Z335E, Z335M, Z345M, Z345R, Z355E, Z355R, Z375R ZTrak™

(Serial No. 150001 -)

JOHN DEERE

OPERATOR'S MANUAL

Z300 Series ZTrak™

OMUC24247 ISSUE G9 (ENGLISH)

CALIFORNIA

Proposition 65 Warning

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

If this product contains a gasoline engine:

⚠ WARNING

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

The State of California requires the above two warnings.

Additional Proposition 65 Warnings can be found in this manual.

John Deere Power Products
North American Edition
Printed in U.S.A.

Thank You for Purchasing a John Deere Product

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

MX00654,000020B-19-10MAY17

Using Your Operator's Manual

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

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

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

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

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

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

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

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

MX00654,000020C-19-05JUN17

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

TC00531,00000E9-19-06MAR15

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/?cid=VURL_TechInfoStore

or call:

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

TH84124,0000199-19-15AUG17

Contents

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.

Product Identification

Record Identification Numbers

Zero Turn Mowers

PIN (150001-)

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:

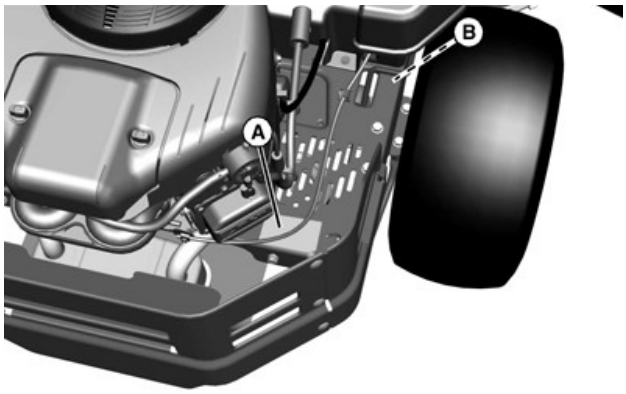
_____

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 forward side of each transaxle housing.

LEFT SIDE:

— — — — — — — — — — — — — — — — —

RIGHT SIDE:

— — — — — — — — — — — — — — — — —

MG39705,00001CA-19-30MAY19

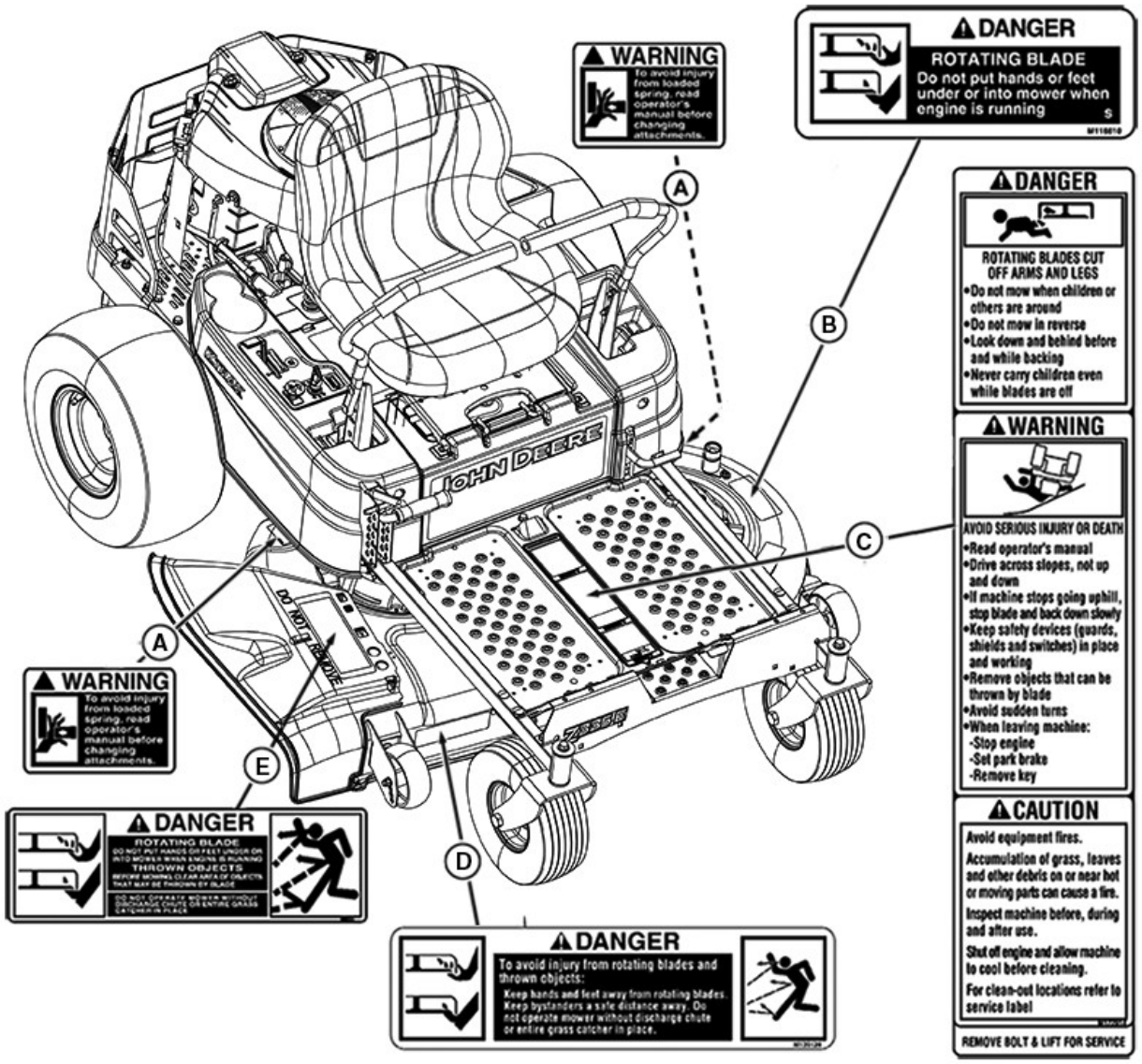
Register Your Product and Warranty Online

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

MP47322,00F45FF-19-05JUN17

Safety Labels with Text

Safety Label Location



APY04440—UN—25JUN18

Z335E model shown

A—WARNING M146577
B—DANGER M118610
C—DANGER, WARNING, CAUTION M172914
D—DANGER M139128
E—DANGER M89504

MG39705,0000091-19-02MAY18

Understanding the Machine Safety Labels

MXAL42363—UN—22MAY13

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

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

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

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

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

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

French or Spanish Safety Labels and Operator's Manual

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

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

MP47322,00F4601-19-24APR19

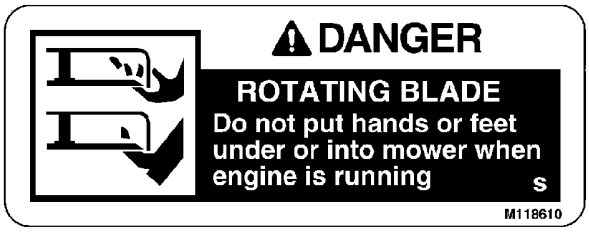
WARNING

MXAL42769—UN—09APR13

To avoid injury from loaded spring, read operator's manual before changing attachments.

TH84124,000017E-19-28OCT16

DANGER



MXT008504—UN—01NOV16

ROTATING BLADE

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

TH84124,00000CB-19-01NOV16

DANGER

GXT002171—UN—04JUN15

ROTATING BLADES CUT OFF ARMS AND LEGS

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

TH84124,00001DB-19-04JUN15

WARNING

GXT002172—UN—04JUN15

AVOID SERIOUS INJURY OR DEATH

- Read operator's manual.
- Drive across slopes, not up and down.
- If machine stops going uphill, stop blade and back down slowly.
- Keep safety devices (guards, shields, and switches) in place and working.
- Remove objects that can be thrown by blade.

- Avoid sudden turns.
- When leaving machine:
  - Stop engine
  - Set park brake
  - Remove key

TH84124,00001DC-19-28OCT16

CAUTION

MXT013486—UN—31OCT16

Avoid equipment fires.

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

Inspect machine before, during and after use.

Shut off engine and allow machine to cool before cleaning.

For clean-out locations refer to service label.

TH84124,000017A-19-12JUN15

DANGER

MXAL42773—UN—09APR13

To avoid injury from rotating blades and thrown objects:

Keep hands and feet away from rotating blades. Keep bystanders a safe distance away. Do not operate mower without discharge chute or entire grass catcher in place.

TH84124,000017F-19-01NOV16

DANGER

MXT008505—UN—01NOV16

ROTATING BLADE

DO NOT PUT HANDS OR FEET UNDER OR INTO MOWER WHEN ENGINE IS RUNNING.

THROWN OBJECTS

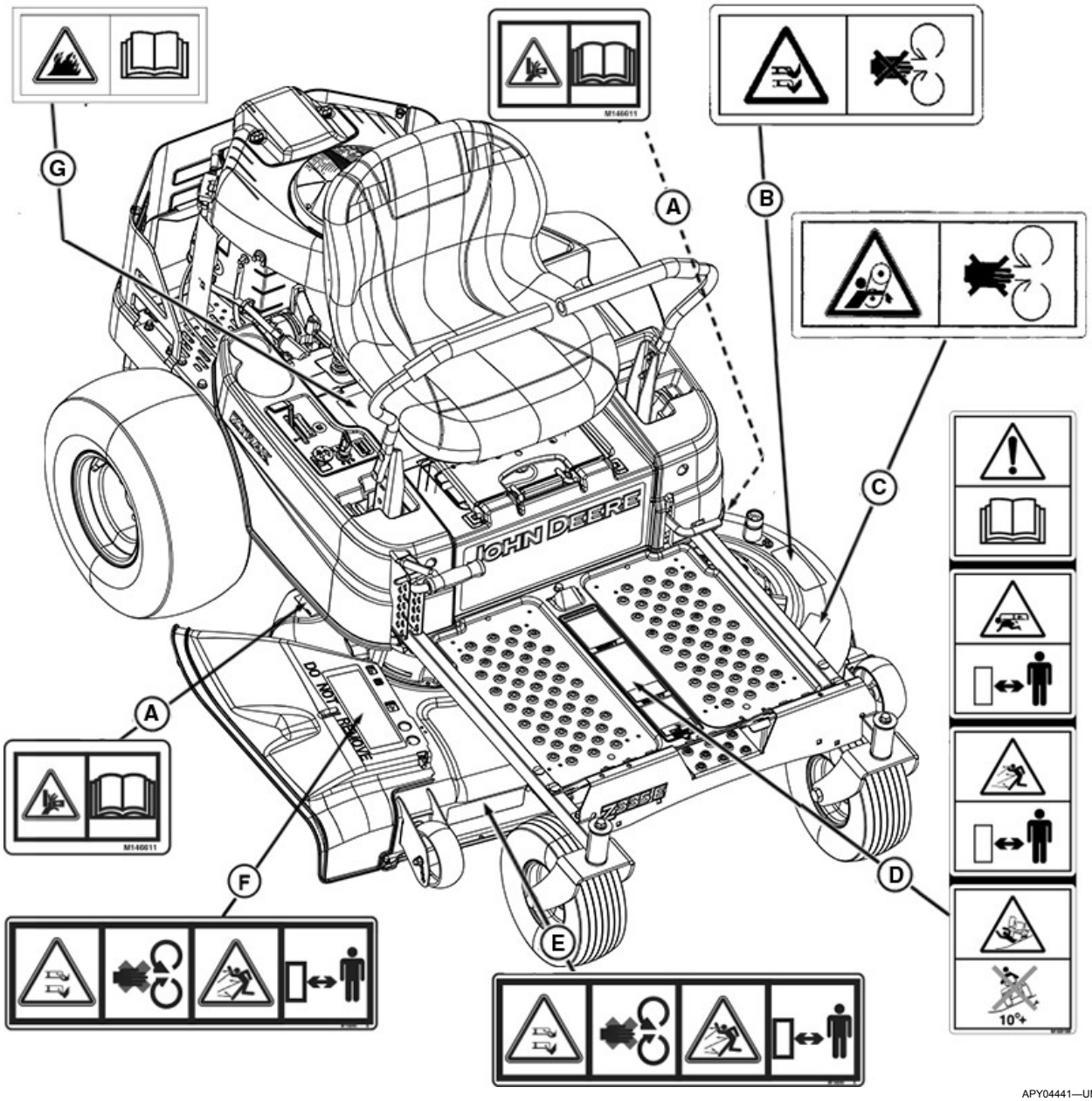
BEFORE MOWING, CLEAR AREA OF OBJECTS THAT MAY BE THROWN BY BLADE.

DO NOT OPERATE MOWER WITHOUT DISCHARGE CHUTE OR ENTIRE GRASS CATCHER IN PLACE.

TH84124,0000162-19-01NOV16

Safety Labels without Text

Safety Label Location



APY04441—UN—25JUN18

Safety Label Location

A—Avoid Injury From Loaded Spring M146611
B—Avoid Injury From Rotating Blades M118041
C—Avoid Injury From Getting Caught in Belts M136436
D—Read Operator's Manual, Keep Children Away From Mower, Avoid Injury From Thrown Objects, Avoid Injury From Tipping M168199
E—Avoid Injury From Thrown Objects, Avoid Injury From Rotating Blades M138631
F—Avoid Injury From Thrown Objects, Avoid Injury From Rotating Blades M118040
G—Avoid Injury From Equipment Fires GX24503

MG39705,0000092-19-02MAY18

Safety Labels without Text

Understanding the Machine Safety Labels without Text

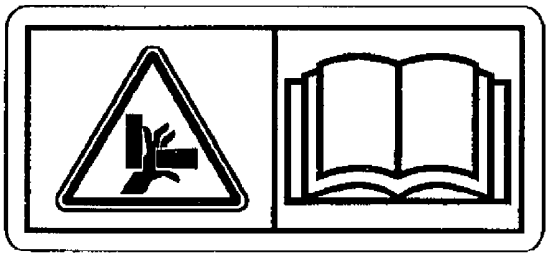
TCT005498—UN—11SEP12

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

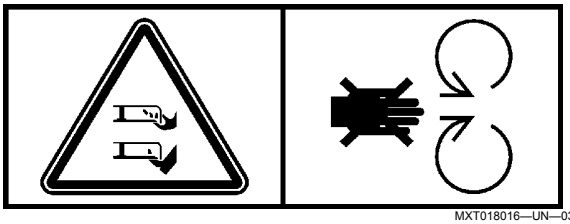


MXAL42777—UN—09APR13

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

MX00654,000038C-19-24APR19

Avoid Injury from Rotating Blades

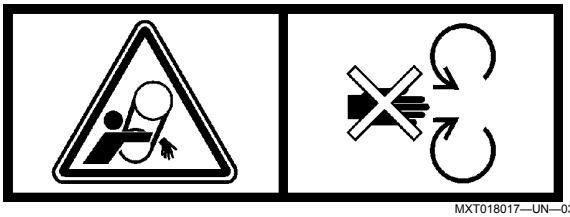


MXT018016—UN—03MAY16

- 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

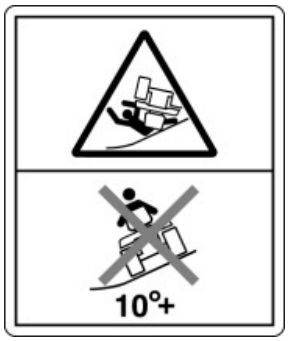
Keep Children Away from Mower

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

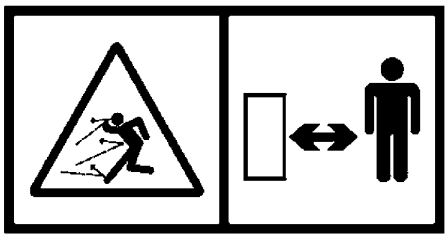


MXT013482—UN—31OCT16

- 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

Avoid Injury From Thrown Objects

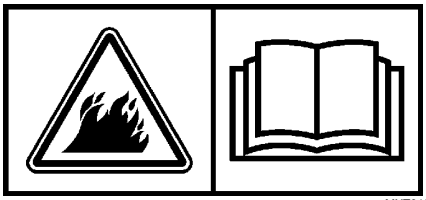


MXAL42780—UN—09APR13

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

MX00654,000038F-19-24JUL13

Avoid Injury from Equipment Fires



MXT018019—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 Clean out section for details.

MX00654,0000390-19-24APR19

Safety

Operating Safely

GXAL42347—UN—04MAR13

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

- Read, understand, and follow all instructions on the machine and in manuals provided, and view safety video, before starting. Be thoroughly familiar with the controls and the proper use of the machine before starting.
- Do not put hands or feet near rotating parts or under the machine. Keep clear of the discharge opening at all times.
- Equipment owners are responsible for ensuring that operators are responsible, trained, familiar with the instructions and are mentally and physically capable of performing the tasks associated with operating this equipment safely.
- Age, both young and old, can be a factor in operator related injuries. Operators should evaluate their ability to operate the equipment safely enough to protect themselves and others from serious injury.
- Clear the area of objects, such as rocks, wire, and toys, which could be thrown by the blades.
- Be sure the area is clear of bystanders before operating. Stop machine if anyone enters the area.
- Never carry passengers.
- Do not mow in reverse unless absolutely necessary. Always look down and behind before and while backing.
- Never direct discharged material toward anyone. Avoid discharging material against a wall or obstruction. Material may ricochet back toward the operator. Stop the blades when crossing gravel surfaces.
- Do not operate the machine without the entire grasscatcher, discharge guard, or other safety devices in place and working. Never operate with the discharge deflector raised, removed, or altered, unless using a grasscatcher.
- Slow down before turning.
- Never leave a running machine unattended. Always turn off blades, lock park brake, stop engine, and remove key before dismounting.
- Disengage blades when not mowing. Shut off engine and wait for all parts to come to a complete stop before cleaning the machine, removing the grasscatcher, or unclogging the discharge chute.
- Operate machine only in daylight or good artificial light.
- Do not operate the machine while under the influence of alcohol or drugs.
- Watch for traffic when operating near or crossing roadways. Stop blades before crossing roads or sidewalks.
- Use extra care when loading or unloading the machine into a trailer or truck.
- Always wear safety goggles or safety glasses with side shields when operating machine.
- Follow the manufacturer's recommendation for wheel weights or counterweights.
- Inspect machine before you operate. Be sure hardware is tight. Repair or replace damaged, badly worn, or missing parts. Be sure guards and shields are in good condition and fastened in place. Make any necessary adjustments before you operate.
- Before using, always visually inspect to see that the blades, blade bolts, and the mower assembly are not worn and damaged. Replace worn and damaged blades and bolts in sets to preserve balance.
- Make sure spark plug, muffler, fuel cap, and air cleaner are in place before starting the engine.
- Be sure all drives are in neutral and parking brake is locked before starting engine. Only start engine from the operator's position.
- Do not change the engine governor settings or overspeed the engine. Operating the engine at excessive speed can increase the hazard of personal injury.
- If you hit an object or if abnormal vibration occurs, stop the machine and inspect it. Make repairs before you operate.
- Use only accessories and attachments approved by the manufacturer of the machine. Keep safety labels visible when installing accessories and attachments.
- Do not wear radio or music headphones. Safe service and operation requires your full attention.
- When machine is left unattended, stored, or parked, lower the mower deck unless a positive mechanical lock is used.

OUO1023,000017D-19-06JUN18

Using a Spark Arrestor

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

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

constructed, equipped, and maintained for the prevention of fire pursuant to Section 4443. Cal. Pub. Res. Code 4442.5.

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

OUO2005,0000213-19-05JUL17

Checking Mowing Area

MXAL41932—UN—22MAY13

- Clear mowing area of objects that might be thrown. Keep people and pets out of mowing area.
- Low-hanging branches and similar obstacles can injure the operator or interfere with mowing operation. Before mowing, identify potential obstacles, such as low-hanging branches, and trim or remove those obstacles.
- Study mowing area. Set up a safe mowing pattern. Do not mow where traction or stability is doubtful.
- Test drive area with mower lowered (if equipped) but not running. Slow down when you travel over rough ground.
- Survey all mowing sites to determine which slopes are safe for machine operation and which slopes should be maintained through other maintenance techniques.

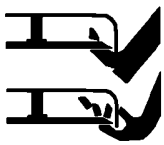
MP47322,00F4617-19-05JUL17

Parking Safely

1. Stop machine on a level surface, not on a slope.
2. Disengage mower blades or any other attachments.
3. Lower attachments to the ground.
4. Lock the park brake.
5. Stop the engine.
6. Remove the key.
7. Wait for engine and all moving parts to stop before you leave the operator's seat.
8. Close fuel shut-off valve, if your machine is equipped.
9. Disconnect the negative battery cable or remove the spark plug wire (s) (for gasoline engines) before servicing the machine.

OUO1023,0000035-19-21FEB13

Rotating Blades are Dangerous



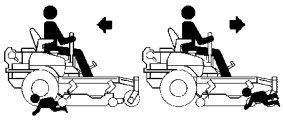
MXAL41928—UN—18FEB13

HELP PREVENT SERIOUS OR FATAL ACCIDENTS:

- Rotating blades can cut off arms and legs and throw objects. Failure to observe safety instructions could result in serious injury or death.
- Keep hands, feet, and clothing away from mower deck when engine is running.
- Be alert at all times; drive forward and in reverse carefully. People, especially children, can move quickly into the mowing area before you know it.
- Before backing up, stop mower blades or attachments and look down and behind the machine carefully, especially for children.
- Do not mow in reverse.
- Shut off blades when you are not mowing.
- Park machine safely before leaving the operator's station for any reason, including emptying the grasscatchers or unplugging the chute.
- The mower blades should stop in approximately five seconds when the mower is disengaged. If you believe that your blades may not be stopping in that period of time, take your machine to your authorized dealer where they can safely check and service your machine.

