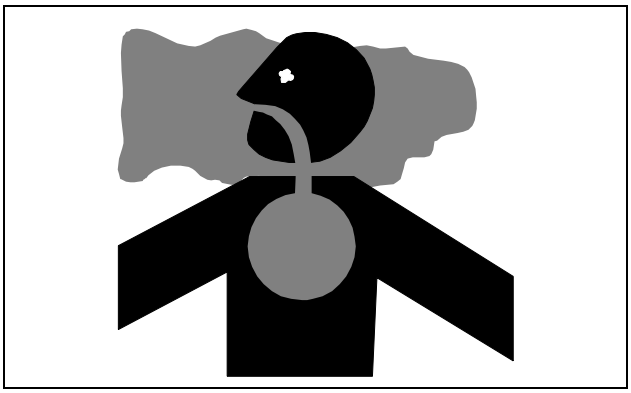
3. Raise or lower the front of the deck as necessary until the front blade tip is 6.35 cm (2.5 in.) from the level surface:

- Loosen two rear nuts (A) on front deck hanger.
- Turn two front nuts (B) clockwise to raise front of mower deck; turn counterclockwise to lower front of mower deck.
- Measure distance (C) from end of nut to end of bolt. This measurement should be the same on each side of the front deck hanger.
- Tighten rear nuts after making adjustment.

4. Measure distance from the rear left blade tip to the level surface. The front of the blade should be lower than the rear, but the difference must not be more than 6 mm (1/4 in.).

5. Raise or lower the rear adjustment of the left and right sides of the deck using the instructions outlined in "Adjust Mower Level (Side-to-Side)", if necessary, until the rear tips of the outer blades are between 6.35 - 7.62 cm (2.5 - 2.75 in.) from the level surface.

Testing Safety Systems



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

Do not run an engine in an enclosed area, such as a garage, even with doors or windows opened.

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

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

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

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

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

Testing PTO, RIO Switch

CAUTION: Avoid injury! The mower blades should stop in approximately five seconds when the mower or PTO is disengaged.

If you believe that your blades may not be stopping in that period of time, take your machine to your authorized dealer where they can safely check and service your machine.

Test 1:

1. Depress brake pedal, or lock park brake.

2. Pull PTO/RIO switch up to engage PTO.

3. Try to start engine.

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

Test 2:

1. Start engine.

2. Unlock park brake and release brake pedal.

3. Move throttle lever up to maximum engine speed.

4. Pull PTO/RIO switch up to engage PTO.

5. Depress brake pedal.

Result: PTO should shut off and engine should continue to run. If PTO continues to run, there is a problem with your safety interlock circuit.

Testing Seat Switch

Test 1:

1. Start engine.

2. Move throttle lever up to maximum engine speed.

3. Unlock park brake and release brake pedal.

4. Pull PTO/RIO switch up to engage PTO.

5. Raise up off seat. Do not get off machine.

Result: PTO should stop and engine should begin to stop. If PTO does not stop and engine does not begin to stop, there is a problem with your safety interlock circuit.

Test 2:

1. Disengage PTO.

2. Start engine.

3. Unlock park brake and release brake pedal.

4. Raise up off seat. Do not get off machine.

Result: Engine should begin to stop. If engine does not begin to stop, there is a problem with your safety interlock circuit.

Testing Park Brake Switch

Test 1:

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

2. Unlock park brake and release brake pedal.

3. Try to start engine.

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

Test 2:

1. Disengage PTO.

2. Start engine.

3. Lock park brake.

4. Raise up off seat. Do not get off machine.

Result: Engine should continue to run. If engine stops, there is a problem with your safety interlock circuit.

Testing Reverse Implement Option (RIO)

CAUTION: Avoid injury! Rotating blades are dangerous. Children or bystanders may be injured by runover and rotating blades.

Before backing up, carefully check the area around the machine.

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

2. Start engine.

3. Move throttle lever up to maximum engine speed.

4. Engage PTO to start attachment.

5. Look behind machine to be sure there are no bystanders.

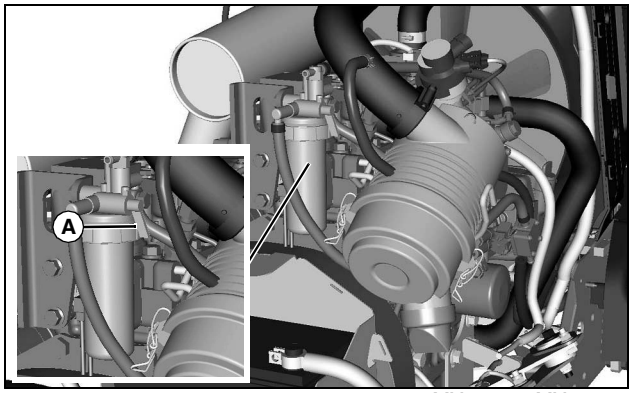
6. Begin reverse travel by depressing reverse travel pedal.

Result: Attachment should stop operation. If attachment continues to operate while machine travels in reverse, do not continue to operate attachment. See your John Deere dealer for service.

Using Fuel Shut-Off Valve

Close valve when performing engine service, during machine transport and during storage.

1. Raise hood.



MX51549, MX51550

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

2. Open or close fuel shut-off valve lever (A) as required:

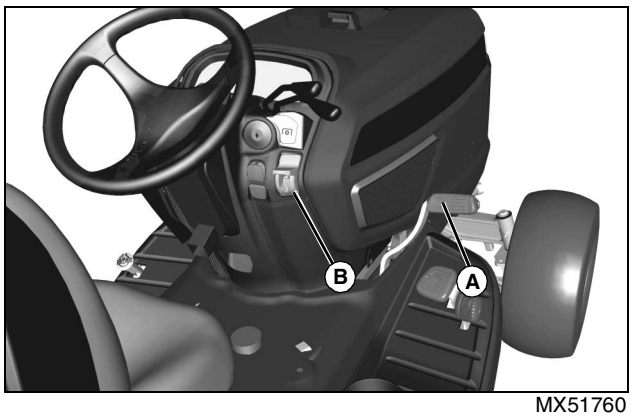
- Open valve: Rotate valve lever to “O” (vertical) position.
- Close valve: Rotate valve lever to “C” (horizontal) position.

Using Park Brake

Locking Park Brake

CAUTION: Avoid injury! Children or bystanders may attempt to move or operate an unattended machine.

Always lock the park brake and remove the key before leaving the machine unattended.



MX51760

1. Fully depress brake pedal (A).

2. Pull park brake latch (B) up to lock park brake.

3. Release brake pedal and then park brake latch. Pedal should stay down and park brake latch should stay up in locked position.

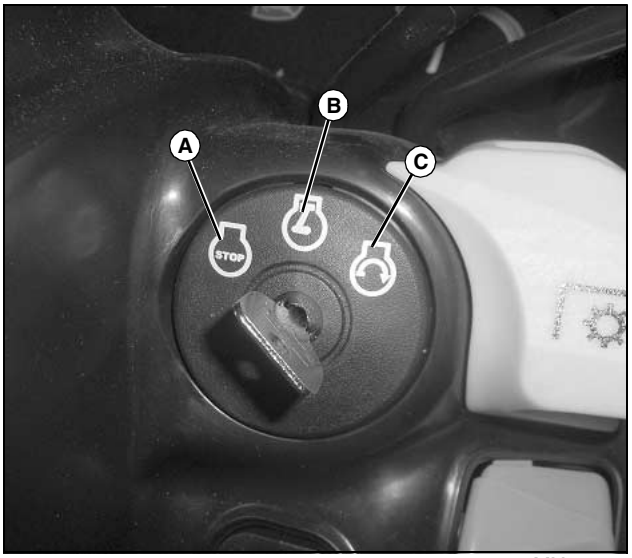
Unlocking Park Brake

1. Fully depress brake pedal.

2. Push park brake latch down.

3. Release brake pedal. Pedal should come up to operating position.

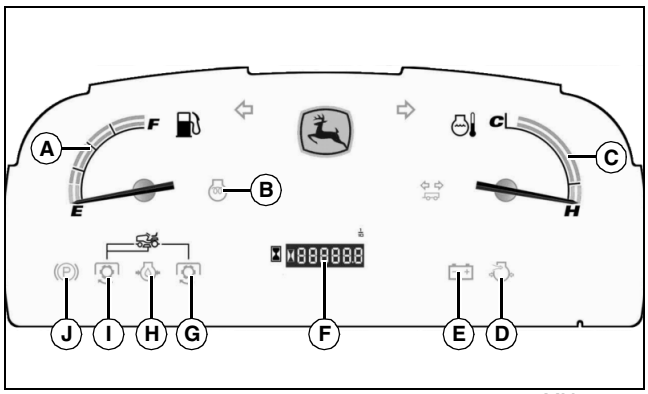
Using Key Switch



MX52096

A - STOP (Off)
B - Run
C - Start (Crank)

Using Indicator Lights



MX22575

A - Fuel Gauge - indicates fuel level.

B - Engine Preheat Light - will come on for up to 8 seconds when starting engine. If engine has been run and then cooled, the time may be less.

C - Coolant Temperature Gauge - indicates temperature of

cooling system. If needle on gauge reaches red range, the engine is overheating. If PTO is engaged, it will automatically shut off.

D - Air Restriction Indicator Light - will come on if air restriction indicator shows that air cleaner requires service.

E - Battery Discharge Indicator Light - will come on when there is no alternator output. If indicator comes on during operation, stop engine and perform appropriate service.

F - Hour Meter - shows number of hours engine has run. Check hour meter daily, and see periodic service required chart located under hood for service requirements.

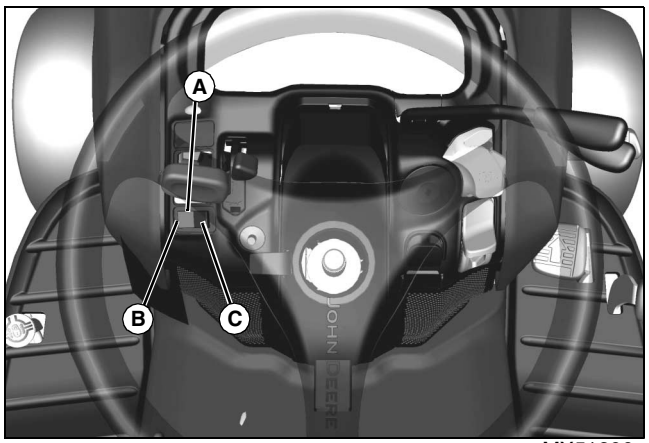
G and I - PTO Indicator Lights - will come on when mid/front and/or rear PTO is engaged. Light will blink when Reverse Implement Option (RIO) is engaged.

H - Oil Pressure Indicator Light - will come on when engine oil pressure is too low. If indicator comes on during operation, stop engine and perform appropriate service. This is an indication that the engine is low on oil.

J - Park Brake Light - will come on when park brake is set.

If engine is overheated, disengage PTO, let engine cool at idle speed until needle returns to green range. Shut off engine and clean air intake screens and radiator screen.

Using Light Switch



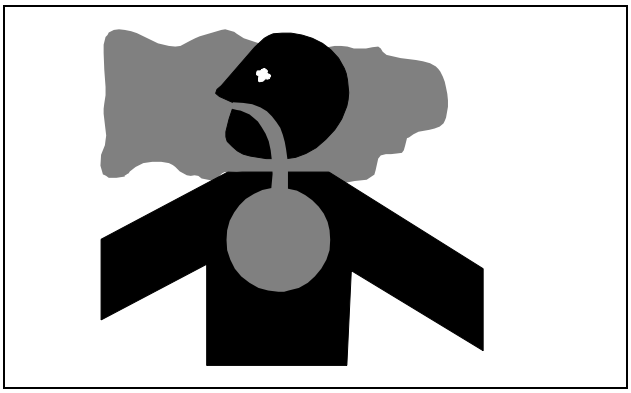
MX51266

A - Headlights and taillights on (center position).

B - All lights on (push left side of switch).

C - All lights off (push right side of switch).

Starting the Engine



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

Do not run an engine in an enclosed area, such as a garage, even with doors or windows opened.

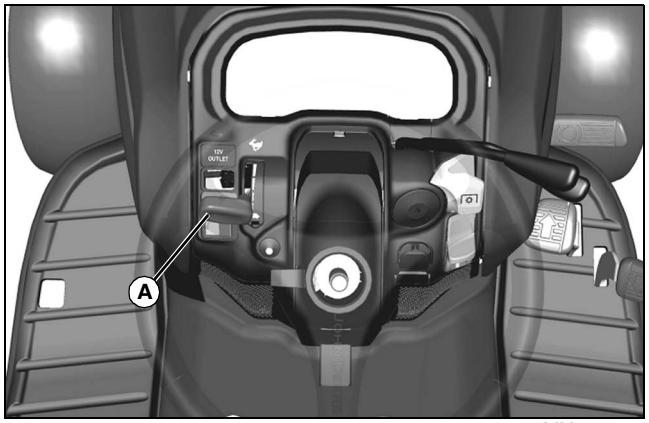
Move the machine to an outside area before running the engine.

IMPORTANT: Avoid damage! Starting fluid combusts very rapidly and can cause internal engine damage.

Do not use any type of starting fluid in cold weather to assist starting. The engine is designed to start in cold weather conditions. See your authorized dealer for other starting aids for your machine.

NOTE: You must depress brake pedal, or lock park brake, before you can start engine. Be sure PTO/RIO switch is off.

1. Open fuel shut-off valve.
2. Lock park brake or depress brake pedal.



MX51740

3. Push throttle lever (A) up to between 1/2 and fast position.

4. Turn key to run position.

5. Check indicator lights:

- Oil pressure indicator light will be ON.
- Battery discharge indicator light will be ON.
- Engine preheat indicator light will come on and go out within approximately 8 seconds. If engine has been run and then cooled, the time may be less. Wait for indicator to go out before cranking engine.

6. Turn key to start position:

- Crank engine.
- If engine does not start within 5 seconds, turn key to stop position and wait 10 seconds.
- Crank engine again for 5 seconds.

Repeat this procedure if necessary.

IMPORTANT: Avoid damage! Unnecessary engine idling may cause engine damage. Excessive idling can cause engine overheating, carbon build-up, and poor performance.

7. As soon as engine starts, release key. The key will return to run position and all indicator lights should be off. If a light does not go off, stop engine and perform appropriate service.

Idling the Engine

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

1. Adjust throttle lever to slow idle speed.

2. Lock park brake.

Stopping the Engine

IMPORTANT: Avoid damage! Failure to remove grass and debris from the engine and muffler areas can result in fires. Grass and debris can collect in the engine and muffler areas while mowing. When mowing is completed, clean the engine and muffler areas of all grass and debris.

1. Stop machine.

2. Pull throttle lever down to the slow position.

3. Turn key to stop (Off) position.

4. Lock park brake.

5. Remove key.

Emergency Stopping

1. Remove foot from forward or reverse travel pedals.

2. Depress brake pedal.

3. Turn key switch to stop (Off) position. Do not release brake pedal until all moving parts have stopped.

4. If possible, lock the park brake.

Using Travel Pedals

CAUTION: Avoid injury! Children or bystanders may be injured by runover and rotating blades. Before traveling forward or rearward:

- **Carefully check the area around the machine.**
- **Disengage the mower before backing up.**

Forward Travel

1. Unlock park brake.

2. Slowly push down forward travel pedal. Machine will travel faster the farther down you push the pedal.

3. Release forward pedal, machine will automatically slow down and return to neutral.

Reverse Travel

NOTE: Any operating attachment should stop as the reverse foot pedal is depressed with attachment engaged.

1. Stop machine.

2. Push PTO/RIO switch down to off position to disengage attachment.

3. Look behind machine to be sure there are no bystanders nearby.

4. Slowly push down reverse pedal. Machine will travel faster the farther down you push the pedal. Release reverse pedal, machine will automatically slow down and return to neutral.

Stopping

1. Release either travel pedal, machine will automatically slow down and return to neutral.

2. Depress brake pedal. Machine brakes will be applied to assist in stopping.

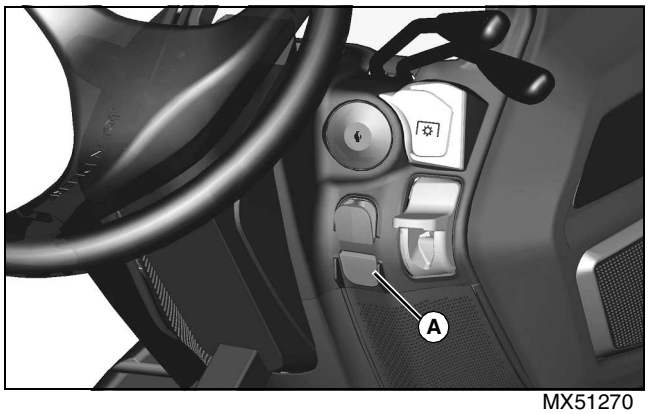
Using Cruise Control

Use cruise control when you want to maintain travel speed without having to hold the forward travel pedal down. Cruise control operates only for forward travel.

Operate machine in a large, open area to learn how cruise control works.

Engaging Cruise Control

1. Depress forward travel pedal until you reach desired travel speed.



MX51270

2. Push bottom of cruise control latch (A) to engage.

3. Remove foot from forward travel pedal.

4. Release cruise control latch.

Disengaging Cruise Control

1. Depress forward travel pedal or depress brake pedal.

Using Reverse Implement Option (RIO)

CAUTION: Avoid injury! Rotating blades are dangerous. Children or bystanders may be injured by runover and rotating blades.

