

JOHN DEERE
WORLDWIDE COMMERCIAL & CONSUMER
EQUIPMENT DIVISION

Lawn Tractors
LX266, LX277, LX277AWS, LX279 and
LX288

OMM146413 G1

OPERATOR'S MANUAL



JOHN DEERE

⚠ WARNING: The Engine Exhaust
from this product contains chemicals known
to the State of California to cause cancer,
birth defects or other reproductive harm.

California Proposition 65 Warning

North American Version
Litho in U.S.A.



D C Y



G 1
3
1
4
6
4
1
M
O

INTRODUCTION

Thank You for Purchasing a John Deere Product

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

Using Your Operator's Manual

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

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

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

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

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

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

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

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

Special Messages

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



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

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

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

PRODUCT IDENTIFICATION

Record Identification Numbers

Lawn Tractors

LX266, LX277, LX277AWS, LX279, and LX288

PIN (060001-)

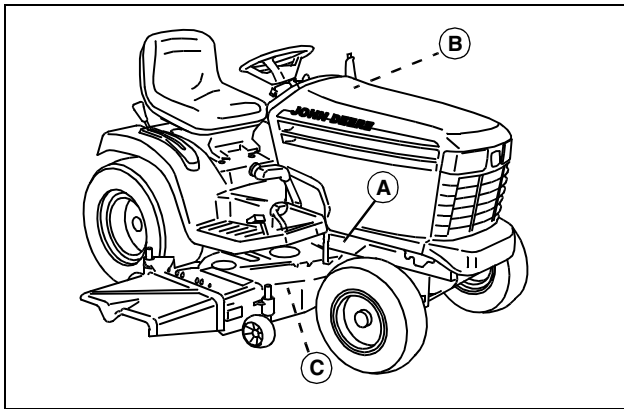
If you need to contact an Authorized Service Center for information on servicing, always provide the product model and serial number.

You will need to locate the model and serial number for the machine and for the engine of your machine and record the information in the spaces provided below.

DATE OF PURCHASE:

DEALER NAME:

DEALER PHONE:



MIF

PRODUCT IDENTIFICATION NUMBER (A):

ENGINE SERIAL NUMBER (B):

MOWER DECK SERIAL NUMBER (C):

TABLE OF CONTENTS

Safety	1
Operating	9
Replacement Parts	22
Service Intervals	24
Service Lubrication	25
Service Engine	27
Service Transmission	36
Service Mower - Freedom42	38
Service Mower - 42C, 48C, 54C	47
Service Electrical	53
Service Miscellaneous	56
Troubleshooting	59
Storage	64
Assembly	66
Specifications	69
Warranty	73
Index	77

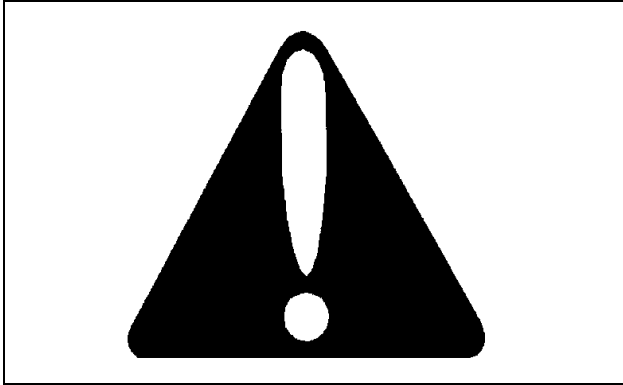
All information, illustrations and specifications in this manual are based on the latest information at the time of publication. The right is reserved to make changes at any time without notice.

COPYRIGHT© 2001
Deere & Co.
John Deere Worldwide Commercial and
Consumer Equipment Division
All rights reserved
Previous Editions
COPYRIGHT© 2000, 1999, 1998

OMM146413 G1 - English

SAFETY

Understanding The Machine Safety Labels



MIF

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

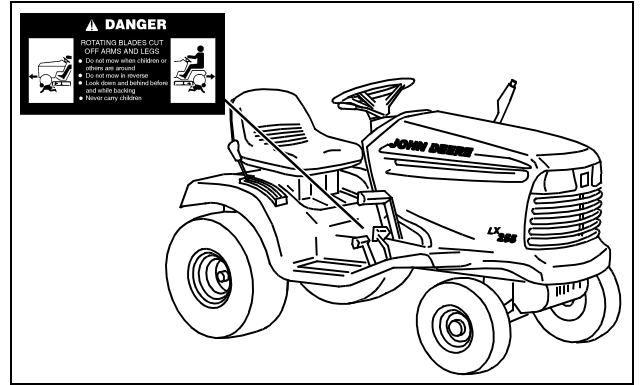
On your machine safety labels, the words DANGER, WARNING, and CAUTION are used with this safety-alert symbol. DANGER identifies the most serious hazards.

