JOHN DEERE
WORLDWIDE COMMERCIAL & CONSUMER EQUIPMENT DIVISION

Wide Area Mower
1600 Turbo

OMTCU21160 J5

OPERATOR'S MANUAL

JOHN DEERE

Export Version
Litho in U.S.A.

INTRODUCTION

Thank You for Purchasing a John Deere Product

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

Using Your Operator's Manual

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

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

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

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

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

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

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

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

Machine Use

This machine is designed as a traction unit, with the intended use as a multi-purpose implement carrier, in the application of primarily customary lawn and turf mowing operations, and highway maintenance, and winter work. Use in any other way is considered as contrary to the intended use.

The manufacturer accepts no liability for damage or injury resulting from this misuse, and these risks must be borne solely by the user. Compliance with and strict adherence to the conditions of operation, service and repair as specified by the manufacturer also constitute essential elements for the intended use.

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

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

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

Special Messages

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

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

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

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

PRODUCT IDENTIFICATION

Record Identification Numbers

Wide Area Mower 1600 Turbo PIN (TC1600T050001-)

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

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

DATE OF PURCHASE:

_____

DEALER NAME:

_____

DEALER PHONE:

_____

MX22732

PRODUCT IDENTIFICATION NUMBER (A):

__ __ __ __ __ __ __ __ __ __ __ __ __ __ __ __ __

ENGINE SERIAL NUMBER (B):

__ __ __ __ __ __ __ __ __ __ __ __ __ __ __ __ __

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OMTCU21160 J5 - English

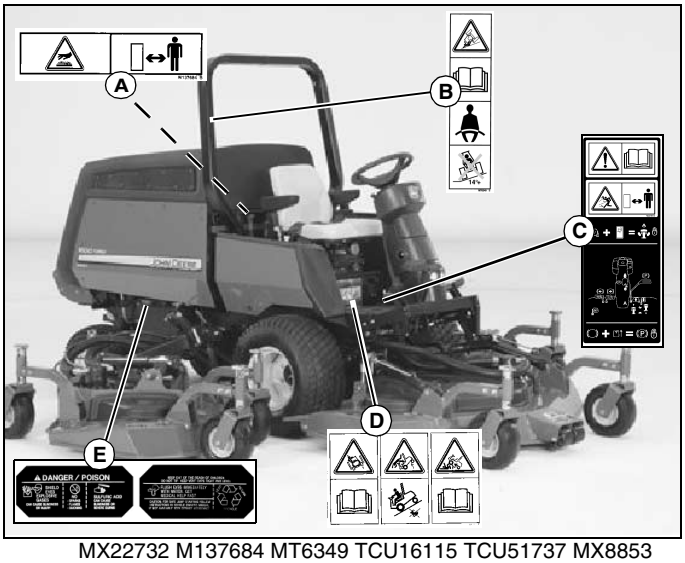
SAFETY LABELS

Pictorial Safety Signs

Safety-Alert Symbol

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

Safety Label Locations



MX22732 M137684 MT6349 TCU16115 TCU51737 MX8853

WARNING (A)

• Hot surface

WARNING (B)

Use Seat Belt

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

CAUTION (C)

Help Avoid Injury

• Operator training required

• Read operator's manual

• Know all controls

• Keep shields in place

• Maintain all safety devices

• Look behind before backing

• Keep people a safe distance away

• Stay clear of power driven parts

• Do not operate where machine could tip

• Never carry riders

• Roll-over protection structure (ROPS) should be installed unless prohibited by low clearance operation

• Use seat belt unless machine is operated without ROPS

• Before leaving machine:

- Stop engine - Set park brake - Remove key

WARNING (D)

To avoid injury while transporting, keep front attachment low and avoid sharp turns with side attachments in transport position.

To avoid injury, avoid quick stops and reduce speed on slopes.

All wheels drive. To avoid injury from crushing, do not operate with only one axle raised.

DANGER / POISON (E)

• 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.

• Caution: For safe jump starting, follow instructions in vehicle owners manual. If not available, seek service assistance.

MX22732 MX18666 MX0487 M118041 M139475

IMPORTANT (A)

NO TOWING

Do not use the hood hinge tube for towing. Machine damage may result.

ROLL-OVER PROTECTIVE STRUCTURE (B)

To maintain operator protection and ROPS certification:

- Replace damaged ROPS, do not repair or revise.
- Any alteration of ROPS must be approved by manufacturer

CERTIFICATION (B)

Performance certified at date of manufacture to:

OSHA: 29 CFR, Part 1928, Subpart C, John Deere Mowers, Deere & Company, Moline, Illinois

DANGER (C)

To avoid injury from rotating blades, stay clear of deck edge.

CAUTION (D)

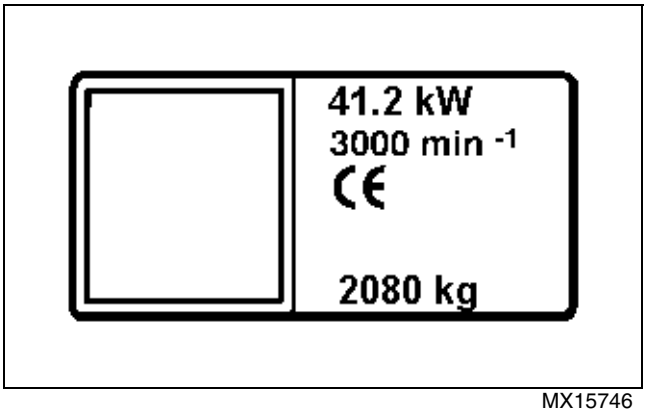
Avoid Injury

- Do not operate mower with shields removed
- Keep hands and feet away
- Stay clear of power driven parts

Before Servicing

- Shut off engine and remove key
- Lower or secure mower in raised position with service link

CE Certification and Specification Label



MX15746

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

Training

• Read the instructions carefully. Be familiar with the controls and the proper use of the equipment.

• Never allow children or people unfamiliar with these instructions to use the lawnmower. Local regulations can restrict the age of the operator.

• Never mow while people, especially children, or pets are nearby.

• Keep in mind that the operator or user is responsible for accidents or hazards occurring to other people or their property.

• Do not carry passengers.

• All drivers should seek and obtain professional and practical instruction. Such instruction should emphasize:

- the need for care and concentration when working with ride-on machines.
- control of a ride-on machine sliding on a slope will not be regained by the application of the brake.

• The main reasons for loss of control are:

- insufficient wheel grip;
- being driven too fast;
- inadequate braking;
- the type of machine is unsuitable for its task;
- lack of awareness of the effect of ground conditions, especially slopes;
- incorrect hitching and load distribution.

Preparation

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

• Thoroughly inspect the area where the equipment is to be used and remove all objects which can be thrown by the machine.

• WARNING-Fuel is highly flammable.

- store fuel in containers specifically designed for this purpose.
- refuel outdoors only and do not smoke while refueling.
- add fuel before starting the engine. Never remove the cap of the fuel tank or add fuel while the engine is running or when the engine is hot.
- if fuel is spilled, do not attempt to start the engine but move the machine away from the area of spillage and avoid creating any source of ignition until fuel vapors have dissipated.
- replace all fuel tank and container caps securely.

• Replace faulty silencers.

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

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

Operation

• Do not operate the engine in a confined space where dangerous carbon monoxide fumes can collect.

• Mow only in daylight or in good artificial light.

• Before attempting to start the engine, disengage all blade attachment clutches and shift into neutral.

• Do not use on slopes of degrees more than recommended by the manufacturer.

• Remember there is no such thing as a safe slope. Travel on grass slopes requires particular care. To guard against overturning:

- do not stop or start suddenly when going up or downhill;
- engage clutch slowly, always keep machine in gear, especially when traveling downhill;
- machine speeds should be kept low on slopes and during tight turns;
- stay alert for humps and hollows and other hidden hazards;
- never mow across the face of a slope, unless the machine is designed for this purpose.

• Use care when pulling loads or using heavy equipment:

- use only approved drawbar hitch points;
- limit loads to those you can safely control;
- do not turn sharply. Use care when reversing;
- use counterweights or wheel weights when suggested in the operator's manual.

• Watch out for traffic when crossing or near roadways.

• Stop the blades from rotating before crossing surfaces other than grass.

• Never direct discharge of material toward bystanders nor allow anyone near the machine while in operation.

• Never operate the machine with defective guards, or

without safety protective devices in place.

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

• Before leaving the operator's position:

- disengage the drive to any attachments and lower them;
- change into neutral and lock the parking brake;
- stop the engine and remove the key.

• Disengage drive to attachments, stop the engine, disconnect the spark plug wires and remove the ignition key:

- before clearing blockages or unclogging chute;
- before checking, cleaning, or working on the machine;
- after striking a foreign object. Inspect the machine for damage and make repairs before restarting and operating the equipment;
- if the machine starts to vibrate abnormally (check immediately).

• Disengage drive to attachments when transporting or not in use.

• Stop the engine and disengage drive to attachment:

- before refueling;
- before removing the grass catcher;
- before making height adjustment unless adjustment can be made from the operator's position.

• Reduce the throttle setting during run-out and, if the engine is provided with a shut-off valve, turn the fuel off at the conclusion of mowing.

• Read, understand and follow all instructions in the manual and on the machine before starting.

• Inspect machine before you operate. Repair or replace damaged, badly worn, or missing parts. Make any necessary adjustments before you operate.

• 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 operate mower without discharge chute or entire grass catcher in place. Never operate with the discharge deflector raised, removed, or altered, unless using a grass catcher.

• Check brake action before you operate. Adjust or service brakes as necessary.

• Stop machine if anyone enters the area.

• Do not leave machine unattended when it is running.

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

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

• Do not operate machine if you are under the influence of drugs or alcohol.

• Check before each use that operator presence controls are functioning correctly. Test safety systems. Do not operate unless they are functioning correctly.

• Never raise mower decks when blades are running.

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

Maintenance and Storage

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

• Never store the equipment with fuel in the tank inside a building where fumes can reach an open flame or spark.

• Allow the engine to cool before storing in any enclosure.

• To reduce the fire hazard, keep the engine, silencer, battery compartment and fuel storage area free of grass, leaves, or excessive grease.

• Check the grass catcher frequently for wear or deterioration.

• Replace worn or damaged parts for safety.

• If the fuel tank has to be drained, this should be done outdoors.

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

• When machine is to be parked, stored or left unattended, lower the cutting means unless a positive mechanical lock in used.

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

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

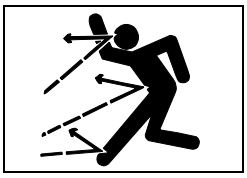
• Release hydraulic pressure by lowering attachment or cutting units to the ground or to a mechanical stop and move hydraulic control levers back and forth.

• Disconnect battery or remove spark plug (for gas engines) before making any repairs. Disconnect the negative terminal first and the positive last. Reconnect positive first and negative last.

• Use care when checking blades. Wrap the blades or wear gloves, and use caution when servicing them. Only replace blades. Never straighten or weld them.

• Keep hands, feet, clothing, jewelry and long hair away from moving parts. If possible, do not make adjustments with the engine running.

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



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.

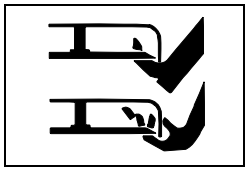
5. Stop the engine.

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 (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.

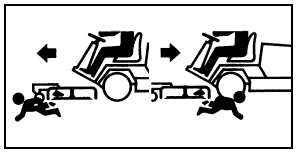
• Keep hands, feet and clothing away from mower deck when engine is running.

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

• Do not mow in reverse.

• Shut off blades when you are not mowing.

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



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.

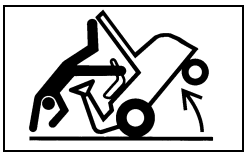
• Never use the machine as a recreational vehicle or to entertain children.

• 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.



Avoid Tipping

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

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

• Mow up and down slopes, not across.

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

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

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

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

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

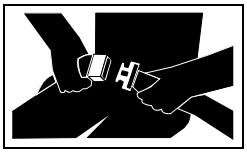
• Use extra care while operating machine with grasscatchers or other attachments, they can affect stability of the machine. Do not use on steep slopes.

• Do not mow near drop-offs, ditches, embankments, or bodies of water. The machine could suddenly roll over if a wheel goes over the edge or the edge caves in.

• Follow the manufacturer's recommendations for wheel weights or counterweights for added stability when operating on slopes or using front or rear mounted attachments. Remove weights when not required.

• Drive machine very slowly and avoid quick stops when attachment is removed.

• Transport machine with cutting units lowered to improve stability.



Use Seat Belt Properly

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

• Do not use a seat belt if operating with an optional folding ROPS in the folded position. Return the folding ROPS to the upright position as soon as possible.

• Never modify, disassemble or attempt to repair the seat belt.

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

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

• Layers of heavy clothing can interfere with proper positioning of the seat belt and can reduce the effectiveness of the seat belt.

Keep ROPS Installed Properly

• Make certain all parts of the ROPS are installed correctly if the ROPS structure is loosened or removed for any reason. All ROPS hardware should be tightened to the proper torque per manufacturer's recommendations.

• Any alteration of the ROPS must be approved by the manufacturer. The protection provided by the ROPS will be impaired if the ROPS is subjected to structural damage, is involved in an overturn incident, or is in any way altered by welding, bending, drilling, or cutting.

• Never attempt to repair a damaged or altered ROPS. It must be replaced to maintain the manufacturer's certification of the structure.

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.

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.

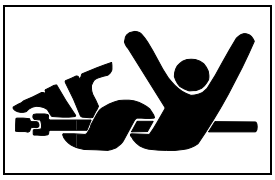
• Use only approved hitches. Tow only with a machine that has a hitch designed for towing. Do not attach towed equipment except at the approved hitch point.

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

• If you cannot back up a slope with a towed load, the slope is too steep to operate on with the towed load. Reduce the towed load or do not operate.

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

• Do not shift to neutral and coast downhill.



Stay Clear of Rotating Drivelines

Entanglement in rotating driveline can cause serious injury or death.

• Wear close fitting clothing.

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

Avoid High Pressure Fluids

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

• Hydraulic fluid connections can loosen due to physical damage and vibration. Check connections regularly. Tighten loose connections.

• Escaping fluid under pressure can penetrate the skin causing serious injury. Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure.

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

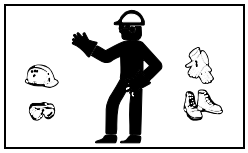
• If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source. Such information is available from Deere & Company Medical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

Checking Wheel Hardware

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

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

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



Wear Appropriate Clothing

• Always wear safety goggles, or safety glasses with side shields, and a hard hat when operating the machine.

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

• While mowing, 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.

Prevent Fires

• Remove grass and debris from engine compartment and muffler area, before and after operating machine, especially after mowing or mulching in dry conditions.

• Empty the grasscatcher completely before storing.

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

• Do not store machine near an open flame or source of ignition, such as a water heater or furnace.

• Check fuel lines, tank, cap, and fittings frequently for cracks or leaks. Replace if necessary.

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 Fuel Safely

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

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

• Use only approved non-metal, portable fuel containers. If using a funnel, make sure it is plastic and has no screen or filter.

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

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

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

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

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

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

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

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

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

• Replace all fuel container caps securely after use.

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

Handling Waste Product and Chemicals

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

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

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

Daily Operating Checklist

- ❑ Test safety systems.
- ❑ Check tire pressure.
- ❑ Check fuel level.
- ❑ Check engine, transmission, and hydraulic oil levels.
- ❑ Remove grass and debris from engine compartment and muffler area, before and after operating machine.
- ❑ Clean air intake screen.
- ❑ Check area below machine for leaks.
- ❑ Check air restriction indicator.
- ❑ Check engine coolant level.

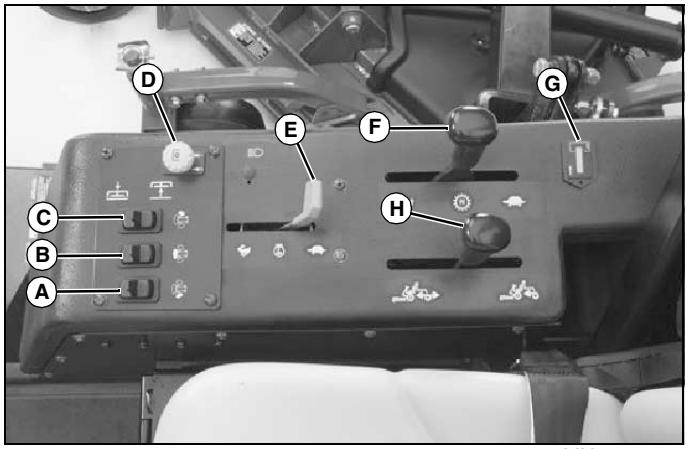
Avoid Damage to Plastic and Painted Surfaces

• Do not wipe plastic parts unless rinsed first.

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

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

Operator Station Controls



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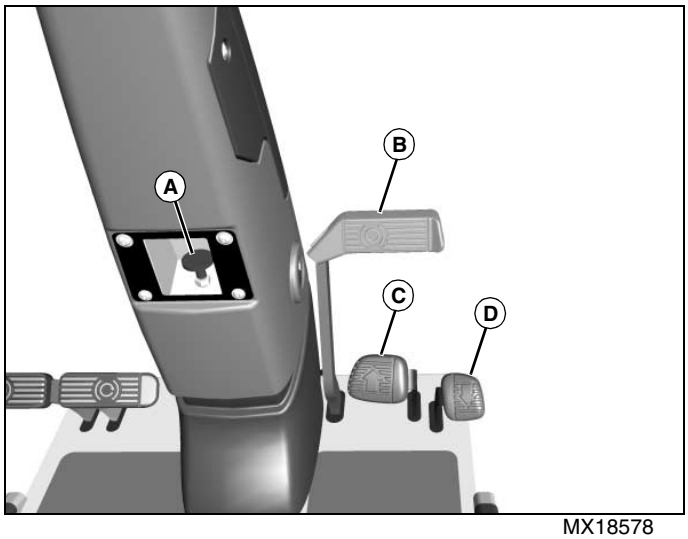
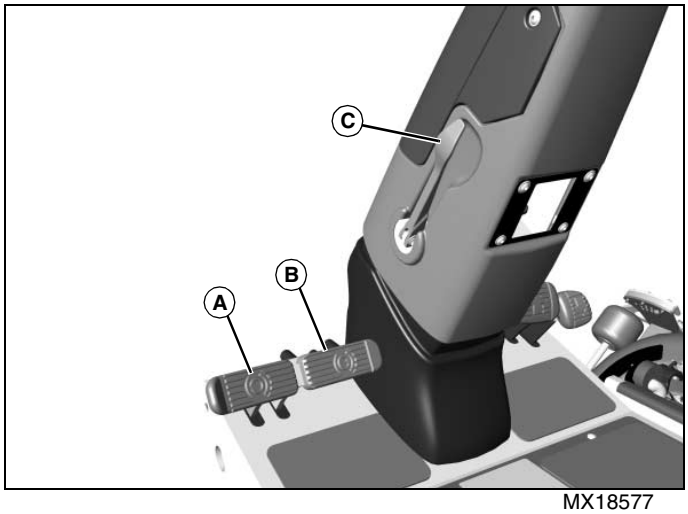
A - Left Mower Deck Lift Lever
B - Front Mower Deck Lift Lever
C - Right Mower Deck Lift Lever
D - PTO Switch
E - Throttle Lever
F - Speed Range Lever
G - Hour Meter
H - Four Wheel Drive Lever



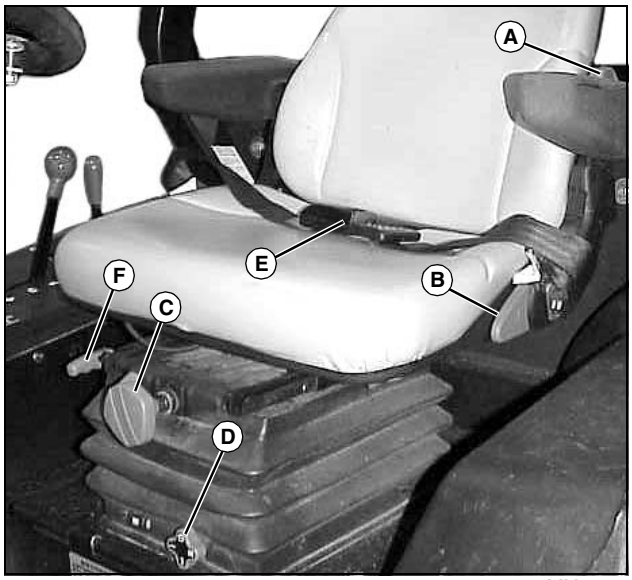
MX18578

A - Park Brake Knob
B - Park Brake Pedal
C - Forward Drive Pedal
D - Reverse Drive Pedal



MX18577

A - Left Turn Brake Pedal
B - Right Turn Brake Pedal
C - Steering Column Tilt Lock



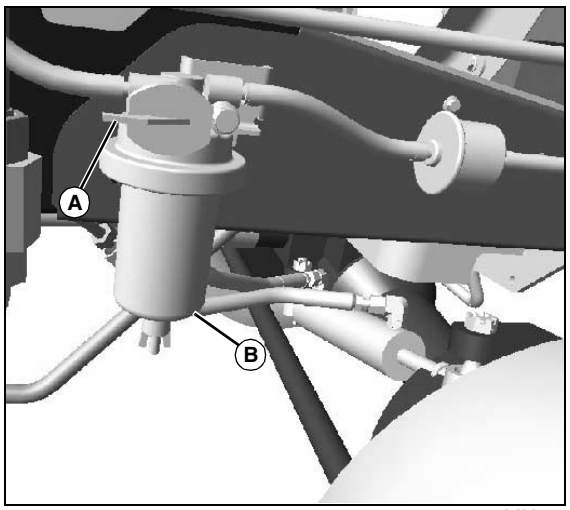
MX5286

A - Lumbar Support Adjustment
B - Backrest Tilt Lever
C - Seat Spring Adjustment Knob
D - Seat Height Adjustment Knob
E - Seat Belt
F - Seat Adjustment Lever

MX13887

A - Seat Platform Release Knob
B - Differential Lock

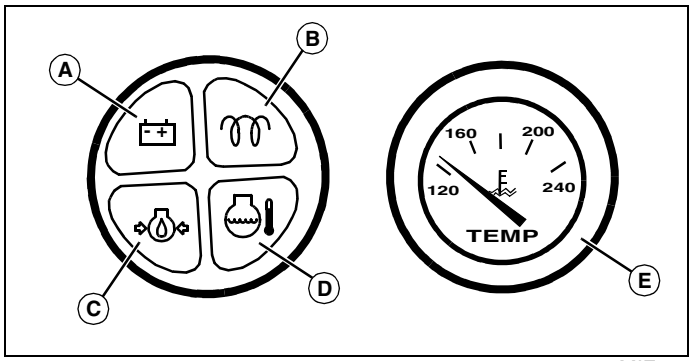
Miscellaneous Controls



MX22705

A - Fuel Shutoff Valve
B - Water Separator

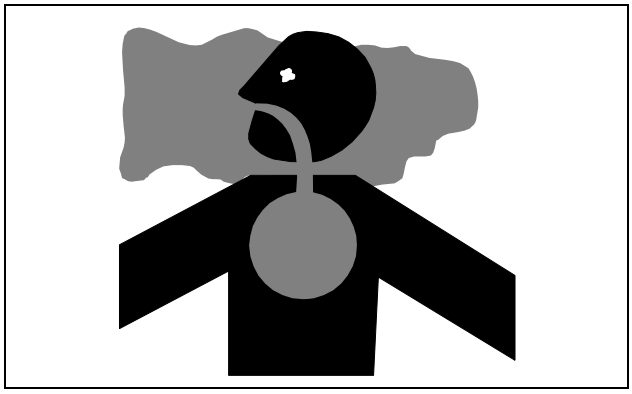
Instrument Panel



MIF

A - Battery Discharge Lamp
B - Engine Manifold Heater Lamp
C - Engine Oil Pressure Lamp
D - Engine Coolant Temperature Lamp
E - Engine Coolant Temperature Gauge

Testing Safety Systems



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

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

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

• Connect a pipe extension to the engine exhaust pipe to direct the exhaust fumes out of the area.

• Allow fresh outside air into the work area to clear the exhaust fumes out.

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

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

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

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

Testing PTO Switch

1. Sit on the seat.

2. Lock the park brake.

3. Pull PTO switch up to the on position.

4. Try to start the engine. Engine must not start. If engine starts, there is a problem with your safety interlock circuit.

5. Unlock park brake. Try and start engine. Engine must not start. If engine starts, there is a problem with your safety interlock circuit.

Testing Seat and Park Brake Switch

1. Sit on seat.

2. Push the PTO switch down to the off position.

3. Unlock the park brake.

4. Start the engine.

5. Raise up off of the seat, but do not get off of the machine.

Result:

The engine should stop. If engine does not stop, there is a problem with your safety interlock circuit.

Testing Park Brake

1. Stop the machine on a 17° slope (30% grade). Stop the engine and lock the park brake.

2. Put transmission in N (neutral).

3. Check to be sure the park brake will hold the machine without rolling.

Result:

The park brake must prevent machine from moving. If machine moves, brakes need to be adjusted. See your John Deere Distributor.

Mounting and Dismounting Machine Safely

NOTE: Always mount and dismount from left side of machine to avoid bumping controls and pedals.

1. Place right foot on mower deck and use steering wheel to balance yourself while stepping up onto machine.

2. Use step on lift arm to get up to operator's platform.

Adjusting Seat

To adjust seat position:

CAUTION: Avoid injury! Never adjust seat while machine is moving. Stop machine before adjusting seat to prevent loss of machine control.

MX5286

1. Pull seat adjustment lever (A) up, out of locked position.
2. Slide seat forward or rearward to desired position.
3. Release lever.

To adjust seat backrest:

1. Pull up backrest tilt lever (B), while moving backrest to most comfortable position. Release lever to lock backrest in place.
2. Turn lumbar support knob (C) rearward to increase lumbar support, or forward to decrease support.

To adjust seat spring tension:

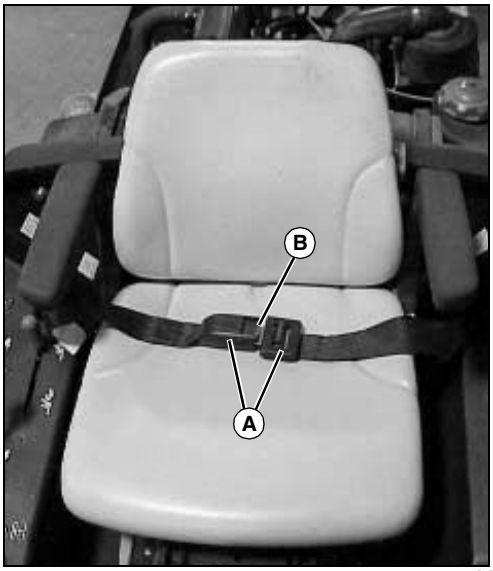
NOTE: Adjustment must be made with operator off seat.

