

**Residential ZTrak™ Z335E, Z345M,
Z345R
Serial Number 220001-**



JOHN DEERE

OPERATOR'S MANUAL

**Residential ZTrak™ Z335E, Z345M,
Z345R**

OMUC30707E ISSUE G1 (ENGLISH)

John Deere Power Products

**Export 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 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.

SB31882,00004A1-19-09JUL20

Machine Use

This machine is designed solely for use in customary lawn mowing operations. Use in any other way is considered as contrary to the intended use.

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

This machine should be operated, serviced, and repaired only by persons familiar with all its particular characteristics and acquainted

with the relevant safety rules (accident prevention). The accident prevention regulations, all other generally recognized regulations on safety and occupational medicine, and the road traffic regulations must be observed at all times.

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

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

OUO1023,0000025-19-05JUN17

Emissions Performance and Tampering

Operation and Maintenance

The engine, including the emissions control system, shall be operated, used, and maintained in accordance with the instructions provided in this manual to maintain the emissions performance of the engine within the requirements applicable to the engine's category/certification.

Tampering

No deliberate tampering with or misuse of the engine emissions control system shall take place; in particular with regard to deactivating or not maintaining an exhaust gas recirculation (EGR) or a DEF dosing system. Tampering with an engine's emissions control system will void the European Union (EU) type approval and applicable emissions-related warranties.

AK08008,00000A6-19-12JAN18

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.

TC00531,00000E9-19-03MAR21

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/>

Introduction

or call:

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

TH84124,0000199-19-05FEB20

Contents

Contents

Introduction	2
Product Identification	4
Safety Labels without Text.....	5
Safety.....	7
Machine Cleanout.....	10
Assembly.....	11
Operating Controls.....	13
Operating.....	13
Service Intervals	23
Service Lubrication	24
Service Engine.....	24
Service Transmission.....	29
Service Mower.....	31
Service Electrical.....	37
Service Miscellaneous.....	38
Troubleshooting	41
Storage.....	43
Specifications.....	44
John Deere Quality Statement	46
Service Record.....	47
Declaration of Conformity.....	48
Slope Gauge.....	51
Index.....	52

Product Identification

Record Identification Numbers

Zero Turn Mowers

PIN (220001-)

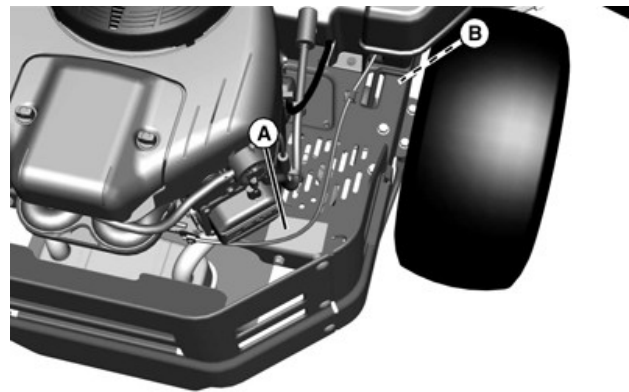
When you contact an Authorized Service Center for information on servicing, always provide the product model and identification numbers.

Locate the model and serial number for the machine, engine, and transmission/ transaxle of your machine and record the information in the spaces provided as follows.

DATE OF PURCHASE:

DEALER NAME:

DEALER PHONE:



MXAL42766—UN—09APR13

Product Identification Number (A):

Engine Serial Number:

On engine blower housing.

Transaxle Serial Numbers (B):

S/N tag on the forward side of each transaxle housing.

LEFT SIDE:

RIGHT SIDE:

SB31882,0000445-19-17MAY21

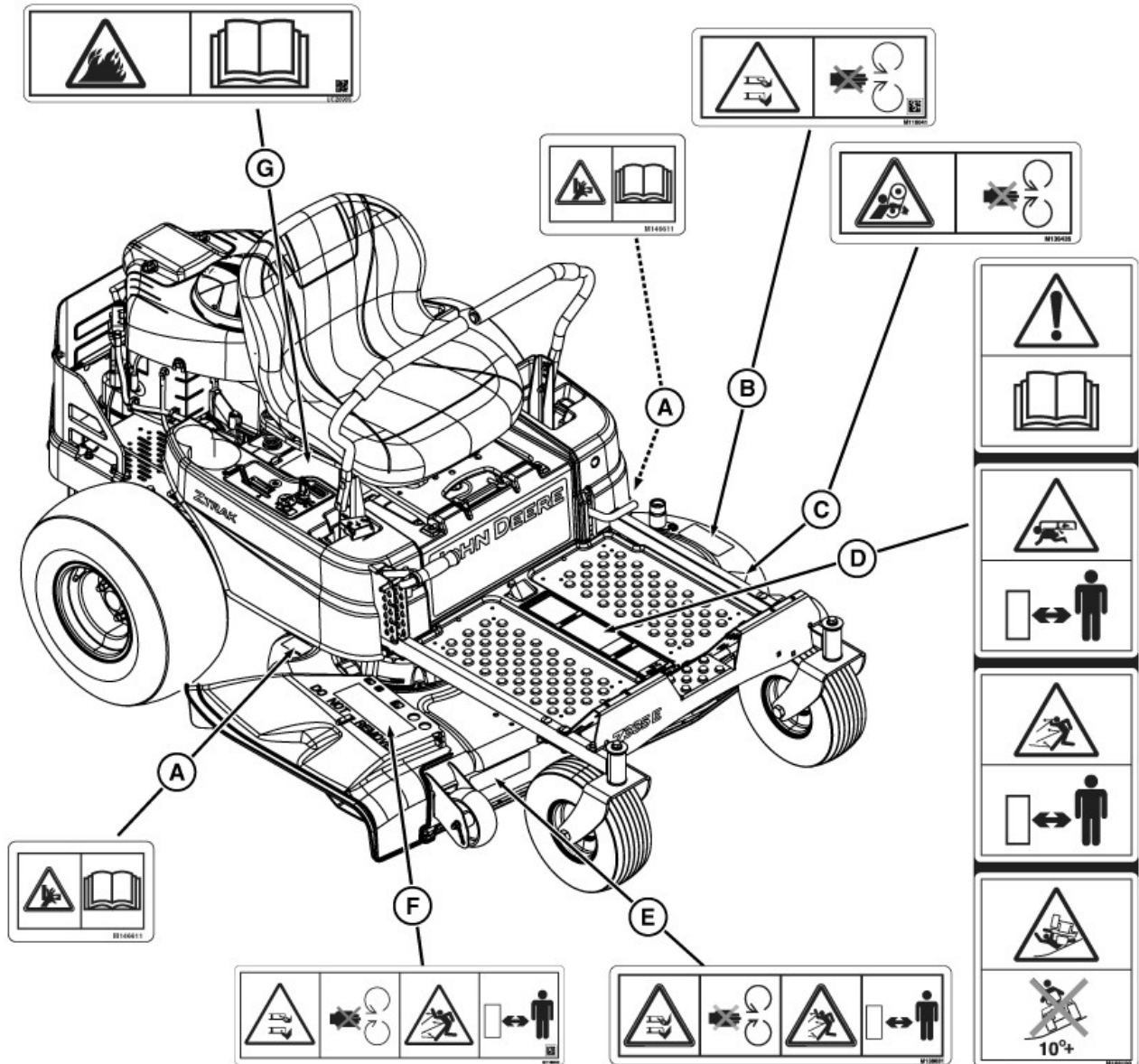
Original Instructions. All information, illustrations and specifications in this manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.

COPYRIGHT © 2021
DEERE & COMPANY
Moline, Illinois
All rights reserved.

Safety Labels without Text

Safety Labels without Text

Safety Label Location



Z335E, Z345M and Z345R

MX101336—UN—15JUN20

A—WARNING - M146611
 B—DANGER - M118041
 C—DANGER - M138631
 D—DANGER, WARNING, CAUTION - M172914

E—DANGER - M138631
 F—DANGER - M118040
 G—CAUTION - UC26989

SB31882,00003A7-19-15JUN20

Safety Labels without Text

Understanding the Machine Safety Labels without Text



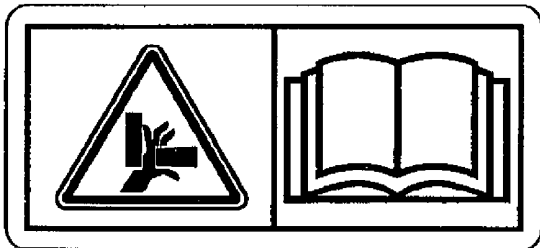
TCT005498—UN—11SEP12

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

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

MX00654,0000389-19-21JUN18

Avoid Injury from Loaded Spring

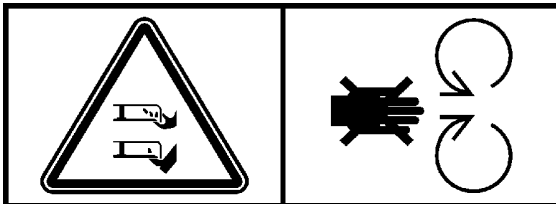


MXAL42777—UN—09APR13

- Keep fingers and hands away from pinch point.
- Read operator's manual.

MX00654,000038C-19-24APR19

Avoid Injury from Rotating Blades

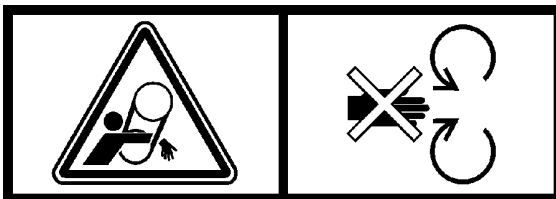


MXT018016—UN—03MAY16

- 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 Getting Caught in Belts



MXT018017—UN—03MAY16

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

MX00654,0000391-19-24APR19

Read Operator's Manual



MXT013479—UN—05MAR15

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

TH84124,0000173-19-12JUN15

Keep Children Away from Mower

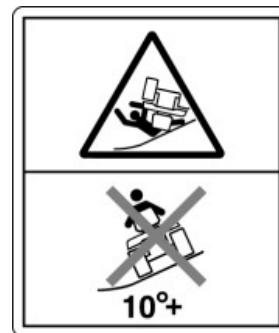


MXT013480—UN—05MAR15

- 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.

TH84124,0000174-19-12JUN15

Avoid Injury From Tipping



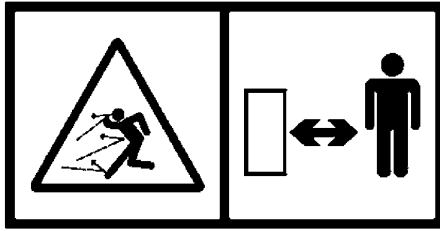
MXT013482—UN—31OCT16

- 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.

TH84124,0000176-19-12JUN15

Safety

Avoid Injury From Thrown Objects

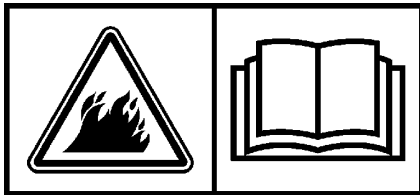


MXAL42780—UN—09APR13

- Keep a safe distance from the machine as long as the engine is running.

MX00654,000038F-19-24JUL13

Avoid Injury from Equipment Fires



MXTO18019—UN—04MAY16

- 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.

MX00654,0000390-19-30MAR20

Safety

Use Your Mower Safely

General Instructions

- Read this operator's manual 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

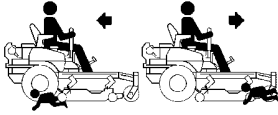
- Some attachments require ballast weights. Follow recommendations for wheel weights or counterweights.
- Use only accessories and attachments approved by John Deere.
- If you do not understand the instructions or have questions, contact your dealer.

SB31882,00004A0-19-10JUL20

Safety

Preventing Injuries

Protect Children



MXT005340—UN—06JUN13

- 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.

OUC02005,000078C-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 across slopes, not up and down.
- 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

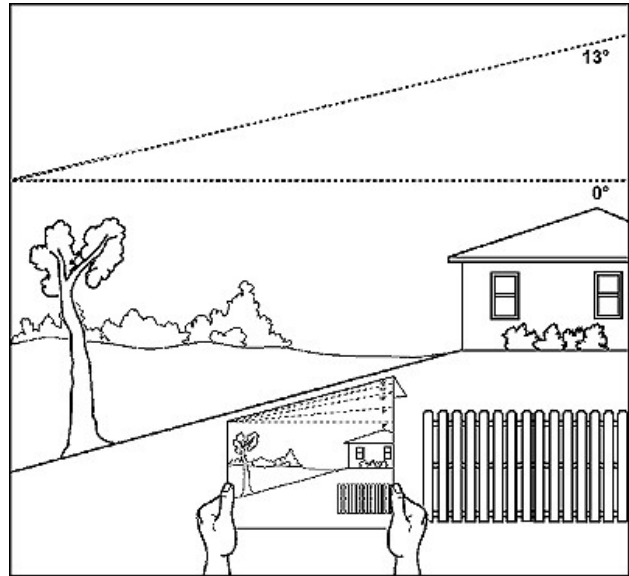
- Before using your machine, measure slopes of all mowing areas to determine which slopes are safe for mowing with a ride-on mower. Use good judgment and common sense when performing this survey.

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.

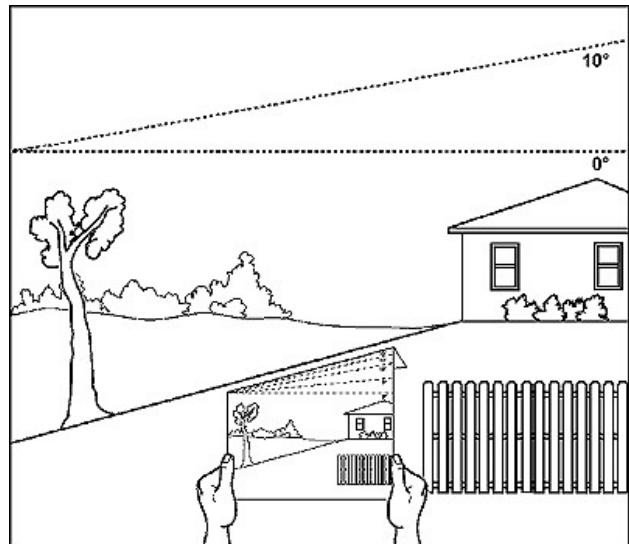
Slope Limits

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



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].)

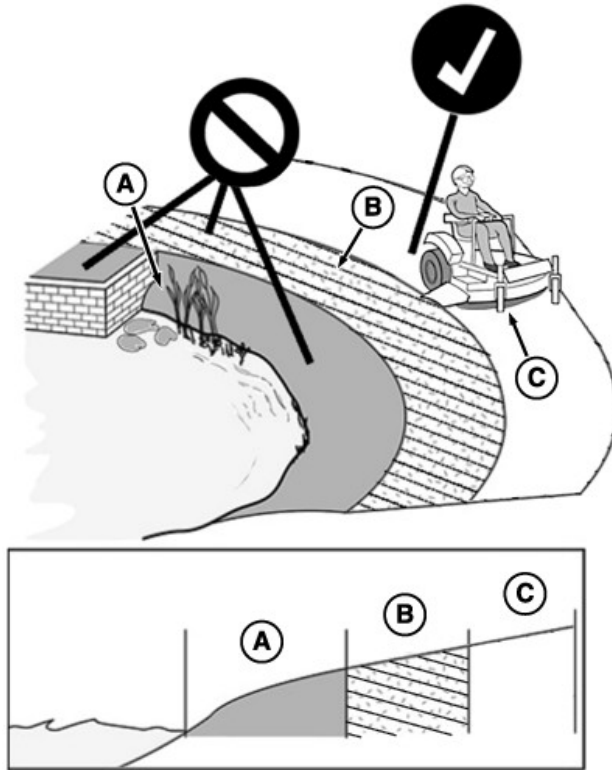


GX100111—UN—19FEB20

Safety

- 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



GX100105—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.

OUO2005.000078A-19-09MAR20

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.

OUO2005.0000787-19-15FEB20

Parking Safely

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

- Stop the machine on a level surface.
- Disengage mower blades or other attachments.
- Lower attachments to the ground.
- Apply the park brake.
- Stop the engine.
- Remove the key.
- Wait for engine and all moving parts to stop before you leave the seat.

OUO2005.0000788-19-15FEB20

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.

Machine Cleanout

- 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 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 fire! 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.

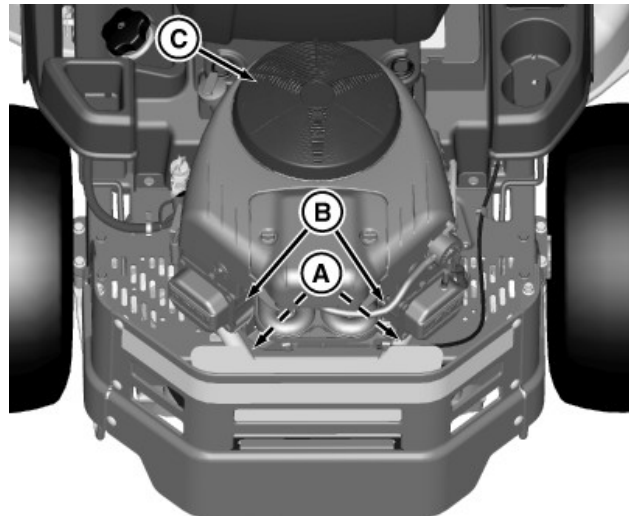
Always follow all safety procedures posted on the machine and in the Operator's Manual. Before carrying out any inspection or cleaning, always park machine safely. (See Parking Safely in the Safety Section).

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

OUMX068,0001043-19-20JUL20

Cleanout Areas

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



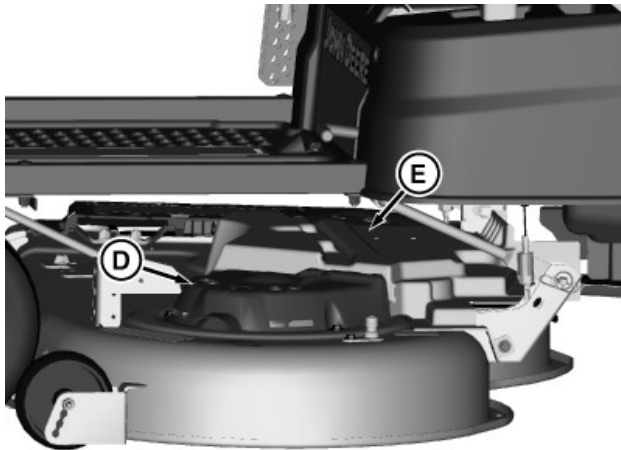
GXT002892—UN—29MAR16

1. Muffler components (A):

- Exhaust Manifold
- Muffler Pipes
- Muffler
- Muffler Shield

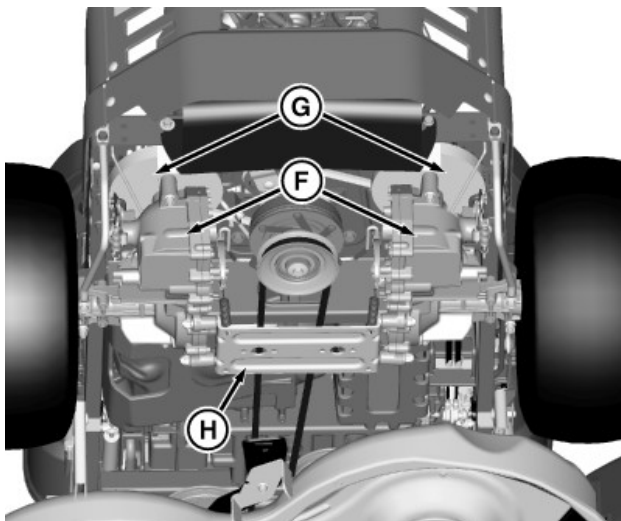
2. Engine cooling fins (B) and intake screens (C).

