

S220 Riding Lawn Tractor Serial Number 50001- S240 Riding Lawn Tractor Serial Number 920001-



JOHN DEERE

OPERATOR'S MANUAL

S220 and S240 Lawn Tractors

OMUC34189 ISSUE H3 (ENGLISH)

CALIFORNIA

Proposition 65 Warning

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

If this product contains a gasoline engine:



WARNING

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

The State of California requires the above two warnings.

Printed in U.S.A. (Revised)

North American Edition
PRINTED 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.

MX00654,000020B-19-10MAY17

Using Your Operator's Manual

Read this operator's manual, watch the safety video, <https://www.deere.com/en/parts-and-service/safety/> and review the safety signs on your machine before use. They all contain important safety information and operating instructions that must be followed to help keep you and others safe. Be sure everyone who uses the machine has read the manual, reviewed the safety signs, and knows how to use the machine safely and properly.

Your machine was designed and built to be operated in accordance with all the safe operating instructions. Since it was designed to cut grass, it can amputate hands and feet and throw objects. If you do not follow safety instructions, serious injury or death can occur.

This operator manual is organized in sections to help you find information quickly. You can use this manual to find answers to many of your operating and servicing questions. An index at the end of this book helps you find needed information quickly. Contact your dealer if this manual does not answer your questions.

Before using your machine:

- Know how to operate the machine. The Operating Controls section helps you understand the controls of your machine and what they do.
- Prepare your machine and the mowing area by performing required daily checks outlined in the General Instructions section.
- Follow instructions in the Preventing Injuries section, especially related to:
 - Keeping children safe by following instructions in the Protect Children section.
 - Avoiding injury on slopes and near terrain hazards by following instructions in the Operating on Slopes and Near Terrain Hazards section.
 - Follow the instructions in the Avoid Thrown Objects section and keep all guards in place, including discharge chute.
 - Cleaning machine during use and before storing as outlined in the Prevent Fires section.
- Understand how to service and inspect your machine.

If you do not understand the instructions or have questions, contact your dealer.

The machine shown in this manual can differ slightly from your machine.

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


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

This manual is an important part of your machine. Keep this manual with the machine when you sell it.

mk71445,1654877011782-19-10JUN22

Special Messages

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

MX00654,000020D-19-05JUN17

Parts

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

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 <https://partscatalog.deere.com/jdrc/> for your Internet connection to parts ordering and information.

TC00531,00000E9-19-14JUN23

Service Literature

If you would like to purchase a copy of the Parts Catalog or Technical Manual for this machine, visit The John Deere Technical Information Store at:

<https://techpubs.deere.com/>

or call:

Introduction

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

TH84124,0000199-19-29JUN22

Spark Arrestor

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

No person shall sell, offer for sale, lease, or rent to any person any internal combustion engine subject to Section 4442 or 4443, and not subject to Section 13005 of the Health and Safety Code, unless the person provides a written notice to the purchaser or bailee, at the time of sale or at the time of entering into the lease or rental contract, stating that it is a violation of Section 4442 or 4443 to use or operate the engine on any forest-covered, brush-covered, or grass-covered land unless the engine is equipped with a spark arrestor, as defined in Section 4442, maintained in effective working order or the engine is constructed, equipped, and maintained for the prevention of fire pursuant to Section 4443. Cal. Pub. Res. Code 4442.5. Other states or jurisdictions may have similar laws. A spark arrestor for your machine may be available from your authorized dealer. An installed spark arrestor must be maintained in good working order by the operator.

OUC2005,00006F6-19-19MAY19

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

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Previous Editions

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Product Identification

Record Identification Numbers

Lawn Tractors

S220 and S240

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

Locate the model, product identification number, and the engine serial number of your machine. Record information in the space provided as follows:

DATE OF PURCHASE:

DEALER NAME:

DEALER PHONE:

PRODUCT IDENTIFICATION NUMBER (A):

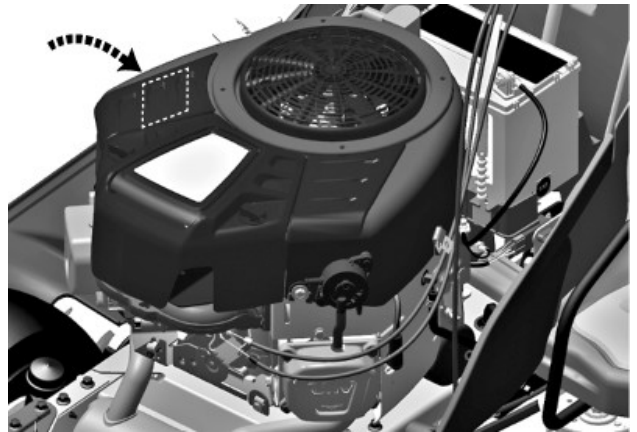
ENGINE SERIAL NUMBER:

Machine Product Identification Number Location

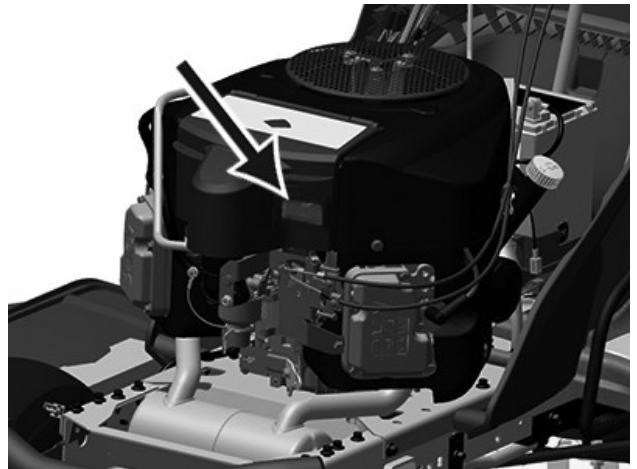


APY545001—UN—16AUG22
Right-Hand Side of the Machine Shown

Engine Serial Number Locations



MX101653—UN—26FEB21
S220 Model Shown



APY34651—UN—09APR20
S240 Model Shown

czhk963,1660656591938-19-17AUG22

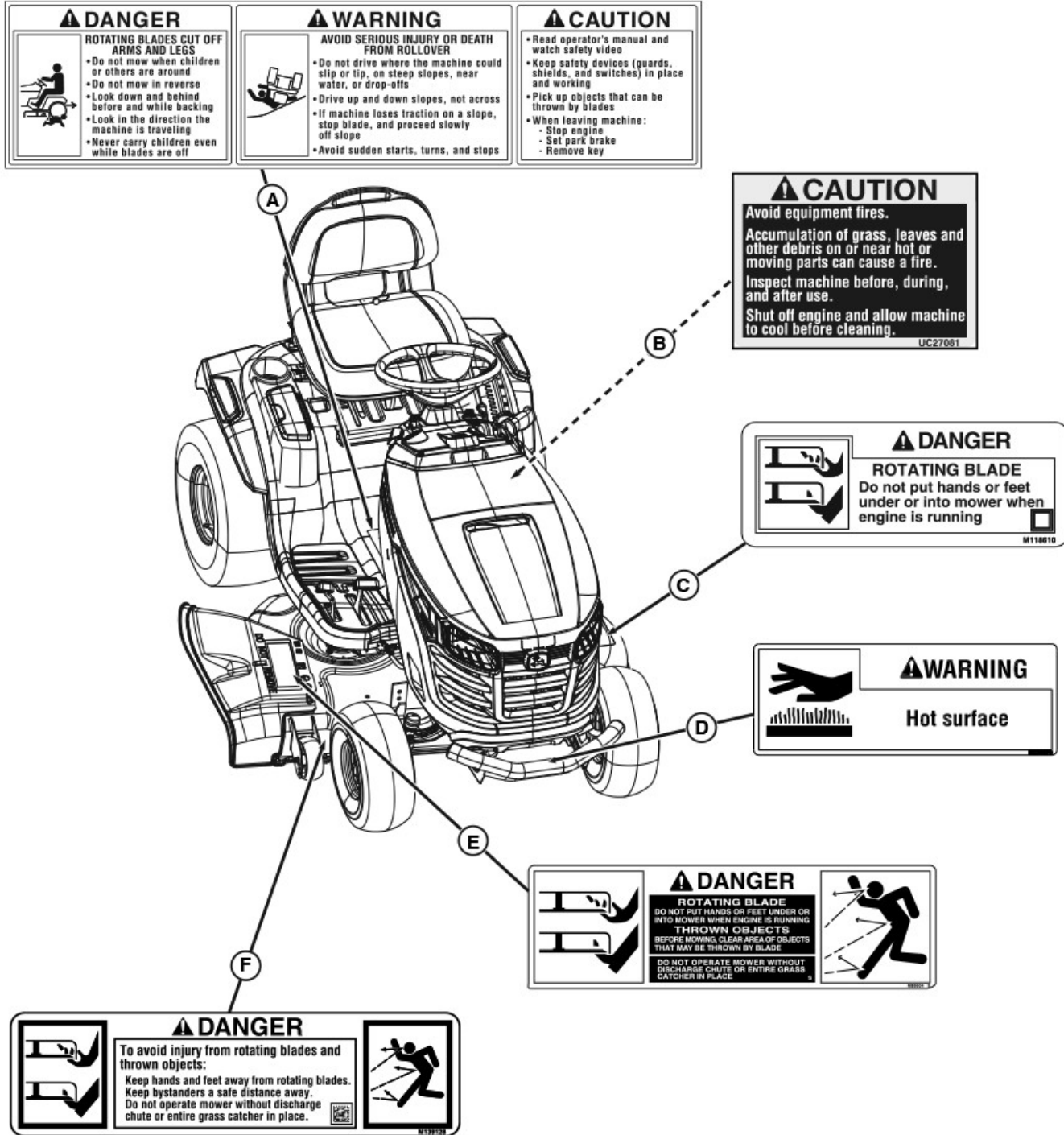
Register Your Product and Warranty Online

To register your product through the Internet, simply go to www.JohnDeereWarrantyRegistration.com. Completing the information, either online or with the product warranty card, will ensure that your product will receive all post sales, service, and important product information.

MP47322,00F45FF-19-17MAY22

Safety Labels with Text

Safety Label Location



A— DANGER/WARNING — UC22512
B— CAUTION — UC27081
C— DANGER— M118610

D— WARNING — GX23479
E— DANGER — M89504
F— DANGER — M139128

APY31471—UN—27JUL20

VS70618,0000806-19-10JUL20

Safety Labels with Text

Understanding the Machine Safety Labels



MXAL42363—UN—22MAY13

The machine safety labels shown in this section are placed in important areas on your machine to draw attention to potential safety hazards. DANGER or WARNING safety labels are located near specific hazards.

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

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

- **DANGER;** The signal word DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.
- **WARNING;** The signal word WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.
- **CAUTION;** The signal word CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury. CAUTION may also be used to alert against unsafe practices associated with events which could lead to personal injury.

Replace missing or damaged safety labels. Use this operator's manual for correct safety label placement.

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

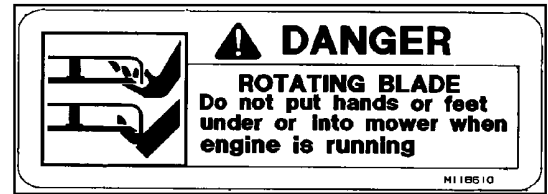
French or Spanish Safety Labels and Operator's Manual

Operator's manuals and safety labels with content in French or Spanish are available for this machine through authorized John Deere dealers. See your John Deere dealer.

NOTE: Both text and no-text labels are shown. Your machine is only equipped with one of these types of labels.

MP47322,00F4601-19-21FEB23

DANGER



GXAL41947—UN—04MAR13

ROTATING BLADE

- Do not put hands or feet under or into mower when engine is running.

OUC02004,0000BAF-19-28FEB15

DANGER



GXAL41948—UN—04MAR13

ROTATING BLADE

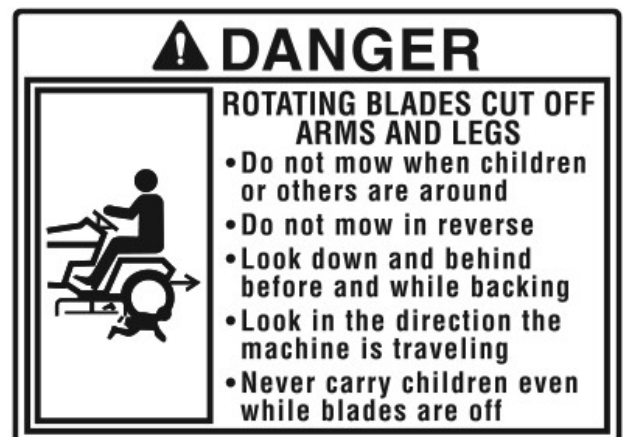
- Do not put hands or feet under or into mower when engine is running.

THROWN OBJECTS

- Before mowing, clear area of objects that may be thrown by blade.
- Do not operate mower without discharge chute or entire grass catcher in place.

OUC02004,0000BB0-19-28FEB15

DANGER



APY36142—UN—24JUL20

ROTATING BLADES CUT OFF ARMS AND LEGS

- Do not mow when children or others are around

Safety Labels with Text

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

MG39705,00004A4-19-26JUN20

WARNING



APY36143—UN—24JUL20

AVOID SERIOUS INJURY OR DEATH FROM ROLLOVER

- Do not drive where the machine could slip or tip, on steep slopes, near water, or drop-offs
- Drive up and down slopes, not across
- If machine loses traction on a slope, stop blade, and proceed slowly off slope
- Avoid sudden starts, turns, and stops

MG39705,00004A5-19-24JUL20

CAUTION

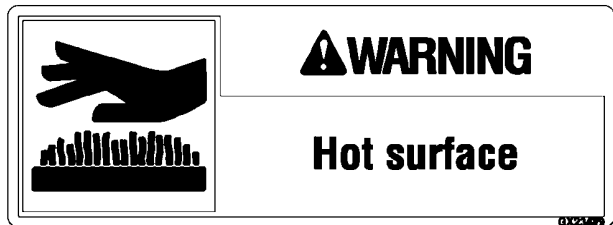


APY36144—UN—10JUL20

- Read operator's manual and watch safety video
- Keep safety devices (guards, shields, and switches) in place and working
- Pick up objects that can be thrown by blades
- When leaving machine:
 - Stop engine
 - Set park brake
 - Remove key

MG39705,00004A6-19-26JUN20

Avoid Injury From Hot Surface



GXAL41952—UN—04MAR13

WARNING

- Hot surface

OQO2004,0000BB3-19-28FEB15

CAUTION



APY36145—UN—10JUL20

Avoid equipment fires

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

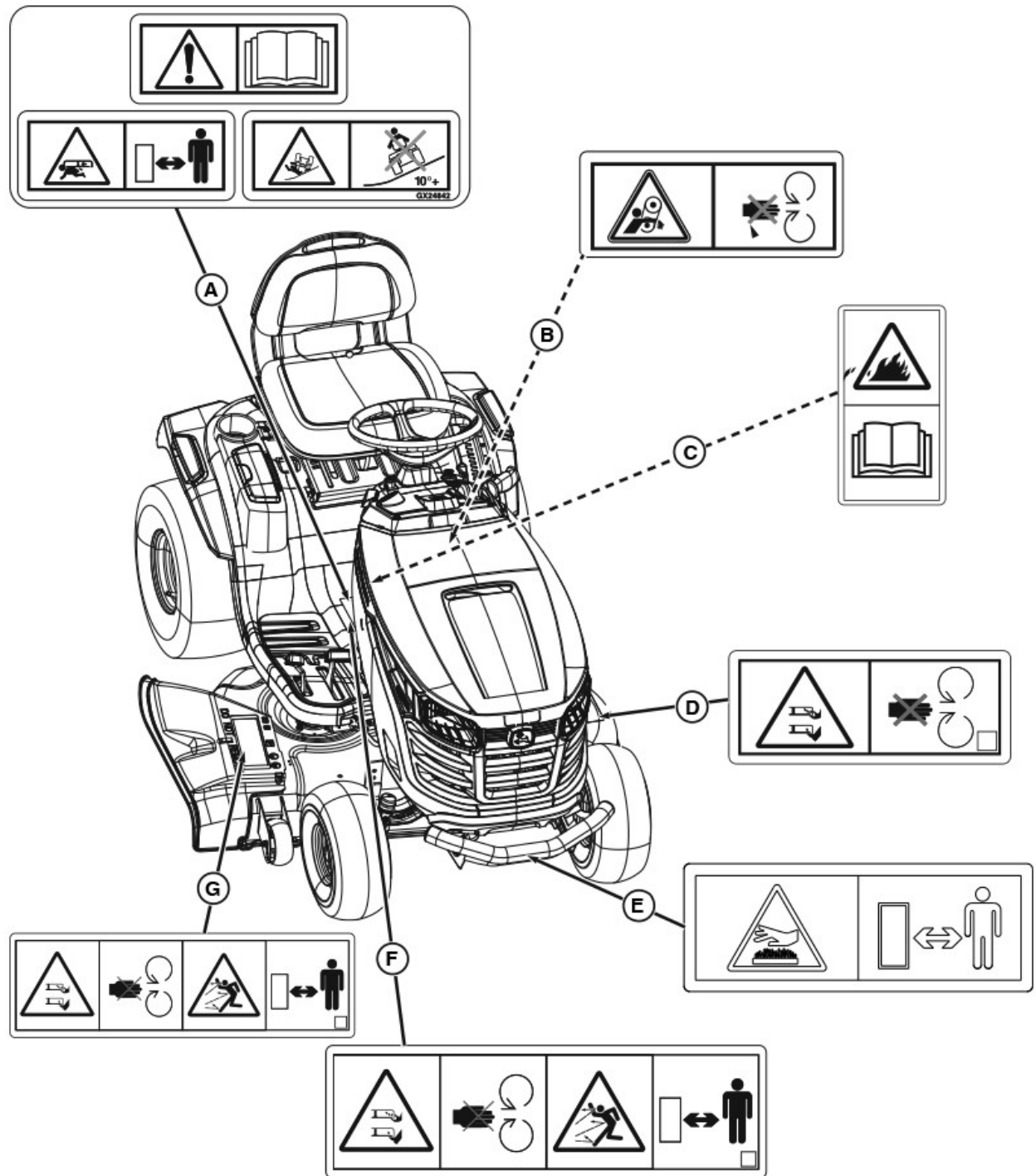
Inspect machine before, during, and after use

Shut off engine and allow machine to cool before cleaning

MG39705,00004A7-19-26JUN20

Safety Labels without Text

Safety Label Location



APY31472—UN—27JUL20

A— Read OM, Keep Children Away from Mower; Avoid Injury from Tipping — GX24842
 B— Avoid Injury from Getting Caught in Belt — M136436
 C— Avoid Injury from Equipment Fire — GX24503
 D— Avoid Injury from Rotating Blades — M118041

E— Avoid Injury from Hot surfaces — GX25568
 F— Avoid Injury from Rotating Blades and Thrown Objects — M148522
 G— Avoid Injury from Rotating Blades and Thrown Objects — M118040

VS70618,0000807-19-03JUL20

Safety Labels without Text

Understanding the Machine Safety Labels without Text



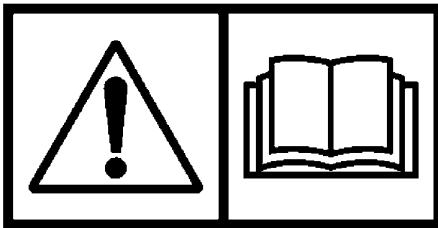
TCT005498—UN—11SEP12

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

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

MX00654,0000389-19-09JAN23

Read Operator's Manual

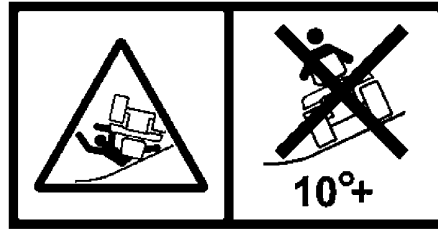


MXAL42776—UN—09APR13

- This operator's manual contains important information necessary for safe machine operation.
- Carefully read operator's manual before operating machine or attachment. Observe all safety rules to avoid accidents.

MX00654,000038B-19-01APR19

Avoid Serious Injury or Death from Tipping

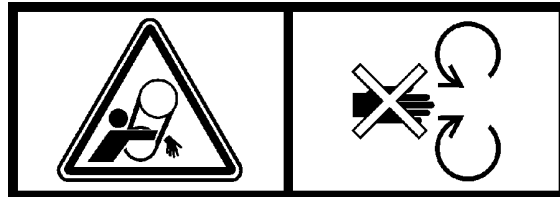


MXAL42779—UN—09APR13

- Do not drive where machine could slip, tip, or rollover.
- In some configurations, do not drive or operate on a slope of more than 10 degrees.
- Refer to the Operating on Slopes section for more information.

MX00654,000038E-19-01APR19

Avoid Injury from Getting Caught in Belts

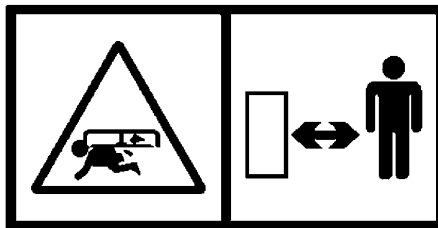


MXT018017—UN—03MAY16

- Stay clear of moving belts.
- Do not operate machine without shields in place.

MX00654,0000391-19-24APR19

Keep Children Away from Mower



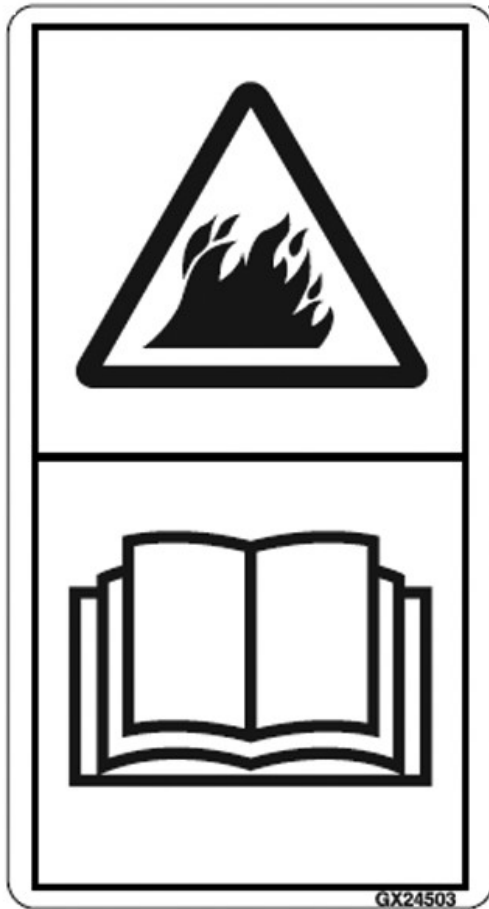
MXAL42778—UN—09APR13

- Mower can cause dismemberment or death.
- Stay a safe distance from the machine.
- Make sure that children stay clear of mower at all times when the engine is running.

MX00654,000038D-19-01APR19

Safety Labels without Text

Avoid Injury from Equipment Fires

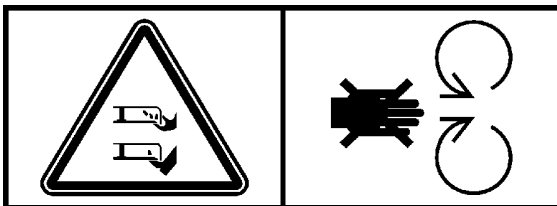


APY36195—UN—10JUL20

- Avoid equipment fires.
- Accumulation of grass, leaves, and debris on or near hot or moving parts can cause a fire.
- Inspect and clean the entire machine before, during and after use.
- Shut off engine and allow machine to cool before cleaning.
- Carefully read operator's manual Machine Cleanout section for details.

MG39705,00004B6-19-06JUL20

Avoid Injury from Rotating Blades



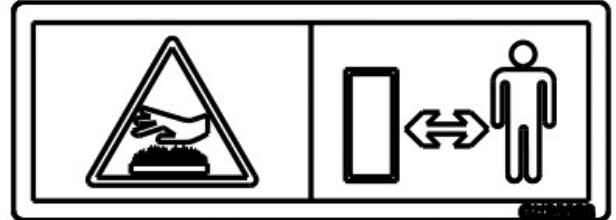
MXT018016—UN—03MAY16

- Do not put hands or feet under or into mower when engine is running.

- Do not operate mower without discharge chute/ deflector or entire grass catcher in place.

MX00654,0000392-19-24APR19

Avoid Injury from Hot Surfaces



APY36196—UN—10JUL20

- Keep away from hot surfaces.

MG39705,00004B7-19-06JUL20

Avoid Injury from Rotating Blades and Thrown Objects



APY36197—UN—10JUL20

Avoid injury from rotating blade and thrown objects. Do not operate blower without entire grass catcher in place. Shut engine off before unclogging or servicing.

MG39705,00004B8-19-06JUL20

Safety

Use Your Mower Safely

General Instructions

- Read this operator's manual, watch the safety video, and review the safety signs on your machine before use. They all contain important safety information and operating instructions that must be followed to help keep you and others safe. Be sure everyone who uses the machine has read the manual, reviewed the safety signs, and knows how to use the machine safely and properly.
- Age, physical ability, and mental capacity can be factors in equipment-related injuries. Operators must be mentally and physically capable of operating the machine properly and safely. Never allow a child to operate the machine.
- Do not operate the machine while under the influence of alcohol or drugs or when distracted or fatigued. Proper operation requires your full attention.
- Always wear eye protection, hearing protection, close-fitting clothing, and substantial footwear while operating the machine. Never operate while wearing sandals or when barefoot.
- Do not wear radio or music headphones. Both safe operation and service require your full attention.
- Never tamper with safety devices.
- Operate the machine only in daylight or good artificial light.
- Only operate the engine in well-ventilated areas. Exhaust gasses contain carbon monoxide, a deadly poison.
- Never leave a running machine unattended.
- Look both ways when approaching roadways and use caution when turning around on public roadways. You can be struck by a vehicle and suffer serious injury or death.