MP47322,00F4619-19-05JUL17

Protect Children



MXT005340—UN—06JUN13

- Death or serious injury can occur when young children associate having fun with a lawn mowing machine simply because someone has given them a ride on a machine.
- Children are attracted to lawn mowing machines and mowing activities. They do not understand the dangers of rotating blades or the fact that the operator is unaware of their presence.
- Children who have been given rides in the past may suddenly appear in the mowing area for another ride and be run over or backed over by the machine.
- Tragic accidents with children can occur if the operator is not alert to the presence of children, especially when a child approaches a machine from behind. Before and while backing up, stop mower blades and look down and behind the machine carefully, especially for children.
- Never carry children on a machine or attachment, even with the blades off. Do not tow children in a cart or trailer. They can fall off and be seriously injured or interfere with safe machine operation.
- Never use the machine as a recreational vehicle or to entertain children.
- Never allow children or an untrained person to operate the machine. Instruct all operators not to give children a ride on the machine or in an attachment.
- Keep children indoors, out of the mowing area, and in the watchful eye of a responsible adult, other than the operator, when a mower is being operated.
- Stay alert to the presence of children. Never assume that children will remain where you last saw them. Turn the machine off if a child enters the work area.
- Use extreme care when approaching blind corners, shrubs, trees, or other objects that may block your view of a child.

MP47322,00F461A-19-05JUL17

Operating on Slopes

NOTE: Remove Slope Gauge Template page from the back of this operator's manual. Follow the instructions included with the template.

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

Identify Slopes for Safe Operation

- Follow safe procedures for operation on slopes. Measure slopes of all mowing sites to determine which slopes are safe for mowing with

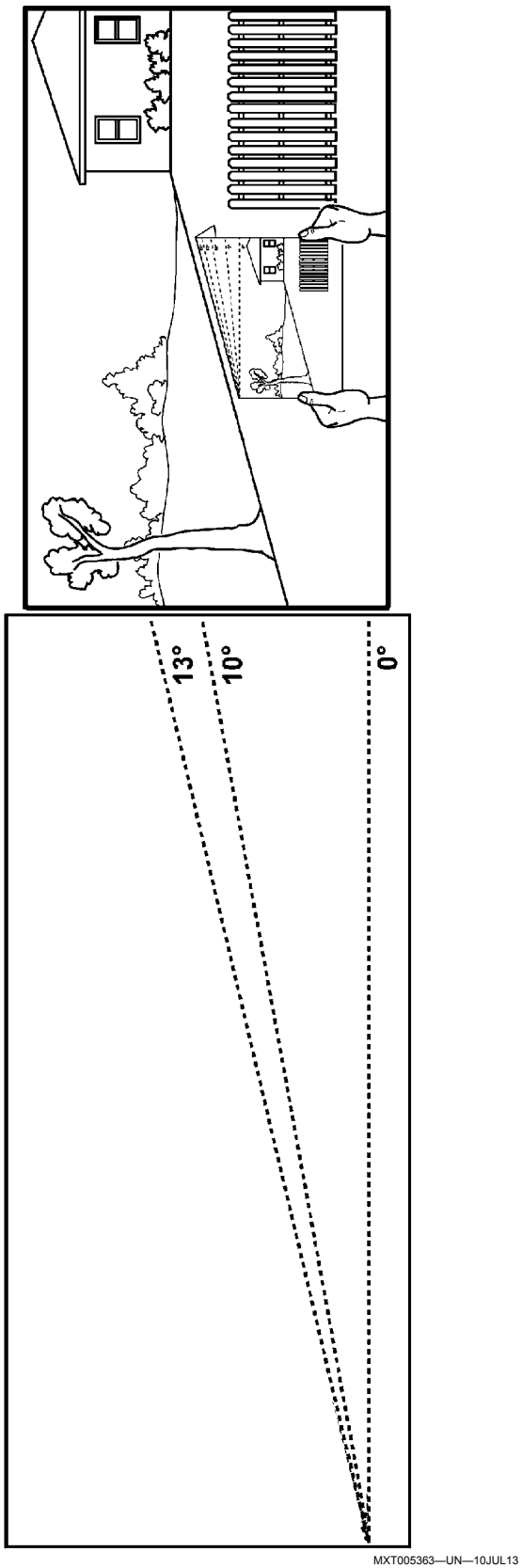
a ride-on mower. Always use common sense and good judgement when performing this survey.

Measuring Slopes

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

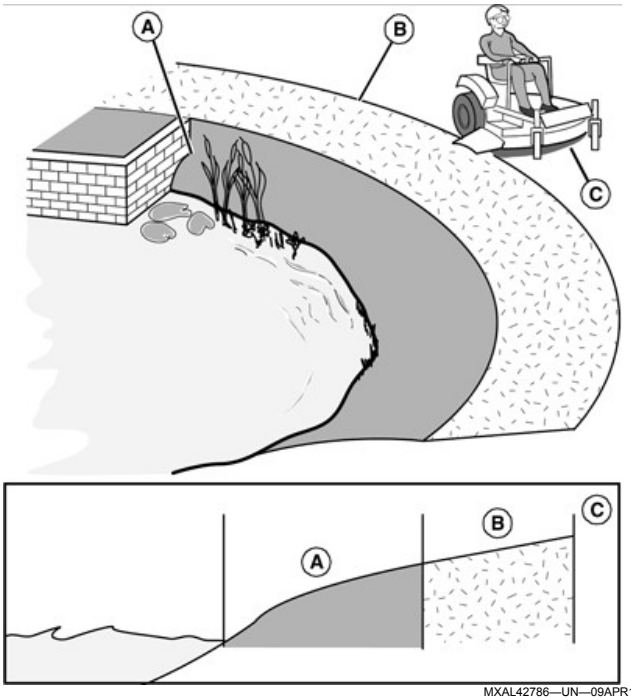
Operate Safely on Slopes

- Exceeding the recommended maximum slope angle increases the risk of rollover accidents that can result in serious injury or death.
- Never mow or operate ride-on mower on slope angles greater than 13° with the lawn ride-on mower in its basic configuration. The basic configuration is the ride-on mower with mower deck and not other attachments. (A 13° slope is a slope that rises 1.4 m [4.6 ft] over a horizontal distance of 6.1 m [20 ft].)
- When using attachments, never mow or operate the ride-on mower on slope angles greater than 10°. The addition of a weather enclosure, material collection system, or other attachments will increase the risk of a rollover. (A 10° slope is a slope that rises 1 m [3.5 ft] over a horizontal distance of 6.1 m [20 ft].)
- On slope angles of 10° or less, the risk of rollover is low, but as the slope angle increases to the recommended maximum, the risk increases to a medium level.
- Always consider potential turf conditions and slope angles when determining the risk of loss-of-control and tip-over accidents.
- Drive slowly when mowing or operating on slopes.
- If you feel uneasy on a hillside, do not mow or operate on it.
- Mow across slopes, not up and down.
- Watch for holes, ruts, bumps, rocks, or other hidden objects. Uneven terrain could overturn the ride-on mower. Tall grass can hide obstacles.
- Drive slowly so you will not have to stop while on a slope.
- Do not mow on wet grass. Tires may lose traction. Tires may slip on slopes even though the brakes are functioning properly.
- Avoid starting, stopping, or turning on a slope. If the tires lose traction, disengage the PTO and proceed slowly, straight down the slope.
- Keep all movement on slopes slow and gradual. Do not make sudden changes in speed or direction, which could cause the ride-on mower to roll over.



MXT005363—UN—10JUL13

Operating Near Hazards



MXAL42786—UN—09APR13

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

- Do not mow or operate machine in areas adjacent to hazards that may cause the machine to roll over. The machine could suddenly lose traction, slide, and/or roll over if a wheel goes over the edge or if the edge breaks away.
- Hazards (A) include but are not limited to:
  - Drop-offs, ditches, embankments, or bodies of water.
  - Areas of unsafe slope, soft ground, edges along bodies of water, or area with holes, ruts, bumps, or other hidden objects.
- Maintain a buffer area (B) at least as wide as the machine between hazards (A) and the mowing area (C). Do not mow or operate the machine in the hazard area or buffer area.
- Only mow or operate the machine in the mowing area (C). Do not exceed the recommended slope operating angle. Refer to the Operate Safely on Slopes section.
- Use a walk-behind mower or string trimmer in and around areas (A) and (B).

MP47322,00F461B-19-05JUL17

Keep Riders Off

MXAL42882—UN—26MAR13

- Only allow the operator on the machine. Keep riders off.
- Riders on the machine or attachment may be struck by foreign objects or thrown off the machine causing serious injury.
- Riders obstruct the operator's view resulting in the machine being operated in an unsafe manner.

MP47322,00F461C-19-15MAR13

Towing Loads Safely

- Stopping distance increases with speed and weight of towed load. Travel slowly and allow extra time and distance to stop.
- Total towed weight must not exceed combined weight of pulling machine, ballast, and operator. Use counterweights or wheel weights as described in the attachment or pulling machine operator's manual.
- Excessive towed load can cause loss of traction and loss of control on slopes. Reduce towed weight when operating on slopes.
- Never allow children or others in or on towed equipment.
- Use only approved hitches. Tow only with a machine that has a hitch designed for towing. Do not attach towed equipment except at the approved hitch point.
- Follow the manufacturer's recommendations for weight limits for towed equipment and towing on slopes.
- Towed attachments will increase the risk of rollover. Refer to the Operating on Slopes section for more information.
- Do not turn sharply. Use additional caution when turning or operating under adverse surface conditions. Use care when reversing.
- Do not shift to neutral and coast downhill.

MP47322,00F461D-19-05JUL17

Wear Appropriate Clothing

TCT015572—UN—24MAY18

- Always wear eye protection when operating the machine.
- Wear close fitting clothing and safety equipment appropriate for the job.
- While operating this machine, always wear substantial footwear and long trousers. Do not operate the equipment when barefoot or wearing open sandals.
- Wear a suitable protective device, such as earplugs. Loud noise can cause impairment or loss of hearing.

MP47322,00F461E-19-09JUL18

Driving Safely on Public Roads

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

- Use safety lights and devices. Slow moving machines when driven on public roads are hard to see, especially at night.
- Whenever driving on public roads, use flashing warning lights and turn signals according to local regulations. Extra flashing warning lights may need to be installed.

OUO2005,000021C-19-05FEB13

Practice Safe Maintenance

MXAL41933—UN—18FEB13

- Only qualified, trained adults should service this machine. Understand service procedure before doing work.
- Never operate machine in a closed area where dangerous carbon monoxide fumes can collect.
- Keep all nuts and bolts tight, especially blade attachment bolts, to be sure the equipment is in safe working condition.

- Never tamper with safety devices. Check their proper operation regularly.
- Keep machine free of grass, leaves, or other debris build-up. Clean up oil or fuel spillage, and remove any fuel-soaked debris. Allow the machine to cool before storing.
- If you strike a foreign object, stop and inspect the machine. Repair, if necessary, before restarting.
- Never make any adjustments or repairs with the engine running. Wait for all movement to stop on machine before adjusting, cleaning, or repairing.
- Check grasscatcher components and the discharge guard frequently and replace with manufacturer's recommended parts when necessary. Grasscatcher components are subject to wear, damage, and deterioration, which could expose moving parts or allow objects to be thrown.
- Mower blades are sharp. Wrap the blade or wear gloves, and use extra care when servicing them. Only replace blades. Never straighten or weld them.
- Check brake operation frequently. Adjust and service as required.
- Maintain or replace safety and instruction labels, as necessary.
- On multi-bladed machines, take care as rotating one blade can cause other blades to rotate.
- Keep hands, feet, clothing, jewelry, and long hair away from any moving parts to prevent them from getting caught.
- Lower any attachments to the ground before cleaning or servicing machine. Disengage all power and stop the engine. Lock park brake and remove the key. Let machine cool.
- Securely support any machine elements that must be raised for service work. Use jack stands or lock service latches to support components when needed.
- Disconnect battery or remove spark plug wire (for gasoline engines) before making any repairs. Disconnect negative terminal first and positive last. Install positive terminal first and negative last.
- Before servicing machine or attachment, carefully release pressure from any components with stored energy, such as hydraulic components or springs.
- Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts.
- Charge batteries in an open, well-ventilated area, away from sparks. Unplug battery charger before connecting or disconnecting from the battery. Wear protective clothing and use insulated tools.
- Do not strike the flywheel with a hammer or hard object because the flywheel may later shatter during operation.
- If equipped with hydraulic lift, release hydraulic pressure by lowering attachment or cutting units to the ground or to a mechanical stop, and move hydraulic control levers back and forth.

MP47322,00F4620-19-05JUL17

Avoid High Pressure Fluids

TCAL25960—UN—24MAY12

- Hydraulic hoses and lines can fail due to physical damage, kinks, age, and exposure. Check hoses and lines regularly. Replace damaged hoses and lines.
- Hydraulic fluid connections can loosen due to physical damage and vibration. Check connections regularly. Tighten loose connections.
- Escaping fluid under pressure can penetrate the skin causing serious injury. Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure.
- Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.
- If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source. Such information is available from Deere & Company Medical Department in Moline, Illinois, U.S.A. Information may be obtained in the United States and Canada only by calling 1-800-822-8262.

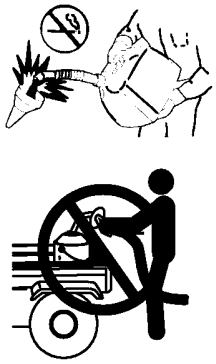
OUO2005,0000220-19-05FEB13

Prevent Fires

- Please review these recommendations with all operators. See your John Deere dealer with questions.
- Always follow all safety procedures posted on the machine and in this operator's manual. Before carrying out any inspection or cleaning, always shut off engine, set parking brake, and remove ignition key.
- Besides routine maintenance, one of the best ways to keep your John Deere equipment running efficiently and to reduce fire risk is to regularly remove debris buildup from the machine.
- After operating, allow machine to cool in an open area before cleaning or storing. Do not park machine near flammable materials, such as wood, cloth, or chemicals, or near an open flame or other sources of ignition, such as a water heater or furnace.
- Completely remove any combustible materials from equipment before storing by emptying any grass catcher bags, containers, and cargo boxes.
- Debris can accumulate anywhere on the machine, especially on horizontal surfaces. Remove grass and debris completely from engine compartment, muffler area, and from the mower deck or cutting units both before and after operating machine. Additional cleaning may be necessary when mowing or mulching in dry conditions.
- In addition to cleaning machine before using and storing, keeping engine area clean provides the greatest impact on fire prevention. Other areas requiring regular inspection and cleaning include behind wheel rims, wire harness, hose or line routing, mowing attachments, etc. Compressed air, leaf blowers, or water assists in keeping these areas clean.
- Frequency of these inspections and cleaning will vary depending on a number of factors, including operating conditions, machine configuration, operating speeds, and weather conditions (particularly dry, hot, and windy conditions). When you are operating in these conditions, inspect and clean these areas frequently throughout the day.
- Excess lubrication or fuel/oil leaks or spills on the machine can also serve as collection sites for debris. Prompt machine repair and oil and fuel clean-up reduces the potential for debris collection.
- Bearing failures or overheating can result in a fire. To reduce this risk, always follow the instructions in the machine operator's manual regarding lubrication intervals and locations. Contact your local dealer if you have any questions about the lubrication intervals or location and if any unusual noises are coming from areas where bearings might be located. Washing the machine while warm may also reduce bearing life and increase potential for premature bearing failure.
- Always shut off fuel when storing or transporting machine, if the machine has a fuel shutoff.
- Check fuel lines, tank, cap, and fittings frequently for cracks or leaks. Replace if necessary.

OUO2005,0000221-19-27MAR19

Handling Fuel Safely



MXAL41938—UN—18FEB13

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

- Extinguish all cigarettes, cigars, pipes, and other sources of ignition.
- Use only an approved fuel container. Use only non-metal, portable fuel containers approved by the Underwriter's Laboratory (U.L.) or the American Society for Testing & Materials (ASTM). If using a funnel, make sure it is plastic and has no screen or filter.
- Never remove the fuel tank cap or add fuel with the engine running. Allow engine to cool before refueling.
- Never add fuel to or drain fuel from the machine indoors. Move machine outdoors and provide adequate ventilation.
- Clean up spilled fuel immediately. If fuel is spilled on clothing, change clothing immediately. If fuel is spilled near machine, do not attempt to start the engine but move the machine away from the area of spillage. Avoid creating any source of ignition until fuel vapors have dissipated.
- Never store the machine or fuel container where there is an open flame, spark, or pilot light such as on a water heater or other appliance.
- Prevent fire and explosion caused by static electric discharge. Static electric discharge can ignite fuel vapors in an ungrounded fuel container.
- Never fill containers inside a vehicle or on a truck or trailer bed with a plastic liner. Always place containers on the ground away from your vehicle before fueling.
- Remove fuel-powered equipment from the truck or trailer and refuel it on the ground. If this is not possible, then refuel such equipment with a portable container, rather than from a fuel dispenser nozzle.
- Keep the nozzle in contact with the rim of the fuel tank or container opening at all times until the fueling is complete. Do not use a nozzle lock-open device.
- Never overfill fuel tank. Replace fuel tank cap and tighten securely.
- Replace all fuel container caps securely after use.
- For gasoline engines, do not use gas with methanol. Methanol is harmful to your health and to the environment.

OUO2005,0000223-19-12OCT16

Tire Safety

TCAL25965—UN—24MAY12

Explosive separation of a tire and rim parts can cause serious injury or death:

- Do not attempt to mount a tire without the proper equipment and experience to perform the job.
- Always maintain the correct tire pressure. Do not inflate the tires above the recommended pressure. Never weld or heat a wheel and tire assembly. The heat can cause an increase in air pressure resulting in a tire explosion. Welding can structurally weaken or deform the wheel.
- When inflating tires, use a clip-on chuck and extension hose long enough to allow you to stand to one side and NOT in front of or over the tire assembly.
- Check tires for low pressure, cuts, bubbles, damaged rims or missing lug bolts and nuts.

OUO2005,0000222-19-10MAY17

Checking Wheel Hardware

- A serious accident could occur causing serious injury if wheel hardware is not tight.
- Check wheel hardware tightness often during the first 100 hours of operation.
- Wheel hardware must be tightened to specified torque using the proper procedure anytime it is loosened.

MP47322,00F4625-19-15MAR13

Handling Waste Product and Chemicals

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

- Do not use beverage containers for waste fluids - someone may drink from them.
- See your local Recycling Center or authorized dealer to learn how to recycle or get rid of waste products.
- A 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.

OUO2005,0000224-19-11OCT18

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

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

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

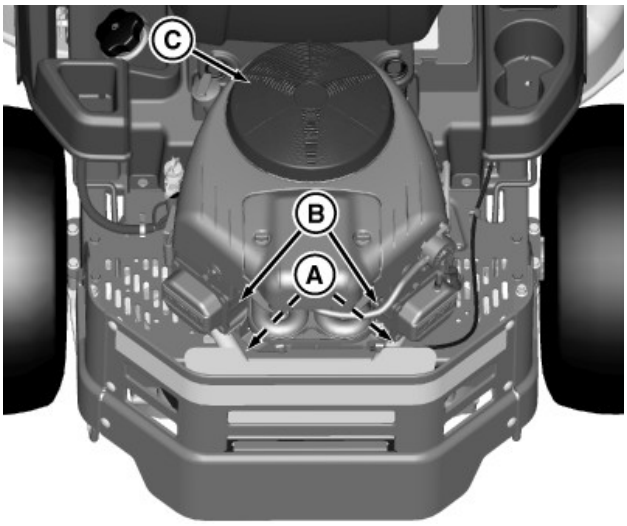
Machine Cleanout

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

OUMX068,0001043-19-27MAR19

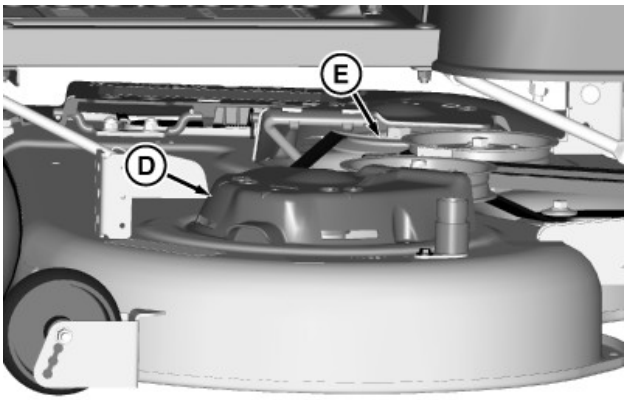
Cleanout Areas

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



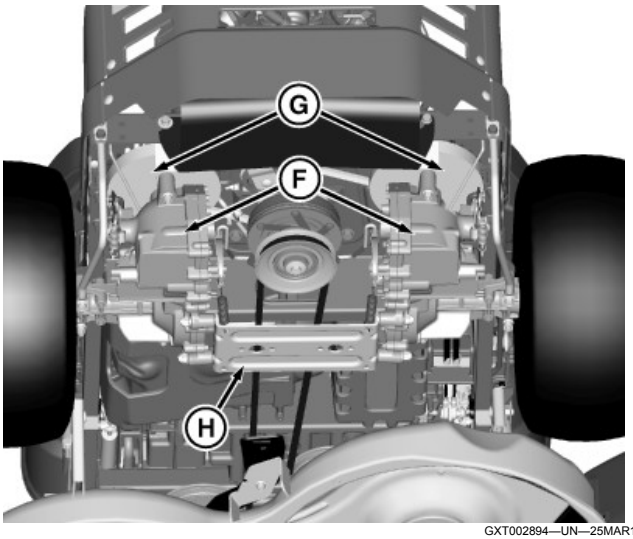
GXT002892—UN—29MAR16

1. Muffler components (A):
   - Exhaust Manifold
   - Muffler Pipes
   - Muffler
   - Muffler Shield
2. Engine cooling fins (B) and intake screens (C).