Assembly



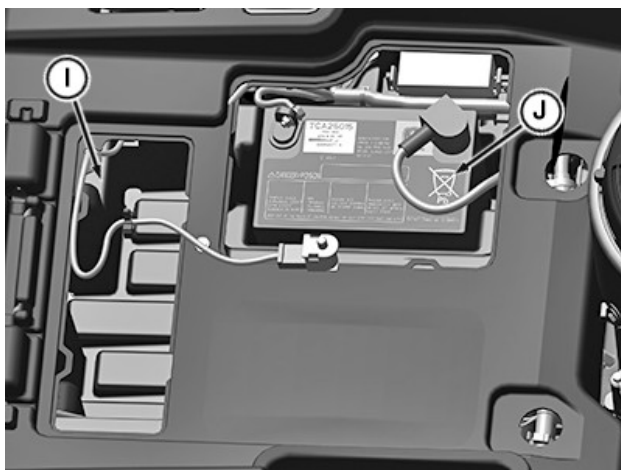
3. Top of the mower deck, under shields (D), including spindle and belt area (E).

GXT003033—UN—15JUL16



4. On or near transaxles (F), belt drives, and fins (G) and cross-strap bracket (H).

GXT002894—UN—25MAR16



5. Under the seat, including the storage compartment (I), battery (J), and wiring harness.

PY35593—UN—07JUN17

SB31882,00003A9-19-11MAY20

Assembly

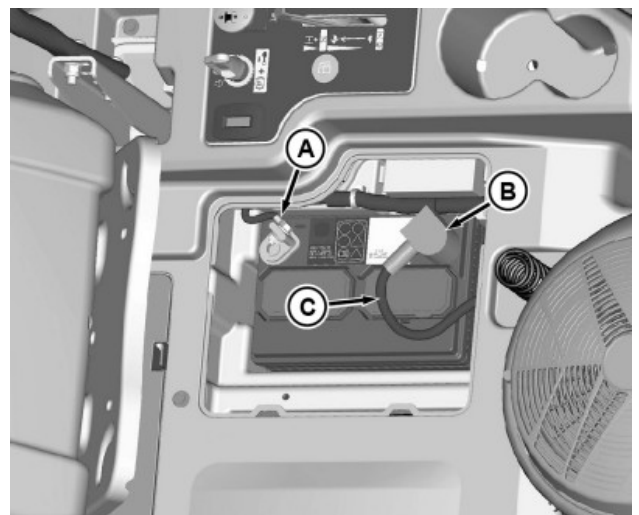
Charge and Connect Battery

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

- Do not smoke or have open flame near battery.
- Wear eye protection and gloves.
- Never check battery charge by placing a metal object across the posts. Use a voltmeter or hydrometer.
- Always route battery cables away from battery posts.
- Do not jump start or charge a frozen battery. Warm battery to specification.

Specification

Battery—Temperature. 16°C (60°F)



GXT002323—UN—06JUL15

1. Remove and discard the red positive (+) protective cap from the positive (+) battery terminal.
2. Charge the battery.
 - Battery is fully charged at 12.6 volts.
3. Connect positive (+) battery cable (A) to battery positive terminal (B).
4. Connect negative (–) battery cable to battery negative terminal (C).
5. Apply general purpose grease or silicone spray to terminal to help prevent corrosion.
6. Slide red cover over positive battery cable.

SB31882,000040E-19-15JUN20

Check Tire Pressure

Check tire pressure. (See Checking Tire Pressure in the SERVICE MISCELLANEOUS section.)

MP47322,00F4629-19-15MAR13

Adjust Mower Deck Level

Adjust mower deck level. (See Adjusting Mower Deck Level in the OPERATING section.)

MP47322,00F462A-19-31MAY13

Assembly

Check Engine Oil Level

Check engine oil level. (See Checking Engine Oil Level in the SERVICE ENGINE section.)

MP47322,00F462B-19-15MAR13

Check Machine Safety System

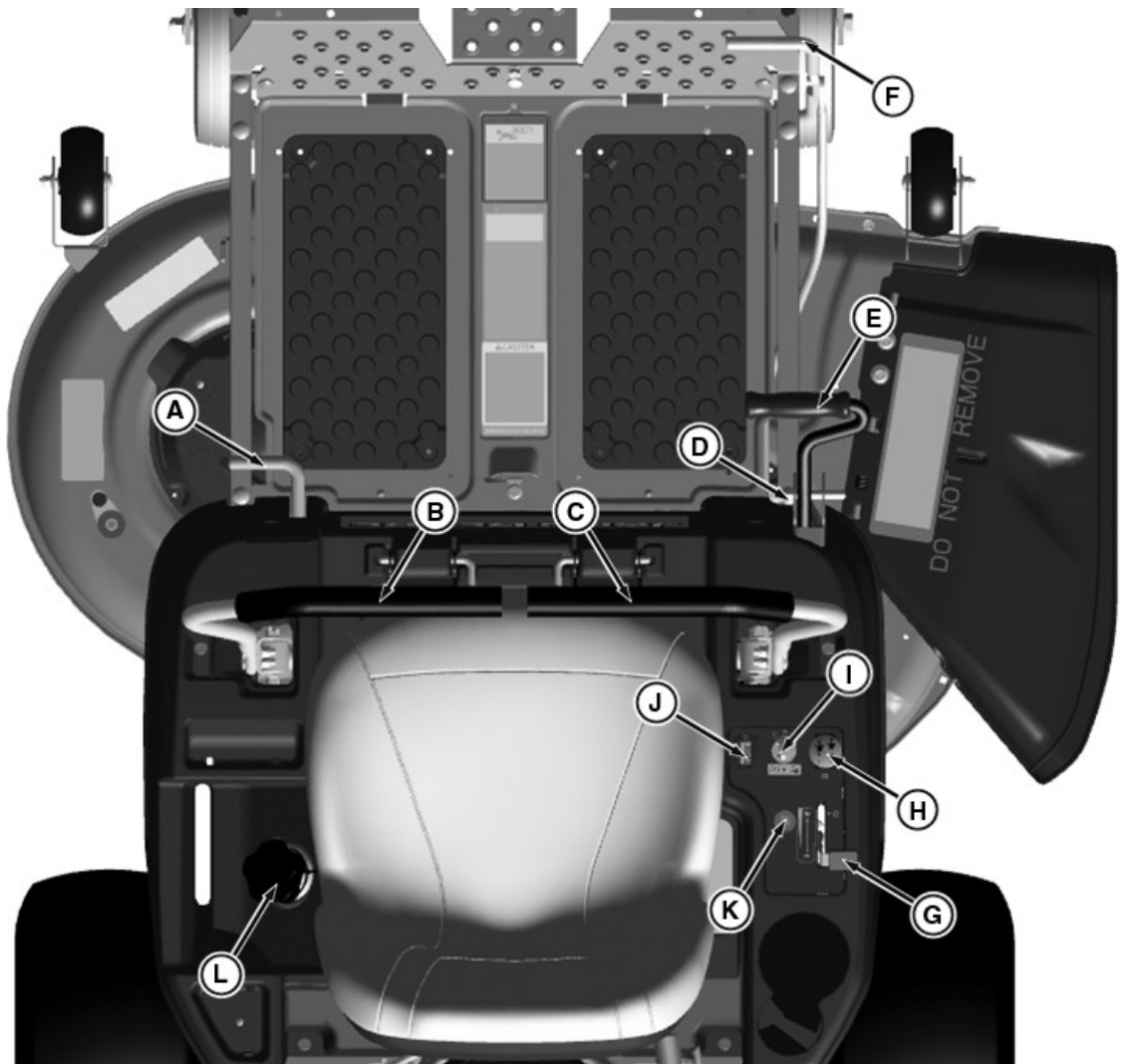
Perform safety system check to make sure the electronic safety interlock circuit is functioning properly. Perform all tests. (See Testing Safety System in the OPERATING section.)

MP47322,00F462C-19-15MAR13

Operating Controls

Operating Controls

Operator's Station Controls



A—Park Brake Lever
B—Left Motion Control Lever
C—Right Motion Control Lever
D—Deck Height Pin Tool
E—Mower Deck Lift Lever
F—Mower Deck Lift Pedal (if equipped)

G—Throttle Control Lever
H—Mower Engagement Switch
I—Ignition Key Switch
J—Hourmeter
K—Low Fuel Indicator Light
L—Fuel Tank Cap

APY0444—UN—24MAY18

MG39705,0000093-19-21MAY20

Operating

Daily Operating Checklist

- ☐ Check engine oil.
- ☐ Clean muffler area, air intake screens, and mower deck.
- ☐ Check brake system.
- ☐ Check fuel level.
- ☐ Check under the machine for leaks.
- ☐ Check safety interlock system.
- ☐ Check tire pressures.

- ☐ Check oil level in both transmissions.
- ☐ Check mulch control open/close operation (if equipped).
- ☐ Clean mower deck using the washout port after use.

SB31882,00003CD-19-21MAY20

Avoid Damage to Plastic and Painted Surfaces

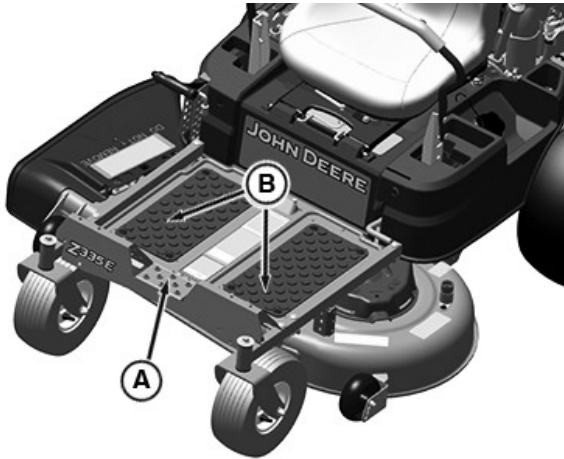
- Do not wipe plastic parts until they are rinsed first. Using a dry cloth causes scratches.
- Insect repellent spray damages plastic and painted surfaces. Do not spray insect repellent near machine.
- Be careful not to spill fuel on the machine. Fuel damages surfaces. Wipe up spilled fuel immediately.

Operating

- Prolonged exposure to sunlight damages some surfaces.

MP47322,00F4630-19-15APR19

Mounting and Dismounting Machine



APY04445—UN—24MAY18

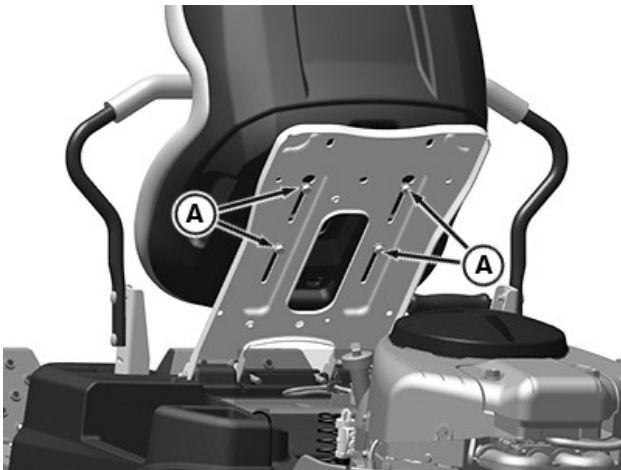
- Do not step on the mower deck when mounting and dismounting the machine.
- Mount the machine from the front using step (A) and/or the foot plate (B).
- Park machine safely before dismounting (see Parking Safely in the SAFETY section).
- Keep the foot plate clean.

MG39705,0000094-19-02MAY18

Adjusting Seat

Fixed Seat

1. Tip seat forward.



APY04446—UN—24MAY18

2. Loosen four seat bolts (A) with a 13 mm wrench or deck height pin tool.
3. Slide seat to desired position and tighten bolts to Specification.

Specification

Bolts—Torque. 12 N·m (9 lb·ft)

Adjustable Seat

1. Sit on operator seat.



APY04447—UN—24MAY18

2. Push and hold the seat adjustment lever (A) toward the middle of the seat.
3. Slide seat forward or backward to desired position
4. Release lever

MG39705,0000095-19-19JUN18

Adjusting Armrests



MX101419—UN—28APR20

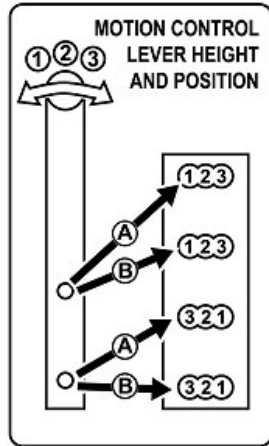
1. Raise each armrest (A).
2. Turn adjustment knob (B) clockwise to lower armrest and counterclockwise to raise armrest.

SB31882,0000410-19-12MAY20

Adjusting Motion Control Levers

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

Operating



GXT002159—UN—03JUN15

- To adjust motion control lever height, refer to the operator instruction label on the machine front panel and the instructions that follow.



APY04448—UN—24MAY18

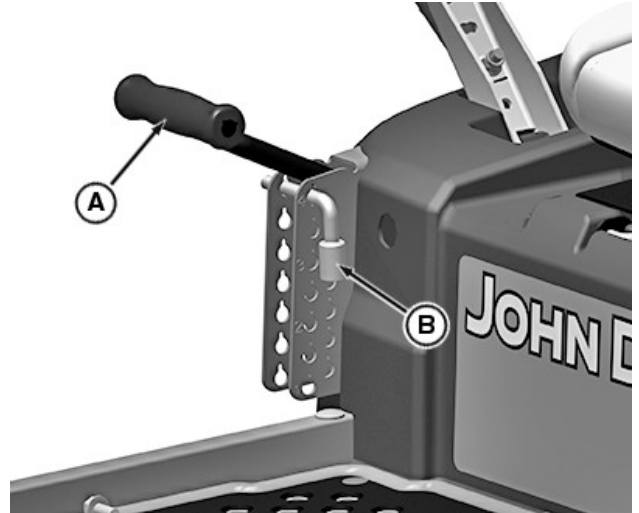
- Remove two bolts and nuts and raise or lower each control lever to your comfort level.
 - For highest lever position, use holes (A).
 - For lowest lever position, use holes (B).
- You can also adjust each motion control lever slightly forward or rearward (C) within slotted holes.

MG39705,0000097-19-02MAY18

Adjusting Cutting Height

Cutting height can be adjusted from approximately 25—100 mm (1—4 in). When mower deck is in raised transport position, cutting height is approximately 100 mm (4 in). Refer to the control lever label on the front platform.

- Park machine safely. (See Parking Safely in the Safety section.)
- Inflate tires to the correct pressure. (See Tires in the Specifications section.)



PY43353—UN—30MAY17

- Pull upward on the lift lever (A) and pull lever towards center of the machine to lock in raised position.
- Insert the pin tool (B) in the proper hole for the desired height of cut.
- Lower mower deck:
 - Lift slightly on the lift lever, push slightly outward, and lower lift lever (A) onto pin (B).

MG39705,00000D9-19-28MAY20

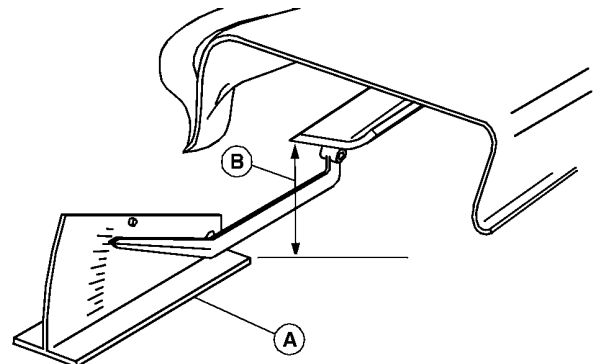
Adjusting Mower Level

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 should not contact the ground when leveling the deck.

- Park machine safely. (See Parking Safely in the Safety section.)
- Inflate tires to the correct pressure. (See Tires in the Specifications section.)
- Position caster wheels to the forward driving position.
- Set mower to preferred cutting height, and lower deck into the mowing position.
- Measure mower level (side-to-side).

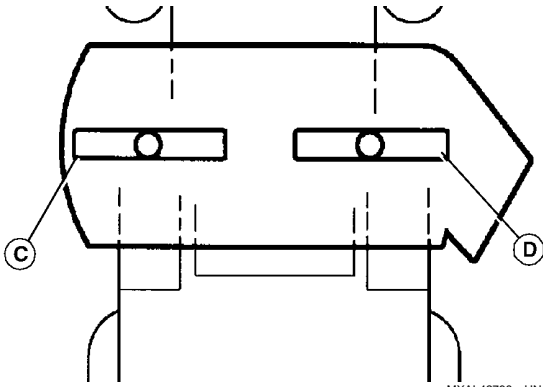


MXAL42797—UN—09APR13

A convenient leveling gauge (A) (AM130907) is available from your dealer.

Operating

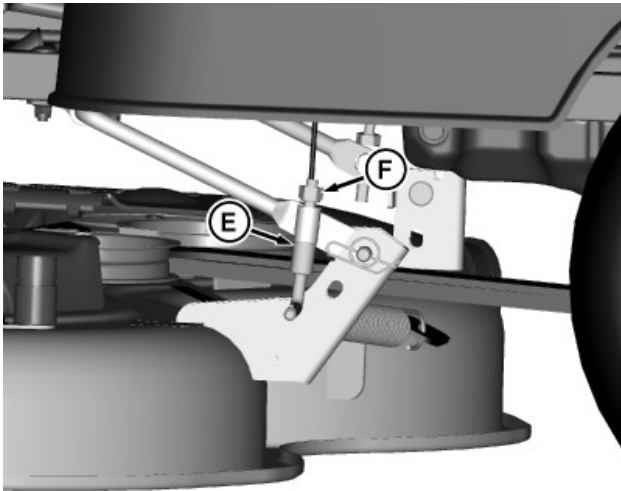
- a. Position mower blades as follows and measure from each outside blade tip (B) to the level surface.



MXAL42798—UN—09APR13

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

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

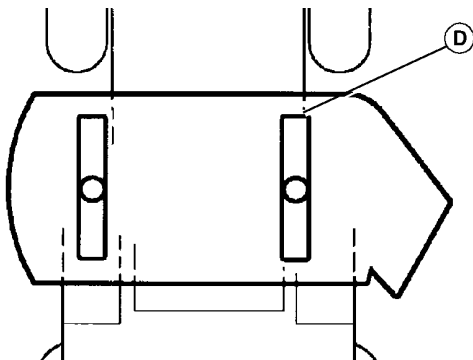


GXT003029—UN—29JUN16

- c. Adjust mower level, if necessary, by turning rear nuts using tool (E) clockwise to raise the side of the mower deck, or counterclockwise to lower the mower deck. Use a backup wrench to hold the upper portion of threaded rod (F) during adjustment.

NOTE: Ensure that bottom of the lock nut is fully engaged on the threaded fitting to avoid hardware loosening during operation.

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



MXAL42800—UN—09APR13

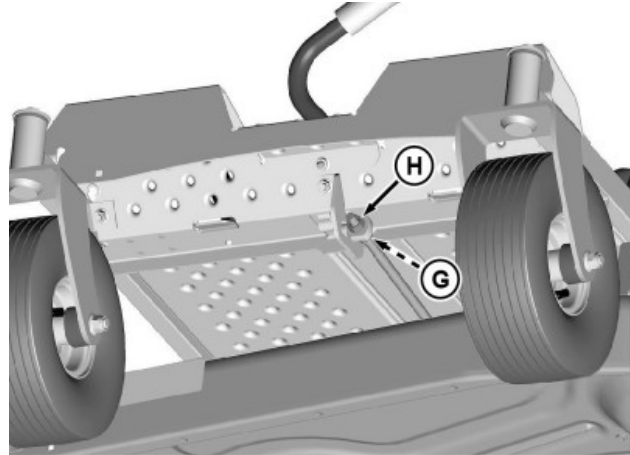
- a. Turn right blade (D) so a blade tip points straight forward.

- b. Measure from the blade tip to the surface. Take measurement for both blades. The front blade tips must be lower than the rear blade tips by the specification listed.

Specification

Front-to-Rear Blade Tip Variation—Height. 3—6 mm (1/8—1/4 in)

- c. **42A Mower Deck**



GXT001458—UN—02JUN15

Adjust the mower front-to-rear level by loosening rear nut (G) on the front lift rod. Turn front nut (H) clockwise to raise front of mower or counterclockwise to lower it. Tighten rear nut (G) after adjustment is complete.