Before Using Your Machine

- Know how to operate the machine. The Operating Controls section helps you understand the controls of your machine and what they do.
- Prepare your machine and the mowing area by performing required daily checks outlined in the General Instructions section.
- Follow instructions in the Preventing Injuries section, especially related to:
 - Keeping children safe by following instructions in the Protect Children section.
 - Avoiding injury on slopes and near terrain hazards by following instructions in the Operating on Slopes and Near Terrain Hazards section.
 - Follow the instructions in the Avoid Thrown Objects section, and keep all guards in place, including discharge chute.
 - Cleaning machine during use and before storing as outlined in the Prevent Fires section.

- Understand how to service and inspect your machine.

Inspection and Daily Checklist

- Inspect machine before you operate. Be sure that hardware is tight, and all guards and shields are in good condition and fastened in place. Make all necessary adjustments before you operate. Repair or replace damaged, badly worn, or missing parts.
- Visually inspect that mower blades, blade bolts, and the mower assembly are not worn or damaged. To prevent machine damage, replace worn or damaged blades and bolts in sets.
- Make sure that the fuel cap and air cleaner are in place before starting engine.

Fuel

- Use care when handling fuel. Fuel is flammable and fuel vapors can be explosive. Do not smoke when handling fuel. Only use an approved fuel container. Clean up spilled fuel immediately.
- Check fuel lines, tank, cap, and fittings frequently for cracks or leaks. Replace if necessary.

Check the Mowing Area

- Keep bystanders and pets out of the mowing area.
- Clear the area of objects such as rocks, wire, or toys, which can be thrown by the blades. Remove low-hanging branches or other obstacles, which can interfere with your travel path.
- Study the mowing area. Set up a safe mowing path. Do not mow where traction or stability is doubtful.
- Slopes and terrain hazards are major factors related to loss-of-control and tipover accidents. Operation on slopes and near terrain hazards requires extra caution. Follow instructions in the Operating on Slopes and Near Terrain Hazards section.

Weights and Attachments

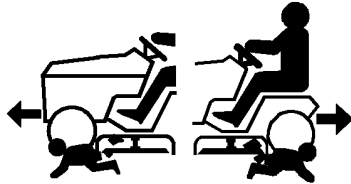
- Some attachments require ballast weights. Follow recommendations for wheel weights or counterweights.
- Use only accessories and attachments approved by John Deere.
- If you do not understand the instructions or have questions, contact your dealer.

OUO2005,0000784-19-09MAR20

Safety

Preventing Injuries

Protect Children



MXAL41929—UN—18FEB13

- Children can be killed or seriously injured by riding mowers when operators do not follow safe operating practices.
- Do not mow in reverse. Operating with the mower engaged while backing up is discouraged.
- Never give children a ride on a mower or in a cart behind the mower, even when the blades are off. They can fall off and be run over or cut by the mower blades. Children can interfere with mower operation. Children who have been given rides in the past can suddenly appear in the mowing area for another ride. If you are not aware, they can be run over or backed over by the mower.
- Children are often attracted to lawn mowers and mowing activities, especially if they have been given rides before. They do not know if the blades are rotating or understand that they can be killed or seriously injured even if the blades are not rotating.
- Keep children indoors and out of the mowing area when the mower is being operated. Keep children under the watchful eye of a responsible adult, other than the operator. If there is not a responsible adult to ensure that children stay indoors, DO NOT mow.
- Be alert to the presence of children or others. Turn off the mower blades and stop the machine if someone enters the mowing area.
- Look in the direction the machine is traveling. Before and while backing, turn off the mower blades and look down and behind the machine carefully, especially for children.
- Use extreme care when approaching objects that block your view, such as blind corners, shrubs, or trees, especially while backing. They can hide a child.

Avoid Thrown Objects

- Clear the mowing area of all bystanders when using this machine. Thrown objects could cause serious injury or death.
- Clear the area of objects such as rocks, wire, or toys, which can be thrown by the blades.
- Never direct discharged material toward anyone.
- Avoid discharging material against a wall or obstruction such as a fence or retaining wall. Material can ricochet towards the operator.

- Avoid discharging material towards a street or roadway.
- Stop the blades when crossing gravel surfaces.

OUO2005.0000783-19-15FEB20

Operating on Slopes and Near Terrain Hazards

- Slopes are a major factor related to loss-of-control and tip-over accidents, which can result in serious injury or death. Use caution and common sense when operating on slopes.
- If you feel uneasy on a slope, do not mow or operate the machine on it.
- Mow up and down slopes, not across.
- Watch for holes, ruts, bumps, rocks, or other hidden objects. Tall grass can hide obstacles.
- Drive slowly so you do not have to stop while on a slope.
- Do not mow on wet grass. Tires can slip on wet grass even if the brakes are working normally.
- Keep all movement on slopes slow and gradual. Do not make sudden changes in speed or direction, which can cause the ride-on mower to roll over.
- If the tires lose traction, disengage the PTO and proceed slowly and carefully off the slope.
- Do not shift to neutral and coast downhill.

Identify Safe Slopes

- Before using your machine, measure slopes of all mowing areas to determine which slopes are safe for mowing with a ride-on mower. Use good judgment and common sense when performing this survey.

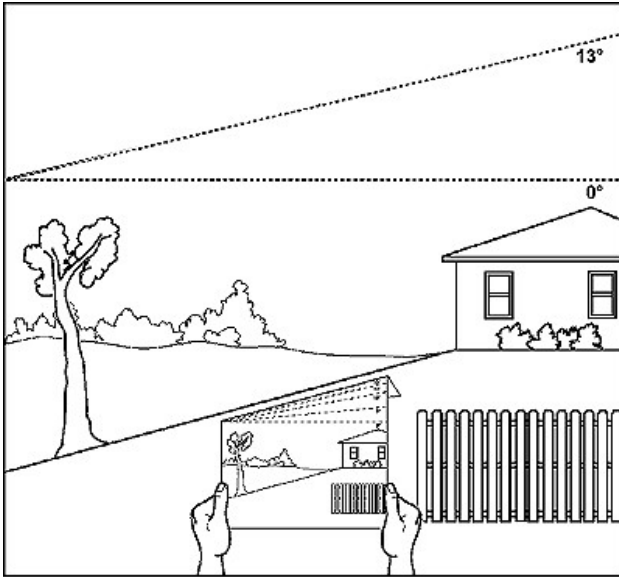
Measuring Slopes

- Suggested method 1: Lay a straight piece of sturdy lumber 1.2 m (4 ft) long on the slope and measure the angle with an angle gauge or protractor level.
- Suggested method 2: Refer to the slope gauge provided at the end of the manual.

Slope Limits

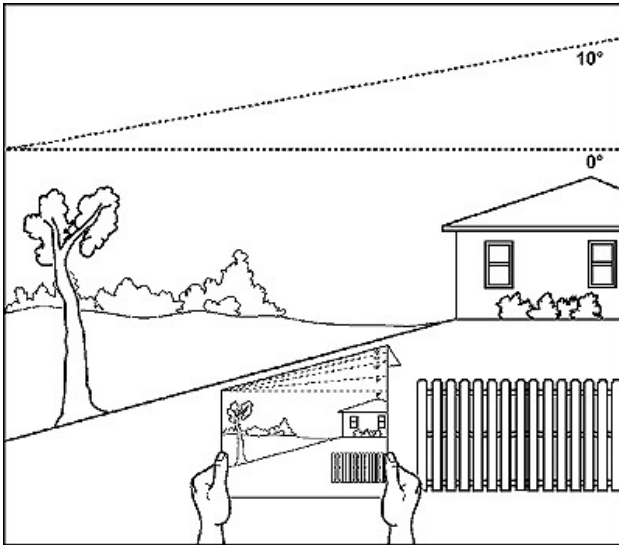
- Exceeding the recommended maximum slope angle increases the risk of rollover accidents that can result in serious injury or death.

Safety



GX100108—UN—14FEB20

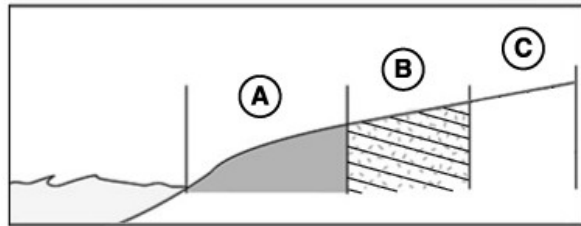
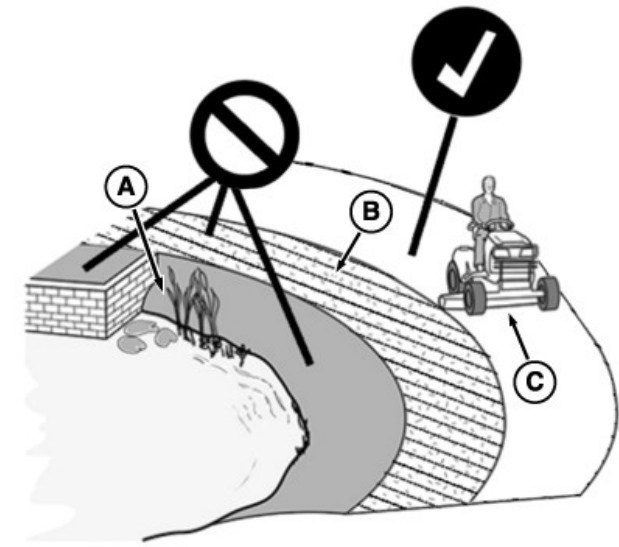
- Never mow or operate this ride-on mower on slope angles greater than 13° with ride-on mower in its basic configuration. The basic configuration is the ride-on mower with a mower deck and no other attachments. (A 13° slope is a slope that rises 1.4 m [4.6 ft] over a horizontal distance of 6.1 m [20 ft].)



GX100111—UN—19FEB20

- Attachments such as material collection systems, weather enclosures, or other attachments increase the risk of a rollover. When using attachments, never mow or operate this ride-on mower on slope angles greater than 10°. (A 10° slope is a slope that rises 1 m [3.5 ft] over a horizontal distance of 6.1 m [20 ft].)
- The risk of rollover is low on slopes of 10° or less. As the slope angle increases to the recommended maximum, the risk increases to a medium level.

Operating Near Terrain Hazards



GX100106—UN—01FEB20

- Terrain hazards such as ditches and drop offs are a factor related to loss-of-control and tip-over accidents, which can result in serious injury or death. Use caution and common sense when operating near terrain hazards.
- Do not mow or operate the machine in areas adjacent to hazards that can cause the machine to roll over. If a wheel goes over an edge or if the edge breaks away, the machine can suddenly lose traction, slide, and/or roll over.
- Hazards (A) include but are not limited to ditches, drop-offs, embankments, or areas near bodies of water.
- Maintain a buffer area (B) at least as wide as the machine between hazards (A) and the mowing area (C). Do not mow or operate the machine in the hazard area or buffer area.
- Only mow or operate in the mowing area (C). Do not exceed the recommended slope operating angle. Refer to the Slope Limits section.

OOU2005,0000785-19-09MAR20

Safety

Prevent Fires



TS227—UN—15APR13

- Do not mow tall, dry grass or through piles of leaves. Combustible materials can contact hot components and increase the risk of fire.
- Debris can build up anywhere on the machine, especially on horizontal surfaces. While using your machine, periodically check for and remove debris, especially in dry or heavy debris conditions, such as when collecting leaves.
- After operating, completely remove any combustible materials from equipment before storing. Use compressed air, a leaf blower, or water to keep the machine clean.
- Allow machine to cool in an open area before storing. Do not park machine near flammable materials, such as straw, mulch, cloth, or chemicals. Do not park near an open flame or other sources of ignition, such as a water heater or furnace.
- Excess lubrication or fuel/oil leaks or spills on the machine can also provide collection sites for debris. Promptly cleaning up spills and repairing leaks reduces the potential for debris collection.
- Refer to the Machine Cleanout section for more information on checking for debris buildup and locations to inspect.
- Always park the machine safely before cleaning or servicing a machine. See the Parking Safely section.

OUC2005,0000787-19-15FEB20

Parking Safely

Always apply the park brake and remove the key or key pin before leaving the machine unattended. Children or others may attempt to move or operate an unattended machine.

- Bring the machine to stop on a level surface.
- Disengage mower blades or other attachments.
- Lower attachments to the ground.
- Apply the park brake.
- Shut the machine OFF.
- Remove the key or key pin.

- Wait for all moving parts to stop before you leave the seat.
- Disconnect battery before maintenance.

OUC2005,0000788-19-12APR23

Additional Safety Information

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 Towing Capacity stated in Specifications of this 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.
- Towed equipment increases the risk of rollover on slopes. Refer to the Operating on Slopes and Near Terrain Hazards section for more information.
- Do not turn sharply. Use additional caution when turning or operating on adverse surface conditions. Use care when reversing.

Safe Transportation

Follow instructions in the Transporting Machine on Trailer section.

- Use a full-width loading ramp at least 30 cm (12 in) wider than the machine, never two separate ramps.

Service and Maintenance

- Proper service and maintenance of the machine is essential.
- Keep all parts in good condition, keep all nuts and bolts tight, and repair any damage immediately. Stop and inspect the machine immediately if you strike an object.
- Ensure that all safety devices, discharge chute, and grass catcher components are in good condition and replace when necessary.
- Understand service procedures thoroughly before working on the machine. If you do not understand the service procedures or are uncomfortable working in your machine, contact your servicing dealer.
- Disconnect the battery or all spark plug wires before servicing the machine. Disconnect negative terminal first and positive last. Install positive terminal first and negative last.
- Some components could have stored energy in springs or hydraulic components. Servicing

Safety

procedures described in the Service section describe how to perform service and maintenance tasks safely.

- Support any machine elements that must be raised for service work. Use jack stands or service locks to support components when needed.

Disposing of Waste Products 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 can mistakenly drink from them.
- A Safety Data Sheet (SDS) provides specific details on chemical products: Physical and health hazards, safety procedures, and emergency response techniques. The seller of the chemical products used with your machine is responsible for providing the SDS for that product.
- To learn how to recycle or properly dispose of waste products generated from service, see your local recycling center or authorized dealer. If you wish to discard the machine, contact your local recycling center or authorized dealer.

OUO2005,0000789-19-15FEB20

Machine Cleanout

General Cleaning Guidelines

Machine must be inspected periodically throughout the day. Buildup of debris must be removed to ensure proper machine function and to reduce the risk of fire. Frequency of these inspections and cleanings vary depending on a number of factors including operating conditions, machine configuration, operating speeds, and weather conditions. Inspections and cleanings may be required multiple times throughout the day particularly in dry, hot, and windy conditions.

IMPORTANT: Avoid damage! Regular and thorough cleaning of machine combined with other routine maintenance procedures listed in the Operator's Manual greatly reduce the risk of fire, downtime, and improve machine performance.

Besides proper maintenance, the condition of the material being handled is the most significant factor contributing to fires. Dry, light, and fluffy materials that can create a dust cloud are the most likely to catch fire. Debris can accumulate in various areas especially on horizontal surfaces. Conditions such as wind speed and direction can change where the material accumulates. Be aware of these changing conditions and adjust your cleaning schedule and practices to ensure proper machine function and to reduce the risk of fire.

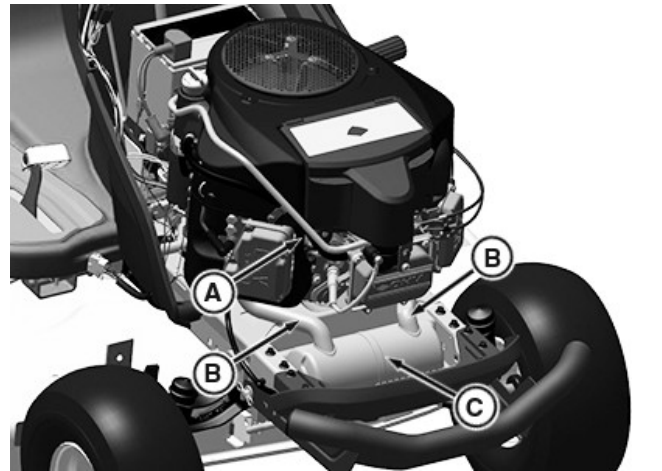
Always follow all safety procedures posted on the machine and in the Operator's Manual. Before carrying out any inspection or cleaning, always shut OFF engine, set park brake, and remove key.

The entire machine should be inspected, with extra attention given to the areas noted below.

SR99263,000028F-19-15APR20

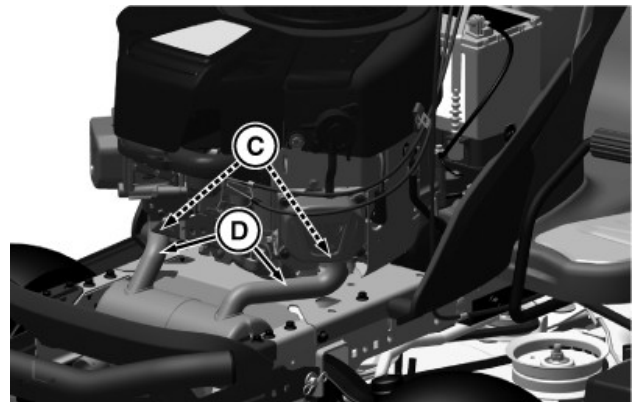
Cleanout Areas

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



APY34601—UN—31MAR20

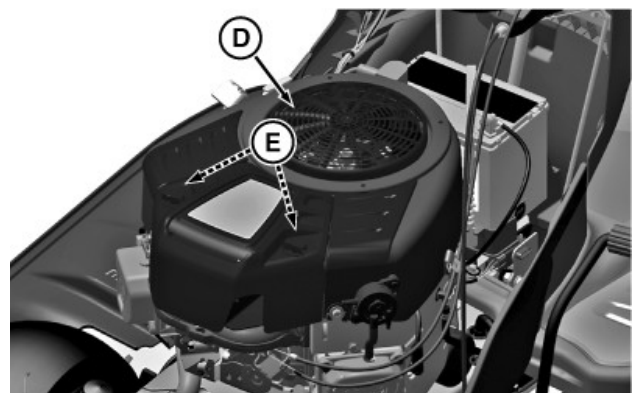
Model S240 Shown



MX101654—UN—07DEC20

Model S220 Shown

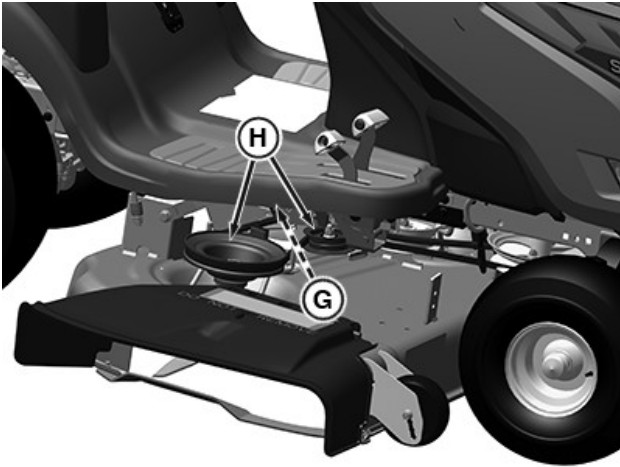
1. Exhaust manifolds (A), muffler pipes (B), muffler, and muffler shield (C) - not shown.



MX101655—UN—10SEP20

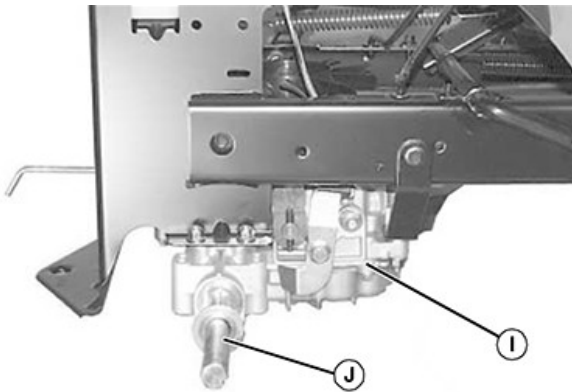
2. Engine intake screens (D) and cooling fins (E).

Machine Cleanout



APY36201—UN—10JUL20

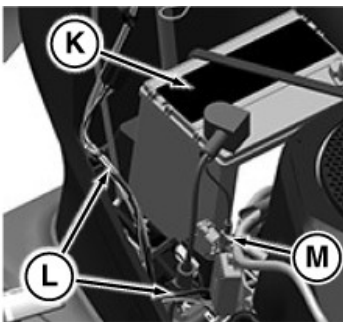
3. Top of the mower deck, under shields (G), including spindle (H) and belt areas.



GXAL41972—UN—04MAR13

Shown with wheel removed

4. On or near transmission (I) and driveline (J).



MX101648—UN—02SEP20

5. Under the left side panel near the fuse block (M) and all wiring, including the battery (K) and related wiring harnesses (L).

SR99263,0000303-19-10SEP20

Operating Controls

Operator's Station Controls "Model S240"



S240 Model Shown

APY34605—UN—27JUL20

A—Brake Pedal
B—Reverse Implement Option (RIO) Switch
C—Park Brake Lock Lever
D—Throttle Lever
E—Choke Lever
F—MowerPlus™ Fuel Gauge
G—Attachment Engagement Switch

H—Cruise Control Lever
I—Key Switch
J—Forward Travel Pedal
K—Reverse Travel Pedal
L—Seat Adjust Lever
M—Attachment Lift Lever

SR99263,0000304-19-27JUL20

Operating Controls

Operator's Station Controls "Model S220"



S220 Model Shown

APY34606—UN—27JUL20

A—Brake Pedal
B—Reverse Implement Option (RIO) Switch
C—Park Brake Lock Lever
D—Throttle Lever
E—Choke Lever
F—Hourmeter
G—Attachment Engagement Lever

H—Cruise Control Lever
I—Key Switch
J—Forward Travel Pedal
K—Reverse Travel Pedal
L—Seat Adjust Lever
M—Fuel Level Window
N—Attachment Lift Lever

SR99263,0000305-19-27JUL20

Operating

Daily Operating Checklist

- ☐ Check/test safety systems.
- ☐ Check tire pressure and brakes.

IMPORTANT: Avoid damage! Using stale, contaminated, or improper fuel can result in engine and fuel system damage. Repairs caused by stale, contaminated, or improper fuel are not covered by warranty.

- ☐ Check fuel level. (See Service Miscellaneous section, using proper fuel and stabilizer.)
- ☐ Check engine oil level.
- ☐ Remove grass and debris from engine compartment and muffler area, and on top of mower deck, before and after operating machine.
- ☐ Clean air intake screen.
- ☐ Check below machine for fluid leaks.
- ☐ Check/tighten any loose hardware.

SR99263,0000293-19-15APR20

Adjusting Seat

1. Sit on seat.



APY34607—UN—31MAR20

2. Lift up on adjustment lever (A) on right side of seat.
3. Lean forward and slide seat forward or rearward to desired position. Do not lean back on top of seat to push rearward.
4. Release seat adjustment lever to lock in position.

SR99263,0000306-19-01APR20

Adjusting Cutting Height

Cutting height is adjusted from approximately 25—100 mm (1—4 in) in 6.4 mm (1/4 in) increments. When mower deck is in the transport position, cutting height is approximately 100 mm (4 in).

Detents allow the adjustment lever to be positioned at each indicated mower setting, as well as the mid-point between each setting.

Mower Setting	Approximate Cutting Height
1	25 mm (1 in)
—	32 mm (1-1/4 in)
—	38 mm (1-1/2 in)
—	44 mm (1-3/4 in)
2	50 mm (2 in)
—	57 mm (2-1/4 in)
—	65 mm (2-1/2 in)
—	70 mm (2-3/4 in)
3	75 mm (3 in)
—	83 mm (3-1/4 in)
—	90 mm (3-1/2 in)
—	95 mm (3-3/4 in)
4 (Transport)	100 mm (4 in)

1. Put the attachment lift lever into the slot near desired cutting height.
2. Adjust mower deck wheels.

Transporting or Getting on and off Machine

- Pull the attachment lift lever all the way back to transport position or 100 mm (4 in) cutting height.

JS86122,00003BF-19-07MAY21

Checking and Adjusting Mower Deck Level (42A Mower Deck)

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

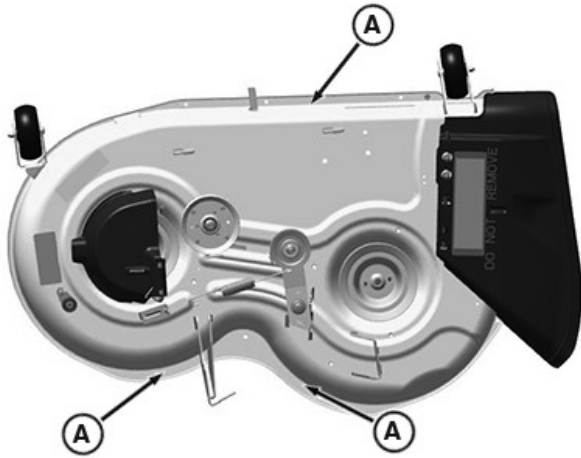
- Disconnect spark plug wires or battery negative (-) cable to prevent engine from starting accidentally.
- Always wear gloves when handling mower blades or working near blades.

NOTE: Mower deck wheels must not contact the ground when leveling the mower deck.

Method One

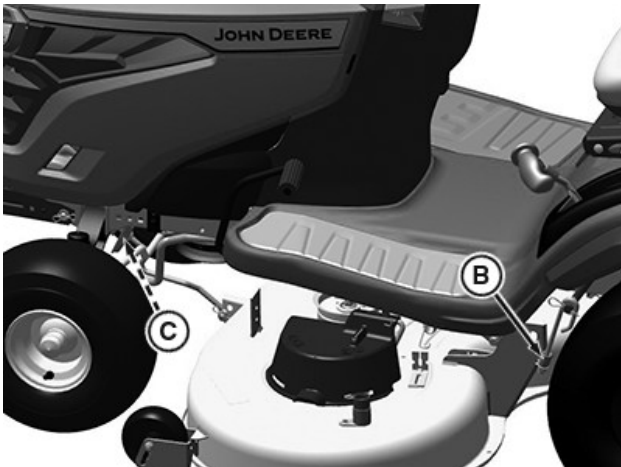
1. Make sure that machine is on a flat, level surface.
2. Park machine safely. (See Parking Safely in the Safety section.)
3. Check that tires are inflated to correct tire pressure. Tire pressure is marked on the side of the tire.
4. Raise deck to highest position.