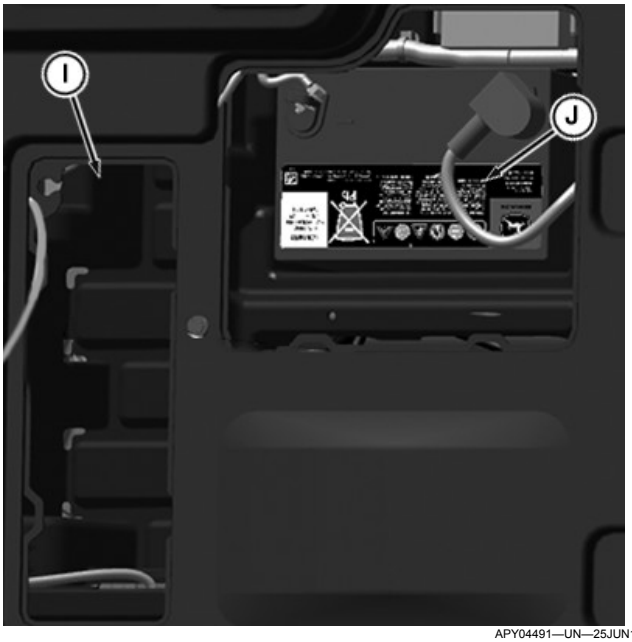
GXT002893—UN—25MAR16

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



GXT002894—UN—25MAR16

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



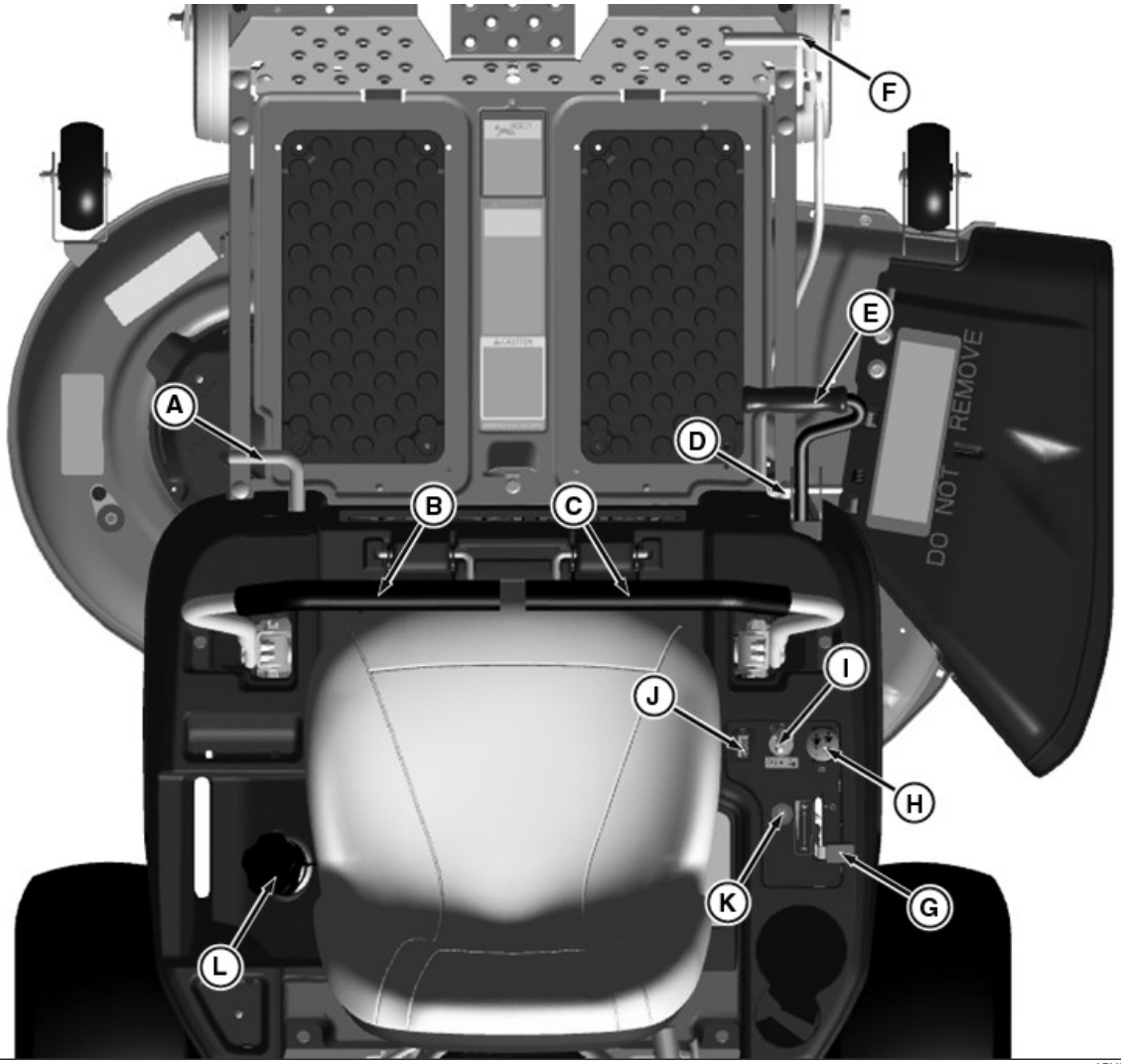
APY04491—UN—25JUN18

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

MG39705,00000B9-19-18APR19

Operating Controls

Operator Station Controls



APY04444—UN—24MAY18

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

MG39705,0000093-19-02MAY18

Operating

Daily Operating Checklist

- ☐ Test safety systems.
- ☐ Check fuel level. (See SERVICE MISCELLANEOUS section, Using Proper Fuel and Stabilizer)
- ☐ Check engine oil level.
- ☐ Remove grass and debris from engine compartment and muffler area, and on top of mower deck, before and after operating machine.
- ☐ Clean mower deck with water using washout port after each use.
- ☐ Clean air intake screen.
- ☐ Check area below machine for leaks.

MP47322,00F462F-19-16MAY13

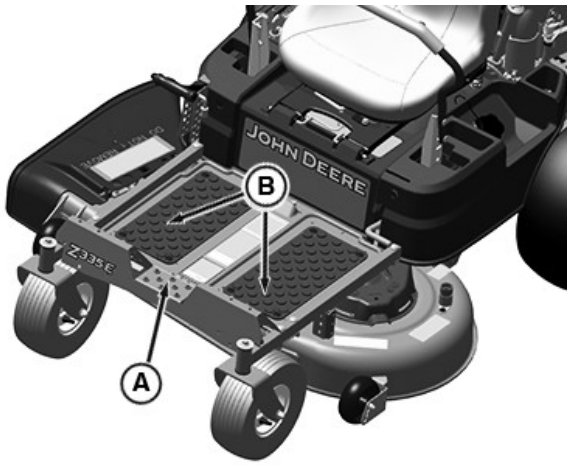
Avoid Damage to Plastic and Painted Surfaces

- 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.

- 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

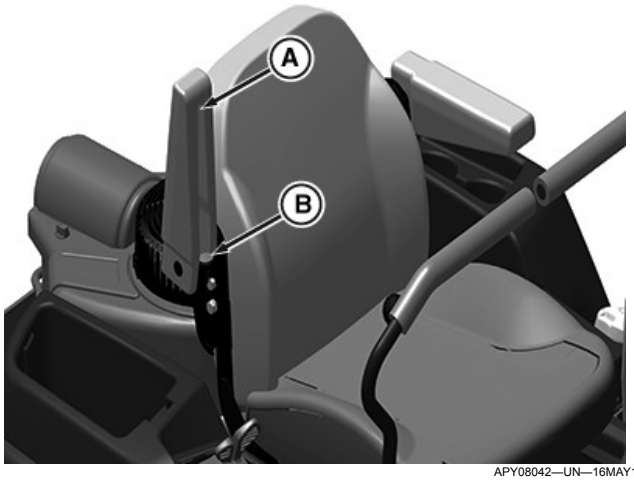
1. Sit on operator seat.

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



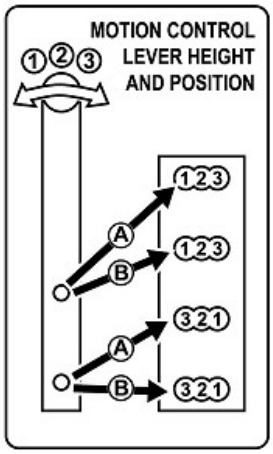
APY08042—UN—16MAY18

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

MG39705,0000096-19-18MAY18

Adjusting Motion Control Levers

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



GXT002159—UN—03JUN15

2. 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

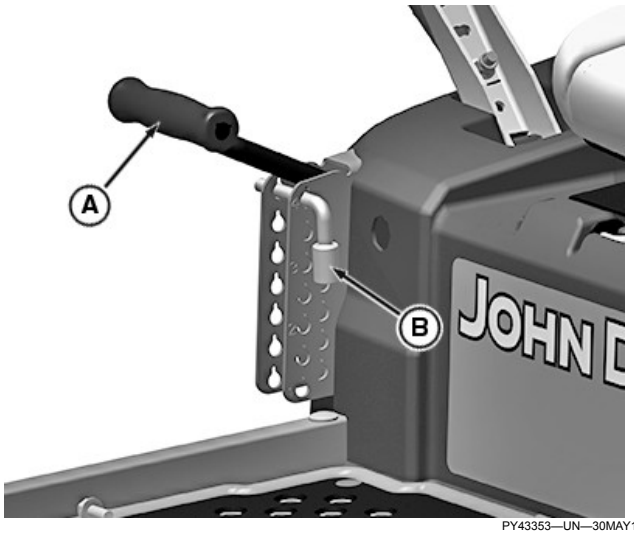
3. Remove two bolts and nuts and raise or lower each control lever to your comfort level.
   - For highest lever position, use holes (A).
   - For lowest lever position, use holes (B).
4. You can also adjust each motion control lever slightly forward or rearward (C) within slotted holes.

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.

1. Park machine safely. (See Parking Safely in the SAFETY section.)
2. Inflate tires to the correct pressure. (See Checking Tire Pressure in the SERVICE MISCELLANEOUS section.)



PY43353—UN—30MAY17

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

MG39705,00000D9-19-18JUL18

Adjusting Mower Level

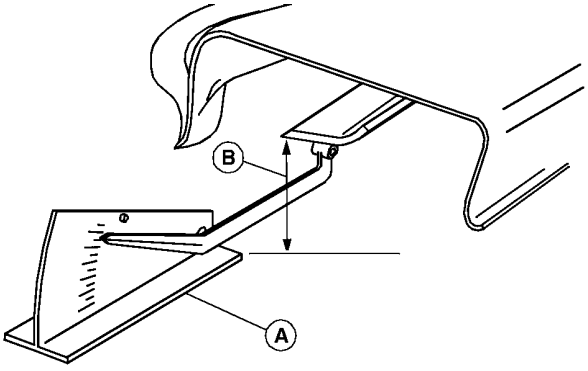
CAUTION: Avoid injury! Rotating blades are dangerous.

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.**

NOTE: Mower deck anti-scalp wheels should not contact the ground when leveling the deck.

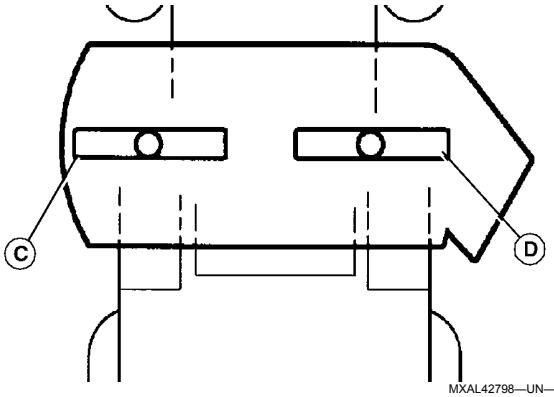
1. Park machine safely. (See Parking Safely in the SAFETY section.)
2. Inflate tires to the correct pressure. (See Checking Tire Pressure in the SERVICE MISCELLANEOUS section.)
3. Position caster wheels to the forward driving position.
4. Set mower to preferred cutting height, and lower deck into the mowing position.
5. Measure mower level (side-to-side).



MXAL42797—UN—09APR13

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

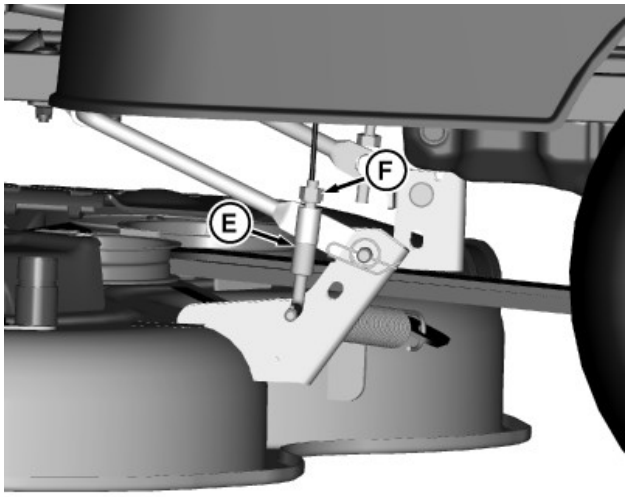
a. Position mower blades as follows and measure from each outside blade tip (B) to the level surface.



MXAL42798—UN—09APR13

b. Turn left blade (C) as shown. Hold belt and turn 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.).

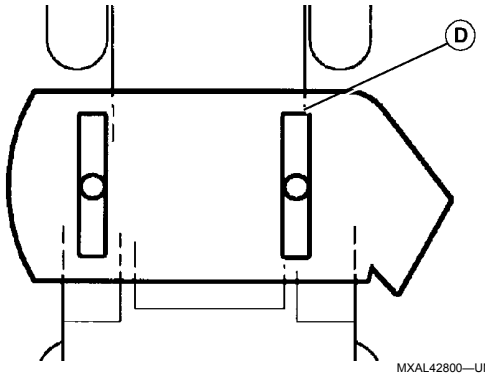


GXT003029—UN—29JUN16

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 bottom of lock nut is fully engaged on threaded fitting to avoid hardware loosening during operation.

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



MXAL42800—UN—09APR13

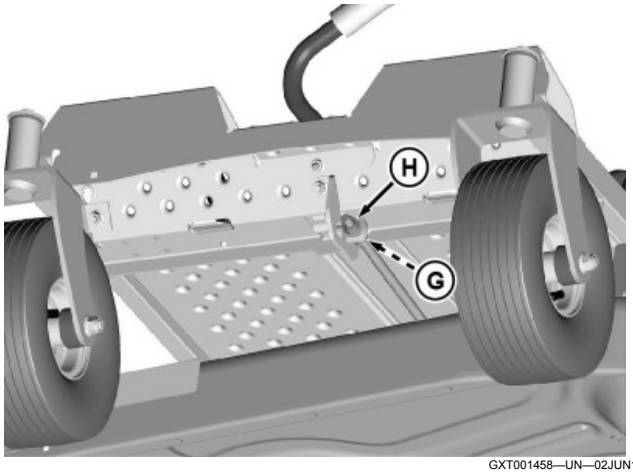
a. Turn right blade (D) so a blade tip points straight forward.

b. Measure from 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**

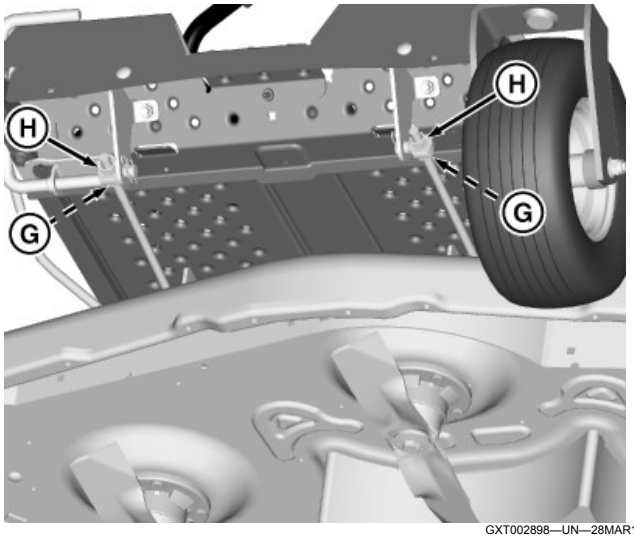


GXT001458—UN—02JUN15

Adjust mower front to rear level by loosening rear nut (G) on 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 deck will latch in transport position. If it does not latch, turn both rear adjusting nuts counterclockwise equally to lower rear of deck until deck latch will engage. Check front lift rod adjustment, adjust if necessary.

d. **48A and 54A Mower Decks**



GXT002898—UN—28MAR16

Adjust mower front to rear level by loosening rear nuts (G) on front lift rods. Turn front nuts (H) clockwise to raise front of mower or counterclockwise to lower it. If lift rod is not tight against both deck hooks, tighten loose side until both sides are tight against deck hooks. Shake the deck slightly to ensure that it has settled into position. Tighten rear nuts (G) after adjustment is complete.

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

MX52301,0000F02-19-29JUN16

Adjusting Mower Wheels

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

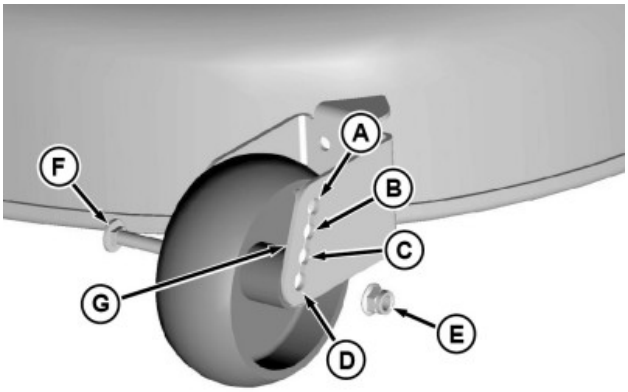
- **Disconnect spark plug wire(s) or battery negative (-) cable to prevent engine from starting accidentally.**
- **Always wear gloves when handling mower blades or working near blades.**

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

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

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

42A, 48A, and 54A Mower Decks



GXT001459—UN—02JUN15

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

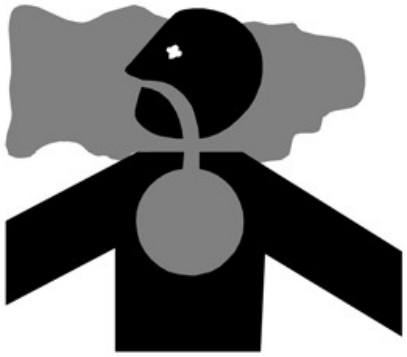
- Remove nut (E) using height-of-cut tool or 13 mm wrench. Pull carriage bolt (F) out until end of bolt clears the outer wall of the gauge wheel bracket (G), then slide bolt and wheel assembly to the desired position. Push bolt back through outer wall of bracket. Install nut (E) and tighten to specification.

Specification

Mower Wheel Nut—Torque. . . . . 24 N·m (18 lb·ft)

MG39705,00001E9-19-24JUN19

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.
4. Third test:
   a. Lock park brake.
   b. Disengage mower.
   c. Start engine.
   d. 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

1. Park machine safely. (See Parking Safely in the SAFETY Section.)
2. Sit on seat.
3. First test:
   a. With the park brake locked, start engine.
   b. 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:
   a. Start engine.
   b. Release park brake.
   c. Move right motion control lever inward.

   Result: Engine should continue to run. If engine stops, there is a problem with your safety interlock circuit.
5. 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

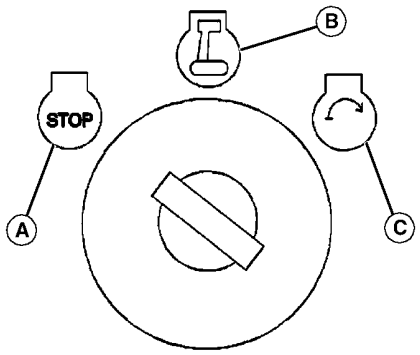
1. Raise park brake lever to lock park brake.

Releasing Park Brake

1. 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.