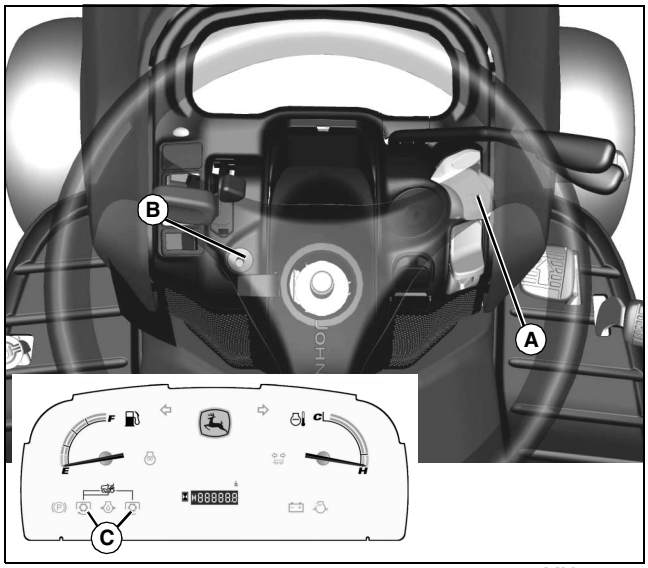
Before backing up, carefully check the area around the machine.

NOTE: Backing up while mower is engaged is strongly discouraged. The Reverse Implement Option should be used only when operating another attachment or when operator deems it necessary to reposition machine with mower engaged.

1. Stop machine forward travel with attachment engaged.

2. Look behind machine to be sure there are no bystanders.

NOTE: If attachment stops while repositioning machine, return PTO/RIO switch to off position. Begin again with Step 2 in procedure.



MX51266

3. There are two methods to operate RIO.

NOTE: Which indicator light(s) are lighted is dependent on rear PTO presence/position.

- Pull out PTO/RIO switch (A) past the PTO engagement position to activate the reverse implement option while depressing reverse travel pedal slightly. Instrument panel PTO indicator light(s) (C) will blink when RIO is engaged.
- Push and hold in the reverse implement switch (B) while depressing reverse foot pedal. Instrument panel PTO indicator light(s) (C) will blink when RIO is engaged.

4. As machine begins to move backward, release RIO or

PTO/RIO switch and reposition machine. Instrument panel PTO indicator light(s) will stop blinking when switch is released.

5. Resume forward travel. The attachment should continue operating.

6. Repeat Steps 1 through 5 to reposition machine again.

Using Traction Assist

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

Traction assist is used to provide better traction when rear wheels start to slip. Do not use traction assist unless you are experiencing rear wheel slippage. Engaging traction assist will cause both rear wheels to drive equally to improve traction.

Engaging Traction Assist

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

• Reduce speed and allow drive wheels to rotate at same speed before engaging or disengaging traction assist.

• Disengage traction assist when driving on dry asphalt or concrete.

• Use traction assist only when necessary for improved ground engagement.

1. Stop or slow machine down.

2. Push down on traction assist pedal. Traction assist will remain engaged as long as pedal is depressed.

NOTE: Turning radius is increased when traction assist is engaged.

When brake pedal is depressed, traction assist will automatically engage.

Disengaging Traction Assist

1. Release traction assist pedal.

2. Once the load on the transmission is equalized and reduced, traction assist will disengage automatically.

Using Full Time 4-Wheel Drive (HFWD)

Four-wheel drive enables the powertrain to drive all four wheels for improved traction on difficult ground conditions. Hydraulic Full Time 4-Wheel Drive (HFWD) is engaged at all times, and there are no operator controls.

The Full Time 4-Wheel Drive (HFWD) system consists of a special hydraulic powered front drive axle and rear transaxle, connected by two hydraulic pressure hoses and a balance hose. Hydraulic fluid is shared, and circulates between the two axles.

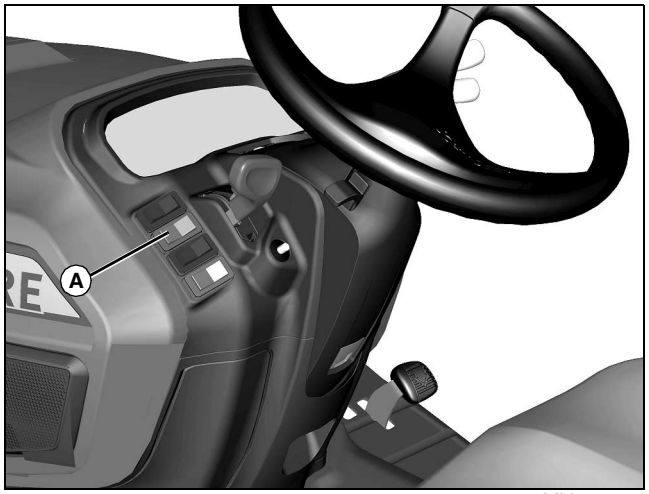
The transaxle hydraulic pump also supplies pressure to the front axle, which contains two independent hydraulic drive motors, for the left and right front wheels. A proportioning valve, controlled by steering linkage, adjusts the relative speed of the two front drive motors to eliminate scuffing while turning.

Hydraulic fluid and filter maintenance should be performed on both axles as a system, and not serviced independently.

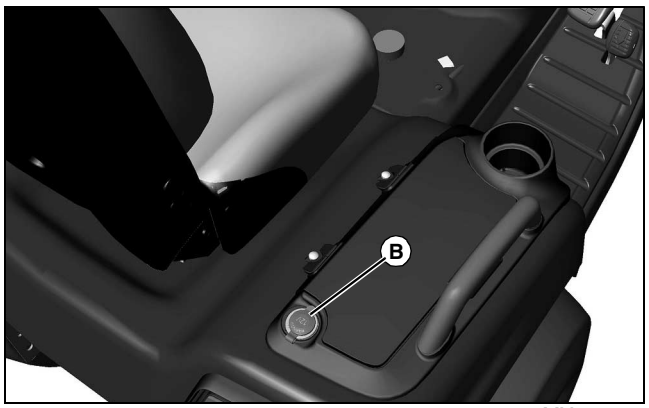
Using 12-Volt Outlet

CAUTION: Avoid injury! Safe operation requires your full attention. Do not wear radio or music headphones while operating machine.

NOTE: Accessory must be rated at 15 amps or less.



MX51498



MX51267

1. Press right side of switch (A) to turn power off.

2. Remove 12-volt outlet cover (B) and install accessory cord in outlet.

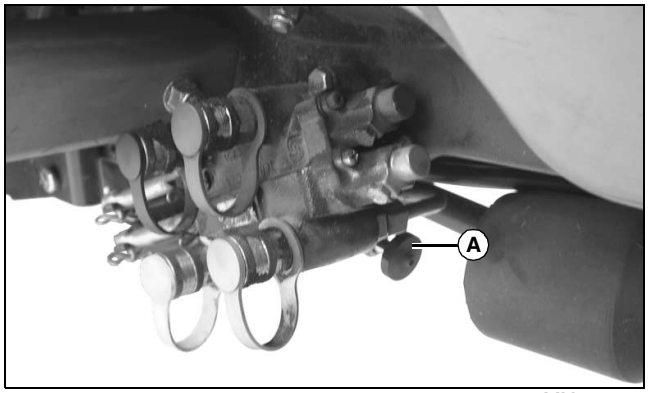
3. Press left side of switch (A) to power the accessory outlet.

4. Install cover (B) in outlet after use.

Installing Attachments

Attachments can be installed on the front, mid or rear of machine.

An optional front quick hitch and an optional rear 3-point hitch are required for operation of some attachments.



MX13535

A hydraulic cylinder lockout valve is required for operation of some attachments mounted on the front quick hitch. Turn knob (A) to close the lockout valve to avoid operation delays, and to restrict movement of mid and rear 3-point hitch mounted attachments.

In addition to the instructions in your attachment operator's manual, perform the following procedures:

Front quick hitch mounted attachments

1. Pull upper hydraulic control lever backward to fully raise mower deck lift arms and fully raise rear 3-point hitch if installed.

2. Turn mower cutting height knob clockwise to highest position to lock mower deck lift arms in raised position.

3. If installed, turn rear 3-point hitch depth control rod clockwise to lock rear 3-point hitch in raised position.

4. Push hydraulic control lever forward to lower lift linkage onto tractor depth stop.

5. If installed, turn hydraulic cylinder lockout valve knob clockwise until closed.

Mid-mounted attachments

1. If installed, disconnect front mounted attachment hydraulic hoses from machine:

   - Disconnect front quick hitch angling cylinder hydraulic hoses; or disconnect snowblower or snowthrower chute rotation hoses.
   - Install dust caps on hoses and SCV couplers, and secure hoses to attachment or machine.

2. If installed, turn hydraulic cylinder lockout valve knob counterclockwise until fully open.

3. Pull upper hydraulic control lever backward to fully raise rear 3-point hitch if installed. Mower deck lift arms will raise at same time.

4. If installed, turn rear 3-point hitch depth control rod clockwise to lock rear 3-point hitch in raised position.

Rear three-point hitch mounted attachments

1. If installed, disconnect front mounted attachment hydraulic hoses from machine:

   - Disconnect front quick hitch angling cylinder hydraulic hoses; or disconnect snowblower or snowthrower chute rotation hoses.
   - Install dust caps on hoses and SCV couplers, and secure hoses to attachment or machine.

2. If installed, turn hydraulic cylinder lockout valve knob counterclockwise until fully open.

3. Pull upper hydraulic control lever backward to fully raise mower deck lift arms. Rear 3-point hitch will raise at same time.

4. Turn mower cutting height knob clockwise to highest position to lock mower deck lift arms in raised position.

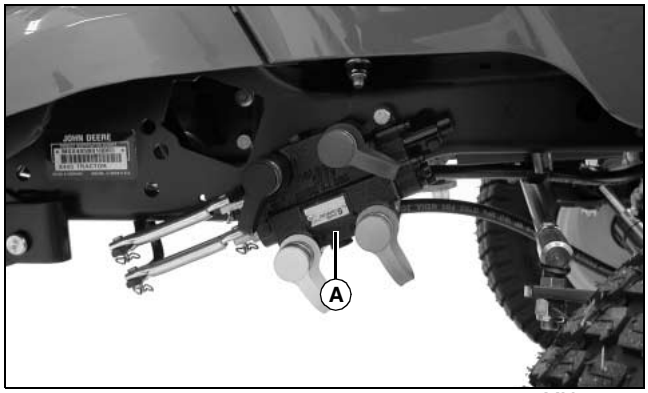
5. Turn rear 3-point hitch depth control rod to desired height.

Connecting Attachment Hydraulic Hoses

CAUTION: Avoid injury! Escaping fluid under high pressure can penetrate the skin and cause serious injury. Avoid the hazard by relieving pressure before connecting 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. In the United States and Canada only, this information may be obtained by calling 1-800-822-8262.



MX13570

The machine dual Selective Control Valve (SCV) (A) has hydraulic outlets with female quick couplers, color coded for easy hookup.

Attachment hydraulic hoses are also color coded. Match color coded hose ends to color coded couplers on the SCV when making connections.

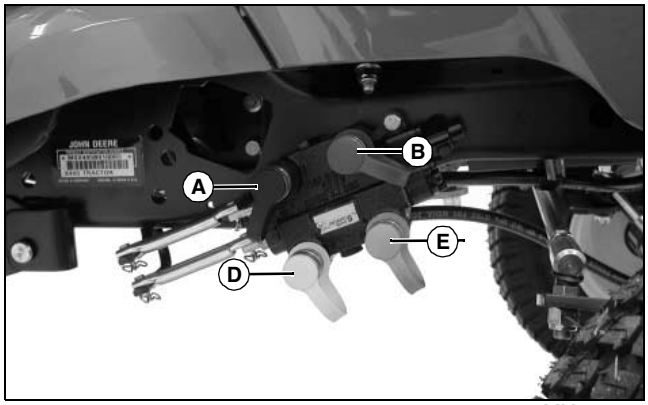
NOTE: Engine must be off to relieve hydraulic pressure before connecting attachment hoses.

With engine off, relieve hydraulic pressure by moving both hydraulic control levers back-and-forth several times before connecting attachment hydraulic hoses.

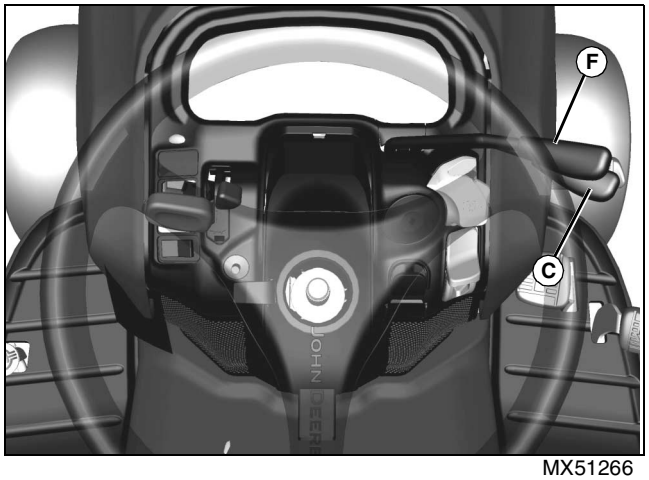
IMPORTANT: Avoid damage! To prevent contamination of hydraulic system, color coded dust caps should be installed in couplers and on hose ends when not being used.

Using Hydraulic Control Levers

NOTE: Hydraulic control levers operate differently depending on attachment. See attachment operator's manual before using hydraulic control levers with an attachment.



MX13570



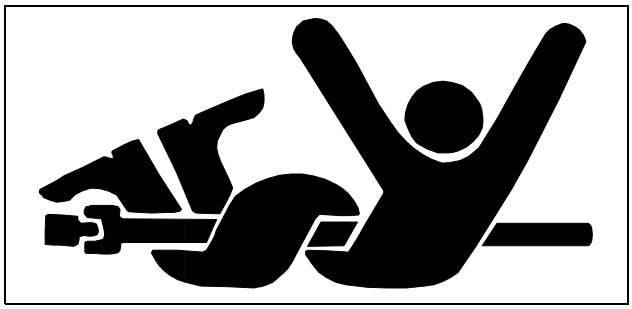
MX51266

When attachment hydraulic hoses are connected to couplers (A) (black) and (B) (green), push lower hydraulic control lever (C) forward to divert fluid to coupler (A) and return through coupler (B). Pull lever backward to divert fluid to coupler (B) and return through coupler (A). Push lever to the full forward or float position to remove pressure in both lines and allow fluid to flow back and forth between lines. Lever should return to neutral position when released.

When attachment hydraulic hoses are connected to couplers (D) (yellow) and (E) (silver), push upper hydraulic control lever (F) forward to divert fluid to coupler (D) and return through coupler (E). Pull lever backward to divert fluid to coupler (E) and return through coupler (D). Lever should return to neutral position when released.

NOTE: When not using lower hydraulic control lever, periodically move lever back and forth to maintain lubrication. Be sure lever is returned to middle (neutral) position and not locked in forward (float) position.

Using the Power-Take-Off (PTO) Safely



CAUTION: Avoid injury! Stay clear of rotating drivelines:

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

Using the PTO (Power-Take-Off)

NOTE: Any operating attachment should stop as the reverse travel pedal or brake pedal is depressed with attachment engaged. Prior to operating the PTO, see Using Reverse Implement Option (RIO) in this section.

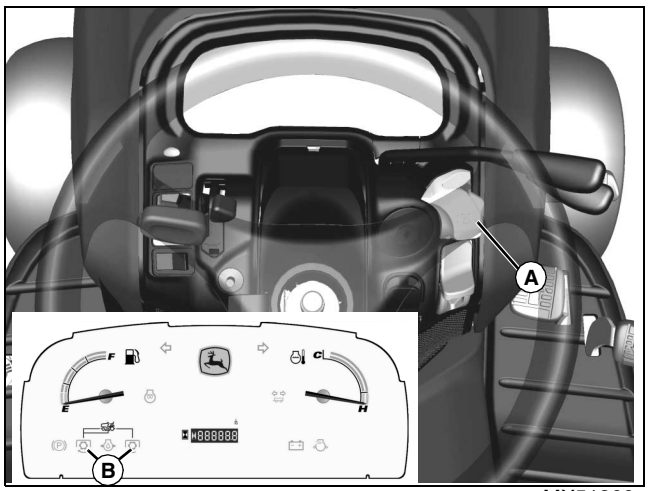
This machine is equipped with a 2000 rpm mid PTO.

Always operate engine at maximum speed when PTO is engaged.

Engaging PTO

1. Reduce travel speed or stop machine.

2. After engine has warmed, move throttle lever up to maximum engine speed.



MX51266

3. Pull PTO/RIO switch (A) up. Instrument panel PTO indicator light(s) (B) will come on when PTO is engaged.

Disengaging PTO

NOTE: If reverse travel pedal or brake pedal is depressed, PTO will disengage.

1. Push PTO/RIO switch down to disengage PTO. Instrument panel PTO indicator light(s) will go out.

Moving Machine by Hand

CAUTION: Avoid injury! When the bypass valve is open, the machine will have unrestricted motion.

• Do not open the bypass valve when the machine is stopped on an incline to prevent it from going downhill out of control.