NOTE: Verify that the deck latches in transport position. If it does not latch, turn both rear adjusting nuts counterclockwise equally to lower rear of deck until deck latch engages. Check front lift rod adjustment, adjust if necessary.

SB31882,000047B-19-10JUL20

Adjusting Mower Wheels



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.

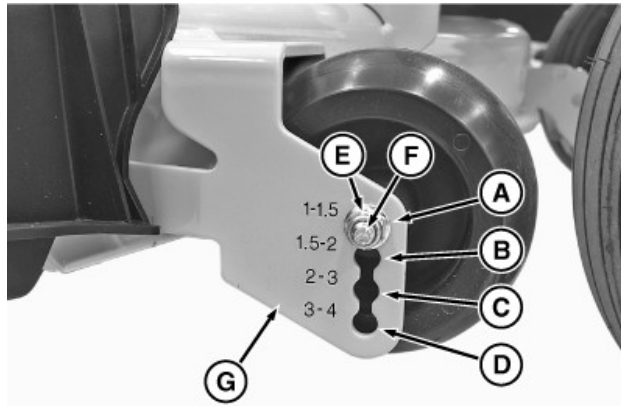
IMPORTANT: Avoid damage! The mower deck can be damaged if mower wheels are adjusted wrong:

- 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 lift lever, and lock in transport position.
4. Adjust mower wheels to correct height:

Operating

42A Mower Deck



MX101461—UN—01MAY20

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

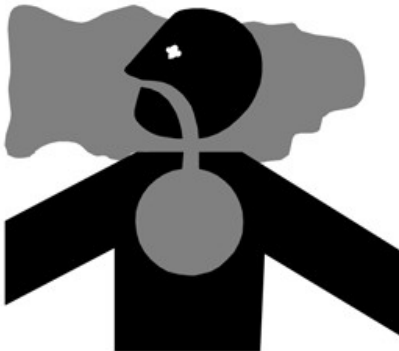
- Remove nut (E) using height-of-cut tool or 13 mm wrench. Pull carriage bolt (F) out until end of bolt clears the outer wall of the gauge wheel bracket (G), then slide bolt and wheel assembly to the desired position. Push bolt back through outer wall of bracket. Install nut (E) and tighten to specification.

Specification

Carriage Bolt—Torque. 24 N·m (18 lb·ft)

SB31882,00004A4-19-13JUL20

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 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.

MP47322,00F4637-19-25APR19

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. Engage bypass valve control.
4. Try to push machine manually.

Result: Park brake must prevent machine from moving. If machine moves, see your authorized dealer for service.

NOTE: When testing is complete, disengage bypass valve control prior to returning machine to service.

TH84124,0000115-19-19MAY14

Testing Mower Engagement (PTO) Switch

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

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

MP47322,00F463A-19-27MAR13

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.

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

Operating

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 Motion Control Lever Switch

- Park machine safely. (See Parking Safely in the SAFETY Section.)
- Sit on seat.
- First test:

- With the park brake locked, start engine.
- Move right motion control lever inward.

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

4. Second test:

- Start engine.
- Release park brake.
- Move right motion control lever inward.

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

- Repeat first and second test using left motion control lever.

MP47322,00F463C-19-19MAR13

Using Park Brake

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

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

Setting Park Brake

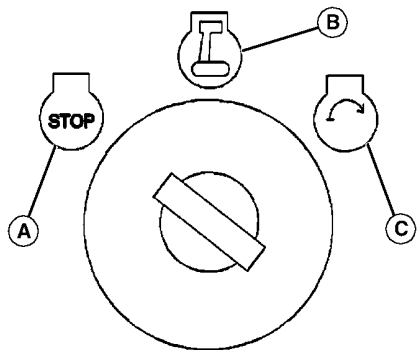
- Raise park brake lever to lock park brake.

Releasing Park Brake

- Lower park brake lever to unlock park brake.

TH84124,000024A-19-25JUL16

Using Key Switch



MXAL42805—UN—09APR13

A - STOP (off) position - With key in the STOP position, all switched power is off, and engine should not run.

B - Run (on) position - Turn key from STOP to this position, and all switched power circuits will be on.

C - Start position - Turn key to start position to crank the engine. Release key after engine has started and it will automatically return to the on position. The engine will continue to run.

TH84124,00000B8-19-21APR14

Using Low Fuel Indicator Light

If the Low Fuel Indicator Light should illuminate while the engine is running, additional fuel should be added to the machine at the next available opportunity (See Filling Fuel Tank in the SERVICE MISCELLANEOUS section).

TH84124,00000BC-19-21APR14

Using Mower Engagement Switch

- To Engage Mower - Pull mower engagement knob up.
- To Disengage Mower - Push mower engagement knob down.

MP47322,00F463F-19-15MAR13

Using the Hour Meter

- The hour meter shows the number of hours the engine has run. The hour meter does not accumulate hours with the engine off when the key is in the run position. Use the hour meter to determine when your machine has reached the recommended service intervals.
- Turn the key to STOP position when not using the machine.
- Hour meter cannot be reset.

MP47322,00F4640-19-05JUN15

Using the Motion Control Levers

CAUTION: Avoid injury! Learn use of the motion control levers and practice at half throttle until becoming proficient and comfortable with the operation of the machine.

Do not move motion control levers from forward to reverse or reverse to forward position rapidly. Sudden direction changes could cause loss of control or damage the machine.

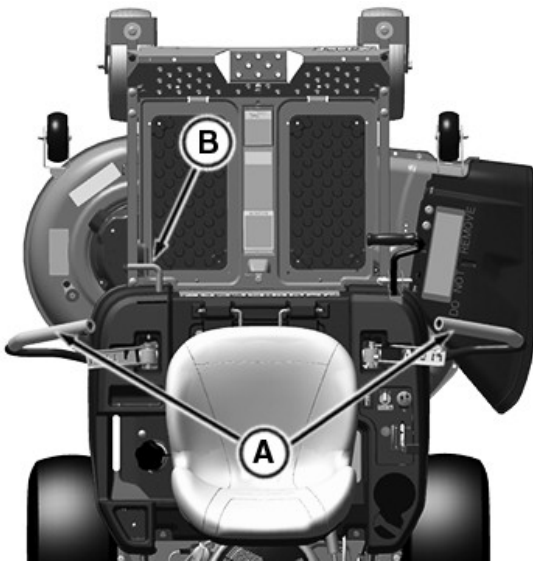
Before using the machine, become familiar with the motion control levers and how they respond. It is essential to know how the machine accelerates, steers and stops.

The functions of the motion control levers are:

- Dual function neutral position.
- Steering.
- Acceleration.
- Braking.

Operating

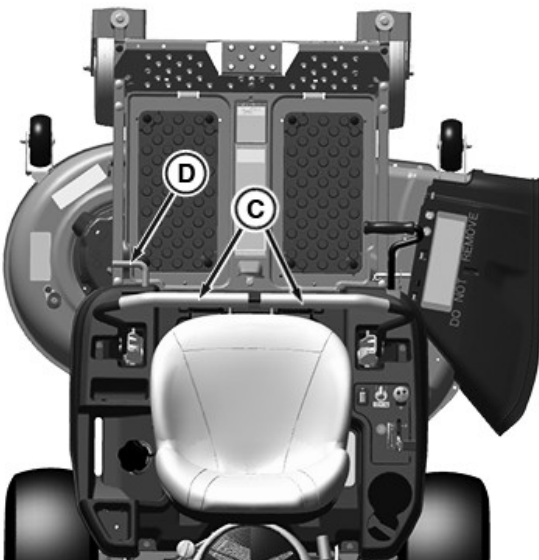
Start/shutdown Position



APY04449—UN—24MAY18

- Motion control levers must be in the start/shutdown position (A) and the park brake (B) locked to start the engine.
- Forward and reverse movement of the motion control levers is prevented when levers are moved to the start/shutdown position.
- Operator can exit mower with the engine running when the mower engagement switch is disengaged, the motion control levers are in the start/shutdown position and the park brake is locked.
- Motion control levers must be in the start/shutdown position to safely enter and exit the operator seat.

Neutral Position



APY04450—UN—24MAY18

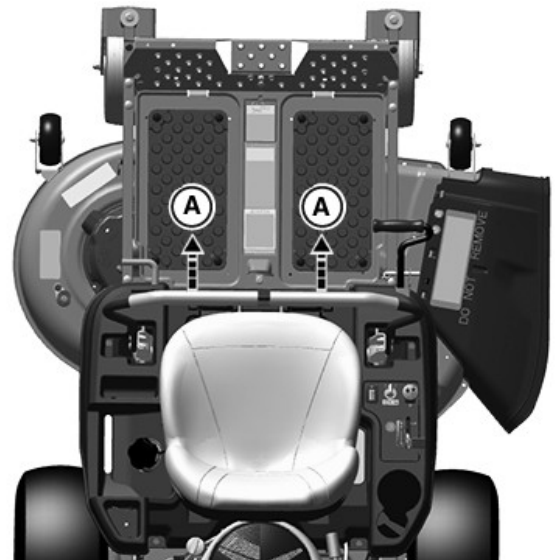
- Machine speed, motion, and direction can be controlled when the engine is running, motion control levers are in the neutral position (C), and the park brake (D) is unlocked.
- To stop the machine for an emergency, move the motion control levers quickly back to the neutral position.

Forward and Reverse Travel

Straight forward and reverse travel takes practice. If the machine does not track in a straight line when going forward or reverse, the motion control lever tracking may need adjusting.

1. Move throttle lever to the mow position.
2. Unlock park brake.
3. Move both motion control levers from the start/shutdown position inward to the neutral position.
4. Move the motion control levers forward to begin forward travel.
5. Move the motion control levers rearward to begin reverse travel.
6. To stop travel, move motion control levers back to the neutral position.

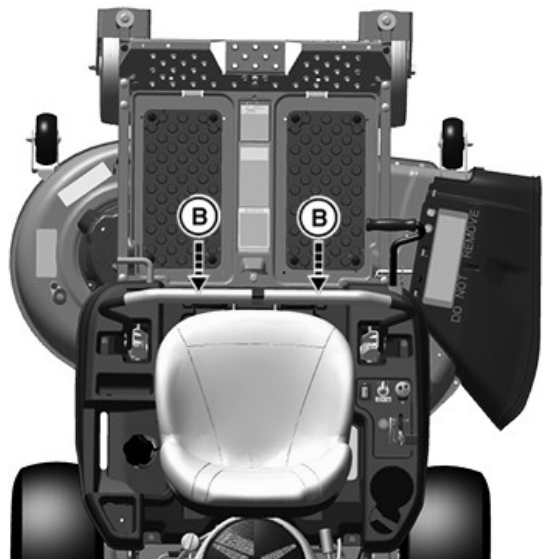
Forward Travel



APY04451—UN—24MAY18

1. Gradually move both motion control levers evenly forward (A) from neutral. To speed up, move the levers farther forward. To slow down smoothly, slowly move the levers toward neutral.

Reverse Travel

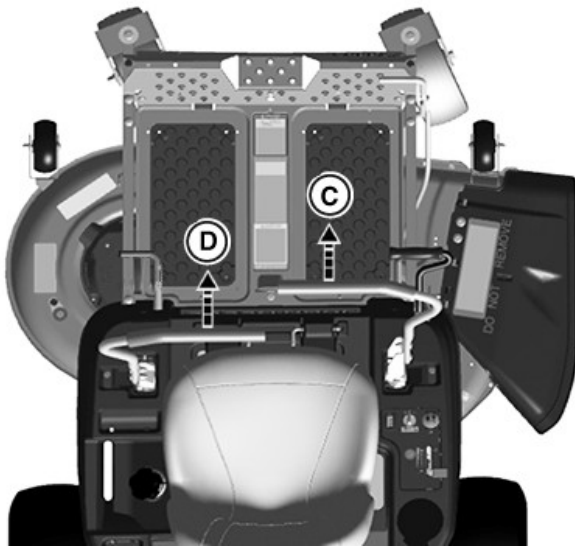


APY04452—UN—24MAY18

1. Look down and behind, then gradually move both motion control levers evenly rearward (B) from neutral. To speed up, move the levers farther rearward. To slow down smoothly, slowly move the levers toward neutral.

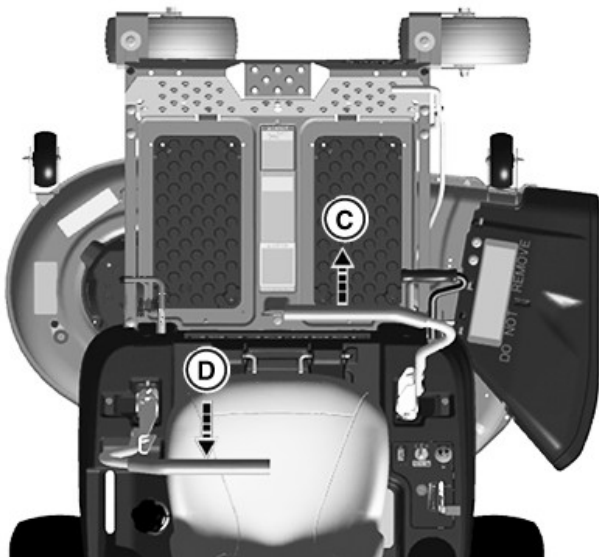
Operating

Left Turn



APY04453—UN—24MAY18

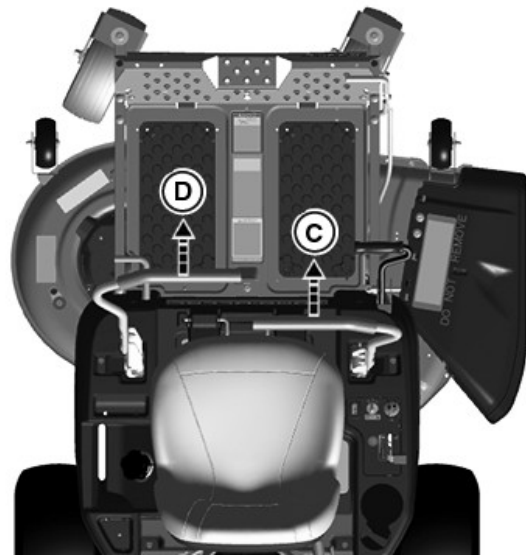
1. To turn slightly to the left, push right control lever (C) further forward than the left control lever (D).



APY04454—UN—24MAY18

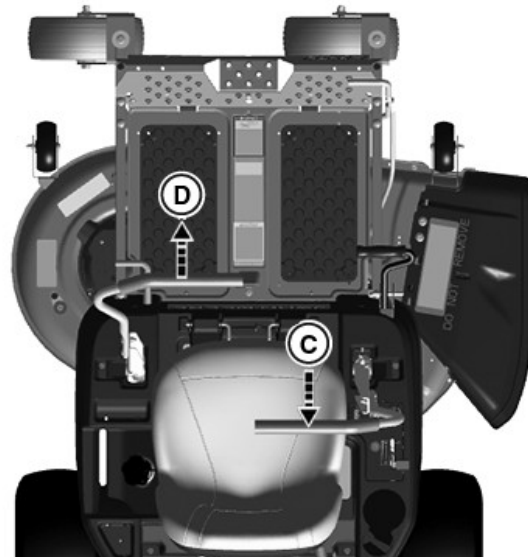
2. To turn sharply to the left, push right control lever (C) forward and pull left control lever (D) rearward at the same time.

Right Turn



APY04455—UN—24MAY18

1. To turn slightly to the right, push left control lever (D) further forward than the right control lever (C).



APY04456—UN—24MAY18

2. To turn sharply to the right, push left control lever (D) forward and pull right control lever (C) rearward at the same time.

MG39705,0000098-19-03MAY18

Starting the Engine



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

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

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

1. Sit on the operator seat.
2. Lock park brake.
3. Push the mower engagement knob down to disengage the mower.
4. Set both motion control levers to the start/shutdown position.
5. Set throttle lever to set engine speed:

Operating

- **Cold Start:** Set throttle control to the start position, full throttle. Use the choke control as necessary (if equipped).
- **Warm Start:** Set throttle control to the mow position, full throttle.

IMPORTANT: Avoid damage! Starter may be damaged if the starter is operated for more than 20 seconds at a time:

- **Wait two minutes before trying again if engine does not start.**
6. Turn key switch to the start position.
 7. After engine starts, release key switch to the run position, disengage the choke control (if equipped), and move throttle to the mow position, full throttle.

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

8. Allow the engine to warm up for 20 seconds.
9. Release park brake.
10. Set both motion control levers to the neutral position.

SB31882,00003CC-19-04SEP20

Engaging Mower

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

Keep hands and feet away from blades and discharge opening.

Do not mow in reverse unless necessary.

1. Adjust mower to desired cutting height.
2. Start engine.
3. Release park brake.
4. Move both motion control levers to the neutral position.
5. Set throttle lever to the START/MOW position, full throttle.

NOTE: For smoother engagement, deck can be engaged at transport position and then lowered to desired cut height.

6. Pull mower engagement switch up to engage mower.

NOTE: The travel speed and turn rate varies with the amount that the control levers are moved.

7. Push motion control levers forward slowly. Mow at a safe travel speed.

MX52301,0000F1A-19-16APR20

Unplugging Mower

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

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

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

1. Park machine safely. Wait for all moving parts to stop before you leave the operator's station to inspect machine.

2. Check under mower deck and discharge chute for debris.
3. Clear all debris before using mower.
4. If plugging occurs, switch to open mode to allow some grass to discharge.

OUO2004,0000AF8-19-29JAN21

Stopping the Engine

1. Stop machine on a level surface, not on a slope.
2. Push the mower engagement switch down to disengage mower.
3. Throttle position should remain in the Full throttle position to avoid backfiring at shutdown.
4. Lock park brake.
5. Set throttle lever to lowest position.
6. Allow the engine to cool down for 20 seconds.
7. Turn ignition key to STOP (off) position.

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.

8. Remove key.

MG39705,00001D0-19-21MAY20

Moving Machine by Hand

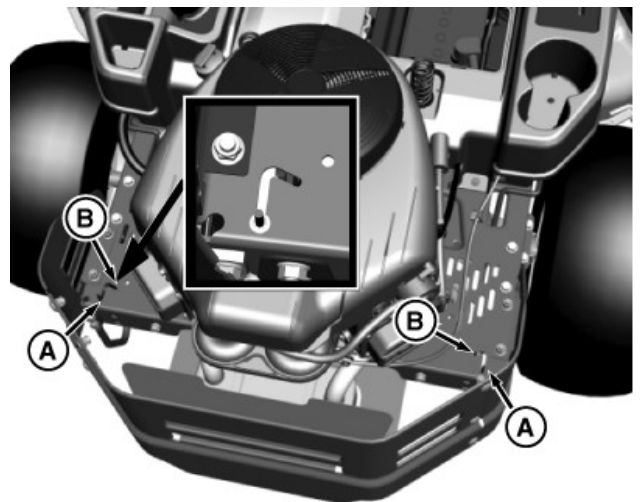
CAUTION: Avoid injury! When the bypass valve is open, the machine will have unrestricted motion.

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

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

- Move machine by hand only.
- Do not use another vehicle to move machine.
- Do not tow machine.

When moving the machine without starting the engine, always use the bypass valves:



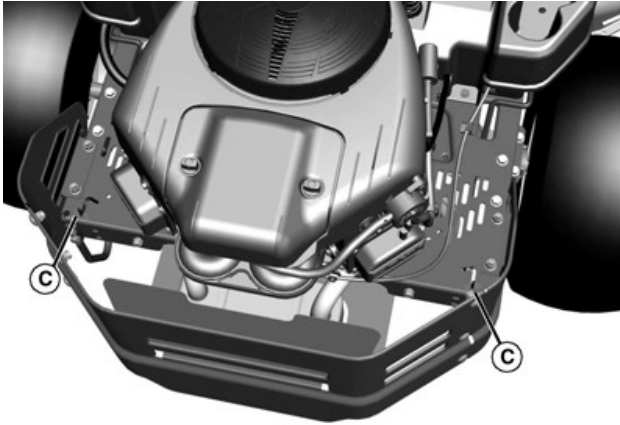
MXT005332—UN—13JUN13

1. Push bypass control rods (A) forward and into the detent slot (B) to engage bypass valve.

Operating

2. Release park brake.
3. Push machine to desired location and lock park brake.

NOTE: The bypass control rods should be disengaged before starting and operating the machine.