Operating



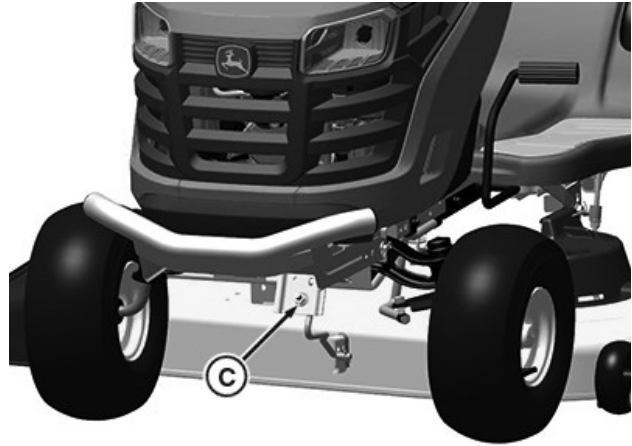
APY34611—UN—31MAR20

5. Place three short 51 mm (2 in) blocks of wood under the edges (A) of the mower deck.
6. Lower mower deck to the 63 mm (2.5 in) cutting height position.
7. Check that the mower deck is level and lightly touching each of the three wooden blocks.



APY34609—UN—31MAR20

- If the rear of the mower deck is not touching the rear blocks, or is sitting heavily on the blocks, adjust the rear lift links by turning the leveling nut (B) on each lift link. The blocks must be able to slide in and out beneath the mower deck when the mower deck is correctly adjusted.



APY34610—UN—31MAR20

- If the front of the mower deck is not lightly touching the front block, adjust the front draft arm by turning the nut (C).
8. Raise the cutting height to the next highest position and remove the three wooden blocks.
 9. Turn the nut (C) on the front draft arm counterclockwise 1-2 full turns so that the front of the deck is 3—6 mm (1/8—1/4 in) lower than the rear. This adjustment prevents “double cutting,” which wastes horsepower and causes brown grass tips.

Specification

Mower Deck, Front-to-

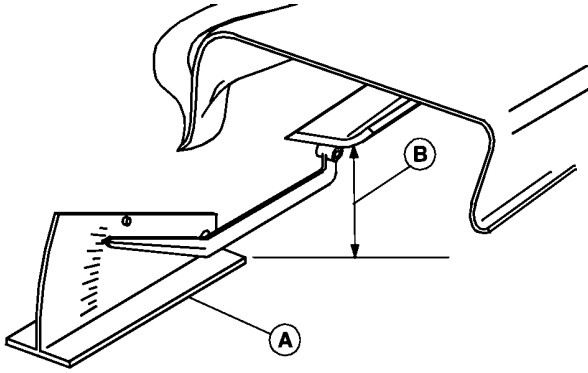
Back—Height. 3-6 mm (1/8—1/4 in)

Method Two

NOTE: An optional mower deck leveling gauge (AM130907) is available from your John Deere dealer. It allows for precision mower deck leveling by measuring mower deck level at the blade tips.

1. Make sure that machine is on a flat, level surface.
2. Park machine safely. (See Parking Safely in the Safety section.)
3. Inflate tires to the correct pressure.
4. Move mower lift handle to preferred cutting height.
5. Measure mower deck level (side-to-side).

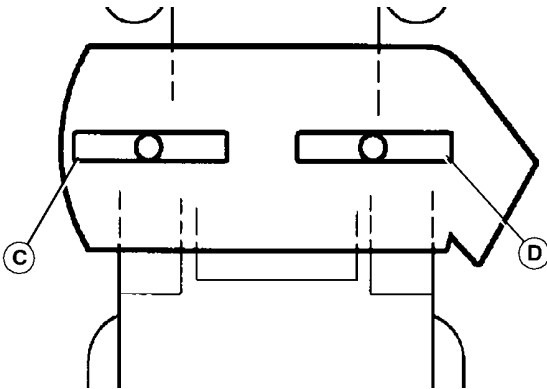
Operating



GXAL41983—UN—04MAR13

A convenient Leveling Gauge (A) (AM130907) is available from your Dealer

- a. Position mower blades as follows and measure from each outside blade tip (B) to the level surface.



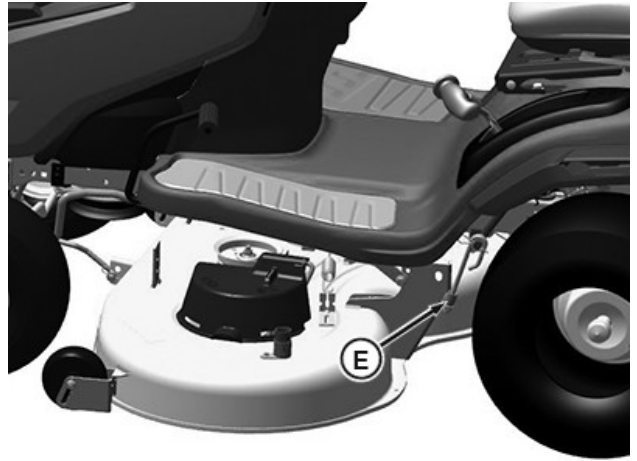
GXAL41984—UN—04MAR13

- b. Turn left blade (C) as shown. Hold drive belt and turn right blade (D) as shown. Take measurement for both blades.

The difference between blade measurements must not be more than specified distance.

Specification

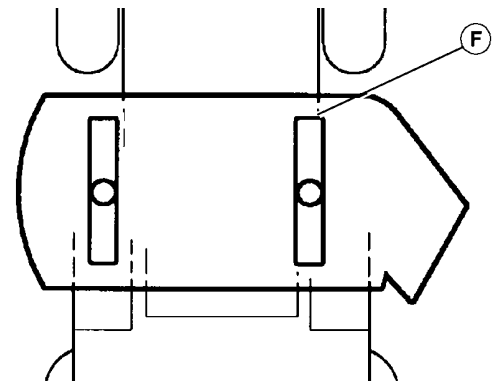
Mower Deck Blade Outside Tips
to Ground
(Difference)—Distance. 3 mm (1/8 in)



APY34615—UN—31MAR20

- c. Adjust mower deck level, if necessary, by turning rear nuts (E) clockwise to raise the side of the mower deck or counterclockwise to lower the mower deck.

6. Measure mower level (front-to-rear).



GXAL41986—UN—04MAR13

- a. Turn right blade (F) so blade tip points straight forward.
- b. Measure from blade tip to the surface. Take measurement for both blades.

The front blade tip must be specified distance lower than rear blade tip.

Specification

Mower Deck Blade Outside Tips
to Ground
(Difference)—Distance. 3—6 mm (1/8—1/4 in)

Operating



APY34616—UN—31MAR20

- c. Adjust mower deck level, if necessary, by turning the nut (G) counterclockwise to lower the front of deck or clockwise to raise front of deck.

SR99263,0000307-19-10JUL20

Checking and Adjusting Mower Deck Level (48A Mower Deck)

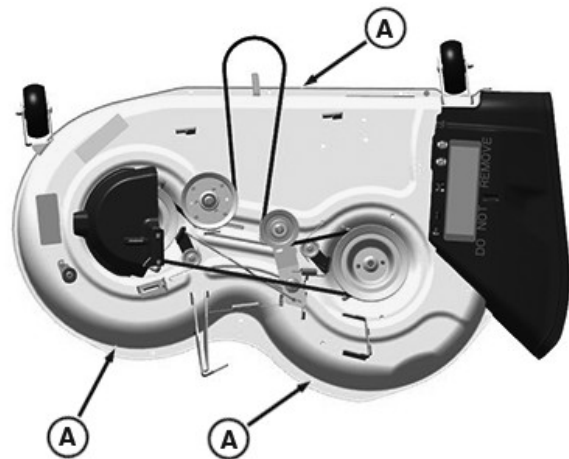
CAUTION: Avoid injury! Rotating blades are dangerous. Before adjusting or servicing mower:

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

NOTE: Mower deck wheels must not contact the ground when leveling the mower deck.

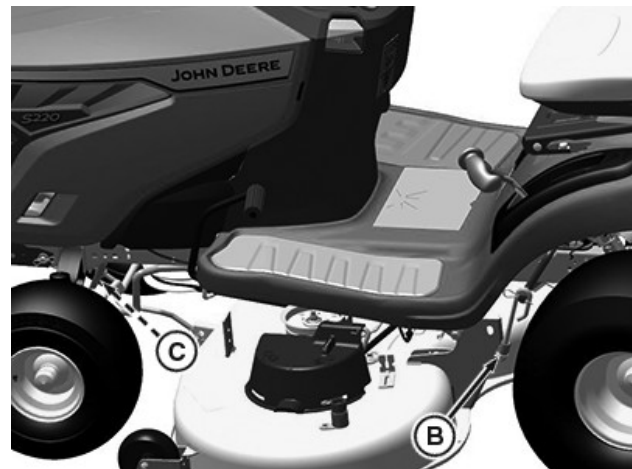
Method One

1. Make sure that machine is on a flat, level surface.
2. Park machine safely. (See Parking Safely in the Safety section.)
3. Check that tires are inflated to correct tire pressure. Tire pressure is marked on the side of the tire.
4. Raise deck to highest position.



APY34608—UN—31MAR20

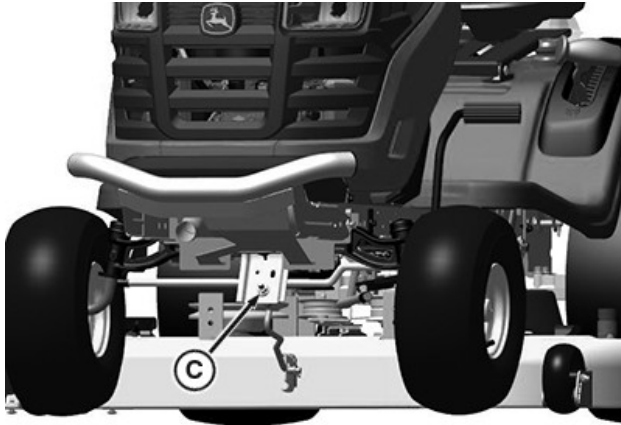
5. Place three short 51 mm (2 in) blocks of wood under the edges (A) of the mower deck.
6. Lower mower deck to the 63 mm (2.5 in) cutting height position.
7. Check that the mower deck is level and lightly touching each of the three wooden blocks.



APY34612—UN—31MAR20

- If the rear of the mower deck is not touching the rear blocks, or is sitting heavily on the blocks, adjust the rear lift links by turning the leveling nut (B) on each lift link. The blocks must be able to slide in and out beneath the mower deck when the mower deck is correctly adjusted.

Operating



APY34617—UN—31MAR20

- If the front of the mower deck is not lightly touching the front block, adjust the front draft arm by turning the nut (C).

8. Raise the cutting height to the next highest position and remove the three wooden blocks.

NOTE: Before storing tools, verify that deck will latch in transport position. If it does not latch, return to rear lift links and adjust both leveling nuts equally to lower the rear of deck until deck latch will engage. Recheck front adjustment points and adjust if necessary.

9. Turn the nut (C) on the front draft arm counterclockwise 1-2 full turns so that the front of the deck is 3—6 mm (1/8—1/4 in) lower than the rear. This adjustment prevents “double cutting,” which wastes horsepower and causes brown grass tips.

Specification

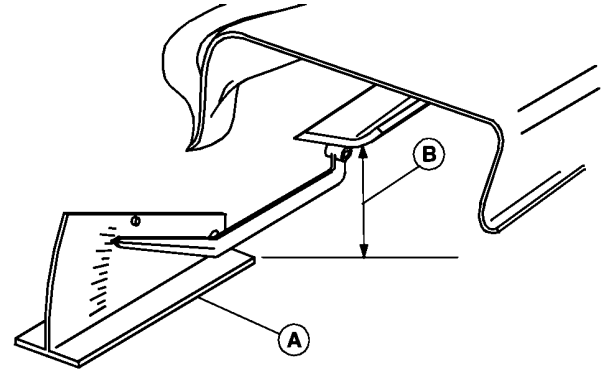
Mower Deck, Front-to-

Back—Height. 3-6 mm (1/8—1/4 in)

Method Two

NOTE: An optional mower deck leveling gauge (AM130907) is available from your John Deere dealer. It allows for precision mower deck leveling by measuring mower deck level at the blade tips.

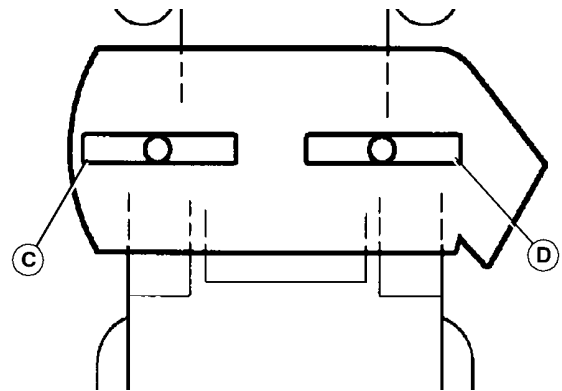
1. Make sure that machine is on a flat, level surface.
2. Park machine safely. (See Parking Safely in the Safety section.)
3. Inflate tires to the correct pressure.
4. Move mower lift handle to preferred cutting height.
5. Measure mower deck level (side-to-side).



GXAL41983—UN—04MAR13

A convenient Leveling Gauge (A) (AM130907) is available from your Dealer

- a. Position mower blades as follows and measure from each outside blade tip (B) to the level surface.



GXAL41984—UN—04MAR13

- b. Turn left blade (C) as shown. Hold drive belt and turn right blade (D) as shown. Take measurement for both blades.

The difference between blade measurements must not be more than specified distance.

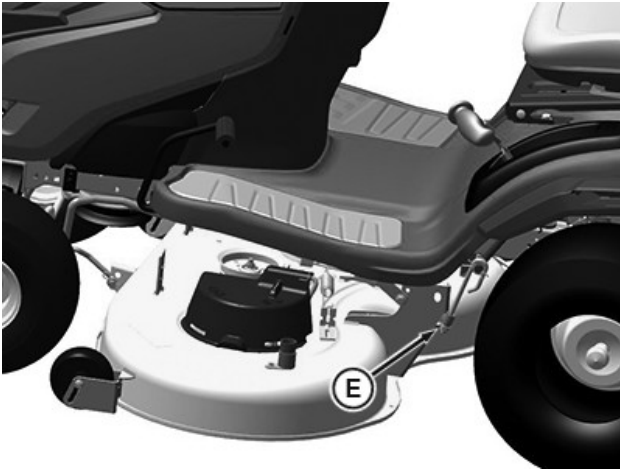
Specification

Mower Deck Blade Outside Tips

to Ground

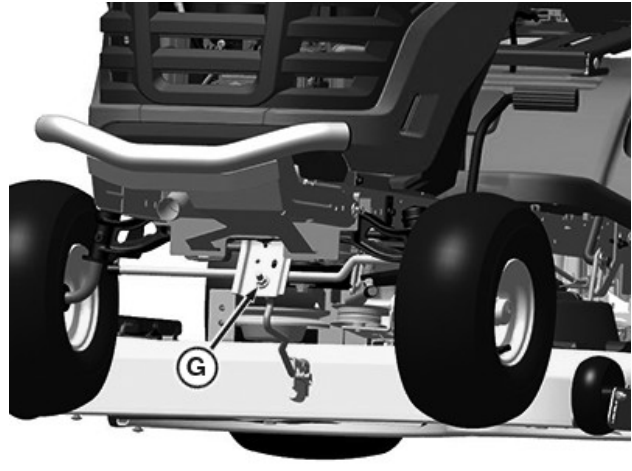
(Difference)—Distance. 3 mm (1/8 in)

Operating



APY34613—UN—31MAR20

- c. Adjust mower deck level, if necessary, by turning rear nuts (E) clockwise to raise the side of the mower deck or counterclockwise to lower the mower deck.



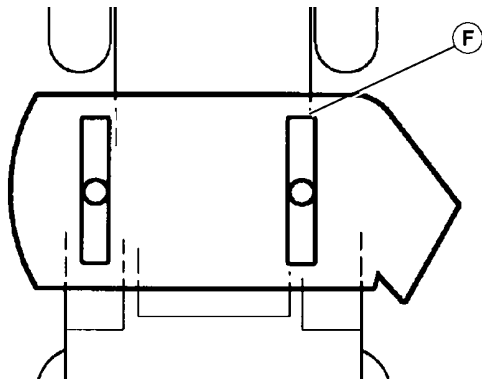
APY34614—UN—31MAR20

- c. Adjust mower deck level, if necessary, by turning the nut (G) counterclockwise to lower the front of deck or clockwise to raise the front of deck.

SR99263,0000308-19-07MAY21

NOTE: Before storing tools, verify that deck will latch in transport position. If it does not latch, return to rear lift links and adjust both leveling nuts equally to lower the rear of deck until deck latch will engage. Recheck front adjustment points and adjust if necessary.

6. Measure mower level (front-to-rear).



GXAL41986—UN—04MAR13

- a. Turn right blade (F) so blade tip points straight forward.
- b. Measure from blade tip to the surface. Take measurement for both blades.

The front blade tip must be specified distance lower than rear blade tip.

Specification

Mower Deck Blade Outside Tips
to Ground

(Difference)—Distance. 3—6 mm (1/8—1/4 in)

Adjusting Mower Deck Wheels (42A Mower Deck)

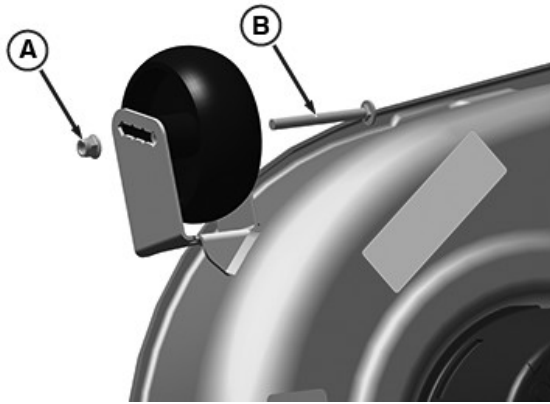
IMPORTANT: Avoid damage! The mower deck can be damaged if mower wheels are adjusted wrong:

- Wheels must not ride on ground supporting mower weight.
- Check wheel adjustment each time cutting height is changed.

1. Park machine safely. (See Parking Safely in the SAFETY section.)
2. Inflate tires to the correct pressure.
3. Lower mower deck to the desired mowing position.

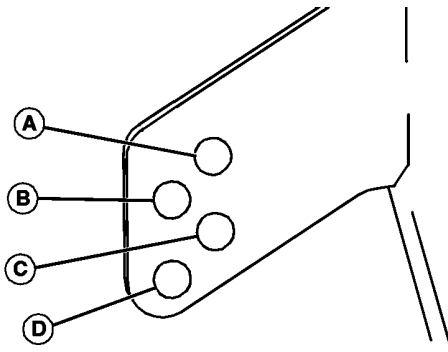
NOTE: Bottom of wheels should be approximately 3—13 mm (1/8—1/2 in.) from the ground. If mowing at 75 mm (3 in.) height of cut or higher, set anti-scalp wheels in lowest position.

Operating



APY36202—UN—10JUL20

4. Check each mower wheel position. Remove nut (A) and bolt (B), and move mower wheel to proper hole.



GXAL41989—UN—04MAR13

- A—38 mm (1.5 in.) and below
- B—51 mm (2 in.)
- C—64 mm (2.5 in.)
- D—76 mm (3 in.) and above

5. Install bolts and nuts to lock wheels in position. Tighten nuts to specifications.

Specification

Mower Deck Wheel

Nut—Torque. 34 N·m (25 lb.-ft.)

MG39705.00004B9-19-10JUL20

Adjusting Mower Deck Wheels (48A Mower Deck)

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

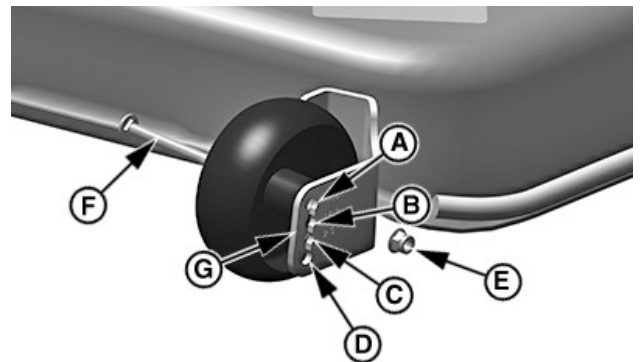
- Disconnect spark plug wire(s) or battery negative (-) cable to prevent engine from starting accidentally.
- Always wear gloves when handling mower blades or working near blades.

IMPORTANT: Avoid damage! The mower deck can be damaged if mower wheels are adjusted wrong:

- Wheels must not ride on ground supporting mower weight.
- Check wheel adjustment each time cutting height is changed.

1. Park machine safely on a level surface. (See Parking Safely in the SAFETY section).
2. Inflate tires to correct pressure.
3. Raise mower deck lift lever, and lock in transport position.
4. Adjust mower wheels to correct height:

48 Mower Deck



PY44528—UN—18JUL17

Position 1 (A)	25 - 38 mm (1 - 1-1/2 in.) Height of Cut
Position 2 (B)	38 - 50 mm (1-1/2 - 2 in) Height of Cut
Position 3 (C)	50 - 76 mm (2 - 3 in) Height of Cut
Position 4 (D)	76 - 101 mm (3 - 4 in) Height of Cut

- Remove nut (E) using 13 mm wrench. Pull carriage bolt (F) out until end of bolt clears the outer wall of the gauge wheel bracket (G), then slide bolt and wheel assembly to the desired position. Push bolt back through outer wall of bracket. Install nut (E) and tighten to specification.

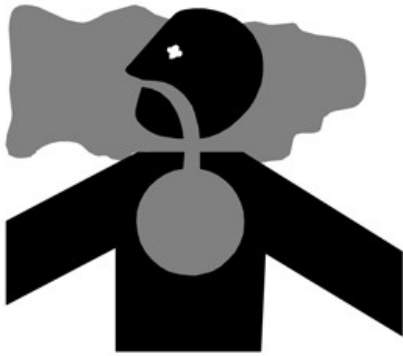
Specification

Mower Wheel Nut—Torque. 34 N·m (25 lb.-ft)

MG39705.00004BA-19-10JUL20

Operating

Testing Safety Systems



MXAL42804—UN—09APR13

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

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

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

The safety systems installed on your machine should be checked before each machine use. Be sure that you have read the machine operator's manual and are 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.

SR99263,0000296-19-15APR20

Testing Park Brake Switch

1. Park machine safely. (See Parking Safely in the SAFETY section.)
2. Sit on seat.
3. Unlock the park brake.
4. Try to start engine.

Result: Engine must not turn over. If engine turns over, there is a problem with your safety interlock circuit.

MP47322,00F4638-19-09APR19

Testing Park Brake

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

2. Lock the park brake.
3. Pull out on bypass control valve rod.
4. Try to push machine manually.

Result: Park brake must prevent machine from moving. If machine moves, the park brake requires adjustment.

SR99263,0000298-19-15APR20

Testing Attachment Engagement Switch

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

1. Park machine safely. (See Parking Safely in the Safety Section.)
2. Sit on seat.
3. Lock the park brake.
4. Pull electric attachment engagement switch or lever to engage mower.
5. Try to start engine.

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

SR99263,0000309-19-31MAR20

Testing Seat Switch

1. Park machine safely. (See Parking Safely in the SAFETY Section.)
2. First test:
 - a. Lock park brake.
 - b. Start engine.
 - c. Move throttle lever up to maximum engine speed.
 - d. Engage mower.
 - e. Raise up off seat. Do not get off machine.

Result: Engine and mower blades should stop. If engine and mower blades do not stop, there is a problem with your safety interlock circuit.

3. Second test:
 - a. Disengage mower.
 - b. Start engine.
 - c. Unlock park brake.
 - d. Raise up off seat. Do not get off machine.

Operating

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

4. Third test:

- Lock park brake.
- Disengage mower.
- Start engine.
- Raise up off seat. Do not get off machine.

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

MP47322,00F463B-19-19MAR13

Testing Reverse Implement Option (RIO)

- Park machine safely. (See Parking Safely in the Safety section.)
- Start engine.
- Engage attachment engagement switch or lever to start attachment.

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

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

- Look behind the vehicle to be sure that there are no bystanders.
- Begin reverse travel by depressing reverse pedal.

Result:S220 : Engine should stop operation.

S240 : Attachment should stop operation.

If attachment or engine continues to operate as machine begins to travel in reverse, do not continue to operate machine.

MG39705,00004BB-19-10JUL20

Using the 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.

Locking Park Brake:

- Push and hold brake pedal down.
- Pull park brake lever up to lock park brake.

- Release brake pedal. Pedal should stay down and park brake lever should stay locked.

Unlocking Park Brake:

- Push and hold brake pedal down.
- Push park brake lever down to unlock park brake.
- Release brake pedal.

SR99263,000029B-19-03APR20

Using Hourmeter and MowerPlus™ Fuel Gauge (If Equipped)

Using Hourmeter

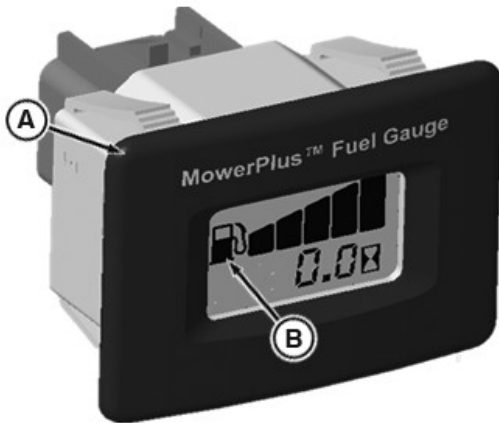


APY36158—UN—10JUL20

- The hour meter (A) shows the number of hours the engine has run.
- Follow the service timetable on the maintenance schedule located under the hood and centered toward the rear of the machine. For specific service procedures, see the Service section of this manual.
- The hour meter cannot be reset.
- The hour meter display will always be on.
- The decimal point flashes while the hour meter is accumulating time.