1. Turn seat spring adjustment knob (D) to the right to decrease seat spring tension, or to the left to increase tension.
2. Sit on operator's seat and turn seat height adjustment knob (E) to one of the following positions to set limits on how high the seat will travel:
   - 0 - Lowest position
   - I - Medium low position
   - II - Medium high position
   - III - Highest position

Using Seat Belt

Fasten Belt

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



MX5285

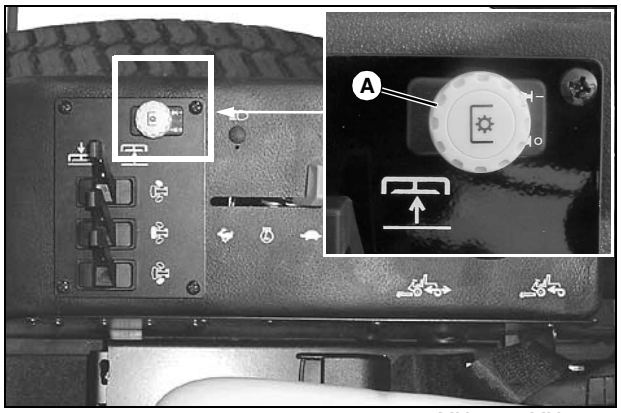
• Connect both ends of the seat belt (A) until they click together. Loosen or tighten seat belt until operator is firmly held onto the seat.

Release Belt

• Press red button (B) to release seat belt.

Using PTO Switch

NOTE: Starter will not crank if PTO is engaged. PTO will disengage when master brake pedal is pressed.



MX5267, MX18656

• Pull PTO knob (A) up to engage the PTO.

• Push PTO knob (A) down to disengage the PTO.

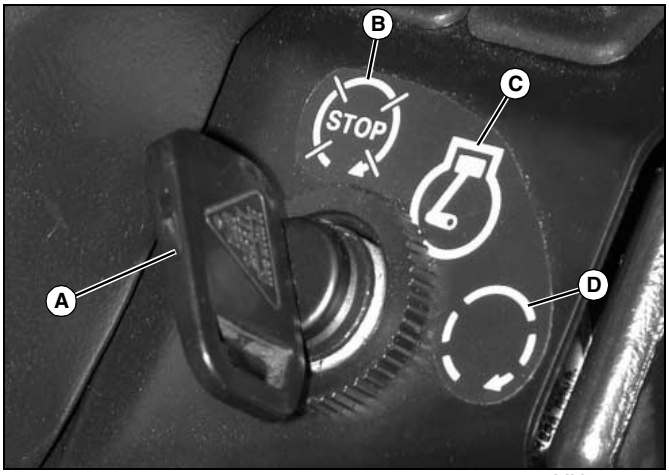
Using Key Switch

NOTE: Starter will not crank if any of the following conditions exist:

• PTO is engaged.

• Hydrostatic drive pedals are not in centered (neutral) position.

• Park brake is not locked and operator is out of seat.



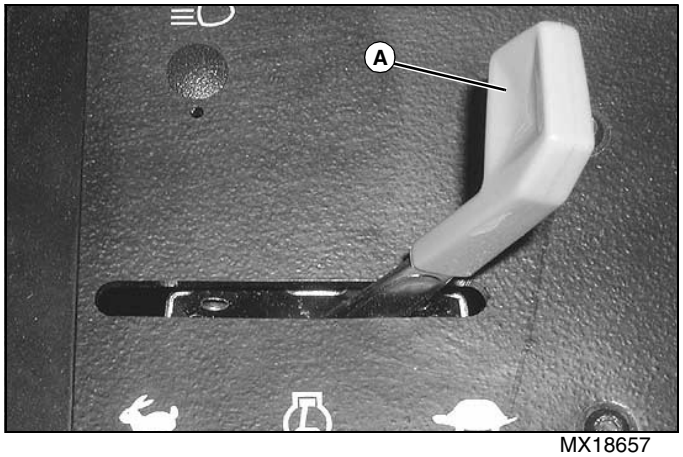
MX13889

• To turn ignition off, turn the key switch (A) to the STOP position (B).

• To turn ignition on, turn key switch to the run position (C). Indicator lights on instrument panel should go on, and beeper will sound.

• To start engine, wait for engine manifold heater light to turn off, turn key switch to the start position (D). Once engine begins to run, release key switch back to the run position.

Using Throttle Lever

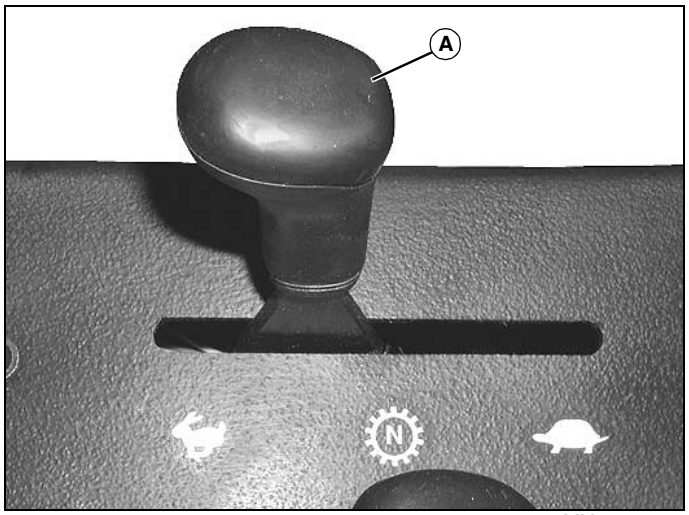


MX18657

• Pull the throttle lever (A) to the rear for slow idle. Use this position to start engine and maneuver the mower in confined spaces.

• Push throttle lever fully forward to the fast idle position for transporting and mowing.

Using Speed Range Lever



MX18658

• Place speed range lever (A) in centered neutral position (N) to prevent machine from being driven.

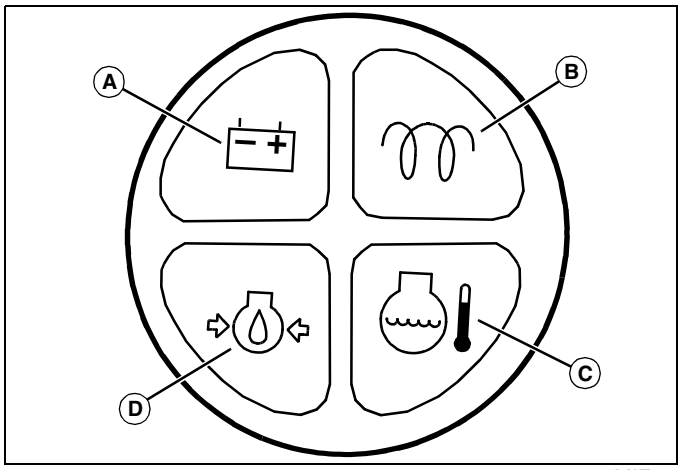
• Pull speed range lever to rear for low speed range for mowing and low speed transport.

• Push lever to front position for high speed range used for high speed transport.

Indicator Lights

IMPORTANT: Avoid damage! If an indicator lamp turns on while the engine is running, stop the engine to avoid engine damage. Before you restart the engine, find and correct the cause.

Battery Discharge Light



MIF

• The battery discharge light (A) indicates the battery is not getting enough charge from the alternator. The light should come on when the key switch is turned from off to run. The light should go off once the engine starts.

Engine Manifold Heater Indicator Light

• The manifold heater light (B) will light to indicate the intake manifold heater is energized and the operator should wait until it goes off before starting the engine.

• The manifold heater is controlled by a temperature sensitive timer, and will turn off sooner in warm weather.

• Starting the engine before indicator turns off will waste fuel, create smoke, and put unnecessary wear on starter.

• The engine manifold heater light will also flash trouble codes if the operator tries to start the engine without the proper conditions. (See Starting the Engine in this section.)

Engine Coolant Temperature Light

• The engine coolant temperature light (C) indicates that the engine is overheating. A warning beeper will sound anytime the light is turned on.

• If the light lights while mowing, perform the following steps:

a. Remove foot from hydrostatic pedal to stop travel.

b. Disengage PTO.

c. Lock park brake.

d. Set throttle to slow idle.

e. If a major coolant leak is seen coming from the engine compartment, stop the engine immediately.

f. If no coolant or steam can be seen leaking from the engine, open the engine cover and allow engine to idle for five minutes, or until coolant temperature light goes off, then stop engine.

• Check and clean area around radiator and hydraulic oil cooler for buildup of debris and grass.

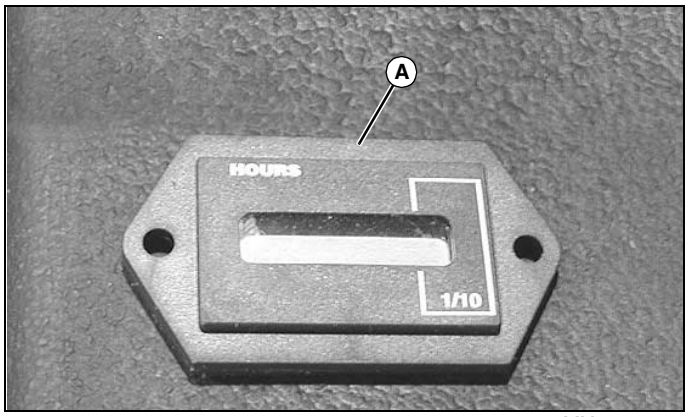
• Fill coolant overflow tank with a 50/50 mix of coolant and water.

• Allow engine to cool. Inspect cooling system for damage and repair. Fill radiator with 50/50 mix of coolant and water.

Engine Oil Pressure Light

• The engine oil pressure light (D) indicates the engine oil pressure is low. The indicator should light when the key switch is turned to the run position. A warning beeper will sound anytime the light is turned on. The light (and beeper) should go off once the engine starts.

Hour Meter



MX18660

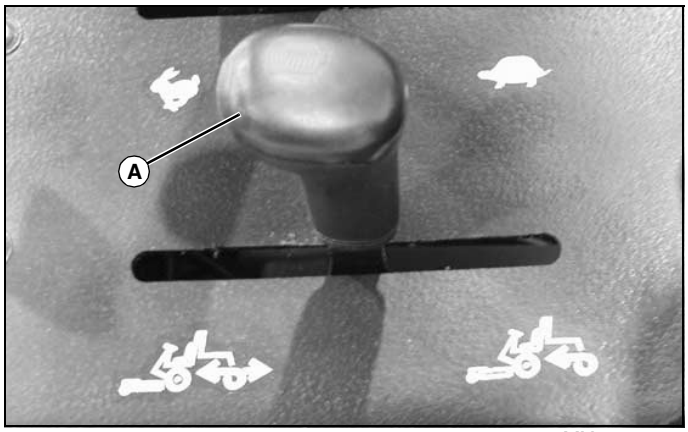
The hour meter (A) records the number of hours the engine has run.

Use the hour meter and the periodic service chart (located in the engine compartment) to determine when service procedures need to be performed on the machine and mower deck.

Using Four Wheel Drive Lever

CAUTION: Avoid injury! To avoid loss of control or damage to turf, do not turn suddenly or at high speeds while machine is in four wheel drive. Do not use four wheel drive any longer than required.

NOTE: "On-demand" operates only forward.



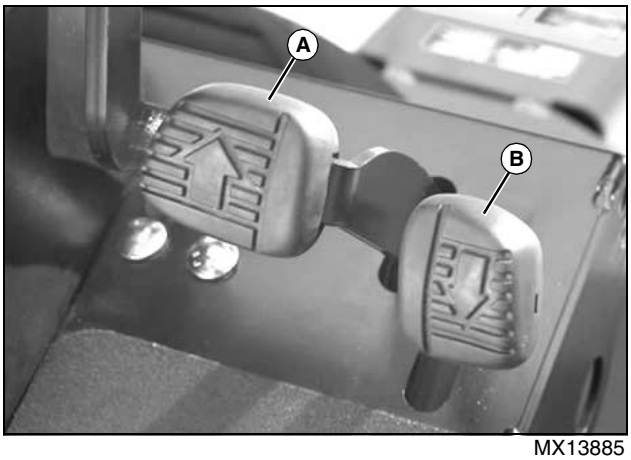
MX18659

• Pull back on four wheel drive lever (A) (position shown) to use "on-demand" four wheel drive. Rear wheels will engage whenever front wheel slip is detected, and will disengage automatically.

IMPORTANT: Avoid damage! Damage can result if driven in full-time 4WD while mowing or transporting. Only use 4WD as needed during reverse travel.

• Push four wheel drive lever forward to engage full-time four wheel drive. Four wheel drive is locked in for forward and reverse travel.

Using Hydrostatic Pedals



MX13885

Using Forward Travel Pedal:

1. Push the forward travel pedal (A) down to begin driving machine. Push the pedal down more to travel faster.

2. Release the pedal to return to neutral and stop the mower

Using Reverse Travel Pedal:

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.

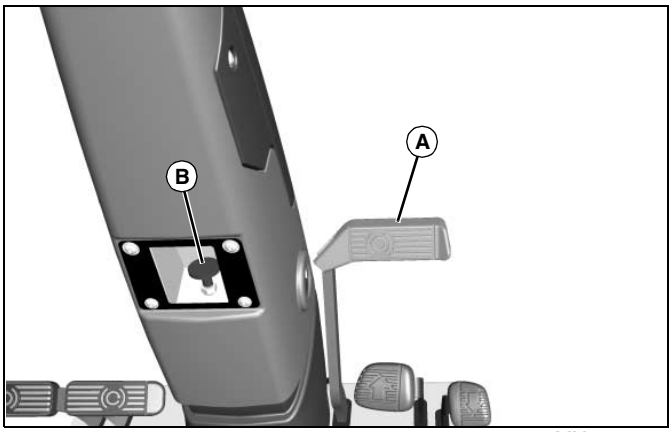
• Disengage the mower before backing up.

1. Push the reverse travel pedal (B) down to back the machine. Push the pedal down more to travel faster.

2. Release pedal to return to neutral and stop the machine.

Using Brakes

Using Master Brake Pedal



MX18578

1. Push the master brake pedal (A) down to hold the machine stationary on a slope or for an emergency stop. PTO will disengage when master brake pedal is pressed. and PTO switch will have to be recycled to restart PTO once brake is released.

Using 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.

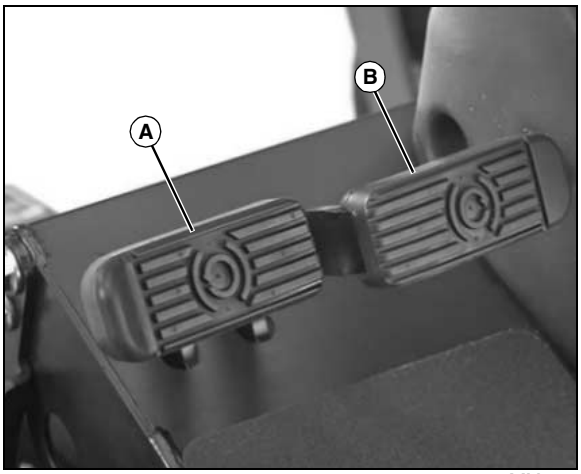
1. Lock the park brake by pulling the park brake knob (B)

fully upwards. Press the master brake pedal (A) down fully. The park brake should now be locked.

2. Unlock the park brake by pushing the park brake knob (B) down fully. Fully press and release the master brake pedal (A). The park brake should now be unlocked.

Using Turn Brakes

The turn brakes are used to change direction quickly within the width of machine. Avoid locking the tire with the turn brake in areas where turf damage is not acceptable. The turn brakes will not turn the machine if the differential lock is engaged.



MX13890

1. Press down on the left turn brake pedal (A) to slow or stop the rotation of the left front tire, while power is applied to the right wheel. The machine will turn to the left. Release the turn brake pedal to resume driving in a straight line.

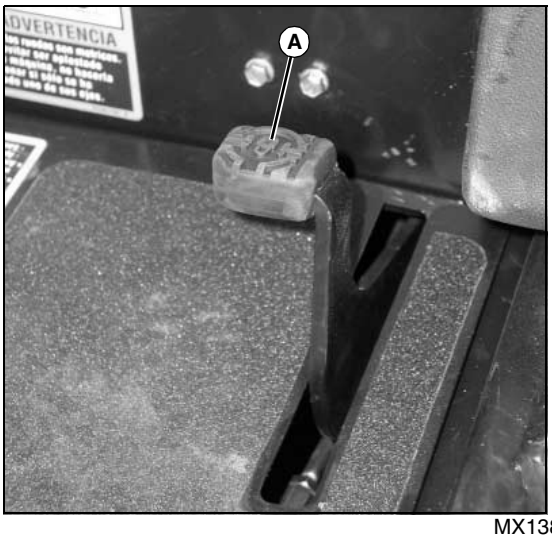
2. Press down on the right turn brake pedal (B) to turn to the right.

Using Differential Lock Pedal

The differential lock is used to help improve traction on slopes and in slippery surfaces. The front drive axle will lock so that the front wheels turn together.

IMPORTANT: Avoid damage! Use the pedal only when you need more traction. Do not lock the differential at high speed or make sharp turns when the differential is locked, or turf damage may result.

To lock the differential:



MX13887

1. Push the pedal (A) down with the left foot and hold it.

To unlock the differential:

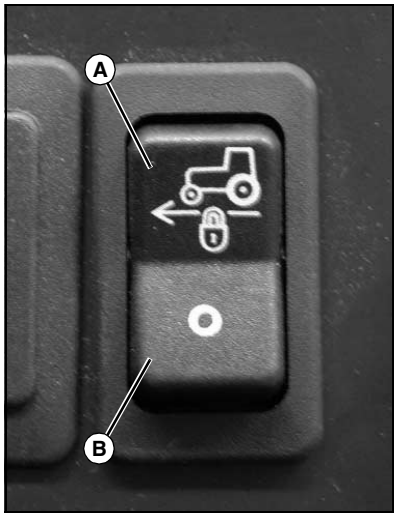
1. Release the pedal.

2. The differential will stay locked as long as wheel slip is unequal. Once the load on the transmission is equalized and reduced, the differential lock will disengage.

Using Cruise Control

Engaging Cruise Control

1. Push the forward travel pedal down until the machine has reached the desired travel speed.



MX13891

2. Push the cruise control switch fully forward (A), then release. Allow switch to spring back to the centered position.

3. Remove foot pressure from forward travel pedal. Machine should continue to run at desired speed.

Disengaging Cruise Control

To disengage the cruise control, do one of the following:

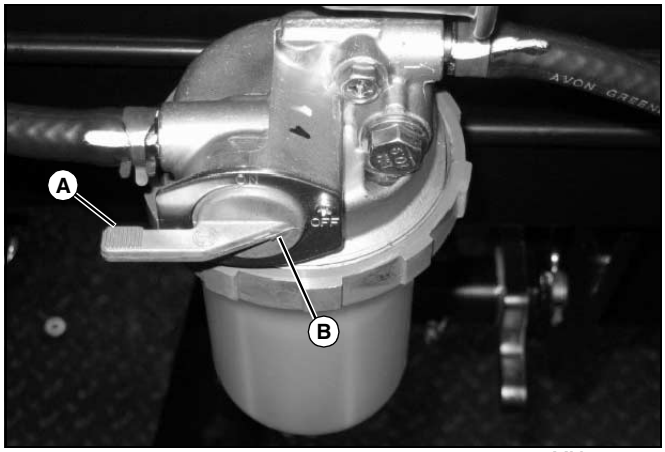
- Push down on the master brake pedal.
- Push down on the bottom (B) of the cruise control switch.

Using Fuel Shutoff Valve

NOTE: Shut off fuel flow when transporting machine on a trailer or storing machine.

1. Lift and open the engine cover.

2. Rotate the fuel shutoff valve to the open or closed position as follows:



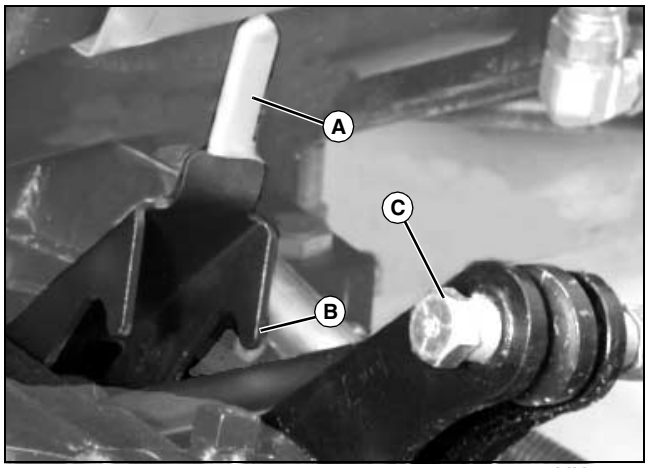
MX22715

- To open, turn the handle (A) so the pointer (B) is facing upwards.
- To close, turn the handle so the pointer is facing to the rear as shown.

Using Mower Deck Transport Locks

1. Bring machine to a stop.

2. Raise side decks to top of travel.



MX0467

3. Push left and right side transport lock levers (A) down until hooks (B) are over pivot pins (C).

4. Lift transport lock handle to unlock. If mower deck has been lowered while lock is engaged, it will be necessary to raise deck up to unlock transport lock.

Raising and Lowering Mower Decks

CAUTION: Avoid injury! Do not raise the mower decks on slopes or when traveling at high speeds, as the machine could become unstable. Deck lowers quickly when control lever is pushed forward.

MX22734

A - Left Mower Deck Lift Lever
B - Front Mower Deck Lift Lever
C - Right Mower Deck Lift Lever

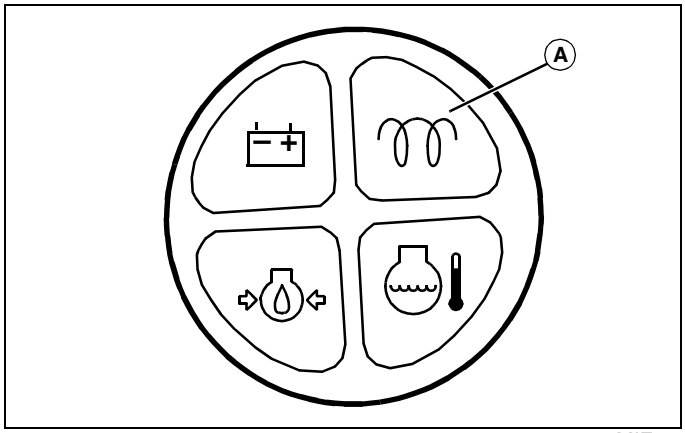
1. To raise a mower deck, pull the correct mower deck lift lever rearward. Mower deck will raise up until the lever is released, or the mower deck reaches the top of its travel, whichever occurs first.

2. To lower a mower deck, momentarily push lever forward. Mower deck will drop fully down to the ground. If deck needs to be stopped before it lowers completely, momentarily pull the lift lever rearward, and then allow it to return to center.

• Raising a side deck will stop the blades for that deck. Lowering the side deck will restart the blades.

• Raising the front deck will stop the blades for all decks. To restart blades, lower the front mower deck, and cycle the PTO switch from on to off, to on again.

Using Starting Trouble Codes



MIF

If starter will not engage when key switch is turned to start position, one of the start conditions has not been met. A trouble code will flash on the instrument panel at the engine manifold heater light (A) when the key switch is held in the start position. The trouble codes are presented as a sequence of flashes and pauses that must be counted and converted to a two digit number:

• One flash, a short pause, and two flashes - Operator attempted to start machine without park brake locked and operator is off of seat. (One of these conditions must be met for starter to engage.)

• One flash, a short pause, and three flashes - Operator attempted to start machine with PTO engaged.

• Two flashes, a short pause, and one flash - Hydrostatic pedals are not centered into the neutral position.

Starting Engine

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

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

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

• Connect a pipe extension to the engine exhaust pipe to direct the exhaust fumes out of the area.

• Allow fresh outside air into the work area to clear the exhaust fumes out.

NOTE: Engine will not start unless the PTO is off, and the hydrostatic pedals are in the centered (neutral) position.

1. Open the fuel shutoff valve (if closed).

2. Sit on the operator's seat. Put on seat belt.

3. Lock the park brake.

4. Push the PTO switch to the off position.

5. Pull the throttle lever back to the slow idle position.

6. Turn the key switch to the run position. Wait for the engine preheat light to turn off.

IMPORTANT: Avoid damage! Do not overheat starter. Do not operate starter more than ten seconds at a time. Wait two minutes before trying again if engine does not start.

7. Turn the key switch to the start position for no longer that ten seconds. Release key to run position after engine starts.

- If starter engages, but engine does not start, wait two minutes and try again for no longer than ten seconds.
- If starter does not engage, the engine preheat light may blink starting trouble codes while the key switch is in the start position. See Using Starter Trouble Codes to help determine why the engine will not start.

IMPORTANT: Avoid damage! Do not idle engine for long periods of time. Excessive idling can cause engine overheating, carbon build-up, and poor performance.

8. Let engine run at half-speed position for two minutes to allow it to warm up before operating machine.

Stopping Engine

1. Stop PTO by moving PTO switch to off position.
2. Move throttle lever to slow idle position.
3. Lock the park brake.
4. Lower the mower decks to the ground.

IMPORTANT: Avoid damage! Allow engine to idle for two minutes before shutting down after running under load to avoid damage to turbocharger.

5. Turn key switch to STOP position.
6. Remove key.

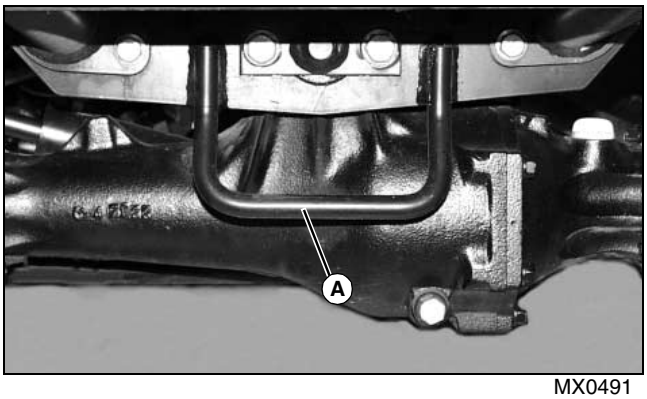
Transporting Machine

1. Turn PTO switch to off position.
2. Lower front mower deck.
3. Lower left and right side mower decks. (If necessary to transport with side decks raised, engage transport locks and keep transport speeds low).
4. Move speed range lever forward to transport position.

Towing Machine

IMPORTANT: Avoid damage! Do not tow machine faster than 15 mph. Steering will be more difficult with engine off. Do not tow machine unnecessarily.

1. Unlock the park brake.
2. Put range shift lever in neutral (N) position.



MX0491

3. Attach heavy chain or tow strap to tow loop (A) of machine at rear axle.
4. Pull machine slowly, using brakes when necessary.
5. Do not use machine to pull or tow any other vehicle or trailer.

Transporting Machine on Trailer

Be sure trailer has all the 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.**

1. Raise side decks and engage transport locks.
2. Drive forward onto heavy-duty trailer with front deck raised.
3. Lower front deck down to platform of trailer.
4. Stop engine, remove key, lock park brake.
5. Close the fuel shutoff valve.
6. Fasten machine to trailer with heavy-duty straps, chains, or cables. Fasten rear straps to rear tow loop behind rear axle. Fasten front straps to tie down holes on operator's platform. Both front and rear straps must be directed down and outward from machine.
7. Check that engine cover latches are locked down.