IMPORTANT: Avoid damage! Transmission damage may occur if the machine is towed or moved incorrectly:

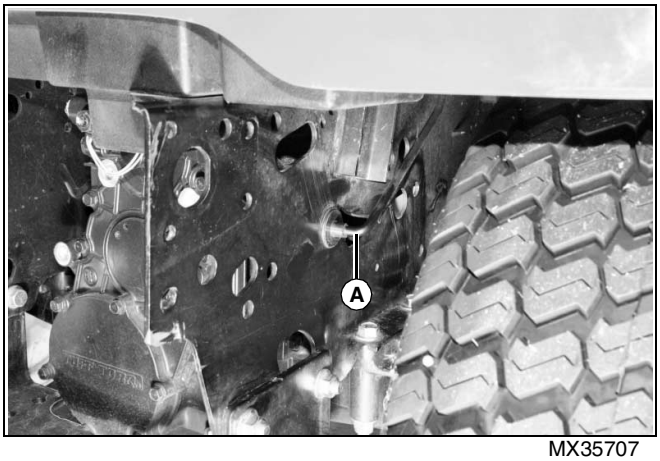
• Move machine by hand only.

• Do not use another vehicle to move machine.

• Do not tow machine.

When you need to move the machine without starting the engine, use the bypass valve lever:

1. Stop engine.



MX35707

2. Pull bypass valve control lever (A) fully up to open the bypass valve.

3. Unlock park brake.

4. Push machine to desired location.

5. Push down bypass lever.

Unplugging Mower, Bagger, or Material Collection System

CAUTION: Avoid injury! Do not attempt to unplug attachment with machine running.

• Rotating blades are dangerous. Shut off the engine and remove the key before getting off the seat to inspect the machine and attachment.

• Thrown objects can cause serious injury. Make sure all machine parts are stopped before raising hopper top or removing chutes.

Checking For Plugging While Driving

If grass builds up in front of mower discharge chute, check for plugged chute or problems with blower assembly (if equipped).

If there is a trail of clippings behind mower or clippings blow to the side, check for plugged chute, full collector bags, or problems with blower assembly.

Removing Debris From Inspection Points:

CAUTION: Avoid injury! Do not use hands or feet to clear plugged mower deck or blower assembly. Stored energy can cause blades to rotate.

1. Park machine safely. Wait for all moving parts to stop before getting off to inspect machine.

2. Open hopper cover. Check chute outlet.

3. Remove chute from mower deck or blower assembly. Check chute inlet.

4. Check under mower deck for debris.

Transporting Machine on Trailer

NOTE: Trailer capacity must exceed combined machine weight and attachment weight (see Specifications section in operator's manuals).

Be sure trailer has all necessary lights and signs required by law.

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

- **Park trailer on a level surface.**
- **Use of a trailer with sides is recommended.**
- **Keep wheels away from drop-offs and edges.**
- **Back slowly and in a straight line.**
- **Close fuel shut-off valve, if your machine is equipped.**

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

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

1. Park trailer on level surface.
2. Raise mower deck, if installed, before driving machine onto trailer.
3. Drive forward onto heavy-duty trailer.
4. Lower mower deck completely.
5. Lock park brake.
6. Machines with fuel shut-off: Turn fuel shut-off to off position.
7. Fasten machine at the axle or frame to trailer with heavy-duty straps, chains, or cables. Both front and rear straps must be directed down and outward from machine.
8. Secure hood to prevent from lifting while driving.

Ballasting Machine Safely

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

Determine amount of ballast required for each operation. Ballast used for one operation may be wrong for another. Ballast for stability, steering control and traction.

Use no more ballast than required, and remove ballast when it is no longer needed.

Ballast should be limited by machine and tire capacities. Each tire has a maximum inflation pressure and a maximum load capacity which must not be exceeded.

Additional front ballast may be required for road travel with rear-mounted attachments.

See your attachment operator's manual for ballasting requirements.

When operating in 4WD without a mower deck installed on machine, it is recommended you install rear wheel weights to increase stability:

• Install minimum of one BM17976 Weight Kit on each rear wheel.

Ballasting Machine

Using Front Weights

IMPORTANT: Avoid damage! Do not exceed maximum front ballast of nine Quick-Tatch weights and two wheel weights.

Two types of front weights are available for your machine, Quick-Tatch weights and wheel weights. Quick-Tatch weights can be mounted on the front bumper, and wheel weights are mounted on the front wheels.

Up to four Quick-Tatch weights can be mounted on the front bumper. Another five weights can be added if you install the optional front weight bracket. Each Quick-Tatch weight is 19kg (42 lb).

One wheel weight can be installed on each front wheel. Each front wheel weight is 14kg (30 lb).

See your John Deere dealer for front weights and kits to best fit your needs.

Using Rear Weights

IMPORTANT: Avoid damage! Do not exceed maximum rear ballast of 385kg (850 lb). Rear ballast includes Quick-Tatch weights, rear wheel weights, weight box, and adding liquid weight to tires.

Two types of rear weights are available for your machine, Quick-Tatch weights and wheel weights. The Quick-Tatch weights can be mounted on an optional rear weight bracket, and wheel weights are mounted on the rear wheels.

Up to six Quick-Tatch weights can be mounted on the rear weight bracket. Each Quick-Tatch weight is 19kg (42 lb). Use of these weights is required when an attachment, such

as a snowthrower or snowblower is used.

Up to three wheel weights can be installed on each rear wheel. Rear wheel weights are available in 23kg (50 lb) and 33kg (72 lb).

See your John Deere dealer for rear weights and kits to best fit your needs.

Follow instructions in this manual for installing rear wheel weights.

Adding Liquid Weight in Tires

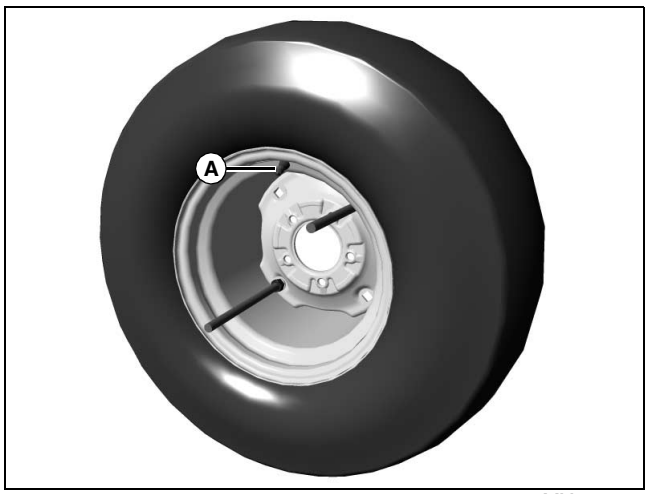
CAUTION: Avoid injury! Installing liquid ballast requires special equipment and training. Injury may occur from exploding tire. Have the job done by your John Deere dealer or a tire service store.

Installing Rear Wheel Weights

NOTE: On Four Wheel Steer (4WS) machines, install only BM17972 weight kit.

Installing Weight Kits With Threaded Rods

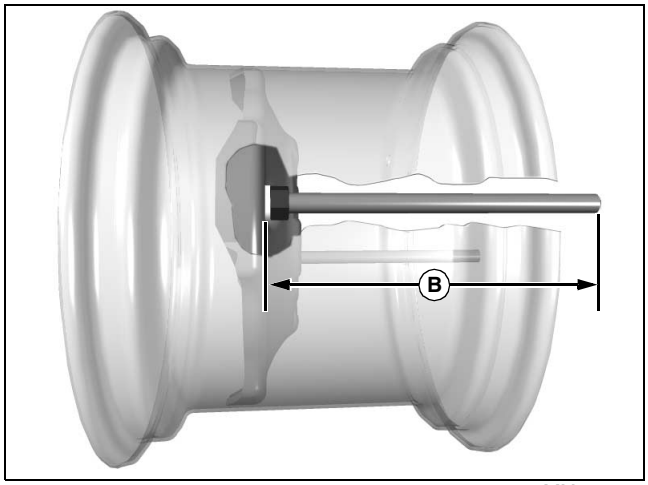
1. Install one nut and lockwasher on each rod approximately two inches from end.



MX13590

2. Note location of tire valve stem (A). Install rods through square holes in rim center as shown.

3. Install lockwasher and nut on rods on back side of rim center.



MX13591

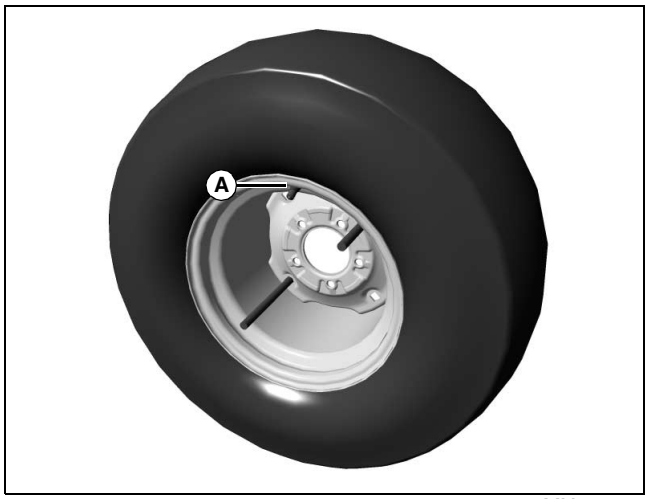
4. Position nuts to extend rods to length (B) shown in chart.

Weight Kit	Weights	Length (B)
BM17972	1	195mm (7.7 in.)
	2	250mm (9.8 in.)
BM17972 with BM17973	2	200mm (7.9 in.)
	3	260mm (10.2 in.)
BM17976	1	210mm (8.3 in.)

5. Install weight(s) as shown for each kit.

6. Install washers and nuts.

Installing Weight Kits With Bolts



MX13596

1. Note location of tire valve stem (A). Install bolts through square holes in rim center as shown.

NOTE: Each weight kit includes one weight and a set of hardware to install one weight.

2. Install weight(s) as described for each kit:

Weight Kit	Weights	Hardware Kit
BM17972 (4WS machines only)	1 (23 kg (50 lb) 2 (23 kg (50 lb)	BM18094 BM18089
BM17972	1 (23 kg (50 lb) 2 (23 kg (50 lb)	BM17977 BM18101
BM17973	1 (33 kg (72 lb)	BM18089
BM17972 and BM17973	(1) BM17973 and (1) BM17972 (1) BM17973 and (2) BM17972	BM17977 BM18101
BM17976 (plastic coated)	1 (23 kg (50 lb)	Included in Weight Kit

NOTE: When installing kits BM17972 and BM17973 together, install the weight in BM17973 first.

3. Install washers and nuts.

Using Tire Chains

IMPORTANT: Avoid damage! Do not use chains with mower deck or tiller.

Tire chains are recommended for use with most front attachments. Remove tire chains before installing mower deck.

See your attachment Operator's Manual for tire chain recommendation. See your authorized dealer for the chains.

Blade Choices

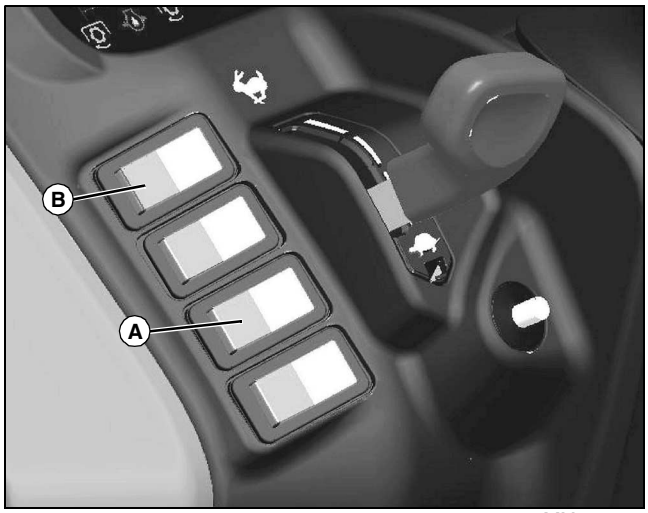
Two types of blades are available for X700 mowers:

• Side discharge blades. These blades are designed for optimal performance when side discharging and are installed on mowers when shipped from the factory.

• Mulching blades. These blades are designed for optimal performance when used with a mulch kit installed.

Operating with Road Homologation Kit

Using Turn Signals



MX52106

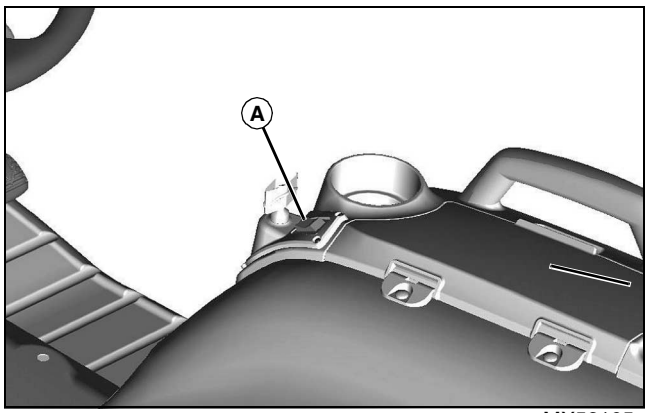
1. Place turn signal switch (B) in left position to operate left turn signal lights.

2. Place turn signal switch (B) in right position to operate right turn signal lights.

Using Horn

1. Press left side of switch (A) to operate horn.

Using Hazard Switch



MX52105

1. Press front of hazard switch (A) to operate hazard lights.

Service Literature

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

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

Parts

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

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

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

Order Service Parts Online

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

Part Numbers

Item	Part Number
Air Cleaner Assembly:	
• Primary Element	M113621
• Secondary Element	M123378
Battery	TY25876
Fuel Filter	M801101
Fuse - 10 amp	57M7689
Fuse - 15 amp	57M7690
Fuse - 20 amp	57M6791
Fuse - 40 amp	57M77237
Engine Oil Filter	M806418
Transaxle Oil Filter	AM131054
Headlight	AM118013
Taillight	M148478

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

Servicing Your Machine

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

• Engine components may become dirty or plugged when operating in extreme heat, dust or other severe conditions.

• Engine oil can degrade if machine is operated constantly at slow or low engine speeds or for frequent short periods of time.

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

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

After First 50 Hours

• Change engine oil and filter.

• Check rear wheel bolt torque.

• Change transaxle oil and filter.

• Check and tighten clamps for cooling and air intake system.

• Check and tighten hardware.

Every 200 Hours or Annually

• Change engine oil and filter.

• Check fan belt tension.

• Check and clean battery.

• Lubricate steering spindles, axle pivot, steering cylinder, and engine driveshaft.

• Check the hydraulic full time 4-wheel drive (HFWD) oil level.

• Clean radiator and hydraulic oil cooler screens and cooling fins.

• Check tire pressure.

• Check and tighten clamps for cooling and air intake system.

• Change fuel filter.

• Monitor air restriction indicator for service of air cleaner.

Every 200 Hours

• Change transaxle oil and filter.

Every 1000 Hours or Every 2 Years

• Change engine coolant.

• Check/adjust valve lash.

• Test or replace radiator cap. (See your John Deere Dealer for this service.)

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.

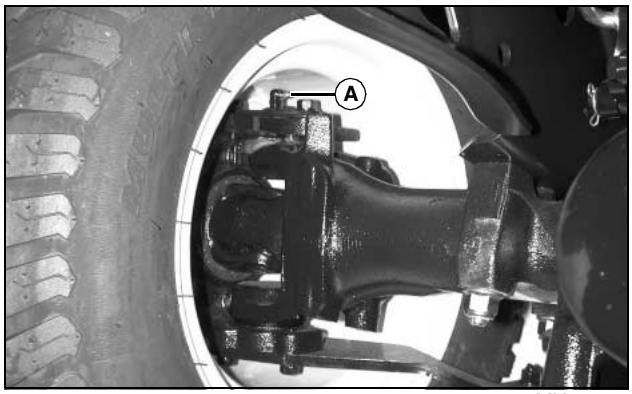
The following greases are preferred:

- 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.

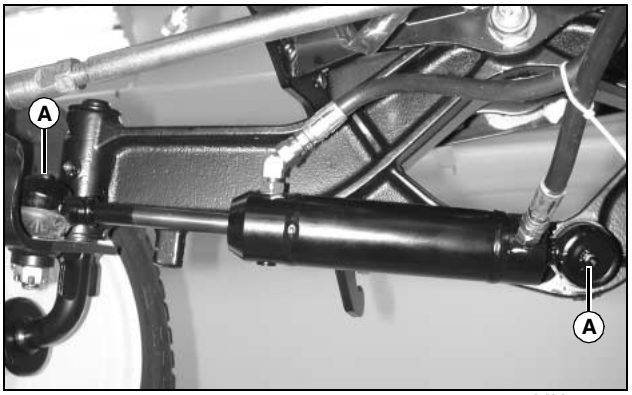
Lubricating Rear Steering Pivot (4WS Models)



MX15405

Lubricate rear wheel pivot (A) on both ends of rear axle.

Lubricating Steering Cylinder Ball Joints (2WD Models)

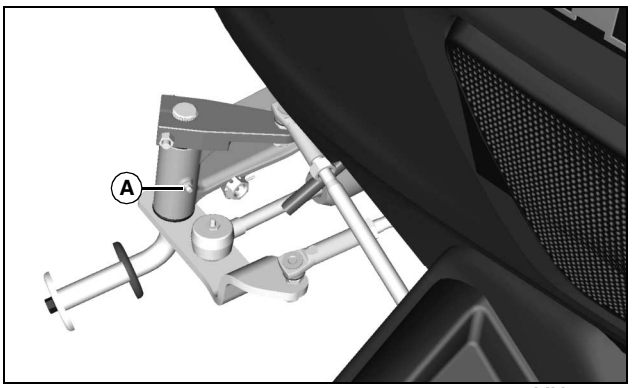


MX15409

Picture Note: 4WS model shown.