MXAL42815—UN—09APR13

4. Move both bypass control rods from their detent slot and push the rods back to the disengaged position (C).

MP47322,00F4645-19-06MAY20

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

Transporting Machine on Trailer

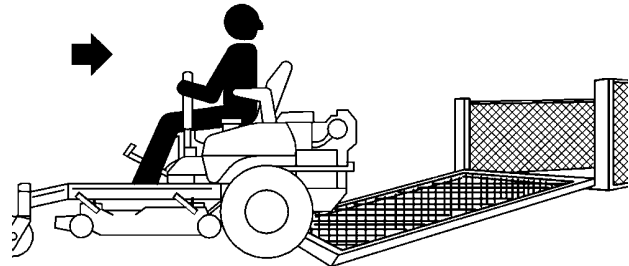
NOTE: Trailer capacity must exceed combined machine weight and attachment weight. (See Specifications section in operator's manual).

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

CAUTION: Avoid injury! Use extra care when loading or unloading the machine onto a trailer or truck. Machine wheels can go off the ramp or trailer, causing the machine to tip over.

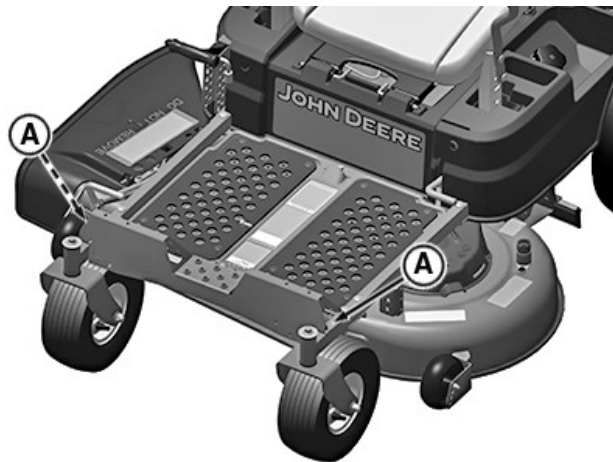
- To load, back slowly and in a straight line. Keep wheels away from drop-offs and edges.
- Do not use two separate loading ramps. Use a full width loading ramp at least 30 cm (12 in) wider than machine to keep caster wheels from going off the ramp edge.
- Use a trailer with sides.

1. Park trailer on level surface.
2. Raise mower deck before driving machine onto trailer.



MXAL42817—UN—09APR13

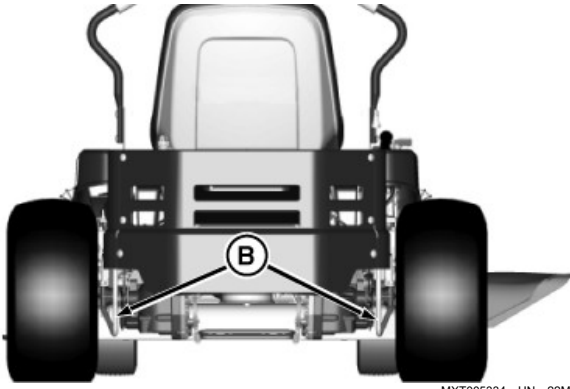
3. Back machine onto heavy-duty trailer with full-width ramp.
4. Lower mower deck completely.
5. Lock park brake.



PY43375—UN—02JUN17

6. Fasten front of machine at both sides of the frame at point (A) to trailer with heavy-duty straps, chains, or cables. Straps must be directed down, forward, and outward from machine.
7. Turn off machine and remove key.

Service Intervals



MXT005334—UN—22MAY13

8. Fasten rear of machine at both sides of frame at points (B) to trailer with heavy-duty straps, chains, or cables. Straps must be directed down, rearward, and outward from machine.

RM87422,000074C-19-21MAY20

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 the hopper cover is latched securely to the hopper frame.
- If the unit will be transported over long distances or at high speeds, remove the rear bagger or power flow chute before transport.

TH84124,000021B-19-18JUN15

Towing Loads

IMPORTANT: Avoid damage! Towing excessive trailer loads can stress drivetrain components. To avoid damage to drivetrain components, use the following guidelines.

- Do not exceed maximum towing capacity of 113.4 kg (250 lbs).
- Do not exceed maximum tongue weight of 45.4 kg (100 lbs).
- 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 Operating on Slopes in the Safety section for additional information.
- Avoid making tight turns. Make wide turns to avoid jack-knifing.
- Travel slowly and allow extra stopping distance.

SB31882,0000444-19-01JUN20

Mowing Tips

- Mow grass with throttle lever in the full fast / mow position.
- Mow grass when it is dry.
- Keep mower deck and discharge chute clean.
- Mow with sharp blades.
- Properly level mower deck for a smooth cut.
- Mow grass frequently.
- Use a travel speed that fits the conditions:
 - Mow tall or wet grass twice. With the first pass, cut grass halfway to desired height. With the second pass, cut to the desired height.
 - Travel slowly when mowing tall or thick grass.

- Avoid damaging grass by slipping or skidding machine drive wheels. Practice smooth control lever movements.
- When performing sharp turns, do not allow inside machine drive wheel to stop and twist on grass.

MG39705,00005BB-19-09JUN21

Blade Choices

Several types of blades are available for ZTrak mowers:

- Side discharge blades - These are general purpose blades installed from the factory that are best suited for side-discharge operation.
- Mulching blades - These blades are designed for optimal performance when used with the optional Mulch Control kit.
- Bagging blades- Refer to bagger operator's manual and utilize blades included in material collection kit.

SB31882,000047C-19-16JUN20

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
- Transmission fluid reservoirs

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

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

MG39705,000009B-19-03MAY18

Service Intervals

Every 8 Hours or Daily

- Clean muffler area.
- Clean air intake screens.
- Clean mower deck.
- Clean mower deck using washout port.

Service Lubrication

Every 50 Hours or Annually (Whichever Comes First)

- Change engine oil. (Service more frequently under dusty conditions.)
- Replace engine oil filter. (Service more frequently under dusty conditions.)
- Lubricate mower deck spindles.
- Lubricate mower idler arm. (All decks except 42A)
- Check mower deck level. Level if necessary.

Every 100 Hours or Annually (Whichever Comes First)

- Replace spark plugs.
- Replace air filter element(s). (Service more frequently under dusty conditions.)
- Replace fuel filter.
- Check mower belt. Replace if necessary.
- Sharpen / replace mower blades.
- Clean underside of deck.
- Check tire pressure.
- Clean engine cooling fins.
- If there is debris that cannot be blown out, remove blower housing for complete cleaning.

Every 200 Hours

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

SB31882,00003B7-19-28MAY20

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:

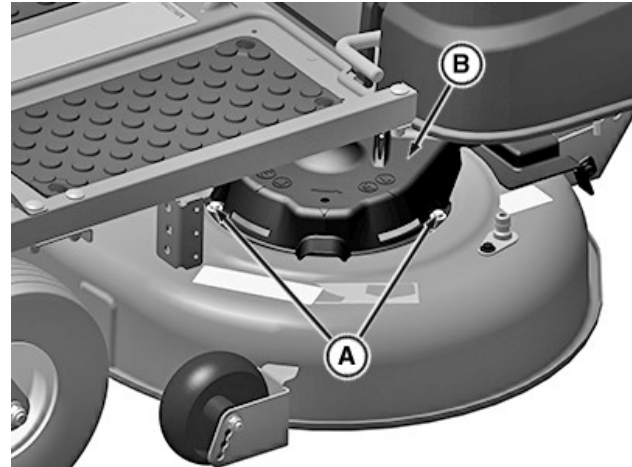
- John Deere Multi-Purpose HD Lithium Complex Grease
- Grease-Gard™ Premium Plus

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 Mower Deck Spindles

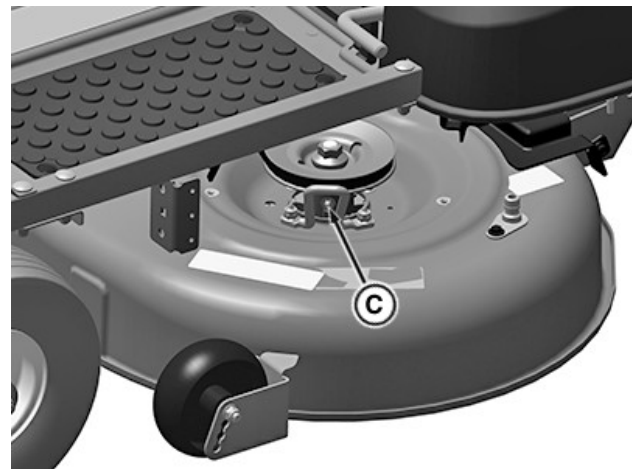
1. Park machine safely. (See Parking Safely in the SAFETY section.)
2. Lower mower deck fully.
3. Remove mower deck foot plate. (See Removing and Installing Mower Deck Foot Plate in the SERVICE MOWER Section.)



Remove Left Spindle Cover

PY44529—UN—19JUL17

4. Remove 2 screws (A) and left spindle cover (B).



PY44530—UN—19JUL17

5. Lubricate left spindle grease fitting (C) with two pumps of grease at specified interval.
6. Install left spindle cover with two screws.
7. Repeat steps to lubricate right mower deck spindle.

RM87422,000074E-19-26JUL17

Service Engine

Carbon Dioxide Emissions (CO₂)

To identify the carbon dioxide (CO₂) output, locate the engine emissions label. Find the appropriate family on the emissions label and refer to the engine manufacturer's website listed below.

<http://www.briggsandstratton.com>

<https://power.kohler.com/en/engines>

<https://www.kawasaki-engines.eu/en/support/>

<http://www.honda-engines-eu.com/co2>

This CO₂ measurement results from testing over a fixed test cycle under laboratory conditions a(n) (parent) engine representative of the engine type (engine family) and shall not imply or express any guarantee of the performance of a particular engine.

MK71445,000007A-19-13MAY19

Service Engine

Avoid Fumes



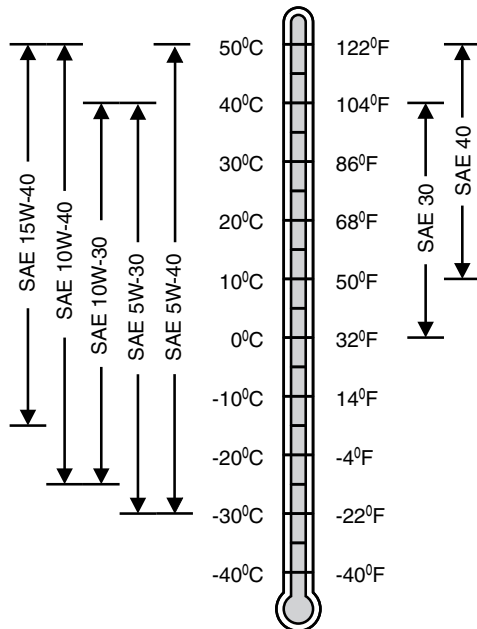
CAUTION: Avoid injury! Engine exhaust fumes contain carbon monoxide and can cause serious illness or death.

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



Oil Viscosities for Air Temperature Ranges

TS1744—UN—25AUG20

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
- 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

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

- ACEA Oil Sequence C1

DX,ENOIL2-19-15JUL20

Checking Engine Oil Level

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

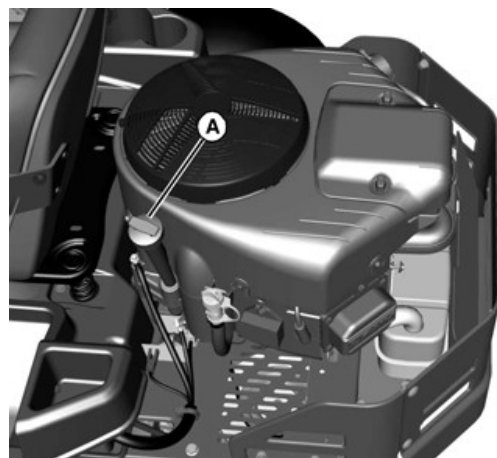
- Check oil level before operating.
- Check oil level when the engine is cold and not running.
- Keep oil level between the dipstick marks.
- Shut off engine before adding oil.

NOTE: Check oil twice a day if you run engine over 4 hours in a day.
Make sure that engine is cold when checking engine oil level.

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

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

2. Clean area around the dipstick to prevent debris from falling into crankcase.



MXAL42827—UN—09APR13

3. Remove dipstick (A). Wipe with clean cloth.
4. Install and tighten the dipstick.
5. Remove dipstick.
6. Check oil level on dipstick. Oil must be between ADD and FULL marks.
7. If oil level is low, add oil to bring oil level no higher than FULL mark on dipstick. Do not overfill.
8. Install and tighten the dipstick.

MP47322,00F4654-19-06MAY20

Changing Conventional Engine Oil and Filter

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

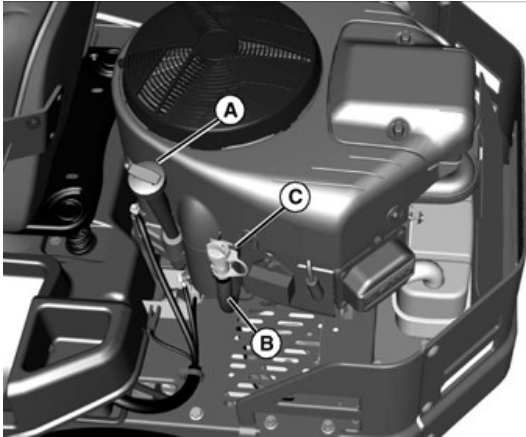
- Engine components may become dirty or plugged when operating in extreme heat, dust, or other severe conditions.
- Engine oil can degrade if machine is operated constantly at slow or low engine speeds or for frequent short periods of time.

1. Run engine to warm oil.

Service Engine

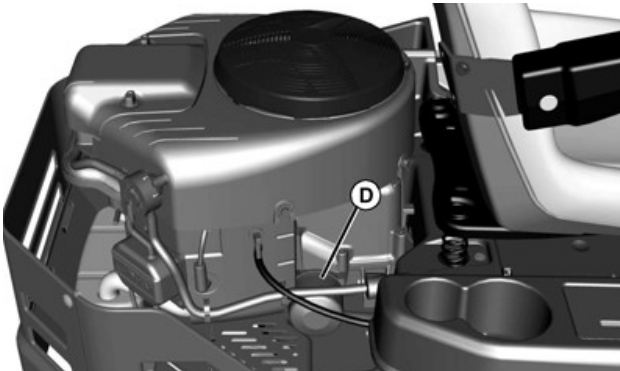
2. Park machine safely on the level surface. (See Parking Safely in the SAFETY section.)

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



MXAL42828—UN—09APR13

3. Clean area around dipstick (A) to prevent debris from falling into crankcase.
4. Loosen dipstick (A). Disconnect oil drain hose (B) from the side of the engine.
5. Remove the oil drain cap (C). Carefully lower the quick oil drain into an approved container until the oil has drained completely.



MXAL42829—UN—09APR13

6. Wipe dirt from around the oil filter (D). Place a drain pan under the oil filter, and remove filter.
7. Wipe up any dripped oil from the oil filter on the engine pan.
8. Put a light coat of fresh, clean oil on the new filter gasket.
9. 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.
10. After oil has drained, install the drain cap (C) and attach drain hose assembly (B) to side of engine.
11. Add oil no higher than FULL mark on dipstick. Begin with specification. Do not overfill.

Specification

Engine Oil—Capacity with filter. 1.9 L (2.0 qt) (approx.)

12. Tighten dipstick (A) .
13. Start and run engine at idle to check for leaks. Stop engine. Fix any leaks before operating.
14. Check oil level. Add oil if necessary.

15. Wipe up all surfaces of any oil drippings.

MG39705.0000207-19-22JUN20

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.

MP47322.00F4656-19-26MAY15

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 specification.

Specification

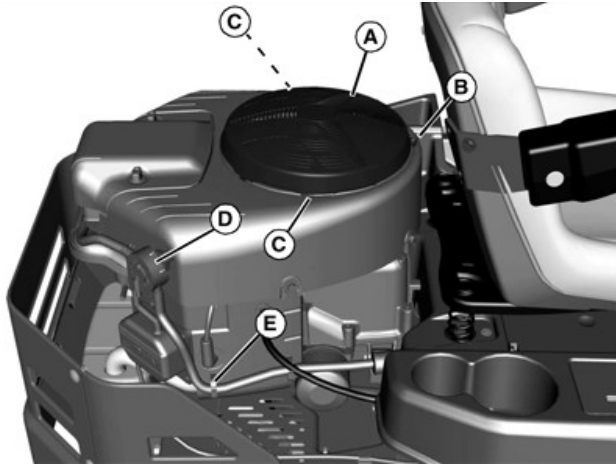
Air—Pressure. 210 kPa (30 psi)

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

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

1. Park machine safely. (See Parking Safely in the SAFETY Section.)
2. Clean air intake screen and external engine surfaces (see Cleaning Air Intake Screen and Engine Fins in ENGINE Section).

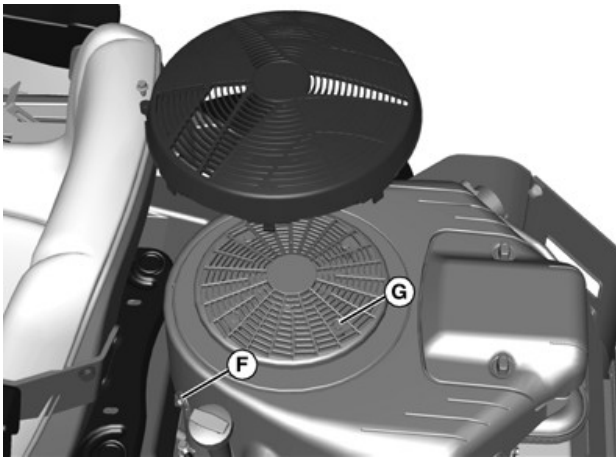
Service Engine



MXAL42830—UN—09APR13

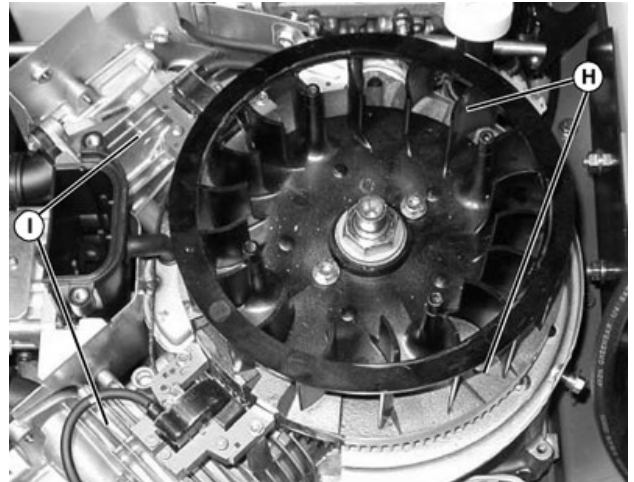
3. Locate rotating screen guard (A) at the top of engine.
4. Remove screw (B) (if equipped) press in tabs (C) and lift off guard (A).
5. Clean guard and flywheel cover of debris.

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.



MXAL42831—UN—09APR13

6. Remove five bolts (F) and engine shroud.
7. Remove four bolts (G) and rotating screen.



MXAL42832—UN—09APR13

8. Clean debris from:
 - Fan areas (H)
 - Cylinder head cooling fins (I)
 - Engine cooling fins
 - Area between engine and frame
9. Install rotating screen with four bolts.

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 will prevent the air filter from sealing and may cause engine damage.

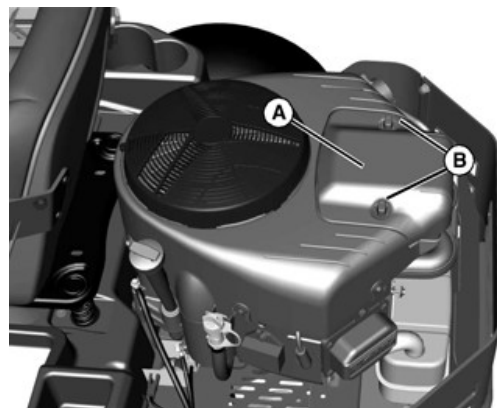
10. Install shroud with hardware.