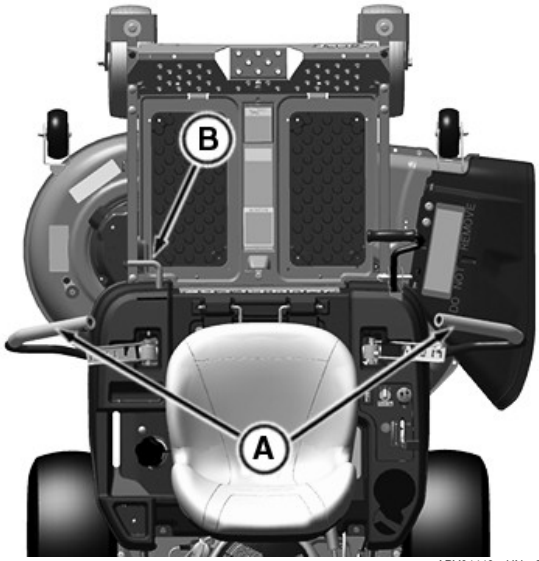
Do not move motion control levers from forward to reverse or reverse to forward position rapidly. Sudden direction changes could cause loss of control or damage the machine.

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.

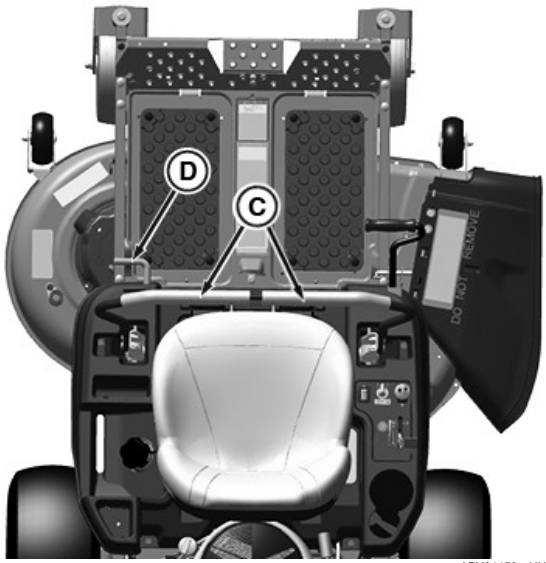
Start/shutdown Position



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

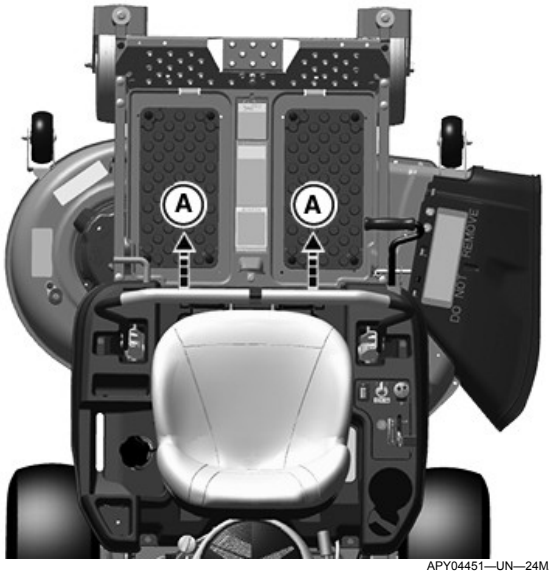
- Machine speed, motion, and direction can be controlled when the engine is running, motion control levers are in the neutral position (C), and the park brake (D) is unlocked.
- To stop the machine for an emergency, move the motion control levers quickly back to the neutral position.

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.

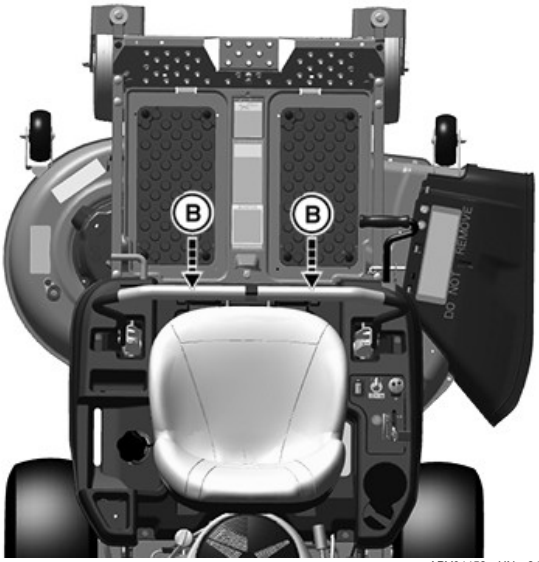
Forward Travel



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.

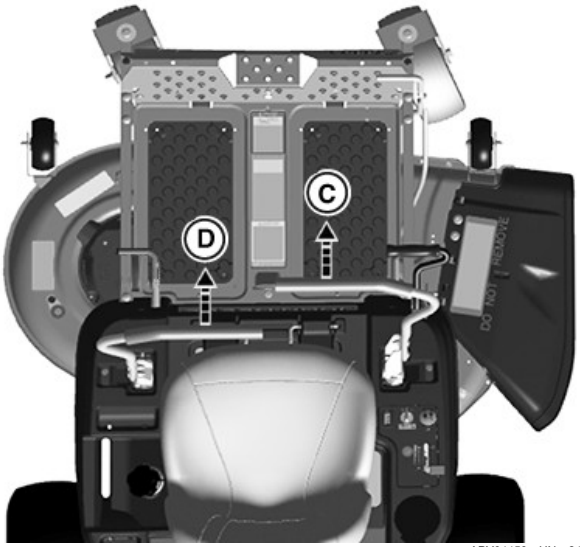
Reverse Travel



APY04452—UN—24MAY18

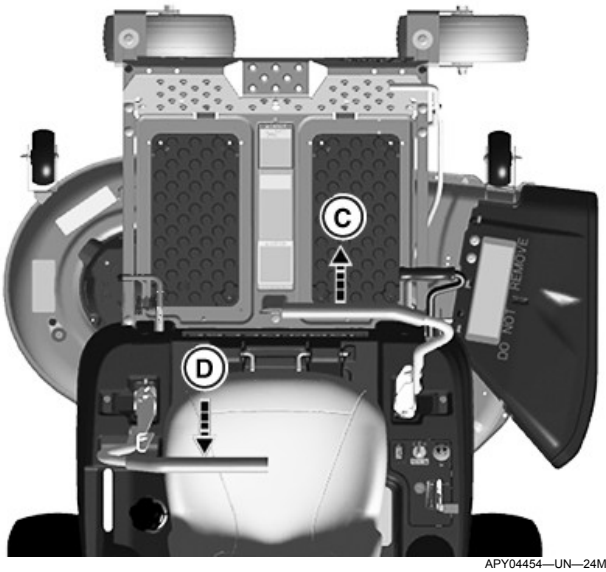
1. Look down and behind, then gradually move both motion control levers evenly rearward (B) from neutral. To speed up, move the levers farther rearward. To slow down smoothly, slowly move the levers toward neutral.

Left Turn



APY04453—UN—24MAY18

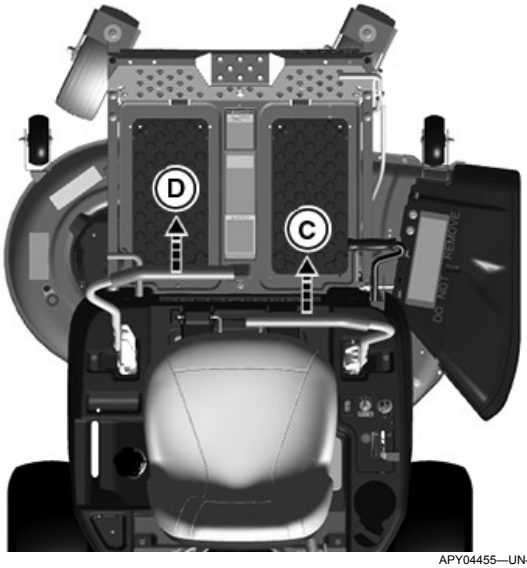
1. To turn slightly to the left, push right control lever (C) further forward than the left control lever (D).



APY04454—UN—24MAY18

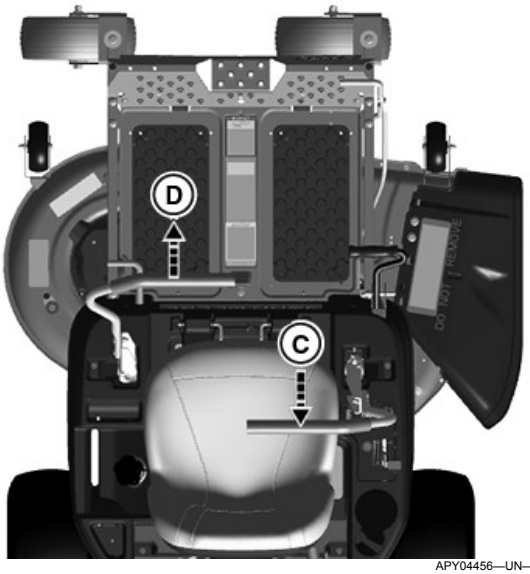
2. To turn sharply to the left, push right control lever (C) forward and pull left control lever (D) rearward at the same time.

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.

NOTE: These machines are equipped with an automatic choking system. No manual choking is required.

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 full throttle position.

IMPORTANT: Avoid Damage! Starter may be damaged if 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.

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

MG39705,00001CE-19-10JUL19

Engaging Mower

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

Keep hands and feet away from blades and discharge opening.

Do not mow in reverse unless absolutely necessary.

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 full throttle position.

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 will vary with the amount that the control levers are moved.

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

MG39705,00001CF-19-03JUN19

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 back firing 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: 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.

MG39705,00001D0-19-16JUL19

Moving Machine by Hand

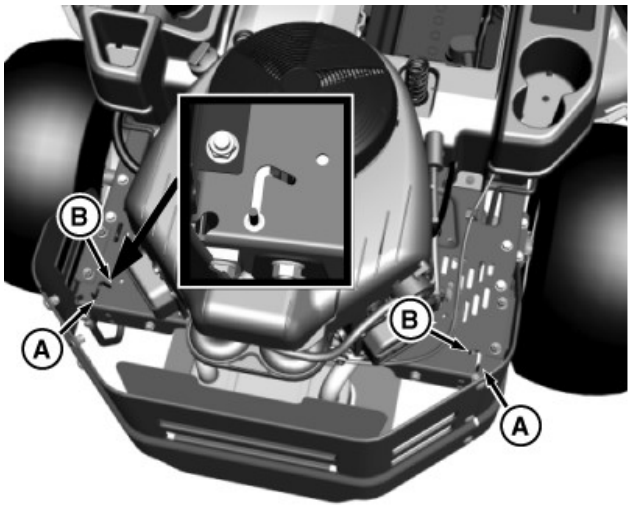
CAUTION: When the bypass valve is open, the machine will have unrestricted motion.

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

IMPORTANT: 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.**

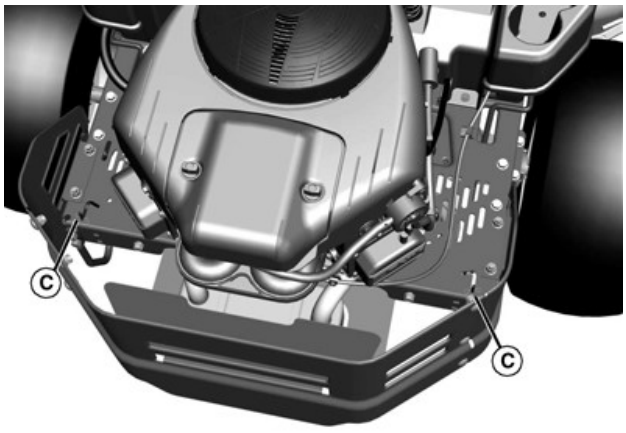
When the machine needs to be moved without starting the engine, use the bypass valves:



MXT005332—UN—13JUN13

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

MP47322,00F4645-19-22MAY13

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.

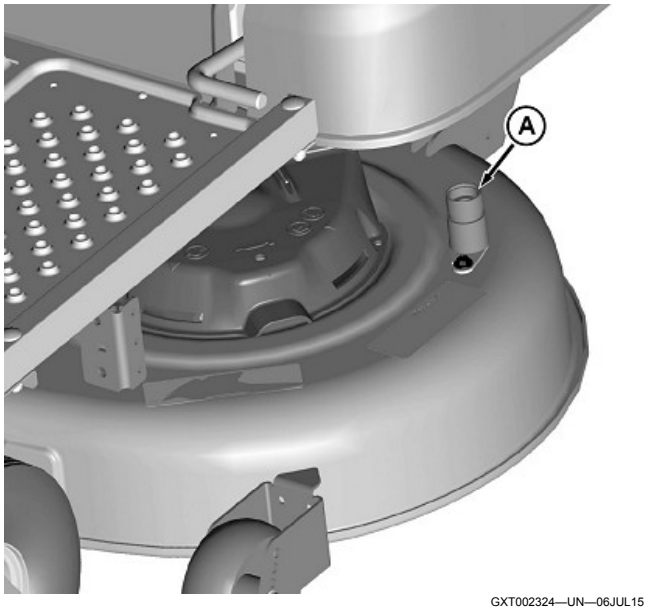
1. Park machine safely. Wait for all moving parts to stop before getting off to inspect machine.
2. Open hopper cover. Check chute outlet.
3. Remove chute from the mower deck or blower assembly. Check chute inlet.
4. Check under the mower deck for debris.

MP47322,00F4646-19-10APR19

Using Wash Port to Clean Mower Deck

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

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



GXT002324—UN—06JUL15

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

TH84124,000024E-19-06JUL15

Transporting Machine on Trailer

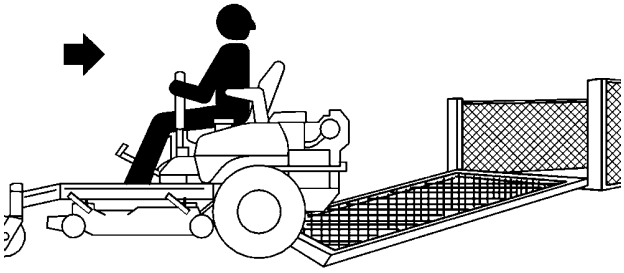
NOTE: Trailer capacity must exceed combined machine weight and attachment weight. (See Specifications section in operator's manual).

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.

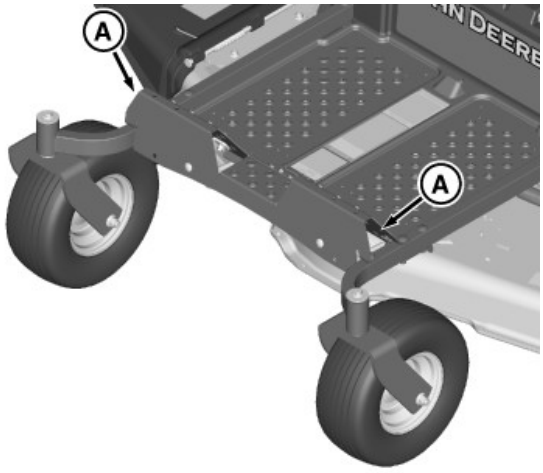
- **To load, back slowly and in a straight line. Keep wheels away from drop-offs and edges.**
- **Do not use two separate loading ramps. Use a full width loading ramp at least 30 cm (12 in) wider than machine to keep caster wheels from going off the ramp edge.**
- **Use a trailer with sides.**

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



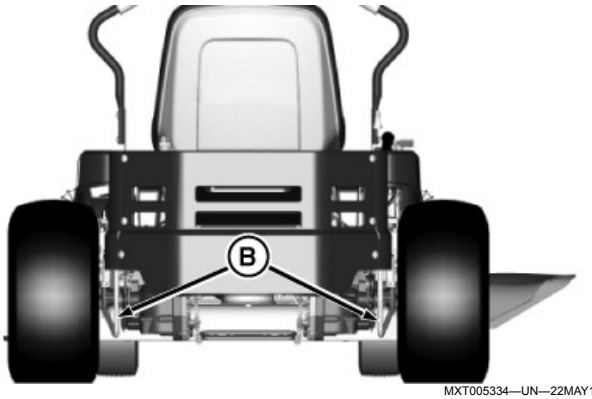
MXAL42817—UN—09APR13

3. Back machine onto heavy-duty trailer with full-width ramp.
4. Lower mower deck completely.
5. Lock park brake.
6. Turn off machine and remove key.



GXT002963—UN—18APR16

7. 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.



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.

MX52301,0000F1C-19-18APR16

Transporting Material Collection System (If Equipped)

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

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

TH84124,000020A-19-10APR19

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. Cut grass at half desired height – then cut at desired height.
  - Travel slow 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.

MP47322,00F4649-19-15MAR13

Blade Choices

Several types of blades are available for ZTrak Z300 series mowers:

42A , 48A, and 54A Decks

- Dedicated Side discharge blades. These blades are designed for optimal performance when side discharging, and are installed on Z300 Series 42A, 48A, and 54A mowers when shipped from the factory.
- Dedicated Mulching blades. These blades are designed for optimal performance when used with a mulch cover or mulch plug installed.
- Dedicated Bagging blades (42A Deck Only). These blades are

designed for optimal performance when used with a Z300 series bagger.

MX52301,0000EFF-19-27JUN16

Service Intervals

Servicing Your Machine

IMPORTANT: Avoid damage!

Operating in extreme conditions may require more frequent service intervals:

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

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

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

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

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

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

OUMX068,00006EF-19-22NOV16

Service Intervals

Break-In After 8 Hours

- Check mower deck level.

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.

RM87422,0000741-19-05JUL17

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.

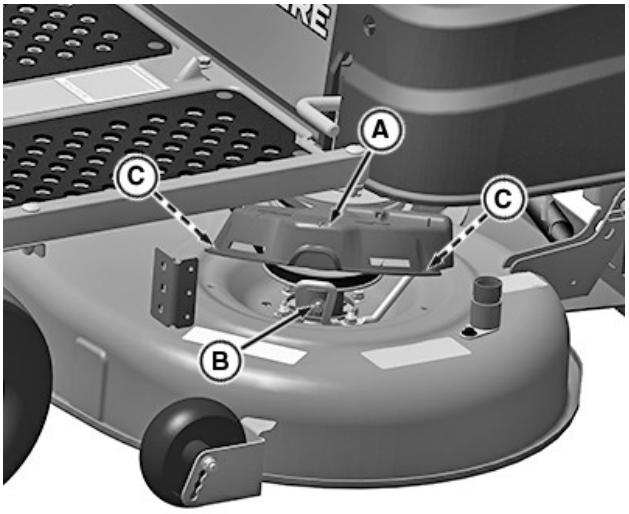
OUMX068,0000642-19-03APR19

Lubricating Mower Deck Spindles

NOTE: Removal of belt shields is not necessary to lubricate the spindles.

1. Remove mower deck foot plate. (See Removing and Installing Mower Deck Foot Plate in the SERVICE MOWER Section.)
2. Lubricate each mower deck spindle with two pumps of grease at specified intervals as indicated:

42A Mower Deck

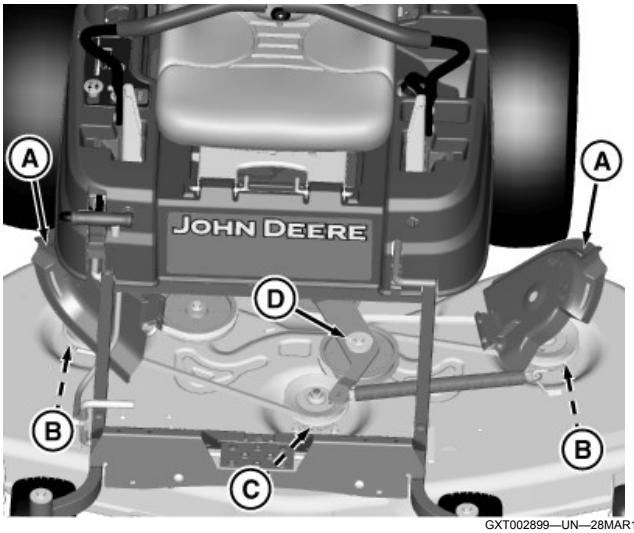


PY43363—UN—04JUL17

- Remove 2 screws (C) on left spindle cover (A).
- Raise spindle cover (A) and lubricate spindle grease fitting (B).

- Raise opposite spindle cover and lubricate spindle grease fitting.

48A and 54A Mower Decks

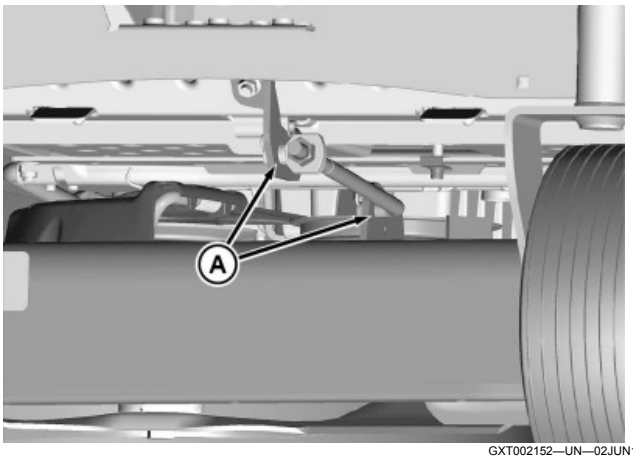


GXT002899—UN—28MAR16

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

RM87422,0000742-19-14JUL17

Lubricating Front Lift Arm



GXT002152—UN—02JUN15

Model Z335E (42A) shown.

Lubricate the front lift arm at the points (A) where it pivots in the mower deck bracket as needed to prevent or minimize squeaking during operation.