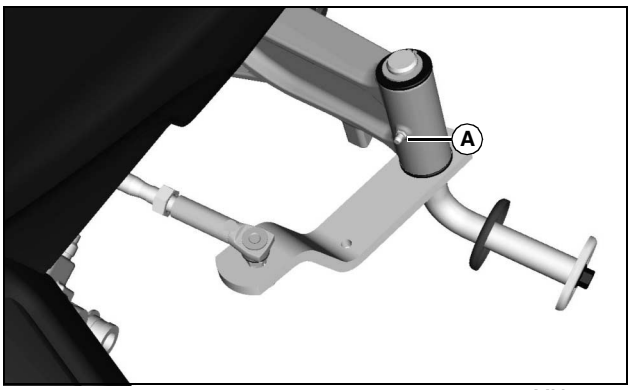
Lubricate ball joints (A) at each end of the steering cylinder.

Lubricating Front Axle (2WD Models)



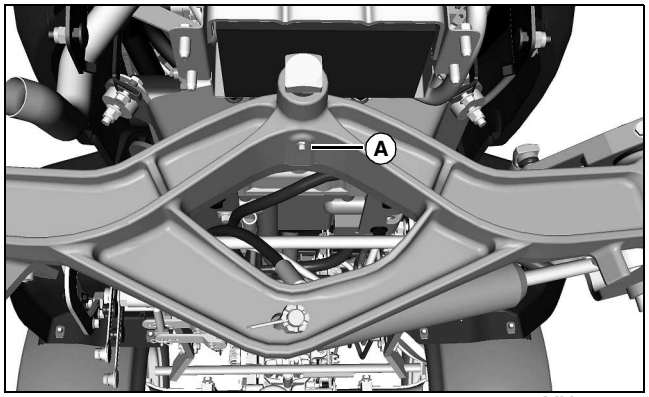
MX51542

A - Left King Pin



MX51543

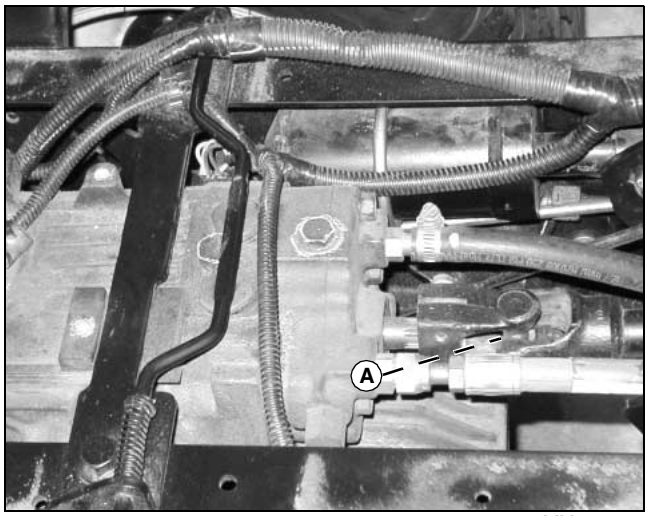
A - Right King Pin



MX51544

A - Axle Center Pivot

Lubricate Drive Shaft (2WD Models)

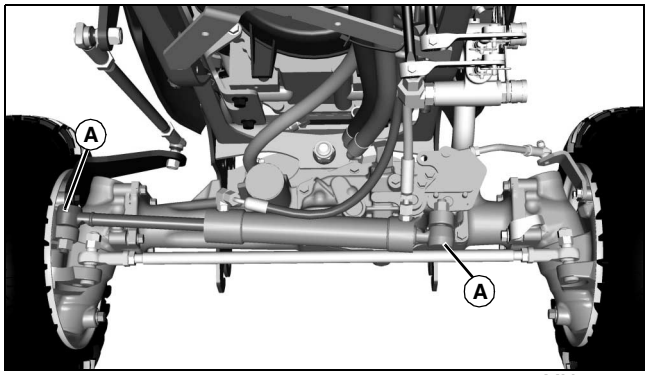


MX35901

Picture Note: Showing view under fuel tank.

• Lubricate grease fitting (A) on the engine drive shaft universal joint.

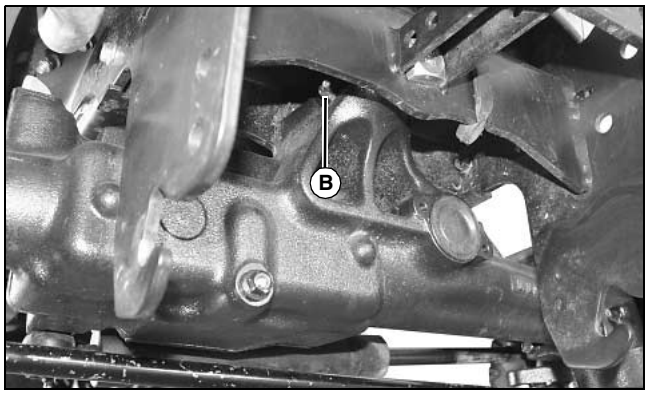
Lubricating Machine Grease Fittings (4WD Models)



MX51737

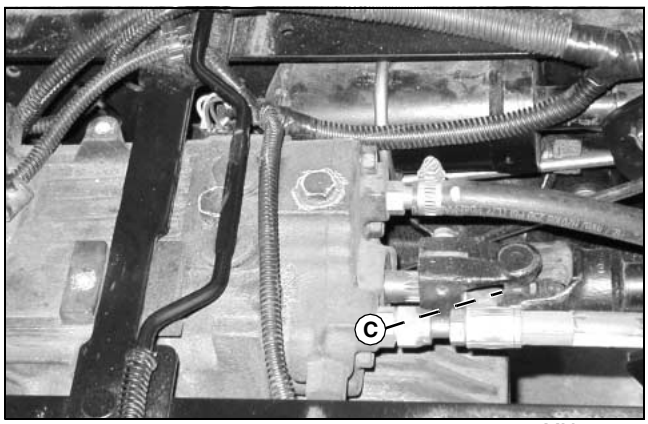
Picture Note: View from rear of machine

• Lubricate grease fittings at both steering cylinder ends (A).



MX39549

• Lubricate grease fittings at the front axle center pivot (B).



MX35901

Picture Note: Showing view under fuel tank.

• Lubricate grease fitting (C) on the engine drive shaft universal joint.

Engine Emissions Information

Engine Warranty Maintenance Statement

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

Emission Control System Certification Label

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

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

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

Avoid Fumes

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

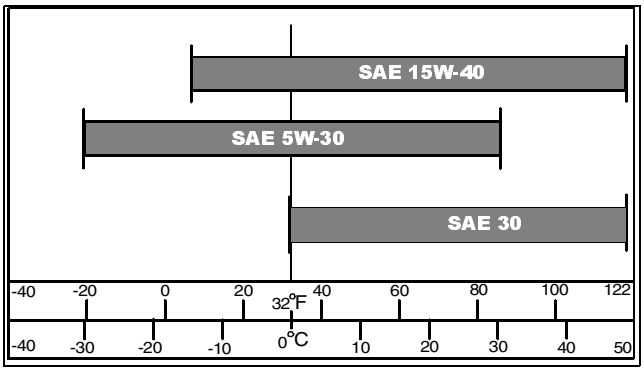
Do not run an engine in an enclosed area, such as a garage, even with doors or windows opened.

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

Engine Oil - Diesel

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

The following John Deere oils are preferred:



- PLUS-50™.
- TORQ-GARD SUPREME™.

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

- API Service Classification CJ or higher.

Checking Engine Oil Level

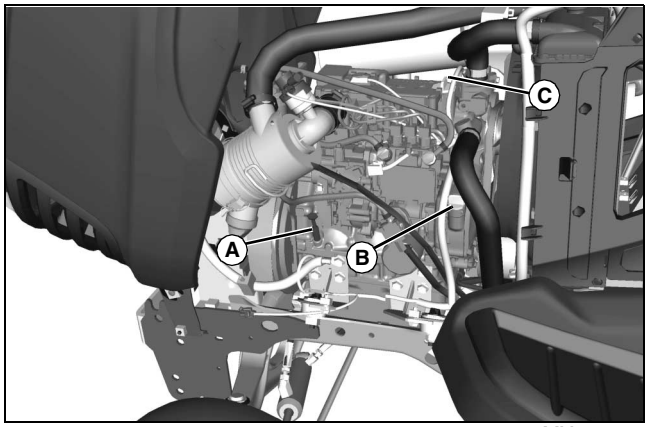
IMPORTANT: Avoid damage! Failure to check the oil level regularly could lead to serious engine problems if oil level is out of the operating range:

- **Check oil level before operating.**
- **Check oil level when the engine is cold and not running.**
- **Keep oil level between the dipstick 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. Park machine safely. (See Parking Safely in the SAFETY Section.)
2. Let engine cool.
3. Raise hood.



MX45516

4. Remove dipstick (A). Wipe dipstick with a clean rag.

5. Install dipstick. Be sure dipstick is all the way down.

6. Remove dipstick.

7. Check oil level on dipstick. Oil level should be between crosshatch marks on dipstick.

IMPORTANT: Avoid damage! If oil level is at or below crosshatch marks, do not run engine.

8. If oil level is low, remove oil filler cap (B) or (C).

9. Add oil to bring oil level no higher than top of crosshatch mark on dipstick.

10. Install dipstick.

11. Install and tighten oil filler cap.

12. Lower hood.

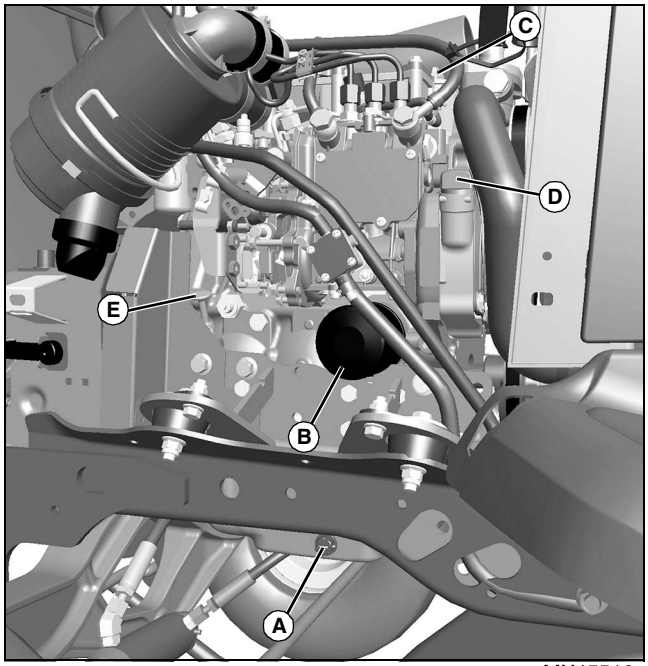
Changing Engine Oil and Filter

IMPORTANT: Avoid damage! Operating in extreme conditions, such as heat or dust, may require more frequent service intervals.

1. Run engine a few minutes to warm oil.

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

3. Raise hood.



MX45516

4. Put drain pan under drain plug (A).

5. Open drain plug.

6. Allow oil to drain completely.

7. Close drain plug.

8. Clean dirt from around oil filter (B).

9. Position drain pan under filter.

10. Turn oil filter counterclockwise with a filter wrench to remove.

11. Put a light coat of clean engine oil on gasket of new filter.

12. Install replacement oil filter by turning oil filter clockwise until gasket contacts filter base. Tighten filter an additional one-half turn.

13. Remove oil filler cap (C) or (D). Add approximately 3.2 L (3.4 qt) of oil.

14. Install and tighten filler cap.

15. Start and run engine at idle to check for leaks.

16. Stop engine. Fix any leaks before operating.

17. Remove dipstick (E) and check engine oil level. Add or remove oil if necessary.

Cleaning Air Intake Screens

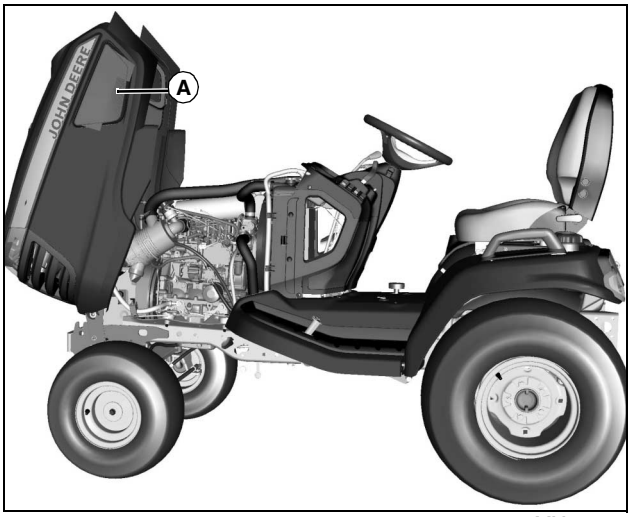
CAUTION: Avoid injury! Compressed air can cause debris to fly a long distance.

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

IMPORTANT: Avoid damage! An obstructed air intake screen can cause engine damage due to overheating. Keep air intake screen and other external surfaces of the engine, including cooling fins, clean at all times to allow adequate air intake.

Turn engine off before removing intake screens to avoid drawing debris into the radiator.

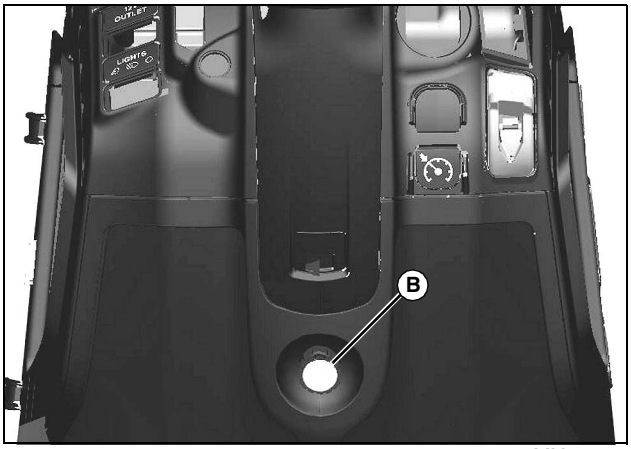
1. Park machine safely. (See Parking Safely in the SAFETY Section.)



MX51558

2. Raise hood.

3. Clean air intake screens (A) on side of hood using a brush, cloth or water.



MX51738

4. Remove pedestal screen by rotating knob (B) counterclockwise and pulling screen off. Clean off pedestal screen by removing pedestal screen and using brush, cloth or water and also remove any build up of grass around radiator compartment.

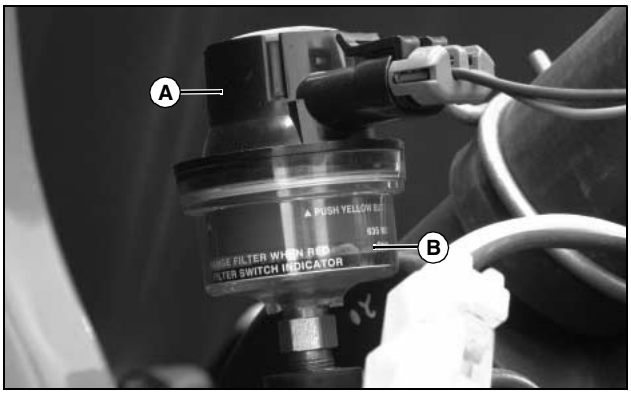
5. Lower hood.

Checking Air Restriction Indicator

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

2. Raise hood.

NOTE: Indicator will not function correctly if plastic indicator housing is damaged.



MX13575

3. Locate and check air restriction indicator (A).

   - If window (B) is clear, no air cleaner service is required.
   - If window (B) shows fully red, air cleaner requires immediate service.

4. Service air cleaner elements if needed.

5. Push yellow reset button on top of air restriction indicator.

6. Lower hood.

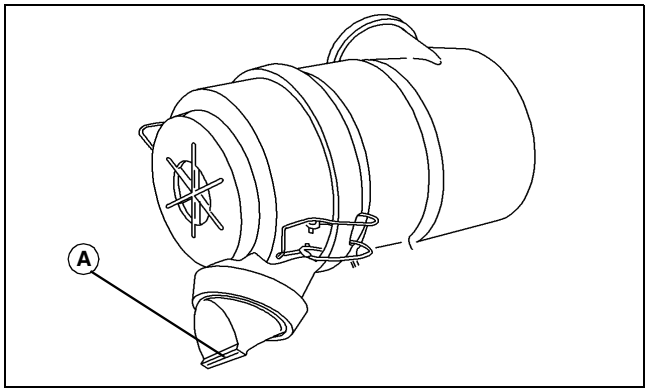
Cleaning Dust Unloading Valve

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

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

2. Allow engine to cool.

3. Access the engine compartment.



MX22502

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

Servicing Air Cleaner Elements

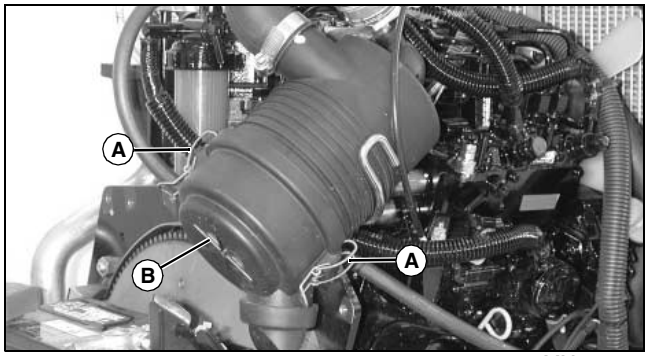
IMPORTANT: Avoid damage! Dirt and debris can enter the engine when removing the air cleaner elements. Service elements only when red signal is in view in window of air restriction indicator with engine off.