Adjusting Cutting Height

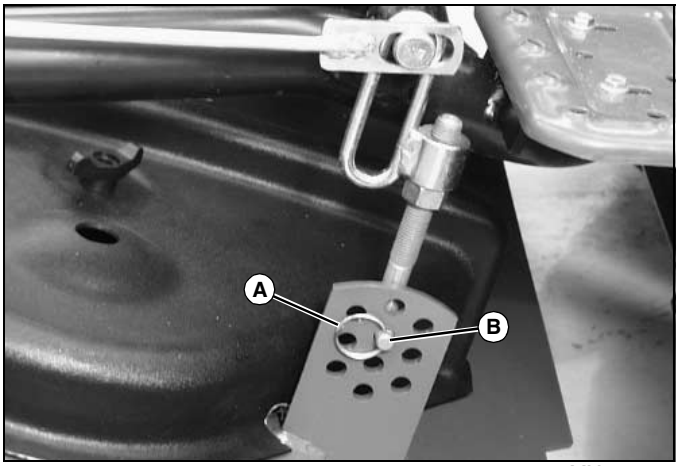
1. Stop machine on level surface, PTO off, park brake locked.

2. Raise all mower decks. Engage left and right side deck transport locks. Stop engine.

3. Check tire pressures on all machine tires, and deck caster wheels.

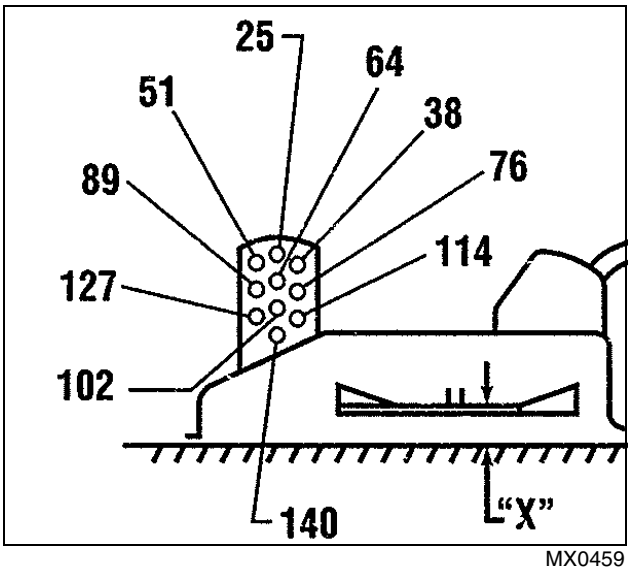
- Machine front tires: 207 kPa (30 psi)
- Machine rear tires: 193 kPa (28 psi)
- Mower deck caster wheels: 275 kPa (40 psi)

Adjusting Front Deck Cutting Height



MX3718

1. Remove retainer ring (A) from deck hanger pin (B) on left and right side of front deck.



MX0459

2. Using the figure above, or decal mounted on front deck, place deck hangers into holes that match desired cutting height.

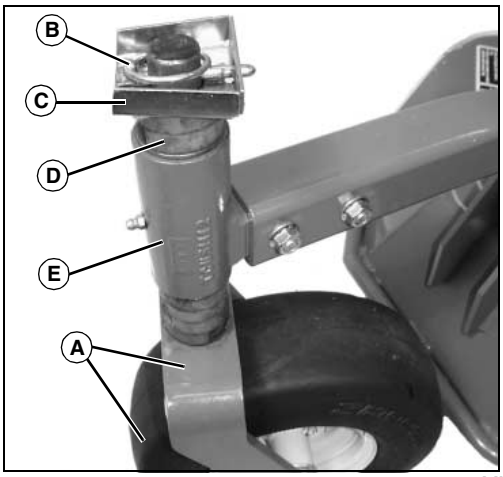
3. Install retainer rings into hanger pins.

4. Adjust caster wheels on front deck to match cutting height selected on hanger.

Adjusting Caster Wheels Cutting Height

NOTE: This adjustment is for all caster wheels on front and side mower decks.

1. Raise mower decks.

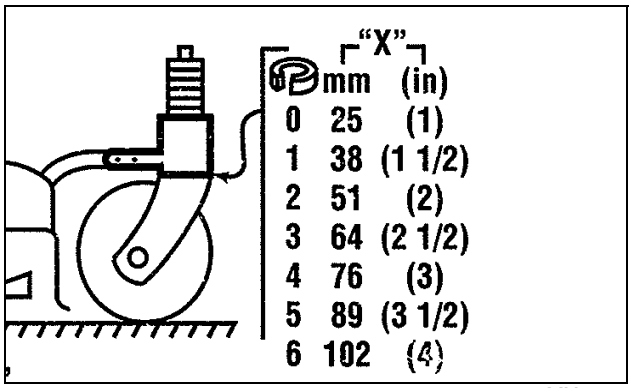


MX0462

2. Support the caster wheel and bracket (A) with one hand, while removing quick-lock pin (B) and spacer guard (C).

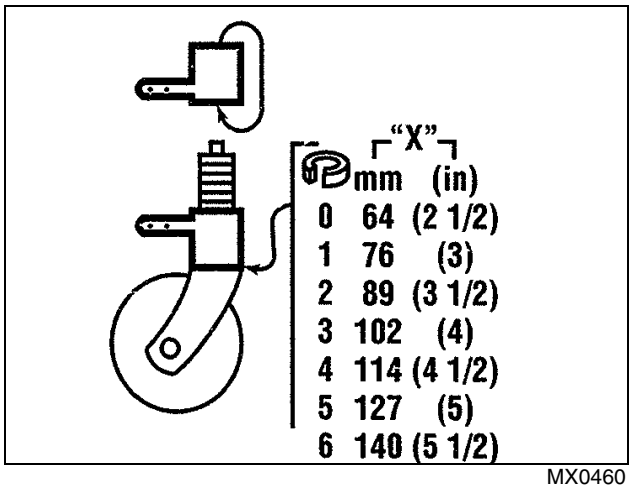
3. Remove the spacers (D) from the top of the caster pivot shaft.

4. Lower the caster and pivot shaft out of the caster support bracket (E).



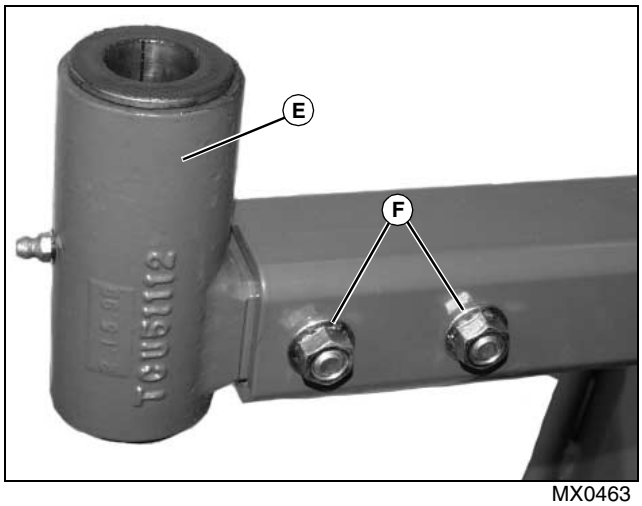
MX0459

5. Use the figures above, or decal mounted on front mower deck to select the number of spacers needed to set caster wheel to desired height.



MX0460

6. Flip caster support brackets over to adjust blades to higher than 102 mm (4 in.) cutting height.



MX0463

- To flip the caster support brackets (E), remove two cap screws, nuts, and bushings (F), holding support bracket to mower deck arm. Remove bracket from arm, flip over bracket, and install back into arm.

7. Install cap screws and nuts, but do not tighten nuts at this time.

8. Install the proper number of spacers onto the bottom of the caster shaft.

9. Install the caster wheel and bracket up though the caster support bracket.

10. Install remaining spacers onto the top of the caster shaft.

NOTE: When adjusting side decks to 25 mm (1 in.) height of cut, do not install spacer guard on inside caster wheel pivot. Spacer guard may contact engine cover when side deck is raised.

11. Install the spacer guard with open end facing forward (as shown).

12. Install quick-lock pin into caster shaft and hole in spacer guard. Snap retainer loop over caster shaft.

13. If cutting height was adjusted above 102 mm (4 in.), perform the follow steps:

a. Lower mower deck to ground.

b. Turn caster wheels so they are trailing to the rear (as would happen during normal forward travel).

c. Tighten caster support bracket hardware.

Checking Mower Deck Level

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

2. Lower all mower decks completely to ground.

3. Check tire pressures on all machine tires, and deck caster wheels.

- Machine front tires: 207 kPa (30 psi)
- Machine rear tires: 193 kPa (28 psi)
- Mower deck caster wheels: 275 kPa (40 psi)

4. Set the mower decks at the desired cutting height.

5. Check that the front mower deck caster wheels and rear hangers are all set to the same height.

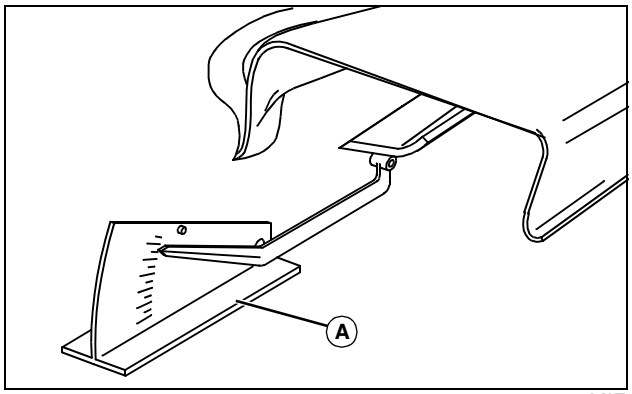
CAUTION: Avoid injury! Rotating blades are dangerous. Before adjusting or servicing mower:

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

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

6. Check that all caster wheels are trailing towards the rear, as they would be during normal forward travel.

7. Turn the blades until parallel to the front axle.



MIF

Picture Note: A convenient leveling gauge (A) is available from your John Deere dealer that will slip under the lip of the deck and measure blade height.

8. Measure distance from tip of outside blade to the ground. Repeat for blade on other side of deck. Mower blades should be level on both sides of deck.

9. Turn outer mower blades to face front-to-rear.

10. Measure height of front and rear of outer blade to ground. Repeat for other side.

Results:

• The blade cutting heights should be level side-to-side.

• The rear tips of the blades should be 6 mm (0.25 in.) higher than the front blade tips.

Adjusting Mower Deck Level

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

2. Lower all mower decks completely to ground.

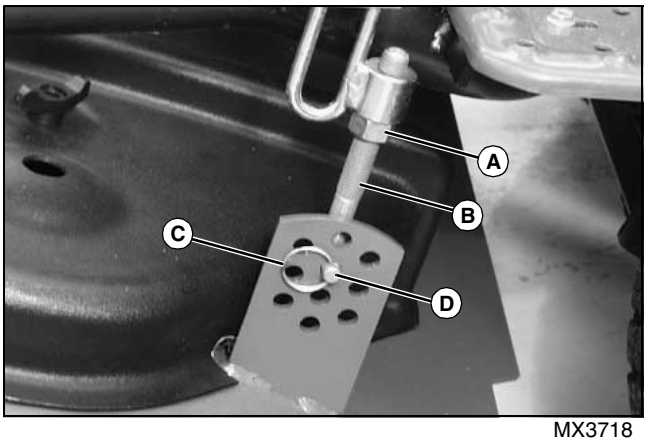
3. Check tire pressures on all machine tires, and deck caster wheels.

- Machine front tires: 207 kPa (30 psi)
- Machine rear tires: 193 kPa (28 psi)
- Mower deck caster wheels: 275 kPa (40 psi)

4. Set the mower decks at the desired cutting height.

5. Turn all caster wheels so they are trailing to the rear (as would happen during normal forward travel).

Adjusting Front Mower Deck Level



MX3718

1. Loosen locknut (A) on deck hanger (B).

2. Remove retainer ring (C) on hanger pin (D).

3. Turn rear hanger up or down to adjust deck height until blades are level side-to-side and front-to-rear.

4. Insert hanger pin (D) back into proper height adjuster hole, and secure with retainer ring.

5. Tighten locknut (A).

NOTE: It may be necessary to reduce caster wheel air pressure on one side only to help level mower deck.

Adjusting Side Mower Deck Level

The side mower deck level can be adjusted by lowering the air pressure in the two caster wheels on the side which is high. Do not exceed recommended air pressure in tires.

Engaging Blades

CAUTION: Avoid injury! Clear mowing area of all bystanders when operating this machine. Thrown objects could cause serious injury or death.

Keep hands and feet away from blades and discharge opening.

Do not mow in reverse unless absolutely necessary.

NOTE: Operate engine at full throttle while mowing.

1. Start engine and warm up.

2. Move the speed range lever to the low speed position.

3. Unlock the park brake.

4. Lower the mower decks to ground.

5. Move throttle forward to full throttle position.

6. Pull up on PTO switch.

   - Blades should start.
   - If one side deck is not lowered, the blades for that deck will not start up until deck is lowered.
   - If front deck is not lowered, none of the blades will start up.

7. Raise decks to disengage blades:

   - If a side deck is raised while mowing, the blades for that deck will stop. Blades will start up again once the deck is lowered.
   - If the front deck is raised while mowing, all blades on all decks will stop. Once front deck is lowered, the PTO switch will have to be cycled on-off-on to restart blades.
   - Move the PTO switch to the off position to stop all blades.

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 Elements:	
• Primary (Large)	AP33330
• Secondary (Small)	AP33331
• Fuel Filter (Spin On)	M811031
• Water Separator Element	M811032
Oil Filters:	
• Engine	M806419
• Hydraulic	AL77061
Battery	TY25272
Belts:	
• Front Deck	TCU14537
• Left Deck	TCU14539
• Right Deck	TCU14538
• Engine Alternator / Water Pump	M801821
Mower Deck Blades:	TCU51118
Fuses:	
• 15 Amp	99M7065
• 20 Amp	57M7691
Radiator Cap:	AT173610
Indicator Light Bulbs	57M7943

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

SERVICE INTERVALS

Servicing Your Machine

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

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

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

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

Service Intervals

Break-In - After First 5 Hours

• Check and tighten drive wheel hardware to specification.

• Inspect tires and check air pressure.

• Check for loose hardware.

• Check hoses for premature wear.

• Check and adjust park brake. (See the Technical Manual or your John Deere dealer.)

Break-In - After First 50 Hours:

• Change engine oil and filter.

• Change hydraulic oil filter.

• Check fuel filter sediment bowl; drain water if present.

• Inspect alternator belt and fan belt for wear and proper tension.

• Check tightness of air intake and coolant hose clamps.)

Before Each Use

• Check engine oil and coolant levels.

• Check hydraulic and transmission oil levels.

• Check brakes, speed control and neutral start switch functions.

After Each Use

• Clean air intake screens.

• Check air restriction indicator.

• Check for loose, missing, or damaged parts.

• Fill fuel tank.

Every 50 Hours or Yearly

• Check for bent or dull mower blades.

• Clean battery and check battery fluid level.

• Check and tighten drive wheel hardware to specification.

• Inspect tires and check air pressure.

• Check mechanical four wheel drive (MFWD) oil level.

• Grease caster wheels and caster arm bushings (20 places).

• Grease mower blade spindles (7 places).

• Grease side deck lift arms (2 places).

• Grease front deck lift arms (4 places).

Every 100 Hours

• Power wash mower decks with shields removed.

• Grease side mower deck lift cylinders - 4 places.

• Grease steering cylinder.

• Grease mechanical four wheel drive shaft universal joints (2 places).

• Grease hydrostatic creep adjustment eccentric (1 place).

• Grease rockshaft pivot areas (2 places).

• Grease tie rod ends (2 places).

• Grease rear axle pivot (1 place).

• Inspect mower deck drive belt condition.

• Check and adjust mower deck drive belt tension.

• Clean debris from radiator fins with low pressurized air.

• Grease pedal linkages.

Every 200 Hours

• Change engine oil and filter.

• Inspect alternator belt and fan belt for wear and proper tension.

• Check tightness of air intake and coolant hose clamps.

Every 500 Hours

• Change hydraulic oil and filter.

• Change rear axle four wheel drive oil.

• Change fuel filter, if not replaced within last year.

• Check roll-over protection system (ROPS) hardware for proper torque.

• Check brakes; adjust if needed.

• Service the rear axle pivot pin. (See the Technical Manual or your John Deere dealer.)

• Check valve clearance. (See the Technical Manual or your John Deere dealer.)

Yearly

- Change transmission oil.
- Check coolant freeze point and clarity.
- Replace fuel filter at least once per season.
- Change engine oil and filter, at least once per season.

Every 1500 Hours

- Check fuel injectors. (See the Technical Manual or your John Deere dealer.)

Every 2000 Hours or Two Years

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

Every 3000 Hours or Three Years

- Change engine coolant and thermostat, if using COOL-GARD™ PREDILUTED ANTIFREEZE (TY16034).

Every 3000 Hours

- Check fuel injection pump. (See the Technical Manual or your John Deere dealer.)

As Needed

- Replace fuses, light bulbs, and battery.
- Replace radiator hoses.
- Adjust alternator belt tension; or replace belt.
- Check and adjust park brake. (See the Technical Manual or your John Deere dealer.)
- Check/tighten hardware
- Check and/or replace air cleaner elements.
- Clean rubber dust unloading valve.
- Check and drain fuel filter sediment bowl.
- Service or replace battery.

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:

High Speed Applications

Use John Deere Multi-Purpose SD Polyurea Grease or John Deere Multi-Purpose HD Lithium Complex Grease for the following high speed applications:

- Mower Spindles (7 places).
- Rear Axle Bearings (1 place).
- Mechanical Four Wheel Drive Shaft Universal Joints (2 places).

Other Applications

Use John Deere Multi-Purpose HD Lithium Complex Grease or John Deere Moly High Temperature EP Grease for all other applications:

- Caster Wheels (10 places).
- Caster Arm Bushings (10 places).
- Mower Deck Lift Arms (4 places).
- Rockshaft (2 places).
- Side Mower Deck Lift Cylinders (4 places).
- Hydraulic Steering Cylinder (2 places).
- Rear Tie Rod (2 places).
- Hydrostatic Creep Adjustment Eccentric (1 place).

If not using any of the preferred greases, be sure to use a general purpose grease with a NLGI grade No. 2 rating. Avoid use of John Deere Moly High Temperature EP Grease on high speed applications such as mower spindles and the rear axle.

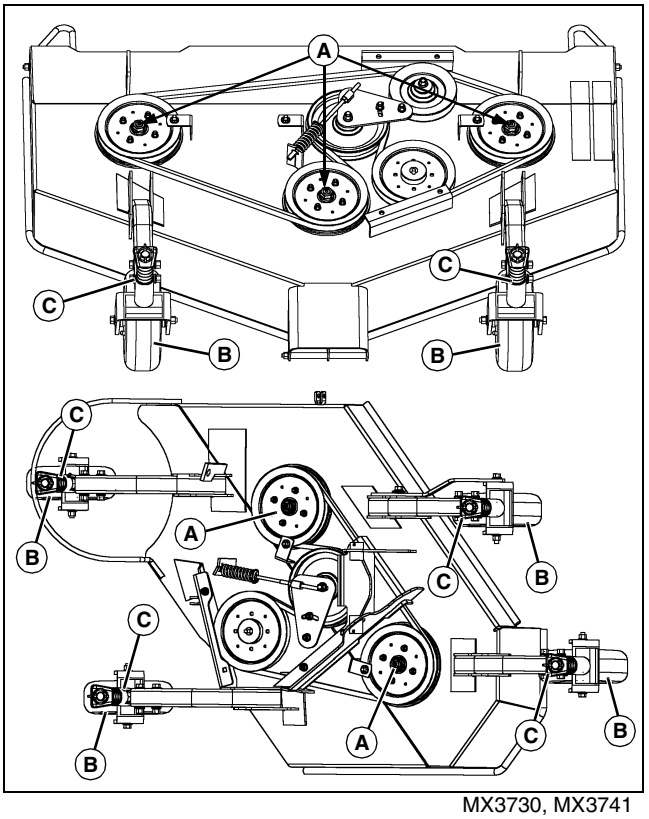
Operating in extremely wet conditions may require use of special purpose greases. See your John Deere dealer.

Wipe off all grease fittings before and after lubrication to prevent contamination.

Lubricating Mower Spindles, Caster Wheels, and Caster Wheel Yokes

1. Lower mower decks completely.

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



MX3730, MX3741

Picture Note: Front deck shown upper, side deck shown lower. Belt shields shown removed for clarity.

3. Lubricate mower deck grease fittings:

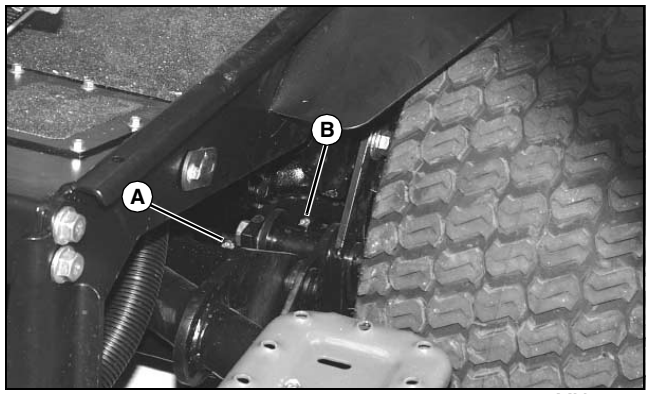
NOTE: Do not use use John Deere Moly High Temperature EP Grease on mower spindles.

- Mower blade spindles (A) with John Deere Multi-Purpose SD Polyurea grease or John Deere Multi-Purpose HD Lithium Complex Grease.
- Caster wheels (B) and caster arm bushings (C) with John Deere Multi-Purpose HD Lithium Complex Grease or John Deere Moly High Temperature EP Grease.

Lubricating Mower Lift Arms, Rockshaft, and Lift Cylinders

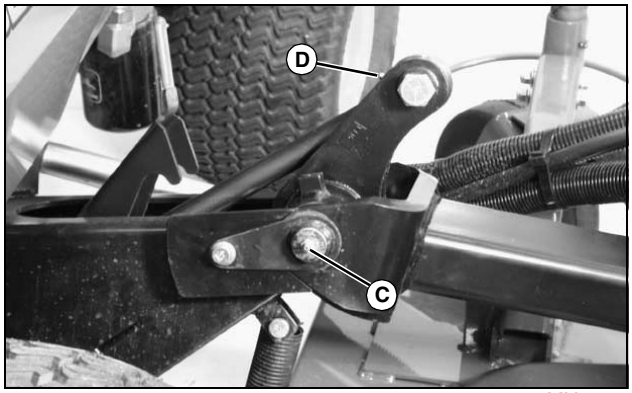
1. Lower mower decks completely.

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



MX3744

3. Lubricate front mower deck lift arm pivot joint (A) and rockshaft pivot joint (B) at both sides of machine with John Deere Multi-Purpose HD Lithium Complex Grease or John Deere Moly High Temperature EP Grease.



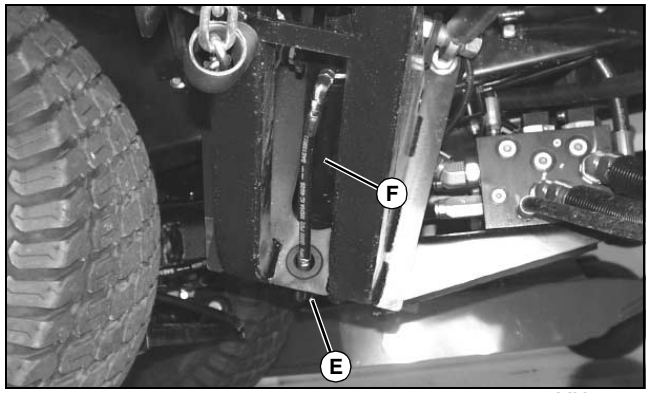
MX3742

4. Lubricate the side deck lift arm pivot joint (C) and lift cylinder pivot joint (D) at both sides of machine with John Deere Multi-Purpose HD Lithium Complex Grease or John Deere Moly High Temperature EP Grease.

5. Start machine. Raise side decks completely.

6. Engage both side deck transport locks.

7. Stop engine and remove the key.



MX3743

8. Lubricate grease fitting (E) at the base end of side deck lift cylinder (F) at both sides of machine with John Deere Multi-Purpose HD Lithium Complex Grease or John Deere Moly High Temperature EP Grease.

Lubricating Rear Axle Pivot Pin

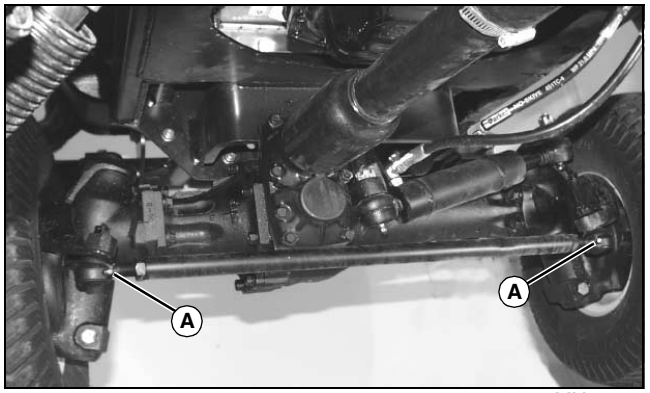
1. Park machine safely. (See Parking Safely in the SAFETY section.)

MX3745

2. Lubricate grease fitting (A) at left side of rear axle with John Deere Multi-Purpose SD Polyurea Grease or John Deere Multi-Purpose HD Lithium Complex Grease.

Lubricating Rear Tie Rod

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

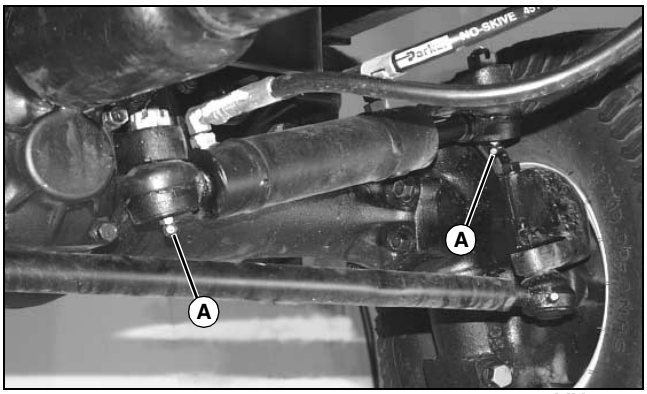


MX3746

2. Lubricate rear tie rod ends (A) with John Deere Multi-Purpose HD Lithium Complex Grease or John Deere Moly High Temperature EP Grease.

Lubricating Hydraulic Steering Cylinder

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



MX3747

2. Lubricate hydraulic steering cylinder ends (A) at rear of machine with John Deere Multi-Purpose HD Lithium Complex Grease or John Deere Moly High Temperature EP Grease.

Lubricating Hydrostatic Control Arm

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

MX22732, MX0439

2. Lubricate hydrostatic creep adjustment eccentric (A) with John Deere Multi-Purpose HD Lithium Complex Grease or John Deere Moly High Temperature EP Grease.