TH84124,00001A8-19-18JUN15

Service Engine

Emissions Service Information

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

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

Emission Control System Certification Label

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

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

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

Altitude Adjustment (Gasoline or Propane Converted Engines Only)

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

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

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

TC00531,00000EC-19-28MAR16

Avoid Fumes

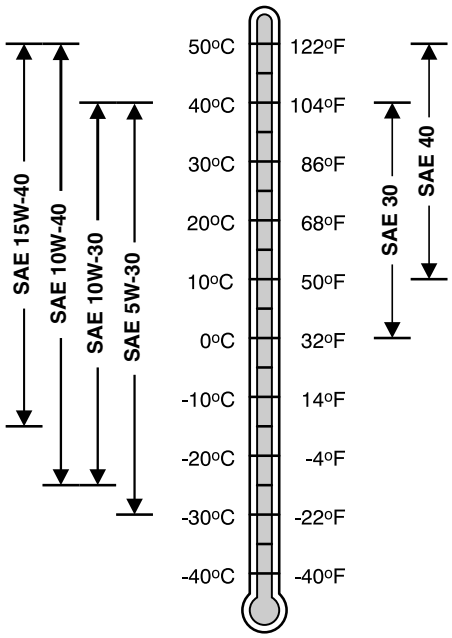
CAUTION: Avoid injury! Engine exhaust fumes contain carbon monoxide and can cause serious illness or death.

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

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

MP47322,00F4652-19-13JAN15

Gasoline Engine Oil



TS1734—UN—04SEP13

Oil Viscosities for Air Temperature Ranges

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

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

John Deere Turf-Gard™ is preferred.

The following oils are also recommended:

- John Deere Plus-4™
- John Deere Plus-50™ II

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

- ILSAC GF-5
- API Service Category SN
- API Service Category SM
- API Service Category SL
- API Service Category SJ
- ACEA Oil Sequence A5
- ACEA Oil Sequence A3
- ACEA Oil Sequence A1
- ACEA Oil Sequence C4
- ACEA Oil Sequence C3
- ACEA Oil Sequence C2
- ACEA Oil Sequence C1

DX,ENOIL2-19-20JUL15

Turf-Gard is a trademark of Deere & Company
Plus-4 is a trademark of Deere & Company
Plus-50 is a trademark of Deere & Company

Checking Engine Oil Level

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

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

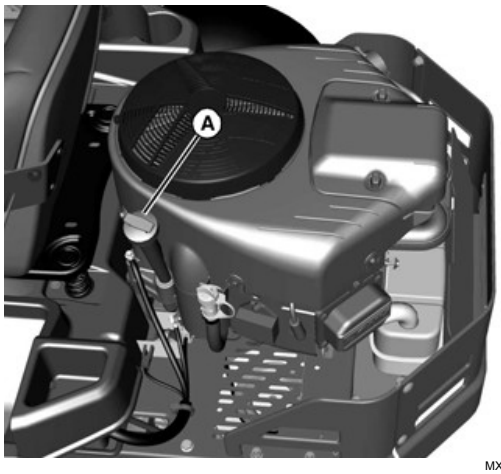
NOTE: Check oil twice a day if you run engine over 4 hours in a day.

Make sure engine is cold when checking engine oil level.

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

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

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



MXAL42827—UN—09APR13

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

MP47322,00F4654-19-15MAR13

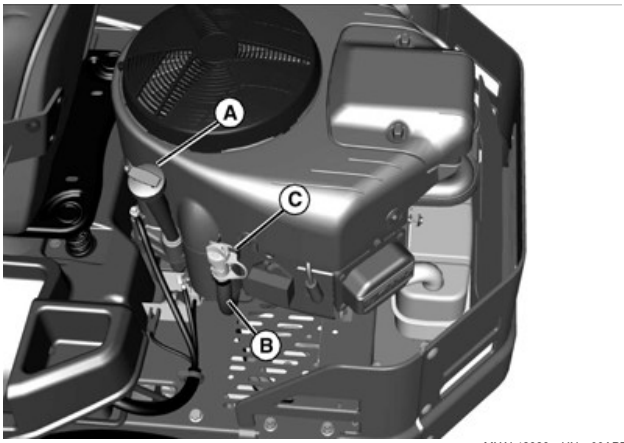
Changing Engine Oil and Filter

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

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

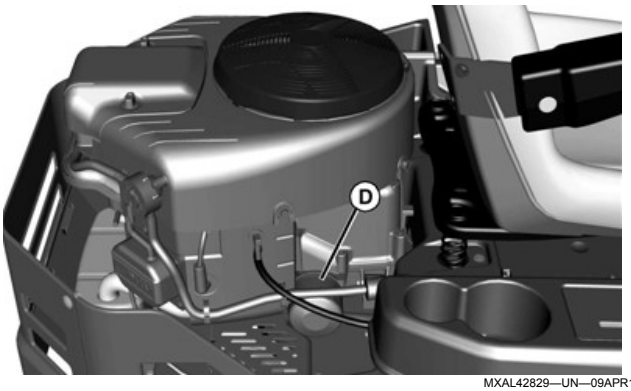
1. Run engine to warm oil.
2. Park machine safely on the level surface. (See Parking Safely in the SAFETY section.)

IMPORTANT: 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.

MG39705,0000207-19-17JUL19

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: 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.**

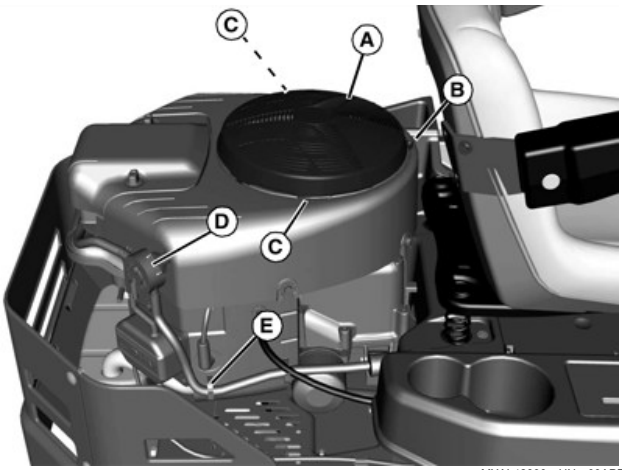
Specification

Air—Pressure. . . . . 210 kPa (30 psi)

IMPORTANT: 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: 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.

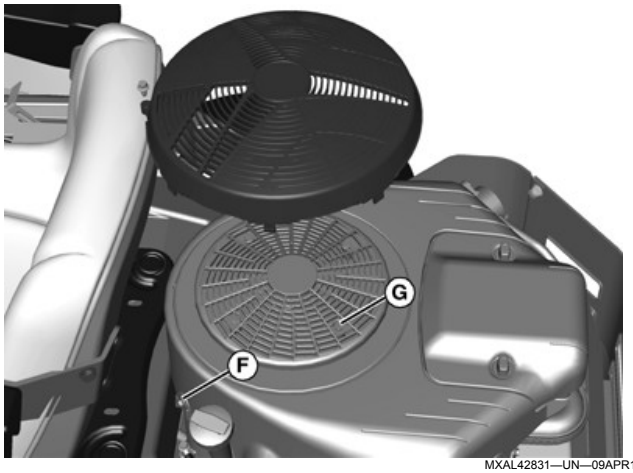
1. Park machine safely. (See Parking Safely in the SAFETY Section.)
2. Clean air intake screen and external engine surfaces (see Cleaning Air Intake Screen and Engine Fins in ENGINE Section).



MXAL42830—UN—09APR13

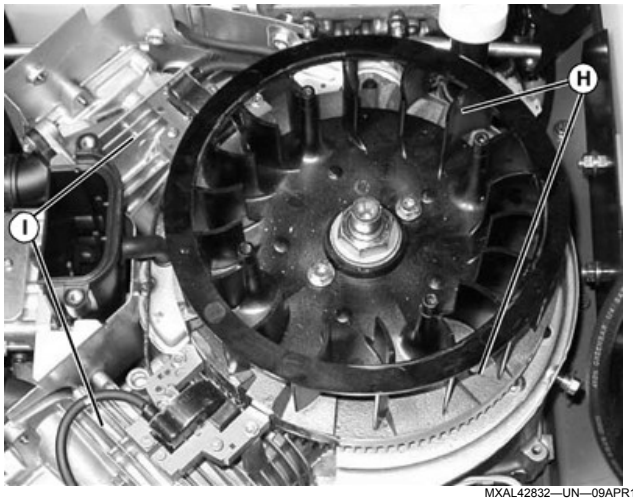
3. Locate rotating screen guard (A) at top of engine.
4. Remove screw (B) (if equipped) press in tabs (C) and lift off guard (A).
5. Clean guard and flywheel cover of debris.

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

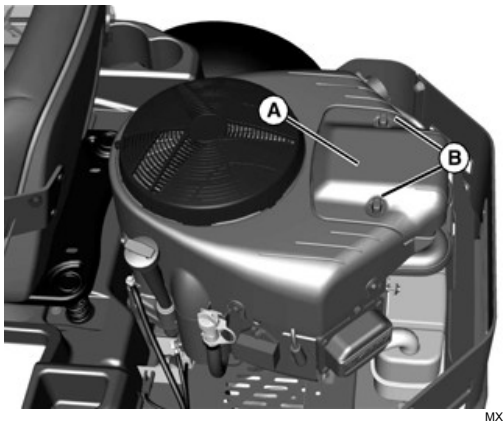
10. Install shroud with hardware.

MP47322,00F4657-19-27MAR13

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.**
- **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

GXT002964—UN—18APR16

5. Lift out filter cartridge (C) and inspect it for damage.

NOTE: Do not put engine oil on precleaner. Engine oil may wick into the paper filter element and result in poor engine performance.

• Rinse precleaner thoroughly. Squeeze out excess water in a dry cloth until precleaner is completely dry.

• Replace the precleaner if damaged or missing.

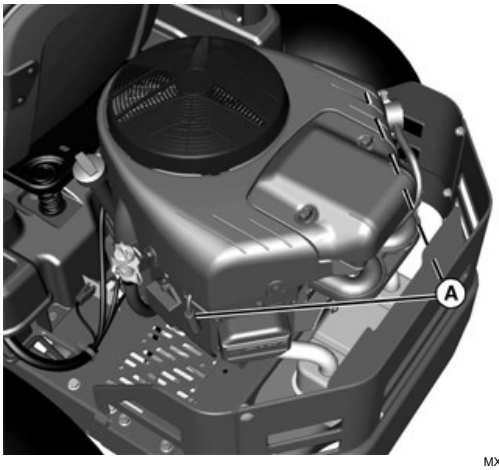
6. If equipped, carefully clean and inspect foam precleaner (D).
   - Wash precleaner in a solution of warm water and liquid detergent.
7. Clean air cleaner housing carefully. Prevent any dirt from falling into carburetor.
8. Install cartridge. Make sure cartridge and seal are properly seated and sealing the carburetor air intake area.
9. Install air cleaner cover and tighten knobs. Do not overtighten.

MX52301,0000F1D-19-18APR16

Checking Spark Plug

CAUTION: 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).

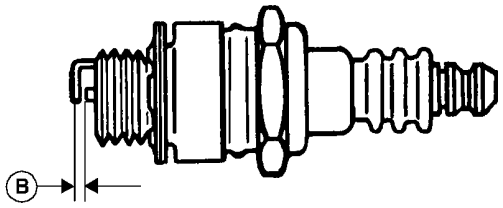


MXAL42835—UN—09APR13

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 spark plug for:
   - Cracked porcelain.
   - Pitted or damaged electrodes.
   - Other wear or damage.

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

6. Replace spark plug(s) 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 spark plug wire(s).

MP47322,00F4659-19-15MAR13

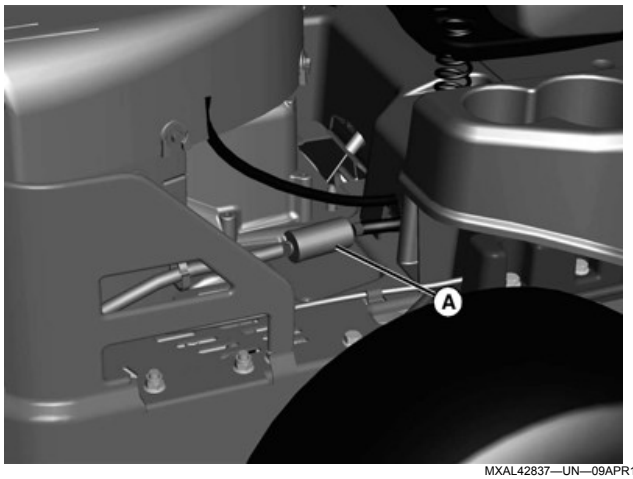
Replacing Fuel Filter

CAUTION: Fuel vapors are explosive and flammable:

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

NOTE: Change filter when fuel is low.

1. Park machine safely. (See Parking Safely in the SAFETY section).
2. Let engine cool.
3. Raise operator's seat if required.
4. Put a drain pan under fuel filter.



MXAL42837—UN—09APR13

Standard twin cylinder shown.

5. Slide hose clamps on both sides of fuel filter (A) away from fuel filter ends using pliers.
6. Disconnect hoses from filter.

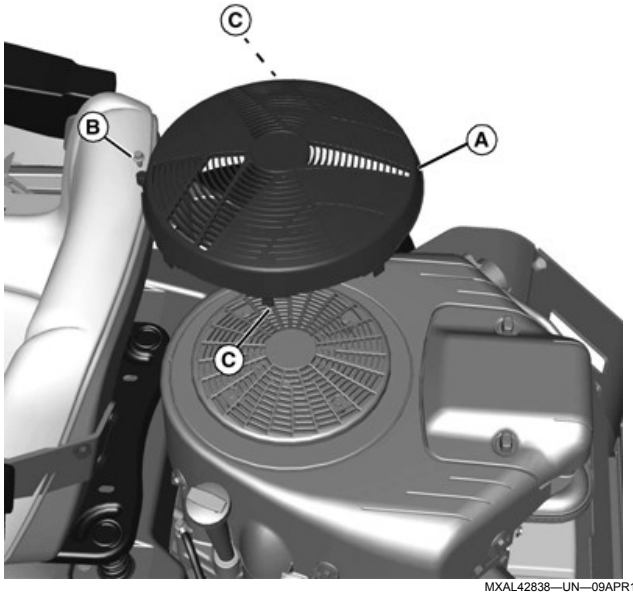
IMPORTANT: Incorrect installation of fuel filter may cause engine damage. Install the filter with the arrow pointing in the direction of fuel flow (towards the engine) for proper operation.

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

MP47322,00F465B-19-15MAR13

Cleaning Engine Screen Guard

The twin cylinder engine incorporates a removable guard over the rotating flywheel cover at the top of the engine. The guard should be removed to check for and remove any debris daily in conjunction with checking engine oil level.



MXAL42838—UN—09APR13

1. Locate rotating screen guard (A) at top of engine.
2. Remove screw (B) (if equipped), press in tabs (C) and lift off guard (A).
3. Clean guard and flywheel cover of debris.
4. Install guard after cleaning.

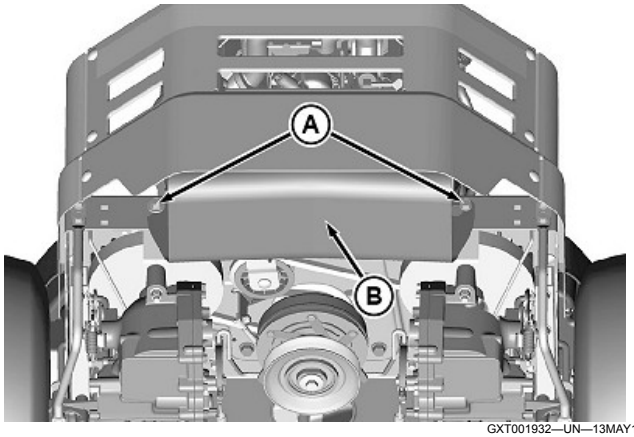
MP47322,00F465C-19-16MAY13

Spark Arrestor Maintenance (If Equipped)

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

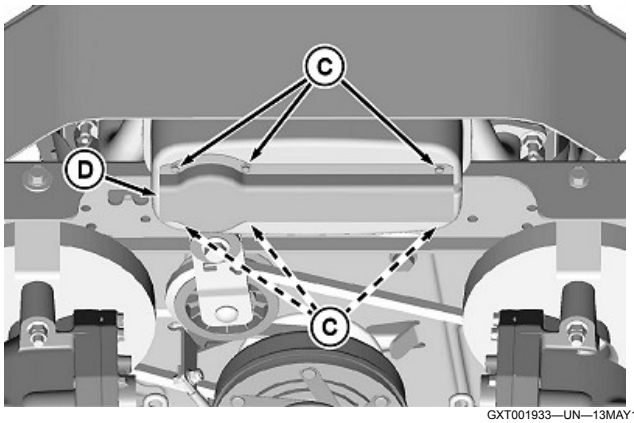
RM87422,00002DA-19-05JUL17

Cleaning Spark Arrestor



GXT001932—UN—13MAY15

1. Loosen two bolts (A) and remove muffler shield (B).



GXT001933—UN—13MAY15

2. Remove screws (C), spark arrestor cover (D) and spark arrestor from engine.
3. Inspect, clean, or if necessary, replace the screen if damaged.
4. Install spark arrestor and cover on muffler and secure with original screws.
5. Install muffler shield and tighten hardware.

NOTE: If muffler sustains damage during the removal or installation process, replace muffler.

TH84124,00001AA-19-06JUN16

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.

TH84124,00001D2-19-12JUN15

Checking Transaxle Oil Level

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

MP47322,00F465E-19-15MAR13

Changing Transaxle Oil and Filter

The transaxles on these models require no maintenance. If you suspect transmission problems, contact your authorized dealer.

MP47322,00F465F-19-15MAR13

Checking and Adjusting Neutral Creep

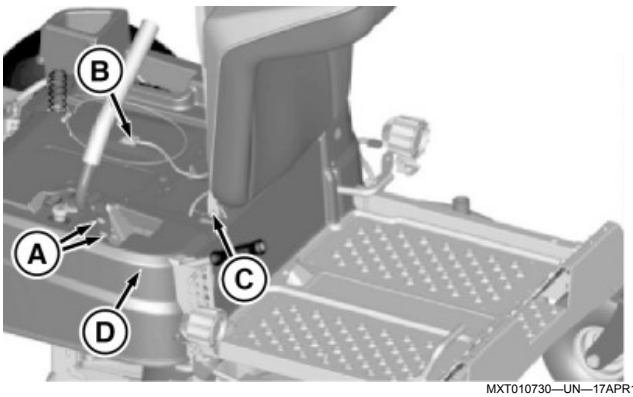
Checking Neutral Creep

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.

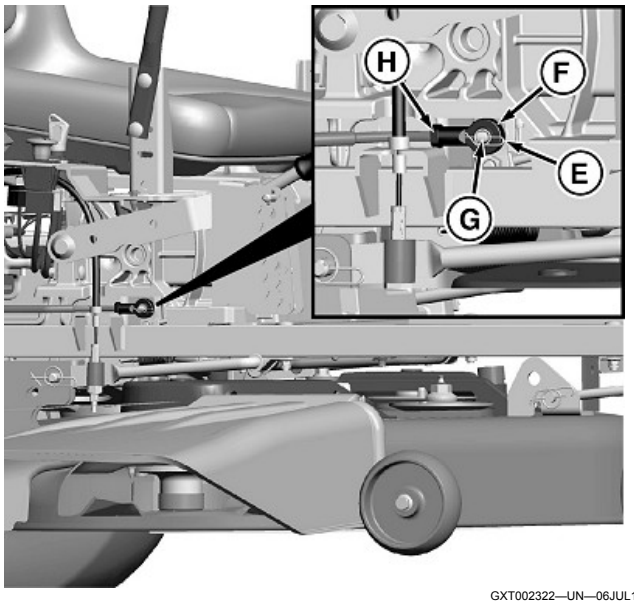
Adjusting Neutral Creep

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



MXT010730—UN—17APR14

   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 five push retainers from style panel (D) and remove style panel.



GXT002322—UN—06JUL15

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

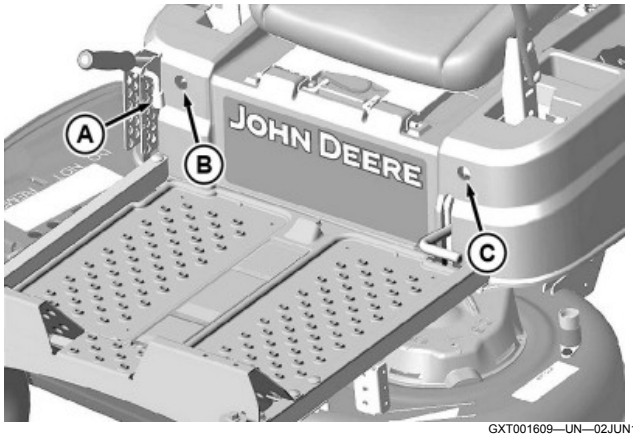
3. On linkage side needing adjustment (right side shown), remove spring locking clip (E) and rod end (F) from pivot pin (G). Turn rod end (F) on rod (H) in (clockwise) to decrease forward creep and out (counterclockwise) to decrease reverse creep. Repeat procedure, as necessary, on opposite side. Install 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.

TH84124,00001AB-19-06JUL15

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.)



GXT001609—UN—02JUN15

2. 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.