Servicing Primary Air Cleaner Element:

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

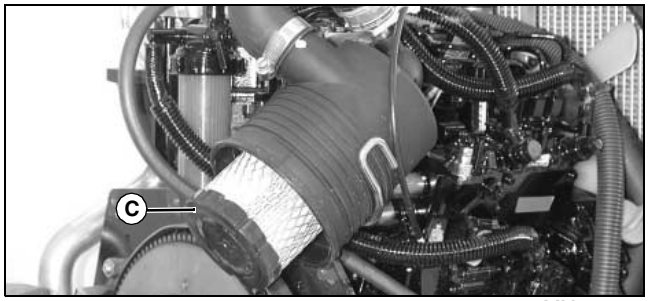
2. Allow engine to cool.

3. Remove hood.



MX21819

4. Release latches (A) and remove air cleaner canister cover (B).



MX21821

5. Remove and discard primary element (C). Replace with new primary element.

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

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

8. Hook latches onto cover.

MX13575

9. Push reset button (D) on air restriction indicator.

10. Start engine. Allow engine to run approximately one minute at maximum throttle speed.

11. Stop engine.

12. Check air restriction indicator.

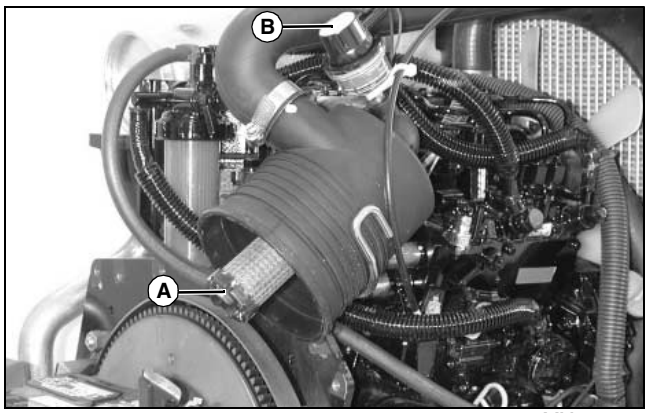
- If window (E) is clear, no air cleaner service is

required.

- If window (E) shows fully red, secondary air cleaner element requires immediate service.

Servicing Secondary Air Cleaner Element:

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

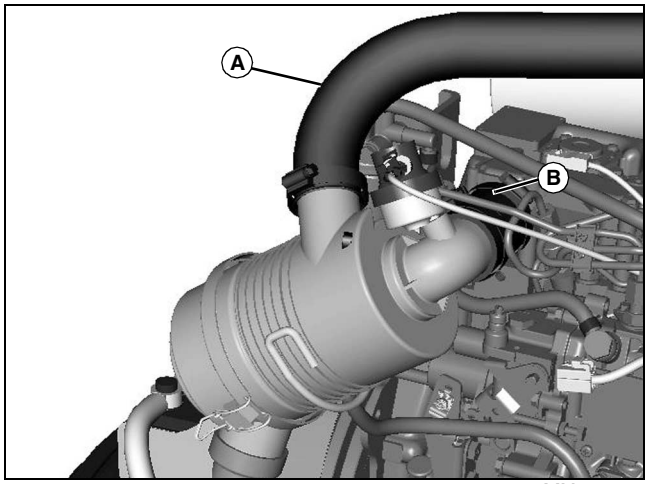


MX21820

3. Remove and discard secondary air cleaner element (A). Replace with a new secondary air cleaner element.
4. Install primary air cleaner element.
5. Replace air cleaner canister cover.
6. Push reset button (B) on air restriction indicator.
7. Install hood.

Checking Air Cleaner Intake Hoses and Clamps

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



MX51557

4. Check condition of upper (A) and lower (B) air intake hoses. Replace if needed.
5. Check to be sure hose clamps are tight and secure.
6. Install hood.

Recommended Engine Coolant

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

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

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

The following coolants are preferred:

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

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

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

Additional recommended coolants:

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

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

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

• ASTM D3306 prediluted (50%) coolant.

• ASTM D3306 coolant concentrate in a 40% to 60% mixture of concentrate with water.

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

Water Quality

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

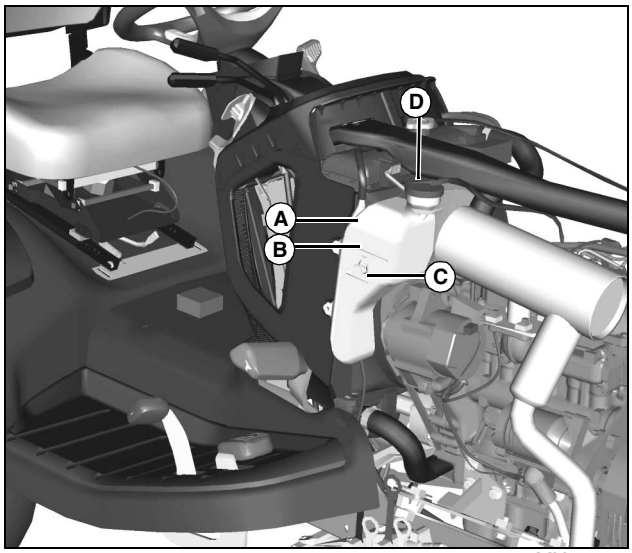
Servicing Cooling System

Checking Coolant Level

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

2. Allow engine to cool.

3. Raise hood.



MX51744

4. Check recovery tank (A) coolant level:

   • Coolant should be present in bottle between MIN (C) and MAX line (B).

5. Remove recovery tank cap (D) if necessary to add coolant.

6. Add pre-diluted coolant or specified ratio of antifreeze and water.

7. Install and tighten recovery tank cap (D).

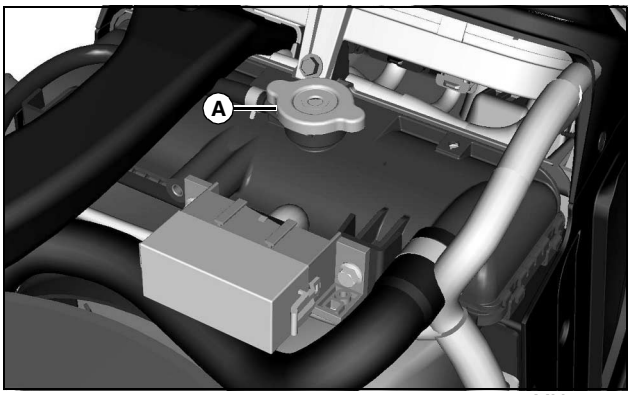
8. Lower hood.

Draining Cooling System

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

2. Allow engine to cool.

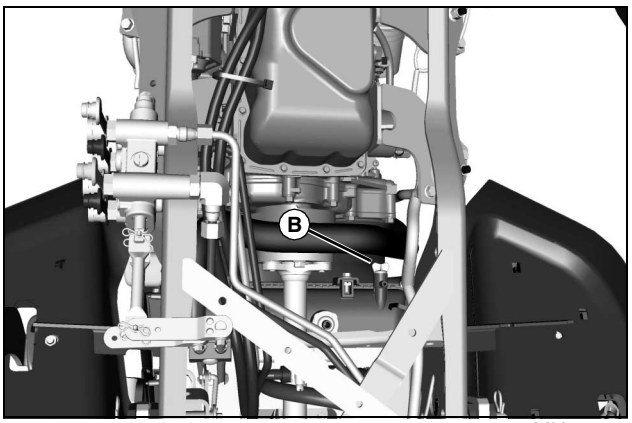
3. Raise hood.



MX51539

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

5. Remove radiator cap.



MX51556

6. Put drain pan under radiator petcock (B) located underneath radiator.

7. Open radiator petcock. Drain coolant into pan.

8. Close radiator petcock.

9. Flush or fill cooling system and install radiator cap.

Flushing Cooling System

NOTE: Cooling system capacity is 2.8 L (3.0 qt).

1. Drain cooling system.

2. 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 can.

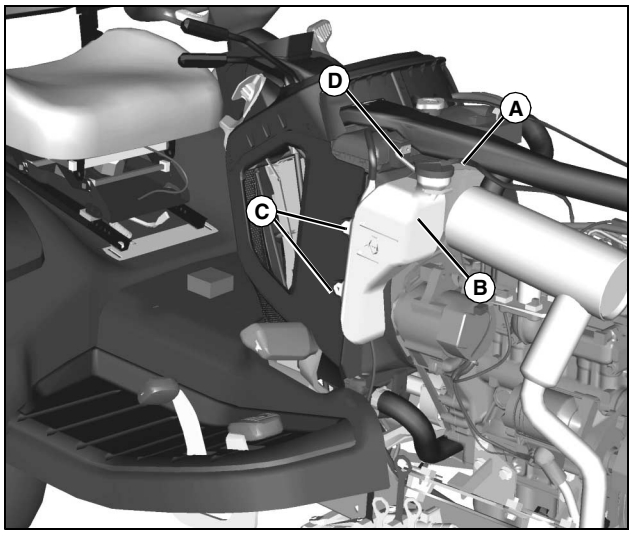
3. Install and tighten radiator cap.

4. Run engine until needle on coolant temperature gauge reaches the green range.

5. Stop engine.

6. Drain cooling system immediately before rust and dirt settle.

7. Remove recovery tank:



MX51744

- Pull overflow hose (A) from pickup tube on top of tank (B) and remove tank from frame (C) and bracket (D).

8. Remove tank cap and clean tank.

9. Install tank.

10. Install overflow hose to pickup tube on top of tank. Be sure hose is not kinked.

Filling Cooling System

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

• Do not operate engine with plain water.

• Do not exceed a 50% mixture of coolant and water.

• Aluminum engine blocks and radiators require approved ethylene-glycol based antifreeze.

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

Follow the directions on the container for correct mixture ratio.

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

2. Allow radiator to cool.

3. Fill cooling system. Cooling system capacity is 2.8 L (3.0 qt).

- Coolant should be level with lower ridge of radiator neck.

4. Install and tighten radiator cap.

5. Run engine until needle on coolant temperature gauge reaches the green range.

6. Stop engine.

7. Check recovery tank coolant level:

- Coolant should be present in bottle between MIN and MAX line.

8. Remove cap from recovery tank to add coolant if necessary.

9. Lower hood.

Cleaning Radiator Screen and Fins

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

• Clear work area of bystanders.

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

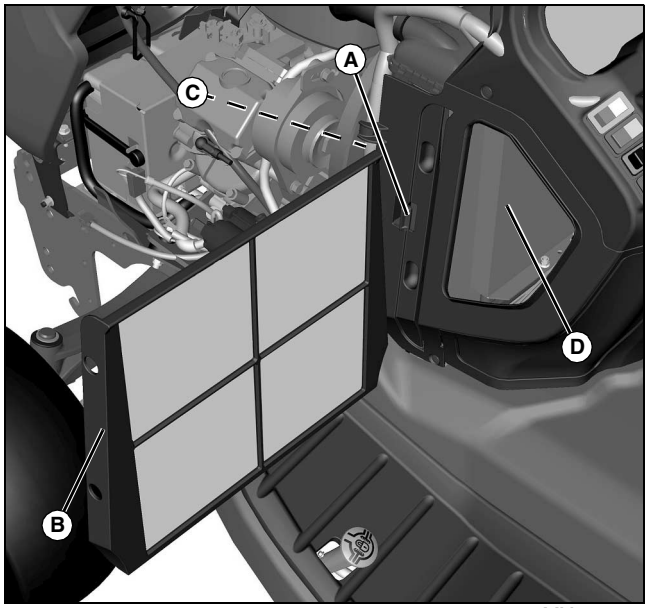
• Reduce compressed air pressure to 210 kPa (30 psi).

IMPORTANT: Avoid damage! An obstructed air intake screen can cause engine damage due to overheating. Keep air intake screen and other external surfaces of the engine, including cooling fins, clean at all times to allow adequate air intake.

Turn engine off before removing intake screens to avoid drawing debris into the radiator.

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

2. Raise hood.



MX51497

3. Push forward on tab (A), and remove screen (B) located on left side of machine.

4. Remove radiator screen and clean with compressed air, vacuum or brush. Cleaning with water is not recommended.

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

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

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

5. Check for dirt and insects lodged in radiator cooling fins (C). Clean with compressed air.

6. Clean cooling fins on both sides of oil cooler (D).

7. Install screen (B).

8. Lower hood.

Checking Radiator Hoses and Clamps

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

2. Raise hood.

3. Check radiator hoses for damage or cracking. Replace if needed.

4. Tighten hose clamps as needed.

5. Lower hood.

Servicing Alternator Belt

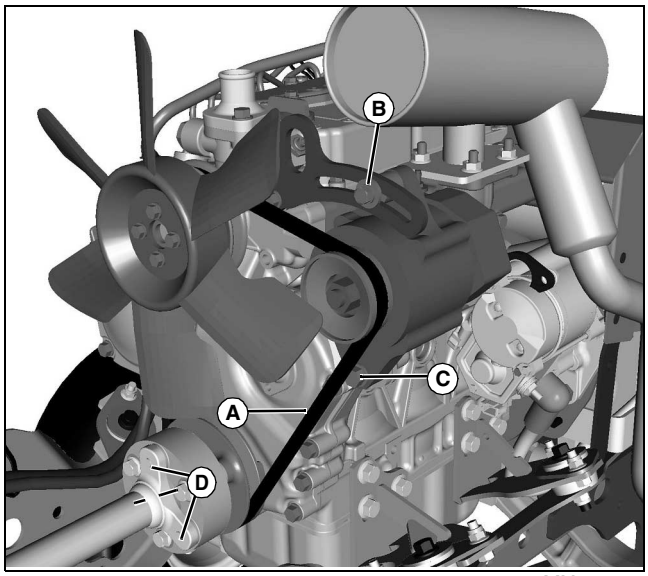
CAUTION: Avoid injury! Rotating parts can catch fingers, loose clothing, or long hair. Wait for engine and all moving parts to stop before leaving operator's station to adjust or service machine.

Checking Belt Tension

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

2. Allow engine to cool.

3. Raise hood.



MX51553

4. Apply moderate thumb pressure to belt (A) halfway between pulleys. Belt should deflect inward approximately 13mm (1/2 in.).

5. Adjust belt tension if deflection is more or less than specified.

Adjusting Belt Tension

1. Loosen adjusting bolt (B).

2. Loosen alternator bolt (C).

3. Push alternator up to loosen belt, and down to tighten belt.

4. Tighten bolts.

5. Check belt tension.

6. Lower hood.

Replacing Belt

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

2. Allow engine to cool.

3. Raise hood.

4. Loosen adjusting bolt (B).

5. Loosen alternator bolt (C).

6. Push alternator up to loosen belt.

NOTE: Rotate driveshaft for access to bolts, if necessary.

7. Remove three capscrews (D) to disconnect drive shaft from engine sheave.

8. Remove belt from engine sheave, and alternator and fan pulleys. Pull belt over fan.

9. Install new belt loosely around sheave and pulleys.

10. Install driveshaft. Tighten three capscrews to 40 N•m (30 lb-ft).

11. Check belt tension. Adjust as needed.

12. Lower hood.

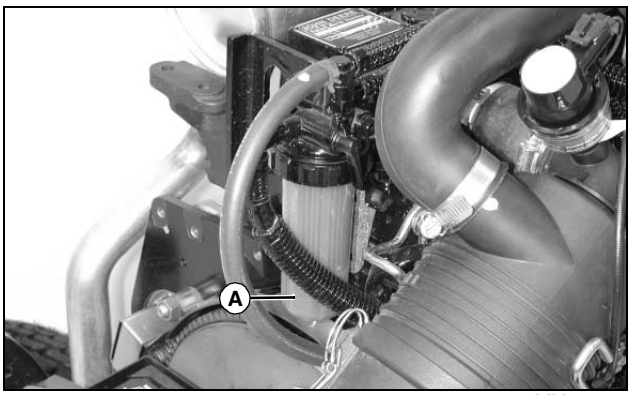
Checking Fuel Filter Sediment Bowl

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

2. Allow engine to cool.

3. Raise hood.

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



MX20909

4. Check for water and deposits in bottom of sediment bowl (A).

5. Clean sediment bowl and replace fuel filter if needed.

6. Lower hood.

Cleaning Fuel Filter Sediment Bowl and Replacing Filter

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

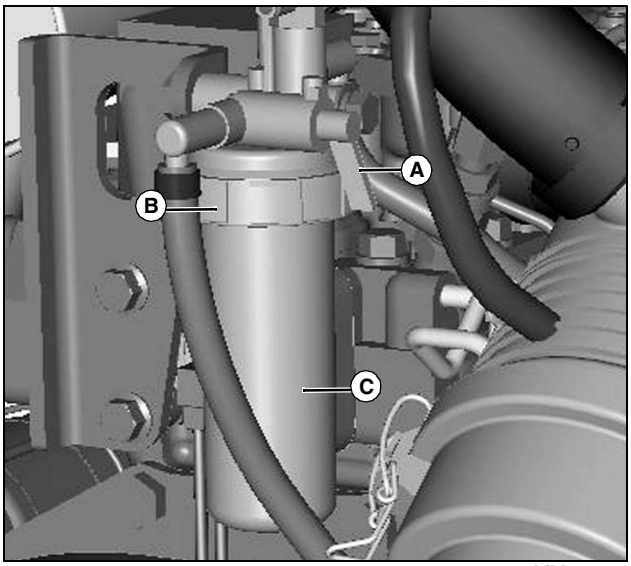
- **Do not smoke while handling fuel.**
- **Keep fuel away from flames or sparks.**
- **Shut off engine before servicing.**
- **Cool engine before servicing.**
- **Work in a well-ventilated area.**
- **Clean up spilled fuel immediately.**

NOTE: Change filter when fuel is low.