MP47322,00F4657-19-06MAY20

Checking and Cleaning Air Cleaner Element

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

IMPORTANT: To prevent engine damage, do not allow any foreign objects to fall into the carburetor air intake.



MXAL42833—UN—09APR13

3. Clean dirt and debris from the air cleaner cover (A).
4. Loosen two knobs (B) and remove cover.

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

- Do not wash paper element.

Service Engine

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

NOTE: During filter cartridge removal, any material or foreign object that enters the air intake must be removed before replacement of the cartridge.



MXT010728—UN—21APR14

5. Lift out filter cartridge (C) and inspect it for damage.
6. Clean air cleaner housing carefully. Prevent any dirt from falling into carburetor.
7. Install cartridge. Make sure cartridge and seal are properly seated and sealing the carburetor air intake area.
8. Install air cleaner cover and tighten knobs. Do not overtighten.

TH84124,00000B2-19-18JUN15

Checking Spark Plug

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.

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



MXAL42835—UN—09APR13

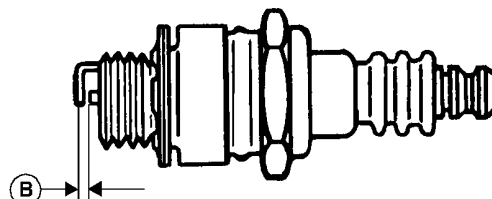
2. Disconnect spark plug wire (A) on each side of engine.
3. Remove each spark plug.
4. Clean spark plug carefully with a wire brush.

5. Inspect the spark plug for:

- Cracked porcelain.
- Pitted or damaged electrodes.
- Other wear or damage.

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

6. Replace the spark plugs as necessary.



MXAL42836—UN—09APR13

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

Specification

Electrode—Gap. 0.75 mm (0.030 in)

8. Install spark plugs and tighten to specification.

Specification

Spark Plug—Torque. 20 N·m (180 lb·in)

9. Connect the spark plug wires.

MP47322,00F4659-19-06MAY20

Adjusting Carburetor

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

If engine is operated at altitudes above 1006 m (3,300 ft), some carburetors may require a special high altitude main jet. See your authorized dealer.

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

Possible engine surging will occur at high throttle with transmission in “N” neutral and mower engagement lever disengaged. This is a normal condition due to the emission control system.

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

MP47322,00F465A-19-15MAR13

Replacing Fuel Filter

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

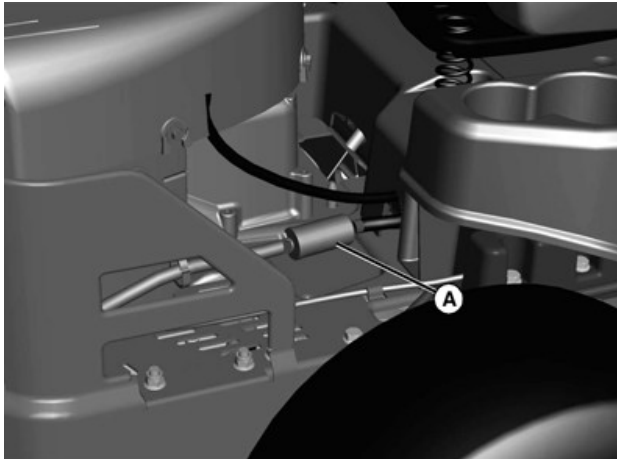
- Do not smoke while handling fuel.
- Keep fuel away from flames or sparks.
- Shut off engine before servicing.
- Cool engine before servicing.
- Work in a well-ventilated area.
- Clean up spilled fuel immediately.

NOTE: Change filter when fuel is low.

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

Service Transmission

2. Let engine cool.
3. Raise operator seat if necessary.
4. Put a drain pan under the fuel filter.



Standard twin cylinder shown.

MXAL42837—UN—09APR13

5. Slide hose clamps on both sides of the fuel filter (A) away from the fuel filter ends 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.

MP47322,00F465B-19-06MAY20

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

Checking and Adjusting Neutral Creep

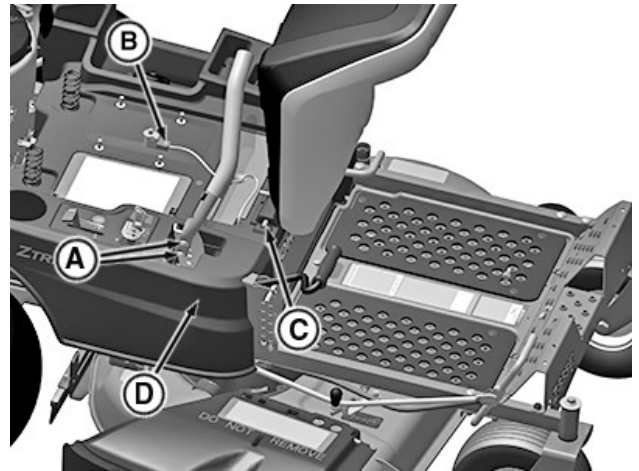
Checking Neutral Creep

Check neutral creep with engine running, motion control levers in the start/shutdown position, park brake off, and machine on level ground.

If the machine creeps forward or reverse while motion control levers are in the start/shutdown position, adjust the motion control lever linkages.

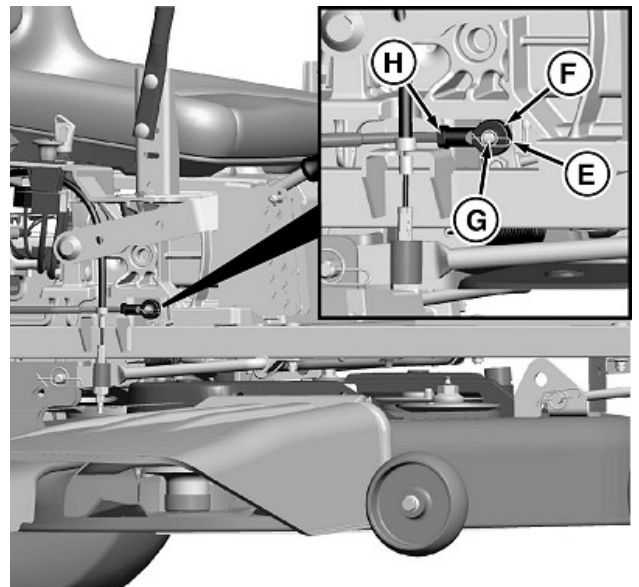
Adjusting Neutral Creep

1. Park machine safely. (See Parking Safely in the SAFETY section.)
2. Remove style panel for better access to adjustment components (if desired):



PY43377—UN—02JUN17

- a. Remove two bolts (A) to remove steering arm.
- b. Raise rear of seat and disconnect connector (B) from seat switch wiring harness connector.
- c. Remove two L-pins (C) to remove seat.
- d. Remove seven push retainers from style panel (D) and remove style panel.



GXT002322—UN—06JUL15

Right side of machine shown with machine parts removed for a more clear image.

3. On linkage side needing adjustment (right side shown), remove spring locking clip (E) and rod end (F) from pivot pin (G). Turn rod end (F) on rod (H) in (clockwise) to decrease forward creep and out (counterclockwise) to decrease reverse creep. Repeat procedure, as necessary, on opposite side. Install rod ends back onto arms and secure with spring locking clips.
4. Install style panel and push retainers, seat, seat switch and steering arm if previously removed.

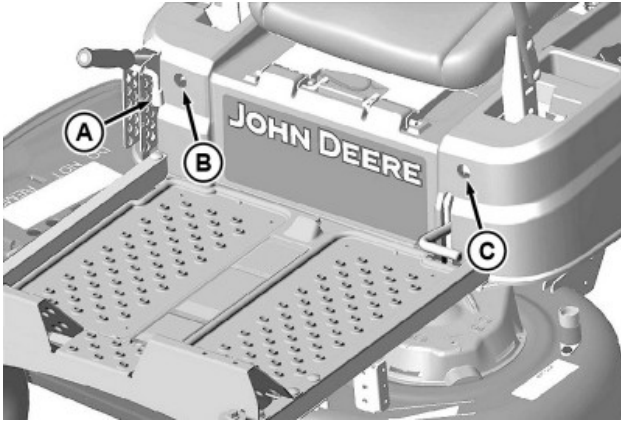
RM87422,000074F-19-02JUN17

Adjusting Tracking

If the machine does not track in a straight line while going in full forward position, the tracking requires adjustment.

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

Service Transmission



GXT001609—UN—02JUN15

- Adjust tracking with the 13 mm socket on the free end of the deck height pin tool (A) as follows:

NOTE: Tracking bolts limit top forward speed. If both levers hit against the tracking bolts, turn both bolts counterclockwise equal amounts until only one bolt contacts the lever. This will achieve maximum forward speed.

- If machine tracks to the left, turn tracking bolt (B) clockwise.
- If machine tracks to the right, turn tracking bolt (C) clockwise.

TH84124.00001AC-19-04JUL17

Cleaning Transaxle Cooling Fans

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

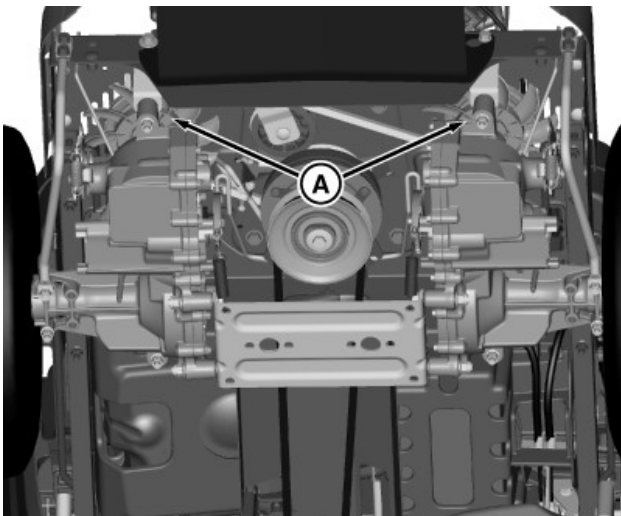
- Clear work area of bystanders.
- Wear eye protection when using compressed air for cleaning purposes.
- Reduce compressed air pressure to specification.

Specification

Air—Pressure..... 210 kPa (30 psi)

IMPORTANT: To ensure proper cooling, keep the transaxle cooling fins and surrounding area clean at all times. Operating the transaxle with obstructed cooling fins could cause damage due to overheating.

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



GXT003035—UN—18JUL16

- Clean transaxle fan fins (A) and around exterior of each fan with a rag, brush or compressed air.

MX52301.0000FDD-19-18JUL16

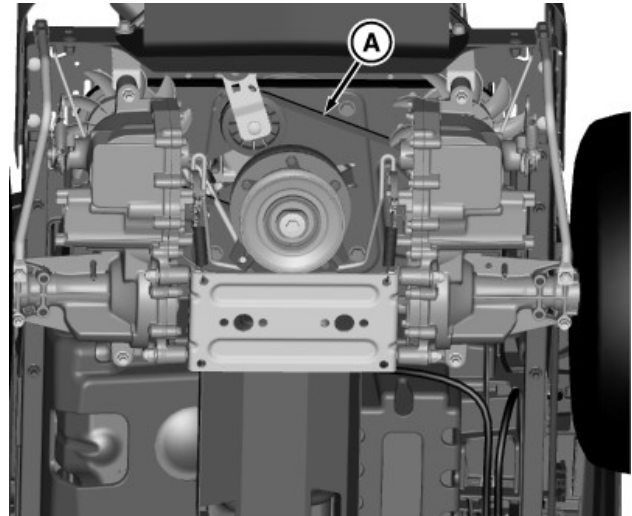
Checking and Replacing Transaxle/Transmission Drive Belt

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

NOTE: The transmission drive belts are self-adjusted using a spring tensioner and do not require a tension adjustment.

Checking Transaxle/Transmission Drive Belts

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

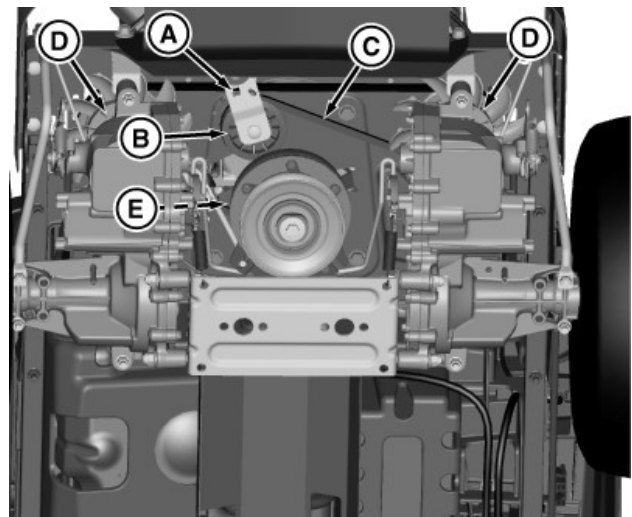


GXT003045—UN—20JUL16

- Inspect drive belt (A) for excessive wear, damage or stretching while in position on all machine sheaves.

Replacing Transaxle/Transmission Drive Belts

- Park machine safely. (See Parking Safely in the SAFETY section.)
- Remove shield over engine drive sheave.
- Remove mower deck.



GXT003038—UN—18JUL16

Components viewed from bottom.

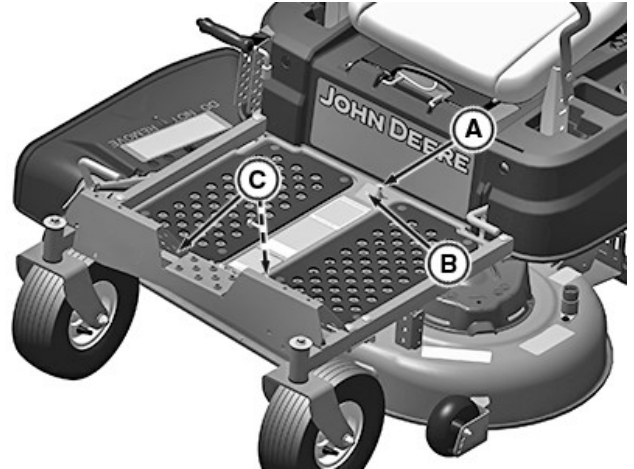
Service Mower

4. Disconnect electric clutch wiring connector from main wiring harness connector.

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

5. Insert a 3/8 in. ratchet or breaker bar into the square hole (A) on the idler arm, rotate the spring-loaded idler arm to relieve belt tension on the idler sheave (B) and remove the drive belt (C) from the idler sheave. Release the spring tension from the arm and remove the tool.
6. Remove the drive belt from both transaxle sheaves (D).
7. Remove the drive belt from the engine sheave (E).
8. Position replacement belt onto engine sheave (E), and both transaxle sheaves (D).
9. Rotate the spring-loaded idler arm (A) and install the belt on the idler sheave (B).
10. Connect electric clutch wiring harness connector (A) to main wiring harness.
11. Install mower deck.
12. Install shield over engine drive sheave.

MX52301,0000FDE-19-20JUL16



PY43364—UN—02JUN17

2. Remove bolt (A) with 13 mm socket on the deck height pin tool.
3. Rotate foot plate up using finger pull (B).
4. Remove foot plate.

Installing Foot Plate

1. Place tabs (C) of foot plate into slots in frame.
2. Lower foot plate.
3. Install bolt (A).

RM87422,0000743-19-04JUL17

Service Mower

Mower Deck Identification

Mower decks in the following instructions are identified by a code designation. The codes are as follows:

Code	Description
42A	42 InchAccel Deep™ Mower Deck

Accel Deep is a trademark of Deere & Company

TH84124,000022D-19-16SEP15

Removing and Installing Mower Deck Foot Plate

CAUTION: Avoid injury! Always operate the mower with the foot plate installed. Operating with the foot plate removed can cause serious injury.

Removing Foot Plate

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

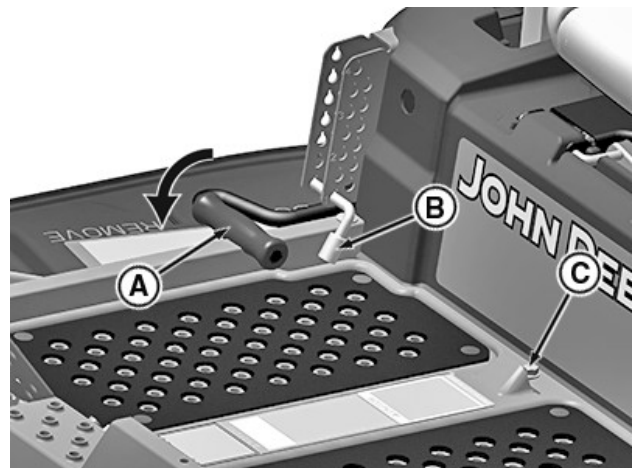
Removing Mower Deck (42A)

1. Park machine safely. (See Parking Safely in the SAFETY section.)
2. Allow engine and muffler to cool completely.

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.

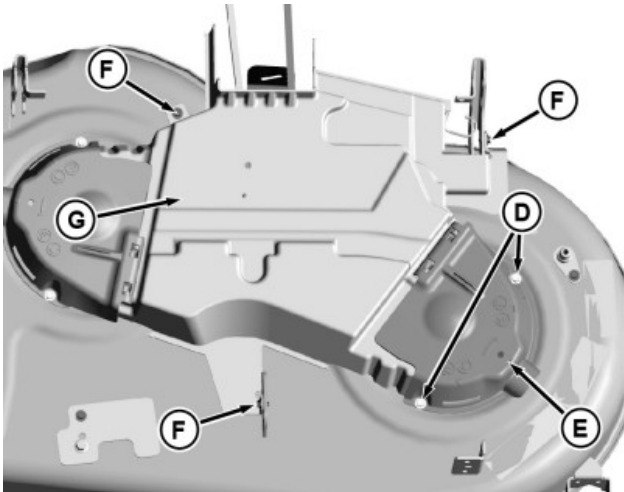
3. Raise mower deck to the transport lock position.



PY43365—UN—08JUN17

4. Remove deck height pin tool, lower handle (A) to its lowest position and install deck height pin tool (B) just above lever to lock deck in lowered position.
5. Remove bolt (C) and foot plate.

Service Mower

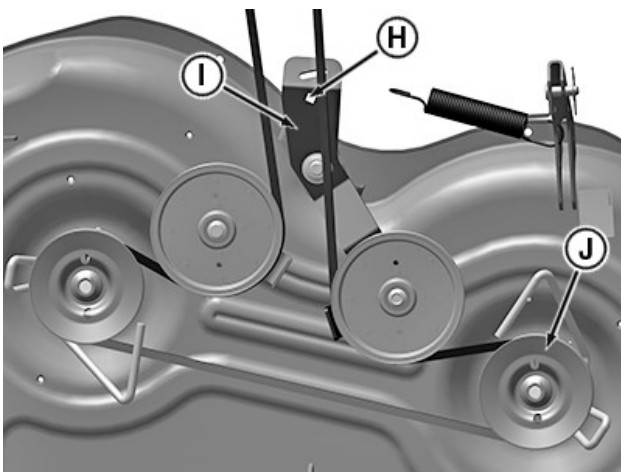


GXT002290—UN—17JUN15

Deck shown removed from machine for better view.

6. Remove 2 screws (D) and left spindle shield (E) from deck.
7. Remove 3 screws (F) and center shield (G) from deck.

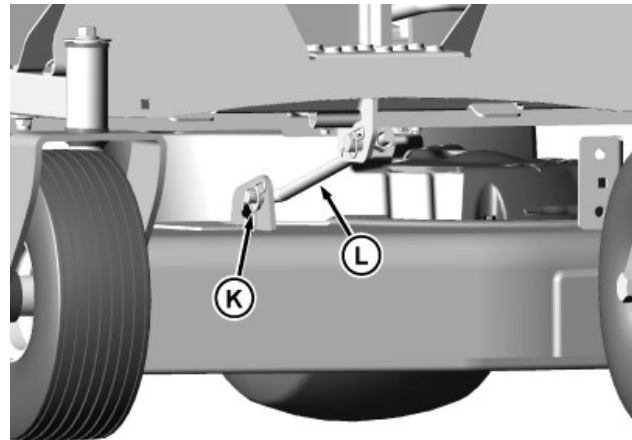
CAUTION: Avoid injury! Component is spring-assisted and under tension. Injury can occur if spring-assisted component is released suddenly.