Operating

Using MowerPlus™ Fuel Gauge (If Equipped)

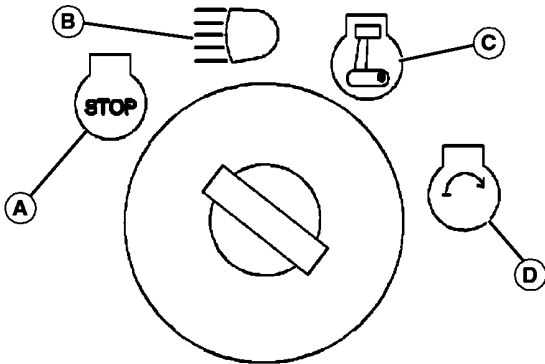


APY33785—UN—24JUL20

1. The hour meter (A) shows the number of hours the engine has run. The hour meter is always visible and active, it cannot be reset.
2. Fuel level (B) indicated by the graph by five segments in increasing height. When fuel tank has emptied to approximately 20%, the last segment flashes indicating approximately 30 minutes of fuel remaining.

MG39705,00004AB-19-27JUL20

Using Key Switch and Headlights



GXAL41992—UN—04MAR13

- A—STOP Position
B—HEADLIGHTS ON Position
C—RUN Position
D—START Position

Engine Off

NOTE: Headlights will drain the battery rapidly if key switch is left in headlights on position (B) with the engine off.

- To turn on headlights, turn the key switch to HEADLIGHTS ON position (B).
- To turn off headlights, turn the key switch to STOP position (A).

Engine On

- To turn on headlights, start engine, then turn key switch from RUN position (C) to HEADLIGHTS ON position (B).
- To turn off headlights, turn the key switch from HEADLIGHTS ON position (B) to RUN position (C).

MX00654,000039A-19-25APR19

Starting the Engine

1. Sit on seat.
2. Disengage Mower/PTO. (See Engaging and Disengaging Mower in the Operating section.)
3. Fully depress brake/clutch Pedal.



APY34618—UN—31MAR20

4. Set throttle (A) to full (Rabbit).
5. If engine is cold:
 - Set choke lever to choke position, then hold until engine starts.
6. Turn ignition to START (not more than 5 sec).
7. Release choke to RUN.

NOTE: Run engine at full throttle when operating mower or other attachments.

SR99263,000030B-19-12APR20

Idling the Engine

IMPORTANT: Avoid damage! Unnecessary engine idling may cause engine or transmission damage. Excessive idling can cause engine overheating, carbon buildup, and poor performance.

Operating

Idling or low throttle operation while mowing, climbing hills, or towing could result in transmission overheating. Always operate at full throttle once the engine is warm.

Do not operate machine with hood open. Hood must be closed for proper engine cooling and exhaust.

- Engine is air cooled and needs a large volume of air to keep cool. Keep air intake screen on top of engine clean.
- Keep hood closed when engine is idling.

SR99263,00002C3-19-03APR20

Stopping the Engine

IMPORTANT: Avoid damage! Do not stop the engine by moving choke control to the choke position. Backfire, fire or engine damage can occur. Follow recommended procedure for stopping engine.

1. Let engine run at high throttle without load for a few seconds.
2. Turn key to STOP position. Engine will stop and headlights will turn off.
3. Remove key.
4. Lock the park brake.

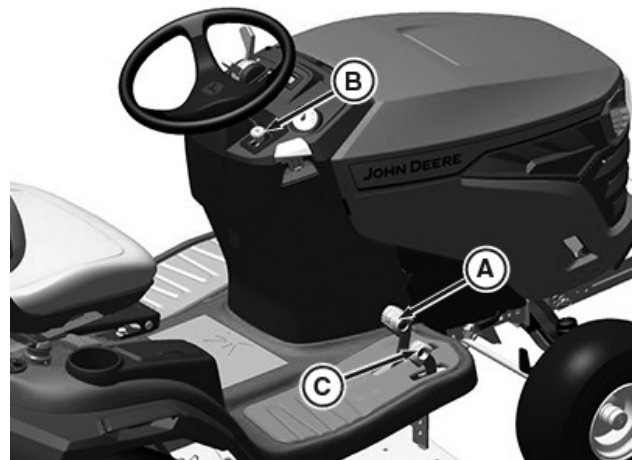
SR99263,000029D-19-03APR20

Using Travel Controls on Hydrostatic Transmission

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.

Travel Forward



APY34619—UN—31MAR20

- Push down the forward travel pedal (A).

Travel in Reverse

NOTE: Any operating attachment stops as the reverse motion pedal is pressed with attachment engaged. Switch must be pushed back in to reset.

1. Disengage attachment:
 - Push switch (B) down to the off position.
2. Look behind the machine to be sure there are no bystanders nearby.
3. Touch the reverse travel pedal (C) with front of foot and slide foot over pedal from front to rear.

Stopping

1. Remove foot from travel pedal.
2. Depress brake pedal.

Emergency Stopping

1. Remove foot from travel pedal.
2. Depress brake pedal.
3. Turn key switch to stop (Off) position. Do not release brake pedal until all moving parts have stopped.
4. If possible, lock the park brake.

SR99263,000030D-19-10APR20

Using The Reverse Implement Option (RIO)

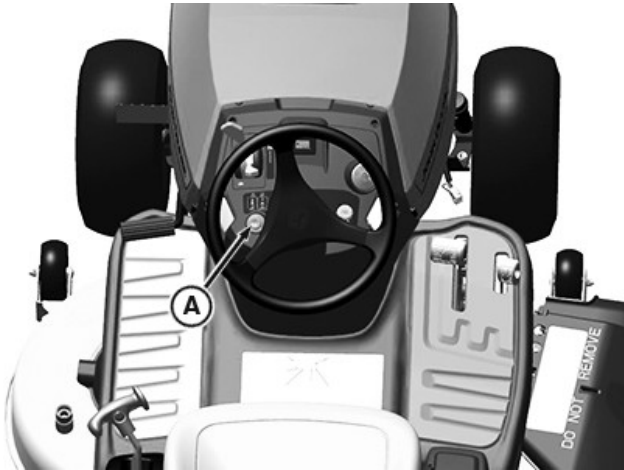
CAUTION: Avoid injury! Children or bystanders can be injured by run over and rotating blades. Before traveling forward or rearward:

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

Operating

NOTE: Backing up while the mower is engaged is discouraged. The Reverse Implement Option must be used only when operating another attachment. If the operator deems it necessary, use the option to reposition the machine with the mower engaged.

1. Stop forward travel.
2. To be sure that there are no bystanders, look behind the machine.



APY34620—UN—31MAR20

3. Push and hold in the reverse implement switch (A) while depressing reverse pedal slightly for hydrostatic transmission.

NOTE: If the mower stops while repositioning the machine, disengage attachment. Start the engine and engage mower. Begin again with Step 2.

If the RIO switch is not depressed when reversing with PTO On, the mower stops, but the engine continues to run.

4. Release the reverse implement switch and reposition the machine as the machine begins to move rearward.
5. Resume forward travel. The mower must continue operating.
6. Repeat procedure to position the machine again.

SR99263,000030C-19-10JUL20

Engaging and Disengaging Mower

NOTE: Put attachment lift lever in transport position to transport machine or when parking machine.

1. Start engine and run at half speed for a couple of minutes to warm up.
2. Lower mower deck to desired cutting height position.

NOTE: Throttle lever should be at full throttle position before engaging mower to avoid stalling engine.

3. Push throttle lever up to the full throttle position.
4. Pull attachment engagement switch up to engage mower.

NOTE: The mower stops as the reverse foot pedal is pressed for hydrostatic transmission with mower engaged.

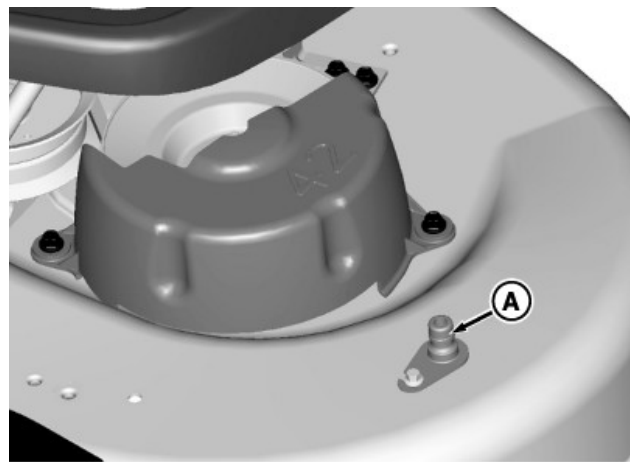
5. Push attachment engagement switch down to disengage mower blades before moving in reverse or stopping engine.

TH84124,00000E9-19-11JUN14

Using Wash Port to Clean Mower Deck

NOTE: Follow this procedure after each use to prevent buildup and remove corrosive lawn chemicals.

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



GXT001323—UN—11JUN14

2. Attach quick-coupler to garden hose.
3. Attach garden hose with quick-coupler to wash port (A) on the mower deck.
4. Turn on water.
5. Start engine.
6. Run at full throttle.
7. Engage mower blades.
8. Flush water under deck for approximately one minute.
9. Disengage mower blades.
10. Stop engine.
11. Turn off water and remove garden hose and quick-coupler from wash port.

Operating

12. Remove quick-coupler from garden hose and store for future use.

OUMX068,000082B-19-11JUN14

Unplugging Mower, Bagger, or Material Collection System

- CAUTION:** Avoid injury! Do not attempt to unplug attachment with the machine running.
- Rotating blades are dangerous. Shut off the engine and remove the key before getting off the seat to inspect the machine and attachment.
 - Thrown objects can cause serious injury. Make sure that all machine parts are stopped before raising hopper top or removing chutes.

Checking for Plugging While Driving

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

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

Removing Debris from Inspection Points:

- CAUTION:** Avoid injury! Do not use hands or feet to clear plugged mower deck or blower assembly. Stored energy can cause blades to rotate.
1. Park machine safely. Wait for all moving parts to stop before getting off to inspect machine.
 2. Open hopper cover. Check chute outlet.
 3. Remove chute from the mower deck or blower assembly. Check chute inlet.
 4. Check under the mower deck for debris.

MP47322,00F4646-19-10JUL20

Moving Machine by Hand

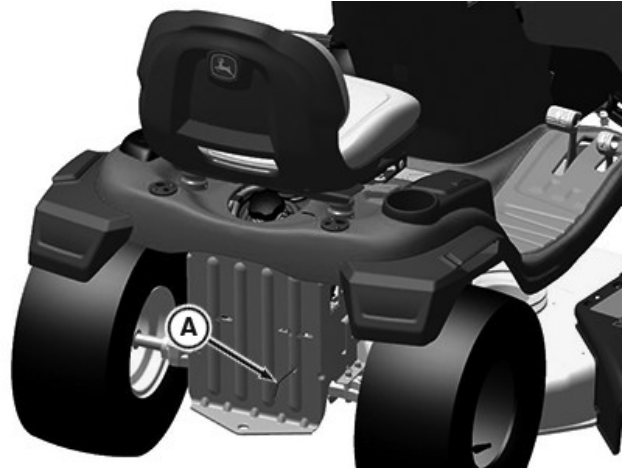
- CAUTION:** Avoid injury! When the bypass valve is open, the machine has unrestricted motion.
- Do not open the bypass valve when the machine is stopped on an incline to prevent it from going downhill out of control.

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

- Move machine by hand only.

- Do not use another vehicle to move machine.
- Do not tow machine.

1. Unlock the park brake.



APY34621—UN—31MAR20

2. Pull out on bypass valve control rod (A).
3. Push machine to desired location.

IMPORTANT: Avoid damage! Hydrostatic transmission might be damaged if the bypass valve control rod is not pushed back to operating position before attempting to start the engine. Do not start or operate the machine with the bypass rod in the pulled-out position.

4. Push bypass valve control rod back in.
5. Lock the park brake.

SR99263,000030E-19-31MAR20

Transporting Machine on Trailer

NOTE: Trailer capacity must exceed combined machine weight and attachment weight. (See Specifications section in Operator's manual.)

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

- CAUTION:** Avoid injury! Use extra care when loading or unloading the machine onto a trailer or truck.
- Park trailer on a level surface.
 - Use of a trailer with sides is recommended.
 - Keep wheels away from drop-offs and edges.
 - Back slowly and in a straight line.
 - Close fuel shutoff valve, if your machine is equipped.
 - Do not secure machine using optional

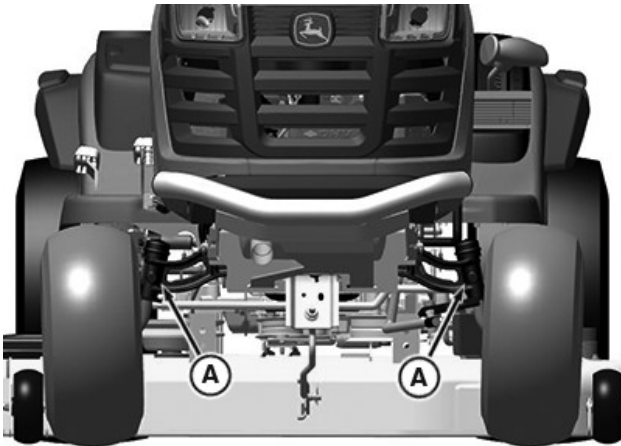
Operating

bumper as this can dislodge during transport.

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

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

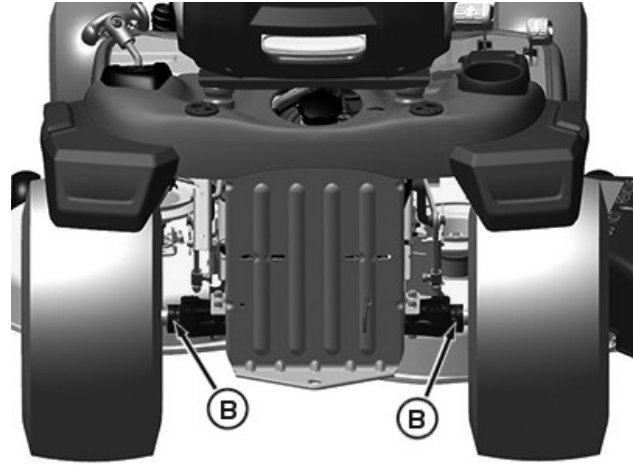
1. Park trailer on a level surface.
2. Raise mower deck, if installed, before driving machine onto trailer.
3. Drive machine onto heavy-duty trailer. Position machine on trailer so hood or engine cover will not raise in wind while being transported.
4. Lower mower deck completely.
5. Lock park brake.
6. Turn off machine and remove key.



APY34622—UN—31MAR20

7. Secure front of machine at both sides of the axle at points (A) to trailer with heavy-duty straps, chains, or cables. Straps must be directed down and outward from machine.

IMPORTANT: Avoid damage! Do not secure machine using transmission housing.



APY34623—UN—31MAR20

8. Secure rear of machine at both sides of the axle at points (B) to trailer with heavy-duty straps, chains, or cables. Straps must be directed down and outward from machine.
9. Secure hood to prevent from lifting while driving.

SR99263,0000310-19-12APR20

Transporting Material Collection System (If Equipped)

If the material collection system is left on the machine during transport, follow these guidelines when trailering the unit:

- Empty the cloth bags and remove them from the hopper. Full bags add extra weight which can overstress the hopper frame on rough roads. At road travel speeds, wind can cause premature wear of the cloth bags.
- Make sure that the hopper cover is latched securely to the hopper frame.
- If the unit is transported over long distances or at high speeds, remove the rear bagger or power flow chute before transport.

SR99263,000030F-19-31MAR20

Using Weights

⚠ CAUTION: Avoid injury! The machine may become unstable when operating on slopes and/or with some attachments.

Use weights to improve stability when operating on slopes or using attachments.

Remove weights when not required.

IMPORTANT: Avoid damage! Never use liquid in tires or wheel weights as ballast. Transmission damage can occur.

Operating

When rear ballast is needed, use only the approved rear weight bracket and attaching weights.

NOTE: See your authorized dealer for recommended weights.

- Install front weights for added stability and steering control when you use equipment, such as the rear-mounted grass bagger.
- Install rear weights when using the snow blade or snowblower.
- Remove weights when not required.

MX00654,000039C-19-05JUL17

Using Tire Chains

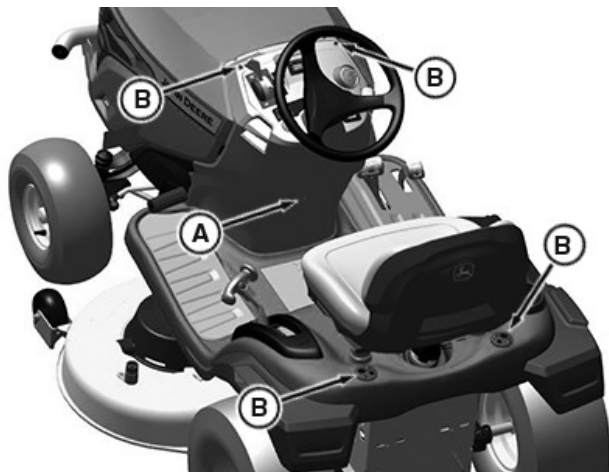
IMPORTANT: Avoid damage! Do not use chains with mower deck or tiller.

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

See your attachment operator's manual for tire chain recommendation. See your authorized dealer for the chains.

MX00654,000039D-19-05JUL17

Using Accessories



APY34624—UN—31MAR20

Using the Power Port (If Equipped)

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

An electric power port (A) can be used for accessories. See your authorized dealer.

Using Cargo Mount System™

The front and rear Cargo Mount System™ brackets (B) can be used for easy attachment of selected optional equipment.

Use John Deere approved optional equipment only. See your Authorized Service Center for approved optional equipment.

SR99263,0000311-19-31MAR20

Choosing Mower Blades (42A Mower Deck)

Three types of mower blades are available for use with S220 and S240 models.

- 3-N-1 blades. These are general purpose blades that are best suited for side-discharge operation and mulching with a cover installed, but can be used with a bagger attachment, or with a mulch plug installed. They are not designed for optimal performance when bagging or mulching with a plug installed.
- Bagger blades. These blades are designed for optimal performance when used with bagger attachments.
- Mulching blades. These blades are designed for optimal performance when used with a mulch plug installed.

MG39705,00004BC-19-10JUL20

Choosing Mower Blades (48A Mower Deck)

Three types of mower blades are available for use with S240 models.

- Dedicated Side discharge blades. These blades are designed for optimal performance when side discharging, and are installed on 48 mowers when shipped from the factory.
- Dedicated Mulching blades. These blades are designed for optimal performance when used with a mulch cover or mulch plug installed.

MG39705,00004BD-19-10JUL20

Mowing Tips

The following recommendations will produce the best lawn cut quality and appearance:

- Keep mower blades sharp. Dull blades will tear grass; tips of grass will then turn brown.
- Cutting grass too short may kill grass and let weeds grow easily. The suggested finished cut height should be within specified height range.

Specification

Finished Cut Height
Range—Height. 1.75 - 2.75 in. (44 - 70 mm)

Operating

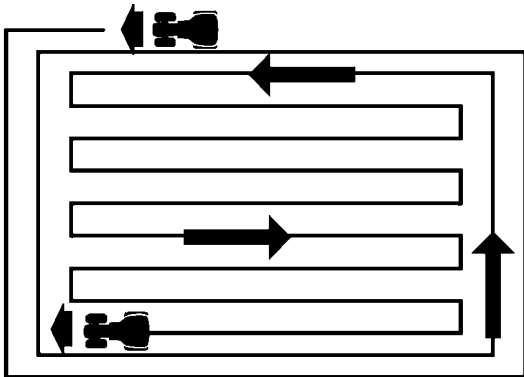
- Adjust cutting height to remove only 1/3 of the grass at a time.
- Do not mow wet grass.
- Mow grass often. Short grass clippings will decay quickly.
- Mow with engine at full throttle.
- Adjust travel speed to match mowing conditions:
 - Travel at slow speed when you mow thick, tall grass, make sharp turns or trim around objects.
 - Travel at moderate speed when you mow thin grass.
- Use a different mowing pattern each time you mow. Overlap mowing paths by specified distance.

Specification

Overlap Mowing

Paths—Distance. 50 - 100 mm (2 - 4 in.)

- Drive over ridges and through shallow ditches straight-on, not at an angle.



GXAL42003—UN—04MAR13

- Mow around the outside twice, then mow inside in straight passes. Best cut is achieved when mowing in a straight line.
- Avoid mowing in clockwise circles.
- When mowing or mulching near pavement, overlap the pavement by 50 mm (2 in.) to allow clippings to dispense over grass.
- A thick layer of mulched leaves can prevent sunlight from getting to grass and smother it. Taller grass heights allow mulched leaves to dispense easier in lawn. Mulch leaves several times if needed.
- Use a thatcher in late spring or summer to pull up dead grass and aerate ground.
- For Mulching Mower: Shorter cut heights will provide better cut quality, but may leave noticeable clippings. Higher cut heights will reduce clippings, but cut quality may decline.

OUMX068,00008A9-19-08JUL14

Towing Loads

IMPORTANT: Avoid damage! Towing excessive trailer loads at full speeds for long distances and up slopes can stress drivetrain components. To avoid damage to drivetrain components, use the following guidelines.

- Total towed weight must not exceed 226.79 kg (500 lb). Use counterweights or wheel weights as described in an attachment or pulling machine operator's manual.
- When towing over 150 kg (350 lb), depress forward travel pedal no more than halfway to avoid transmission damage. Always run tractor at full throttle when towing loads.
- Avoid inclines greater than a 10 degree slope while towing to avoid damage to the pulling machine. Use the Slope Guide located in this operator's manual to ensure proper machine towing operation. See SAFETY section, Operating on Slopes in this operator's manual for additional information.

IMPORTANT: Avoid damage! Always run tractor at full throttle when PTO is engaged and when towing loads.

RM87422,0000261-19-11MAY21

Service Intervals

Servicing Your Machine

IMPORTANT: Avoid damage!

Operating in extreme conditions may require more frequent service intervals:

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

High-pressure washing can cause damage to machine components. It is recommended that your vehicle be washed by hand or with a garden hose using mild soap.

Avoid spraying water with any great force near or into the following places:

- Air intake
- Electrical connections (including battery compartment)
- Wheel bearings
- Radiator (if equipped)
- Warning labels
- Other labels
- Ignition switch
- Instrument panel (gauges and switches)
- Breather/tube vents
- Mower spindles
- Mower idler bearings
- Transmission cooling fans

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

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

- Check/level mower deck.
- Clean mower deck.
- Lubricate mower spindles and pivot points.
- Clean battery terminals.

Yearly or Every 100 Hours (Whichever Comes First)

- Change engine oil and filter (Service more frequently under dusty conditions).
- Replace air filter element(s) (Service more frequently under dusty conditions).
- Replace fuel filter.
- Replace spark plug(s).
- Clean engine cooling fins.

Every 200 Hours

- Check/adjust valve clearance. See your John Deere dealer for this service.

TH84124,00000FC-19-26JUL16

OUMX068,00006EF-19-22NOV16

Service Intervals

Initial Service 8 Hours

- Lubricate mower spindles and pivot points.
- Lubricate front axle pivot and axle spindles.

Every 25 Hours

- Lubricate front axle pivot and axle spindles.

Yearly or Every 50 Hours (Whichever Comes First)

- Clean/replace emission filter (if equipped).
- Sharpen/replace mower blades.
- Check/replace mower drive belt.

Service Lubrication

Grease

IMPORTANT: Avoid damage! Use recommended John Deere greases to avoid component failure and premature wear.

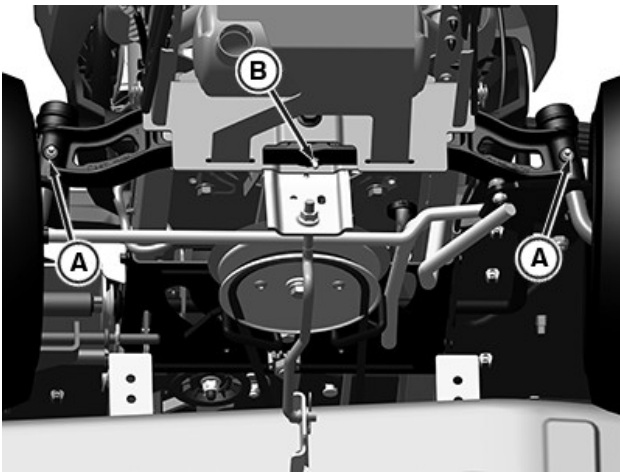
The following grease is recommended for service:

- John Deere Multi-Purpose HD Lithium Complex Grease
- Grease-Gard™ Premium Plus

Not all grease types are compatible; John Deere does not recommend mixing greases. If using any product other than the recommended grease in service, purge any remaining grease from the system before application. If not practical, grease twice as often until all old grease is purged from the system.

OUMX068,0000642-19-20APR21

Lubricating Front Axle



APY36203—UN—10JUL20

Wheel Spindles

- Lubricate front wheel spindle grease fittings (A) with one or two shots of recommended grease.

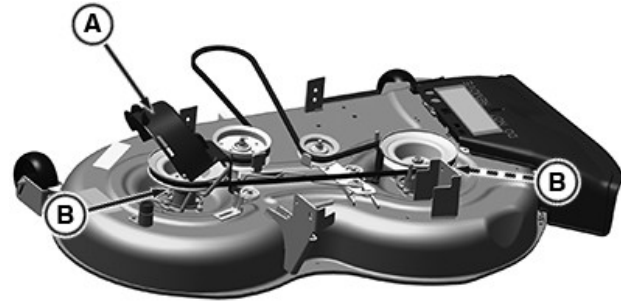
Front Axle Pivot

- Lubricate front axle center pivot grease fitting (B) with one or two shots of recommended grease.

MG39705,00004BE-19-10JUL20

Lubricating Pivot Points (42A Mower Deck)

Mower Deck:



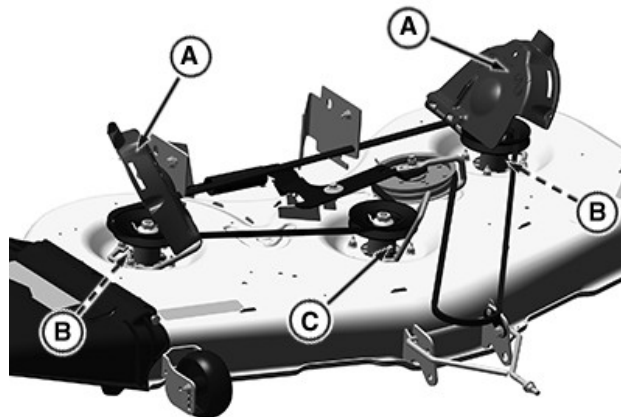
APY36204—UN—27JUL20

- Raise spindle cover (A) and lubricate the spindle grease fittings (B) with one or two shots of general all-purpose grease.