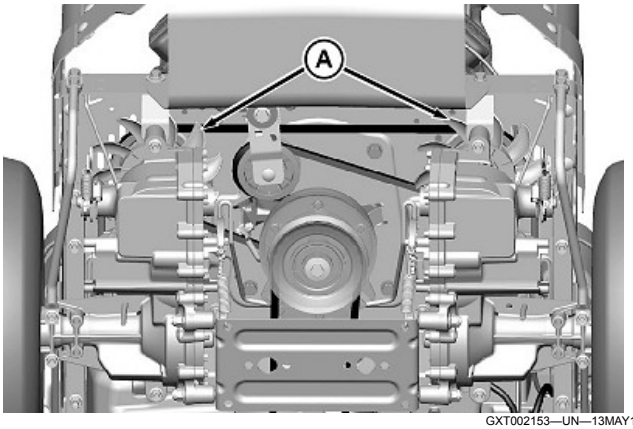
- **Clear work area of bystanders.**
- **Wear eye protection when using compressed air for cleaning purposes.**
- **Reduce compressed air pressure to specification.**

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.

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



GXT002153—UN—13MAY15

View from front of machine.

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

TH84124,00001AD-19-12JUN15

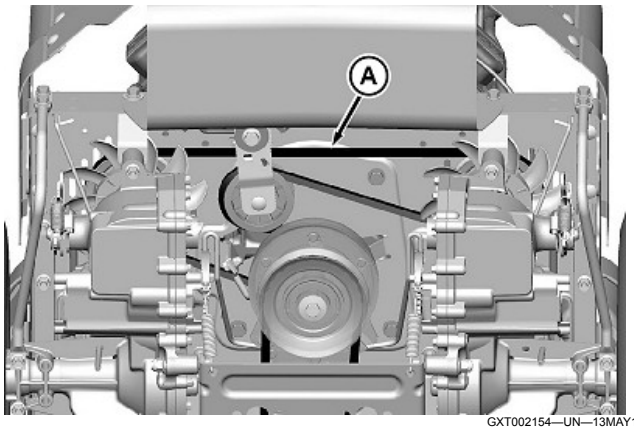
Checking and Replacing Transaxle/Transmission Drive Belt

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

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

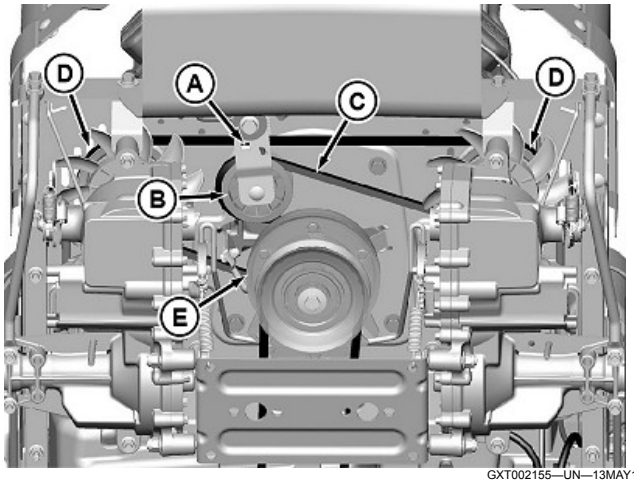


GXT002154—UN—13MAY15

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

Replacing Transaxle/Transmission Drive Belts

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



GXT002155—UN—13MAY15

Components viewed from bottom.

3. 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.

4. 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.
5. Remove the drive belt from both transaxle sheaves (D).
6. Remove the drive belt from the engine sheave (E).
7. Position replacement belt onto engine sheave (E), and both transaxle sheaves (D).
8. Rotate the spring-loaded idler arm (A) and install the belt on the idler sheave (B).
9. Connect electric clutch wiring harness connector (A) to main wiring harness.
10. Install mower deck.

TH84124,00001AE-19-12JUN15

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 inch Accel Deep™
48A	48 inch Accel Deep™
54A	54 inch Accel Deep™

Accel Deep is a trademark of Deere & Company

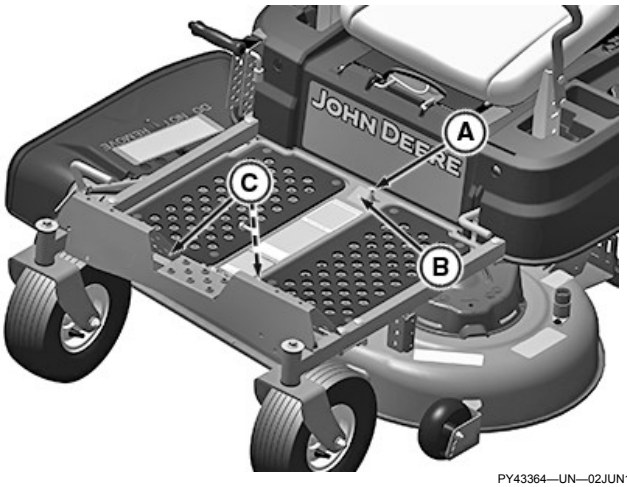
MX52301,0000F0A-19-28MAR16

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.)



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

Removing Mower Deck (42A)

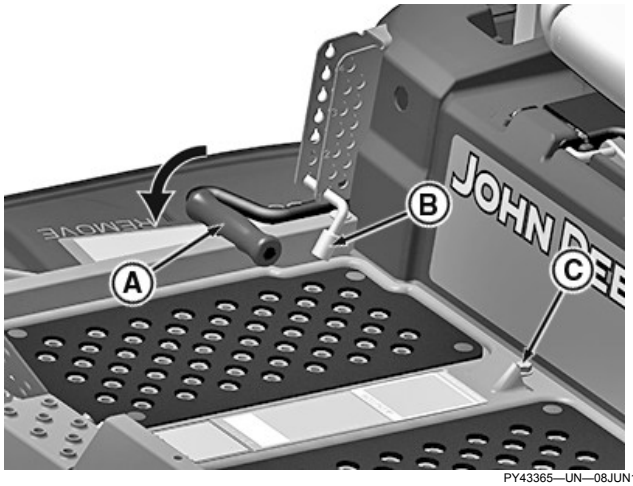
1. Park machine safely. (See Parking Safely in the SAFETY section.)
2. Allow engine and muffler to cool completely.

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.

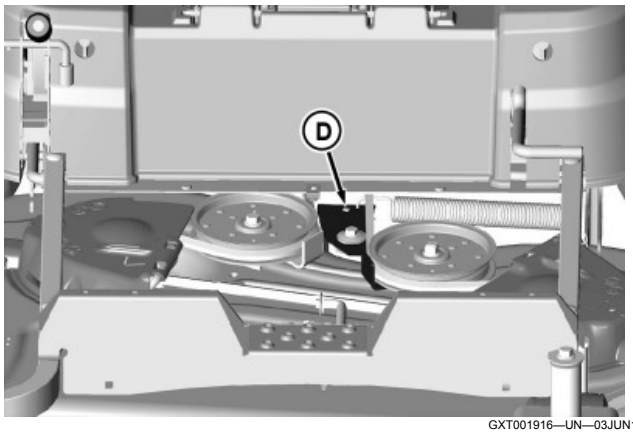


PY43365—UN—08JUN17

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

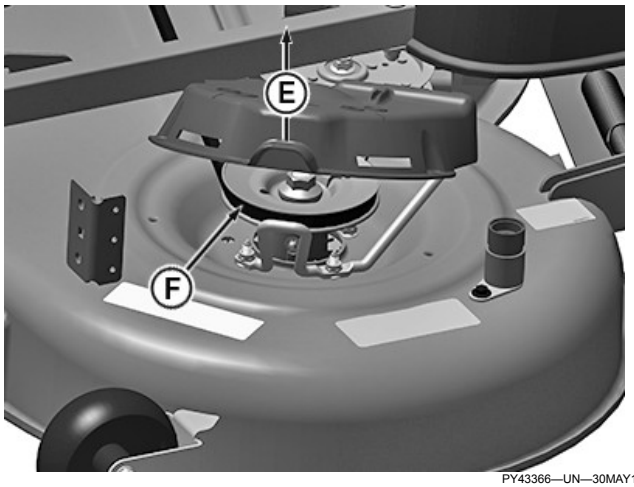
CAUTION: Avoid injury! Component is spring-assisted and under tension. Injury can occur if spring-assisted component is released suddenly.

6. Disconnect mower drive belt:



GXT001916—UN—03JUN15

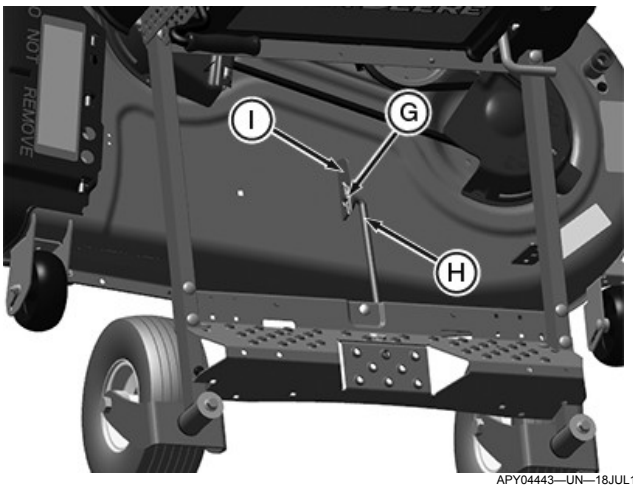
- Install 3/8 inch ratchet onto square hole (D) in tension arm and rotate counterclockwise to release tension on belt.



PY43366—UN—30MAY17

- Lift spindle cover (E) while removing mower belt (F) from left spindle sheave.

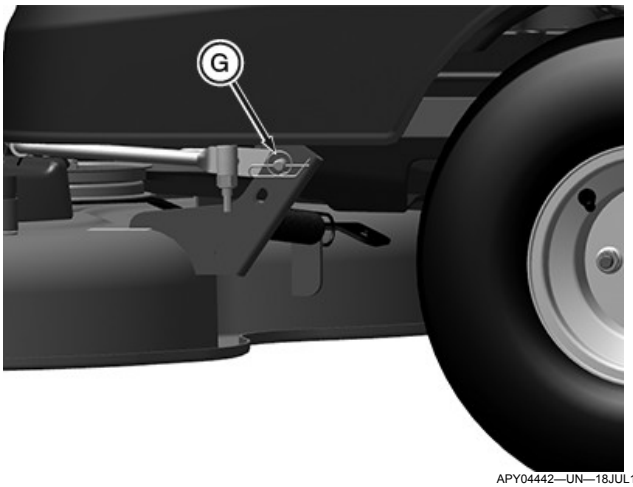
- Remove belt from engine sheave.



APY04443—UN—18JUL18

42A Mower Deck Front Shown

7. Remove locking clip and washer (G) and front lift arm (H) from front deck bracket (I).



APY04442—UN—18JUL18

42A Mower Deck Left Side Shown

8. Remove spring clip (J) and pin from each side of rear mower bracket.
9. Raise lift linkage to transport lock position:
   a. Pull pin and raise mower lift lever fully upward.
   b. Install pin just below lift lever to lock into raised position.
10. Rotate front caster wheels to maximize clearance.
11. Slide mower out from under the machine.
    - Do not operate the machine without the mower deck: Machine may become unstable without the mower deck attached. Move machine only by hand. (See Moving Machine by Hand in OPERATING section.)

MG39705,00000D7-19-18JUL18

Removing Mower Deck (48A and 54A Mower Decks)

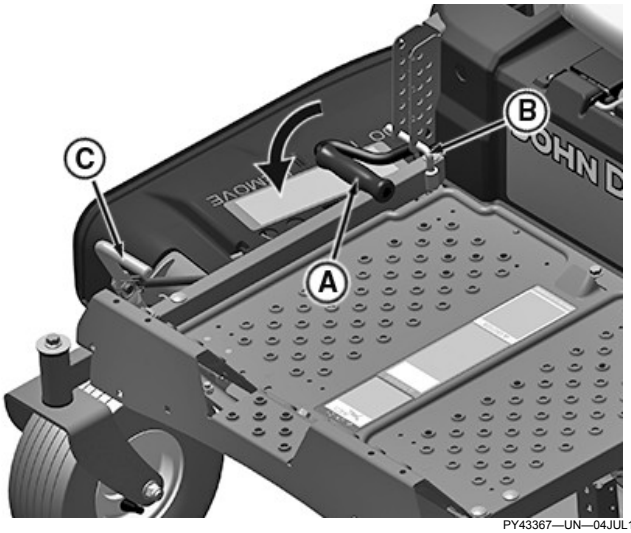
1. Park machine safely. (See Parking Safely in the SAFETY section.)
2. Allow engine and muffler to cool completely.

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.

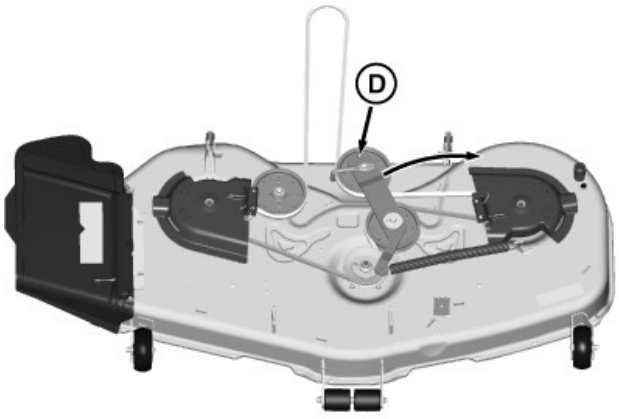
3. Raise mower deck to the transport lock position.



PY43367—UN—04JUL17

4. Remove lock pin, push handle (A) to its lowest position and install pin just above lever (B) to lock deck in lowered position. If installed, apply pressure on foot pedal (C) to assist in lowering mower deck.
5. Disconnect mower drive belt:

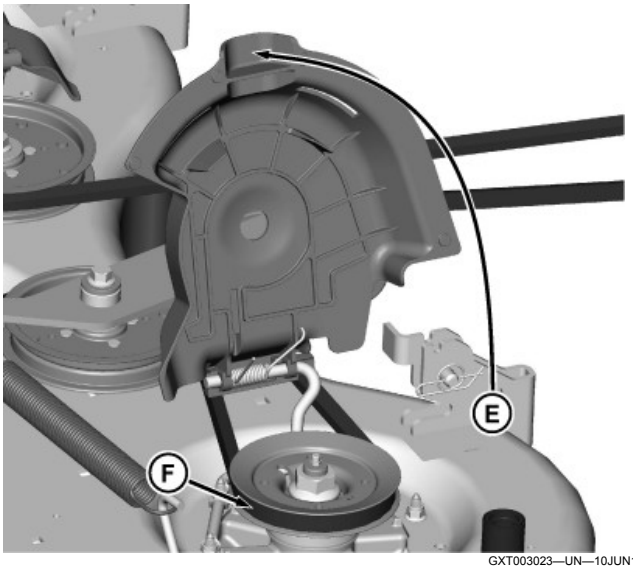
CAUTION: Avoid Injury! Component is spring-assisted and under tension. Injury can occur if spring-assisted component is released suddenly.



GXT002904—UN—10JUN16

Mower deck shown removed from machine for better view.

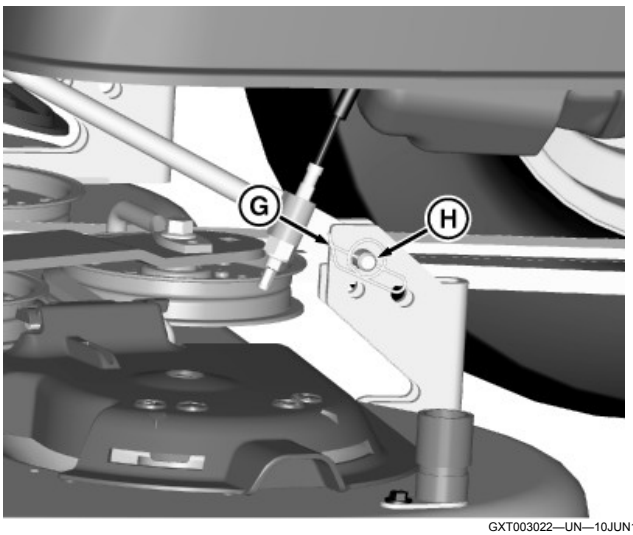
- From the left side of machine, insert a 3/8 inch ratchet into square hole (D) in tension arm and pull clockwise and hold to release tension on belt.



GXT003023—UN—10JUN16

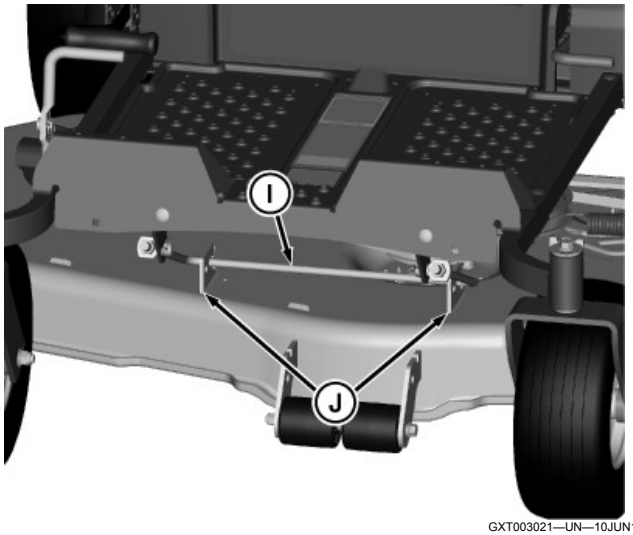
Mower deck shown removed from machine for better view.

- Raise left spindle cover (E) and remove belt (F) from spindle.
- Remove belt from clutch sheave.



GXT003022—UN—10JUN16

6. Remove spring clip (G) and pin (H) from each side of rear hanger bracket.



GXT003021—UN—10JUN16

7. **48A and 54A Mower Deck Only:** Move mower deck forward to remove front draft link (I) from mower deck brackets (J).
8. Raise draft arms to transport position:
   a. Pull and raise mower lift lever fully upward.
   b. Install pin just below lift lever to lock into raised position.
9. Rotate front caster wheels to maximize clearance.
10. Slide mower out from under the machine.
    - Do not operate the machine without the mower deck: Machine may become unstable without the mower deck attached. Move machine only by hand. (See Moving Machine by Hand in OPERATING section.)

RM87422,0000745-19-04JUL17

Installing Mower Deck (42A)

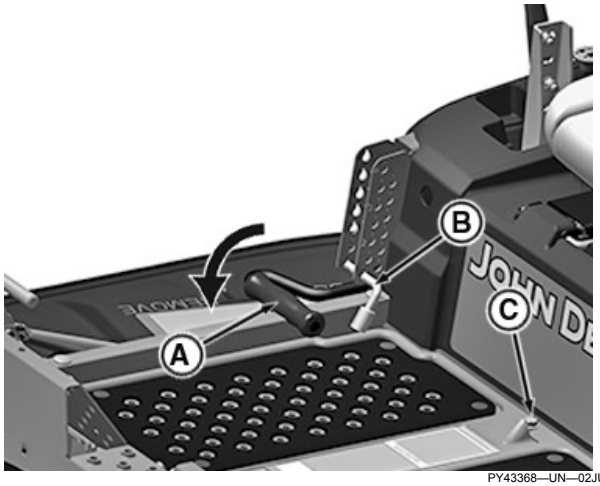
1. Park machine safely. (See Parking Safely in the SAFETY section.)
2. Allow engine and muffler to cool completely

CAUTION: Avoid injury! Rotating blades are dangerous.

Before adjusting or servicing mower:

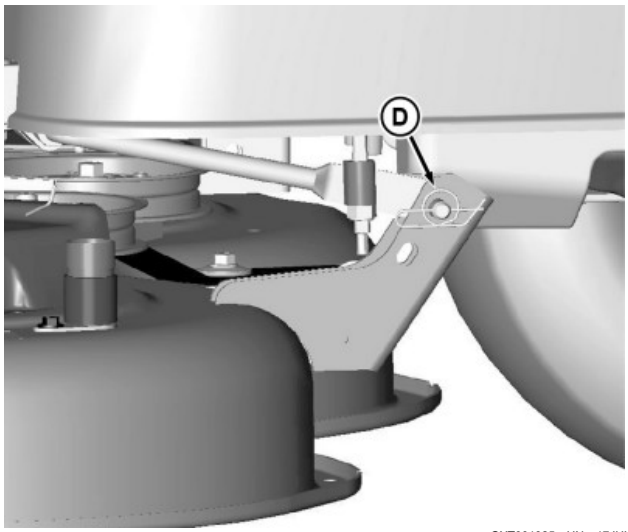
- **Disconnect spark plug wire(s) or battery negative (-) cable to prevent engine from starting accidentally.**
- **Always wear gloves when handling mower blades or working near blades.**

3. Raise mower lift lever fully upward into transport lock position.
4. Remove belt from mower right hand spindle sheave to allow more slack for installation of belt onto clutch.
5. Slide mower deck under machine.