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

2. Allow engine to cool.

3. Raise hood.



MX51550

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

4. Close fuel shut-off valve (A).

5. Put drain pan under fuel filter sediment bowl to catch fuel spillage.

6. Turn locking collar (B) counterclockwise to remove bowl (C).

7. Remove and discard fuel filter.

8. Remove and retain plastic ring and spring from sediment bowl.

9. Clean bowl, plastic ring and spring.

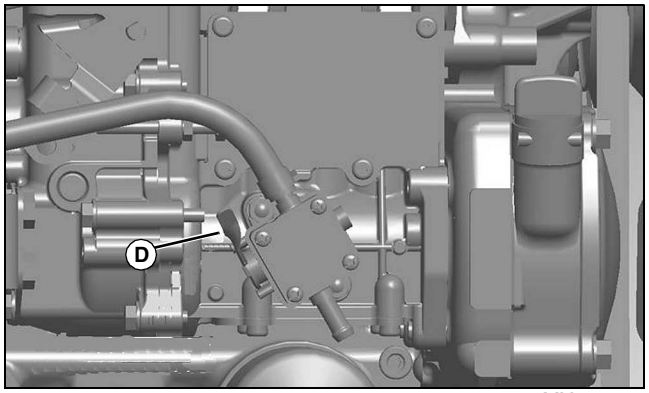
10. Install plastic ring and spring in original position in sediment bowl.

11. Install new filter on filter head.

12. Position sediment bowl and locking collar. Tighten locking collar to filter head.

13. Open fuel shut-off valve.

IMPORTANT: Avoid damage! Fuel system is self bleeding. Do Not use starter motor to air bleed fuel system.



MX51747

14. Manually prime fuel system with lever (D) on mechanical pump.

15. Lower hood.

16. Start machine and check for leaks.

Adjusting Fuel Injection Pump

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

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

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

Transmission Oil

NOTE: Machine is filled with John Deere Low Viscosity HY-GARD® (J20D) transmission oil at the factory. DO NOT mix oils.

These machines are equipped with a internal wet disc brake transmission. Use only Low Viscosity HY-GARD (J20D) transmission oil. DO NOT use type “F” automatic transmission fluid.

IMPORTANT: Avoid damage! Use John Deere Low Viscosity HY-GARD (J20D) transmission oil to reduce transmission noise and to increase response time for the hydraulics and power steering.

John Deere Low Viscosity HY-GARD (J20D) transmission oil is specially formulated to provide maximum protection against mechanical wear, corrosion, and foaming.

Checking Transaxle Oil Level (All Models)

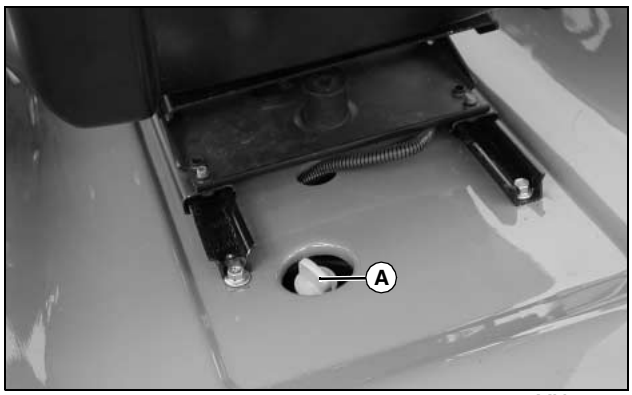
IMPORTANT: Avoid damage! Check oil level when transaxle is cold.

NOTE: On models with Full Time 4-Wheel Drive (HFWD) front axle, make sure that machine is parked on level ground for accurate reading. Hydraulic fluid should be checked and added (if necessary) at the transaxle dipstick like other models, but fluid is shared between the HFWD axle and transaxle.

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

2. Slide seat fully forward.

IMPORTANT: Avoid damage! Contamination of oil could cause transmission damage or failure. Clean area around dipstick before removing.



MX13616

3. Remove dipstick (A) and wipe it with a clean rag.

4. Install dipstick until it rests on top of fill tube. Do not tighten dipstick.

IMPORTANT: Avoid damage! Do not overfill. Too much oil can cause oil leaks.

5. Remove dipstick.

6. Check oil level on dipstick. Oil level should be between crosshatch marks on dipstick.

7. If oil is low, add John Deere Low Viscosity HY-GARD (J20D) transmission oil through dipstick fill opening to proper level.

8. Install and tighten dipstick.

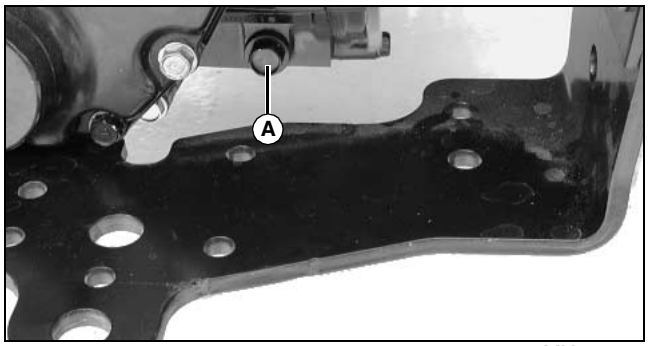
9. Start and run engine a few minutes.

10. Stop engine and check oil level. Add oil as needed.

11. Return seat to operating position.

Changing Transaxle Oil and Filter (Except Full Time 4-Wheel Drive (HFWD) System)

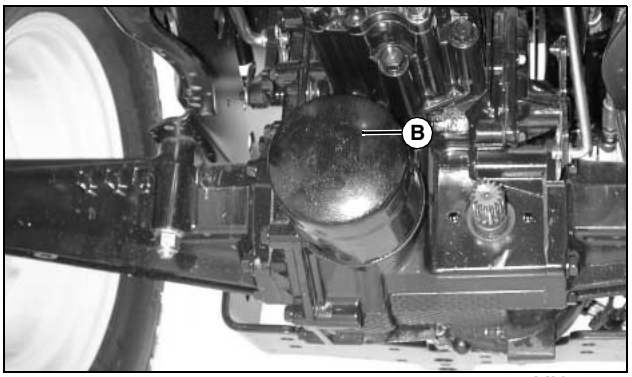
1. Park machine safely. (See Parking Safely in the SAFETY Section.)



MX13617

2. Place drain pan under drain plug (A). Remove drain plug and drain oil.

3. Install and tighten drain plug.



MX13618

4. Put drain pan under transaxle filter (B).

5. Turn filter counterclockwise with a filter wrench to remove it.

6. Put a film of clean transmission oil on gasket of new filter.

7. Install filter. Turn filter clockwise until gasket contacts the mounting surface. Tighten 2/3 to 1 turn more.

8. Slide seat fully forward.

IMPORTANT: Avoid damage! Contamination of oil could cause transmission damage or failure. Clean area around dipstick before removing.

9. Remove dipstick. Add John Deere Low Viscosity HY-GARD (J20D) transmission oil through dipstick fill opening:

- 6.6L (7.0 qt.)

10. Install and tighten dipstick.

11. Start engine and check for oil leaks around filter base and drain plug.

12. Return seat to operating position, and drive machine forward and backward a few times.

13. Stop engine. Wait a minimum of three minutes for transaxle to get cold.

14. Check oil level. Add oil as needed.

Changing HFWD System Hydraulic Oil and Filter (Transaxle and HFWD Front Axle)

NOTE: On HFWD equipped models, hydraulic fluid is shared between the transaxle and HFWD front axle. Hydraulic fluid should always be changed in both axles when filter is replaced.

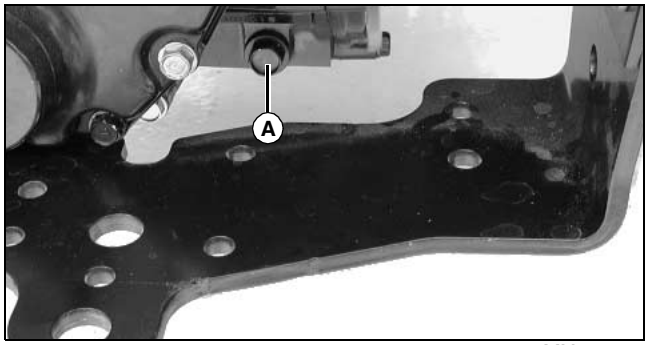
1. Park machine safely. (See Parking Safely in the SAFETY Section.)

CAUTION: Avoid injury! Remove wheels safely.

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

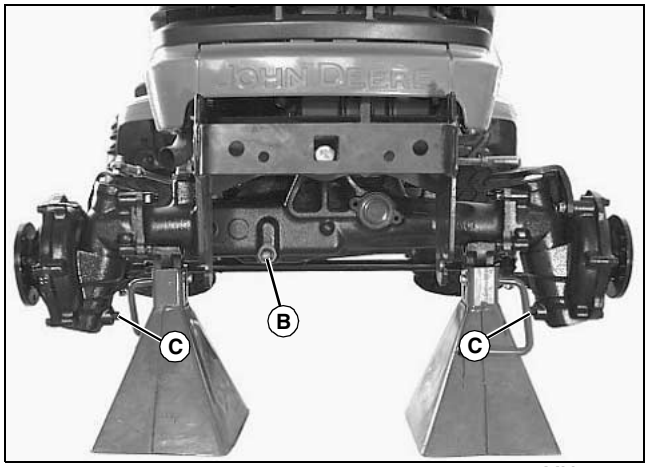
2. Remove front wheels and tires.

3. Place drain pans under the transaxle drain plug, the center front axle drain plug, and the drain plug at the bottom of each front axle drive unit (left and right). The system should be drained completely, make sure that containers are of adequate size.



MX13617

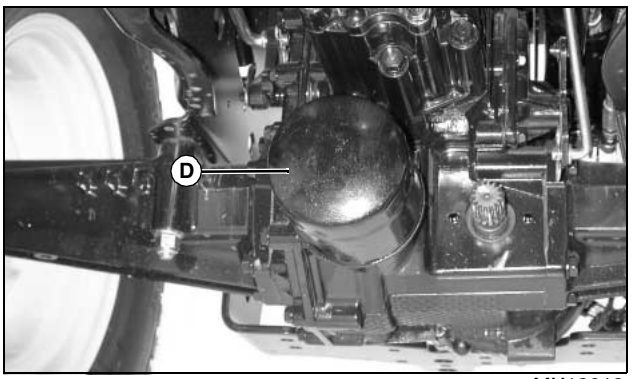
4. Remove transaxle drain plug (A) and drain oil.



MX39694

5. Remove center front axle drain plug (B), and drive unit drain plugs (C) and drain oil.

6. Install and tighten all drain plugs when fluid has completely drained.



MX13618

7. Put drain pan under transaxle filter (D).

8. Turn filter counterclockwise with a filter wrench to remove it.

9. Put a film of clean transmission oil on gasket of new filter.

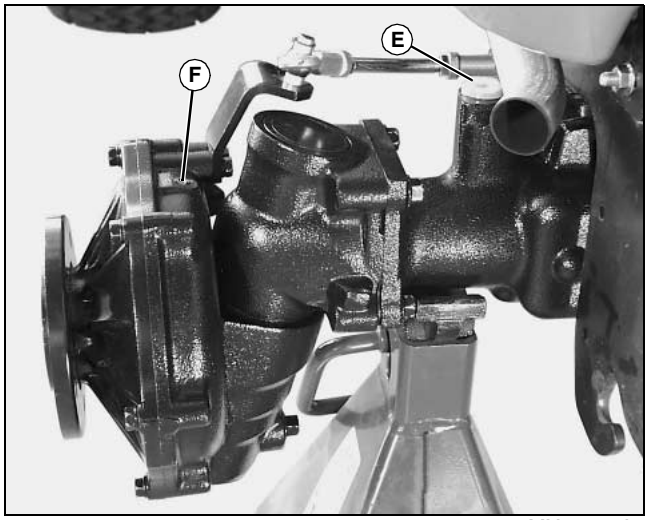
10. Install filter. Turn filter clockwise until gasket contacts the mounting surface. Tighten 2/3 to 1 turn more.

11. Slide seat fully forward.

12. Tilt hood forward.

IMPORTANT: Avoid damage! Contamination of oil could cause transmission damage or failure. Clean area around vent plugs and filler plug before removing.

NOTE: Follow the correct sequence when filling the HFWD system with hydraulic fluid. Fill the front axle first, fill the transaxle last.



MX39695A

13. Remove the filler plug (E) at the right side of the axle, and the vent plugs (F) at the top of each drive unit.

14. Slowly fill the front axle until the hydraulic oil level reaches the vent plug holes at each side. The axle should accept approx. 5.0L (5.3 qt) of hydraulic fluid.

15. Install the vent plugs and filler plug.

IMPORTANT: Avoid damage! Contamination of oil could cause transmission damage or failure. Clean area around dipstick before removing.

MX13616

16. Remove transaxle dipstick (G). Add John Deere Low Viscosity HY-GARD (J20D) transmission oil through dipstick fill opening:

- Approx. 6.8L (7.2 qt) or until fluid is at full level on dipstick.

17. Install and tighten dipstick.

18. Start engine and check for oil leaks around filter base and drain plug.

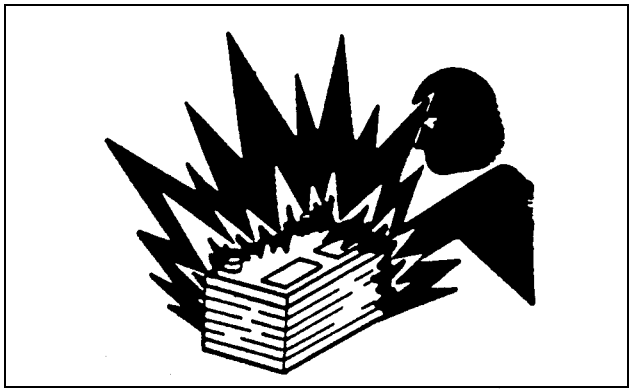
19. Return seat to operating position, apply brake, and cycle transmission forward and reverse three times to ensure proper circulation.

20. Stop engine. Wait a minimum of three minutes for transaxle to get cold.

21. Check oil level. Add oil as needed.

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

Service the Battery Safely



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

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

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

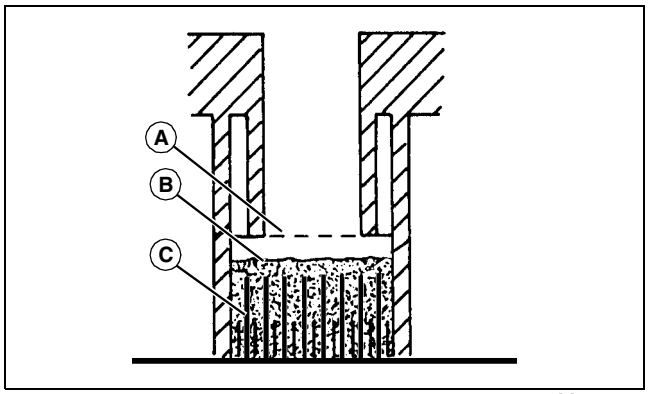
- **Do not smoke near battery.**
- **Wear eye protection and gloves.**
- **Do not allow direct metal contact across battery posts.**
- **Remove negative cable first when disconnecting.**
- **Install negative cable last when connecting.**

Checking Battery Electrolyte Level

NOTE: Add only distilled water to replace battery electrolyte.

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

2. Remove battery cell caps. Make sure cap vents are not plugged.



M39772

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

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

4. Add only distilled water if necessary.

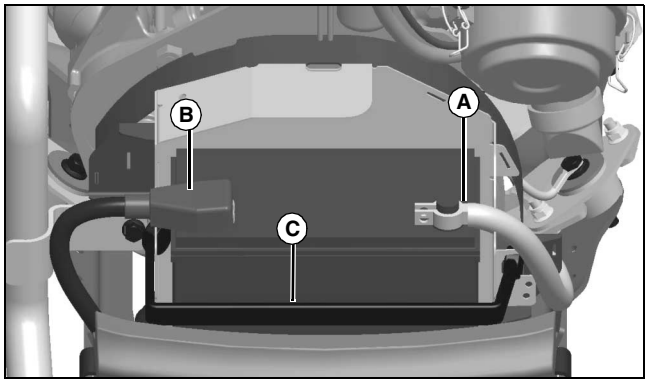
5. Install battery cell caps.

Removing and Installing the Battery

Removing:

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

2. Remove hood.



MX52075

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:

1. Place battery on battery tray.

2. Connect positive (+) cable to positive (+) battery terminal first, then negative (-) cable to negative (-) battery terminal.

3. Apply spray lubricant to terminals to prevent corrosion.

4. Slide red cover over positive battery cable.

5. Install black rubber strap.

Cleaning Battery and Terminals

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

2. Disconnect and remove battery.

3. Wash battery with solution of four tablespoons of baking soda to one gallon of water. Be careful not to get the soda solution into the cells.