PY43380—UN—31MAY17

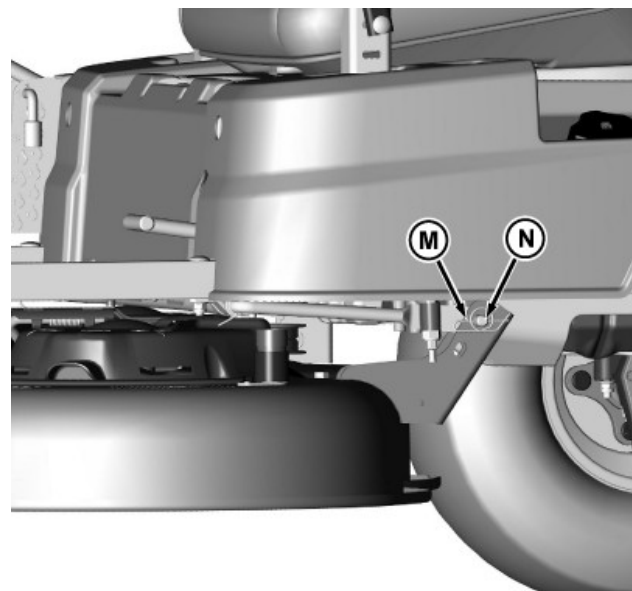
Deck shown removed from machine for better view.

8. Install a 3/8 in. ratchet with extension into **bottom** of square hole (H) in sheave tension arm (I). Rotate counterclockwise to release belt tension and remove belt from left spindle sheave (J).
9. Remove deck drive belt from engine sheave.



GXT003039—UN—18JUL16

10. Remove locking clip (K) and front draft bracket (L) from deck bracket.



GXT003040—UN—18JUL16

11. Remove spring clip (M) and pin (N) from each side of rear mower bracket.
12. Raise lift linkage to transport lock position:
 - a. Pull lock pin and raise mower lift lever fully upward.
 - b. Install lock pin just below lift lever to lock into raised position.
13. Slide mower deck and belt toward front of machine to clear machine center belt shield and slide deck to the side and out from under the machine.

IMPORTANT: Machine may tip over when driven without the mower deck attached. Move machine without mower deck attached only by hand. (See Moving Machine by Hand in OPERATING section.)

RM87422,0000756-19-05JUL17

Installing Mower Deck (42A)

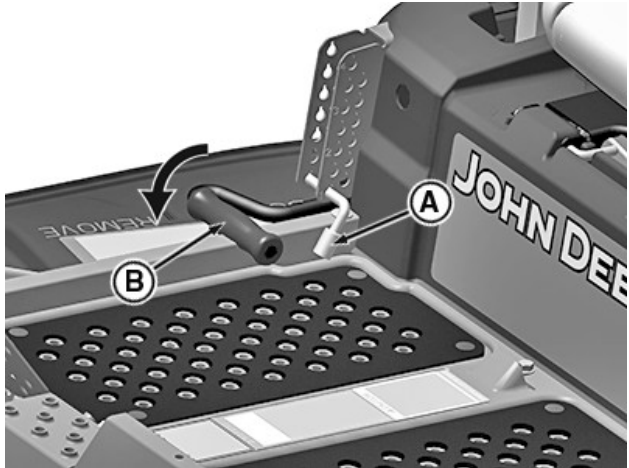
1. Park machine safely. (See Parking Safely in the SAFETY section.)
2. Allow engine and muffler to cool completely

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

Service Mower

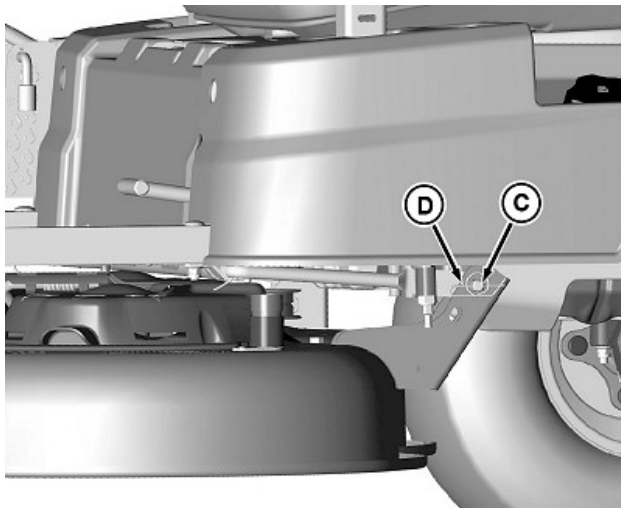
- Disconnect spark plug wire(s) or battery negative (-) cable to prevent engine from starting accidentally.
- Always wear gloves when handling mower blades or working near blades.

3. Remove deck height pin tool and raise mower lift lever fully upward. Install lock pin just below lever to lock lift mechanism in raised position.
4. Slide mower deck under machine, insert belt into machine center belt shield. Align deck with machine shield and roll rearward.



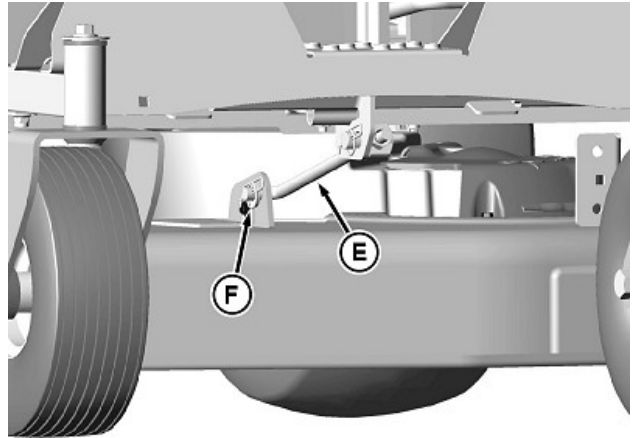
PY44504—UN—05JUL17

5. Remove deck height pin tool (A), push handle (B) to its lowest position and install height of cut pin tool just above lever to lock deck in lowered position.



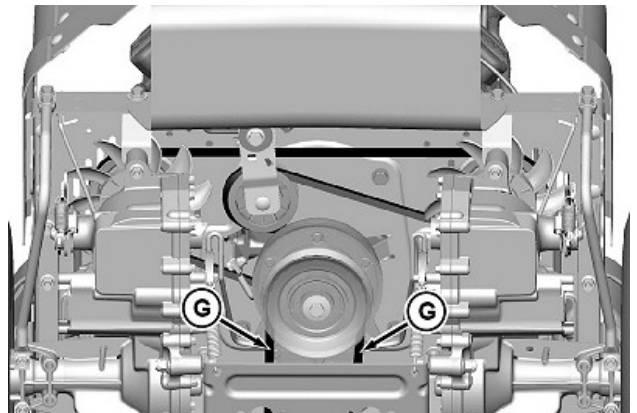
GXT002282—UN—16JUN15

6. Install pin (C) and spring clip (D) onto each rear mower bracket.



GXT002283—UN—16JUN15

7. Install front draft rod (E) into deck bracket and secure with washer and locking clip (F).



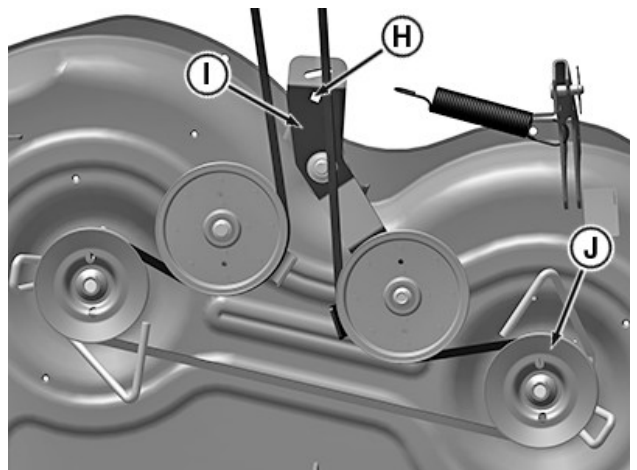
GXT002284—UN—16JUN15

8. Install deck belt (G) onto engine drive sheave.

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

9. Make sure belt is completely seated on the three right deck sheaves.

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

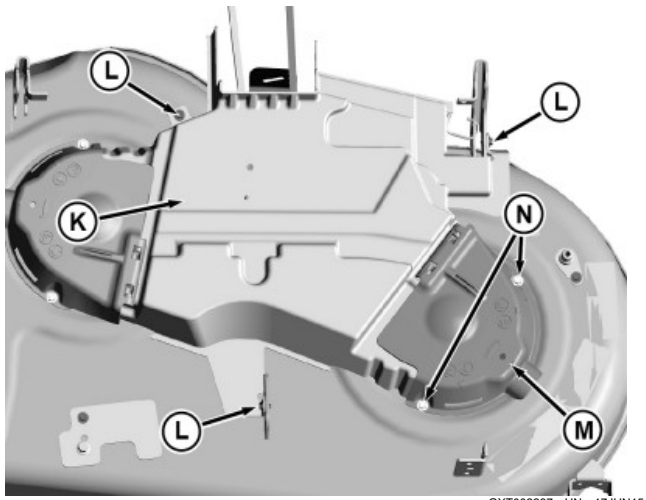


PY43380—UN—31MAY17

Deck shown removed from machine for better view.

Service Mower

10. Install a 3/8 in. ratchet with extension into **bottom** of square hole (H) in sheave tension arm (I). Rotate arm counterclockwise and install belt on left spindle sheave (J).



Deck shown removed from machine for better view.

11. Install center deck shield (K) with 3 screws (L).
12. Install left spindle shield (M) with 2 screws (N).
13. Install foot plate and secure with original hardware.

RM87422,0000757-19-05JUL17

Replacing Mower Drive Belt (42A)

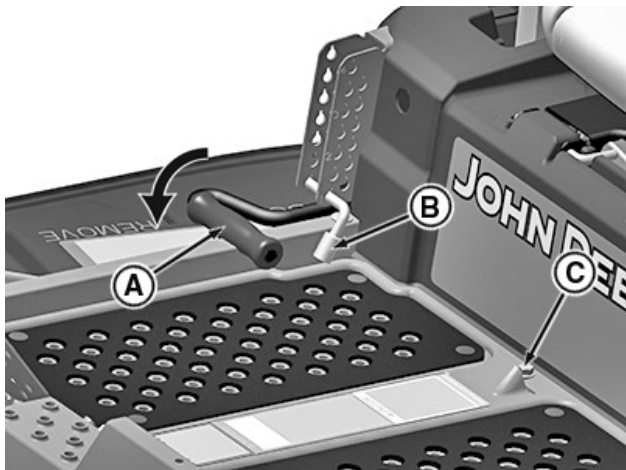
Remove Mower Drive Belt

1. Park machine safely. (See Parking Safely in the SAFETY section.)
2. Allow engine and muffler to cool completely.

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

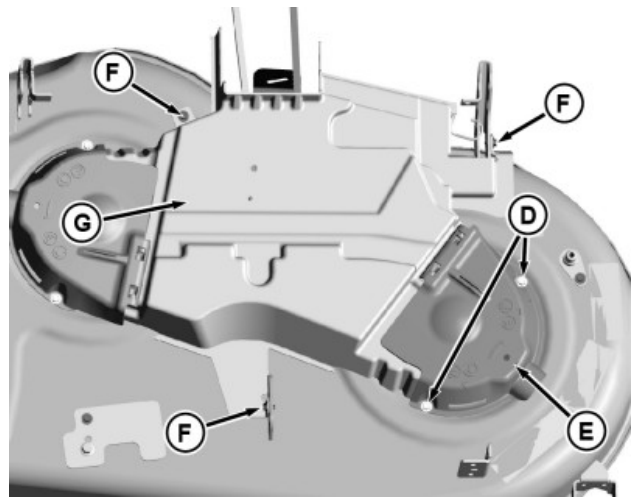
- Disconnect spark plug wire(s) or battery negative (-) cable to prevent engine from starting accidentally.
- Always wear gloves when handling mower blades or working near blades.

3. Raise mower deck to the transport lock position.



4. Remove deck height pin tool, lower handle (A) to its lowest position and install deck height pin tool (B) just above lever to lock deck in lowered position.

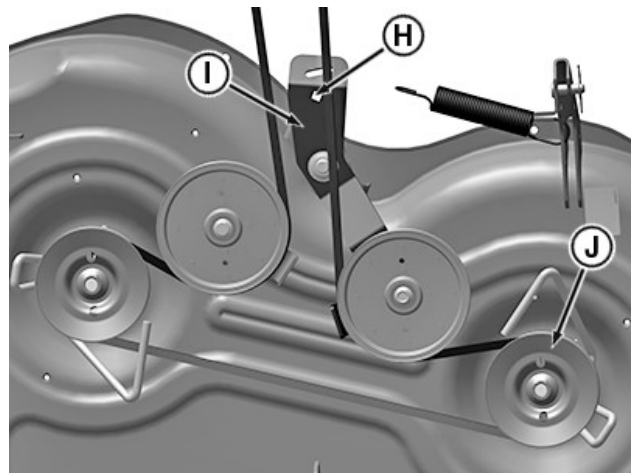
5. Remove bolt (C) and foot plate.



Deck shown removed from machine for better view.

6. Remove 2 screws (D) and left spindle shield (E) from deck.
7. Remove 3 screws (F) and center shield (G) from deck.

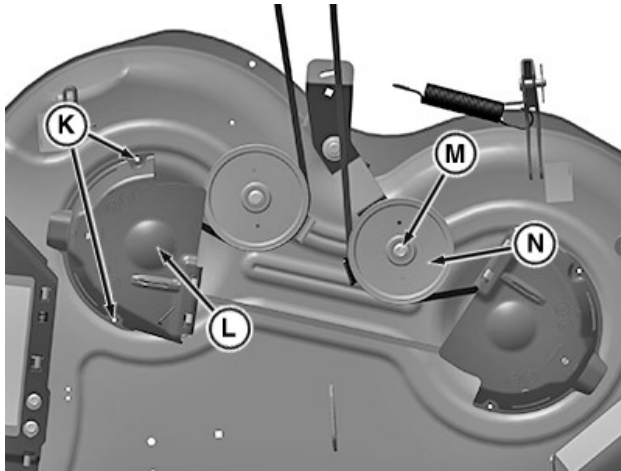
CAUTION: Avoid injury! Component is spring-assisted and under tension. Injury can occur if spring-assisted component is released suddenly.



Deck shown removed from machine for better view.

8. Install a 3/8 in. ratchet with extension into **bottom** of square hole (H) in sheave tension arm (I). Rotate counterclockwise to release belt tension and remove belt from left spindle sheave (J).
9. Remove deck drive belt from engine sheave.

Service Mower

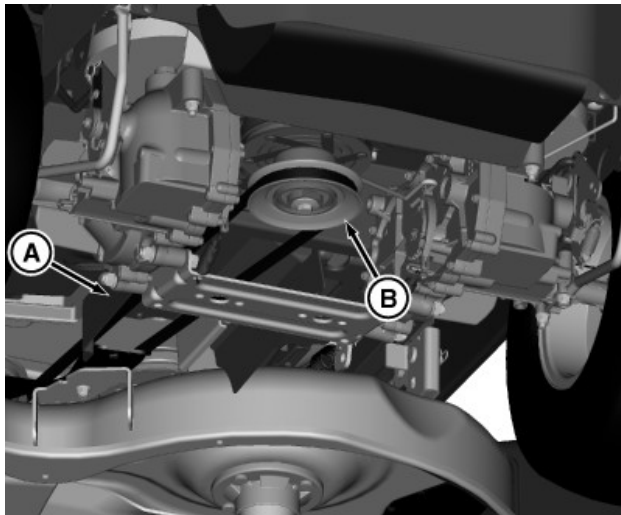


PY35592—UN—08JUN17

Deck shown removed from machine for better view.

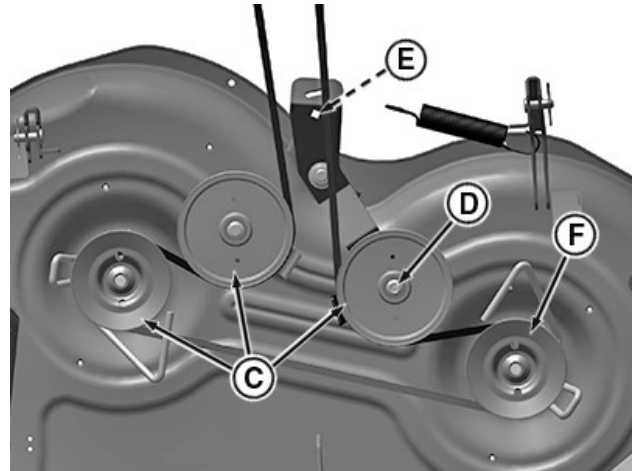
10. Remove two screws (K) and right spindle shield (L).
11. Loosen nut (M) on belt tension pulley and remove belt from pulley (N) and guide.
12. Remove belt from machine.
13. Inspect belt for wear or damage; replace as necessary.
14. Clean top surface of mower deck and sheaves.

Install Mower Drive Belt



GXT003034—UN—15JUL16

1. Route belt through center machine shield (A) and install onto engine sheave (B).



PY43382—UN—01JUN17

2. Install belt on three deck sheaves (C) as shown.
3. Tighten bolt (D) on idler sheave to specification.

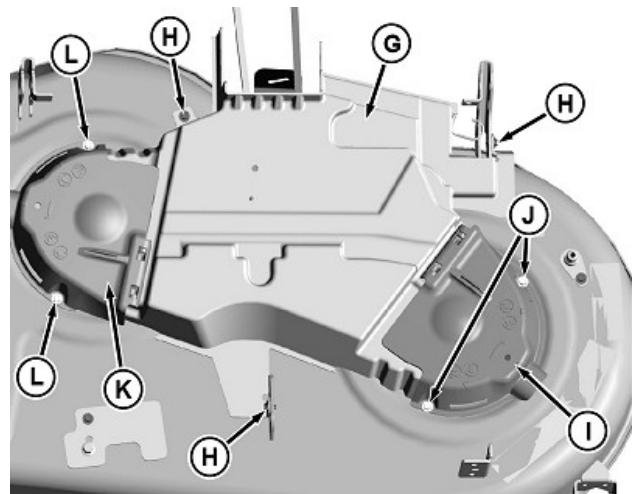
Specification

Sheave—Torque. 47 N·m (35 lb·ft)

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

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

4. Install 3/8 inch ratchet with extension into **bottom** of square hole (E) in sheave tension arm. Rotate arm counterclockwise and install belt on left spindle sheave (F).



GXT002295—UN—17JUN15

Deck shown removed from machine for better view.

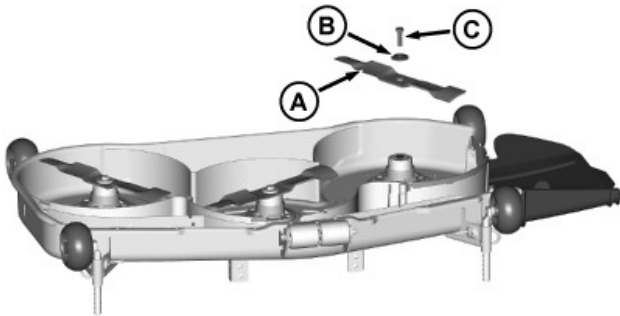
5. Install center deck shield (G) with 3 screws (H).
6. Install left spindle shield (I) with 2 screws (J).
7. Install right spindle shield (K) with 2 screws (L).
8. Install foot plate and secure with original hardware.

RM87422.0000758-19-07JUL17

Service Mower

Installing Mulch 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.



MXT015291—UN—19AUG15

1. Install blade (A) with cutting edge toward the ground.
2. Install large washer (B) and bolt (C).
3. Insert wood block between blade and mower to prevent the blade from turning when tightening bolt.
4. Tighten bolt.