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

–Set park brake

–Remove key

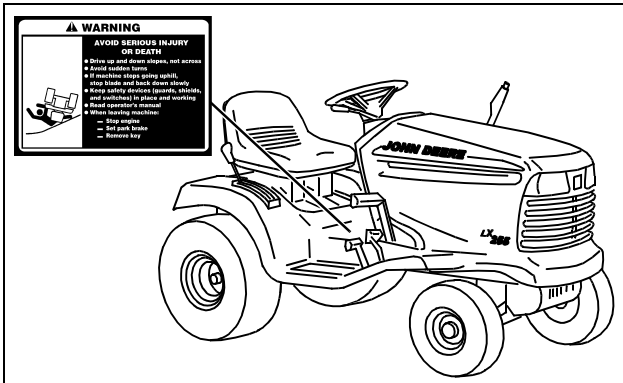
DANGER: ROTATING BLADES CUT OFF ARMS AND LEGS



MIF M118788B

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

WARNING: AVOID SERIOUS INJURY OR DEATH

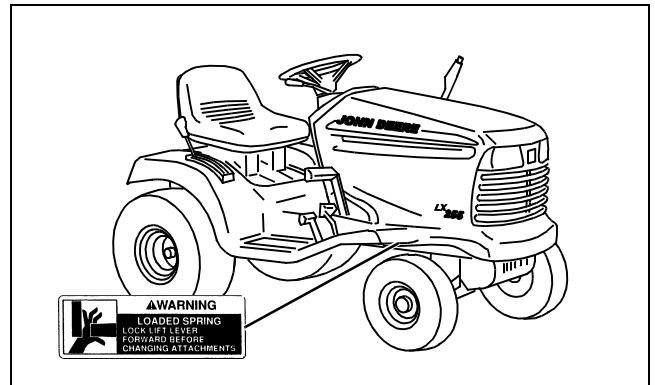


MIF M118788A

- Drive up and down slopes, not across
- Avoid sudden turns
- If machine stops going uphill, stop blade and back down slowly
- Keep safety devices (guards, shields, and switches) in place and working
- Read operator's manual
- When leaving machine:

–Stop engine

WARNING: LOADED SPRING



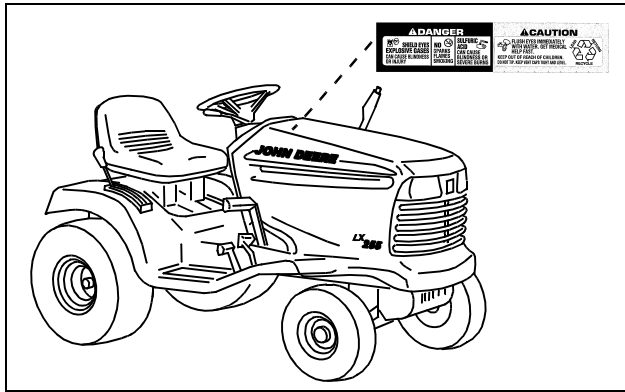
MIF M47589

Picture Note: Label appears at both sides of machine.

- Lock lift lever forward before changing attachments.

SAFETY

DANGER: CAUTION- POISON

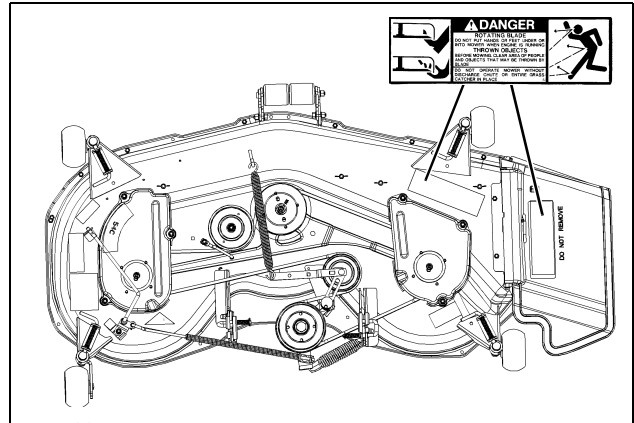


MIF M137060

Picture Note: Label appears on battery.