SR99263,000031C-19-27JUL20

Lubricating Pivot Points (48A Mower Deck)

Mower Deck:



PY44522—UN—08AUG17

- Raise spindle covers (A) and lubricate spindle grease fittings (B).
- Lubricate center spindle grease fitting (C) from front of mower deck.

MG39705,00004BF-19-10JUL20

Service Engine

Emissions Service Information

A qualified repair shop or person of the owner's choosing may maintain, replace, or repair emission control devices and systems with original or equivalent replacement parts. However, warranty, recall and all other services paid for by John Deere must be performed at an authorized John Deere service center.

Within the warranty period, John Deere will reimburse reasonable service costs incurred at service providers outside the John Deere authorized network only in an unsafe, emergency condition if an authorized John Deere dealer is not available and the failure does not arise from the owner's misuse or failure to perform required maintenance. An emergency situation exists under this section if, after 30 days, the authorized John Deere network is unable to perform the repairs or source replacement parts.

Emission Control System Certification Label

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

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

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

Altitude Adjustment (Gasoline or Propane Converted Engines Only)

If your engine features a carburetor it is calibrated by the engine manufacturer and is not adjustable.

If your engine is operated at altitudes below 610 m (2,000 ft.), a high altitude carburetor jet kit is not required. If your engine is operated at altitudes above 610 m (2,000 ft.), a high altitude carburetor jet kit may be required for proper engine performance and emissions control. Operating the engine with the wrong carburetor configuration at a given altitude may increase the engine's emissions and decrease fuel efficiency and performance.

See a qualified service provider for details on jet kit requirements for your specific product.

TC00531,00000EC-19-28MAR16

Avoid Fumes

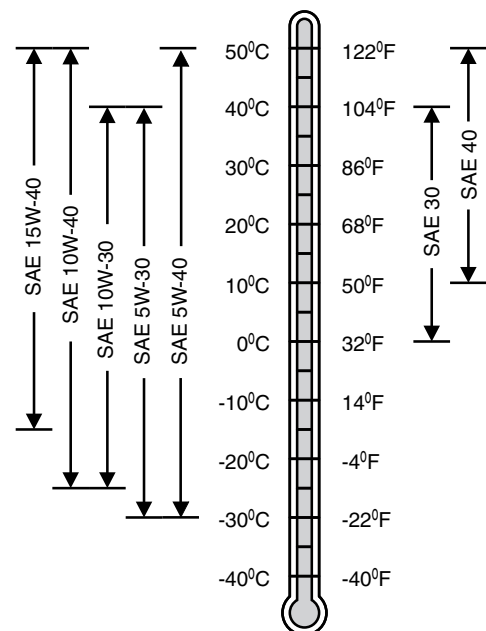
CAUTION: Avoid injury! Engine exhaust fumes contain carbon monoxide and can cause serious illness or death.

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

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

MP47322,00F4652-19-13JAN15

Gasoline Engine Oil



TS1744—UN—25AUG20

Oil Viscosities for Air Temperature Ranges

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

Using single viscosity grade oils such as SAE 30 or SAE 40 can reduce oil consumption in air cooled engines.

The following oils are approved:

- John Deere Plus-50™ II
- John Deere Turf-Gard™

Other oils may be used if they meet one or more of the following:

- ILSAC GF-6A
- API Service Category SP
- API Service Category SN
- API Service Category SM

*Plus-50 is a trademark of Deere & Company
Turf-Gard is a trademark of Deere & Company*

Service Engine

- API Service Category SL
- API Service Category SJ
- ACEA Oil Sequence A3/B3
- ACEA Oil Sequence A3/B4
- ACEA Oil Sequence A5/B5
- ACEA Oil Sequence C5
- ACEA Oil Sequence C4
- ACEA Oil Sequence C3
- ACEA Oil Sequence C2
- ACEA Oil Sequence C1

DX, ENOIL2-19-15JUL20

Checking Engine Oil Level

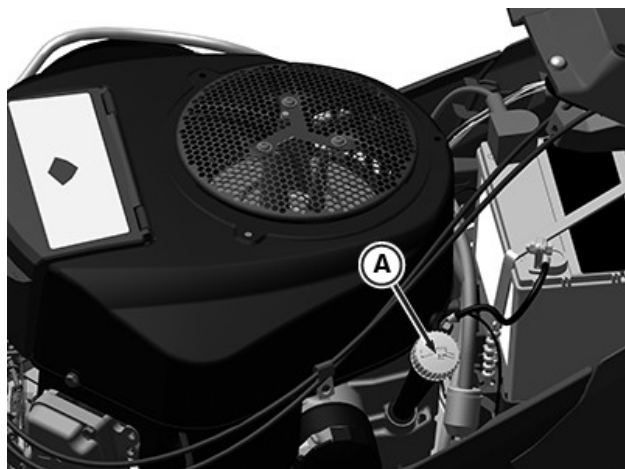
IMPORTANT: Avoid damage! Failure to check that the oil level regularly could lead to serious engine problems if the oil level is out of the operating range:

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

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

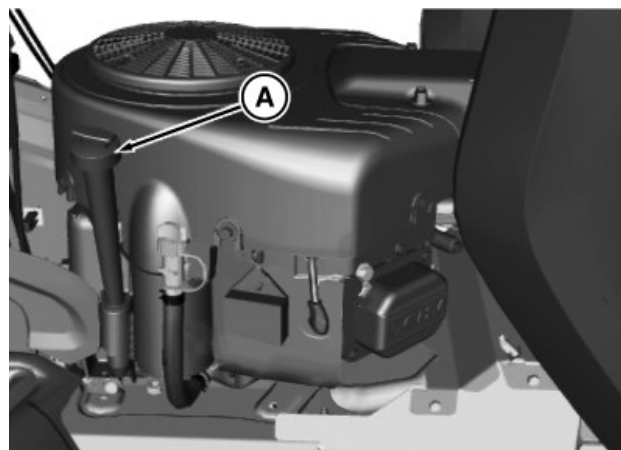
Make sure that engine is cold when checking engine oil level.

1. Park machine safely. (See Parking Safely in the Safety section.)
2. Lift hood.
3. Clean area around the dipstick to prevent debris from falling into crankcase.



Model S240 Shown

APY36205—UN—10JUL20



MX101649—UN—28AUG20

Model S220 Shown

4. Remove the dipstick (A). Wipe with a clean cloth.
5. Install the dipstick in tube but do not tighten. Allow dipstick threads to rest on top of tube and rotate cap counterclockwise until it “clicks” or drops into place.
6. Check the oil level on dipstick. Oil must be between ADD and FULL marks.
7. If the oil level is low, add oil to bring the oil level no higher than FULL mark on dipstick. Do not overfill.
8. Install and tighten the dipstick. Lower hood.

SB31882,000039C-19-02SEP21

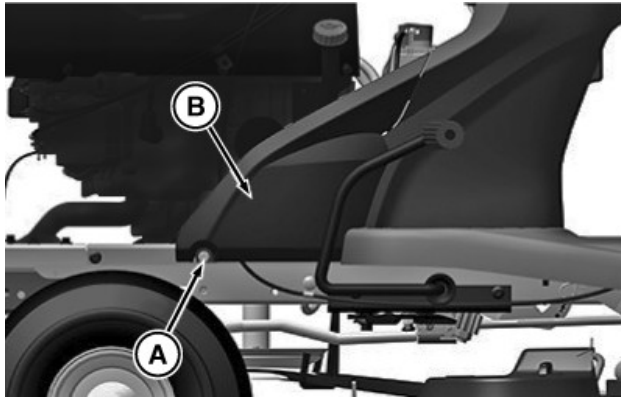
Changing Engine Oil and Filter (Model S220)

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

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

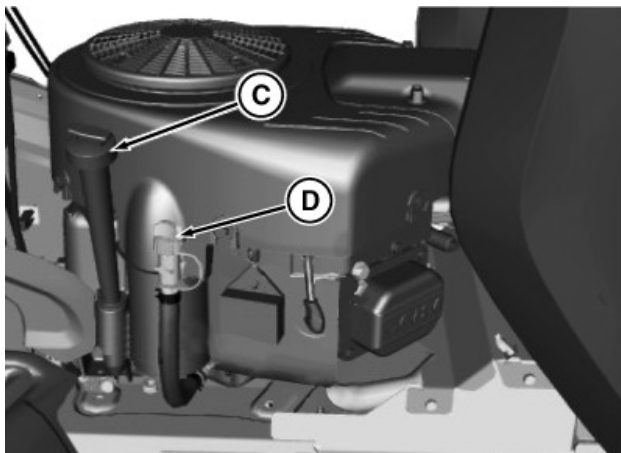
1. Run engine to warm oil.
2. Park machine safely on the level surface. (See Parking Safely in the Safety section).
3. Lift hood.

Service Engine



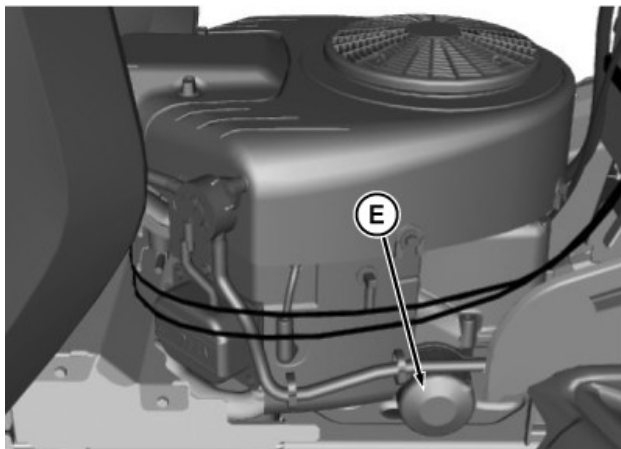
MX101650—UN—01SEP20

4. Remove bolt and washer (A). Remove closeout panel (B).



MX101652—UN—28AUG20

5. Remove dipstick (C).



MX101651—UN—28AUG20

6. Remove the drain valve cap (D) and drain the oil completely.
7. Wipe dirt from around the oil filter (E).
8. Remove the old filter.
9. Put a light coat of fresh, clean oil on the gasket of the new filter.
10. Install replacement oil filter by turning oil filter to the

right (clockwise) until the rubber gasket contacts filter base. Tighten filter an additional one-half turn.

11. Install and tighten drain valve cap.

IMPORTANT: Avoid damage! Overfilling the engine oil can cause engine damage. Fill oil no higher than the FULL mark on the dipstick.

12. Add oil to engine.
13. Install dipstick.
14. Start and run engine at idle to check for leaks. Stop engine. Fix any leaks before operating.
15. Check oil level. Add oil if necessary.
16. Install closeout panels and lower hood.

NOTE: Many local government recycling programs, authorized retailers, auto repair stations, and auto parts stores puncture and recycle used oil filters and oil.

SB31882,00003A1-19-28AUG20

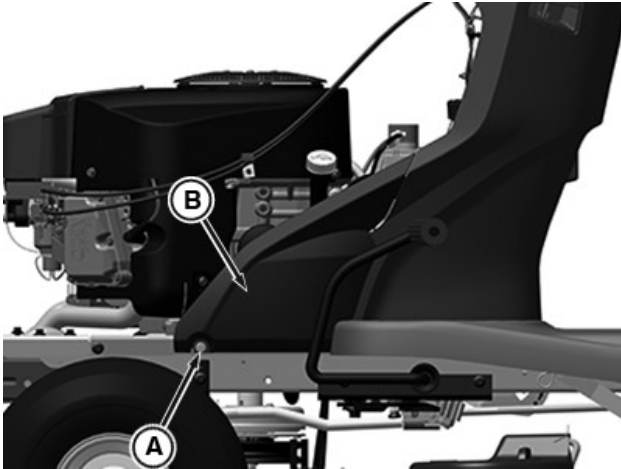
Changing Engine Oil and Filter (Model S240)

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

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

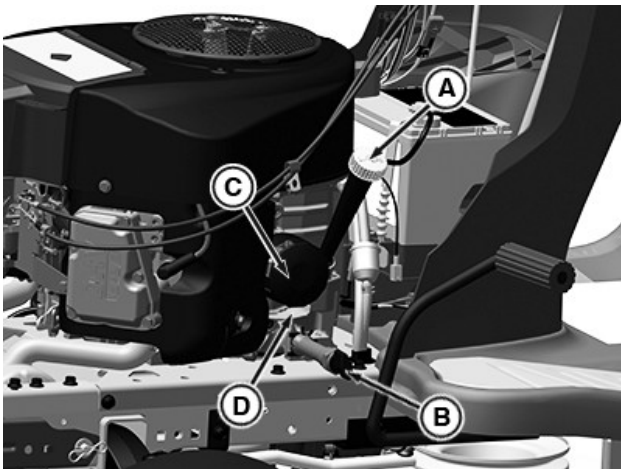
1. Run engine to warm oil.
2. Park machine safely on the level surface. (See Parking Safely in the Safety section).
3. Lift hood.

Service Engine



APY36209—UN—10JUL20

4. Remove bolt and washer (A). Remove closeout panel (B).



APY36210—UN—10JUL20

5. Remove dipstick (A).
6. Remove the drain valve cap (B) and drain the oil completely.
7. Wipe dirt from around the oil filter (C).
8. Remove old filter and wipe off filter tray (D).
9. Put a light coat of fresh, clean oil on the gasket of the new filter.
10. Install replacement oil filter by turning oil filter to the right (clockwise) until the rubber gasket contacts filter base. Tighten filter an additional one-half turn.
11. Install and tighten drain valve cap (B).

IMPORTANT: Avoid damage! Overfilling the engine oil can cause engine damage. Fill oil no higher than the FULL mark on the dipstick.

12. Add oil to the engine.
13. Install dipstick.
14. Start and run engine at idle to check for leaks. Stop engine. Fix any leaks before operating.

15. Check oil level. Add oil if necessary.
16. Install closeout panels and lower hood.

NOTE: Many local government recycling programs, authorized retailers, auto repair stations, and auto parts stores puncture and recycle used oil filters and oil.

MG39705,00004C1-19-01SEP20

Cleaning Air Intake Screen and Engine Fins

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

- Clear work area of bystanders.
- Wear eye protection when using compressed air for cleaning purposes.
- Reduce compressed air pressure to specification.

Specification

Air—Pressure. 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. Clean air intake screen on top of engine and external surfaces with rag, brush, vacuum, or compressed air.

SB31882,00003A2-19-25FEB20

Cleaning Engine Shroud

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

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

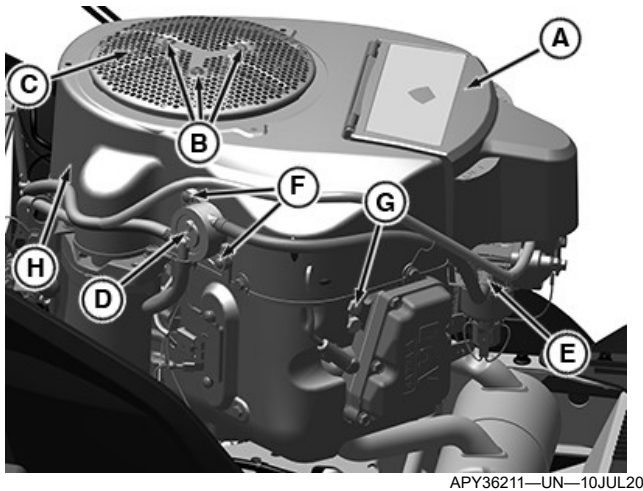
IMPORTANT: Avoid damage! An obstructed air intake screen can cause engine damage due to overheating. Keep air intake screen and other external surfaces of the engine, including cooling fins, clean at all times to allow adequate air intake.

Service Engine

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

Model S240 Engine

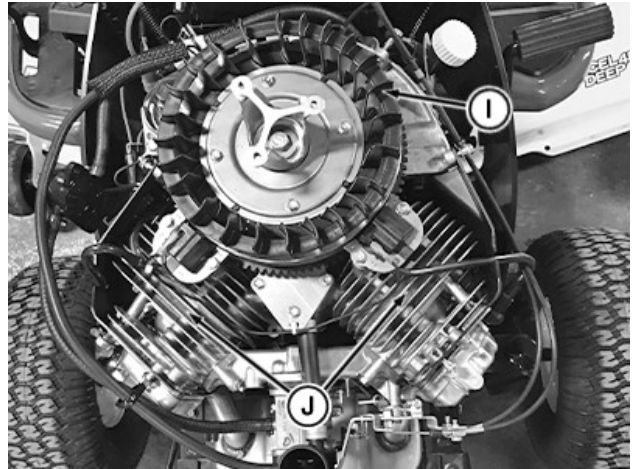
1. Park machine safely. (See Parking Safely in the Safety Section.)
2. Remove hood. (See Removing and Installing Hood in Service Miscellaneous Section.)
3. Clean air intake screen and external engine surfaces. (See Cleaning Air Intake Screen and Engine Fins in Service Engine Section.)



4. Remove air cleaner cover (A) and air filter. (See Checking and Cleaning Air Cleaner Element in Service Engine Section.)
5. Remove three bolts (B) and rotating screen (C).

IMPORTANT: Avoid damage! Be careful to maintain position of fuel pump assembly (D), clips (E) for the fuel line, and any other attached components when removing parts from the side of engine.

6. Remove fuel pump screws (F) and fuel line bracket bolts (G).
7. Remove bolts and engine shroud (H).



8. Clean debris from:
 - Fan areas (I)
 - Cylinder head cooling fins (J)
 - Area between engine and frame

IMPORTANT: Avoid damage! Engine shroud must be assembled so that the slots in the shroud align with the ridge in the air intake and mating surfaces along sides of engine. Failure to assemble correctly prevents the air filter from sealing and may cause engine damage.

9. Install shroud, fuel pump, fuel line guard, and oil fill tube with hardware.
10. Install rotating screen with three bolts. Tighten bolts to specification.

Specification

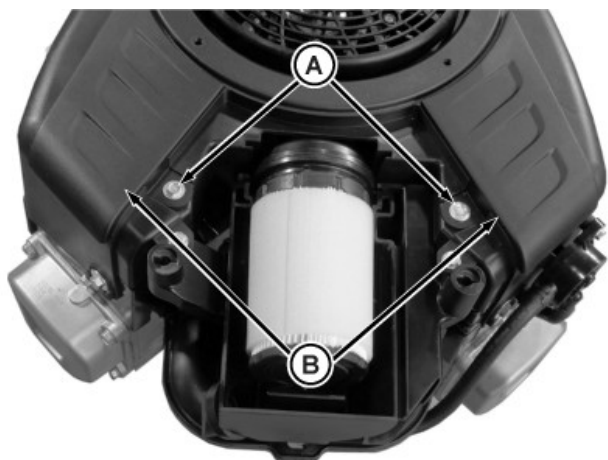
Engine Rotating Screen
Bolt—Torque. 3.0 N·m (27 lb·in)

11. Install air filter and air cleaner cover.
12. Install hood.

Model S220 Engine

1. Park machine safely. (See Parking Safely in the Safety Section.)
2. Remove hood. (See Removing and Installing Hood in Service Miscellaneous Section.)
3. Clean air intake screen and external engine surfaces. (See Cleaning Air Intake Screen and Engine Fins in Service Engine Section.)

Service Engine



MXT015025—UN—30JUN15

4. Remove air cleaner cover.
5. Remove cleanout port screws (A) until covers (B) can be removed.
6. Remove covers.



MXT015026—UN—30JUN15

7. Clean debris from the cleanout ports (A) on either side of the air cleaner.
8. Close covers and install screws.
9. Install air filter and air cleaner cover.
10. Install hood.

SB31882,00003A3-19-01SEP20

Checking and Cleaning Air Cleaner Elements

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



APY36212—UN—10JUL20

Model S240 Shown

3. Model S240: Lift tabs (A) to open cover.

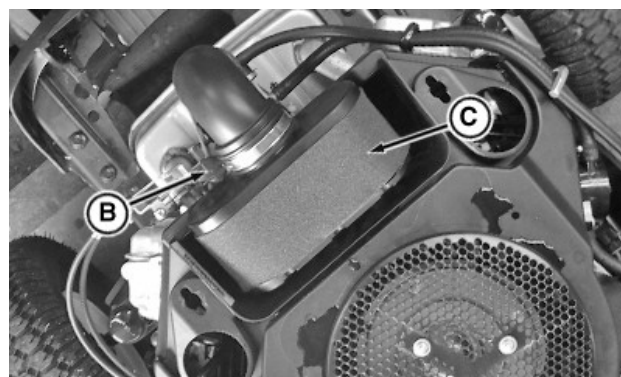


MXT015028—UN—02JUL15

Model S220 Shown

Model S220: Turn thumbscrews (A) 1/4 turn counterclockwise and lift cover to remove.

IMPORTANT: Avoid damage! Avoid allowing any dirt or debris to fall into air intake when removing the air filter. Remove any large debris or loose dirt before proceeding.



PY44584—UN—29AUG17

Model S240 Shown

Service Engine

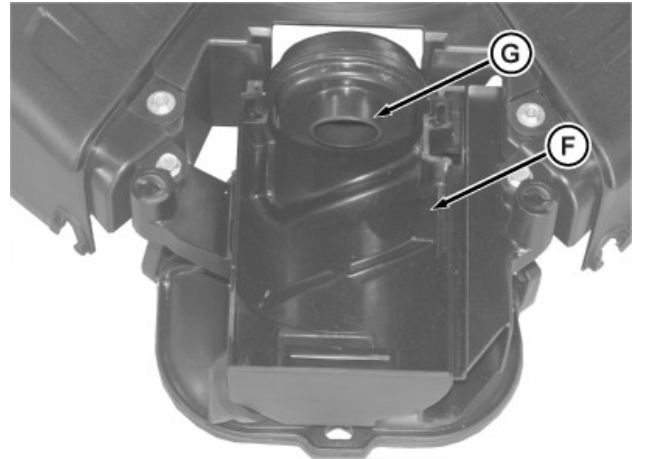
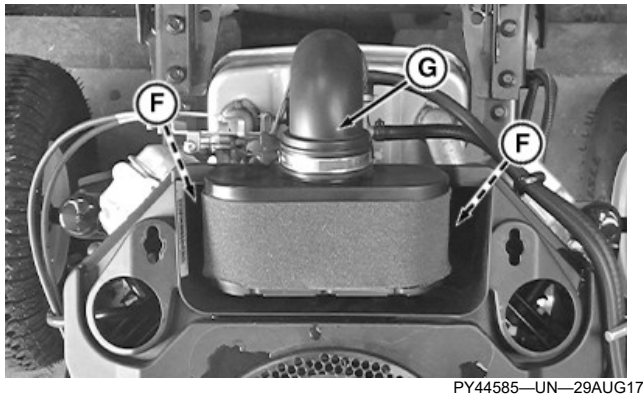


- Loosen air filter clamp by turning thumbscrew (B) counterclockwise until the clamp loosens. Carefully lift the filter element (C) out of the air cleaner base.

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

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

- Inspect filter element (E). Replace the filter element if damaged or dirty.



- Clean the air cleaner base (F) carefully, preventing any dirt from falling into the intake tube (G).
- Position air filter in the filter base and on the air intake tube (G). Align air filter clamp on the intake tube groove and tighten the clamp by turning thumbscrew clockwise until secure.
- S240: Install air cleaner cover on the engine.
S220: Install air cleaner cover on the engine and turn thumbscrews (A) 1/4 turn clockwise to secure.
- Lower hood.

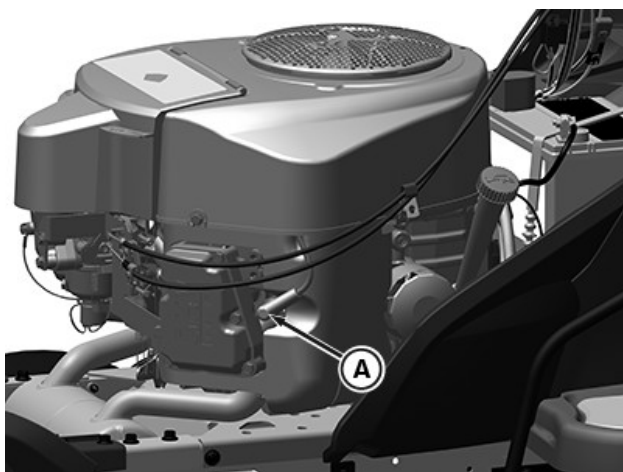
SB31882,00003A4-19-28AUG20

Checking Spark Plug

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

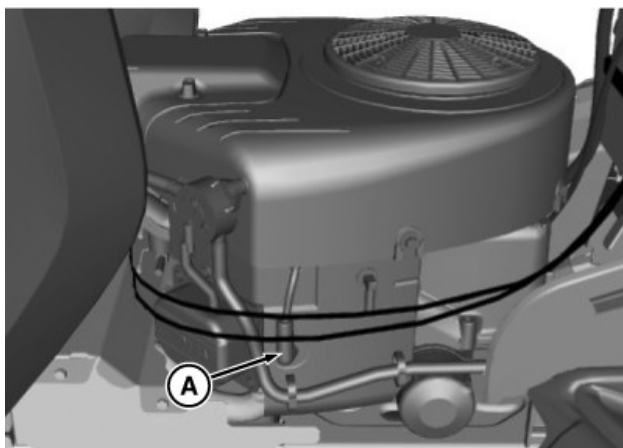
- Park machine safely (See Parking Safely in the Safety section).
- Lift hood.

Service Engine



APY36214—UN—10JUL20

Model S240 Shown



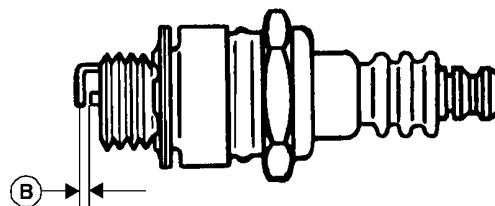
MX101659—UN—28AUG20

Model S220 Shown

3. Disconnect spark plug wire (A), one on each side of engine.
4. Remove each spark plug.
5. Clean spark plug carefully with a wire brush.
6. Inspect spark plug for:
 - Cracked porcelain.
 - Pitted or damaged electrodes.
 - Other wear or damage.