Lubricating Drive Shaft

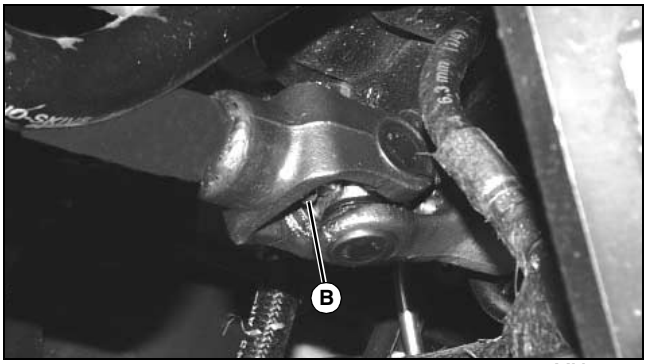
1. Raise side mower decks completely.

2. Engage both side deck transport locks.

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

MX3750

4. Lubricate rear universal joint (A) with John Deere Multi-Purpose SD Polyurea Grease or John Deere Multi-Purpose HD Lithium Complex Grease.

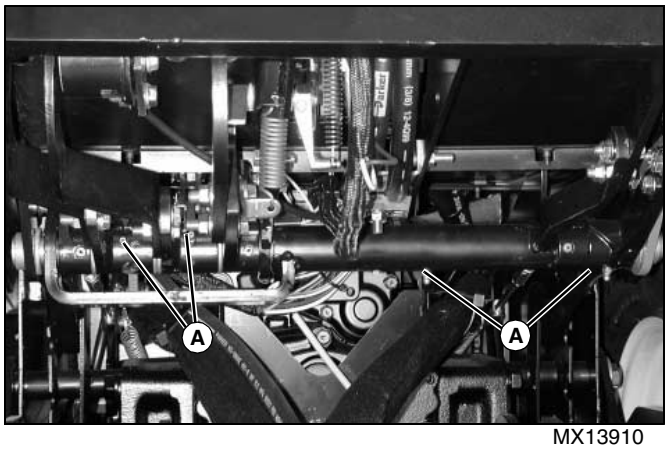


MX3751

5. Lubricate front universal joint (B) with John Deere Multi-Purpose SD Polyurea Grease or John Deere Multi-Purpose HD Lithium Complex Grease.

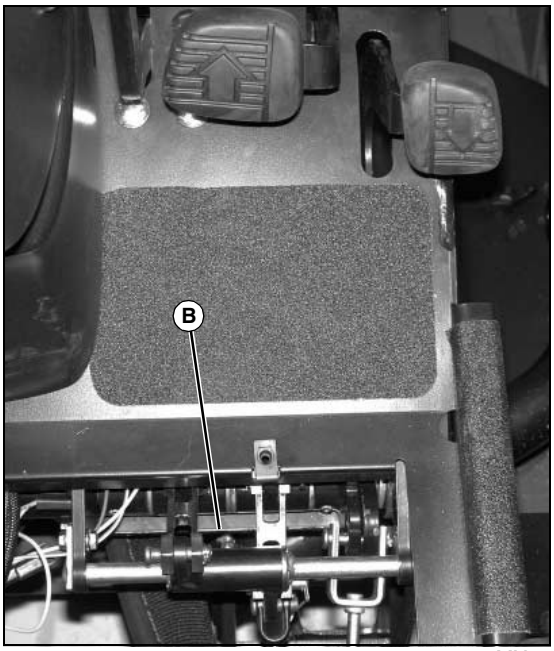
Lubricating Pedal Linkages

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



MX13910

2. Lubricate four grease fittings (A) located on brake pivot shaft located under operator's platform.



MX13911

3. Remove the service hatch on the floor of the operator's platform, and lubricate the hydrostatic pedal linkage at (B).

Engine Warranty Maintenance Statement

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

Avoid Fumes

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

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

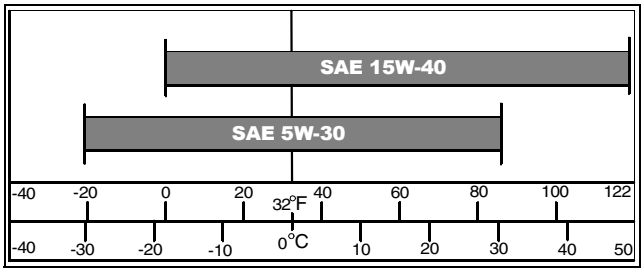
Do not run an engine in an enclosed area without adequate ventilation.

• Connect a pipe extension to the engine exhaust pipe to direct the exhaust fumes out of the area.

• Allow fresh outside air into the work area to clear the exhaust fumes out.

Engine Oil

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



The following John Deere oils are PREFERRED:

• TORQ-GARD SUPREME™

• PLUS-50™

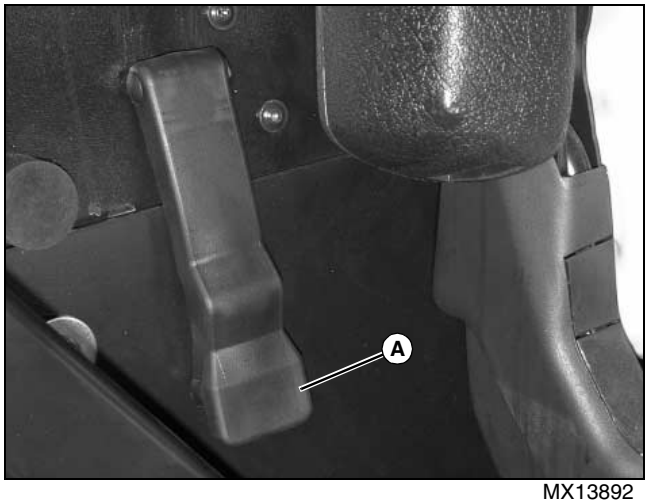
Other oils may be used if above John Deere oils are not available, provided they meet the following specifications:

• API Service Classification SH/CF or higher.

Raising and Lowering the Engine Cover

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

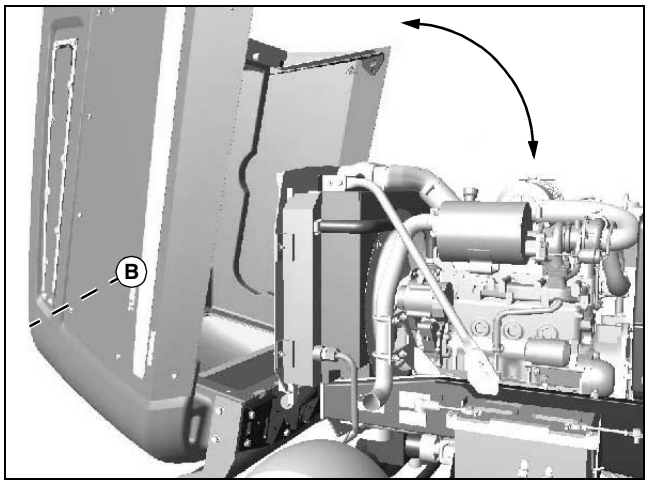
IMPORTANT: Avoid damage! Do not operate the machine with the engine cover in the raised position.



MX13892

2. Pull out on the bottom of engine cover latches (A) on left and right side of machine, behind operator's seat.

3. Unhook tops of the engine cover latches from the hooks on engine cover.



MX22729

4. Raise engine cover using handle (B). Open engine cover completely until it comes to rest.

5. Carefully lower engine cover using handle (B).

6. Hook the tops of the engine cover latches onto engine cover, and press in on bottom of latches to lock closed.

Raising and Lowering Seat Platform

To raise the operator's seat platform:

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

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

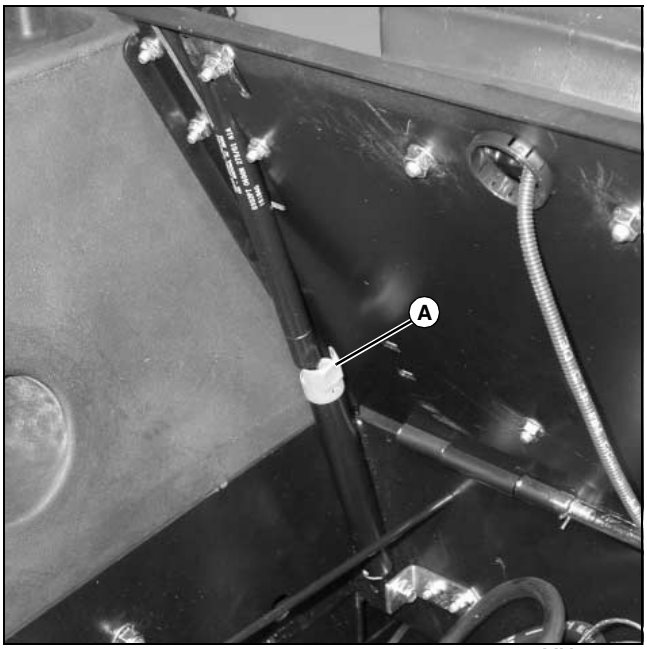
2. Stand on the operator's platform facing the operator's seat.

MX13908

3. Pull forward on the lift release knob (A), while pulling forward and upward on the backrest of the operator's seat.

4. The seat platform will latch in the raised position.

To lower the operator's seat platform:



MX13894

1. Push in on the orange lock lever (A) on the support rod.

2. Hold in the lock lever while pushing rearward on the backrest of the operator's seat.

3. Release the lock lever while continuing to lower the operator's seat platform until it latches in the fully lowered position.

Checking Engine Oil

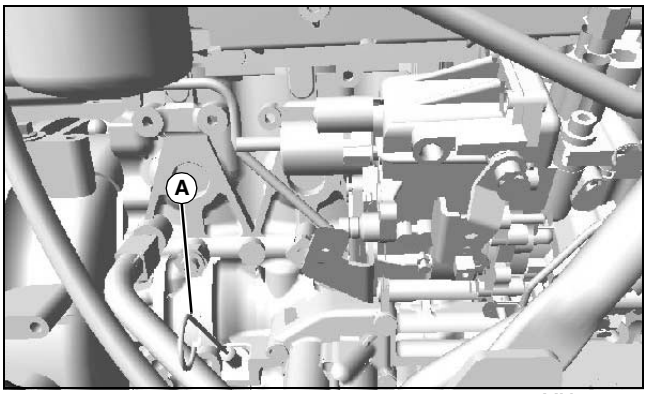
1. Park machine safely. (See Parking Safely in the SAFETY section.)

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

- **Check oil level before operating.**
- **Check oil level when the engine is cold and not running.**
- **Keep level between operating range on dipstick.**
- **Shut off engine before adding oil.**

2. Raise engine cover.

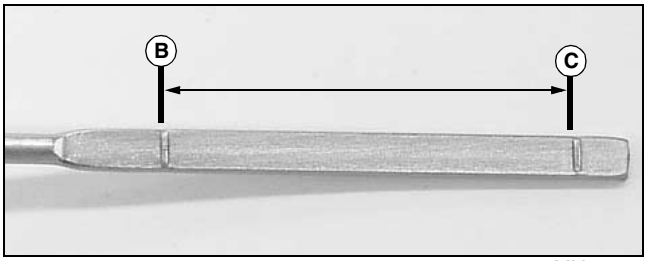
IMPORTANT: Avoid damage! Avoid dirt and other contaminants from entering the oil dipstick tube location. Clean area around dipstick before removing.



MX22708

3. Remove dipstick (A) located on the left side of the engine. Wipe dipstick with a clean cloth.

4. Install dipstick.



MX3320

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

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

6. Install dipstick.

7. Lower engine cover.

Changing Engine Oil and Filter

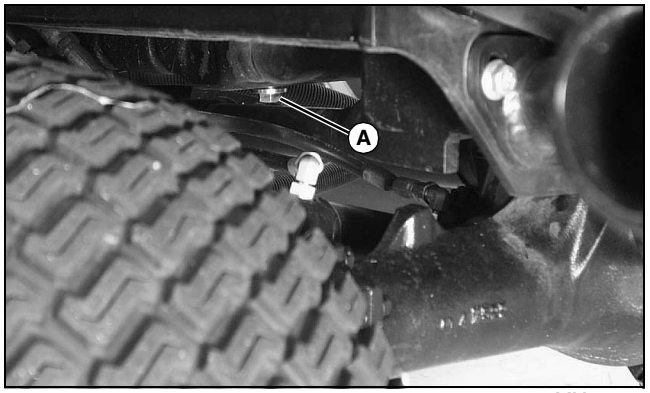
1. Run engine to warm oil.

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

3. Raise engine cover.

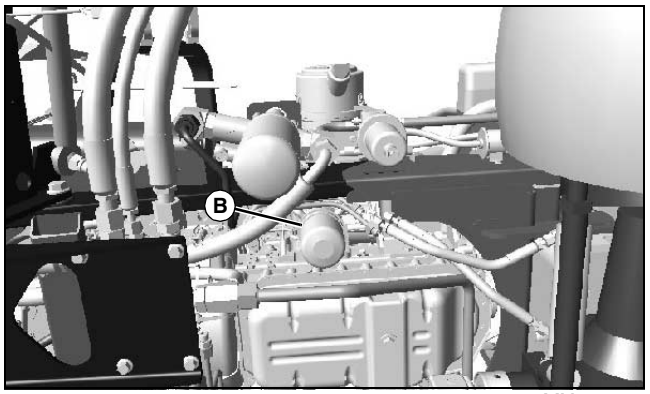
4. Place a drain pan under the oil drain location.

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



MX3217

5. Remove drain plug (A) located under the engine.



MX22711

6. Remove oil filter (B) located under the left side of the engine. Turn filter counterclockwise to remove.

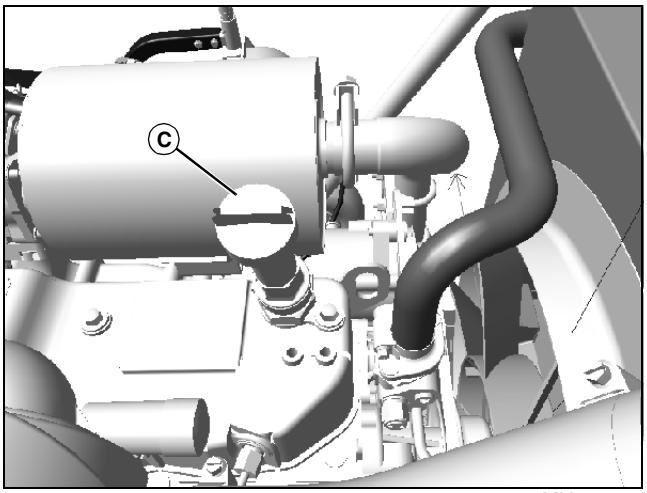
7. Clean filter mounting surface on engine with a clean cloth.

8. Apply a film of clean engine oil on gasket of new filter.

9. Install new filter.

- Turn filter clockwise until filter makes contact with the mounting surface. Tighten 1/2 - 3/4 turn after gasket contact.

10. Install oil drain plug. Do not overtighten.



MX22710

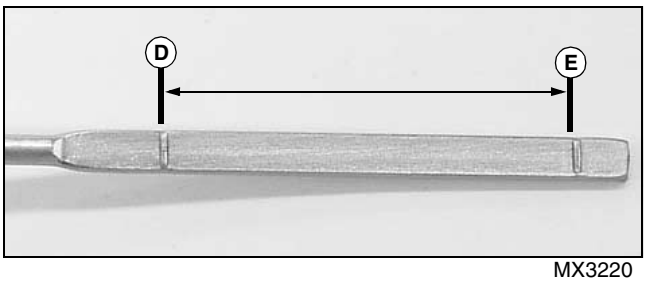
11. Remove oil fill cap (C) on top of engine.

IMPORTANT: Avoid damage! Do not overfill crankcase with oil. Oil capacities given are with engine and crankcase completely dry. Some oil will remain in engine after draining.

12. Add approximately 7.4 L (7.8 qt) of oil.
13. Install oil fill cap.
14. Start engine.
    - Run engine at a slow throttle speed for approximately two minutes.
    - Check area under engine for oil leaks.
15. Stop engine.
16. After approximately two minutes check engine oil level.

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

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



MX3220

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

Cleaning Hood Screens

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

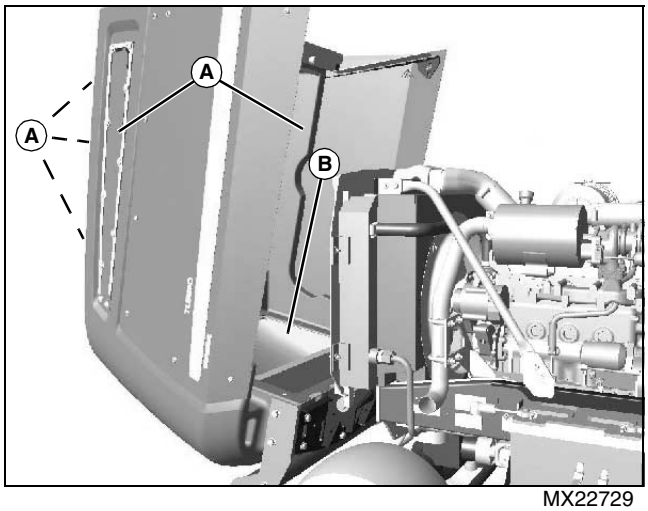
• Clear work area of bystanders.

• 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.

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



MX22729

3. Clean all five hood screens (A) with a brush, compressed air, or water.
4. Check for debris inside engine cover at (B).
5. Close engine cover and latch.

Cleaning Oil Cooler and Radiator

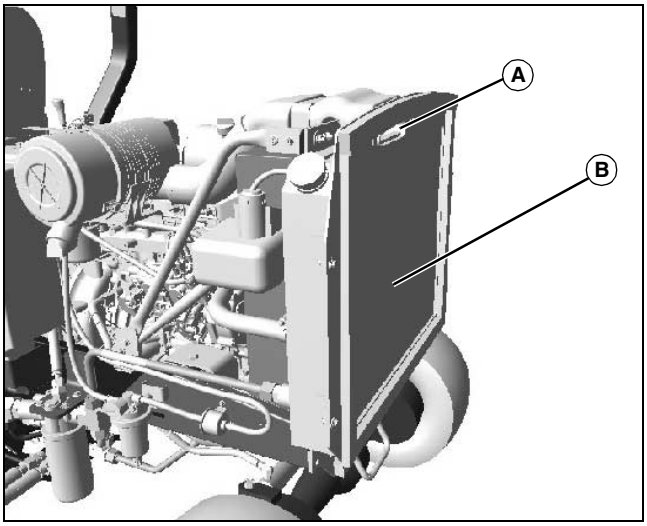
CAUTION: Avoid injury! Compressed air can cause debris to fly a long distance.

- **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! Oil cooler coils and radiator cooling fins must be clean to prevent the engine from overheating and to allow adequate air intake.

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

IMPORTANT: Avoid damage! When cleaning the oil cooler and radiator fins do not allow water and debris to enter air cleaner intake hose. Keep compressed air nozzle at least 150 mm (6 in.) away from fins while cleaning.



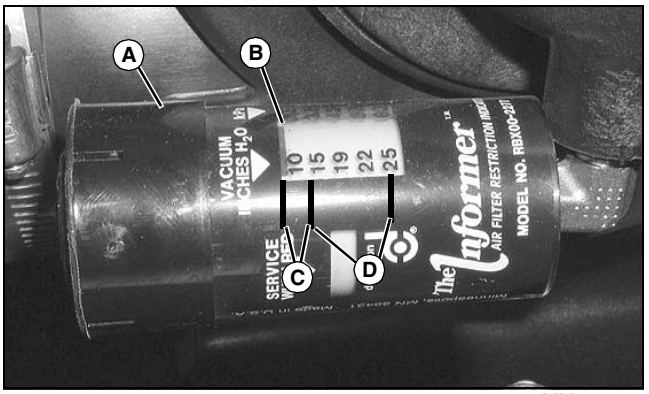
MX22719

4. Remove dirt and debris from oil cooler and radiator (B) by directing a stream of compressed air or water from the front side of radiator to the rear, being certain not to allow water or debris to enter air cleaner intake hose (A).
5. Check oil cooler coils and radiator fins for damage.
6. Lower engine cover.

Checking Air Filter Restriction Indicator

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

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



MX18661

3. Check air restriction indicator (A).
   - When the line (B) on the yellow plunger inside the indicator is within range (C), no air cleaner service is required.
   - When line on the yellow plunger inside the indicator is within range (D), air cleaner needs replacement.
4. Lower engine cover.

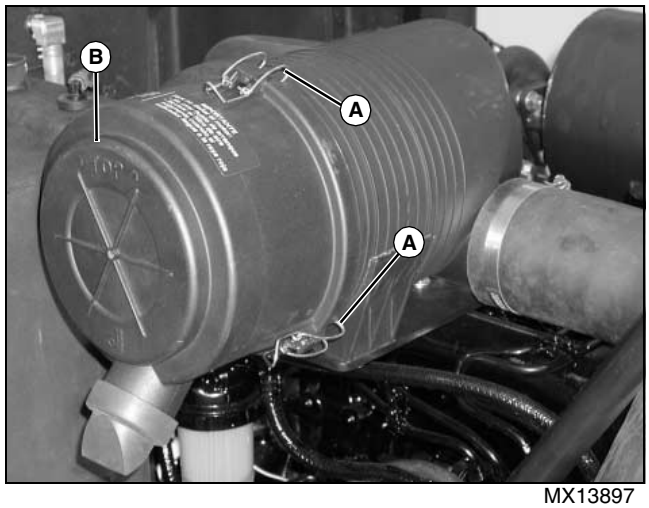
Servicing Air Cleaner Elements

Primary Air Filter Element

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

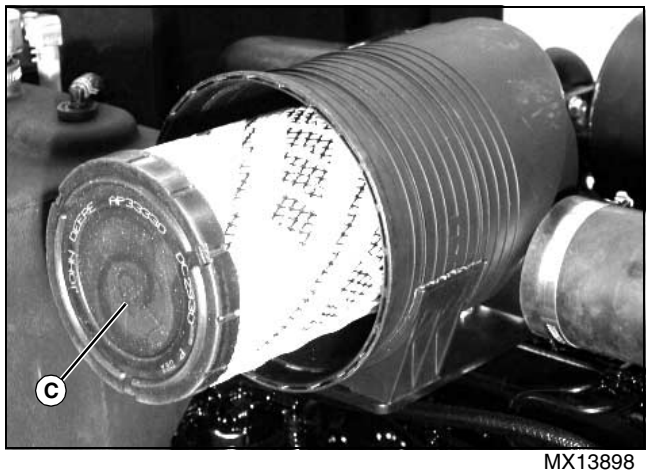
Check filter element more frequently if operating in dusty conditions.

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



MX13897

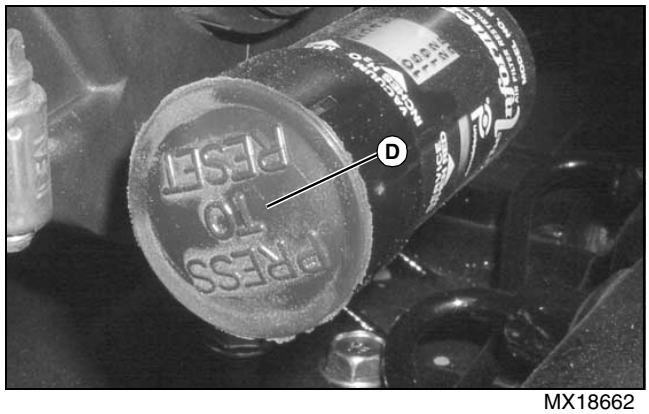
4. Release the three latches (A) (one not shown) and remove air cleaner canister cover (B).



MX13898

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

6. Install air cleaner canister cover with rubber dust unloading valve pointing downward. (Check direction molded into canister cover for proper installation.)



MX18662

7. Push reset button (D) on the air restriction indicator.

8. Start engine. Allow engine to run approximately one minute at maximum throttle speed. Return to idle speed and run for another minute.

9. Stop engine.

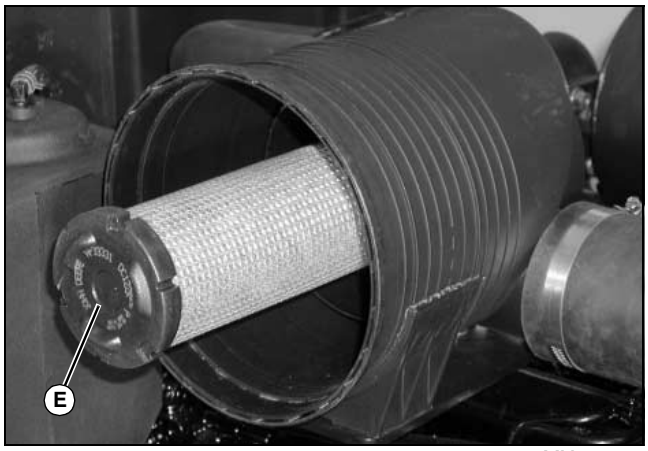
10. Check air restriction indicator.

- If yellow plunger inside the indicator is visible inside the red zone, replace secondary air filter element.

Secondary Air Filter Element

1. Remove air cleaner canister cover.

2. Remove primary air filter element.



MX13899

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

4. Install primary air filter element.

5. Install air cleaner canister cover.

6. Lower engine cover.

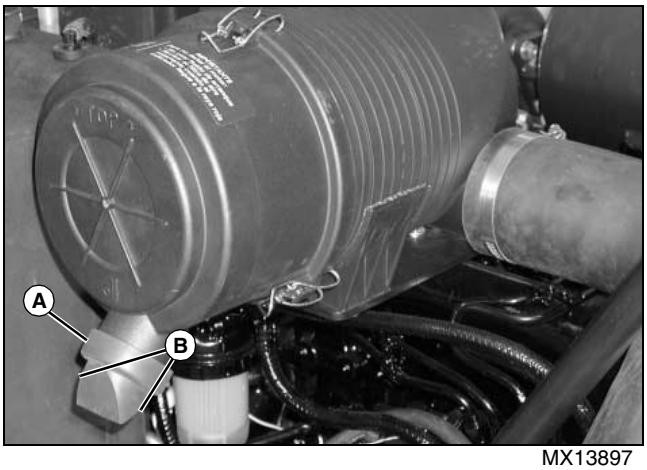
Cleaning Rubber Dust Unloading Valve

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

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

2. Allow engine to cool.

3. Raise engine cover.



MX13897

4. Locate dust unloading valve (A) attached to the front of the air cleaner canister.

5. Visually check dust unloading valve. Replace with new valve if worn, damaged, or missing.

6. Pinch corners (B) to allow any dirt or debris to fall out of the valve.

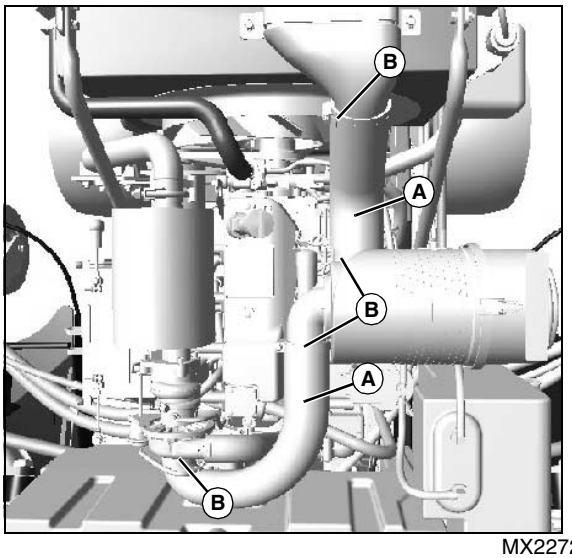
7. Lower engine cover.