- Shield eyes, explosive gases can cause blindness or injury.
- No sparks, flames, smoking.
- Sulfuric acid can cause blindness or severe burns.
- Flush eyes immediately with water. Get medical help fast.
- Keep out of reach of children.
- Do not tip.
- Keep vent caps tight and level.

DANGER: ROTATING BLADE-THROWN OBJECTS

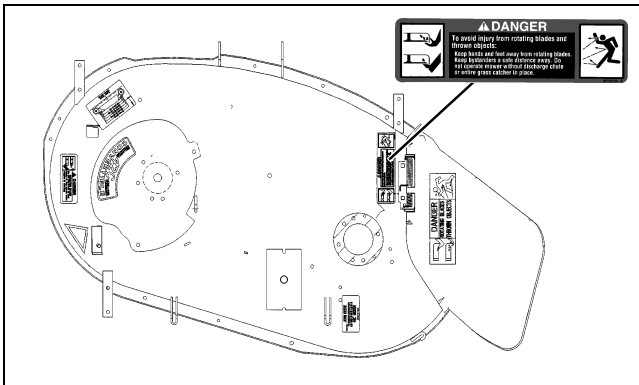


MX8376 M89504

Picture Note: 42C, 48C, and 54C mowers only. Label appears as shown on 48C and 54C. Label appears on discharge chute only on 42C.

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

DANGER



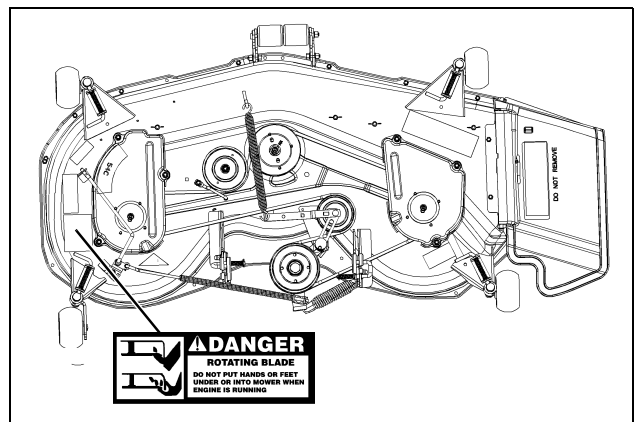
MX8380 M139128

Picture Note: Label appears on 42C mower only.

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.

DANGER: ROTATING BLADE



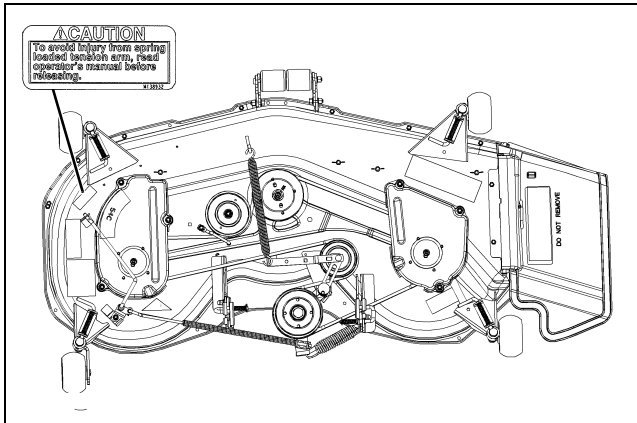
MX8376 M118610

Picture Note: Label appears on all mowers, located on both sides of Freedom42.

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

SAFETY

CAUTION



MX8376 M138932

Picture Note: Label appears on 48C and 54C mowers only.

To avoid injury from spring loaded tension arm, read operator's manual before releasing.

Emission Control System Certification Label (Small Off-Road Gas Engines)

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 Commercial and Consumer Equipment 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.