NOTE: In Canada, replace spark plug with resistor plug only.

7. Replace spark plugs as necessary.



MXAL46011—UN—09APR13

8. Check plug gap (B) with a wire feeler gauge. To change gap, move the outer electrode. Gap must be to specification.

Specification

Spark Plug—Gap. 0.75 mm (0.030 in)

9. Install spark plugs. Tighten spark plugs to specification.

Specification

Spark Plug—Torque. 20 N·m (15 lb·ft)

10. Connect spark plug wires and lower hood.

SB31882,00003A5-19-01SEP20

Replacing Fuel Filter

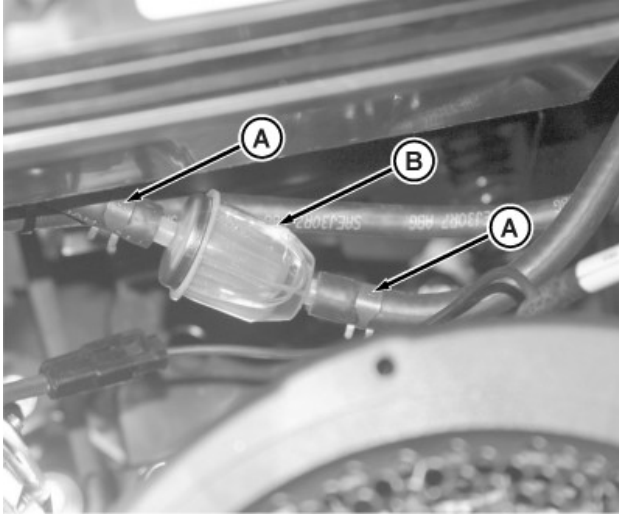
⚠ CAUTION: Avoid injury! Fuel vapors are explosive and flammable:

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

NOTE: Change filter when fuel is low.

1. Park machine safely. (See Parking Safely in the Safety section).
2. Lift hood.
3. Let engine cool.
4. Put a drain pan under the fuel filter.

Service Engine



MXT015030—UN—02JUL15

5. Slide hose clamps (A) away from the fuel filter (B) using pliers.
6. Disconnect hoses from the filter.

IMPORTANT: Avoid damage! Incorrect installation of the fuel filter may cause engine damage. Install the filter with the arrow pointing in the direction of fuel flow (towards the engine) for proper operation.

7. Connect hoses to the new filter making sure that the filter arrow is pointing in the direction of the fuel flow.
8. Install clamps and check for leaks.
9. Lower hood.

MG39705,00004C2-19-02SEP20

Spark Arrestor Maintenance (If Equipped)

Spark arrestor assemblies include a screen element that should be inspected and cleaned periodically. Visually inspect the screen for tears, broken wires, or loose welds. Replace the spark arrestor assembly if any of these conditions exist. If the screen is determined to be in good condition, proceed with cleaning the screen by brushing away loose dirt or carbon using a brush.

RM87422,00002DA-19-05JUL17

Service Transmission

Checking Transmission

The transmission is a sealed component. No maintenance is required on this transmission. If you suspect any transmission problems, please contact your authorized dealer.

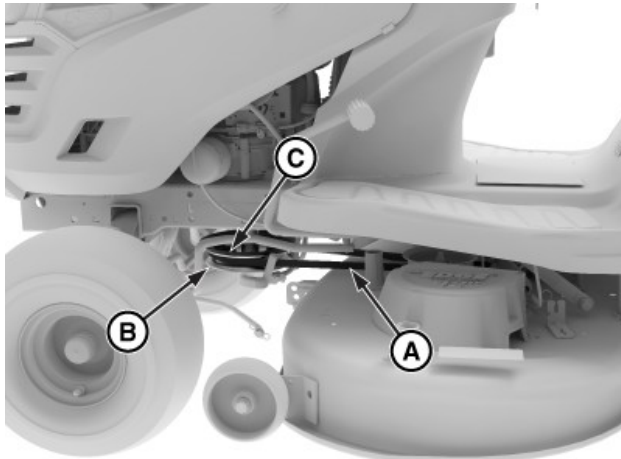
MP47322,00F465D-19-03JUN15

Service Mower

Removing or Installing Mower Drive Belt at Engine Drive Sheave (42 in, 48 in, and 54 in Manual PTO Machines)

1. Park machine safely. (See Parking Safely in Safety section.)
2. Put lift lever in lowest position.

CAUTION: Avoid injury! Component is spring-assisted and under tension. Injury can occur if spring-assisted component is released suddenly.



A—Belt
B—Drive Sheave
C—Plastic Sheave Extension

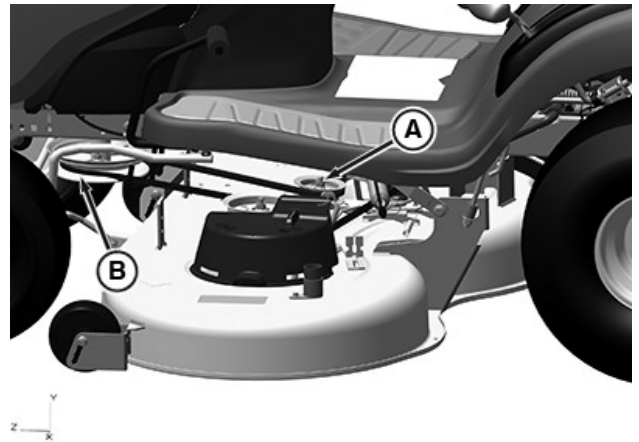
APY586621—UN—24JUL23

3. Remove Belt (A) from the drive sheave (B) by flexing the plastic sheave extension (C) (do not remove the belt from the bottom of the drive sheave).
4. To install the belt (A) on the drive sheave (B), flex the plastic drive sheave extension (C) on on both sides (one side at a time) and insert the belt on to the drive sheave (B).

czhk963,1689588122533-19-31JUL23

Removing Mower Deck (42A Mower Deck)

1. Park machine safely. (See Parking Safely in Safety section.)
2. Put wood blocks under each side of mower deck.
3. Put attachment lift lever in lowest position, bringing mower deck down onto blocks.



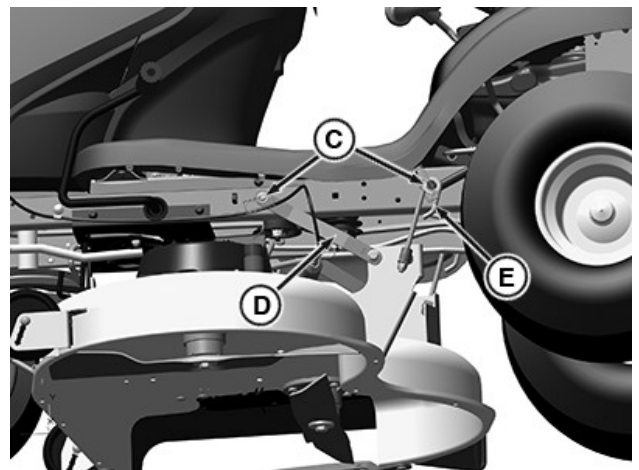
APY36216—UN—10JUL20

Model S220 is Shown.

4. Put a 15 mm closed end wrench or a socket on the idler sheave nut (A) and rotate clockwise to move idler sheave toward front of tractor and hold to release belt tension.
5. Remove mower drive belt from drive sheave (B).

CAUTION: Avoid injury! Mower lift arms can pinch fingers. Lift arms are spring loaded and can snap back when deck is removed.

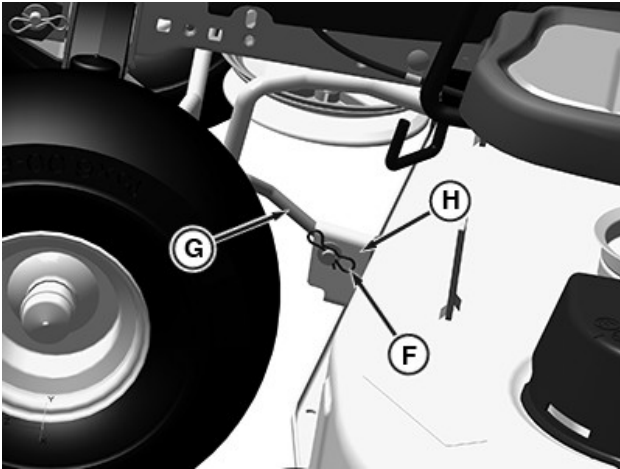
Lock lift lever before pulling pin to remove mower deck.



APY36217—UN—10JUL20

6. Remove spring locking pins and washers (C) and disconnect rear draft arm (D) and adjustable lift links (E) on each side.

Service Mower



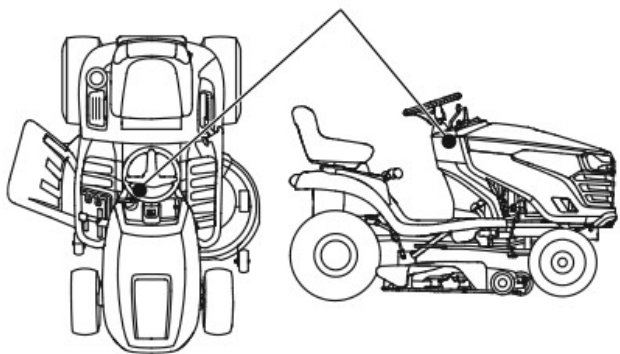
APY36218—UN—10JUL20

7. Remove spring locking pin (F) and washer and front draft rod (G) from mower deck bracket (H).
8. Remove wood blocks from both sides and slide mower deck out from under the machine.
9. When operating the machine without the mower deck, remove front draft rod from machine and attach it to the mower deck.

MG39705,00004C3-19-10JUL20

Removing Mower Deck (48A Mower Deck)

1. Park machine safely. (See Parking Safely in Safety section.)
2. Put wood blocks under each side of mower deck.
3. Put attachment lift lever in lowest position, bringing mower deck down onto blocks.

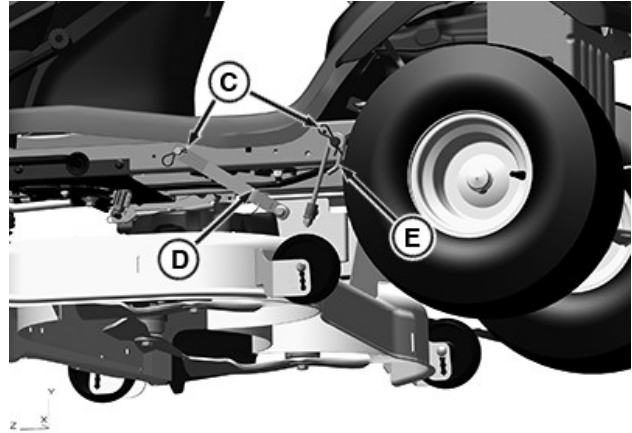


APY36219—UN—10SEP20

4. Put a 15 mm closed end wrench or a socket on the idler sheave nut (A) and rotate clockwise to move idler sheave toward front of tractor and hold to release belt tension.
5. Remove mower drive belt from drive sheave (B).

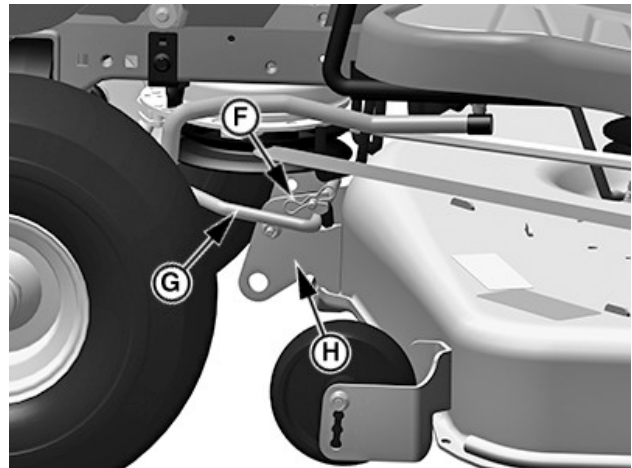
CAUTION: Avoid injury! Mower lift arms can pinch fingers. Lift arms are spring loaded and can snap back when deck is removed.

Lock lift lever before pulling pin to remove mower deck.

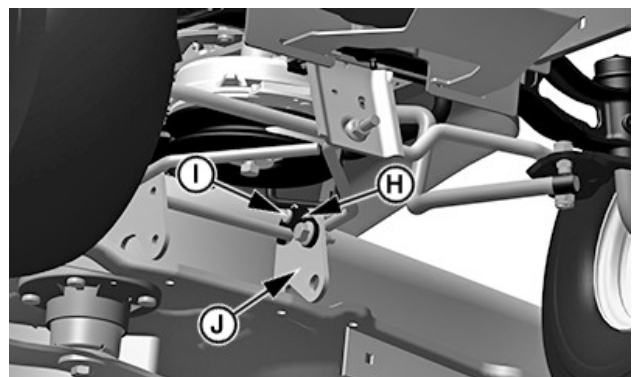


APY36220—UN—10JUL20

6. Remove spring locking pins and washers (C) and disconnect rear draft arm (D) and adjustable lift links (E) on each side.



PY44514—UN—18JUL17



PY44515—UN—18JUL17

7. Remove spring locking pin (F) and pin fastener (I) from inside and lift the bracket lock (H) and remove

Service Mower

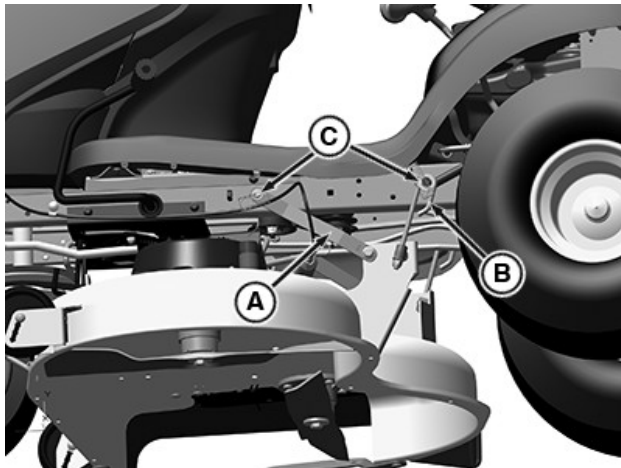
the front draft link rod (G) from mower deck bracket (J).

8. Remove wood blocks from both sides and slide mower deck out from under the machine.
9. When operating the machine without the mower deck, remove front draft link rod from machine and attach it to the mower deck.

MG39705.00004C4-19-10JUL20

Installing Mower Deck (42A Mower Deck)

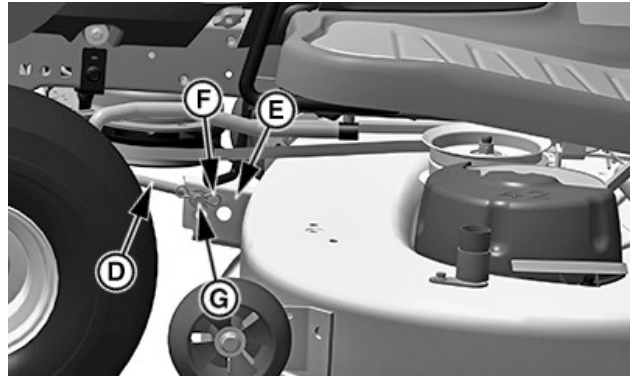
1. Park machine safely. (See Parking Safely in Safety section.)
2. Put attachment lift lever in the transport position.
3. Slide mower under machine.
4. Put wood blocks under each side of mower deck.
5. Put attachment lift lever in lowest position.



APY36221—UN—10JUL20

6. Fasten rear draft arm (A) and adjustable lift link (B), on each side, with washers and spring locking pins (C).

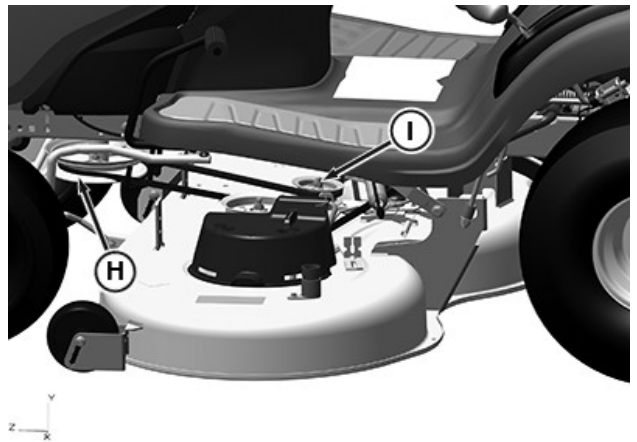
IMPORTANT: Avoid damage! To prevent clutch damage, make sure front draft rod is installed correctly. Secure rod with washer and spring locking pin on the left side of mower deck bracket.



PY43311—UN—24MAY17

7. Install front draft rod (D) into mower deck bracket (E) hole marked HYDRO (F).
8. Secure front draft rod with washer and spring locking pin (G).

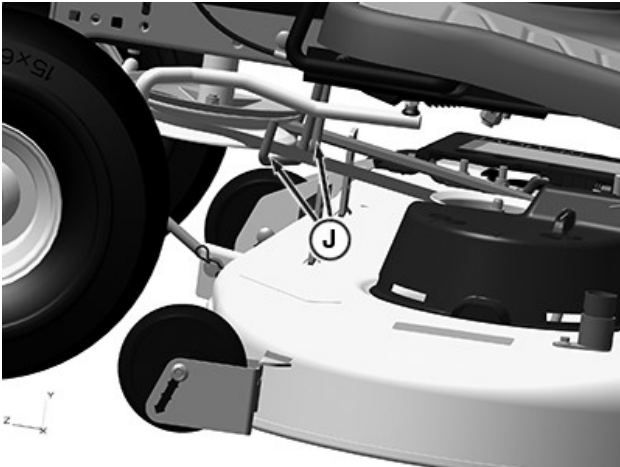
CAUTION: Avoid injury! Component is spring-assisted and under tension. Injury can occur if spring-assisted component is released suddenly.



APY36222—UN—10JUL20

9. Put mower drive belt on engine drive sheave (H). Put a 15 mm closed end wrench or socket on the idler sheave nut (I) and rotate clockwise, moving idler sheave and tensioning arm toward front of tractor. Hold while installing belt on drive sheave.

Service Mower



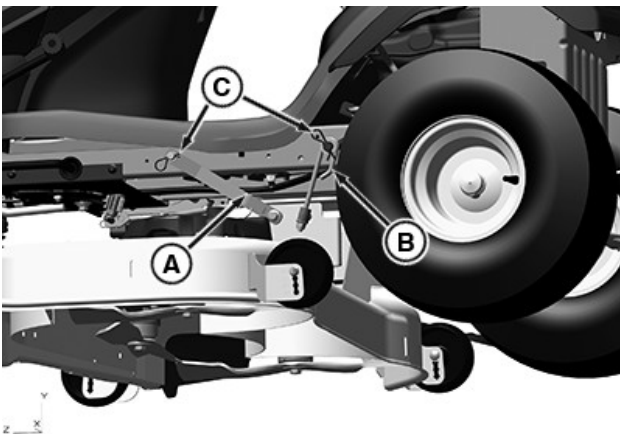
APY36223—UN—10JUL20

10. Make sure belt is routed through both belt guides (J).
11. Remove wood blocks from both sides of mower deck.
12. Level mower deck.

MG39705.00004C5-19-10JUL20

Installing Mower Deck (48A Mower Deck)

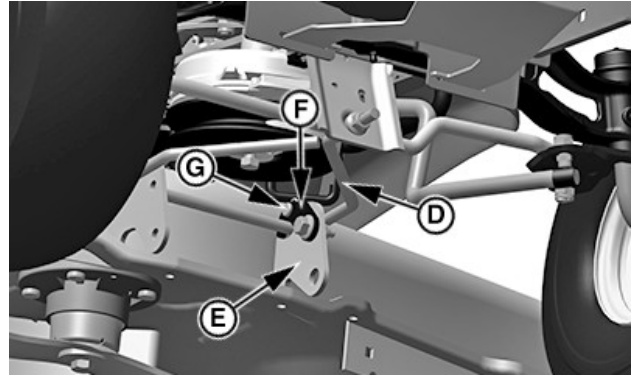
1. Park machine safely. (See Parking Safely in Safety section.)
2. Put attachment lift lever in the transport position.
3. Slide mower under machine.
4. Put wood blocks under each side of mower deck.
5. Put attachment lift lever in lowest position.



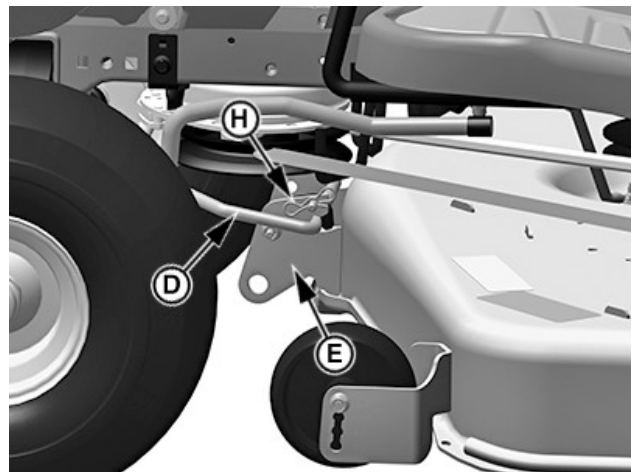
APY36224—UN—10JUL20

6. Fasten rear draft arm (A) and adjustable lift link (B), on each side, with washers and spring locking pins (C).

IMPORTANT: Avoid damage! To prevent clutch damage, make sure front draft rod is installed correctly. Secure rod with washer and spring locking pin on the left side of mower deck bracket.



PY44517—UN—18JUL17

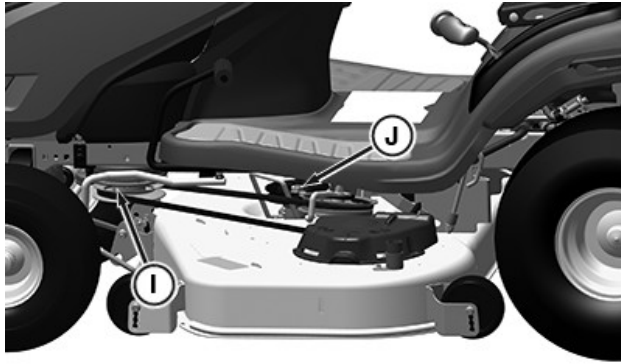


PY44518—UN—18JUL17

7. Install front draft link rod (D) into mower deck bracket (E) slot and lock the rod using bracket (F) and insert the pin fastener (G) from inside of deck and insert spring locking pin (H).
8. Secure front draft link rod with washer and spring locking pin (H).

⚠ CAUTION: Avoid injury! Component is spring-assisted and under tension. Injury can occur if spring-assisted component is released suddenly.

Service Mower



APY36225—UN—10JUL20

9. Put mower drive belt on engine drive sheave (I). Put a 15 mm closed end wrench or socket on the idler sheave nut (J) and rotate clockwise, moving idler sheave and tensioning arm toward front of tractor. Hold while installing belt on drive sheave.
10. Remove wood blocks from both sides of mower deck.
11. Level mower deck.

MG39705,00004C6-19-10JUL20

4. Inspect belt for wear or damage; replace as necessary.
5. Clean top surface of mower deck and sheaves.
6. Install belt on mower deck as shown. Make sure belt is in the groove of each sheave.
7. Tighten sheaves to specifications.

Specification

Mower Deck Idler Sheave

Nuts—Torque. 47 N·m (35 lb.-ft.)

8. Install belt shield.
9. Install mower deck.

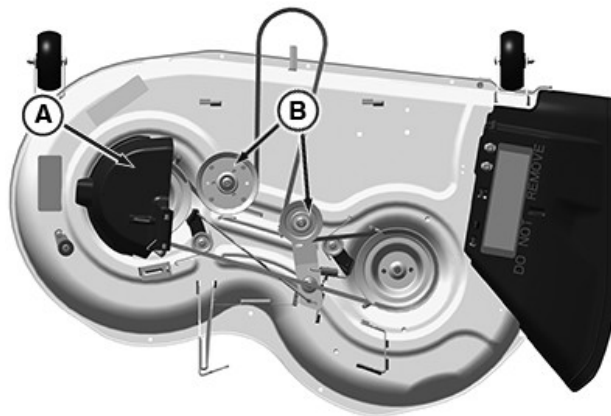
MG39705,00004C7-19-10JUL20

Replacing Mower Drive Belt (48A Mower Deck)

1. Park machine safely. (See Parking Safely in Safety section.)
2. Allow engine and muffler to cool completely.
3. Remove mower deck.
4. Remove deck drive belt as follows:

Replacing Mower Drive Belt (42A Mower Deck)

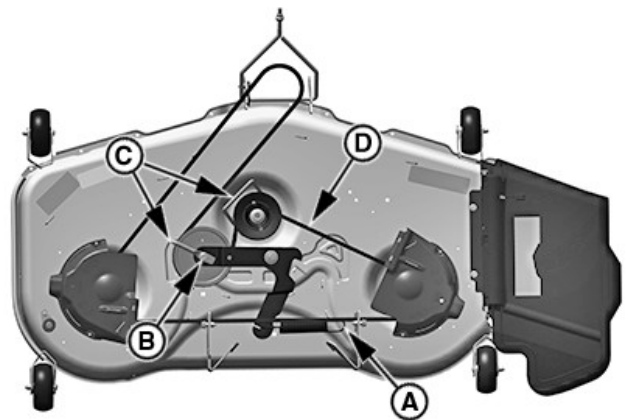
1. Park machine safely. (See Parking Safely in the Safety section.)
2. Remove mower deck.



APY36226—UN—10JUL20

Model S220 is Shown.

3. Remove drive belt:
 - a. Remove two cap screws and belt shield (A).
 - b. Loosen sheaves (B).
 - c. Remove mower belt.



PY44521—UN—18JUL17

- Remove spring from welded spring hook (A) on deck.
 - Remove nut (B) on tension sheave and lower bolt to remove guide (C). Remove belt (D) from all sheaves.
5. Inspect belt for wear or damage; replace as necessary.
 6. Clean top surface of mower deck and sheaves.

IMPORTANT: Avoid damage! Left and right spindle sheaves are hidden by belt shields. Failure to seat belt properly on sheaves may result in belt damage.