Checking Radiator Hoses, Air Intake Hoses and Clamps

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

2. Allow engine to cool.

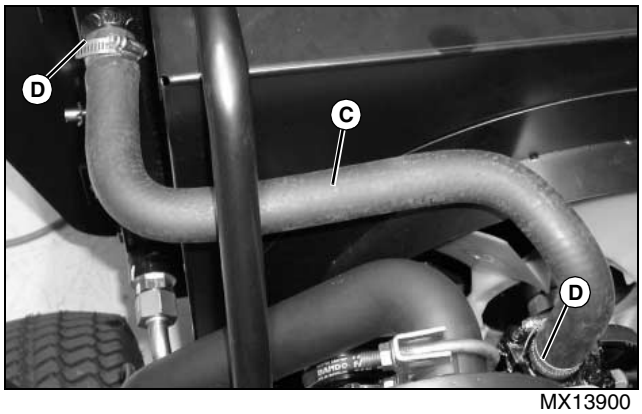
3. Raise engine cover.



MX22720

4. Check air intake hoses (A).

- Tighten hose clamps (B).
- Check hoses for cracks or damage. Replace if necessary.



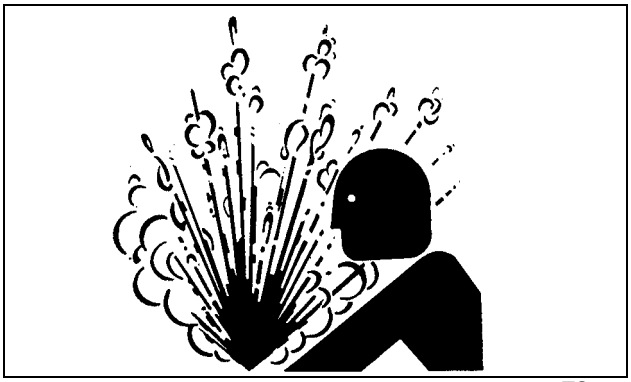
MX13900

5. Check upper radiator hose (C) and lower radiator hose (Not Shown).

- Tighten hose clamps (D).
- Check hoses for cracks or damage. Replace if necessary.

6. Lower engine cover.

Service Cooling System Safely


TS281

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

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

Recommended Engine Coolant

The following John Deere coolants are preferred:

• COOL-GARD™ PRE-DILUTED SUMMER COOLANT (TY16036).

• COOL-GARD™ CONCENTRATED SUMMER COOLANT (TY16034).

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

• ASTM D4985 (JDM H24A2).

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

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

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

Checking Coolant Level

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

• Do not operate engine without coolant or with plain water.

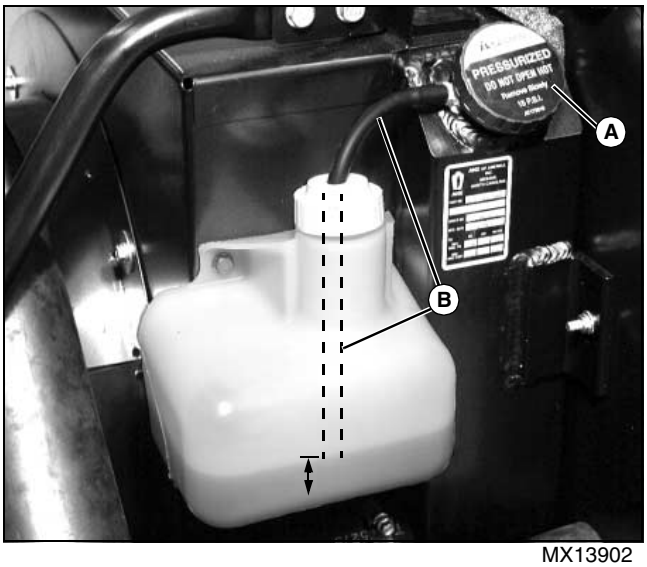
• Use antifreeze approved for use in aluminum engines.

• Do not exceed a 50% antifreeze mixture for the coolant.

• Do not pour coolant or water into radiator when engine is hot.

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

2. Allow engine to cool. Raise engine cover.



MX13902

3. Remove radiator cap (A) and check coolant level is up to filler neck.

4. If coolant is low, add specified ratio of antifreeze and water.

5. Install radiator cap.

NOTE: Coolant recovery tank is used to catch overflow from radiator, and will be about half full during full power operation. Coolant will flow back into radiator as system cools.

6. Check coolant recovery tank. Make sure the overflow hose (B) is not touching the bottom of the recovery tank.

7. Coolant recovery tank should be half full at engine operating temperature.

8. If necessary, clean debris from the engine cover screen, oil cooler coils and radiator cooling fins.

9. Check condition of hoses and clamps. Check for leaks or loose connections.

Servicing the Cooling System

Draining Cooling System

CAUTION: Avoid injury! Do not remove the radiator cap unless the engine is cool. Slowly loosen cap to the first stop. Release all pressure before removing cap. When the engine is hot, the explosive release of fluids from the pressurized cooling system could cause serious burns.

Antifreeze is hazardous to the environment. Dispose of antifreeze in a proper container

IMPORTANT: Avoid damage!

• Do not operate engine without coolant.

• Do not pour coolant into the radiator when the engine is hot.

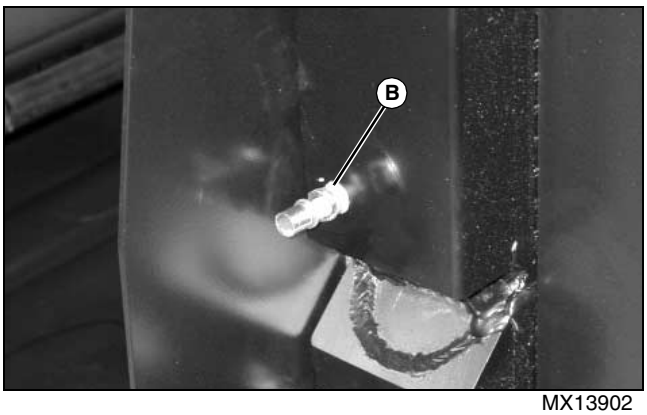
1. Park machine safely. (See Parking Safely in the SAFETY section.)

2. Allow engine to cool.

3. Raise engine cover.

MX13901

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



MX13902

5. Open petcock (B) located on the right side of the radiator. Drain coolant into a pan.

6. Close petcock after all coolant has drained from the radiator.

7. Flush the cooling system.

Flushing Cooling System

IMPORTANT: Avoid damage!

• Do not flush the cooling system when the engine is hot.

• Do not operate engine without coolant.

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

2. Install and tighten radiator cap.

3. Start and run engine until it reaches operating temperature.

4. Stop engine.

CAUTION: Avoid injury! Touching hot surfaces can burn skin. The engine, components, and fluids will be hot if the engine has been running. Keep hands and body away from hot surfaces when servicing or working near the engine and components.

5. Open radiator petcock.

- Drain cooling system immediately before rust and dirt settle.

6. Close radiator petcock.

7. Fill cooling system with clean water and repeat flushing until system is clean.

8. Drain system and fill with coolant.

Filling Cooling System

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

• Do not operate engine without coolant or with plain water.

• Use antifreeze approved for use in aluminum engines.

• Do not exceed a 50% antifreeze mixture for the coolant.

• Do not pour coolant or water into radiator when engine is hot.

1. With engine and cooling system cool, open radiator cap to the first stop to release all pressure. Press down on cap

slightly and turn counterclockwise to remove.

NOTE: Cooling system capacity is 7.5 L (8 qt).

2. Fill cooling system.

- Certain geographical areas may require lower temperature protection. See the label on your antifreeze container or consult your John Deere dealer to obtain the latest information and recommendations.
- John Deere Cooling System Sealer or its equivalent may be added to the radiator to seal leaks. Do not use any other additives in the cooling system.

3. Start engine and watch coolant level in radiator. Add coolant if necessary to bring coolant level up to filler neck.

4. Install and tighten radiator cap. Run engine until at operating temperature.

5. Stop engine and allow to cool down.

6. Add coolant if necessary.

7. Check condition of hoses and clamps. Check for leaks or loose connections.

Servicing Fuel Water Separator Sediment Bowl

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

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

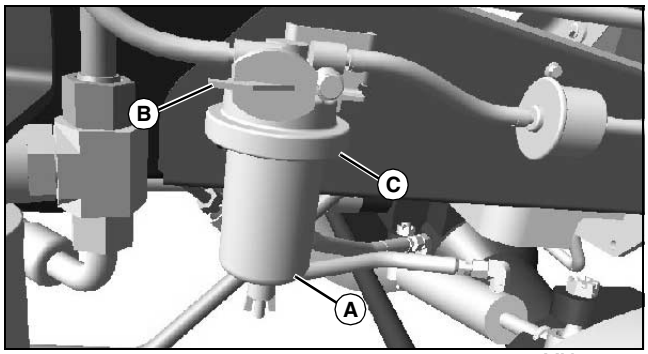
Checking

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

2. Allow engine to cool.

3. Raise engine cover.

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



MX22705

5. Look for water and deposits in the sediment bowl (A).

Cleaning and Replacing

1. Close fuel shut-off valve (B) by turning to the horizontal position as shown.

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

3. Clean bowl and install new filter.

4. Install bowl and collar. Tighten collar hand tight.

5. Open fuel shut-off valve by turning lever to vertical position.

6. Prime fuel system.

7. Start engine and check for leaks.

Priming Diesel Fuel System

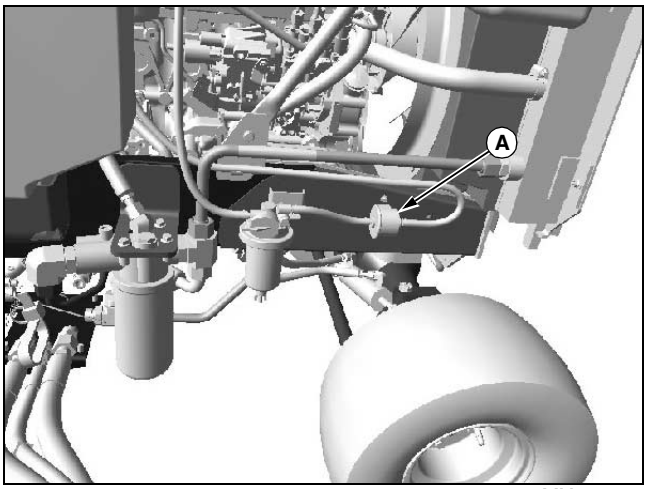
NOTE: It may be necessary to prime the fuel system after running out of fuel or changing the fuel filter.

1. Make sure the machine is on a level surface, not a slope.

2. Turn off PTO switch.

3. Lower attachments to the ground.

4. Lock the park brake.



MX22707

5. Turn key switch to RUN position for 2 minutes prior to starting engine. The fuel pump (A) will pressurize the fuel and remove any air in the system

6. Start engine. If engine will not start, repeat previous step.

Checking and Adjusting Alternator Belt

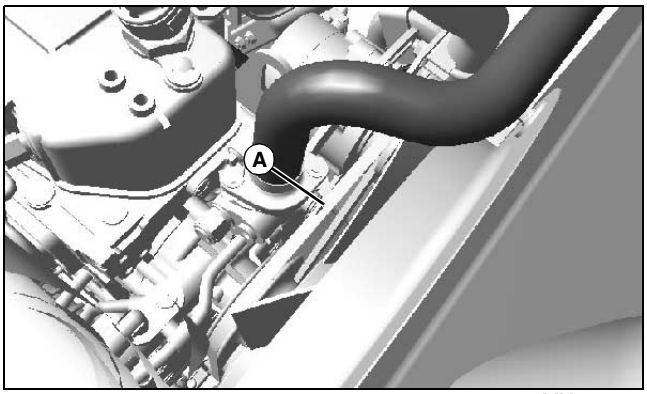
CAUTION: Avoid injury! Rotating parts can catch fingers, loose clothing, or long hair. Wait for engine and all moving parts to stop before leaving operator's station to adjust or service machine.

Check Belt Tension

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

2. Allow engine to cool.

3. Raise engine cover.

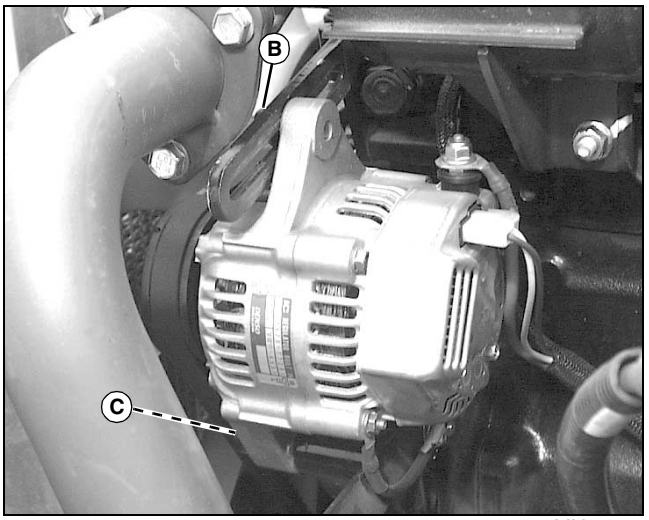


MX22709

4. Check alternator belt (A).

- Inspect belt for excessive were, damage or stretching while in position on the fan, alternator and flywheel sheaves.
- Apply thumb pressure to the belt approximately halfway between the sheaves. Belt should deflect inward approximately 10 - 15 mm (3/8 - 1/2 in.).

Adjusting Belt Tension



MX3225

Picture Note: Alternator located on right side of engine.

1. Loosen adjustment bolt (B).

2. Loosen alternator mounting bolt (C).

3. Apply outward pressure to the alternator housing.

4. Tighten adjustment bolt (B) and mounting bolt (C).

5. Check belt tension:

- Apply thumb pressure to the belt approximately halfway between the sheaves. Belt should deflect inward approximately 9.5 mm (3/8 in.).

6. Lower engine cover.

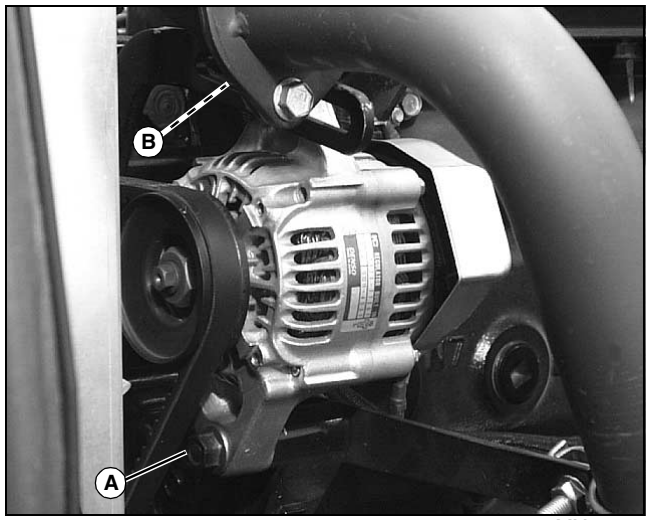
Replacing Alternator Belt

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.

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

2. Allow engine to cool.

3. Raise engine cover.



MX3226

Picture Note: Alternator located on right side of engine.

4. Loosen alternator mounting bolt (A).

5. Loosen and remove adjustment bolt (B).

6. Apply inward pressure to the alternator housing.

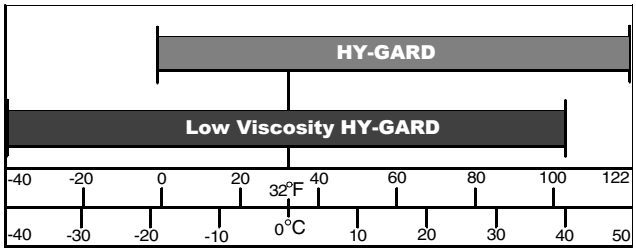
7. Remove worn belt from the alternator sheave and both engine sheaves.

NOTE: It may be necessary to loosen hex nuts holding radiator fan shroud to radiator, and to raise or lower shroud until enough clearance can be gained to pull belt between fan blades and shroud.

8. Install new belt over fan blades and engine sheaves, and over alternator pulley.

Transmission and Hydraulic Oil

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



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

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

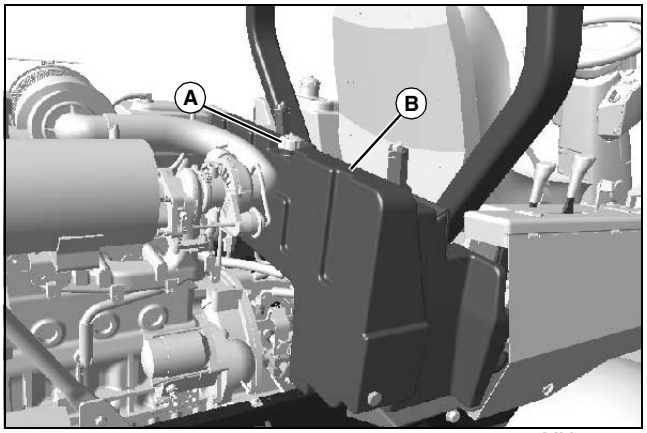
Other oils may be used if they meet John Deere standard JDM J20C or J20D.

Checking the Hydraulic Oil Level

Check the oil level before you start the engine.

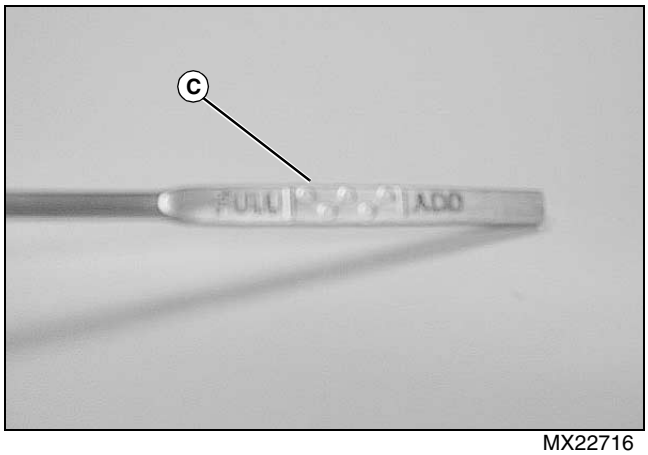
1. Park machine safely. (See Parking Safely in the SAFETY section.)

2. Open the engine cover.



MX22721

3. Remove oil fill cap (A) on hydraulic reservoir (B).



MX22716

4. Check the oil level on the dipstick indicator (C). Oil level should be between the FULL and ADD marks on the indicator when machine is cold.

5. Install reservoir cap and close engine cover.

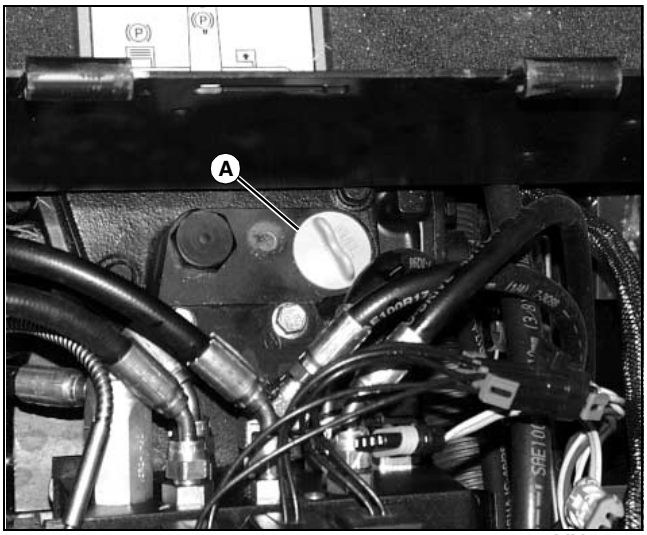
Checking the Transmission Oil Level

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

IMPORTANT: Avoid damage! Hot hydraulic oil will expand and show incorrect oil level. Check reservoir tank:

- **When oil is cold.**
- **Engine not running.**

NOTE: The hydrostatic transmission oil is separate from the hydraulic system oil and has an oil filler cap/ dipstick located under the operator's seat platform.

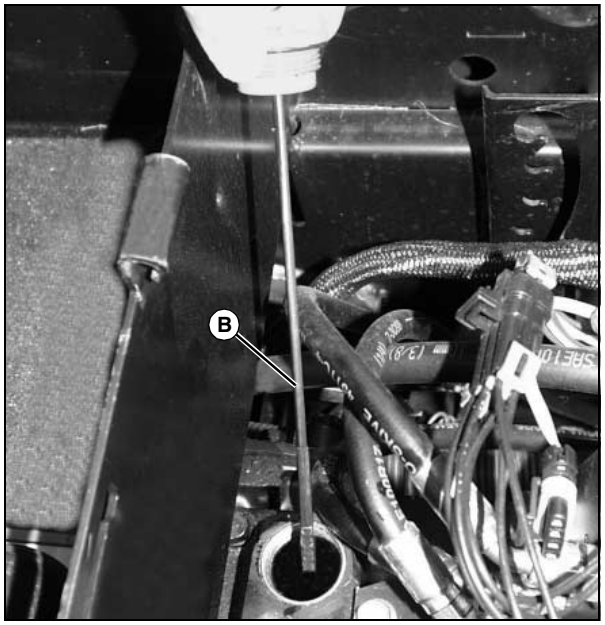


MX0476

Picture Note: Seat platform removed for photo.

2. Lift operator's seat platform and locate the yellow oil filler cap (A) on top of transmission.

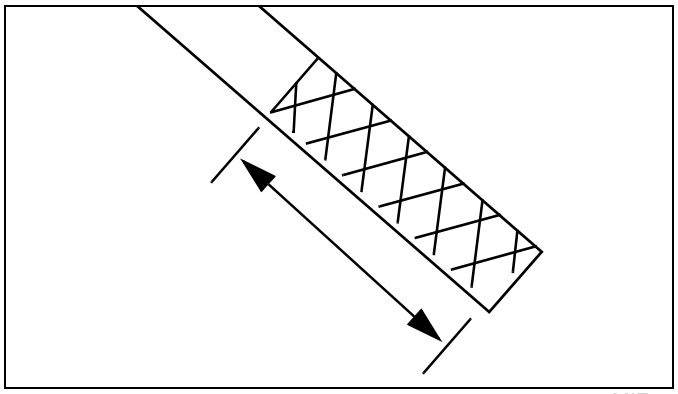
IMPORTANT: Avoid damage! Dirt and debris in oil may cause damage to the transaxle. Clean area around opening before removing dipstick.



MX0477

3. Unscrew the oil filler cap and wipe the dipstick (B) off with a clean shop towel.

4. Insert the dipstick until the cap contacts the transmission housing and remove again.



MIF

5. Oil level should be in XXX range on dipstick. Add oil to transmission if level does not show on dipstick.

6. Install dipstick and lower seat platform. If oil was added, check oil level after driving machine.

Changing the Hydraulic Oil and Filter

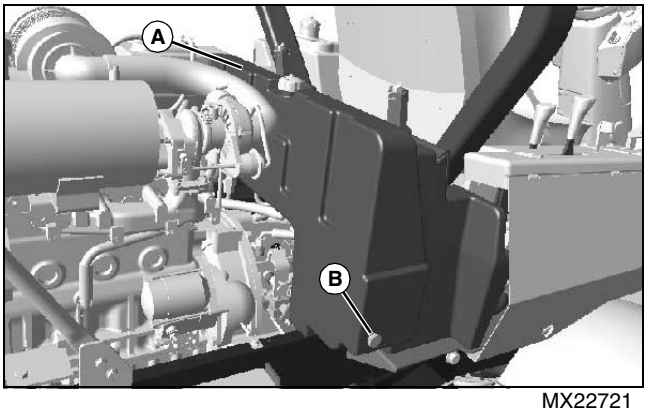
CAUTION: Avoid injury! Escaping fluid under pressure can penetrate the skin causing serious injury. Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure. Search for leaks with a piece of cardboard. Protect hands and body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

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

1. Lower all mower decks to ground.

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

3. Wait until the engine and the transmission are cool before beginning service.



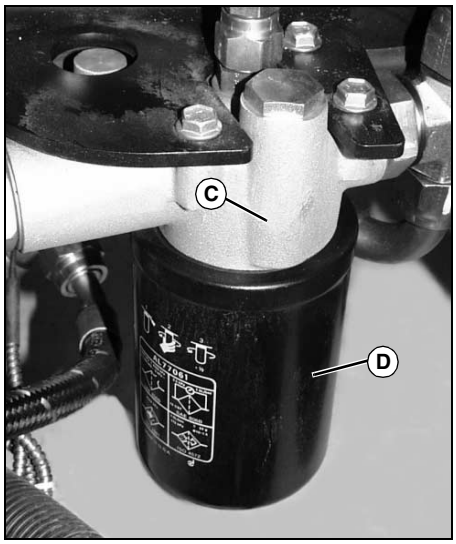
MX22721

A - Hydraulic Reservoir

B - Right Side Reservoir Drain

4. Drain the hydraulic reservoir (A) using a siphon pump and the drain plug (B) on the right side rear corner of reservoir.

5. Install drain plug.



MX0472

6. Clean debris from around hydraulic oil filter base (C) on left side of machine.

7. Use a filter wrench to turn the filter (D) counter clockwise. Remove the filter and drain the remaining hydraulic oil.

8. Clean the filter base and put a film of clean transmission oil on the seal of the new filter.

9. Install the hydraulic oil filter. Turn it clockwise until it contacts the mounting surface, then 1/2 turn more.

10. Fill the hydraulic reservoir until up to FULL COLD mark on sight tube.

11. Run the engine a short time while checking for leaks. Stop the engine.

12. Check that the hydraulic oil level has remained up to the FULL COLD mark on the sight tube. Add oil if necessary.

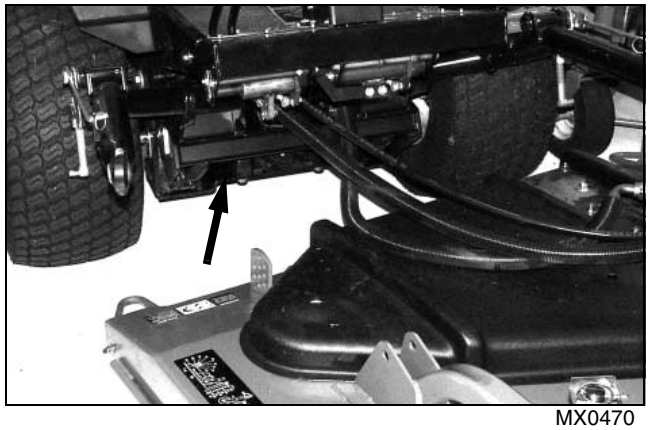
Changing the Transmission Oil

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

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

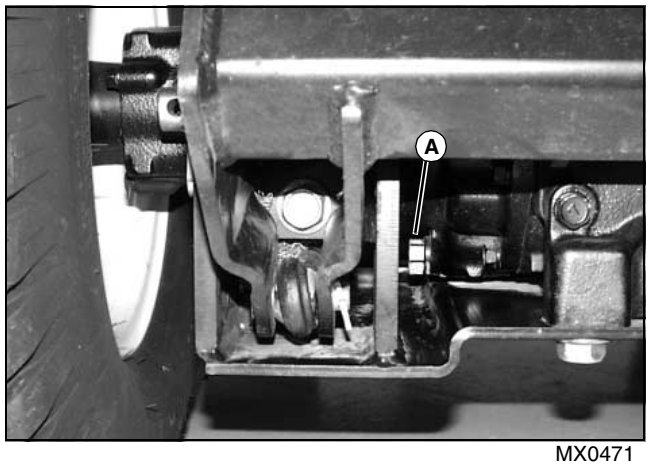
1. Lower all mower decks to ground.