Specification

Blade Bolt—Torque. 68 N·m
(50 lb·ft)

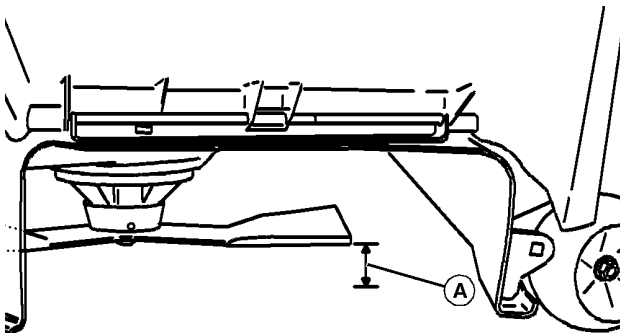
5. To check blade-to-mulch baffle clearance, rotate blades by hand. If interference occurs, check that hardware is tightened.

SB31882,00003E3-19-27MAY20

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.

MP47322,00F466C-19-25JUL18

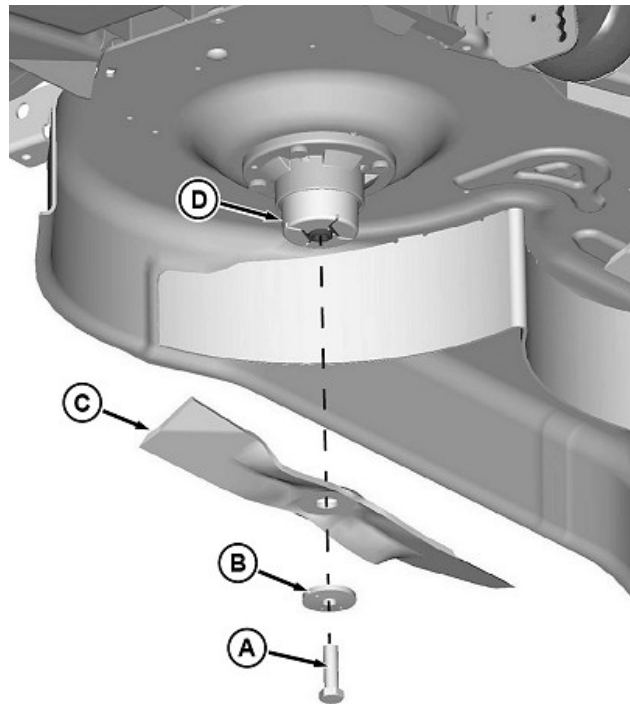
Servicing Mower Blades

CAUTION: 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.

Removing Mower Blades

1. Park machine safely. (See Parking Safely in the 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.



GXT001605—UN—13MAY15

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

Installing Mower Blades

1. Make sure deflector cup (D) is seated properly between mower spindle and blade.
2. Position mower blade (C) with cutting edge toward ground onto mower spindle.
3. Install washer (B), with cupped side towards blade, and bolt (A) to secure blade onto spindle shaft.
4. Block mower blade with a piece of wood to prevent spinning and tighten bolt to specification.

Specification

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

TH84124,000022C-19-18JUN15

Service Electrical

Service Electrical

Service the Battery Safely



MXAL42869—UN—09APR13

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

To prevent the battery from exploding:

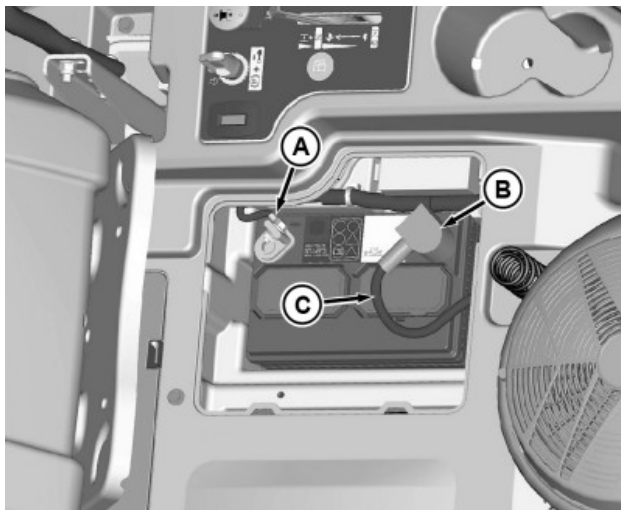
- Do not smoke or have open flame near battery.
- Wear eye protection and gloves.
- Do not allow direct metal contact across battery posts.
- Remove negative cable first when disconnecting.
- Install negative cable last when connecting.

MP47322,00F466F-19-13JAN15

Removing and Installing the Battery

Removing

1. Park machine safely. (See Parking Safely in the SAFETY section.)
2. Rotate operator seat forward.
3. Remove battery compartment cover.



GXT002323—UN—06JUL15

4. Disconnect negative (-) battery cable (A).
5. Push red cover (B) away from positive (+) battery terminal and remove cable (C) from battery.
6. Remove battery.

Installing

1. Place battery into battery tray as shown.

2. Connect positive (+) cable to battery first, then negative (-) cable.
3. Apply general purpose grease or silicone spray to terminals to help prevent corrosion.
4. Slide red cover over positive battery terminal.
5. Install battery compartment cover.
6. Lower operator seat.

TH84124,00001AF-19-06JUL15

Cleaning Battery and Terminals

1. Park machine safely. (See Parking Safely in the SAFETY section.)
2. Disconnect and remove battery.
3. Wash battery with solution of four tablespoons of baking soda to one gallon of water. Be careful not to get the soda solution into the cells.
4. Rinse the battery with plain water and dry.
5. Clean terminals and battery cable ends with wire brush until bright.
6. Install battery.
7. Attach cables to battery terminals, beginning with the positive cable, using washers and nuts.
8. Apply general purpose grease or silicone spray to terminals to help prevent corrosion.

MG39705,00000D8-19-18JUL18

Using Booster Battery

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

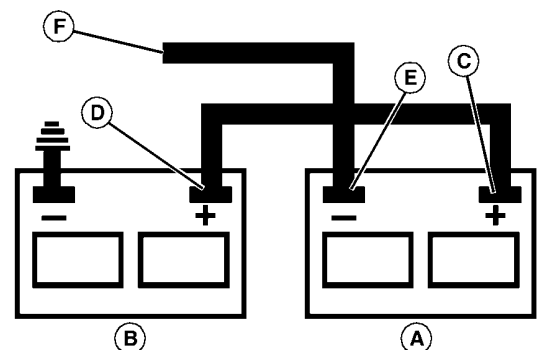
To prevent the battery from exploding:

- 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.

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.



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

MXAL42872—UN—09APR13

Service Miscellaneous

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.

MP47322,00F4672-19-05JUN15

Replacing Fuse

1. Park machine safely. (See Parking Safely in the SAFETY section.)
2. Raise operator's seat.
3. Remove battery compartment cover.
4. Refer to the service label behind the operator's seat for fuse circuit identification and location.
5. Remove the fuse and check metal strip in fuse window. Discard fuse(s) if strip is broken.
6. Push new, correct amp, fuse into correct socket.
7. Lower operator's seat.

MP47322,00F4673-19-15MAR13

Service Miscellaneous

Using Proper Fuel and Stabilizer

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.

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

Always use fresh, clean fuel that is purchased in a quantity that can be used within approximately 30 days. Fuel stabilizer should always be added to the fuel each time fuel is purchased. Add stabilizer before filling the fuel container to insure proper mixing. Such practice helps prevent engine performance problems and allows fuel storage in the machine all year without draining.

Store fuel in plastic containers to reduce condensation. Make sure that the cap on the fuel container is tight to reduce fuel contamination and evaporation. For best fuel storage life, use a self-sealing gas can.

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

Fuel can become stale in machines with engines that are used

seasonally or infrequently during a season. Stale fuel can produce varnish and plug carburetor or EFI components which can affect engine performance.

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

Condensation may collect in the fuel tank because of a variety of operating or environmental conditions and, over time, may affect your machine's operation. Fill machine fuel tank at the end of the day.

MP47322,00F4674-19-26MAY15

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.
- To prevent static electric discharge, use 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.
- To keep condensation out of the fuel tank, fill the fuel tank at the end of operation each day.
- If using a funnel, make sure it is plastic and has no screen or filter.

To prevent condensation and freezing during cold weather, fill fuel tank at the end of operation each day.

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.
6. Install fuel tank cap and turn cap until it clicks.

MP47322,00F4675-19-21OCT20

Lifting Machine

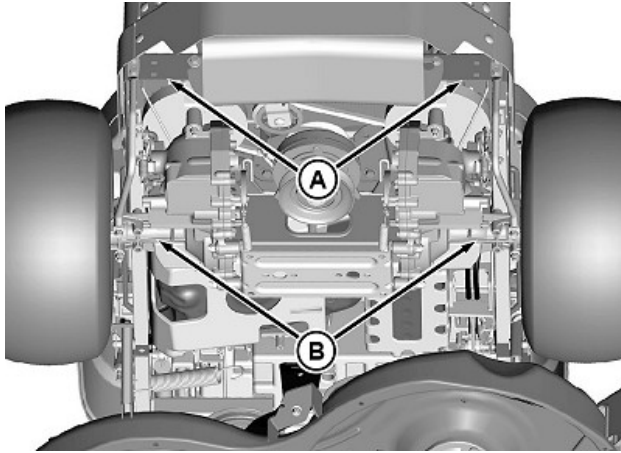
1. Park machine safely. (See Parking Safely in the SAFETY section.)

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

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

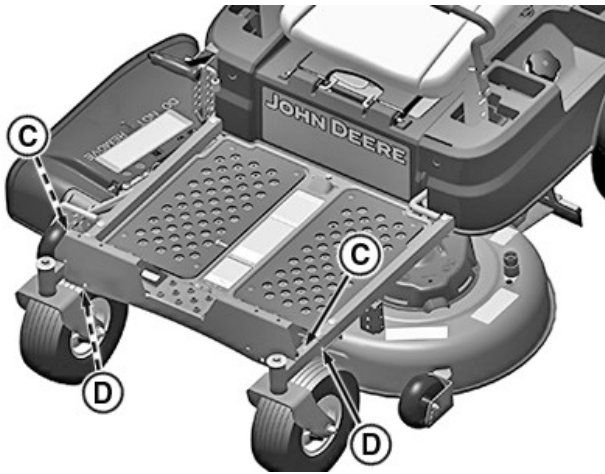
NOTE: Remove any material collection system attachments prior to lifting machine.

Service Miscellaneous



GXT001608—UN—13MAY15

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



PY43383—UN—08JUN17

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

RM87422,0000759-19-05JUN17

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. (See Specifications section for recommended tire pressures.)

MP47322,00F4677-19-10JUN20

Removing and Installing Wheel Assembly

Removing

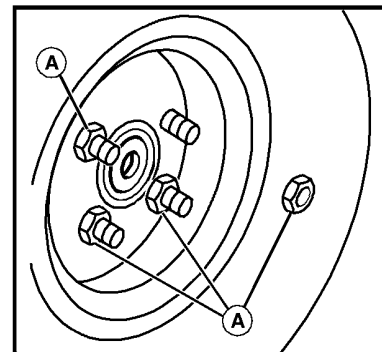
1. Park machine safely. (See Parking Safely in the Safety section.)

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.

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



MXAL42875—UN—09APR13

3. Remove the wheel nuts (A).
4. Remove the wheel assembly.

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

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

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

Installing

1. Install wheel assembly with valve stem to the outside.
2. Tighten wheel nuts evenly in alternating sequence until snug.
3. Lower machine completely to the ground.
4. Tighten wheel nuts to specification.

Specification

Wheel Nuts—Torque. 102 N·m (75 lb.-ft.)

MP47322,00F4678-19-26MAY15

Removing and Installing Front Caster Wheels

Disassembly:

1. Park machine safely. See "Park Machine Safely" in the Safety section.

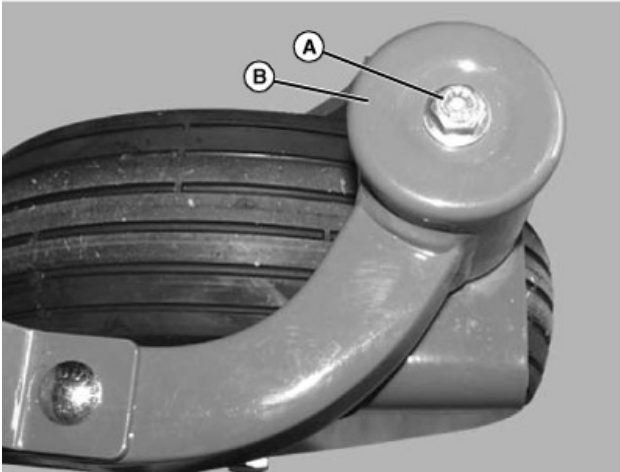
Service Miscellaneous

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

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

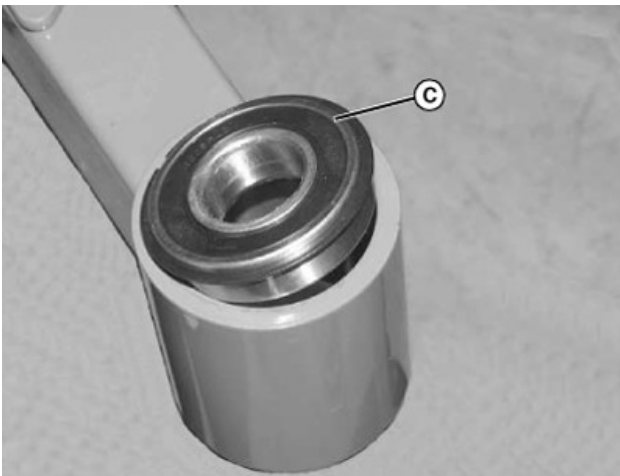
NOTE: Remove all attachments prior to lifting machine.

2. Jack up front of machine and place on safety stands.



MXAL47137—UN—16APR13

3. Support caster assembly and remove flange bolt (A) and cap (B).
4. Remove caster from machine.



MXAL47138—UN—16APR13

5. Inspect bearings (C) at top and bottom of frame. Replace worn or damaged bearings.

NOTE: Inner race extends above outer race.



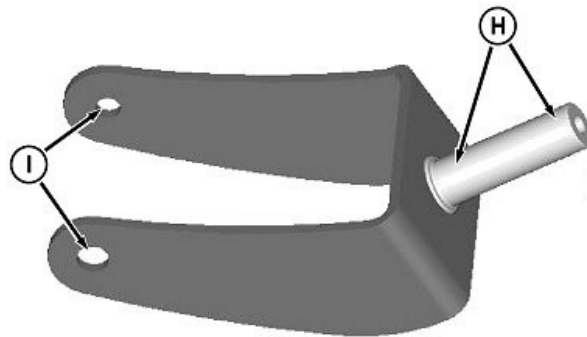
MXAL47139—UN—16APR13

6. Remove nut (D) and pull bolt out of caster.
7. Remove wheel assembly (E).



MXAL47140—UN—16APR13

8. Remove shield (F) and bearing (G). Inspect shields, wheel, and bearings for wear or damage. Replace worn or damaged parts.



GXT002156—UN—02JUN15

9. Inspect bearing wear areas (H), and bolt holes (I) for wear or damage. Replace if necessary.

Assembly

- Apply grease to caster shaft and bolt.
- Assemble in the reverse order of disassembly.
- Tighten caster locknut and bolt to specification.

Specification

Caster Locknut—Torque. 47 N·m (35 lb-ft)

- Tighten flange bolt securing yoke to specification.

Troubleshooting

Specification

Flange Bolt—Torque. 47 N-m (35 lb-ft)

MX52301,0001044-19-13SEP16

Cleaning and Repairing Metal Surfaces

Cleaning:

Follow automotive practices to care for your vehicle painted metal surfaces. Use a high-quality automotive wax regularly to maintain the factory look of your vehicle's painted surfaces.

Repairing Minor Scratches (surface scratch):

1. Clean area to be repaired thoroughly.

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

2. Use automotive polishing compound to remove surface scratches.
3. Apply wax to entire surface.

Repairing Deep Scratches (bare metal or primer showing):

1. Clean area to be repaired with rubbing alcohol or mineral spirits.
2. Use paint stick with factory-matched colors available from your authorized dealer to fill scratches. Follow directions included on paint stick for use and for drying.
3. Smooth out surface using an automotive polishing compound. Do not use power buffer.
4. Apply wax to surface.

MP47322,00F467A-19-26MAY15

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 - No Crank	Park brake not locked. Motion control levers not in Start/Shutdown position. Mower is engaged. Defective brake, mower engagement, or key switch.

IF	CHECK
	Electrical problem - See Electrical Troubleshooting Section
Engine Cranks But Will Not Start	Spark plug wire is loose or disconnected. Improper fuel. Plugged fuel filter. Electrical problem - See Electrical Troubleshooting Section
Engine Is Hard To Start	Carburetor is not adjusted properly or dirty. Choke not fully closing. Plugged fuel filter. Faulty spark plug. Stale or improper fuel. Loose or corroded electrical connections. Engine oil viscosity.
Engine Runs Unevenly	Cooling fins plugged. Loose electrical connections. Choke or throttle cable sticking. Choke not fully open. 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. 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.

MP47322,00F467C-19-15MAR13

Troubleshooting

Electrical

IF	CHECK
Starter Does Not Work Or Will Not Turn Engine	Park brake not locked. Mower is engaged. Battery terminals are corroded. Battery not charged. Motion control levers not in Start/Shutdown position. Blown fuse. Defective key switch
Battery Will Not Charge	Dead cell in the battery. Blown charging fuse. Battery cables and terminals are dirty. Low engine speed or excessive idling.
Lights Do Not Work	Light plug disconnected. Loose or burned out bulb. Blown headlight fuse.

MP47322,00F467D-19-15MAR13

Machine

IF	CHECK
Machine Vibrates Too Much Or Rattles Excessively	Attachment drive belts worn or damaged. Mower blades not balanced. Traction drive belt damaged or worn. Dirt on drive sheaves.
Machine Will Not Move With Engine Running	Transmission hydraulic oil level low. Transmission belt broke. Bypass valve levers are engaged.
Machine Moves With Engine Running And Hydrostatic Control In Neutral	Linkage out of adjustment. Transmission neutral out of adjustment.
Mower Lift Will Not Latch in Transport	Ensure linkage is adjusted correctly and is not loose or binding. Loosen all four corners to drop the deck when it is at 2-1/2 inch height-of-cut. Re-level using Optional Leveling Procedure.
Front of machine squeaks while driving	Lubricate mower front draft rod at front and rear pivot points.

MP47322,00F467E-19-06JUL20

Mower

IF	CHECK
Discharge Chute Plugged	Travel speed too fast. Grass too long. Grass too wet. Engine rpm not at mow position. Restricted air flow. Belt installed incorrectly. Adjust cutting height to remove only 1/3 of grass at a time.
Patches Of Grass Uncut	Travel speed too fast. Engine rpm not at mow position. Mower deck needs cleaning.

IF	CHECK
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. Adjust cutting height to remove only 1/3 of grass at a time.
Uneven Cut	Mower deck not leveled properly. Travel speed too fast. Blades dull. Mower wheels not adjusted correctly. Tire pressure unequal. Adjust cutting height to remove only 1/3 of grass at a time.
Excessive Clippings are Expelled from Front of Mower Deck	Conditions may be too dry or terrain too uneven to provide good seal between front of deck and grass. Visit http://JDParts.deere.com or contact dealer to purchase dry condition kit.

TH84124,00001B2-19-18JUN15

MulchControl (If Equipped)

IF	Check
MulchControl™ gate will not open	Plugging of mower deck/baffles.
MulchControl™ gate will not close	Plugging of mower deck/baffles
MulchControl™ gate not holding setting (open or closed)	Check for handle seated firmly onto pin taper and properly aligned.
MulchControl™ causing blowout in closed position	Check that gate stop is installed (after removal of cut and throw - 42 inch Accel Deep™ only) Ensure that system is in closed position
MulchControl™ Material Dispersion Not Satisfactory	Clean debris buildup from underside of deck Check blades for sharpness and damage Ensure that correct blades are installed (MulchControl™ is designed to use mulch blades, not standard blades) Change blades Check discharge chute for damage Check procedures on Adjusting Mower Level Side-to-Side and

Storage

IF	Check
	Front-to-Rear. Adjust system for proper door position Run engine at fast throttle Mowing too fast for grass conditions

MulchControl is a trademark of Deere & Company
Accel Deep is a trademark of Deere & Company

SB31882,00003DC-19-28MAY20

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.