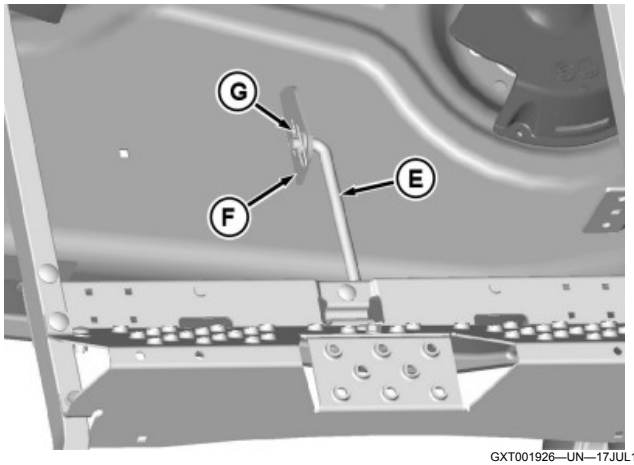
PY43368—UN—02JUN17

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



GXT001925—UN—17JUL15

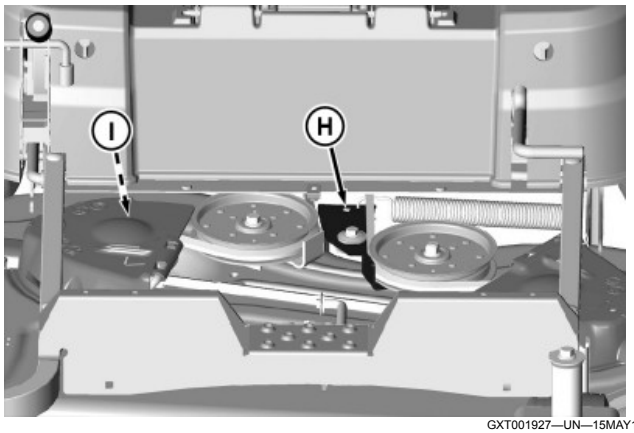
8. Install pin and spring clip (D) onto each side of rear mower bracket.



GXT001926—UN—17JUL15

9. Install front lift arm (E) onto front deck bracket (G) and secure with washer and locking clip (F).

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



GXT001927—UN—15MAY15

10. Connect mower drive belt:
    - Install belt onto engine sheave.

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

    - Install 3/8 in. ratchet onto square hole (H) in tension arm and rotate counterclockwise to release tension on belt. Lift right spindle cover and install belt onto right spindle sheave (I). Make sure belt is properly seated on all sheaves.
11. Flip up left and right spindle covers to verify belt is properly seated in both spindle sheaves.
12. Install foot plate.

RM87422,0000746-19-04JUL17

Installing Mower Deck (48A and 54A Mower Decks)

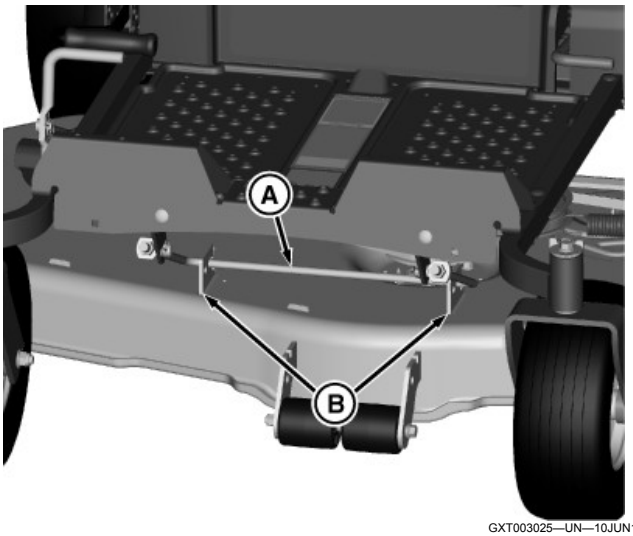
1. Park machine safely. (See Parking Safely in the SAFETY section.)
2. Allow engine and muffler to cool completely.

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.

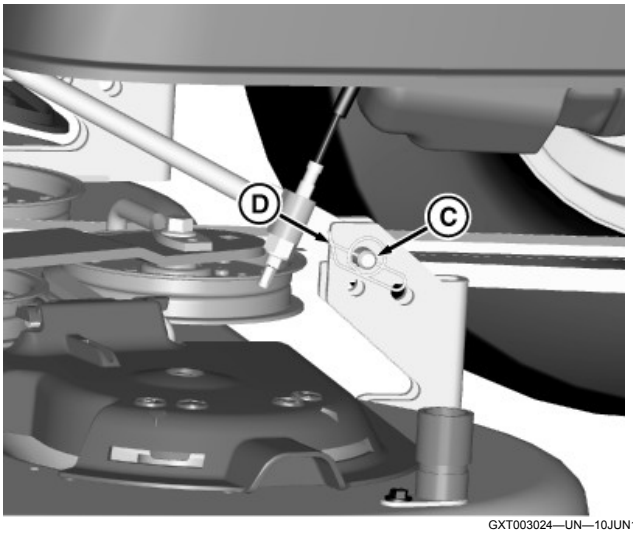
• Always wear gloves when handling mower blades or working near blades.

3. Raise mower lift lever fully upward into transport lock position.
4. Slide mower deck under machine.



GXT003025—UN—10JUN16

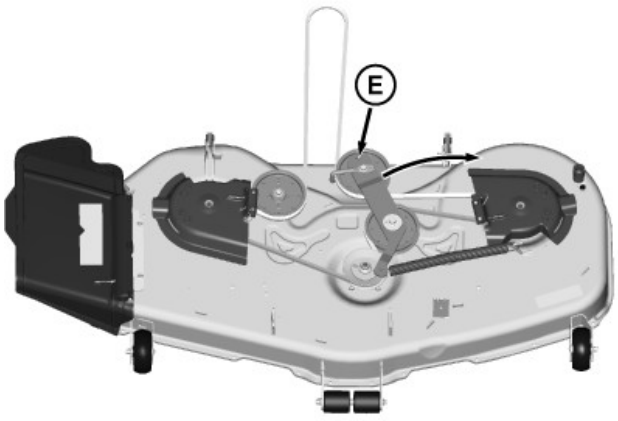
5. Move mower deck forward and lower front draft rod (A) into front mower deck brackets (B).



GXT003024—UN—10JUN16

6. Lower mower lift lever, and install pin (C) and spring clip (D) onto each side of rear mower bracket.

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



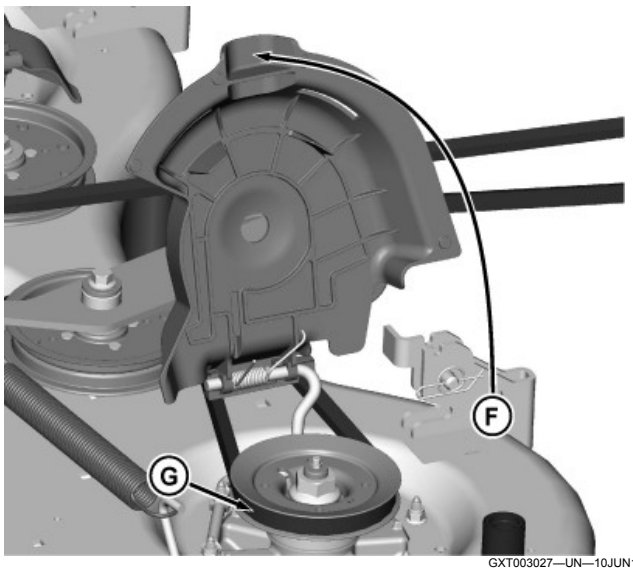
GXT003026—UN—10JUN16

48A shown.

7. Connect mower drive belt:
   - Install belt onto engine sheave.

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

   - Insert 3/8 inch ratchet onto square hole (E) in tension arm. Rotate arm clockwise and hold to release spring tension on idler sheave.



GXT003027—UN—10JUN16

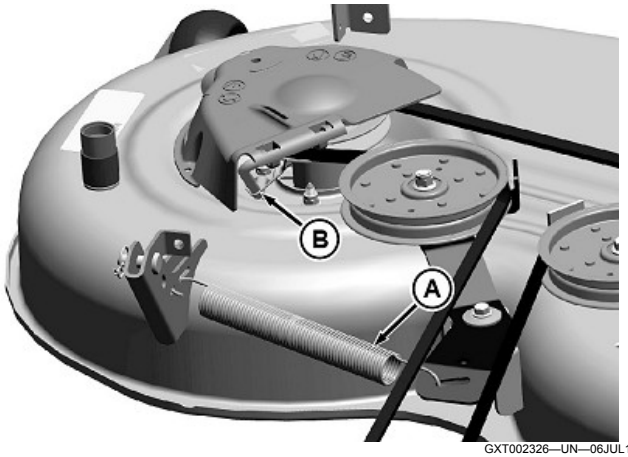
   - Lift left spindle cover (F) and install mower belt (G) onto left spindle sheave. Release spindle cover and tension arm.
   - Flip up left and right spindle covers to check that belt is correctly routed on all sheaves.

MX52301,0000F06-19-04JUL17

Replacing Mower Drive Belt (42A Mower)

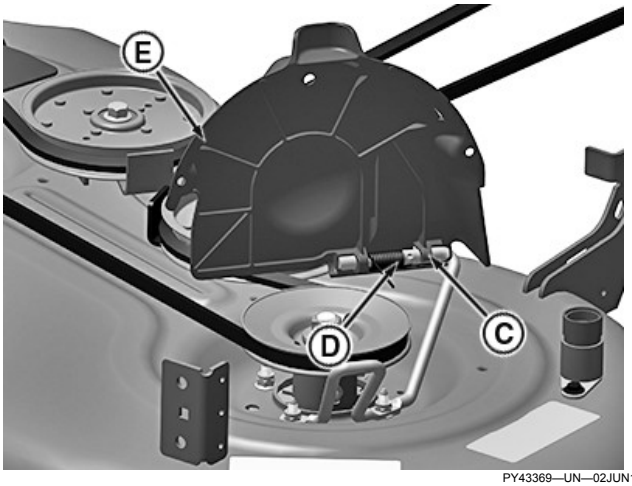
1. Park machine safely. (See Parking Safely in SAFETY section.)
2. Allow engine and muffler to cool completely.
3. Remove mower deck.

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



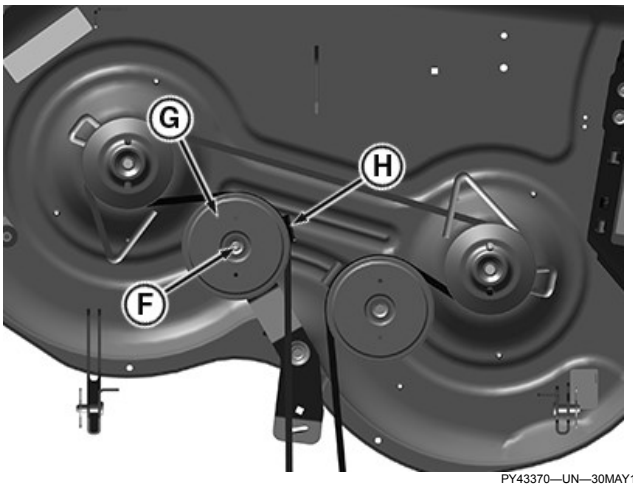
GXT002326—UN—06JUL15

4. Remove spring (A) from tension arm.
5. Disconnect spindle cover torsion spring (B) from wire form.



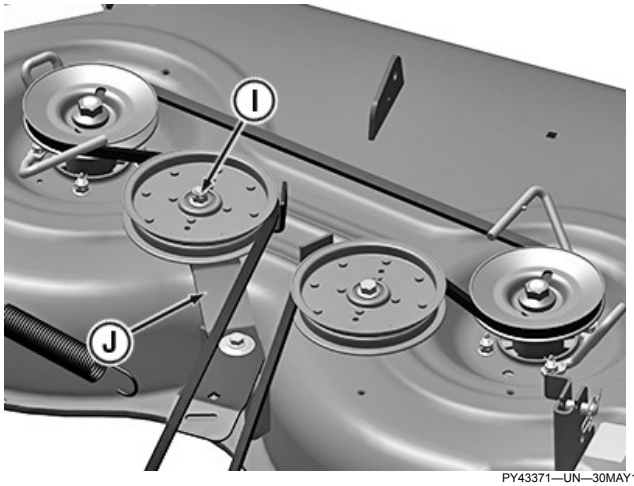
PY43369—UN—02JUN17

6. Lift left spindle cover. Align keyway in shield (C) with stake in wire form (D), and slide spindle cover (E) off wire form.
7. Repeat step 4, 5, and 6 to remove right spindle cover.



PY43370—UN—30MAY17

8. Remove nut (F) on tension arm and lift sheave (G) up to remove belt from guide (H).
9. Remove belt from deck and inspect for wear or damage; replace as necessary.
10. Clean top surface of mower deck and sheaves.
11. Install belt on mower deck as shown.



PY43371—UN—30MAY17

Shown without sheave for clarity only.

12. Make sure sheave carriage bolt (I) is fully seated into tension arm (J). Install sheave with belt on tension arm.
13. Tighten sheave hardware to specification.

Specification

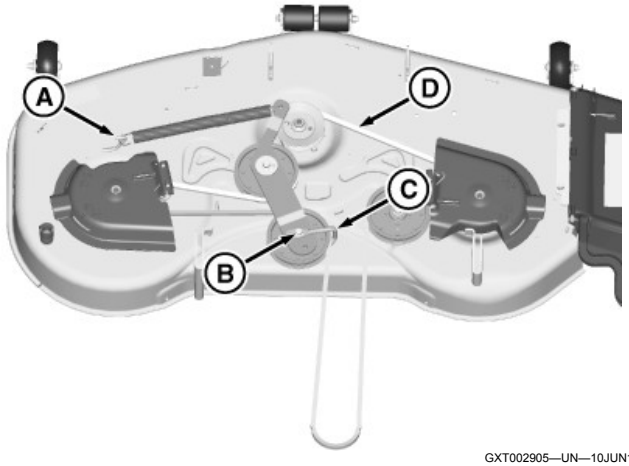
Sheave—Torque. . . . . 47 N·m (35 lb·ft)

14. Make sure that belt is properly seated on all sheaves.
15. Install left and right spindle covers on wire forms.
16. Install spring on tension arm.
17. Install mower deck.

RM87422,0000747-19-02JUN17

Replacing Mower Drive Belt (48A and 54A Mower Decks)

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



GXT002905—UN—10JUN16

- Remove spring from welded spring hook (A) on deck.
- Remove nut (B) on tension sheave and lower bolt to remove guide (C). Remove belt (D) from all sheaves.

5. Inspect belt for wear or damage; replace as necessary.
6. Clean top surface of mower deck and sheaves.

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

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

Specification

Sheave Nut—Torque. . . . . 47 N·m (35 lb·ft)

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

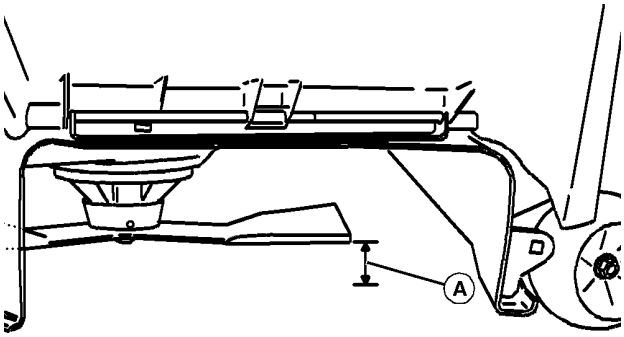
MX52301,0000F07-19-04JUL17

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

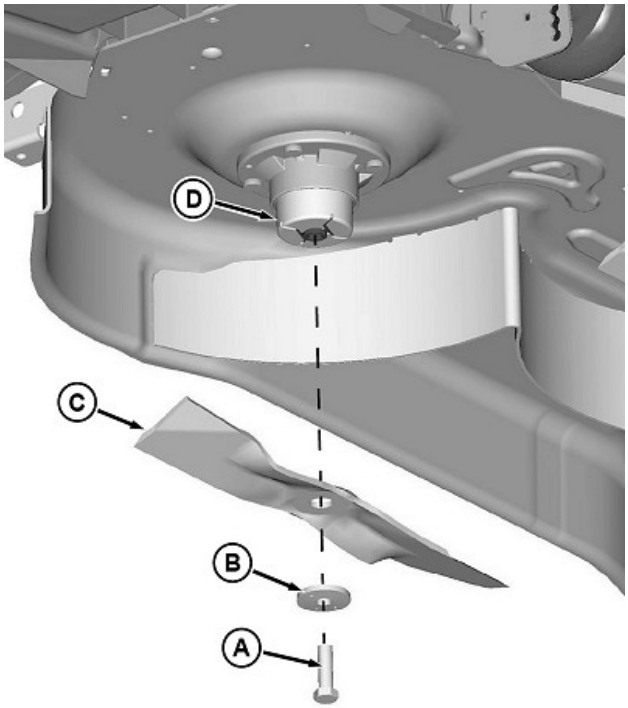
CAUTION: Avoid injury! Rotating blades are dangerous.

Before adjusting or servicing mower:

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

Removing Mower Blades (42A, 48A, and 54A Mower Decks)

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) from spindle (D).
5. Inspect blades; sharpen, balance or replace blades as necessary.

Installing Mower Blades (42A, 48A, and 54A Mower Decks)

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)

MX52301,0000F09-19-28MAR16

Service Electrical

Electrical

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

MP47322,00F466E-19-15MAR13

Service the Battery Safely

MXAL42869—UN—09APR13

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

To prevent the battery from exploding:

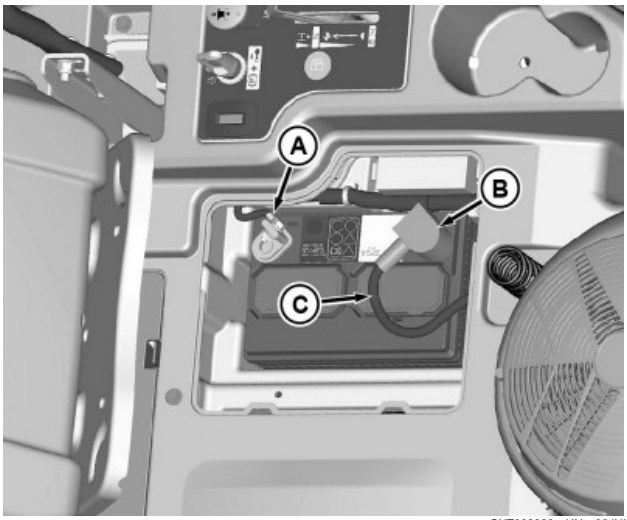
- **Do not smoke or have open flame near battery.**
- **Wear eye protection and gloves.**
- **Do not allow direct metal contact across battery posts.**
- **Remove negative cable first when disconnecting.**
- **Install negative cable last when connecting.**

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.

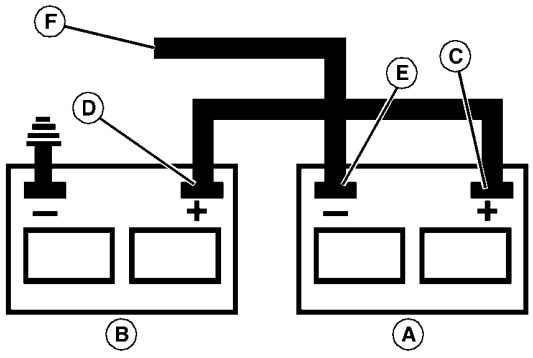
To prevent the battery from exploding:

- **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.**



MXAL42872—UN—09APR13

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

1. Connect positive (+) booster cable to booster battery (A) positive (+) post (C).
2. Connect the other end of positive (+) booster cable to the disabled vehicle battery (B) positive (+) post (D).
3. Connect negative (–) booster cable to booster battery negative (–) post (E).

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

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

4. Connect the other end (F) of negative (–) booster cable to a metal part of the disabled machine engine block away from battery.
5. Start the engine of the disabled machine and run machine for several minutes.
6. Carefully disconnect the booster cables in the exact reverse order: negative cable first and then the positive cable.

MP47322,00F4672-19-05JUN15

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 trash from area around fuel tank cap.
4. Remove fuel tank cap slowly to allow any pressure built up in tank to escape.
5. Fill fuel tank only to bottom of filler neck. Do not overfill.
6. Install fuel tank cap.
   - Gas models: turn cap until it clicks.

MP47322,00F4675-19-05JUL17

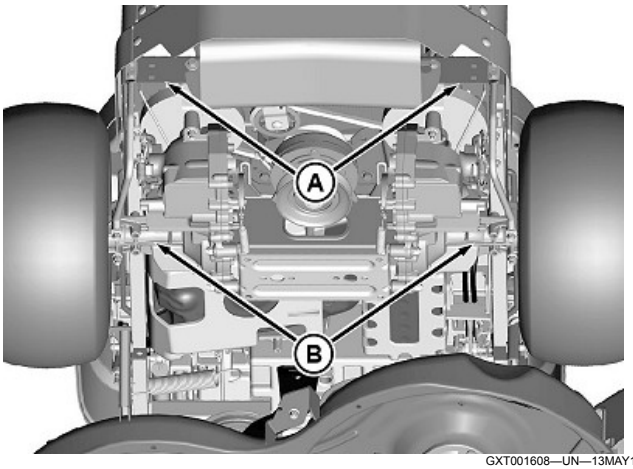
Lifting Machine

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.