Service Mower

7. Install belt on mower deck as shown.
8. Make sure belt guide (C) is indexed as shown, and tighten nut (B) to specification.

Specification

Sheave Nut—Torque. 47 N·m (35 lb·ft)

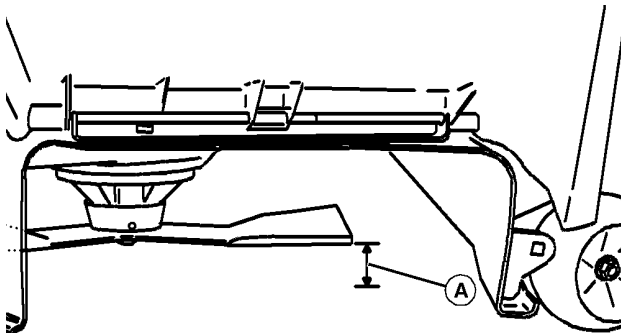
9. Install spring on welded spring hook (A) on deck.
10. Install mower deck.

SV90572,0000015-19-10JUL20

Checking for Bent Mower Blades

CAUTION: Avoid Injury! Blades are sharp. Always wear gloves when handling blades or working near blades.
Replace blades if defective. Never straighten or weld them.

1. Park machine safely. (See Parking Safely in the Safety section.)
2. Raise mower deck to highest position to access blades.



MXAL42867—UN—09APR13

Mower Deck With Side Discharge Used for Illustration

3. Measure distance (A) between blade tip and flat ground surface.
4. Rotate blade 180° and measure distance between other blade tip and flat ground surface.
5. Install new blade if the difference between the two measurements is more than 3 mm (1/8 in).
6. Repeat for all blades.

SR99263,00002AA-19-10APR20

Servicing Mower Blades

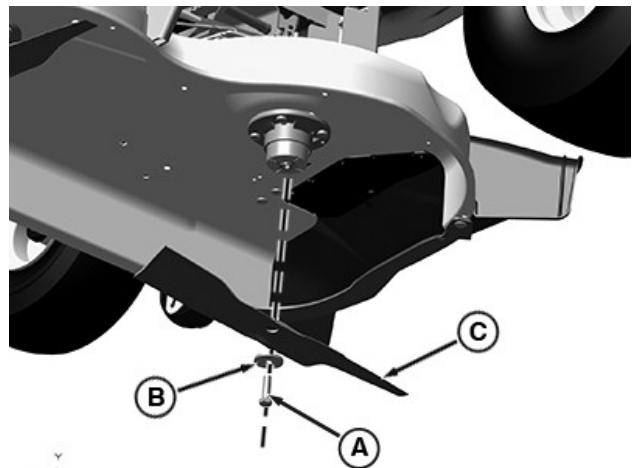
CAUTION: Avoid injury! Rotating blades are dangerous. Before adjusting or servicing mower:

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

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

Removing Mower Blades

1. Park machine safely. (See Parking Safely in Safety section.)
2. Raise mower deck to gain access to mower blades. If necessary, remove mower deck.
3. Block mower blade with a piece of wood to prevent it from spinning.



APY36228—UN—10JUL20

Model S220 is Shown.

4. Loosen and remove screw (A), washer (B), and blade (C).
5. Inspect blades; sharpen, balance, or replace blades as necessary.

Installing Mower Blades

1. Position mower blade (C) with the cutting edge towards the ground.
2. Align the splined center hole in the blade with the splined spindle shaft (D) and put the blade onto the mower spindle shaft.
3. Install washer, with cupped side towards blade, and install nut to secure blade onto splined spindle shaft.
4. Block mower blade with a piece of wood to prevent spinning and tighten nut:
5. Using 15/16 in socket, tighten 5/8 in blade nut to specifications.

Specification

Mower Deck Blade Nut—Torque. 68 N·m (50 lb·ft)

SV90572,0000016-19-27JUL20

Service Mower

Sharpening Blades

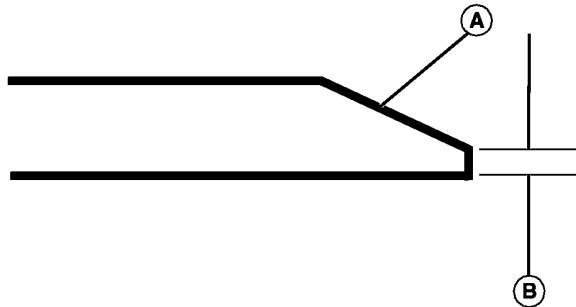
⚠ CAUTION: Avoid injury! Blades are sharp. Always wear gloves when handling blades or working near blades.

Always wear safety eye protection when grinding.

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

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.

MX00654,000039F-19-25JUL23



GXAL42041—UN—04MAR13

- Keep original bevel (A) when grinding.
- The blade cutting edge (B) should meet specifications.

Specification

Mower Blade Cutting

Edge—Distance. 0.40 mm (1/64 in)

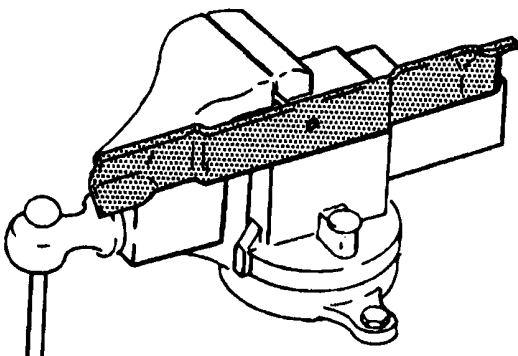
- Balance blades before installing.

MX00654,000039E-19-05JUL17

Balance Blades

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

1. Clean blade.



GXAL42042—UN—04MAR13

Service Electrical

Electrical

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

MP47322,00F466E-19-12JAN23

Service the Battery Safely



MXAL42869—UN—09APR13

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

To prevent the battery from exploding:

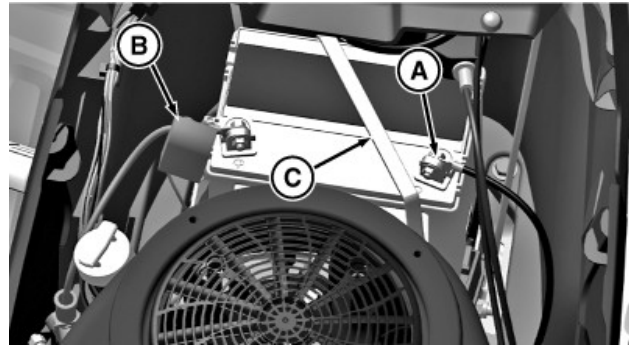
- Do not smoke or have open flame near battery.
- Wear eye protection and gloves.
- Do not allow direct metal contact across battery posts.
- Remove negative cable first when disconnecting.
- Install negative cable last when connecting.

MP47322,00F466F-19-13JAN15

Removing and Installing the Battery

Removing

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



MX101656—UN—10SEP20

3. Disconnect negative (-) battery cable (A).
4. Push the red cover (B) away from the positive (+) battery terminal and remove cable from the battery.
5. Unhook the battery strap (C) from C type clip on the front left side of the battery tray.
6. Remove the battery.

Installing

IMPORTANT: Avoid damage! Follow instructions carefully. Battery and battery cables must be installed correctly.

When installing battery, make sure battery terminals are facing toward the front of the machine.

1. Place the battery into the battery tray so the terminals are facing toward the front of the machine..
2. Secure the battery strap (C).
3. Connect the positive (+) cable (C) to the positive (+) battery terminal first, then the negative (-) cable (D) to the negative (-) battery terminal.
4. Apply spray lubricant to terminal to help prevent corrosion.
5. Slide the red cover over the positive battery terminal.

MG39705,00004C8-19-10SEP20

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.

Service Electrical

7. Attach cables to battery terminals, beginning with the positive cable, using washers and nuts.
8. Apply spray lubricant to terminal to prevent corrosion.

MP47322,00F4671-19-11JUL23

Using Booster Battery

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

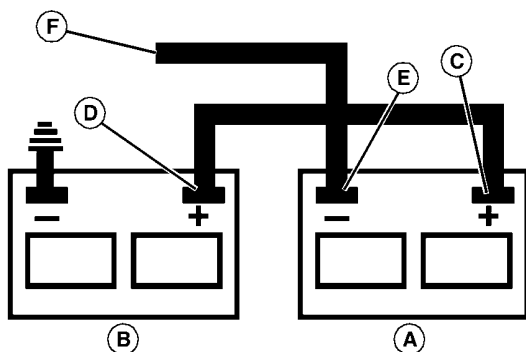
To prevent the battery from exploding:

- 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:

Specification

Battery—Temperature. 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.



MXAL42872—UN—09APR13

A—Booster Battery
B—Disabled Vehicle Battery
C—Positive (+) Post
D—Positive (+) Post
E—Negative (-) Post
F—Negative (-) Booster Cable End

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 charges from the booster battery damages machine components. Do not install negative booster cable to machine frame. Install only to the engine block.

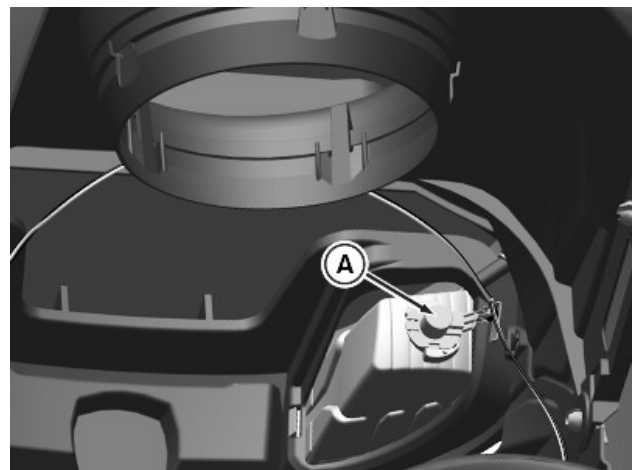
Install negative booster cable away from moving parts in the engine compartment, such as belts and fan blades.

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.

MP47322,00F4672-19-03NOV21

Replacing Headlight Bulb

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



APY36179—UN—10JUL20

3. Turn bulb socket (A) 1/4 turn counterclockwise to remove.
4. Replace defective bulb with a new bulb.
5. Insert bulb socket into housing, push in and turn 1/4 turn clockwise to install.
6. Lower hood.

MG39705,00004B4-19-03JUL20

Replacing Fuse

1. Park machine safely. (See Parking Safely in the Safety section.)
2. Lift hood.
3. Pull defective fuse (A) out of socket.
4. Check metal clip in fuse window and discard fuse if clip is broken.

Service Electrical

5. Push new 20 amp fuse into socket.
6. Lower hood.

MG39705,00004C9-19-02SEP20

Service Miscellaneous

Gasoline Fuel for 4-Cycle Engines

Use unleaded gasoline with a minimum octane rating of 87 AKI (anti-knock index) or 90 RON (research octane number). Gasoline fuels specified to EN 228 or ASTM D4814 are recommended.

Fuel blends of unleaded gasoline with a maximum 10% ethanol or 15% MTBE (methyl tertiary-butyl ether) are also acceptable.

CAUTION: Reduce the risk of fire. Handle fuel carefully. **DO NOT** fill the fuel tank when the engine is running or hot. Stop engine and allow it to cool for several minutes before filling fuel tank. Fill fuel tank only to the bottom of the filler neck.

Refuel outdoors. **DO NOT** smoke while you fill the fuel tank or service the fuel system.

Store fuel in properly identified polyethylene containers.

When storing fuel, add John Deere Gasoline Conditioner and Stabilizer (or equivalent) at the specified concentration.

IMPORTANT: **DO NOT** use methanol or fuel blends that contain methanol.

Avoid spilling fuel. Gasoline can damage plastic and painted surfaces.

DO NOT mix oil with gasoline.

DX,FUEL2-19-15MAY13

Filling Fuel Tank

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

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

IMPORTANT: Avoid damage! Dirt and water in fuel causes engine damage:

- Clean dirt and debris from the fuel tank opening.
- Use clean, fresh, stabilized fuel.
- Fill the fuel tank at the end of operation each day to prevent condensation and freezing during cold weather.

- If using a funnel, make sure it is plastic and has no screen or filter.

1. Park machine safely. (See Parking Safely in the Safety section.)
2. Allow engine to cool.
3. Remove any debris from area around fuel tank cap.
4. Remove fuel tank cap slowly to allow any pressure built up in tank to escape.
5. Fill fuel tank only to bottom of filler neck. Do not overfill.

NOTE: On some models, the fuel tank cap will click when it is tight.

6. Install fuel tank cap and turn cap until it is tight.

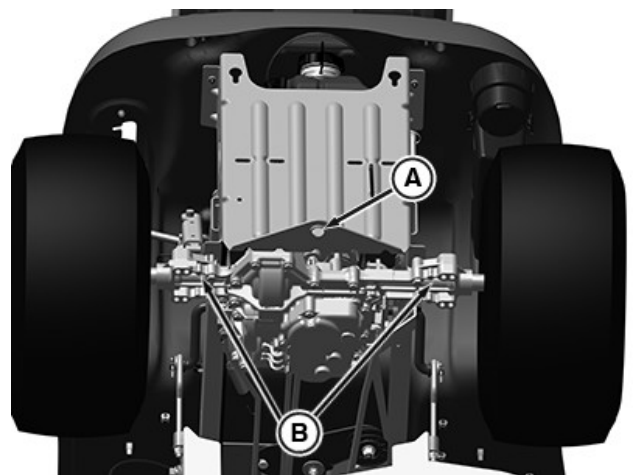
MP47322,00F4675-19-24AUG21

Lifting Machine

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

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

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



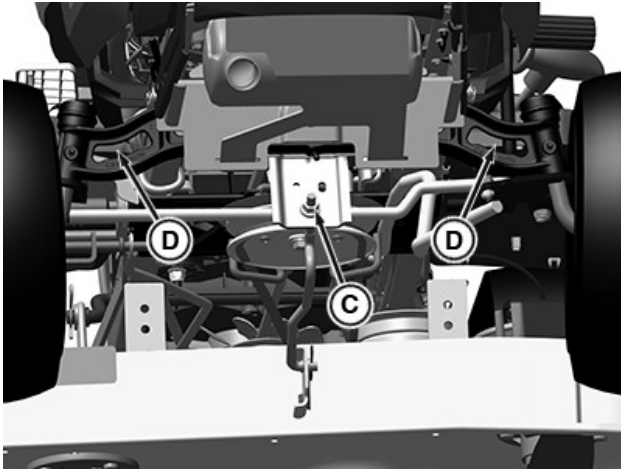
APY36180—UN—10JUL20

2. Safely lift rear of machine at machine frame point (A). Place jack stands or other stable supports onto transmission locations (B) where mounting bolts for frame come through.
3. If only lifting rear of machine, block front wheels remaining on ground to avoid movement of machine.

Service Miscellaneous

(See Specifications section for recommended tire pressures.)

MP47322,00F4677-19-10JUN20



APY36232—UN—10JUL20

4. Safely lift front of machine at machine frame point (C). Place jack stands or other stable supports under frame on each side at location (D).
5. If only lifting front of machine, block rear wheels remaining on ground to avoid movement of machine.
6. To lower machine, lift front and/or rear of machine, and remove jack stands or supports. Lower machine.

MG39705,00004CA-19-10JUL20

Checking Tire Pressure

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

- Do not attempt to mount a tire without the proper equipment and experience to perform the job.
 - Make sure that all tires are inflated to the recommended pressure, especially when operating on slopes. Low pressure can cause machine to become unstable on slopes.
 - 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 low-pressure gauge.
 3. A lower pressure will improve traction and performance depending on turf conditions or if transport areas have steep inclines.
 4. Add or remove air to meet specified tire pressure.

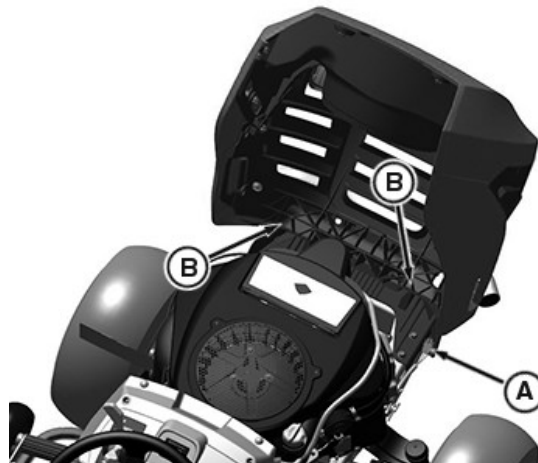
Removing and Installing Hood

Removing

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

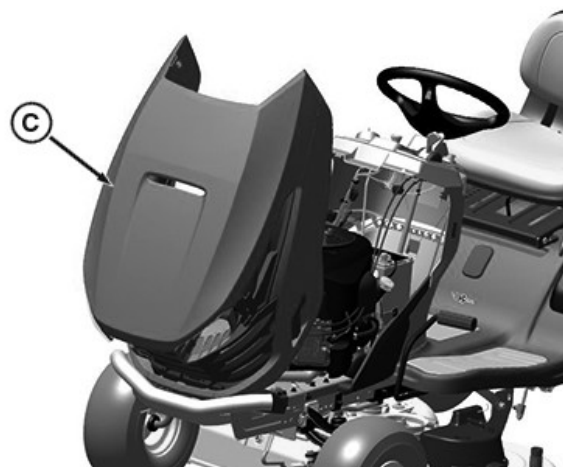
IMPORTANT: Avoid damage! Do not operate machine with hood open. Hood must be closed for proper engine cooling and exhaust.

1. Park machine safely. (See Parking Safely in the Safety section.)
2. Let engine cool.



APY34625—UN—31MAR20

3. Open hood.
4. Disconnect wiring harness (A).



APY34626—UN—31MAR20

Service Miscellaneous

5. Apply pressure to the pointed position on left side of hood and slowly lower hood. Left side pivot will release after rotating closed approximately 45°. Once left side pivot releases, slide out right side pivot. Lower hood slightly and lift hood from brackets (B).

Installing

1. Slide right side hood pivot into tractor bracket with hood in open position (left side pivot slides into place as hood closes) and slowly close hood.
2. Open hood.
3. Connect wiring harness. Verify wiring harness is properly retained.
4. Close hood.

SR99263,0000312-19-10JUL20

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 results in minor surface scratches.
- Use a soft, clean cloth (bath towel, diaper, automotive mitt.)
- Do not use abrasive materials, such as polishing compounds, on plastic surfaces.

1. Rinse hood and entire machine with clean water to remove dirt and dust that may scratch the surface.
2. Wash surface with clean water and a mild liquid automotive washing soap.

IMPORTANT: Avoid damage! Insect repellent spray may damage plastic and painted surfaces. Do not spray insect repellent near machine.

3. Dry thoroughly to avoid water spots.
4. Wax the surface with a liquid automotive wax. Use products that specifically say "contains no abrasives."

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

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

SR99263,00002B3-19-06APR20

Cleaning and Repairing Metal Surfaces

Cleaning:

Follow automotive practices to care for your vehicle's 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.

MP47322,00F467A-19-20SEP21

Avoid Damage to Plastic and Painted Surfaces

- Do not wipe plastic parts until they are rinsed first. Using a dry cloth causes scratches.
- Insect repellent spray damages plastic and painted surfaces. Do not spray insect repellent near machine.
- Be careful not to spill fuel on the machine. Fuel damages surfaces. Wipe up spilled fuel immediately.

MP47322,00F4630-19-02DEC22

Removing and Installing Front Wheel Assembly

Removing:

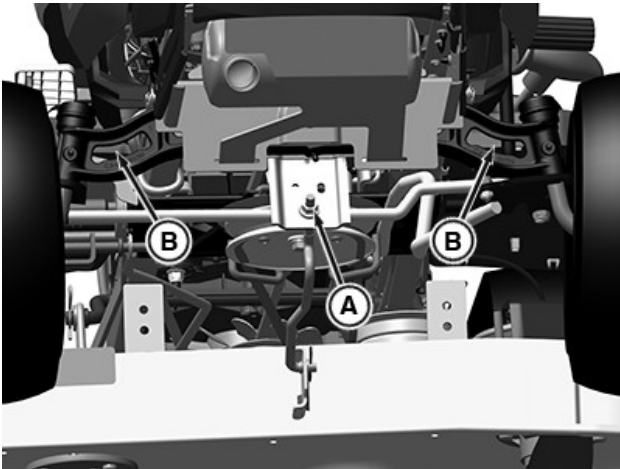
1. Park machine safely. (See Parking Safely in the SAFETY section.)

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

Service Miscellaneous

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

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



APY36234—UN—10JUL20

2. Safely lift and support machine. Place safe lifting device under end of front hanger bracket at location (A), and place jack stands or other stable supports under frame on each side at location (B). Block wheels remaining on the ground to prevent machine movement.



GXAL42052—UN—04MAR13

3. Remove plastic cap (C) from end of wheel hub.

CAUTION: Avoid injury! Components are installed under spring tension. Wear eye protection and use proper tools when installing and removing components with spring tension.



GXAL42053—UN—04MAR13

4. Remove snap ring (D) from end of axle.
5. Remove washer (E) and wheel from axle.

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.

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

Installing

1. Grease spindles with specified grease.
2. Install wheel and washer (E) on axle.
3. Install snap ring (D).
4. Install plastic cap (C).
5. Safely remove jack stands and lower machine.

MG39705,00004CB-19-10JUL20

Removing and Installing Rear Wheel Assembly

Removing

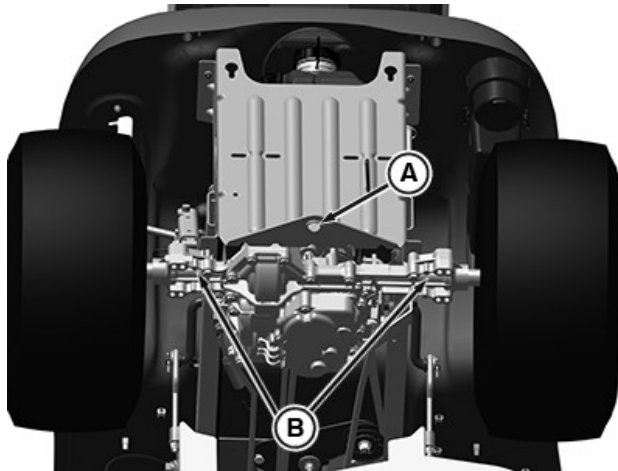
1. Park machine safely. (See Parking Safely in the Safety section.)

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

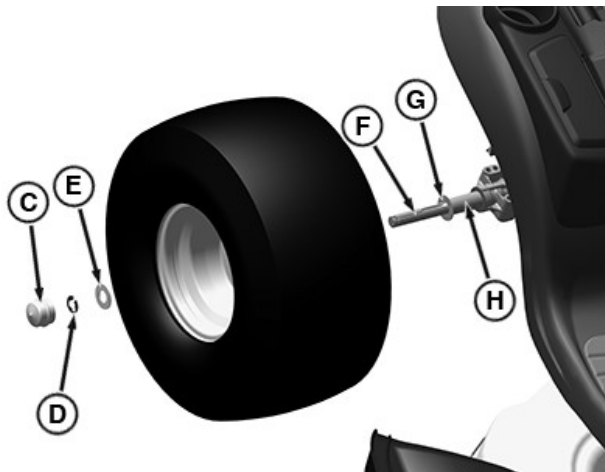
- Use a safe lifting device rated for the load to be lifted.
- Lower machine onto jack stands or other stable supports and block wheels before servicing.

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

Service Miscellaneous



2. Safely lift and support machine. Place safe lifting device under transmission centered under machine frame point (A). Place jack stands or other stable supports on each side (B) where mounting bolts for frame come through. Block wheels remaining on the ground to prevent machine movement.



3. Remove plastic cap (C), snap ring (D), and washer (E).
4. Remove wheel.

IMPORTANT: Avoid damage! Do not lose the shaft key. Key must be installed for wheels to rotate and tractor to move.

5. Remove shaft key (F) (shown on end of transmission shaft), two washers (G) and spacer (H).

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.

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

Installing

IMPORTANT: Avoid damage! Do not lose the shaft key. Key must be installed for wheels to rotate and tractor to move.

NOTE: Rear wheels are installed with valves to the outside.

1. Install two washers (G), spacer (H), and shaft key (F).
2. Install rear wheel, washer (E), snap ring (D) and plastic cap (C).
3. Safely remove jack stands and lower machine.

MG39705,00004CC-19-10JUL20

Troubleshooting

Using Troubleshooting Chart

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

MP47322,00F467B-19-13NOV18

Engine

IF	CHECK
Poor Engine Performance	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 with alcohol or ether may contribute to performance problems by causing gum and varnish deposits, especially if fuel is stored for several weeks or more. Obtain fresh fuel.
Engine Will Not Start	Brake pedal not depressed. Mower is engaged. Spark plug wire is loose or disconnected. Improper fuel. Transmission is in reverse. Plugged fuel filter. Defective safety switch. Ignition air gap not adjusted properly. Electrical problem - See Electrical Troubleshooting Section.
Engine Is Hard To Start	Choke cable not adjusted properly. Plugged fuel filter. Faulty spark plug. Stale or improper fuel. Loose or corroded electrical connections. Improper engine oil viscosity. Ignition air gap not adjusted properly.
Engine Runs Unevenly	Cooling fins plugged. Loose electrical connections. Choke or throttle cable sticking. Fuel line or fuel filter plugged. Stale or dirty fuel. Improper fuel. Air cleaner element plugged.
Engine Misses Under Load	Faulty spark plug. Stale or dirty fuel. Plugged fuel filter.
Engine Vapor Locks	Fuel tank vent plugged. Dirt in fuel filter. Cooling fins plugged. Loose hose connection at fuel filter or fuel pump.
Engine Overheats	Engine air intake screen plugged. Cooling fins plugged.

IF	CHECK
	Engine oil low or too high. Engine operated too long at a slow idle speed.
Engine Will Not Idle	Spark plug not gapped correctly. Faulty spark plug. Operator raising off the seat.
Engine Knocks	Stale or low octane fuel. Engine overloaded. Low engine speed. Oil level low.
Engine Stops Or Misses When Operating On Hillsides	Fuel tank less than half full of fuel. Operator raising off of the seat.
Engine Backfires	Faulty spark plug. Operator raising off of the seat.
Engine Loses Power	Engine overheating. Too much oil in engine. Dirty air cleaner. Faulty spark plug. Travel speed is too fast for conditions. Improper fuel.
Excessive Fuel Consumption	Choke is not fully open.
Black Exhaust Smoke	Air filter is dirty or oil soaked. Choke partially engaged. Ignition air gap not adjusted properly.