Emission Compliance Period (Small Off-Road Gas Engines)

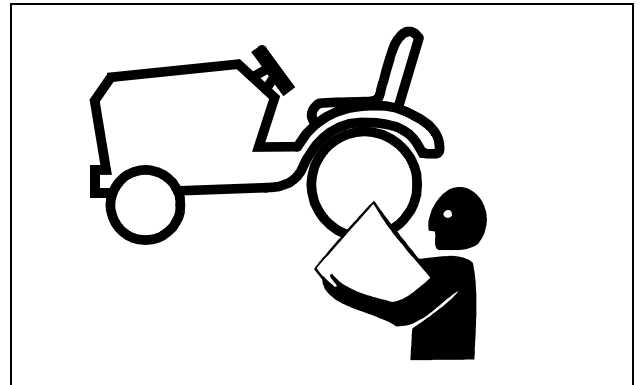
If your engine has the emission compliance category listed on the emission control system certification or air index label, this indicates the number of operating hours for which the engine has been certified to meet EPA and/or CARB emission requirements. The following table provides the engine compliance period in hours associated with the category found on the certification label.

Agency	Category	Hours
EPA	C	250
EPA	B	500
EPA	A	1000
CARB	Moderate	125
CARB	Intermediate	250
CARB	Extended	500

Certification

Your mower has been certified by an independent laboratory for compliance with American National Standard B-71.1, "Safety Specifications" for Power Lawn Mowers, Lawn and Garden Tractors, and Lawn Tractors.

Operating Safely



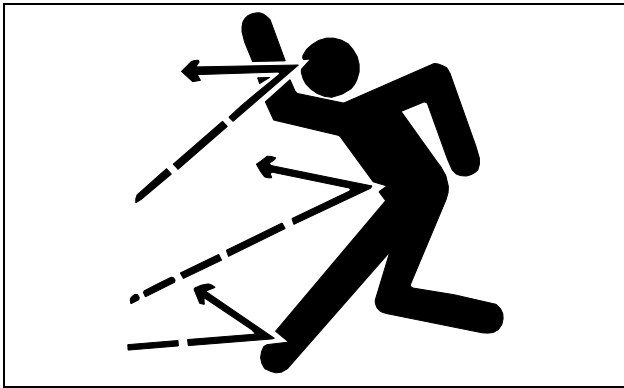
MIF

- Read, understand and follow all instructions in the manual, on the machine and on the safety video before starting.
- Only allow responsible adults, who are familiar with the instructions to operate the machine.
- 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.
- Do not operate mower without discharge chute or entire grass catcher in place.
- Check brake action before you operate. Adjust or service brakes as necessary.
- Stop machine if anyone enters the area.

SAFETY

- If you hit an object, stop the machine and inspect it. Make repairs before you operate. Keep machine and attachments properly maintained and in good working order.
- Be aware of the mower discharge direction and make sure that no one is in the path of the discharge direction.
- Do not leave machine unattended when it is running.
- Only operate during daylight or with good artificial light.
- Be careful of traffic when operating near or crossing roadways.
- Do not wear radio or music headphones while operating the machine. Safe operation requires your full attention.
- Older adults are involved in a large percentage of riding mower accidents involving injury. These operators should evaluate their ability to operate a mower safely enough to protect the operator and others from serious injury.

Checking Mowing Area



MIF

- Clear mowing area of objects that might be thrown. Keep people and pets out of mowing area.
- Study mowing area. Set up a safe mowing pattern. Do not mow where traction or stability is doubtful.
- Test drive area with mower lowered but not running. Slow down when you travel over rough ground.

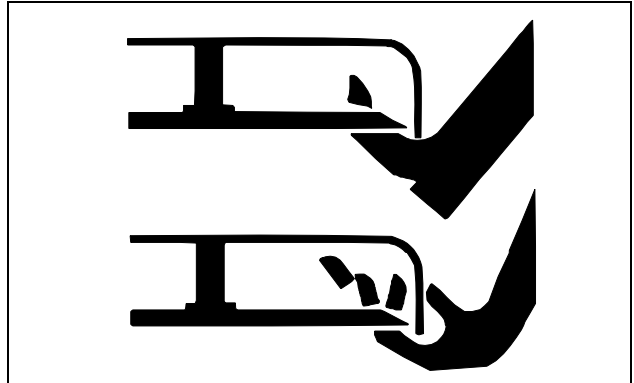
Parking Safely

1. Stop machine on a level surface, not on a slope.
2. Disengage mower blades.
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.