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



MX0470

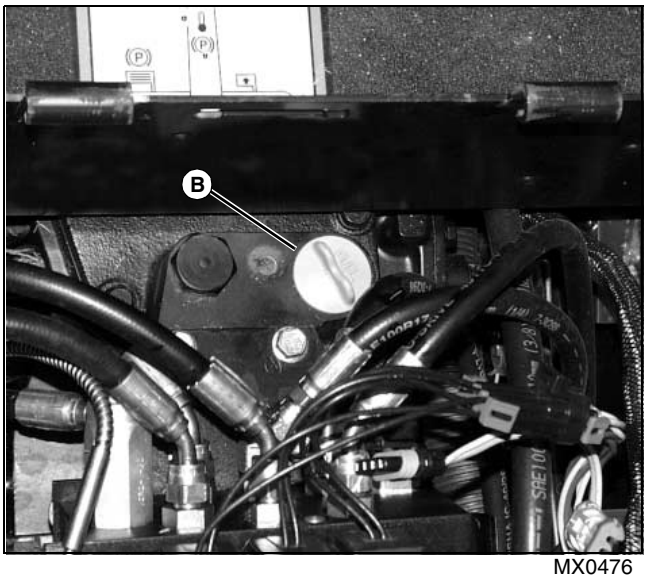
3. Remove the front deck from the lift arms, and move deck to the left to gain access to the right front side of the transmission.



MX0471

4. Remove drain plug (A) and allow transmission to drain. Replace plug.

5. Install front mower deck.



MX0476

Picture Note: Seat platform removed for photo.

6. Raise and lock seat platform.

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

Be sure dipstick is installed before removing drain plug. Slowly remove dipstick after plug is removed to control rate of oil flow draining into drain pan.

7. Unscrew oil filler cap and dipstick (B).

8. Fill transmission with hydraulic oil until level is up to top of XXX marks on dipstick. Transmission capacity is 13.3 L (3.5 gal) when dry, but may take less when performing oil change. Do not overfill.

9. Run machine, cycling hydrostatic pedals to purge air from transmission. Recheck transmission oil level.

Adjusting Transmission Neutral

CAUTION: Avoid injury! Do not attempt this adjustment unless you are a qualified and properly trained technician. Improper adjustment can result in an unsafe machine.

Adjust transmission neutral to assure that machine does not creep forward or rearward when pedals are in the neutral position.

1. Park machine on a firm, level surface. Place controls in following position:

- Park brake unlocked.

- Side decks raised and transport locks engaged.
- Engine off.
- PTO disengaged.
- Differential lock disengaged.
- Four wheel drive disengaged.
- Range shift lever not in neutral.

2. Jack up front of machine. Place hardwood blocks under front sub frame so front tires are off of ground.

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.

3. Jack up rear of machine. Place jack stands under rear axle so rear tires are off of ground.

CAUTION: Avoid injury! Do not raise or lower decks, engage four wheel drive or differential lock, or turn PTO switch on during adjustment. Keep people clear of machine while running.

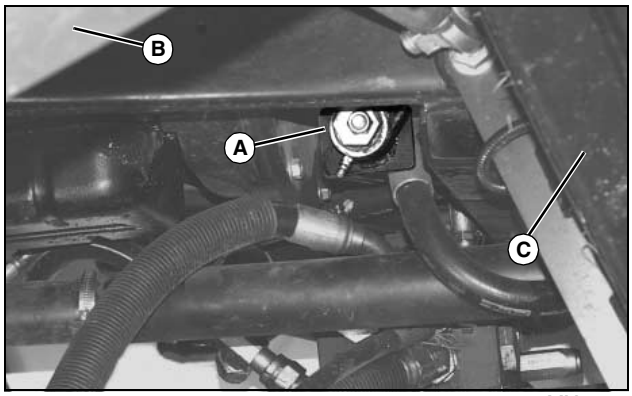
Always jack all four wheels off of ground. Four wheel drive is always engaged and will push machine off jack stands if any tires get traction.

Stay away from tires while making adjustments.

4. Sit in operator's seat and start engine.

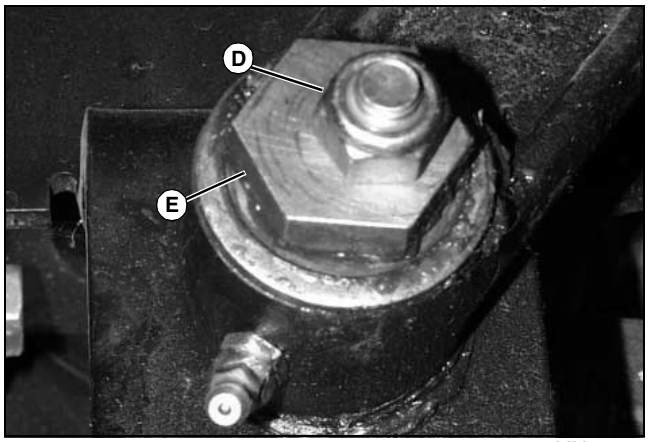
5. Watch front tires for forward or rearward rotation.

6. Cycle forward and reverse hydrostatic pedals and allow to return to centered, neutral position. Check again for tire rotation while in neutral, indicating a neutral adjustment is necessary.



MX0474

7. Locate neutral adjuster cam (A) on right side of machine, under right mower deck (B), behind deck subframe (C).



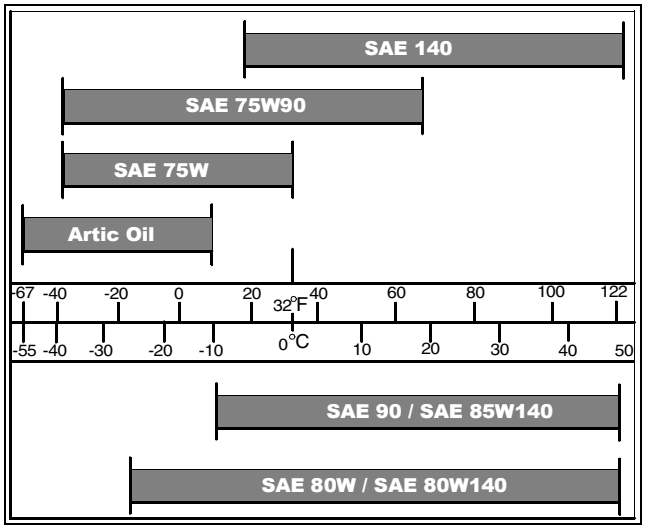
MX0478

8. Loosen locknut (D).

9. Rotate cam (E) until front drive wheels do not spin.

10. Tighten locknut. Cycle hydrostatic drive pedals and allow to return to neutral. Readjust cam if necessary.

Mechanical Four Wheel Drive (MFWD) Oil



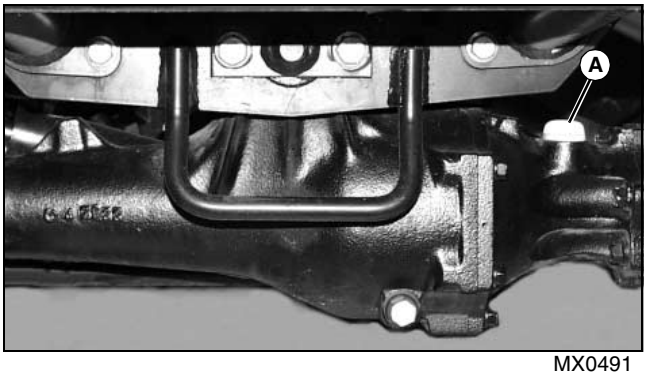
• John Deere GL-5 Gear Lubricant is recommended.

• Other oils may be used provided they meet the following specifications:

- API Class GL-5.

Checking the Mechanical Four Wheel Drive (MFWD) Oil Level

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



MX0491

2. Locate filler cap (A) on right rear side of rear axle.

3. Unscrew filler cap and wipe dipstick clean.

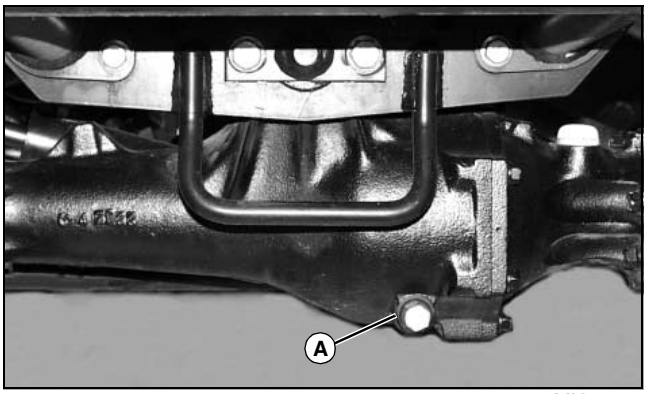
4. Install filler cap back into axle housing but do not turn threads back in.

5. Remove dipstick and check oil level on it. Oil should be in XXX area on dipstick but not above top mark.

6. Add oil if needed. Do not overfill.

Changing the Mechanical Four Wheel Drive (MFWD) Oil Level

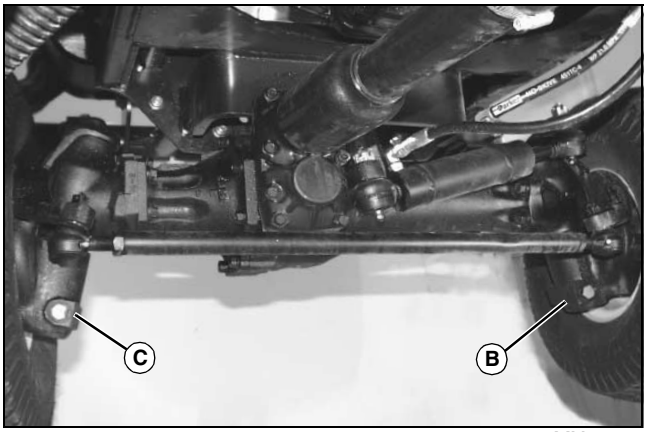
1. Park machine safely. (See Parking Safely in the SAFELY section.)



MX0491

2. Place drain pan under center of rear axle housing and remove center drain plug (A).

3. Install center drain plug.



MX3746

4. Remove left side final drive housing drain plug (B), and allow to drain.

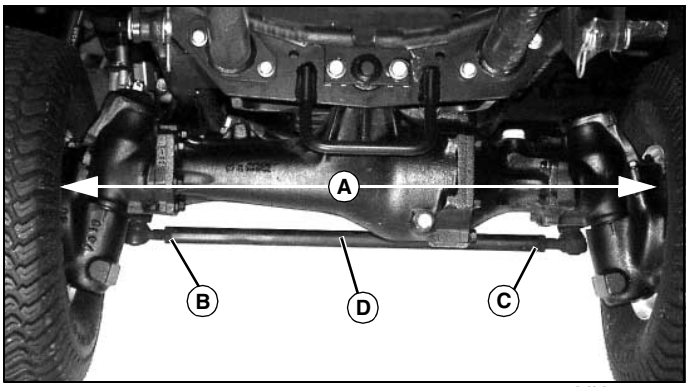
5. Install drain plug.

6. Repeat for right side housing (C).

7. Fill rear axle housing with 4.7 L (5 qt) of oil. Do not overfill.

Adjusting Toe-In

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



MX0479

2. Measure the distance between rear tires at rear of tires (A).

3. Measure the distance between rear tires at front of tires.

4. Distance between tires (toe-in) should be 3 - 4 mm (0.12 - 0.16 in.) less in front than in rear.

5. If toe-in requires adjustment, loosen locknuts on left and right side tie-rod ends (B and C).

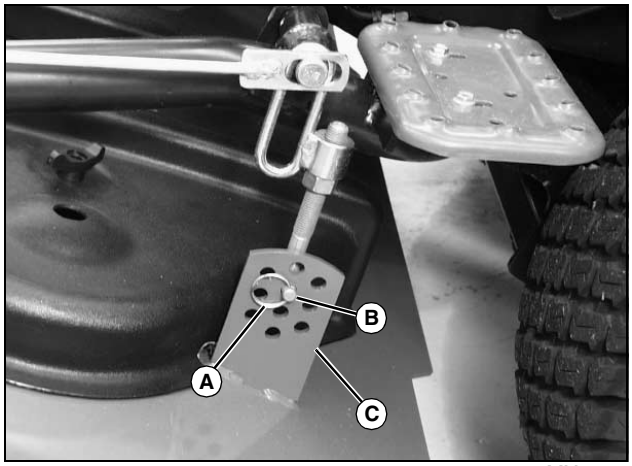
6. Turn body of tie-rod (D) to adjust toe-in.

7. Measure toe-in again. If correct, tighten locknuts.

Rotating the Front Mower Deck

Rotate for Service

1. Stop machine on a level surface.
2. Lock park brake.
3. Raise front mower deck completely.
4. Stop engine and remove the key.

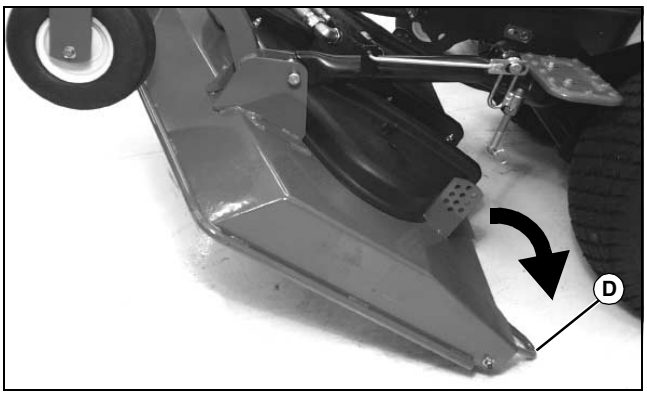


MX3718

5. Remove retaining ring (A) from hanger pin (B).

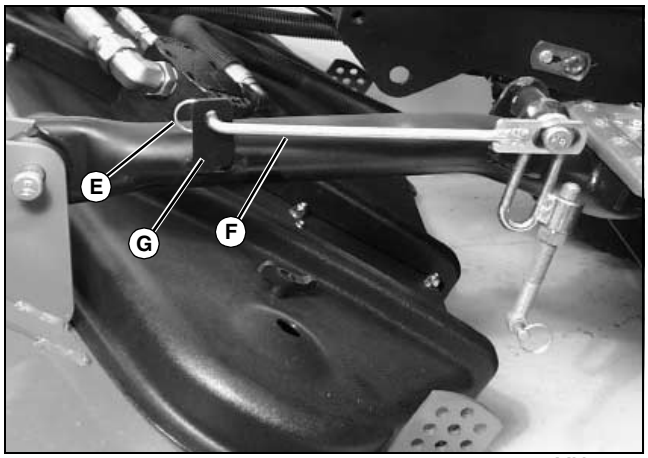
NOTE: To ensure deck can be returned to its original cutting height, note hole location in the adjustment plate before removing the hanger pin.

6. Remove hanger pin from hole in adjustment bracket. (C).
7. Install retaining ring to hanger pin for temporary storage.
8. Repeat at opposite side of mower deck.



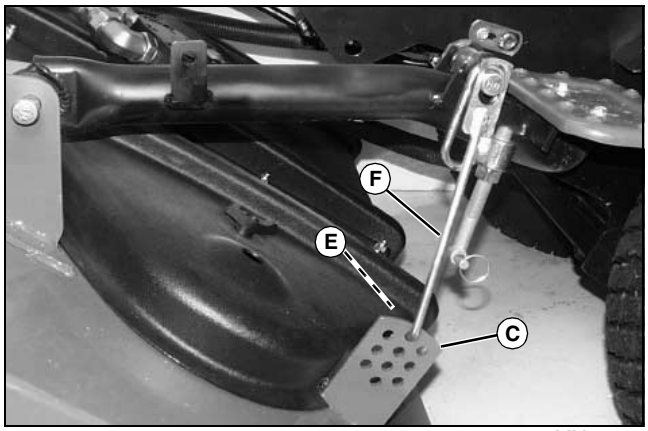
MX3719

9. Grasp deck handle (D) and rotate mower deck rearward to the ground.



MX3722

10. Remove retaining ring (E) from service lockout rod (F).
11. Remove service lockout rod from mower lift arm (G).



MX3723

12. Insert service lockout rod (F) into hole in deck height adjustment bracket (C). Secure with retaining ring (E).
13. Repeat at opposite side of mower deck.

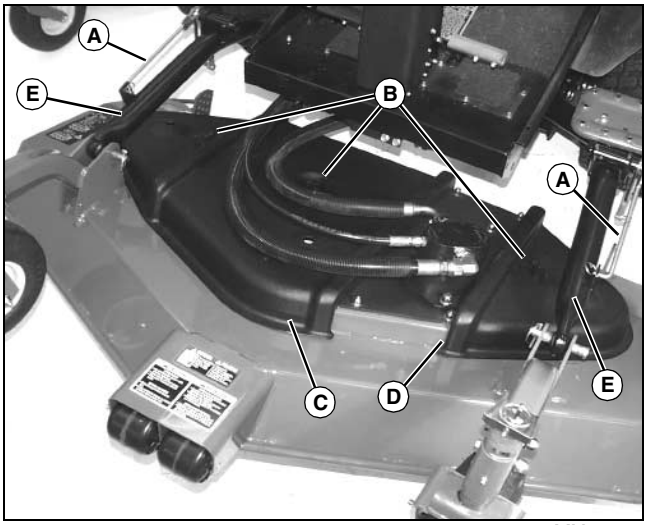
Rotate for Operation

1. Remove retaining ring from service lockout rod.
2. Remove service lockout rod from hole in deck height adjustment bracket.
3. Insert service lockout rod into hole in mower lift arm. Secure with retaining ring.
4. Repeat at opposite side of mower deck.
5. Remove retaining ring from hanger pin.
6. Rotate mower deck forward.
7. Insert hanger pin into original hole in adjustment plate. Secure with retaining pin.
8. Repeat at opposite side of mower deck.
9. Start engine.
10. Lower front mower deck completely.

Removing and Installing Belt Shields

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.

Front Deck Shields



MX3720

1. Rotate front mower deck for service. Do not secure service lockout rods (A) to the adjustment plates.

2. Remove threaded knobs (B) securing belt shields (C) and (D) to mower deck.

3. Lift each belt shield up off of the attaching bolts. Slide shields out from between mower lift arms (E) and mower deck.

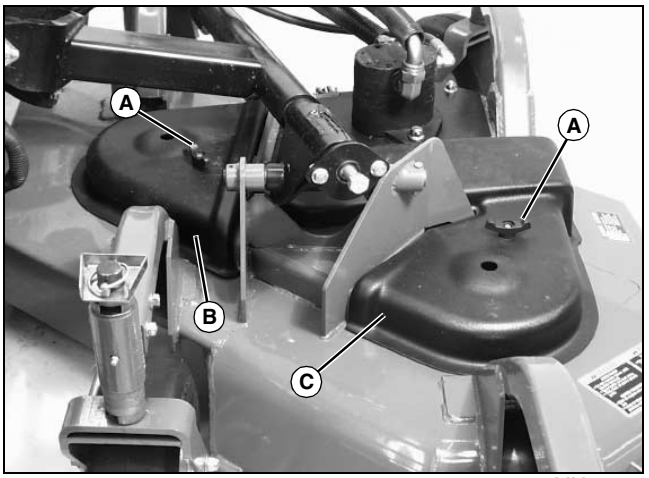
4. Install the threaded knobs onto the attaching bolts during servicing of the deck.

5. Installation is the reverse of removal.

6. Rotate mower deck for operation.

Side Deck Shields

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



MX3721

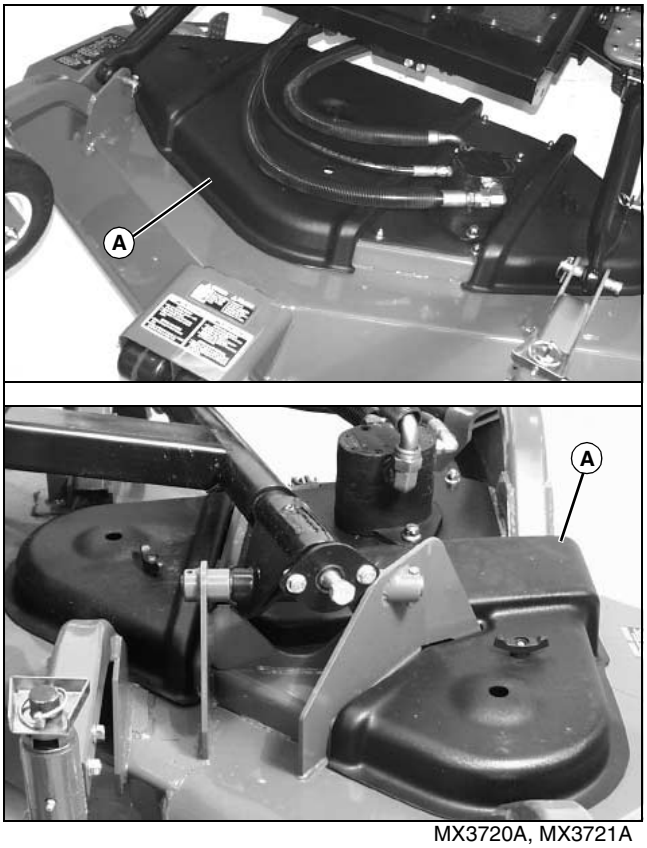
2. Remove threaded knobs (A) securing belt shields (B) and (C).

3. Lift each belt shield up off of the attaching bolts.

4. Install the threaded knobs onto the attaching bolts during servicing of the deck.

5. Installation is the reverse of removal.

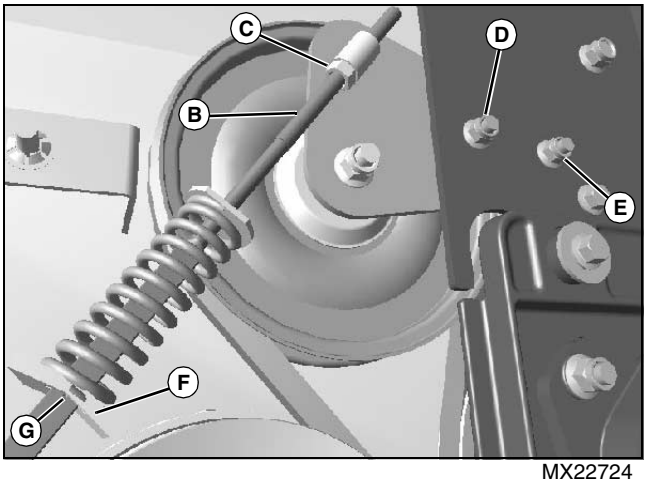
Adjusting Mower Deck Drive Belt Tension



MX3720A, MX3721A

Picture Note: Front deck shown upper, side deck shown lower.

1. Remove belt shield (A) from mower deck.
2. Lower mower deck.



MX22724

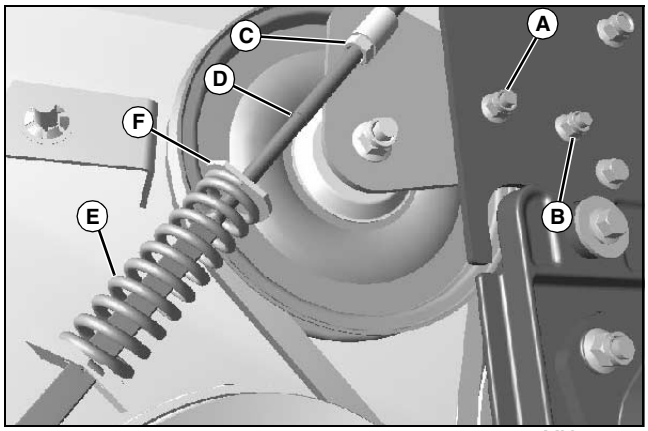
Picture Note: Front deck shown, side deck similar.

3. Loosen hex nuts (D) and (E).
4. Adjust nut (C) until tension indicator hole (G) becomes visible on the outside of retaining plate (F) as shown.
5. Tighten hex nuts (D) and (E) to 60 N•m (81 lb-ft).

Removing and Installing Front Mower Deck Drive Belt

Front Belt Removal

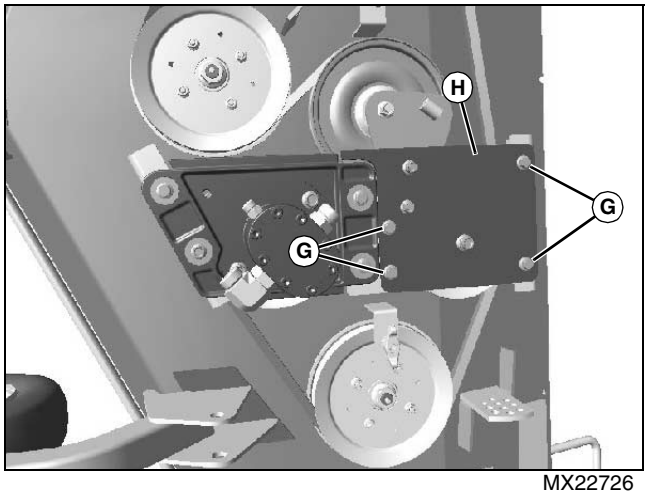
1. Remove belt shields from mower deck.
2. Lower mower deck completely.



MX22724

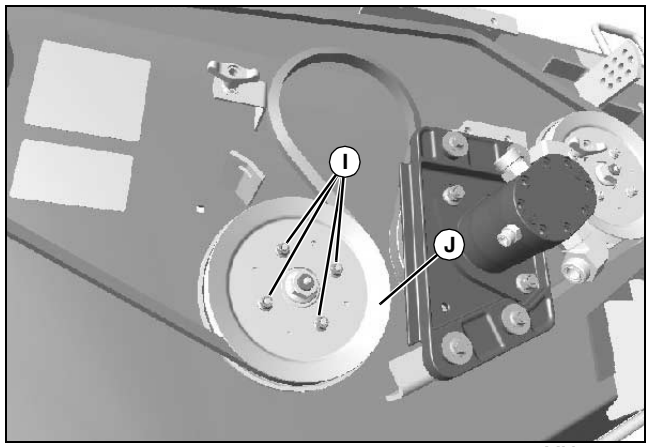
3. Loosen hex nuts (A) and (B).
4. Loosen nut (C) until all spring tension is removed.
5. Remove tension rod (D), spring (E), and spring retainer (F).

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.