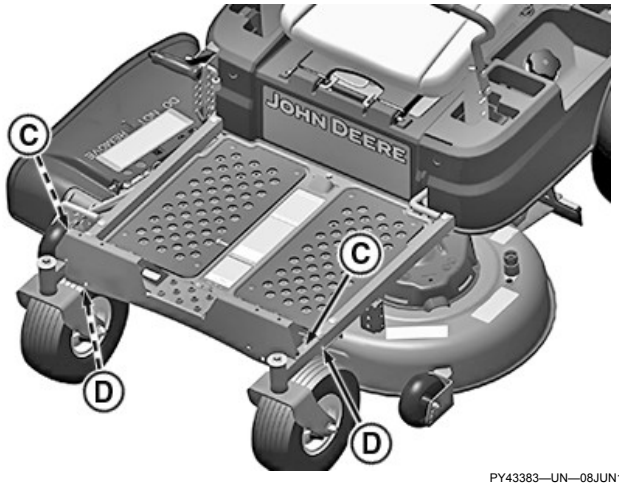
- **Use a safe lifting device rated for the load to be lifted.**
- **Lower machine onto jack stands or other stable supports and block wheels before servicing.**

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



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.

RM87422,0000783-19-08JUN17

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. (See Specifications section for correct tire pressure.)
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, if necessary.

MP47322,00F4677-19-05JUL17

Removing and Installing Wheel Assembly

Removing

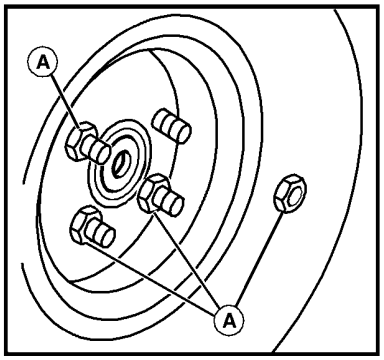
1. Park machine safely. (See Parking Safely in the Safety section.)

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:

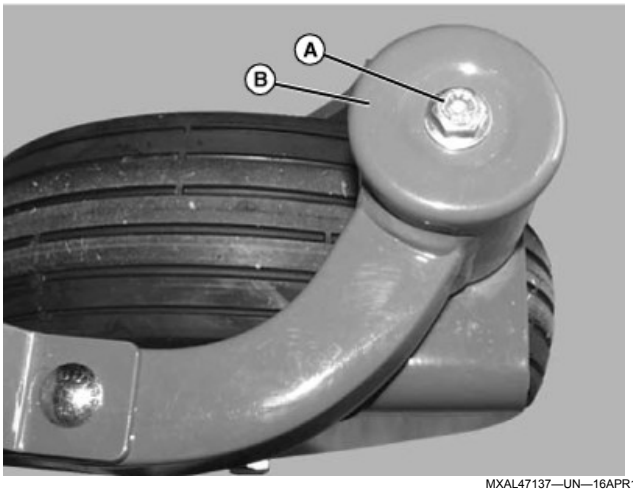
1. Park machine safely. See “Park Machine Safely” in the Safety section.

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.

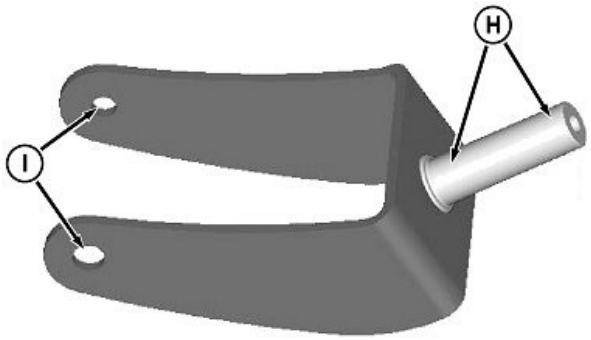
NOTE: Inner race extends above outer race.

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.

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 outward position. Mower is engaged. Defective brake, mower engagement, or key switch.
	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.

TH84124,0000246-19-06JUL15

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	Deck is adjusted too high.
Front of machine squeaks while driving	Lubricate mower front draft rod at front and rear pivot points.

MP47322,00F467E-19-15MAR13

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.
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

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

Engine

Z335E Engine

Make	Briggs & Stratton
Model Number	40 Intek
Power Rating Information	http://www.briggsandstratton.com/
Bore	75.4 mm (2.97 in.)
Stroke	73.4 mm (2.89 in.)
Displacement	656 cm^3 (40.03 cu in.)
Cylinders	Twin
Cycle	Four
Valve Clearance - Intake	.10 - .15 mm (.004 - .006 in.)
Valve Clearance - Exhaust	.10 - .15 mm (.004 - .006 in.)
Spark Plug Gap	0.75 mm (0.030 in.)
Spark Plug Torque	20 N•m (180 lb-in.)

Z335M Engine

Make	Briggs & Stratton
Model Number	40 Intek
Power Rating Information	http://www.briggsandstratton.com/
Bore	75.4 mm (2.97 in.)
Stroke	73.4 mm (2.89 in.)
Displacement	656 cm^3 (40.03 cu in.)
Cylinders	Twin
Cycle	Four
Valve Clearance - Intake	.10 - .15 mm (.004 - .006 in.)
Valve Clearance - Exhaust	.10 - .15 mm (.004 - .006 in.)
Spark Plug Gap	0.75 mm (0.030 in.)
Spark Plug Torque	20 N•m (180 lb-in.)

Z345M Engine

Make	Briggs & Stratton
Model Number	44 Intek
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 cu in.)
Cylinders	Twin
Cycle	Four
Valve Clearance - Intake	.10 - .15 mm (.004 - .006 in.)
Valve Clearance - Exhaust	.10 - .15 mm (.004 - .006 in.)
Spark Plug Gap	0.75 mm (0.030 in.)
Spark Plug Torque	20 N•m (180 lb-in.)

Z345R Engine

Make	Briggs & Stratton
Model Number	44 Intek
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 cu in.)
Cylinders	Twin
Cycle	Four
Valve Clearance - Intake	.10 - .15 mm (.004 - .006 in.)
Valve Clearance - Exhaust	.10 - .15 mm (.004 - .006 in.)
Spark Plug Gap	0.75 mm (0.030 in.)
Spark Plug Torque	20 N•m (180 lb-in.)

Z355E Engine

Make	Briggs & Stratton
Model Number	44 Intek
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 cu in.)
Cylinders	Twin
Cycle	Four
Valve Clearance - Intake	.10 - .15 mm (.004 - .006 in.)
Valve Clearance - Exhaust	.10 - .15 mm (.004 - .006 in.)
Spark Plug Gap	0.75 mm (0.030 in.)
Spark Plug Torque	20 N•m (180 lb-in.)

Z355R Engine

Make	Briggs & Stratton
Model Number	44 Intek
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 cu in.)
Cylinders	Twin
Cycle	Four
Valve Clearance - Intake	.10 - .15 mm (.004 - .006 in.)
Valve Clearance - Exhaust	.10 - .15 mm (.004 - .006 in.)
Spark Plug Gap	0.75 mm (0.030 in.)
Spark Plug Torque	20 N•m (180 lb-in.)

Z375R Engine

Make	Briggs & Stratton
Model Number	44 ELS
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 cu in.)
Cylinders	Twin
Cycle	Four
Valve Clearance - Intake	.10 - .15 mm (.004 - .006 in.)
Valve Clearance - Exhaust	.10 - .15 mm (.004 - .006 in.)
Spark Plug Gap	0.75 mm (0.030 in.)
Spark Plug Torque	20 N•m (180 lb-in.)

MX52301,0000F0D-19-10JUN16

Drivetrain

Transaxle Motors (Z335E, Z335M, Z345M, Z345R)	Hydro-Gear EZT-C
Transaxle Motors (Z355E, Z355R, Z375R)	Hydro-Gear EZT-D
Number of Speeds	Hydrostatic, Variable Speed

MX52301,0000F65-19-10JUN16

Travel Speeds at Full Engine RPM

Forward	0-11.3 km/h (0-7.0 mph)
Reverse	0-5.6 km/h (0-3.5 mph)

TH84124,0000169-19-18JUN15

Electrical System

Battery Type	12 Volt
Cold Cranking Capacity	300 Amps

TH84124,00001B5-19-12JUN15

Fuel System

Fuel Types (Recommended):

Regular Grade 87 Octane Unleaded Fuel

Ethanol Blended Fuel (Up to 10%)

Fuel Filter	Replaceable - paper element
Fuel Pump	Pulse
Fuel Delivery	Carburetor

TH84124,0000247-19-06JUL15

Tires

Z335E

Front	11x4.00-5 (Ribbed)

Rear . . . . . 18x8.50-8 (Turf)
Inflation - Front . . . . . 103 kPa (15 psi)
Inflation - Rear. . . . . 69 kPa (10 psi)

Z335M

Front. . . . . 11x4.00-5 (Ribbed)
Rear . . . . . 18x8.50-8 (Turf)
Inflation - Front . . . . . 103 kPa (15 psi)
Inflation - Rear. . . . . 69 kPa (10 psi)

Z345M

Front. . . . . 11x4.00-5 (Ribbed)
Rear . . . . . 18x8.50-8 (Turf)
Inflation - Front . . . . . 103 kPa (15 psi)
Inflation - Rear. . . . . 69 kPa (10 psi)

Z345R

Front. . . . . 11x4.00-5 (Ribbed)
Rear . . . . . 18x8.50-8 (Turf)
Inflation - Front . . . . . 103 kPa (15 psi)
Inflation - Rear. . . . . 69 kPa (10 psi)

Z355E

Front. . . . . 13x5.00-6 (Ribbed)
Rear . . . . . 20x9.0-10 (Turf)
Inflation - Front . . . . . 103 kPa (15 psi)
Inflation - Rear. . . . . 69 kPa (10 psi)

Z355R

Front. . . . . 13x5.00-6 (Ribbed)
Rear . . . . . 20x9.0-10 (Turf)
Inflation - Front . . . . . 103 kPa (15 psi)
Inflation - Rear. . . . . 69 kPa (10 psi)

Z375R

Front. . . . . 13x5.00-6 (Ribbed)
Rear . . . . . 20x9.0-10 (Turf)
Inflation - Front . . . . . 103 kPa (15 psi)
Inflation - Rear. . . . . 69 kPa (10 psi)

MX52301,0000F0C-19-01MAY19

Capacities

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

TH84124,00001B6-19-12JUN15

Dimensions

Z335E with 42A

Height. . . . . 924 mm (36.4 in)
Width . . . . . 1283 mm (50.5 in)
Length . . . . . 1836 mm (72.3 in)
Weight With Mower and Full Fuel . . . . . 223 kg (491 lb)

Z335M with 42A

Height. . . . . 924 mm (36.4 in)
Width . . . . . 1283 mm (50.5 in)
Length . . . . . 1836 mm (72.3 in)
Weight With Mower and Full Fuel . . . . . 225 kg (497 lb)

Z345M with 42A

Height. . . . . 1019 mm (40.1 in)
Width . . . . . 1283 mm (50.5 in)
Length . . . . . 1836 mm (72.3 in)
Weight With Mower and Full Fuel . . . . . 225 kg (497 lb)

Z345R with 42A

Height. . . . . 1019 mm (40.1 in)
Width . . . . . 1283 mm (50.5 in)
Length . . . . . 1836 mm (72.3 in)
Weight With Mower and Full Fuel . . . . . 227 kg (501 lb)

Z355E with 48A

Height. . . . . 1047 mm (41.2 in)
Width . . . . . 1587 mm (62.5 in)
Length . . . . . 1932 mm (76.1 in)
Weight With Mower and Full Fuel . . . . . 257 kg (566 lb)

Z355R with 48A

Height. . . . . 1047 mm (41.2 in)
Width . . . . . 1587 mm (62.5 in)
Length . . . . . 1932 mm (76.1 in)
Weight With Mower and Full Fuel . . . . . 259 kg (572 lb)

Z375R with 54A

Height. . . . . 1047 mm (41.2 in)
Width . . . . . 1737 mm (68.4 in)
Length . . . . . 1932 mm (76.1 in)
Weight With Mower and Full Fuel . . . . . 265 kg (584 lb)

MG39705,000009A-19-19JUN18

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 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.)

48A Mower

Cutting Width. . . . . 1.22 m (48 in.)
Blades-Rotary 3
Blade Nut Torque. . . . . 68 N•m (50 lb-ft)
Cutting Height (Approximately) . . . . . 25 - 102 mm (1 - 4 in.)

54A Mower

Cutting Width. . . . . 1.37 m (54 in.)
Blades-Rotary 3
Blade Nut Torque. . . . . 68 N•m (50 lb-ft)
Cutting Height (Approximately) . . . . . 25 - 102 mm (1 - 4 in.)

MX52301,0000F0E-19-18APR16

Warranty

Product Warranty

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

United States

Website:

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

Toll Free: 1-800-537-8233

Dealer Locator:

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

Canada

Website (English):

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

Website (French):

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

Toll Free: 1-800-537-8233

Dealer Locator:

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

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

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

MP47322,00F4690-19-09JUL15

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

Your Warranty Rights and Obligations

The California Air Resources Board, John Deere, and the United States Environmental Protection Agency are pleased to explain the emissions control system's warranty on your model year 2020 or 2021 spark ignited off-road engine equipment. In California, new equipment that uses small or large (less than 1 liter) spark ignited off-road engines must be designed, built and equipped to meet the state's stringent anti-smog standards. John Deere must warrant the emissions control system on your spark ignited off-road engine equipment for the period listed below provided there has been no abuse, neglect or improper maintenance of your equipment leading to the failure of the evaporative emissions system.

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

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

Manufacturer's Warranty Coverage

This emissions control system is warranted for two years for models Z335E, Z335M, Z345M, Z345R, Z355E, Z355R, Z375R, Z525E, Z535M, Z535R, E100, E110, E120, E130, E140, E150, E160, E170, E180 and three years for all other models referenced in this operator's manual. If any emissions related part on your equipment is defective, the part will be repaired or replaced by John Deere.

Owner's Warranty Responsibilities

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

General Emissions Warranty Coverage

The warranty period begins on the date the equipment is delivered to an ultimate purchaser. John Deere warrants to the ultimate purchaser and each subsequent purchaser that the spark ignited off-road engine equipment is:

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

Emissions Warranty Interpretation

- Any warranted part that is not scheduled for replacement as required by the maintenance instructions in the Operator's Manual is warranted as provided herein. If any such part fails during the period of warranty coverage it will be repaired or replaced by John Deere. Any such part repaired or replaced under warranty is warranted for the remaining warranty period.
- Any warranted part that is scheduled only for regular inspection in the maintenance instructions in the Operator's Manual is warranted as provided herein. A statement in the Operator's Manual to the effect of "repair or replace as necessary" does not reduce the period of warranty coverage. Any such part repaired or replaced under warranty is warranted for the remaining warranty period.
- Any warranted part that is scheduled for replacement as required maintenance in the Operator's Manual is warranted for the period of time prior to the first scheduled replacement point for that part. If the part fails prior to the first scheduled replacement, the part will be repaired or replaced by John Deere. Any such part repaired or

replaced under warranty is warranted for the remainder of the period prior to the first scheduled replacement point for the part.

- Repair or replacement of any warranted part under the warranty will be performed at no charge to the owner at any authorized John Deere Turf and Utility retailer.
- The owner will not be charged for diagnostic labor which leads to the determination that a warranted part is defective, provided such work is performed by John Deere or an authorized John Deere service provider.
- John Deere will repair damages to other engine components proximately caused by a failure under warranty of any emissions-related warranted part.
- Add-on or modified parts that are not exempted by the California Air Resources Board may not be used. The use of any non-exempted add-on or modified parts will be grounds for disallowing a warranty claim. John Deere will not be liable to warrant failures of warranted parts caused by the use of a non-exempted add-on or modified part.

Emission Warranty Parts List

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

Fuel Metering System:

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

Evaporative System:

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

Air Induction System:

- Air cleaner
- Intake manifold

Ignition System:

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

Exhaust System:

- Exhaust manifold
- Catalyst muffler

Miscellaneous Items Used in Above Systems

- Valves and Switches: vacuum, temperature, position, check, time-sensitive
- Electronic controls
- Hoses, belts, connectors and assemblies

Limited Liability

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

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

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

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Tire Warranty

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

MX00654,0000314-19-21AUG14

Limited Battery Warranty For Factory Installed Batteries

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

TO SECURE WARRANTY SERVICE

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

FREE REPLACEMENT PERIOD

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

PRO RATA ADJUSTMENT (batteries with letter code identification only)

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

THIS WARRANTY DOES NOT COVER

A. Breakage of the container, cover, or terminals.

B. Depreciation or damage caused by lack of reasonable and necessary maintenance or by improper maintenance.

C. Transportation, mailing, or service call charges for warranty service.

D. Batteries that are merely discharged.

LIMITATION OF IMPLIED WARRANTIES AND PURCHASER’S REMEDIES

To the extent permitted by law, neither John Deere nor any company affiliated with it makes any warranties, representations, or promises as to the quality, performance or freedom from defect of the products covered by this warranty. IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR

PURPOSE, TO THE EXTENT APPLICABLE, SHALL BE LIMITED IN DURATION TO THE APPLICABLE ADJUSTMENT PERIOD SET FORTH HERE. THE PURCHASER'S ONLY REMEDIES IN CONNECTION WITH THE BREACH OR PERFORMANCE OF ANY WARRANTY ON JOHN DEERE BATTERIES ARE THOSE SET FORTH HERE. IN NO EVENT WILL THE DEALER, JOHN DEERE OR ANY COMPANY AFFILIATED WITH JOHN DEERE BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES. (Note: Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages. So these limitations and exclusions may not apply to you.) This warranty gives you specific legal rights, and you may also have some rights which vary from state to state.

NO DEALER WARRANTY

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

WARRANTY TERMS TABLE

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

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

OUMX068,0000504-19-10MAY17

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:

http://www.deere.com/globalhome/ deerecom/global_home.page?CC=true

Select your country and then click on the Contact Us link.

SP66632,00043A7-19-10MAY17

Service Record

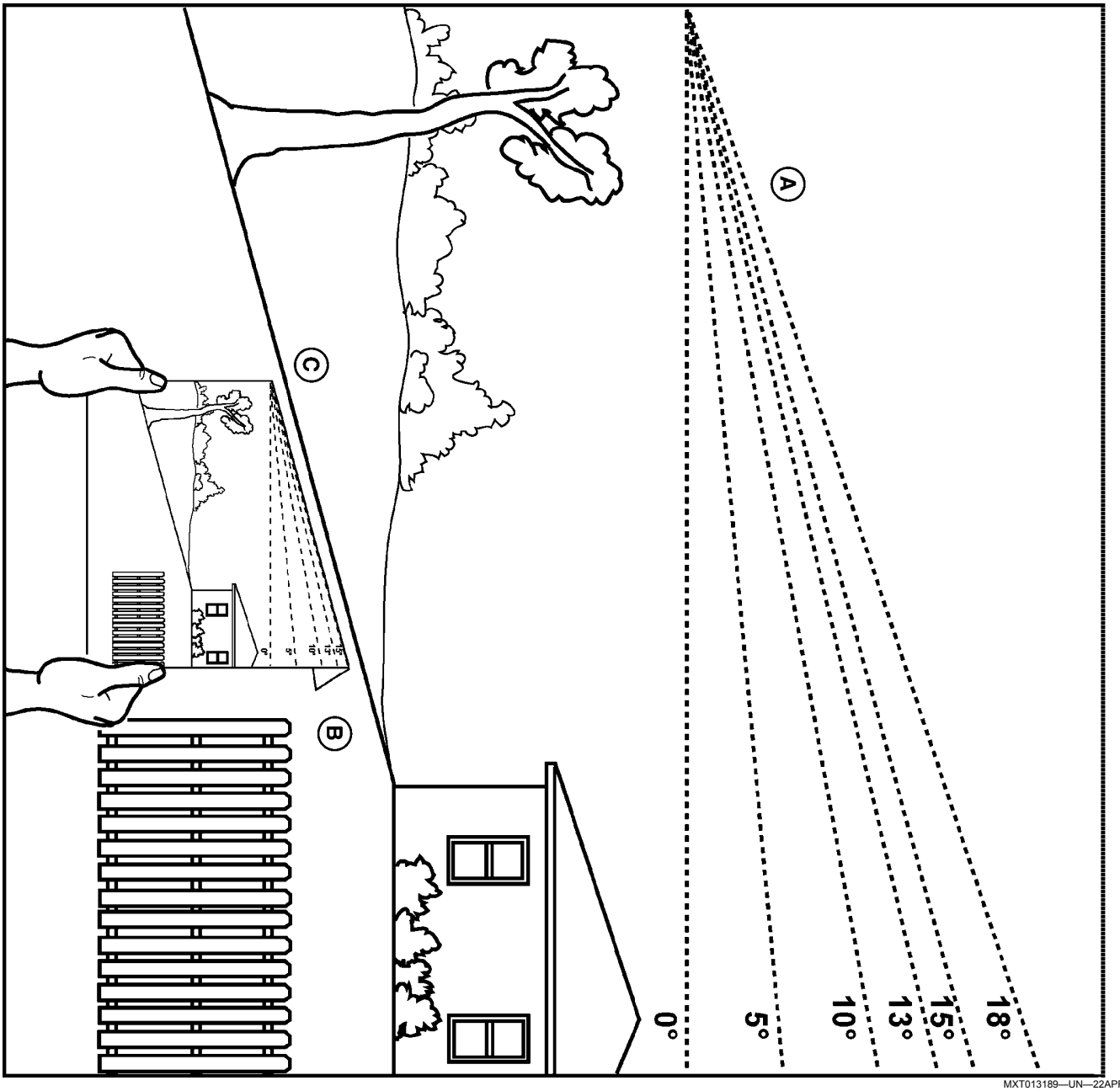
Record Service Dates

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

Slope Gauge

Slope Gauge Template

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



MXT013189—UN—22APR15

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

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

OUMX068,0000513-19-05JUL17

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