Rotating Blades are Dangerous

HELP PREVENT SERIOUS OR FATAL ACCIDENTS:

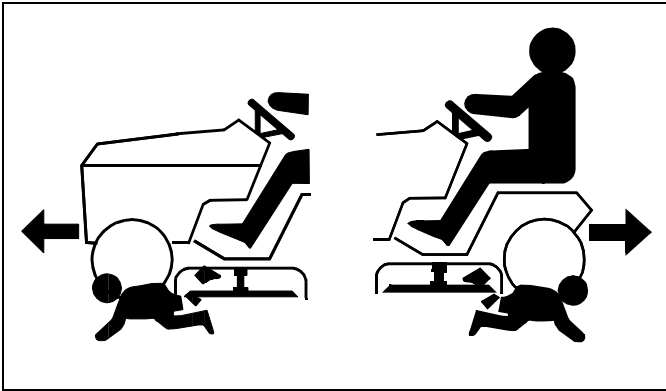


MIF

- Rotating blades can cut off arms and legs.
- Keep hands, feet and clothing away from mower deck when engine is running.
- Be alert at all times, drive forward carefully. People, especially children can move quickly into the mowing area before you know it.
- Before backing up, shut off PTO and look down and behind the machine carefully, especially for children.
- Do not mow in reverse.
- Shut off blades when you are not mowing.
- Do not operate machine if you are under the influence of drugs or alcohol.
- Park machine safely before inspecting or unplugging mower or bagger.

SAFETY

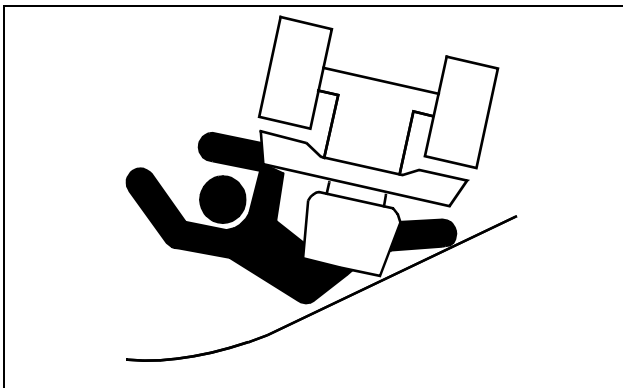
PROTECT CHILDREN:



MIF

- Never assume that children will remain where you last saw them. Children are attracted to mowing activity, stay alert to the presence of children.
- Keep children indoors when you are mowing. Turn the machine off if a child enters the mowing area.
- Use extra care when you come to blind corners, shrubs, trees, or other objects that may block your vision.
- Do not let children or an untrained person operate the machine.
- Do not carry or let children ride on any attachment or machine even with the blades off. Do not tow children in a cart or trailer.

Avoid Tipping



MIF

- Slopes are a major factor related to loss-of-control and tip-over accidents, which can result in severe injury or death. If you cannot back up the slope or if you feel uneasy on it, do not mow it.
- Do not drive where machine could slip or tip.
- Stay alert for holes and other hidden hazards in the terrain.
- Keep away from drop-offs, ditches and embankments.

- Slow down before you make a sharp turn or operate on a slope. Choose a low gear so that you will not have to stop or shift while on the slope.
- Limit loads to those you can safely control. Use only approved hitches when pulling loads or using heavy equipment. Use counterweights or wheel weights as required in this manual or your attachment manual.
- Use wheel weights for added stability when operating on slopes or using rear mounted attachments.
- Drive up and down a hill - not across.
- Do not turn on slopes unless necessary. Turn slowly and turn downhill. Do not shift to neutral and coast downhill.
- Do not stop when going up hill or down hill. If machine stops going up hill, disengage mower blades and back down slowly.
- Mowing when grass is wet can cause reduced traction and sliding.
- Do not try to stabilize the machine by putting your foot on the ground.

Keep Riders Off



MIF

- 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.