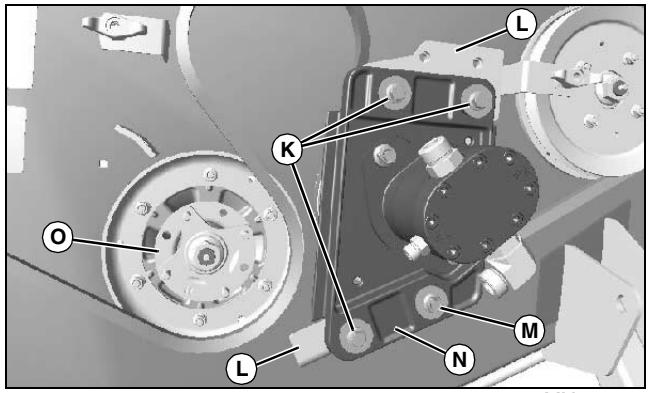
MX22726

6. Remove four cap screws (G).
7. Remove sheet metal plate (H).



MX22727

8. Remove four hex nuts (I) and mower deck spindle sheave (J).



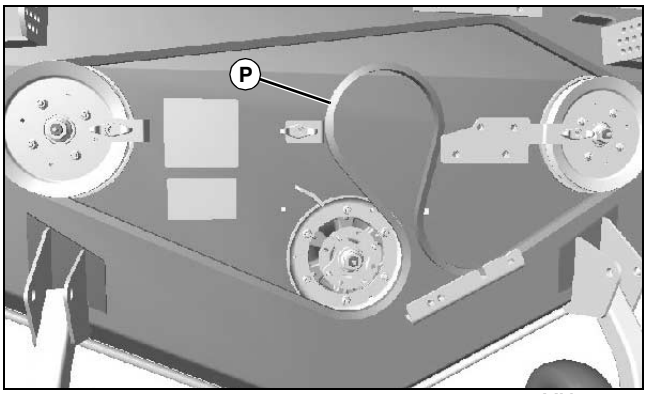
MX22725

9. Remove three cap screws (K), three washers, and three upper rubber isolator halves.

10. Remove nut (M), washer, and rubber isolator half from carriage bolt.

NOTE: The lower halves of the rubber isolators are fit into the deck side of the cast mounting plate. Washers are glued to the bottom of each isolator. Ensure rubber isolators and washers remain installed in the mounting plate during installation of the mounting plate to the mower deck.

11. Slide cast mounting plate (N) towards mower deck spindle (O) to remove it from the mounting brackets (L).

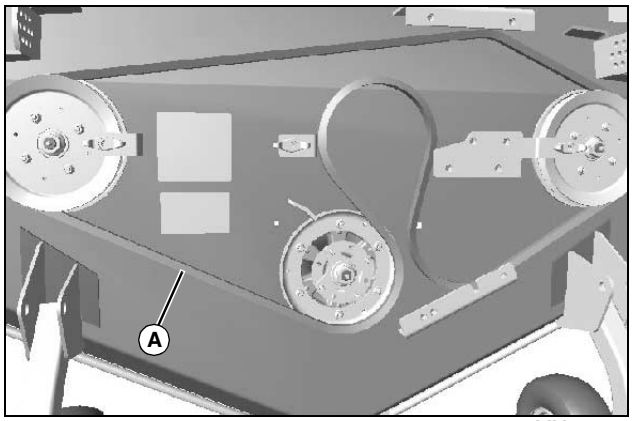


MX22728

12. Remove drive belt (P) from mower deck sheaves.

Front Belt Installation

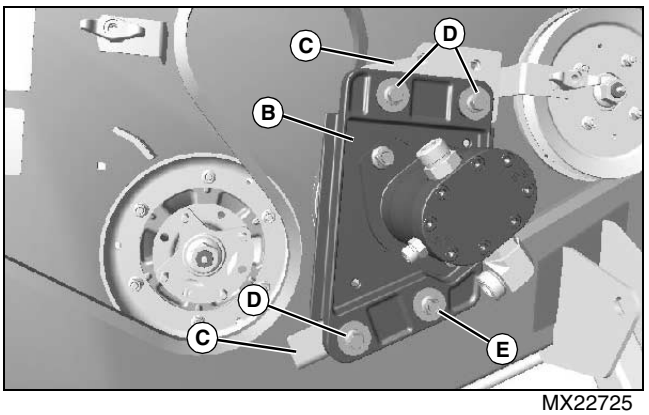
NOTE: Belt routing diagram is affixed to mower deck.



MX22728

1. Route drive belt (A) around mower deck sheaves as shown.

NOTE: The lower halves of the rubber isolators are fit into the deck side of the cast mounting plate. Washers are glued to the bottom of each isolator. Ensure rubber isolators and washers remain installed in the mounting plate during installation of the mounting plate to the mower deck.

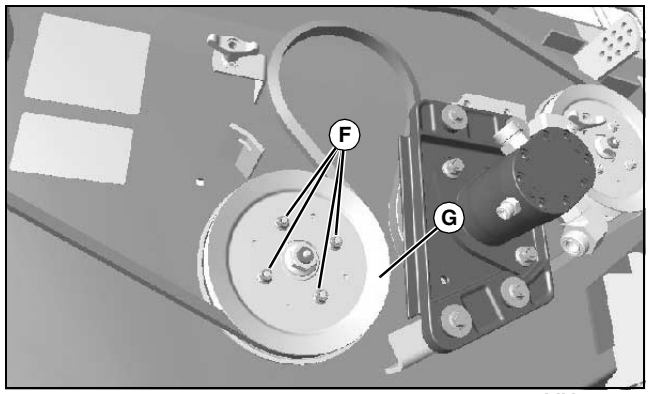


MX22725

2. Position cast mounting plate (B) onto mounting brackets (C) so that belt is routed properly around drive motor

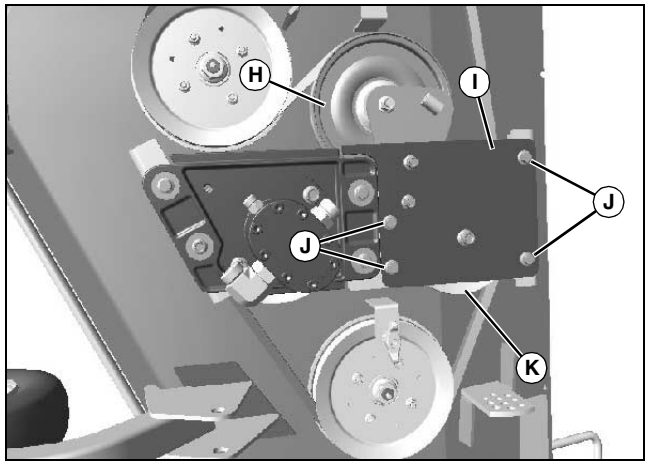
sheave. Install carriage bolt, upper isolator half, washer, and nut (E). Do not tighten.

3. Install 3 upper isolator halves, washers, and cap screws (D). Tighten cap screws (D) and nut (E) to 47 N•m (35 lb-ft).



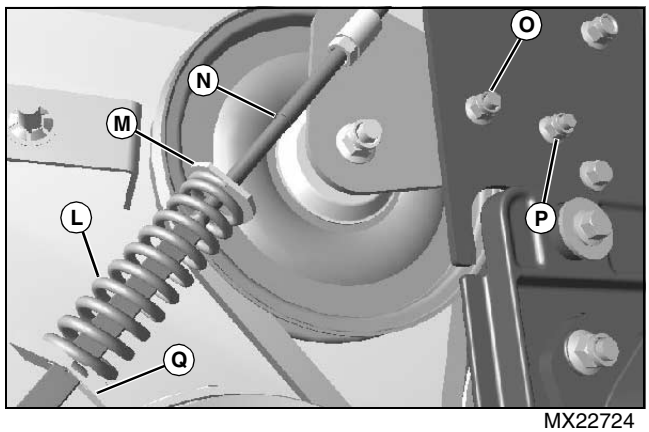
MX22727

4. Install mower deck spindle sheave (G) and four hex nuts (F). Route belt around spindle sheave.



MX22726

5. Install sheet metal plate (I) and route belt around tensioner sheave (H) and idler sheave (K). Install four cap screws (J). Tighten cap screws to 81 N•m (60 lb-ft).



MX22724

6. Ensure spring retainer (M) and spring (L) are installed on tension rod (N). Install tension rod into retaining plate (Q) on mower deck.

7. Adjust drive belt to proper tension.

8. Tighten hex nuts (O) and (P) to 81 N•m (60 lb-ft).

9. Move the drive belt by hand to turn the sheaves. Ensure belt motion is smooth and sheaves do not rub on deck surfaces.

Removing and Installing Side Mower Deck Drive Belt

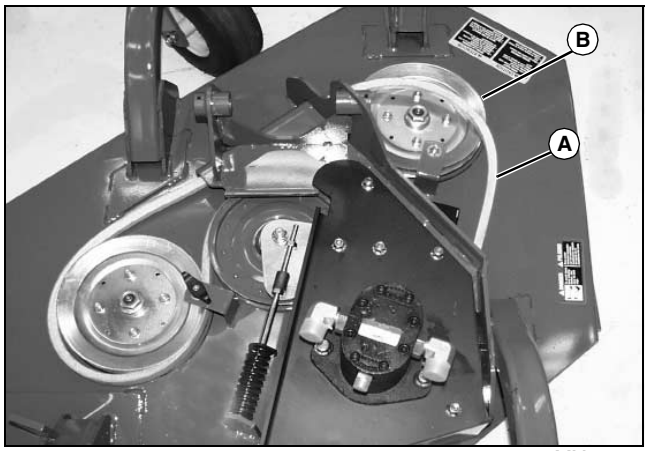
Side Belt Removal

1. Lower mower deck completely.

2. Remove belt shields from mower deck.

3. Release the drive belt tension completely.

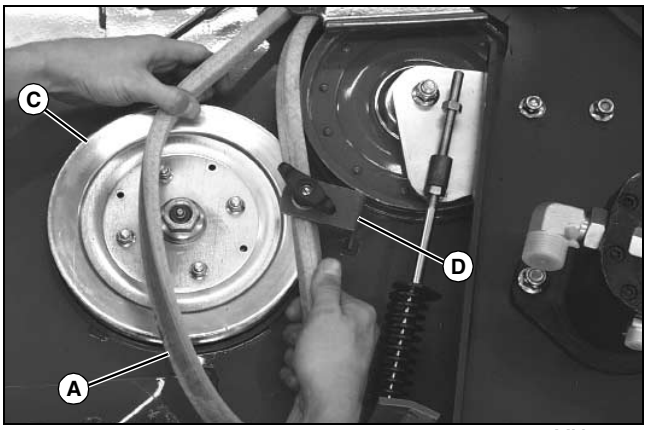
CAUTION: Avoid injury! Rotating parts can catch fingers, loose clothing, or long hair. Wait for engine and all moving parts to stop before leaving operator's station to adjust or service machine.



MX3732

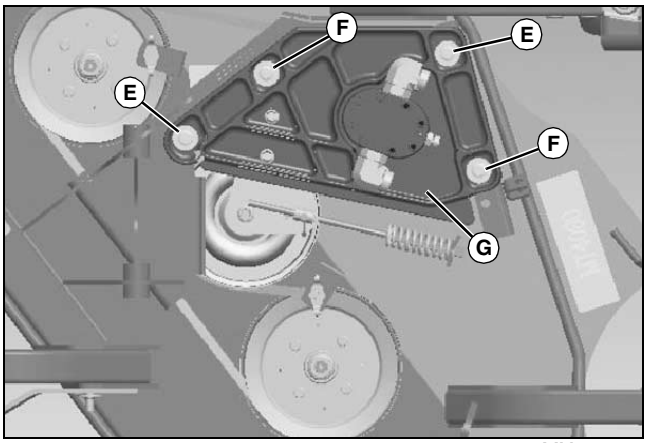
Picture Note: Mower deck shown removed for clarity.

4. Remove drive belt (A) from sheave (B).



MX3733

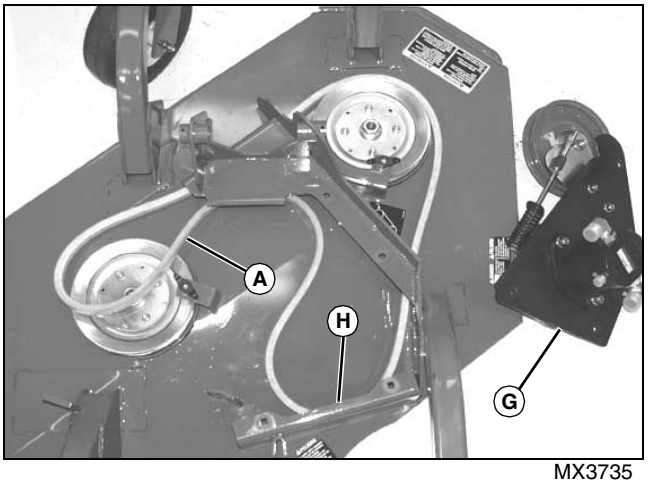
5. Remove drive belt (A) from sheave (C) by twisting the belt and sliding it between belt shield support bracket (D) and the sheave.



MX22736

6. Remove two cap screws (E), washers, and rubber isolators from motor plate (G). Remove two cap screws (F), washers, rubber isolators, and hex nuts.

NOTE: The lower halves of the rubber isolators are fit into the deck side of the cast mounting plate. Washers are glued to the bottom of each isolator. Ensure rubber isolators and washers remain installed in the mounting plate during installation of the mounting plate to the mower deck.



MX3735

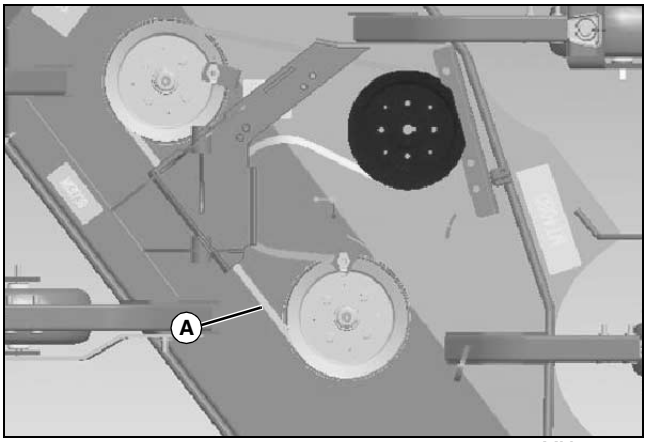
7. Slide motor plate (G) forward so sheave on bottom side clears motor plate mounting bracket (H).

8. Lift motor plate off mounting brackets and set it aside.

9. Remove drive belt (A) from deck.

Side Belt Installation

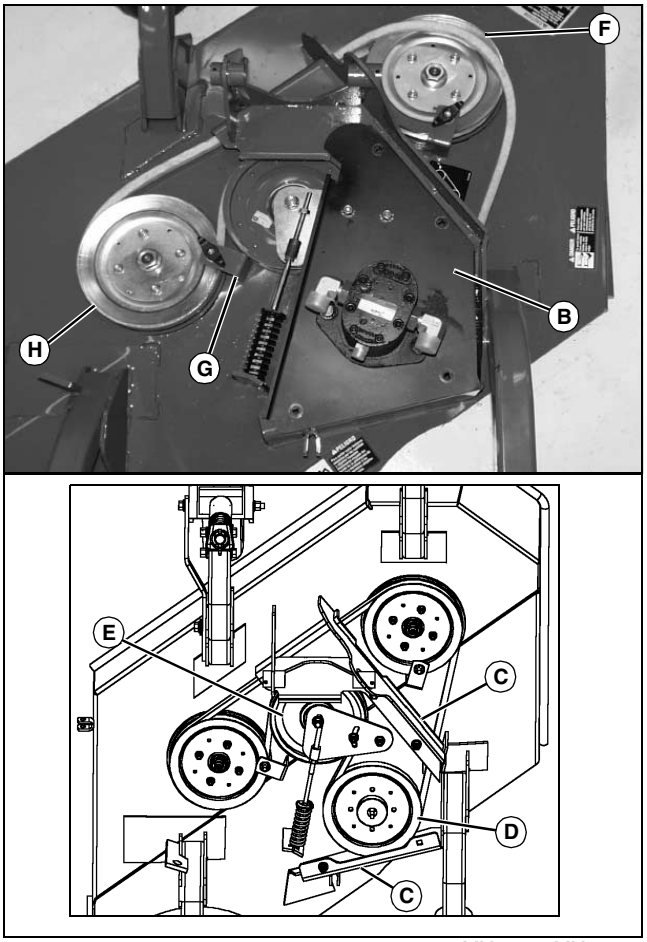
NOTE: Belt routing diagram is affixed to mower deck.



MX22737

1. Route drive belt (A) as shown.

NOTE: The lower halves of the rubber isolators are fit into the deck side of the cast mounting plate. Washers are glued to the bottom of each isolator. Ensure rubber isolators and washers remain installed in the mounting plate during installation of the mounting plate to the mower deck.

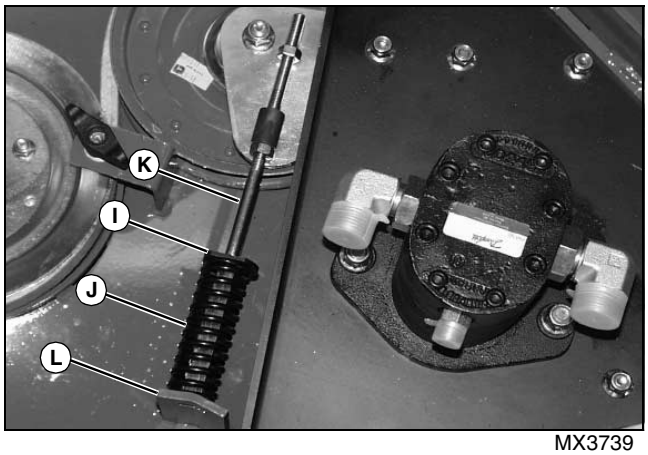


MX3737, MX3738

2. Position motor plate (B) onto motor plate mounting brackets (C) so drive belt is routed properly around sheaves (D) and (E).

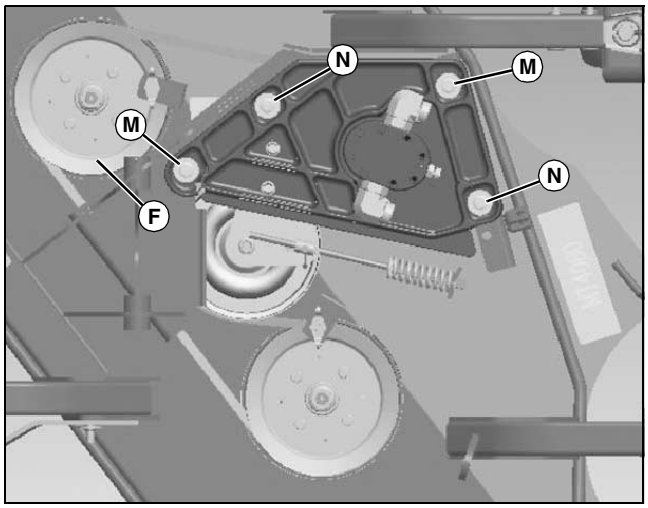
3. Remove drive belt from sheave (F).

4. Slide drive belt between belt shield support bracket (G) and sheave (H). Ensure proper positioning of belt in the belt grooves.



MX3739

5. Make sure spring retainer (I) and spring (J) are installed on tension rod (K). Insert tension rod into retaining plate (L) on mower deck.



MX22736

6. Install two isolators, washers, and cap screws (M). Install two isolators, washers, cap screws, and hex nuts (N). Do not tighten completely.

7. Install drive belt onto sheave (F).

8. Tighten cap screws (M and N) to 47 N•m (35 lb-ft).

9. Adjust drive belt to proper tension.

10. Move the drive belt by hand to turn the sheaves. Make sure belt motion is smooth and sheaves do not rub on deck surfaces.

Removing and Installing Blades

1. Stop machine on a level surface.

2. Lock park brake.

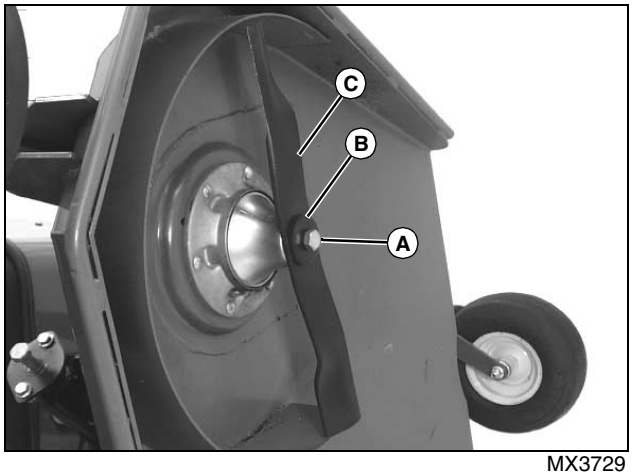
3. Raise mower decks completely.

4. Stop engine and remove the key.

5. Rotate front mower deck for service if blades on front deck will be removed.

CAUTION: Avoid injury! Mower blades are sharp. Always wear gloves when handling mower blades or working near blades.

6. Insert wooden block between end of blade and edge of deck to prevent blade from turning while removing attaching hardware.



MX3729

7. Remove bolt (A), washer (B), and blade (C) by turning the bolt counterclockwise until removed. Repeat for all blades requiring service.

8. Inspect the blades for damage. Replace all damaged blades.

9. Sharpen dull blades.

10. Clean blades, spindles, and hardware.

11. Balance the blades.

12. Install blade onto mower deck spindle with wings of blade facing up.

IMPORTANT: Avoid damage! Make sure cupped side of concave washer is positioned against the mower blade or blade could be damaged.

13. Install blade bolt and washer with the cupped side of washer against the blade. Tighten blade bolt to 122 N•m (90 lb-ft). Repeat for other blades.

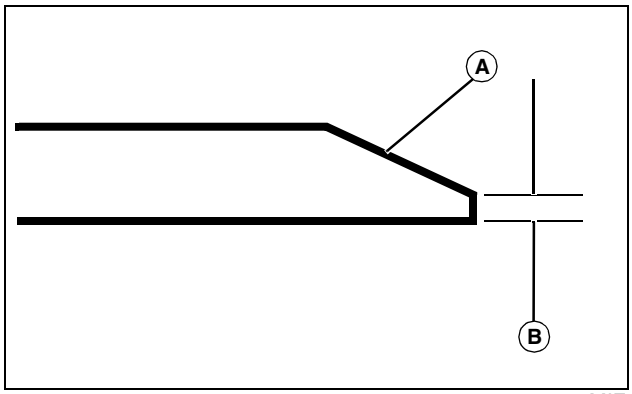
14. Lower mower decks completely.

Sharpening Blades

CAUTION: Avoid injury! Mower blades are dangerous!

- **Always wear gloves while working on blades.**
- **Always wear safety eye protection when grinding.**

• Sharpen blades with grinder, hand file, or electric blade sharpener.



MIF

• Keep original bevel (A) when grinding.

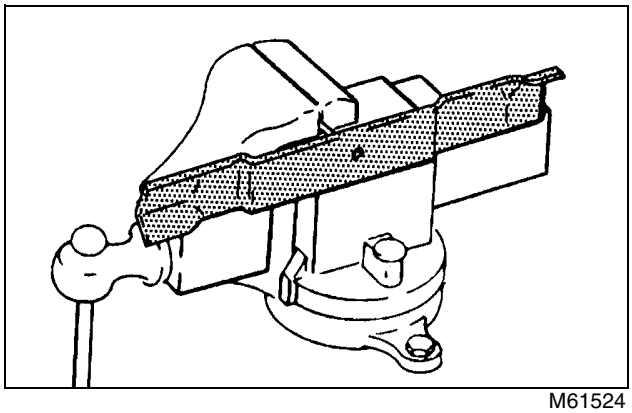
• Blade should have 0.40 mm (1/64 in.) cutting edge (B) or less.

• Balance blades before installing.

Balancing Blades

CAUTION: Avoid injury! Mower blades are sharp. Always wear gloves when handling mower blades or working near blades.

1. Clean blade.



M61524

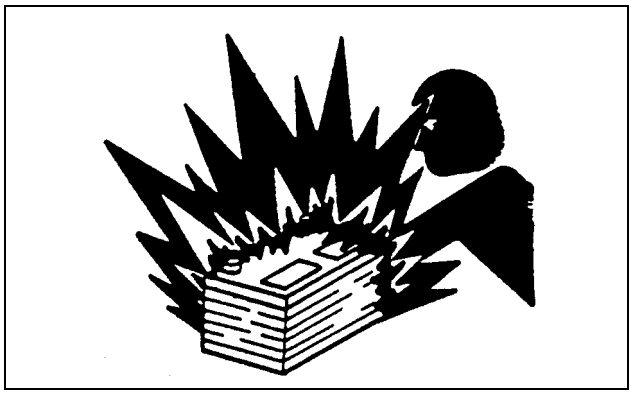
2. Put blade on nail in a vise. Turn blade to horizontal

position.

3. Check balance. If blade is not balanced, heavy end of blade will drop.

4. Grind bevel of heavy end. Do not change blade bevel.

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:

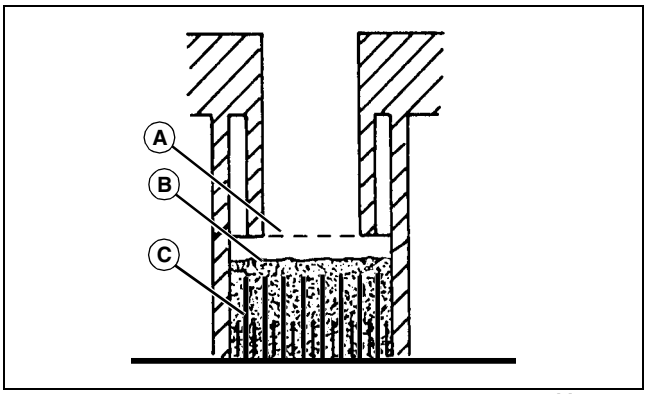
- **Do not smoke near battery.**
- **Wear eye protection and gloves.**
- **Do not allow direct metal contact across battery posts.**
- **Remove negative cable first when disconnecting.**
- **Install negative cable last when connecting.**

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.

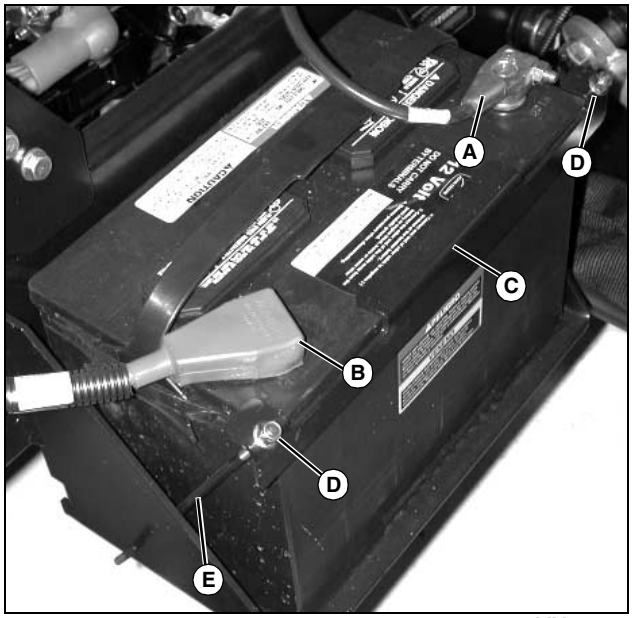
5. Install battery cell caps.

Removing and Installing the Battery

Removing:

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

2. Raise engine cover.



MX13904

3. Disconnect negative (-) battery cable (A).

4. Pull up red plastic cover (B) from positive (+) battery clamp and disconnect positive (+) cable clamp from battery post.