4. Rinse the battery with plain water and dry.

5. Clean terminals and battery cable ends with wire brush until bright.

6. Install battery.

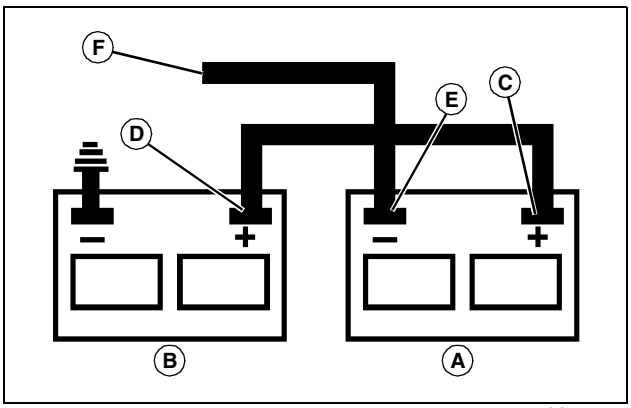
7. Attach cables to battery terminals, beginning with the positive cable, using washers and nuts.

8. Apply spray lubricant to terminal to prevent corrosion.

Using Booster Battery

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

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



M71044

A - Booster Battery
B - Disabled Vehicle Battery

1. Connect positive (+) booster cable to booster battery (A) positive (+) post (C).

2. Connect the other end of positive (+) booster cable to the disabled vehicle battery (B) positive (+) post (D).

3. Connect negative (–) booster cable to booster battery negative (–) post (E).

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

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

4. Connect the other end (F) of negative (–) booster cable to a metal part of the disabled machine engine block away from battery.

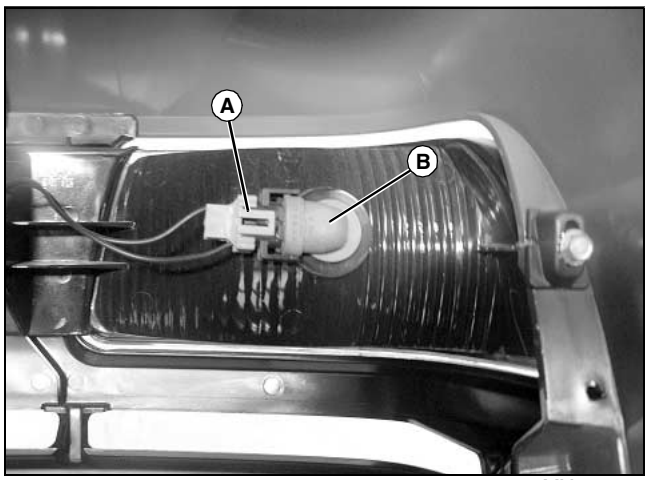
5. Start the engine of the disabled machine and run machine for several minutes.

6. Carefully disconnect the booster cables in the exact reverse order: negative cable first and then the positive cable.

Replacing Headlight Bulb

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

1. Raise hood.



MX52098

2. Disconnect wire harness (A) from defective bulb assembly (B).

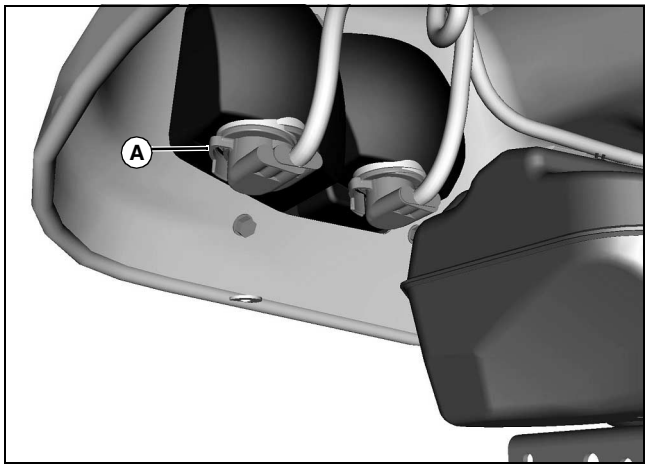
3. Turn bulb assembly 1/4 turn counterclockwise to remove.

4. Insert new bulb assembly into housing and turn 1/4 turn clockwise to install.

5. Connect wire harness.

6. Lower hood.

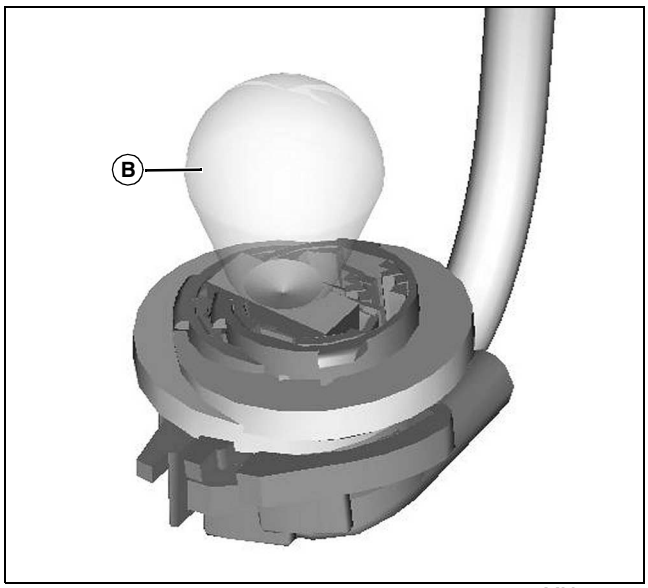
Replacing Taillight Bulb



MX51535

1. Depress tab (A) and turn bulb assembly counterclockwise 1/4 turn to release.

2. Remove bulb assembly from housing.



MX51534

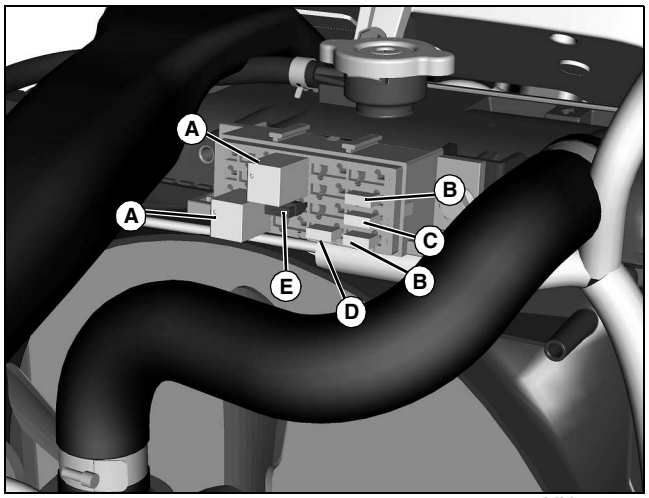
3. Remove bulb (B) from socket.

4. Replace bulb.

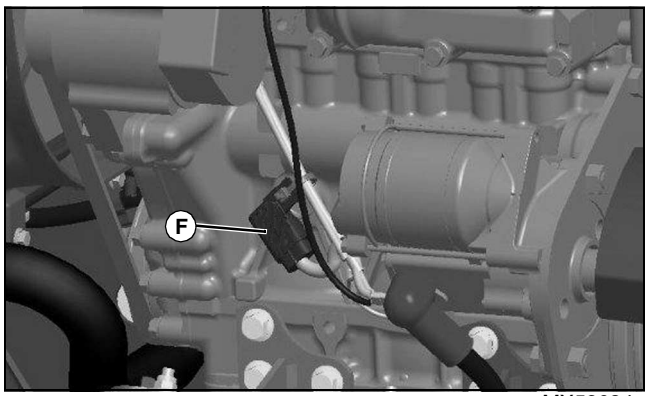
5. Insert bulb assembly into housing.

Replacing Fuses

Locate Fuses



MX52076

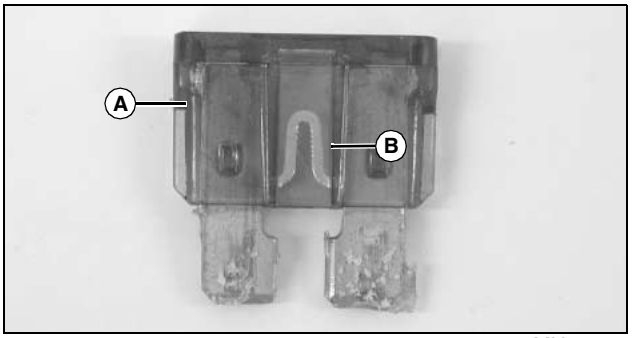


MX52034

A - Relay (2)
B - Fuse - 20 amp (2)
C - Fuse - 10 amp
D - Fuse - 15 amp
E - Diode
F - Master Fuse - 40 amp

Remove and Check Fuses

1. Pull fuse (A) from socket.



MX13626

Picture Note: Fuses may look slightly different than shown.

2. Check metal clip (B) in fuse window. Discard fuse if clip is broken.

3. Install fuse.

Using Proper Fuel (Diesel)

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

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

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

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

Required fuel properties

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

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

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

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

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

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

Sulfur content

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

• Use only ultra low sulfur diesel (ULSD) fuel with a maximum of 0.0015% (15mg/kg) sulfur content.

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

Using Bio-Diesel Fuel

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

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

Concentrations up to B20 may be used if machine is modified with genuine John Deere B20 kit. Use of B6-B20 fuel will require maintenance interval changes from some components, and special procedures for fuel handling and machine storage.

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

Handling and Storing Diesel Fuel

CAUTION: Avoid injury! Handle fuel carefully. Do not fill the fuel tank when engine is running.

Do not smoke while you fill the fuel tank or service the fuel system.

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

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

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

Filling Fuel Tank

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

• Shut engine off before filling fuel tank.

• Allow engine to cool before refueling.

• Do not smoke while handling fuel.

• Keep fuel away from flames or sparks.

• Fill fuel tank outdoors or in well ventilated area.

• Clean up spilled fuel immediately.

• Use clean approved non-metal container to prevent static electric discharge.

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

• Clean dirt and debris from the fuel tank opening.

• Use clean, fresh, stabilized fuel.

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

• Use a non-metallic funnel with a plastic mesh strainer when filling the fuel tank or container.

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

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

2. Allow engine to cool.

3. Remove any trash from area around fuel tank cap.

4. Remove fuel tank cap slowly to allow any pressure built up in tank to escape.

5. Fill fuel tank only to bottom of filler neck. Do not overfill.

6. Install fuel tank cap.

- Gas models: Turn cap until clicks.

Lifting Machine

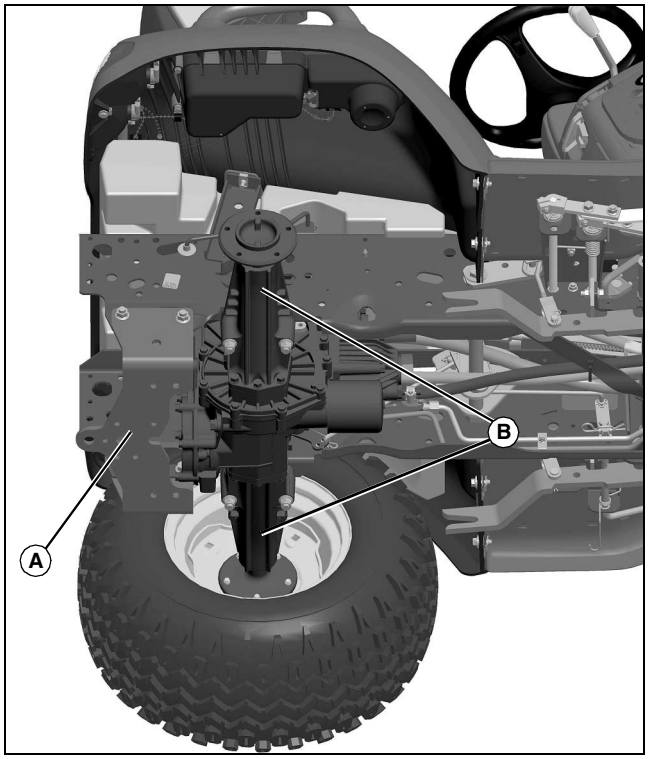
1. Park machine safely. (See Parking Safely in the SAFETY section.)

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

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

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

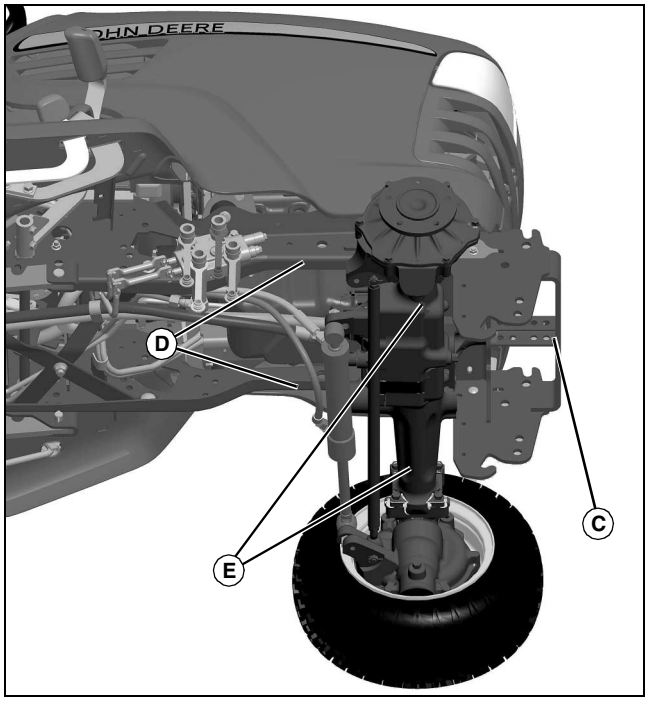
NOTE: Remove all attachments prior to lifting machine.



MX48922

2. Safety lift rear of machine frame point (A). Place jack stands or other stable supports onto transaxle locations (B).

3. If only lifting rear of machine, block front wheels remaining on ground to avoid movement of machine.



MX48923

4. Safely lift front of machine at machine frame point (C). Place jack stands or other stable supports onto machine frame locations (D) or transaxle locations (E).

5. If only lifting front of machine, block rear wheels remaining on ground to avoid movement of machine.

6. To lower machine, lift front and/or rear of machine, and remove jack stands or supports. Lower machine.

Checking Wheel Bolt Tightness

M39810

Check wheel bolts often during the first 100 hours of operation. Tighten every other bolt in sequence until all bolts are at 88 N•m (65 lb-ft).

Cleaning Plastic Surfaces

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

• Do not wipe plastic surfaces when they are dry. Dry wiping will result in minor surface scratches.

• Use a soft, clean cloth (bath towel, diaper, automotive mitt).

• Do not use abrasive materials, such as polishing compounds, on plastic surfaces.

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 vehicle painted metal surfaces. Use a high-quality automotive wax regularly to maintain the factory look of your vehicle’s painted surfaces.

Repairing Minor Scratches (surface scratch):

1. Clean area to be repaired thoroughly.

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

2. Use automotive polishing compound to remove surface scratches.

3. Apply wax to entire surface.

Repairing Deep Scratches (bare metal or primer showing):

1. Clean area to be repaired with rubbing alcohol or mineral spirits.

2. Use paint stick with factory-matched colors available from your authorized dealer to fill scratches. Follow directions included on paint stick for use and for drying.

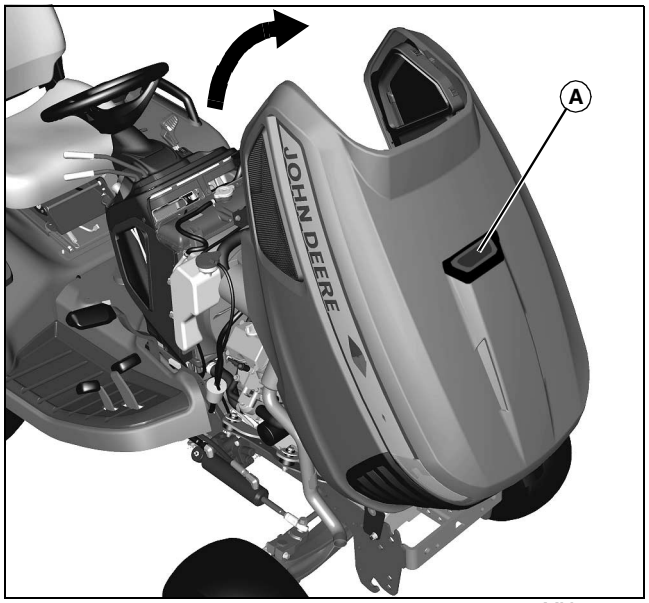
3. Smooth out surface using an automotive polishing

compound. Do not use power buffer.

4. Apply wax to surface.

Raising and Lowering Hood

Raising



MX51548

1. Lift hood at top center handle (A) and tilt to fully upright position.

Lowering

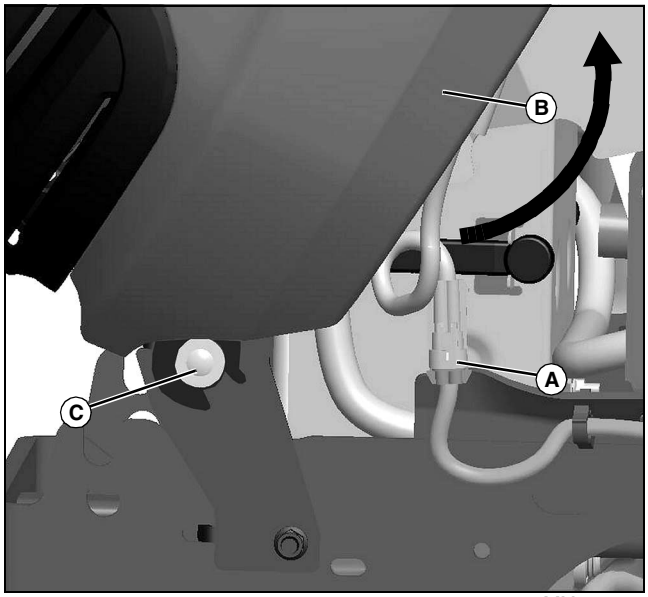
1. Lower rear of hood.