OUMX068,0000833-19-06JUL15

Electrical

IF	CHECK
Starter Does Not Work Or Will Not Turn Engine	Brake pedal is not depressed. Mower is engaged. Battery terminals are corroded. Battery not charged. Transmission is in reverse. Blown fuse.
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.
The fuel level indicator flashes "E33" intermittently or shows full bars constantly when fuel tank is not full	Check the fuel sender connector located beneath the seat for full and proper connection. If connections are good but the problem persists, contact your John Deere Dealer.

MG39705,00004DB-19-24JUL20

Troubleshooting

Tractor

IF	CHECK
Tractor Vibrates Too Much Or Rattles Excessively	Attachment drive belts worn or damaged. Traction drive belt damaged or worn. Dirt on drive sheaves. Blades bent or out of balance.
Tractor Will Not Move With Engine Running	Parking brake locked. Bypass rod is pulled out.

OOU1023,00001EB-19-19JUN15

Mower

IF	CHECK
Discharge Chute Plugged	Travel speed too fast. Grass too long. Grass too wet. Engine rpm not at wide open throttle. Restricted air flow. Belt installed incorrectly.
Patches Of Grass Uncut	Travel speed too fast. Engine rpm not at wide open throttle. Mower deck needs cleaning.
Belt Slipping	Debris in sheaves. Worn belt. Belt tension is incorrect.
Too Much Vibration	Debris on mower deck or in sheaves. Damaged drive belt. Damaged sheaves or sheaves out of alignment. Blades out of balance.
Blades Scalping Grass	Cutting too low. Mower wheels not adjusted correctly. Turning speed too fast. Ridges in terrain. Rough or uneven terrain. Low tire pressure.
Mower Loads Down Tractor	Engine rpm too low. Travel speed too fast. Debris wrapped around mower spindles.
Uneven Cut	Mower deck not leveled properly. Travel speed too fast. Blades dull. Mower wheels not adjusted correctly. Tire pressure unequal. Avoid mowing in clockwise circle paths.
Mower (Or Other Attachment) Stops When Reverse Foot Pedal Is Depressed And Attachment Is Engaged	Normal condition. (See Using Reverse Implement Option in the OPERATING section.)

OUMX068,00008AB-19-07AUG14

Storage

Storing Safety

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

Engine exhaust fumes contain carbon monoxide and cause serious illness or death:

- Run the engine only long enough to move the machine to or from storage.
- If a machine is stored before allowing it to cool, machine fires and structure fires can occur. Fires can occur if debris is not removed from around the engine and muffler, or if stored near combustible materials.
- Do not store vehicle with fuel in the tank inside a building where fumes reach an open flame or spark.
- Allow the engine to cool before storing the machine in any enclosure.

MP47322,00F4680-19-06MAY15

Preparing Machine for Storage

1. Repair any worn or damaged parts. Replace parts if necessary. Tighten loose hardware.
2. To prevent rust, repair scratched or chipped metal surfaces.
3. Remove grass and debris from machine.
4. Clean under the rotary deck and remove grass and debris from inside chute and bagger, if applicable.
5. Wash the machine and apply wax to metal and plastic surfaces.
6. To dry belts and pulleys, run machine for five minutes.
7. To prevent rust, apply light coat of engine oil on pivot and wear points.
8. Lubricate grease points and check tire pressure.

MP47322,00F4681-19-13JUL16

Preparing Fuel and Engine For Storage

Fuel:

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

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

If you are not using "Stabilized Fuel":

1. Park machine safely in a well-ventilated area. (See Parking Safely in the Safety section.)

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

2. Turn on engine and allow to run until it runs out of fuel.
3. For machines equipped with key switch, turn key to off position.

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

- Add fuel conditioner or stabilizer to fresh fuel before filling tank.
4. Mix fresh fuel and fuel stabilizer in separate container. Follow stabilizer instructions for mixing.
 5. Fill fuel tank with stabilized fuel.
 6. Run engine for a few minutes to allow fuel mixture to circulate through carburetor on gas engine or fuel injectors on diesel engine.

Engine:

Engine storage procedure should be used when vehicle is not to be used for longer than 60 days.

1. Change engine oil and filter while engine is warm.
2. Service air filter if necessary.
3. Clean debris from engine air intake screen.
4. On gas engines:
 - Remove spark plugs. Put 30 mL (1 oz) of clean engine oil in cylinders.
 - Install spark plugs, but do not connect spark plug wires.
 - Crank the engine 5 or 6 times to allow oil to be distributed.
5. Clean the engine and engine compartment.
6. Remove battery.
7. Clean the battery and battery posts. Check the electrolyte level if your battery is not maintenance free.
8. Close fuel shutoff valve if your machine is equipped.
9. Store the battery in a cool, dry place where it will not freeze.

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

10. Charge the battery.

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

Storage

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

OUMX068,000077B-19-05JUL17

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.

MP47322,00F4683-19-17FEB23

Specifications

Model S240

Model Number FR651V
Power Rating Information . . . <http://www.kawasakenginesusa.com/parts-and-support/critical-power.html>
Displacement 726 cc (44.3 in³)
Spark Plug Gap 0.75 mm (0.030 in)
Spark Plug Torque 20 N·m (15 lb·ft)
Cylinders 2 (V-Twin)
Oil Filter Yes
Air Filter Cartridge
Transmission Hydrostatic
Transaxle Model Tuff Torq™ K46
Travel Speed—Forward 0—8.9 km/h (0—5.5 mph)
Travel Speed—Reverse 0—4.8 km/h (0—3.0 mph)

SB31882,000039E-19-27JUL20

Model S220

Model Number 44J677
Power Rating Information <http://www.briggsandstratton.com>
Displacement 724 cc (44.2 in³)
Spark Plug Gap 0.75 mm (0.030 in)
Spark Plug Torque 20 N·m (15 lb·ft)
Cylinders 2 (V-Twin)
Oil Filter Yes
Air Filter Cartridge
Transmission Hydrostatic
Transaxle Model Tuff Torq™ K46
Travel Speed—Forward 0—8.9 km/h (0—5.5 mph)
Travel Speed—Reverse 0—4.8 km/h (0—3.0 mph)

SB31882,000039D-19-28AUG20

Electrical System

Charging System Regulated Circuit
Charging System Capacity 15 Amp
Battery Voltage 12 Volts
Battery Type BCI Group U1

TH84124,00000F2-19-13AUG14

Fuel System

Fuel Types (Recommended):
Regular Grade 87 Octane Unleaded Fuel
Ethanol Blended Fuel (Up to 10%)
MTBE Reformulated Fuel (Up to 15%)

TH84124,00000F3-19-05MAY14

Tires

Model S240
Size (Front) 15 x 6.00 - 6
Size (Rear) 20 x 10.0 - 8
Tire Pressure (Front) 97 kPa (14 psi)
Tire Pressure (Rear) 69 kPa (10 psi)
(Tire pressure information is also located on the sidewalls of the tires)

TH84124,00000F6-19-07MAY14

Capacities

Model S240
Crankcase, with Oil Filter 2.1 L (2.2 qt)
Model S220
Crankcase, with Oil Filter 1.9 L (2.0 qt)
Fuel Tank (All Models) 9 L (2.4 gal)
Towing Capacity (All Models) 226.79 kg (500 lb)

SB31882,000039F-19-07MAY21

Dimensions

Height 114.3 cm (45 in)
Length (Overall) 191 cm (75.2 in)
Width (Mower Deck Chute Down) 139.6 cm (55 in)
Weight: 220 kg (485 lb)

For Mower Deck 107 cm (42 in)

Height 114.3 cm (45 in)
Length (Overall) 191 cm (75 in)
Width (Mower Deck Chute Down) 159.1 cm (63 in)
Weight: 236 kg (520 lb)

For Mower Deck 122 cm (48 in)

MG39705,00004E0-19-27JUL20

Recommended Lubricants

Engine Oil Turf-Gard™ OR Plus-4™
Grease Grease-Gard™ Premium Plus
John Deere Multi-Purpose HD Lithium Complex Grease

*Turf-Gard is a trademark of Deere & Company
Plus-4 is a trademark of Deere & Company
Grease-Gard is a trademark of Deere & Company*

Specifications

(Specifications and design subject to change without notice.)

MG39705,00004DA-19-24JUL20

Mower Deck

Blades Rotary 2
Blade Nut Torque (w/5/8 in. Nut) 68 N·m (50 lb·ft)
Cutting Height (Approximately)25 -102 mm (1 - 4 in)
Cutting Width. 1067 mm (42 in)

Mower Deck 107 cm (42 in) specifications

Blades Rotary 3
Blade Nut Torque (M12) 68 N·m (50 lb·ft)
Cutting Height (Approximately)25 -102 mm (1 - 4 in)
Cutting Width. 1219 mm (48 in)

Mower Deck 122 cm (48 in) specifications

hy01057,1655812297040-19-21JUN22

Warranty

Product Warranty

John Deere offers a standard warranty on new John Deere products. For a copy of the product warranty statement or for details on the warranty terms and conditions for products purchased in the United States and Canada, please contact your local John Deere Dealer or utilize the following resources:

United States

Website:

http://www.deere.com/en_US/services_and_support/warranty/warranty.page

Toll Free: 1-800-537-8233

Dealer Locator:

<http://dealerlocator.deere.com/servlet/country=US>

Canada

Website (English):

http://www.deere.ca/en_CA/services_and_support/service_plans_warranties/service_plans_warranties.page

Website (French):

http://fr.deere.ca/en_CA/services_and_support/service_plans_warranties/service_plans_warranties.page

Toll Free: 1-800-537-8233

Dealer Locator:

<http://dealerlocator.deere.com/servlet/country=CA>

Emission-related warranties are included in this Operator's Manual, and applicable if required by law or regulation.

For products purchased in a country other than the United States or Canada, please contact your local John Deere dealer for assistance.

MP47322,00F4690-19-01JUN22

California and U.S. EPA Emissions Control System Warranty Statement (Off-Road Gas Engines)

Your Warranty Rights and Obligations

The California Air Resources Board, John Deere, and the United States Environmental Protection Agency are pleased to explain the emissions control system's warranty on your model year 2023 or 2024 spark ignited off-road engine equipment. In California, new equipment that uses small or large (less than 1 liter) spark ignited off-road engines must be designed, built and equipped to meet the state's stringent anti-smog standards. John Deere must warrant the emissions control system on your spark ignited off-road engine

equipment for the period listed below provided there has been no abuse, neglect or improper maintenance of your equipment leading to the failure of the evaporative emissions system.

Your emissions control system may include parts such as: carburetors or fuel-injection system, ignition system, catalytic converters, fuel tanks, valves, filters, clamps, connectors, fuel lines (for liquid fuel and fuel vapors) and other associated components. Also included may be hoses, belts, sensors and other emission-related assemblies.

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

Manufacturer's Warranty Coverage

This emissions control system is warranted for two years for models S100, S110, S120, S130, S140, S150, S160, S170, S180, S220, X330, Z315E, Z325E, Z515E, Z545R, Z735E, Z735M, 1220, and three years for all other models referenced in this operator's manual. If any emissions related part on your equipment is defective, the part will be repaired or replaced by John Deere.

Owner's Warranty Responsibilities

- As the spark ignited off-road engine equipment owner, you are responsible for the performance of the required maintenance listed in your Operator's Manual. John Deere recommends that you retain all receipts covering maintenance on your spark ignited off-road engine equipment, but John Deere cannot deny warranty coverage solely for lack of receipts or for your failure to ensure the performance of all scheduled maintenance.
- As the spark ignited off-road engine equipment owner, you should be aware that John Deere may deny you warranty coverage if your spark ignited off-road engine equipment or a part has failed due to abuse, neglect, or improper maintenance or unapproved modifications.
- You are responsible for presenting your spark ignited off-road engine equipment to a John Deere Turf and Utility distribution center or service center as soon as a problem exists. The warranty repairs shall be completed in a reasonable amount of time, not to exceed 30 days. If you have a question about your emissions warranty coverage, how to make an emissions warranty claim or how to make arrangements for emissions-related authorized repairs, you should contact your John Deere Turf and Utility retailer, or the John Deere Customer Contact Center at 1-800-537-8233, or email John Deere from <https://www.deere.com/en/our-company/contact-us/>.

General Emissions Warranty Coverage

The warranty period begins on the date the equipment is delivered to an ultimate purchaser. John Deere

Warranty

warrants to the ultimate purchaser and each subsequent purchaser that the spark ignited off-road engine equipment is:

- Designed, built and equipped so as to conform to all applicable regulations adopted by the California Air Resources Board;
- Designed, built and equipped so as to conform at the time of sale to the ultimate purchaser with applicable U.S. Environmental Protection Agency regulations under 40 CFR Parts 1054 and 1060: and,
- Free from defects in materials and workmanship which cause such engine to fail to conform with applicable regulations for the Emissions Control System Warranty period provided herein.
- For owners located more than 100 miles from a John Deere authorized service center, John Deere will pay either for shipping costs to and from an authorized service center, provide for a service technician to come to the owner to make the warranty repair, or pay for the repair to be made at a local non-authorized service center. These provisions do not apply to Alaska, Hawaii, Arizona, Colorado, Idaho, Montana, Nebraska, Nevada, New Mexico, Oregon, Texas, Utah, and Wyoming.

Emissions Warranty Interpretation

- Any warranted part that is not scheduled for replacement as required by the maintenance instructions in the Operator's Manual is warranted as provided herein. If any such part fails during the period of warranty coverage it will be repaired or replaced by John Deere. Any such part repaired or replaced under warranty is warranted for the remaining warranty period.
- Any warranted part that is scheduled only for regular inspection in the maintenance instructions in the Operator's Manual is warranted as provided herein. A statement in the Operator's Manual to the effect of "repair or replace as necessary" does not reduce the period of warranty coverage. Any such part repaired or replaced under warranty is warranted for the remaining warranty period.
- Any warranted part that is scheduled for replacement as required maintenance in the Operator's Manual is warranted for the period of time prior to the first scheduled replacement point for that part. If the part fails prior to the first scheduled replacement, the part will be repaired or replaced by John Deere. Any such part repaired or replaced under warranty is warranted for the remainder of the period prior to the first scheduled replacement point for the part.
- Repair or replacement of any warranted part under the warranty will be performed at no charge to the owner at any authorized John Deere Turf and Utility retailer.
- The owner will not be charged for diagnostic labor which leads to the determination that a warranted part is defective, provided such work is performed by

John Deere or an authorized John Deere service provider.

- John Deere will repair damages to other engine components proximately caused by a failure under warranty of any emissions-related warranted part.
- Add-on or modified parts that are not exempted by the California Air Resources Board may not be used. The use of any non-exempted add-on or modified parts will be grounds for disallowing a warranty claim. John Deere will not be liable to warrant failures of warranted parts caused by the use of a non-exempted add-on or modified part.

Emission Warranty Parts List

Coverage under this warranty includes, but is not limited to, the parts listed below (the emissions control system parts) to the extent these parts were on the engine and equipment purchased.

Fuel Metering System:

- Carburetor and internal parts (or fuel injection system)
- Air/fuel ratio feedback and control system
- Cold start enrichment system

Evaporative System:

- Fuel tank, fuel cap and tether
- Fuel hose, line, fittings, clamps
- Fuel pump, fuel shut-off valve
- Fuel vapor hoses, fittings
- Carbon canister
- Rollover/slant valve for fuel vapor control
- Purge and vent line

Air Induction System:

- Air cleaner
- Intake manifold

Ignition System:

- Spark plugs
- Magneto or electronic ignition system
- Spark advance/retard system
- Gaskets

Exhaust System:

- Exhaust manifold
- Catalyst muffler

Miscellaneous Items Used in Above Systems

- Valves and Switches: vacuum, temperature, position, check, time-sensitive

Warranty

- Electronic controls
- Hoses, belts, connectors and assemblies

Limited Liability

a) The liability of John Deere under this Emissions Control System Warranty is limited solely to the remedying of defects in materials or workmanship. Except as otherwise expressly provided herein, this warranty does not cover inconvenience or loss of use of the non-road equipment or engine or transportation of the equipment or engine to or from the John Deere Turf and Utility retailer. John Deere shall not be liable for any other expense, loss, or damage, whether direct, incidental, consequential (except as listed above under "coverage") or exemplary arising in connection with the sale or use of or inability to use the non-road equipment or engine for any other purpose.

b) No express emissions control system warranty is given by John Deere with respect to the equipment or engine except as specifically set forth in this document. Any emissions control system warranty implied by law, including any warranty of merchantability or fitness for a particular purpose, is expressly limited to the emissions control system warranty terms set forth in this document.

c) No dealer is authorized to modify this Federal, California and John Deere Emissions Control System Warranty.

MK71445,0000416-19-17MAY22

Tire Warranty

John Deere warranty applies for tires available through the John Deere parts system. For tires not available through the John Deere parts system, the tire manufacturer's warranty applicable to your machine may not apply outside the U.S. (See your John Deere dealer for specific information.)

MX00654,0000314-19-21AUG14

Limited Battery Warranty For Factory Installed Batteries

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

TO SECURE WARRANTY SERVICE

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

FREE REPLACEMENT PERIOD

Any new battery which becomes unserviceable (not merely discharged) due to defects in material or workmanship within the FREE REPLACEMENT PERIOD will be replaced free of charge. Installation costs will be covered by warranty if the unserviceable battery was installed by a John Deere factory or dealer and the replacement battery is installed by a John Deere dealer.

PRO RATA ADJUSTMENT (batteries with letter code identification only)

Any new battery which becomes unserviceable (not merely discharged) due to defects in material or workmanship within the Pro Rata Warranty Period will be replaced upon payment of the battery's current list price less a pro rata credit for unused months of service. The applicable adjustment period is determined from the Warranty Code printed at the top of the battery and table below. Installation costs are not covered after the battery warranty period has ended.

THIS WARRANTY DOES NOT COVER

- A. Breakage of the container, cover, or terminals.
- B. Depreciation or damage caused by lack of reasonable and necessary maintenance or by improper maintenance.
- C. Transportation, mailing, or service call charges for warranty service.
- D. Batteries that are merely discharged.

LIMITATION OF IMPLIED WARRANTIES AND PURCHASER'S REMEDIES

To the extent permitted by law, neither John Deere nor any company affiliated with it makes any warranties, representations, or promises as to the quality, performance or freedom from defect of the products covered by this warranty. IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, TO THE EXTENT APPLICABLE, SHALL BE LIMITED IN DURATION TO THE APPLICABLE ADJUSTMENT PERIOD SET FORTH HERE. THE PURCHASER'S ONLY REMEDIES IN CONNECTION WITH THE BREACH OR PERFORMANCE OF ANY WARRANTY ON JOHN DEERE BATTERIES ARE THOSE SET FORTH HERE. IN NO EVENT WILL THE DEALER, JOHN DEERE OR ANY COMPANY AFFILIATED WITH JOHN DEERE BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES. (Note: Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages. So these limitations and exclusions may not apply to you.) This warranty gives you specific legal rights, and you may also have some rights which vary from state to state.

Warranty

NO DEALER WARRANTY

The selling dealer makes no warranty of its own and the dealer has no authority to make any representation or promise on behalf of John Deere, or to modify the terms or limitations of this warranty in any way.

WARRANTY TERMS TABLE

NOTE: If your battery is not labeled with a warranty code, it is a warranty code 6.

Warranty Code	Free Replacement Period	Pro Rata Warranty Period
A	90 Days	40 Months
B	90 Days	36 Months
C	90 Days	24 Months
D	12 Months	48 Months
E	90 Days	12 Months
F	90 Days	60 Months
G	12 Months	60 Months
H	12 Months	60 Months
6	6 Months	0 Months
12	12 Months	0 Months
18	18 Months	0 Months

OUMX068,0000504-19-10MAY17

Warranty

John Deere Quality Statement

John Deere Quality

John Deere equipment is more than just a purchase, it's an investment in quality. That quality goes beyond our equipment to your John Deere dealer's parts and service support. This support is needed to keep you a satisfied customer.

That's why John Deere has initiated a process to handle your questions or problems, should they arise. The following three steps will help guide you through the process.

Step 1

Refer to your operator's manual

A. It has many illustrations and detailed information on the safe and proper operation of your equipment.

B. It gives troubleshooting procedures, and specification information.

C. It gives ordering information for parts catalogs, service and technical manuals.

D. If your questions are not answered in the operator's manual, then go to Step 2.

Step 2

Contact your dealer

A. Your John Deere dealer has the responsibility, authority, and ability to answer questions, resolve problems, and fulfill your parts and service needs.

B. First, discuss your questions or problems with your dealer's trained parts and service staff.

C. If the parts and service people are unable to resolve your problem, see the dealership manager or owner.

D. If your questions or problems are not resolved by the dealer, then go to Step 3.

Step 3

Contact John Deere

A. Your John Deere dealer is the most efficient source in addressing any concern, but if you are not able to resolve your problem after checking your operator's manual and contacting your dealer, contact John Deere for assistance.

B. For prompt, effective service, please have the following ready before you call:

- The name of the dealer with whom you've been working.
- Your equipment model number.
- Number of hours on machine (if applicable).
- Your serial number which you recorded on the inside front cover of this manual.
- If the problem is with an attachment, your attachment identification number.

C. Then call 1-800-537-8233 (United States and Canada) and our advisor will work with your dealer to investigate your concern. If you are outside the United States and Canada, visit the following website:

<https://www.deere.com/en/global-country-selector/>

Select your country and then click on the Contact Us link at the bottom of the page.

SP66632,00043A7-19-14JUN23

Service Record

Record Service Dates

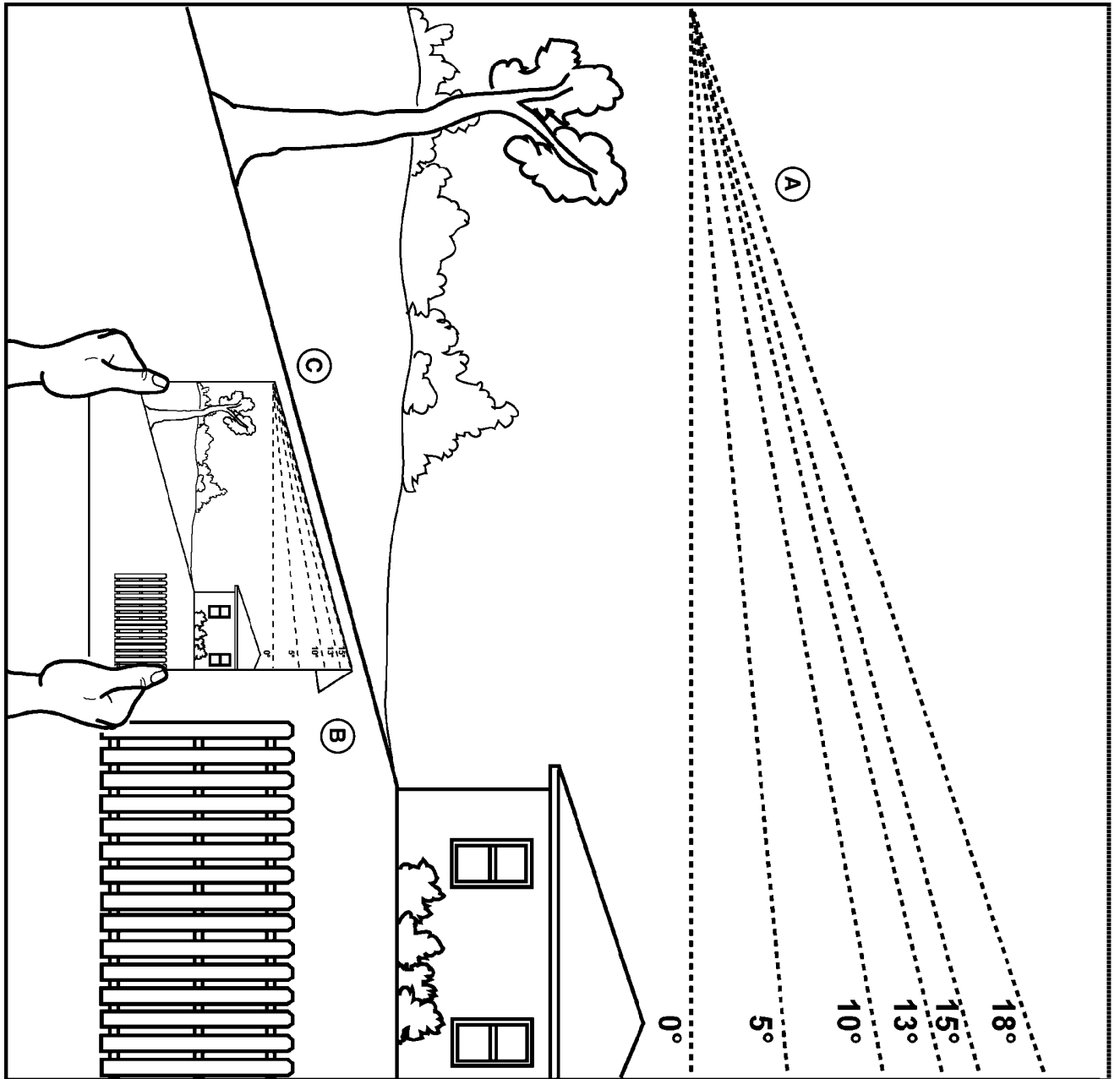
Oil Change	Oil Filter Change (If Equipped)	Lubricate Machine	Air Cleaner Element Check/Clean	Fuel Filter Change

OUO1082,00066CA-19-15MAY17

Slope Gauge

Slope Gauge Template

Hold up or copy this page and follow the directions below to use the Slope Gauge Template.



MXT013189—UN—22APR15

Use this slope gauge to determine if a slope is too steep for safe operation. Do not operate your machine on a slope greater than what is recommended in your operator's manual. See Operating on Slopes in the Safety section.

- Fold along the appropriate line (A) to match the recommended slope.
- Align this edge (B) with a vertical surface, a tree, building, fence pole, etc.
- Compare slope (C) with folded edge.

OUMX068,0000513-19-05JUL17

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