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.

MP47322,00F4683-19-05JUL17

Specifications

Specifications

Engine

Z335E

Make	Briggs & Stratton
Model Number	40N877
Bore	75.4 mm (2.97 in)
Stroke	73.4 mm (2.89 in)
Displacement	656 cm ³ (40.03 in ³)
Cylinders	Twin
Cycle	Four
Magneto Air Gap	0.20 - 0.30 mm (.008 - .012 in)
Valve Clearance - Intake	0.10 - 0.15 mm (.004 - .006 in)
Valve Clearance - Exhaust	0.10 - 0.15 mm (.004 - .006 in)
Spark Plug Gap	0.75 mm (0.030 in)
Spark Plug Torque	20 N•m (180 lb•in)

Z345M and Z345R

Make	Briggs & Stratton
Model Number	44N677
Power Rating Information	http://www.briggsandstratton.com/
Bore	79.25 mm (3.12 in)
Stroke	73.4 mm (2.89 in)
Displacement	724 cm ³ (44.18 in ³)
Cylinders	Twin
Cycle	Four
Valve Clearance - Intake	0.10 - 0.15 mm (.004 - .006 in)
Valve Clearance - Exhaust	0.10 - 0.15 mm (.004 - .006 in)
Spark Plug Gap	0.75 mm (0.030 in)
Spark Plug Torque	20 N•m (180 lb•in)

SB31882,00003C6-19-20AUG20

Carbon Dioxide Emissions (CO₂)

To identify the carbon dioxide (CO₂) output, locate the engine emissions label. Find the appropriate family on the emissions label and refer to the engine manufacturer's website listed below.

<http://www.briggsandstratton.com>

<https://power.kohler.com/en/engines>

<https://www.kawasaki-engines.eu/en/support/>

<http://www.honda-engines-eu.com/co2>

This CO₂ measurement results from testing over a fixed test cycle under laboratory conditions a(n) (parent) engine representative of the engine type (engine family) and shall not imply or express any guarantee of the performance of a particular engine.

MK71445,000007A-19-13MAY19

Drivetrain

Transaxle Motors	Hydro-Gear EZT
Number of Speeds	Hydrostatic, Variable Speed

TH84124,0000164-19-18JUN15

Travel Speeds at Full Engine RPM

Forward	0-10.5 km/h (0-6.5 mph)
Reverse	0-4.8 km/h (0-3.0 mph)

MX52301,0000FC3-19-14JUL16

Electrical System

Battery Type	12 Volt
Cold Cranking Capacity	300 Amps

TH84124,0000221-19-15JUN15

Fuel System

Fuel Types (Recommended):	
	Regular Grade 87 Octane Unleaded Fuel
	Ethanol Blended Fuel (Up to 10%)
	MTBE Reformulated Fuel (Up to 15%)
Fuel Filter	Replaceable - paper element
Fuel Pump	Pulse
Fuel Delivery	Carburetor

TH84124,0000165-19-18JUN15

Tires

Front	11x4.00-4 (Ribbed)
Rear	18x8.50-8 (Turf)
Inflation - Front	103 kPa (15 psi)
Inflation - Rear	69 kPa (10 psi)

MX52301,0000FC4-19-14JUL16

Capacities

Crankcase with oil filter	1.9 L (2.0 qt)
Fuel Tank	8 L (2.1 gal)

Towing Capacity (All Models)	113.39 kg (250 lb)
Maximum Tongue Load	45.4 kg (100 lb)

SB31882,0000472-19-17MAY21

Dimensions

Z335E

Height	923 mm
Width	1283 mm
Length	1821 mm
Weight With Mower and Full Fuel	229 kg (505 lb)

Z345M

Height	1019 mm
Width	1283 mm

Specifications

Length	1836 mm
Weight With Mower and Full Fuel	232 kg (511 lb)
Z345R	
Height	1019 mm
Width	1283 mm
Length	1836 mm
Weight With Mower and Full Fuel	234 kg (516 lb)

MG39705,00000BD-19-26JUL18

Recommended Lubricants

Engine Oil	TURF-GARD® OR PLUS-4®
Grease	
	GREASE-GARD™ Premium Plus
	John Deere Multi-Purpose HD Lithium Complex Grease

(Specifications and design subject to change without notice.)

TH84124,000016C-19-03MAR15

Mower Decks

42A in Mower	
Cutting Width	1.07 m (42 in)
Blades-Rotary	2
Blade Bolt Torque	68 N•m (50 lb-ft)
Cutting Height (Approximately)	25 - 102 mm (1 - 4 in)

MX52301,0000FB2-19-06JUL16

Fast Idle Engine Speed

Z335E without mower deck	3050 ± 100 r/min
Z345M without mower deck	3050 ± 100 r/min
Z345R without mower deck	3050 ± 100 r/min

RM87422,00007B4-19-05JUL17

Speed of Rotation of Cutting Device

42A 107 cm mower	2732 r/min at 3050 r/min engine speed
------------------	---------------------------------------

SV90572,0000007-19-27JUL18

Sound Measurements

Averaged Sound Level at Work Station According to EN ISO 5395-1

Z335E without mower deck	86.6 ± 1 dB(A) at 3050 r/min engine speed
Z335E with 42A 107 cm mower deck	89.2 ± 1 dB(A) at 3050 r/min engine speed
Z335E with 42A 107 cm mower deck and Bagger	92.8 ± 1 dB(A) at 3050 r/min engine speed
Z345M or Z345R without mower deck	89.9 ± 1 dB(A) at 3050 r/min engine speed
Z345M or Z345R with 42A 107 cm mower deck	90.7 ± 1 dB(A) at 3050 r/min engine speed

Averaged Sound Level at Work Station According to EN ISO 5395-1

Z345M or Z345R with 42A 107 cm mower deck and Bagger . 93.9 +/- 1 dB(A) at 3050 r/min engine speed

SV90572,0000008-19-27JUL18

Vibration Measurements

Hand-Arm Measured Per EN ISO 5395-1

Z335E without mower deck vibration total value to which the hand-arm system is subjected does not exceed 2.5 m/s².

Z335E with 42A 107 cm mower deck vibration total value to which the hand-arm system is subjected does not exceed 2.5 m/s².

Z335E with 42A 107 cm mower deck and Bagger vibration total value to which the hand-arm system is subjected does not exceed 2.5 m/s².

Z345M or Z345R without mower deck vibration total value to which the hand-arm system is subjected does not exceed 2.5 m/s².

Z345M or Z345R with 42A 107 cm mower deck vibration total value to which the hand-arm system is subjected does not exceed 2.5 m/s².

Z345M or Z345R with 42A 107 cm mower deck and Bagger vibration total value to which the hand-arm system is subjected does not exceed 2.5 m/s².

Whole Body Measured Per EN ISO 5395-1

Z335E without mower deck 0.5 m/s²

Uncertainty K 0.1 m/s²

Z335E with 42A 107 cm mower deck 0.6 m/s²

Uncertainty K 0.1 m/s²

Z335E with 42A 107 cm mower deck and Bagger 0.8 m/s²

Uncertainty K 0.1 m/s²

Z345M or Z345R without mower deck 0.6 m/s²

Uncertainty K 0.1 m/s²

Z345M or Z345R with 42A 107 cm mower deck 0.6 m/s²

Uncertainty K 0.1 m/s²

Z345M or Z345R with 42A 107 cm mower deck and Bagger . 0.9 m/s²

Uncertainty K 0.1 m/s²

NOTE: The value listed above represents the weighted root means square acceleration to which the whole body is subjected on a representative machine during actual mowing and transport conditions. The acceleration value depends upon the roughness of the ground, the speed at which the tractor is operating and the operator weight and driving habits. Measurements were obtained through actual field data according to STD Procedure in EN ISO 5395-1.

SR99263,000001B-19-26JUL18

John Deere Quality Statement

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.

SP66632,00043A7-19-08MAR21

Service Record

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

Service Record

Declaration of Conformity

Declaration of Conformity

EC Declaration of Conformity

Deere & Company
Moline, Illinois U.S.A.

The person named below declares that

Machine Type: Zero Turn Mower

Models: Z335E/Z345M/Z345R

Serial Numbers: See Product Identification Page

fulfills all relevant provisions and essential requirements of the following directives:

DIRECTIVE	NUMBER	CERTIFICATION METHOD
Machinery Directive	2006/42/EC	Self-Certification
Electromagnetic Compatibility Directive	2014/30/EU	Self-Certification
Noise Directive	2000/14/EC (Annex VI, Procedure 2)	Third-Party Certification
		NOTIFIED BODY
Measured Sound Power Level		Intertek Deutschland GmbH – NB0905 Stangenstraße 1 70771 Leinfelden-Echterdingen, Germany
Z335E with 42A 107 cm Mower Deck100 dB(A)		
Z335E with 42A 107 cm Mower Deck and Bagger100 dB(A)		
Z345M or Z345R with 42A 107 cm Mower Deck 99 dB(A)		
Z345M or Z345R with 42A 107 cm Mower Deck and Bagger100 dB(A)		
Guaranteed Sound Power Level		
Z335E with 42A 107 cm Mower Deck100 dB(A)		
Z335E with 42A 107 cm Mower Deck and Bagger100 dB(A)		
Z345M or Z345R with 42A 107 cm Mower Deck100 dB(A)		
Z345M or Z345R with 42A 107 cm Mower Deck and Bagger100 dB(A)		

Name and address of the person in the European Community authorized to compile the technical construction file:

John Deere Walldorf GmbH & Co. KG
Customer Support
Impexstraße 3
D-69190 Walldorf
EUConformity@JohnDeere.com

Place of Declaration: Horicon, WI USA

Date of Declaration: 1 October 2019

Manufacturing Unit: John Deere Power Products



DXCE01—UN—28APR09

PY31410—UN—13JUL16

Name: Steve Dobrot

Title: Product Engineering Manager, RLE

MG39705,0000581-19-01JUL21

Declaration of Conformity

UK Declaration of Conformity

Deere & Company
Moline, Illinois U.S.A.

The undersigned hereby declares that

Machine Type: Zero Turn Mower

Models: Z335E/Z345M/Z345R

Serial Numbers: See Product Identification Page

fulfills all relevant provisions and essential requirements of the following UK regulations:

DIRECTIVE	NUMBER	CERTIFICATION METHOD
The Supply of Machinery (Safety) Regulations 2008	S.I. 2008/1597	Self-Certification
Electromagnetic Compatibility Regulations 2016	S.I. 2016/1091	Self-Certification
The Noise Emission in the Environment by Equipment for use Outdoors Regulations 2001	S.I. 2001/1701	Third-Party Certification
		NOTIFIED BODY
Measured Sound Power Level		Intertek Testing and Certification Limited Approved Body Number 0395 1-9 Brook Street Brentwood Essex CM14 5NQ
Z335E with 42A 107 cm Mower Deck 100 dB(A)		
Z335E with 42A 107 cm Mower Deck and Bagger 100 dB(A)		
Z345M or Z345R with 42A 107 cm Mower Deck 99 dB(A)		
Z345M or Z345R with 42A 107 cm Mower Deck and Bagger 100 dB(A)		
Guaranteed Sound Power Level		
Z335E with 42A 107 cm Mower Deck 100 dB(A)		
Z335E with 42A 107 cm Mower Deck and Bagger 100 dB(A)		
Z345M or Z345R with 42A 107 cm Mower Deck 100 dB(A)		
Z345M or Z345R with 42A 107 cm Mower Deck and Bagger 100 dB(A)		

Name and address of the person authorized to compile the technical construction file:

John Deere Walldorf GmbH & Co. KG
Customer Support
Impexstraße 3
D-69190 Walldorf
EUConformity@JohnDeere.com

This declaration of conformity is issued under the sole responsibility of the manufacturer.

Place of Declaration: Horicon, WI USA

Date of Declaration: 1 October 2021

Manufacturing Unit: John Deere Power Products

Ag & Turf Products Importer: John Deere Ltd- Harby Road, Langar, Nottinghamshire, NG13 9HT

Forestry Products Importer: John Deere Forestry Ltd- Carlisle Airport Industrial Estate, Carlisle, Cumbria, CA6 4NW



TC101783—UN—21FEB21

PY31410—UN—13JUL16

Name: Steve Dobrot

Title: Product Engineering Manager, RLE

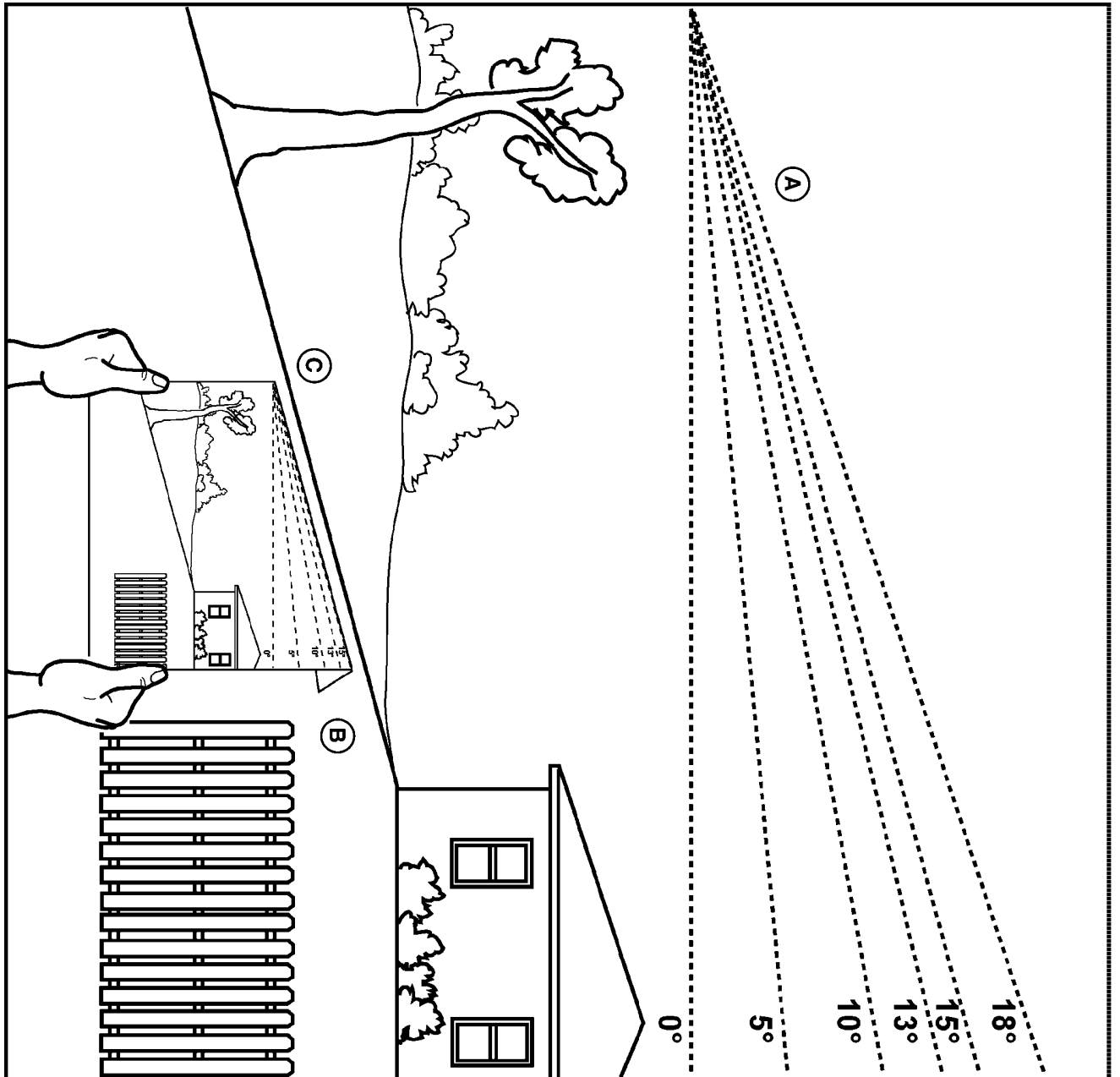
MG39705,0000580-19-01JUL21

Slope Gauge

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

Index

A	
Air Cleaner Elements (Twin Cylinder), Checking and Cleaning ..	27
Armrests, Adjusting (If Equipped)	14
B	
Battery and Terminals, Cleaning	37
Battery, Charge and Connect at Assembly	11
Battery, Removing and Installing	37
Battery, Service Safely	37
Battery, Using Booster	37
Belt, Replacing Mower Drive (42A)	34
Blades, Checking Mower	36
Blades, Servicing Mower	36
C	
Carbon Dioxide Emissions	24, 44
Carburetor, Adjusting	28
E	
Electrical Troubleshooting	42
Emissions Performance	
Tampering	2
Engine	
Oil	25
Engine Fins, Cleaning	26
Engine Shroud, Cleaning	26
Engine Troubleshooting	41
F	
Filter, Changing Engine Oil	25
Filter, Replacing Fuel	28
Foot Plate, Removing and Installing Mower Deck	31
Fuel and Stabilizer, Using Proper	38
Fuel Storage	43
Fuel Tank, Filling	38
Fuse, Replacing	38
G	
Grease	24
H	
Hour Meter, Using	18
I	
Identification Numbers, Record	4
L	
Labels, safety without text	6
Levers, Using the Motion Control	18
Lifting Machine	38
Low Fuel Indicator Light, Using	18
M	
Machine Troubleshooting	42
Machine, Mounting and Dismounting	14
Material Collection System, Unplugging	22
Metal Surfaces, Repairing and Cleaning	41
Motion Control Levers, Adjusting	14
Moving Machine by Hand	21
Mower Deck Identification	31
Mower Deck Spindles, Lubricating	24
Mower Troubleshooting	42

Mower, Adjusting Cutting Height	15
Mower, Adjusting Level	15
Mower, Engaging	21
Mower, Installing (42A)	32
Mower, Removing (42A)	31
Mowing tips	23
Mowing Tips	23
Mulch blades	
Installing, 48 in. Accel Deep™ deck	36
MulchControl Troubleshooting	42
N	
Neutral Creep, Checking and Adjusting	29
O	
Oil	
Engine	
Gasoline	25
Oil Level, Checking Engine	25
Operating Checklist, Daily	13
Operator's Station Controls	13
P	
Park Brake, Testing	17
Park Brake, Using	18
Plastic And Painted Surfaces, Avoid Damage To	13
R	
Record service dates	47
Replacement parts	2
S	
Safety labels, without text	6
Safety Systems, Testing	17
Seat, Adjusting	14
Service Intervals	23
Slopes, operating on	
Terrain hazards, operating near	8
Spark Plug, Checking	28
Specifications	
Capacities	44
Dimensions	44
Drivetrain	44
Electrical System	44
Engine	44
Fast Idle Engine Speed	45
Fuel System	44
Mower Decks	45
Recommended Lubricants	45
Sound Measurements	45
Speed of Rotation of Cutting Device	45
Tires	44
Vibration Measurements	45
Storage, Preparing Machine for	43
Storage, Removing Machine from	43
Storing Safety	43
Switch, Testing Motion Control Lever	18
Switch, Testing Mower Engagement (PTO)	17
Switch, Testing Park Brake	17
Switch, Testing Seat	17
Switch, Using Key	18
Switch, Using the Mower Engagement	18

Index

T

Template, slope gauge.....	51
Tire Pressure, Checking	39
Tracking, Adjusting.....	29
Transaxle Drive Belt, Checking and Replacing.....	30
Transaxle, Cleaning Cooling Fans	30
Transmission, Checking.....	29
Transporting Machine on Trailer.....	22
Transporting Material Collection System.....	23
Troubleshooting chart.....	41

U

Unplugging Mower	21
------------------------	----

W

Wheel Assembly, Removing and Installing	39
Wheels, Adjusting Mower.....	16
Wheels, Removing and Installing Front Caster.....	39

Notes

Notes

Notes