Removing and Installing Hood

Removing

1. Raise hood.

IMPORTANT: Avoid damage! Disconnect headlight harness before removing hood.



MX51547

2. Disconnect headlight harness (A) on left side of machine.

3. Pull hood (B) forward and lift off bushing (C).

Installing

1. Position hood (B) upright.

2. Install hood onto bushing (C).

3. Connect headlight harness (A) on left side of machine.

4. Lower hood.

Removing and Installing Wheel Assembly (Models with Wheel Bolt)

Removing

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

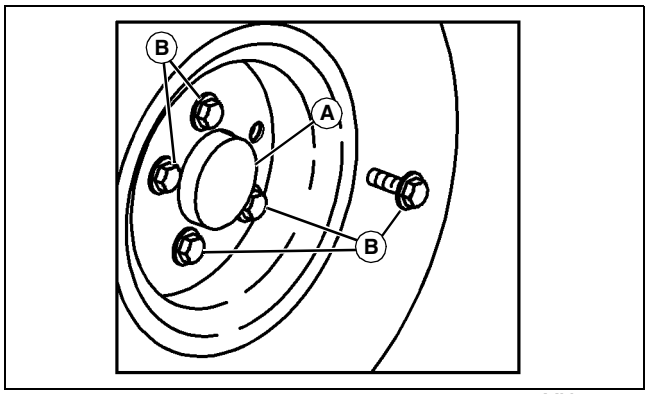
CAUTION: Avoid injury! The machine can fall or slip from an unsafe lifting device or supports.

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

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

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

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



MX23093

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

3. Remove the wheel bolts (B).

4. Remove the wheel assembly.

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

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

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

Installing

1. Apply multipurpose grease to spindle shaft before installing wheel assembly.

2. Install wheel assembly with valve stem to the outside.

3. Tighten wheel bolts evenly in alternating sequence until snug.

4. Lower machine completely to the ground.

5. Tighten wheel bolts to 88 N•m (65 lb-ft).

Using Troubleshooting Chart

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

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

Engine

If	Check
Engine Will Not Start	Brake not pushed down. PTO/RIO switch in on position. Upper (switch) fuse blown. Fuel shut-off valve closed. Improper fuel. Dirty or faulty injectors, see your John Deere dealer Plugged fuel filter.
Engine Is Hard to Start	Loose or corroded electrical connections. Stale or dirty fuel. Battery voltage is too low. Improper fuel. Plugged fuel filter. Dirty or faulty injectors, see your John Deere dealer.
Engine Misfires Under Load	Stale or dirty fuel. Improper fuel. Plugged fuel filter. Dirty or faulty injectors, see your John Deere dealer
Engine Runs Unevenly	Fuel line or fuel filter plugged. Stale or dirty fuel. Improper fuel. Loose electrical connections. Air Restriction Indicator - Air cleaner element plugged. Dirty or faulty injectors, see your John Deere dealer.
Engine Overheats	Engine air intake screens plugged. Radiator screen or fins plugged. Engine oil low. Engine operated too long at slow idle speed. Coolant low. Loose or defective fan/alternator belt.

If	Check
Engine Loses Power	Engine overheating. Improper fuel. Too much oil in engine. Air Restriction Indicator - Air cleaner element plugged.
Engine Stops When Brake Is Disengaged	Seat switch not engaged. Seat switch disconnected or broken.
PTO Stops	Engine overheated. Allow engine to run and cool until needle on temperature gauge returns to the green range.

Electrical

If	Check
Starter Does Not Work Or Will Not Crank Engine	Brake pedal not down. PTO/RIO switch in ON position. Faulty seat switch. Battery terminals corroded. Upper (switch) fuse blown. Battery dead or low charge.
Starter Turns Slowly	Low battery output. Engine oil viscosity too high. Loose or corroded connections.
Battery Will Not Charge	Dead cell in battery. Low engine speed or excessive idling. Battery cables and terminals dirty. Fan/alternator belt loose or damaged.
Battery Discharge Indicator Stays On With Engine Running	Low engine speed. Defective alternator or regulator. Defective battery.
Lights Do Not Work	Light fuse(s) blown. Harness unplugged. Loose or burned out bulb.

Machine

If	Check
Machine Vibrates Too Much	Attachment drive belts worn or damaged. Check and grease driveshafts. Engine speed too low. Engine overloaded. Broken engine mount.
Machine Will Not Move With Engine Running	Parking brake locked. Transaxle oil level low. Free-wheeling lever engaged.

Mower

If	Check
Mower (or other attachment) Stops When REVERSE or BRAKE Foot Pedal is Depressed and Attachment Is Engaged	Normal condition. See Using Reverse Implement Option (RIO).
Mower Deck Will Not Raise or Lower	If installed, be sure hydraulic cylinder lockout valve is open.

Steering

If	Check
Steering Not Working Correctly	Improper tire inflation pressure. Transaxle oil level is low.

Storing Safety

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

• Run the engine only long enough to move the machine to or from storage.

• Machine fires and structure fires can occur if a machine is stored before allowing it to cool, or if debris is not removed from around the engine and muffler, or if stored near combustible materials.

• Do not store vehicle with fuel in the tank inside a building where fumes may reach an open flame or spark.

• Allow the engine to cool before storing the machine in any enclosure.

Preparing Machine for Storage

1. Repair any worn or damaged parts. Replace parts if necessary. Tighten loose hardware.

2. Repair scratched or chipped metal surfaces to prevent rust.

3. Remove grass and debris from machine.

4. Clean under the deck and remove grass and debris from inside chute and bagger.

5. Wash the machine and apply wax to metal and plastic surfaces.

6. Run machine for five minutes to dry belts and pulleys.

7. Apply light coat of engine oil to pivot and wear points to prevent rust.

8. Lubricate grease points and check tire pressure.

Preparing Fuel and Engine For Storage

Fuel:

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

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

If you are not using “Stabilized Fuel:”

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

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

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

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

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

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

4. Mix fresh fuel and fuel stabilizer in separate container. Follow stabilizer instructions for mixing.

5. Fill fuel tank with stabilized fuel.

6. Run engine for a few minutes to allow fuel mixture to circulate through carburetor on gas engine or fuel injectors on diesel engine.

Engine:

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

1. Change engine oil and filter while engine is warm.

2. Service air filter if necessary.

3. Clean debris from engine air intake screen.

4. On gas engines:

   • Remove spark plugs. Put 30 mL (1 oz) of clean engine oil in cylinder(s).

   • Install spark plugs, but do not connect spark plug wires.

   • Crank the engine five or six times to allow oil to be distributed.

5. Clean the engine and engine compartment.

6. Remove battery.

7. Clean the battery and battery posts. Check the electrolyte level, if your battery is not maintenance free.

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

9. Store the battery in a cool, dry place where it will not freeze.

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

10. Charge the battery.

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

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

Removing Machine From Storage

1. Check tire pressure.

2. Check engine oil level.

3. Check battery electrolyte level, if your battery is not maintenance free. Charge battery if necessary.

4. Install battery.

5. On gas engines: Check spark plug gap. Install and tighten plugs to specified torque.

6. Lubricate all grease points.

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

8. Run the engine 5 minutes without the mower or any attachments running to allow oil to be distributed throughout engine.

9. Be sure all shields and guards or deflectors are in place.

Specifications

Engine

Model	**3TNM74**
Cylinders	**Three**
Stroke/Cycle	**Four**
Displacement	**993 cc (60.6 cu. in.)**
Bore	**74 mm (2.9 in.)**
Compression Ratio	**23.2:1**
Speed (fast idle), no load	**3600 +25/-50 rpm**
Speed (slow idle), no load	**1450 +/- 25 rpm**
Lubrication	**Full Pressure**
Oil Filter	**Full flow (replaceable)**
Air Cleaner	**Dual element replaceable paper**
Cooling System	**Liquid-cooled**

Fuel System (Diesel Models)

Fuel Types	
(Recommended)	**Diesel No. 1 or No. 2**
	B5 Bio-Diesel (5% Blend)
Fuel Pump	**Mechanical**
Fuel Delivery	**In-line indirect injection**

Electrical System

Starter	**1.2kW (12-Volt)**
Charging System	**Alternator, 40 amp**
Battery	**500 CCA (cold cranking amps)**
12-Volt Outlet	**Maximum 15 amp**

Capacities

Fuel Tank	**19.7 L (5.2 gal)**
Two-Wheel Steer Transaxle (with filter)	**6.6 L (7.0 qt)**
Four-Wheel Steer Transaxle (with filter)	**5.6 L (6.0 qt)**
HFWD System Transaxle (with filter)	**6.8 L (7.2 qt)**
Cooling System	**2.8 L (3.0 qt)**
Engine Oil (with filter)	**3.2 L (3.4 qt)**
Full Time 4WD (HFWD) Front Drive Axle	**5.0 L (5.3 qt)**

Specifications

Drive Train

Transaxle . . . . . **2-Pedal Foot Control Hydrostatic**

Number of Speeds . . . . . **Infinite**

Travel Speeds

Forward

26” tires . . . . . **0 to 13.7km/h (0 to 8.5 mph)**

Reverse

26” tires . . . . . **0 to 8.1km/h (0 to 5.0 mph)**

Steering and Brakes

Brakes Type . . . . . **Internal wet disc**

Steering . . . . . **Hydrostatic power, 6-Position tilt steering wheel**

Dimensions (X750)

Overall Height . . . . . **1.35m (53.1 in.)**

Overall Width . . . . . **1.19m (47 in.)**

Overall Length . . . . . **2.01m (79.2 in.)**

Wheel Base . . . . . **1.38m (54.5 in.)**

Dimensions (X754)

Overall Height . . . . . **1.35m (53.1 in.)**

Overall Width . . . . . **1.19m (47 in.)**

Overall Length . . . . . **2.01m (79.2 in.)**

Wheel Base . . . . . **1.38m (54.5 in.)**

Dimensions (X758)

Overall Height . . . . . **1.35m (53.1 in.)**

Overall Width . . . . . **1.22m (48 in.)**

Overall Length . . . . . **2.01m (79.2 in.)**

Wheel Base . . . . . **1.41m (55.7 in.)**

Weight

X750 (2WS) . . . . . **430 kg (948 lb)**

X754 (4WS and 2WD) . . . . . 451 kg (995 lb)

X758 (4WD) . . . . . 470 kg (1038 lb)

Tire Pressures

Front

Tubeless 18 x 7 - 8, Turf, 4PR . . . . . 70-97 kPa (10-14 psi)*

Tubeless 18 x 8.50 - 8, Turf, 4PR . . . . . 70-97 kPa (10-14 psi)*

Tubeless 18 x 8.50 - 10, Turf, 4PR . . . . . 82-110 kPa (12-16 psi)*

Tubeless 18 x 8.50 - 10, HDAP, 4PR . . . . . 82-110 kPa (12-16 psi)*

Rear

Tubeless 26 x 10.5 - 12, Turf, 2PR . . . . . 40-70 kPa (6-10 psi)

Tubeless 26 x 12.00 - 12, Turf, 4PR . . . . . 40-70 kPa (6-10 psi)**

Tubeless 26 x 12.00 - 12, Bar, 4PR . . . . . 40-138 kPa (6-20 psi)

Tubeless 26 x 12.00 - 12, HDAP, 2PR . . . . . 40-70 kPa (6-10 psi)

*152 kPa (22 psi) recommended with front weights, front attachments, or loader.

**97 kPa (14 psi) recommended when rear is heavily loaded.

Recommended Lubricants

Engine Oil . . . . . John Deere PLUS-50™

Engine Coolant . . . . . COOL-GARD™ II PRE-DILUTED SUMMER COOLANT

Transaxle Oil (all models) . . . . . John Deere Low Viscosity HY-GARD (J20D)

Front Drive Axle Oil (Full Time 4WD - HFWD) . . . . . John Deere Low Viscosity HY-GARD (J20D)

Grease

. . . . . John Deere MOLY HIGH TEMPERATURE EP GREASE

. . . . . John Deere HIGH TEMPERATURE EP GREASE

(Specifications and design subject to change without notice.)

Product Warranty

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

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

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

Your Warranty Rights and Obligations

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

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

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

John Deere Emission Control System Warranty Coverage

In California, 1995 and later non-road diesel equipment engine emissions control-related parts are warranted by John Deere for two years or 1500 hours of operation, whichever occurs first. In other states, 1997 and later non-road diesel equipment engine emissions control-related parts are warranted by John Deere for two years or 1500 hours of operation, whichever occurs first. If any emission related part on your engine is defective, the part will be repaired or replaced by John Deere.

Owner's Warranty Responsibilities

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

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

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

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

Length of Warranty Coverage

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

• Designed, built and equipped so as to conform with all applicable regulations adopted by the California Air Resources Board (CARB) for 1995 and later equipment engines, and all applicable regulations of the United States Environmental Protection Agency (EPA) for 1997 and later equipment engines; and

• Free from defects in materials and workmanship which can cause the failure of an emission warranted part for a period of two years or 1500 hours of operation, whichever occurs first, after the engine is delivered to the initial retail purchaser. John Deere is liable for damages to other engine components caused by the failure of a warranted part during the warranty period. If any emission related part on your engine is defective, the part will be repaired or replaced by John Deere.

Warranted Parts

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

Fuel Metering System:

• Fuel injection system.

Air Induction System:

• Air Cleaner

• Turbocharger system.

• Intake manifold.

Diesel System:

• Exhaust manifold.

Miscellaneous Items Used in Above Systems:

• Hoses, belts, connectors and assemblies.

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

Warranty Service and Charges

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

Maintenance Warranty Coverage

a) Any warranted part which is not scheduled for replacement as required maintenance shall be warranted as to defects for the warranty period. Any such part repaired or replaced under the warranty shall be warranted for the remaining warranty period.

b) Any warranted part which is scheduled only for regular inspection to the effect of "repair or replace as necessary" shall be warranted as to defects for the warranty period. Any such part repaired or replaced under the warranty shall be warranted for the remaining warranty period.

c) Any warranted part which is scheduled for replacement as required maintenance shall be warranted as to defects only for the period of time up to the first scheduled replacement for that part. Any such part repaired or replaced under the warranty shall be warranted for the remainder of the

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

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

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

Consequential Warranty Coverage

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

Limitations

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

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

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

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

Limited Liability

a) The liability of John Deere under this Emission Control System Warranty is limited solely to the remedying of defects in materials or workmanship. This warranty does not cover inconvenience or loss of use of the non-road diesel equipment engine or transportation of the engine to or from the John Deere Turf & Utility Retailer. JOHN DEERE SHALL NOT BE LIABLE FOR ANY OTHER EXPENSE, LOSS, OR DAMAGE, WHETHER DIRECT, INCIDENTAL, CONSEQUENTIAL (EXCEPT AS LISTED ABOVE UNDER “COVERAGE”) OR EXEMPLARY ARISING IN CONNECTION WITH THE SALE OR USE OF OR INABILITY TO USE THE NON-ROAD DIESEL ENGINE FOR ANY OTHER PURPOSE.

b) NO EXPRESS EMISSION CONTROL SYSTEM WARRANTY IS GIVEN BY JOHN DEERE WITH RESPECT TO THE ENGINE EXCEPT AS SPECIFICALLY SET FORTH IN THIS DOCUMENT. ANY EMISSION CONTROL SYSTEM WARRANTY IMPLIED BY LAW, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, IS EXPRESSLY LIMITED TO THE EMISSION CONTROL SYSTEM WARRANTY TERMS SET FORTH IN THIS DOCUMENT.

c) No dealer is authorized to modify this Federal, California and John Deere Emission Control System Warranty.

Tire Warranty

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

Limited Battery Warranty

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

TO SECURE WARRANTY SERVICE

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

FREE REPLACEMENT

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

PRO RATA ADJUSTMENT

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

THIS WARRANTY DOES NOT COVER

A. Breakage of the container, cover, or terminals.

B. Depreciation or damage caused by lack of reasonable and necessary maintenance or by improper maintenance.

C. Transportation, mailing, or service call charges for warranty service.

LIMITATION OF IMPLIED WARRANTIES AND PURCHASER’S REMEDIES

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

NO DEALER WARRANTY

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

PRO RATA MONTHS OF ADJUSTMENT

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

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

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John Deere Quality Statement

John Deere Quality

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

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

Step 1

Refer to your operator's manual

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

B. It gives troubleshooting procedures, and specification information.

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

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

Step 2

Contact your dealer

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

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

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

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

Step 3

Contact John Deere

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

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

The name of the dealer with whom you've been working.

Your equipment model number.

Number of hours on machine (if applicable).

Your serial number which you recorded on the inside front cover of this manual.

If the problem is with an attachment, your attachment identification number.

C. Then call 1-800-537-8233 (United States and Canada) and our advisor will work with your dealer to investigate your concern. If you are outside the United States and Canada, contact us at the following web site: www.deere.com/wps/dcom/en_US/regional_home.page.

Record Service Dates

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