5. Remove battery hold down bracket (C) by removing locknuts (D) from left and right side J-bolts (E).

6. Remove battery from machine.

Installing:

1. Install battery with positive post (+) towards rear of machine.

2. Install battery hold down bracket onto J-bolts and secure with locknuts.

3. Install positive cable clamp (red cable) onto positive (+) battery post. Pull red plastic cover over positive cable clamp.

4. Install negative cable clamp (black cable) onto negative (-) battery post.

Cleaning Battery and Terminals

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

2. Disconnect and remove battery.

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

4. Rinse the battery with plain water and dry.

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

6. Install battery.

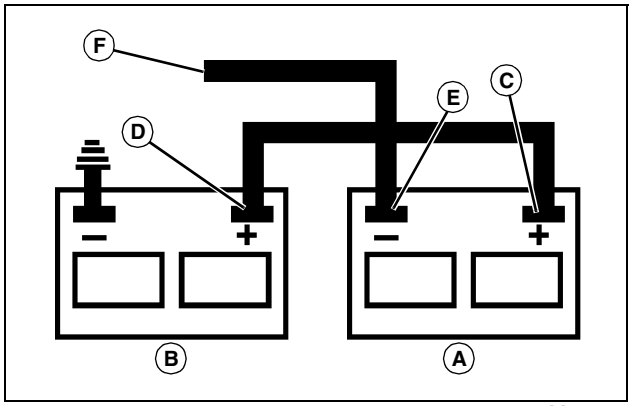
7. Attach cables to battery posts using washers and nuts.

8. Apply general purpose grease or silicone spray to terminal to prevent corrosion.

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.

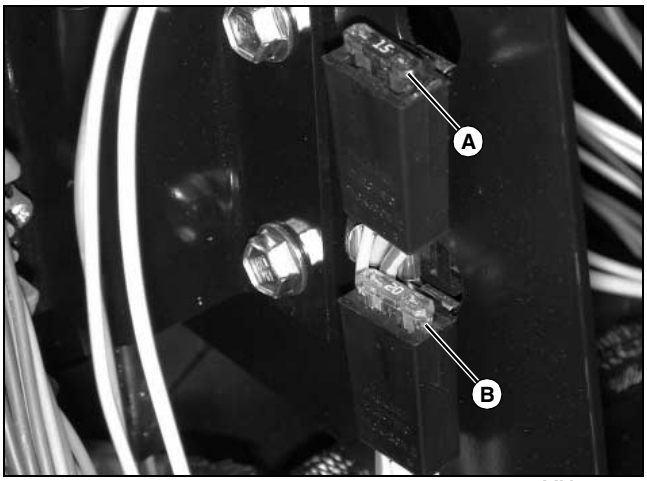
5. Start the engine of the disabled machine and run machine for several minutes.

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

Checking and Replacing Fuses

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

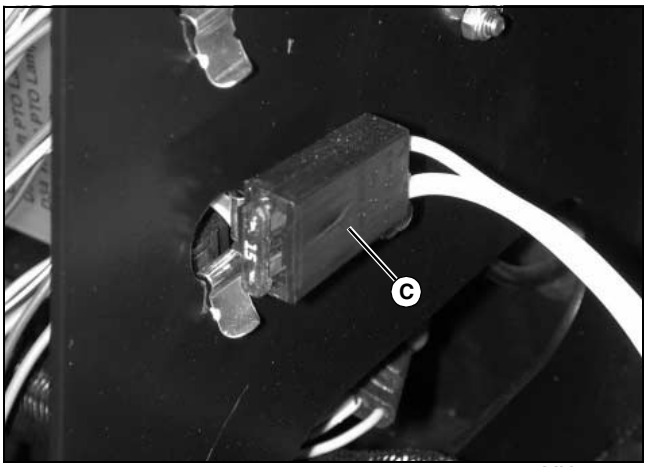
2. Remove right side electrical service panel to access fuse holders.



MX13905

3. Fuse (A) is the 15 amp main fuse and controls all electrical functions on the machine, including light kit.

4. Fuse (B) is the 20 amp accessory fuse and is only used for the optional cab kit.



MX13906

5. Fuse (C) is a 15 amp fuse.

6. Test fuses with voltmeter or test light and replace if blown.

7. Install electrical service panel on machine.

SERVICE MISCELLANEOUS

Filling Fuel Tank

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

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

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

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

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

1. Park machine safely. (See Parking Safely in the SAFETY section.)
2. Allow engine to cool.
3. Remove any trash from area around fuel tank cap.
4. Remove fuel tank cap slowly to allow any pressure built up in tank to escape.
5. Fill fuel tank only to bottom of filler neck.
6. Install fuel tank cap.

Cleaning Plastic Surfaces

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

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

1. Wash surface with clean water and a mild liquid automotive washing soap.
2. Dry thoroughly to avoid water spots.

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.

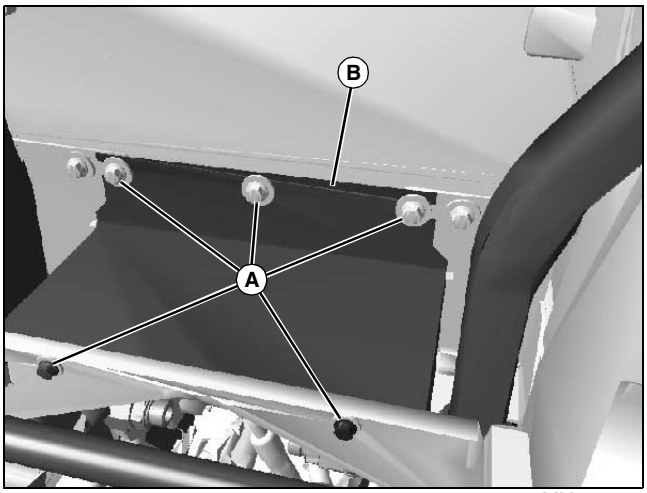
Repairing Deep Scratches (bare metal or primer showing):

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.

Tightening ROPS Hardware

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

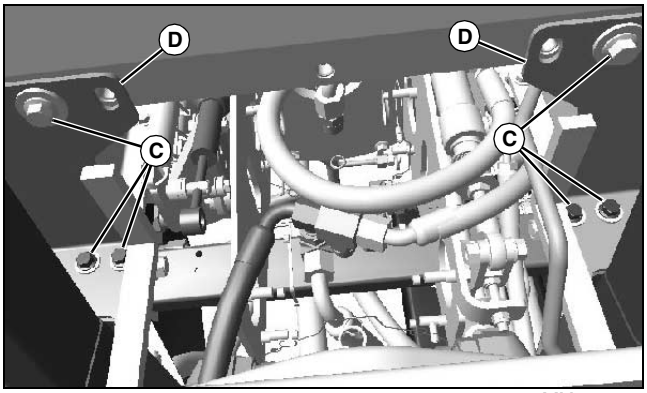
2. Raise the seat platform and engine cover.



MX22714

3. Remove cap screws and washers (A) securing panel (B) to machine.

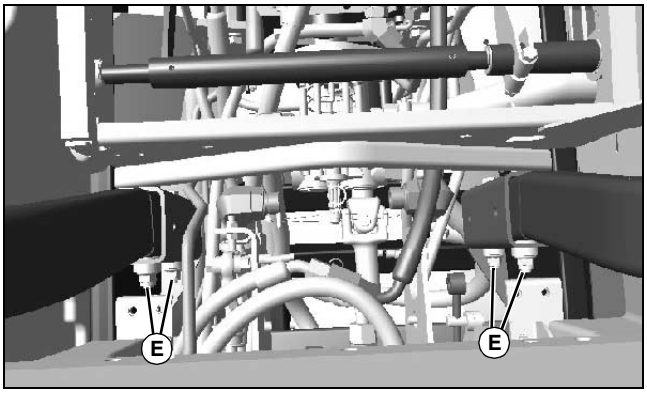
4. Carefully lift panel from machine and set it aside.



MX22713

5. Remove cap screws and washers (C) securing side panels (D).

6. Carefully lift panel from machine and set it aside.



MX22712

7. Tighten the four ROPS attaching cap screws, washers, and hex nuts (E) to 136 N•m (100 lb-ft).

8. Install panels and secure with cap screws and washers.

9. Lower seat platform and engine cover.

Removing and Installing Front Tires

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.

Removing Front Tires

1. Raise side deck completely on side of machine requiring front wheel removal. Leave other side deck lowered completely.

2. Engage the side deck transport lock.

3. Raise front mower deck completely.

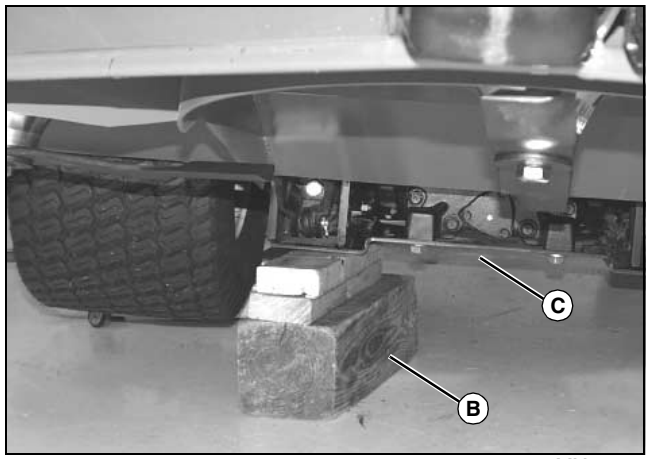
4. Park machine safely. (See Parking Safely in SAFETY section.)

5. Rotate front deck for service to obtain as much clearance as possible between rear of deck and ground surface.

IMPORTANT: Avoid damage! Use caution not to pinch or crush the side deck lift cylinder hydraulic hose with the lifting device.

MX3755

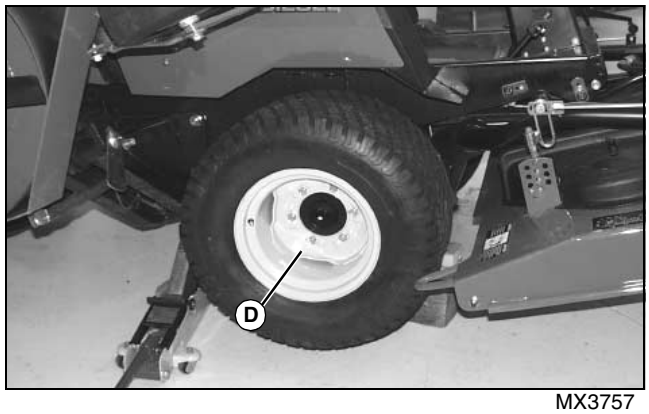
6. Using a safe lifting device, jack up machine at base of lift arm bracket (A) or under the front skid plate if adequate clearance exists.



MX3756

7. Install blocking material (B) under front skid plate (C).

8. Lower machine onto blocks.



MX3757

9. Remove wheel bolts (D) and wheel.

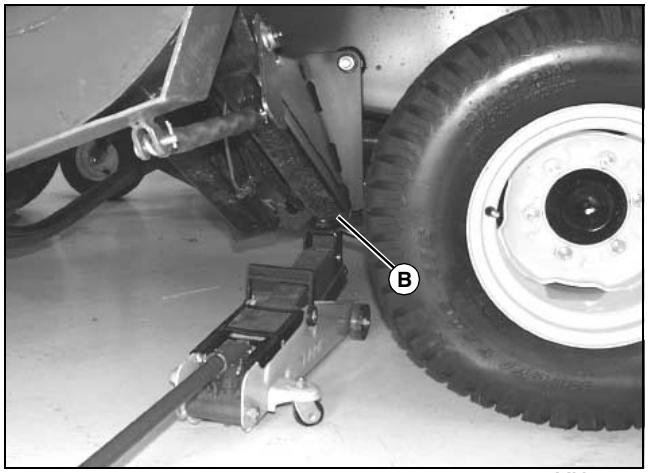
Installing Front Tires

MX3758

1. Install wheel onto axle hub with valve stem facing outward. Secure with wheel bolts (A).

2. Tighten front wheel bolts to 136 - 163 N•m (100 - 120 lb-ft) using torque wrench.

IMPORTANT: Avoid damage! Use caution not to pinch or crush the side deck lift cylinder hydraulic hose with the lifting device.



MX3755

3. Using a safe lifting device, jack up machine at base of lift arm bracket (B) or under the front skid plate if adequate clearance exists.

4. Remove blocking material from under machine.

5. Lower machine to ground.

6. Remove lifting device.

7. Check wheel bolt torque:

- After traveling 30 m (100 ft) while changing direction.
- After 3 to 10 hours of use.

Removing and Installing Rear Tires

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.

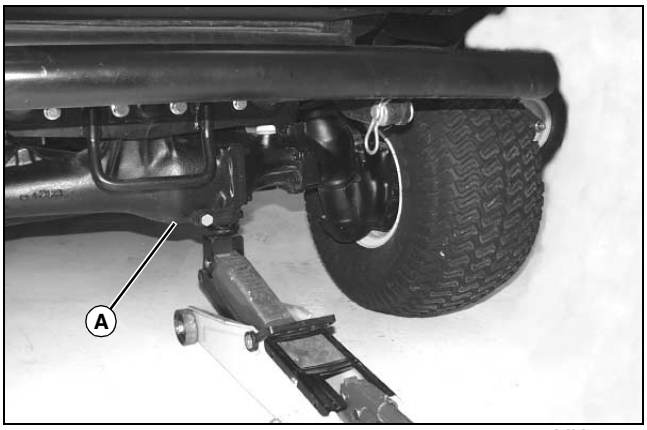
Removal

1. Raise side deck completely at side of machine requiring rear wheel removal. Leave other side deck lowered completely.

2. Engage the side deck transport lock.

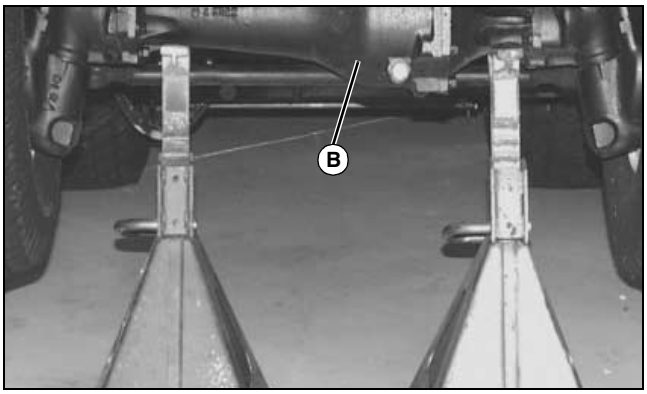
3. Lower front deck completely.

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



MX3759

5. Using a safe lifting device, jack up machine under rear axle (A) so both rear wheels are above the ground.



MX3760

6. Install jack stands under rear axle (B).

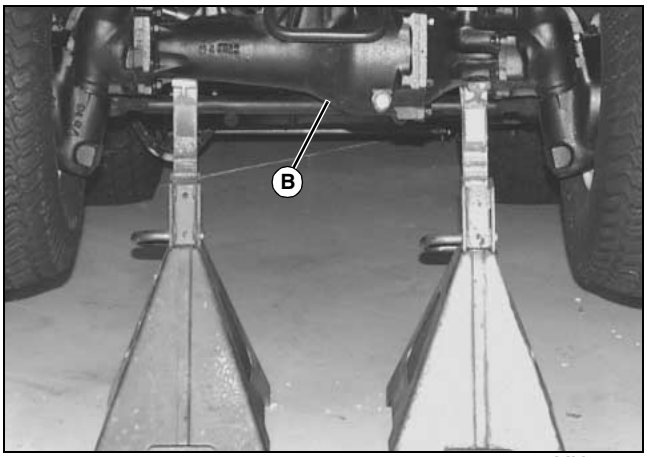
7. Lower machine onto jack stands.

8. Remove wheel bolts and wheel from rear axle.

Installation

1. Install wheel onto axle hub with valve stem facing outward. Secure with wheel bolts.

2. Tighten rear wheel bolts to 81 - 95 N•m (60 - 70 lb-ft) using torque wrench.



MX3760

3. Using a safe lifting device, jack up machine under rear axle (B).

4. Remove jack stands from under machine.

5. Lower machine to ground.

6. Remove lifting device.

7. Check wheel bolt torque:

- After traveling 30 m (100 ft) while changing direction.
- After 3 to 10 hours of use.

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
Poor Engine Performance	Fuel: • Dirt in fuel system or fuel is old. Replace fuel with fresh stabilized fuel. Obtain fuel from another supplier before suspecting machine problems. Suppliers blend fuels differently and changing suppliers will generally solve any performance problems • Fuel blended for cold or warm climate may contribute to performance problems if used in the wrong season, especially if fuel is stored for several months or more. Obtain fresh fuel.
Engine Will Not Start (Starter Engages and Turns Engine)	Fuel shutoff valve is in off position. Out of fuel or improper fuel. Plugged fuel filter. Electrical problem - See Electrical Troubleshooting Section
Engine Is Hard To Start	Plugged fuel filter. Stale or improper fuel.
Engine Runs Unevenly	Fuel line or fuel filter plugged. Stale or dirty fuel. Fuel injector clogged. Air cleaner element plugged.
Engine Misses Under Load	Stale or dirty fuel. Plugged fuel filter.
Engine Overheats	Engine air intake screen plugged. Engine coolant level is low. Engine oil level is low or too high. Engine operated too long at a slow idle speed.
Engine Will Not Idle	Fuel level too low. Air cleaner element dirty. Operator raising off the seat without park brake locked.
Engine Knocks	Stale fuel. Engine overloaded. Low engine speed.

IF	CHECK
Engine Stops Or Misses When Operating On Hillsides	Fuel tank less than half full of fuel. Operator raising off of the seat.
Engine Backfires	Operator raising off of the seat.
Engine Loses Power	Engine overheating. Too much oil in engine. Dirty air cleaner. Travel speed is too fast for conditions. Improper fuel.
Black Exhaust Smoke	Air filter element is dirty.

Electrical

IF	CHECK
Starter Does Not Engage	Park brake is not locked and operator is not on seat. PTO switch is in on position. Hydrostatic pedals are not in centered neutral position. Battery terminals are corroded. Battery not charged. 15 main fuse is blown.
Battery Will Not Charge	Dead cell in the battery. Battery cables and terminals are dirty. Low engine speed or excessive idling.
Lights Do Not Work	Light plug disconnected. Loose or burned out bulb.

Machine

IF	CHECK
Vibrates Too Much or Rattles Excessively	Engine cover not latched closed. Electrical panel not latched closed.
Machine Will Not Move With Engine Running	Park brake locked. Range shift lever is in neutral position.

Mower Decks

IF	CHECK
Mower Deck Plugs With Grass	Grass too wet or too long. Engine not being run at full throttle while mowing. Rear of deck too low.
Patches Of Grass Uncut	Travel speed too fast. Engine should be at full throttle. Dull blades. Cutting height set too high.
Belt Slipping	Mower belt tension not set correctly. Debris in sheaves. Worn belt.
Mower Blades Do Not Stop	Belt routed incorrectly. Mower belt tension needs adjustment.
Too Much Vibration	Debris on mower deck or in sheaves. Damaged drive belt. Damaged sheaves or sheaves out of alignment. Blades out of balance.
Uneven Cut	Check procedures on Adjusting Mower Deck Level. Travel speed too fast. Blades are dull. Check tire pressure.
Blades Scalping Grass	Turning speed too fast. Ridges in terrain. Rough or uneven terrain. Low tire pressure. Cutting too low. Bent blade(s).
Mower Loads Down Tractor	Engine should be at full throttle. Travel speed too fast. Debris wrapped around mower spindles. Check procedure on Adjusting Mower Level Front-to-Rear. Grass conditions. Cutting height set too low.
Uneven Clipping Distribution	Cutting height set too low. Mowing too fast. Grass too wet.

STORAGE

Storing Safety

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

• Run the engine only long enough to move the machine to or from storage.

• Do not store vehicle with fuel in the tank inside a building where fumes may reach an open flame or spark.

• Allow the engine to cool before storing the machine in any enclosure.

Preparing Machine for Storage

1. Replace all worn and damaged parts. Tighten loose hardware as needed.

2. Wash the machine. Clean inside engine compartment and under mower decks.

3. Run engine and mower decks for several minutes to dry belts, pulleys, and other moving parts.

4. Apply wax to metal surfaces.

5. Repair scratched metal surfaces to prevent rust.

6. Change engine oil and filter.

7. Lubricate grease points. Wipe off excess grease.

8. Replace fuel filter.

9. Replace air intake filter.

10. Change transmission oil.

11. Change engine coolant.

12. Drive machine to storage site. Raise mower decks completely. Engage the transport locks.

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

14. Apply a light coat of oil to exposed cylinder rods, pivot and wear points to prevent rust.

IMPORTANT: Avoid damage! Stale fuel can produce varnish and plug fuel injectors and affect engine performance. Add fuel stabilizer to fresh fuel before filling tank.

15. Fill fuel tank with fresh stabilized fuel to prevent condensation build-up. Drain fuel tank completely if storing machine indoors near potential flame or spark.

16. Remove and clean battery. Check the electrolyte level and fully charge the battery. Store in a cool dry place. Fully charge the battery periodically during storage to maintain its longevity.

17. Support machine at rear axle and front skid plate on blocks or stands to take weight off tires. Remove 1/3 air from tires.

18. Cover machine with waterproof cover if stored outside.

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.

Check Tire Pressure

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

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

• Do not inflate the tires above the recommended pressure.

• Do not weld or heat a wheel and tire assembly. Heat can cause an increase in air pressure resulting in an explosion. Welding can structurally weaken or deform the wheel.

• Do not stand in front or over the tire assembly when inflating. Use a clip-on chuck and extension hose long enough to allow you to stand to one side.

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

Check Fluid Levels

• Check all fluid levels.

Checking Machine Safety System

Perform safety system check to make sure the electronic safety interlock circuit is functioning properly.

Perform ALL Tests.

Specifcations

Engine

Engine Model Number	**Yanmar 4TNV84T**
Engine Type	**4-Cycle, 4-Cylinder, In-Line Turbocharged Diesel**
Bore	**84 mm (3.307 in.)**
Stroke	**90 mm (3.543 in.)**
Displacement	**1.995 L (121.74 cu in.)**
Armature Air Gap	**0.3 mm (0.012 in.)**
Intake and Exhaust Valve Clearance (cold)	**0.13 ± 0.025 mm (0.005 ± 0.001 in.)**
Cooling	**Liquid Cooled**
Power Output	**41.2 KW (56 hp)**
Injection Type	**Direct**
Air Cleaner	**Dry, Replaceable Dual Element**

Capacities

Engine Oil (with Filter)	**7.4 L (7.8 qt)**
Fuel Tank	**83 L (22 gal)**
Coolant	**7.5 L (8 qt)**
Hydraulic System	**58.7 L (15.5 gal)**
Hydrostatic Transmission	**13.3 L (3.5 gal)**
Rear Axle	**4.7 L (5 qt)**

Travel Speeds

High Range

Forward	**0 - 23.3 km/h (0 - 14.4 mph)**
Reverse	**0 - 11.6 km/h (0 - 7.2 mph)**

Low Range

Forward	**0 - 13.7 km/h (0 - 8.6 mph)**
Reverse	**0 - 7.2 km/h (0 - 4.3 mph)**

Tire Dimensions

Front Drive Tires	**26x12.00-12**
Rear Tires	**18x9.50-8**
Mower Deck Caster Tires	**11x4-5**

Tire Inflation Pressures

Machine Front Tires	**207 kPa (30 psi)**
Machine Rear Tires	**193 kPa (28 psi)**
Mower Deck Caster Tires	**275 kPa (40 psi)**

Dimensions

Height	**2 m (78 in.)**

SPECIFICATIONS

Width (Mower Decks Raised). . . . . 2.2 m (84.5 in.)
Width (Mower Decks Lowered) . . . . . 3.3 m (131 in.)
Length (With Mower Deck). . . . . 3.4 m (133 in.)
Length (Without Mower Deck). . . . . 2.6 m (101 in.)
Wheelbase. . . . . 1.6 m (61 in.)
Weight (With Mower Decks). . . . . 1814 kg (4000 lb)
Ground Clearance . . . . . 18 cm (7 in.)
Cutting Width . . . . . 3.3 m (131 in.)

Mower Decks

Front Mower Deck
Cutting Width . . . . . 1.6 m (62 in.)
Cutting Height. . . . . 2.5 - 15.2 cm (1 - 6 in.)
Number of Blades. 3

Side Mower Decks
Cutting Width . . . . . 1 m (40 in.)
Cutting Height. . . . . 2.5 - 14 cm (1 - 5.5 in.)
Number of Blades. 2

Tightening Torques
Front Wheels. . . . . 136 - 163 N•m (100 - 120 lb-ft)
Rear Wheels . . . . . 81 - 95 N•m (60 - 70 lb-ft)
Blade Mounting Cap screws . . . . . 122 N•m (90 lb-ft)

Recommended Lubricants

Engine Oil . . . . . JD TORQ-GARD SUPREME™, JD PLUS-4™, OR JD PLUS-50™15W-40 or SAE15W-40

Hydraulic Oil . . . . . John Deere Low Viscosity HY-GARD™ transmission/hydraulic fluid
Transmission Oil. . . . . John Deere Low Viscosity HY-GARD™ transmission/hydraulic fluid

Grease: (This may change for high-speed applications such as cutting units)
. . . . . .John Deere Multi-Purpose SD Polyurea Grease
. . . . . John Deere Multi-Purpose HD Lithium Complex Grease

(Specifications and design subject to change without notice.)

Sound Measurements

Averaged Sound Level at Work Station According to ISO 11201:1995
1600 Turbo with mower decks . . . . . .93 dB(A) at 3100 r/min engine speed

Measured Sound Power Level
1600 Turbo with mower decks . . . . . .107 dB(A) at 3100 r/min engine speed

Vibration Measurements

Hand/Arm Measured Per ISO 5349

1600 Turbo . . . . . 1.7 m/s

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

Whole Body Measured Per ISO 2631/1

1600 Turbo . . . . . 0.9-1.6 m/s^2

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

DECLARATION OF CONFORMITY

1600 Turbo Wide Area Mower

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

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

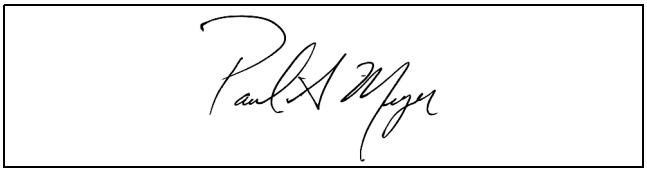
I, the undersigned:
declare that these machines

Type . . . . . 1600 Turbo Wide Area Mower
Serial Number . . . . . See Product Identification Page

comply with the applicable requirements of:

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

Done at:
John Deere Turf Care . . . . . 10 October 2005



PAUL A. MEYER
VICE PRESIDENT, ENGINEERING & SUPPLY MANAGEMENT

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NOTES

SERVICE STATEMENT

John Deere Parts

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

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

Well-Trained Technicians

School is never out for John Deere service technicians.

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

Result? - Experience you can count on!

The Right Tools

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

Prompt Service

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

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

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

SERVICE RECORD

Record Service Dates

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