Checking Wheel Bolts

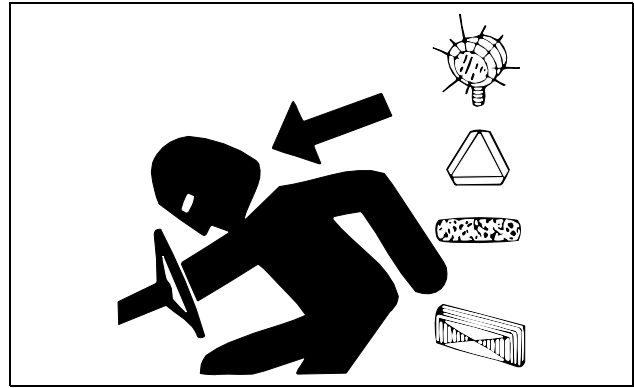
- A serious accident could occur causing serious injury if wheel bolts are not tight.
- Check wheel bolt tightness often during the first 100 hours of operation.

SAFETY

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

Towing Loads Safely

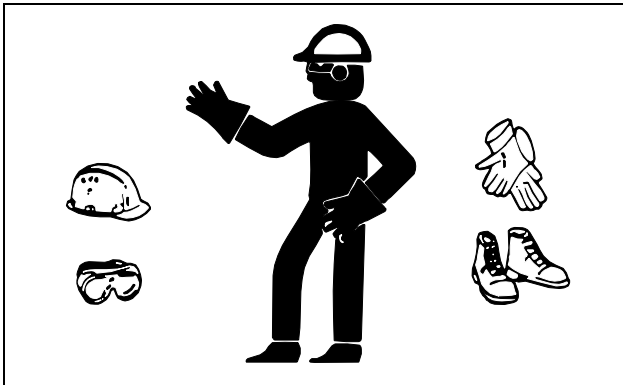
- Do not tow children in a cart or trailer.
- Limit loads to those you can safely control. Use only approved hitches when pulling loads or using heavy equipment.
- Travel slowly and allow extra distance to stop.
- Follow the manufacturer's recommendation for weight limits for towed equipment and towing on slopes.
- Tow only with a machine that has a hitch designed for towing. Do not attach towed equipment except at the hitch point.
- On slopes, the weight of towed equipment may cause loss of traction and loss of control.



MIF

- 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.

Wear Appropriate Clothing



MIF

- Wear close fitting clothing and safety equipment appropriate for the job.
- Always wear safety goggles or safety glasses with side shields when operating the mower.
- Wear a suitable protective device such as earplugs. Loud noise can cause impairment or loss of hearing.
- Do not wear radio or music headphones. Safe service and operation requires your full attention.

Driving Safely on Public Roads

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

Practice Safe Maintenance



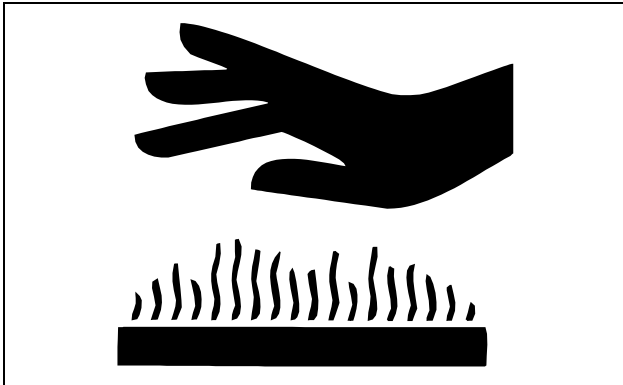
MIF

- Understand service procedure before doing work. Keep area clean and dry.
- Never lubricate, service, or adjust machine while it is moving. Keep safety devices in place and in working condition. Keep hardware tight.
- Keep hands, feet, clothing, jewelry, and long hair away from any moving parts, to prevent them from getting caught.
- Lower attachments to the ground before servicing machine. Disengage all power and stop the engine. Lock park brake and remove the key. Let machine cool.
- Disconnect battery or remove spark plug wire before making any repairs.
- Before servicing the machine, carefully release pressure from any components with stored energy, such as hydraulic components.

SAFETY

- Keep all nuts and bolts tightened, especially blade attachment bolts.
- Securely support any machine elements that must be raised for service work.
- Never run engine unless park brake is locked.
- Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts. Replace all worn or damaged safety and instruction decals.
- To prevent fires, remove any buildup of grease, oil, or debris from the machine, especially the engine compartment.
- Charge batteries in an open, well-ventilated area, away from sparks. Unplug battery charger before connecting or disconnecting from the battery. Use insulated tools.
- Do not modify machine or safety devices. Unauthorized modifications may impair its function and safety.
- Do not wear radio or music headphones while servicing the machine. Safe service requires your full attention.

Prevent Fires

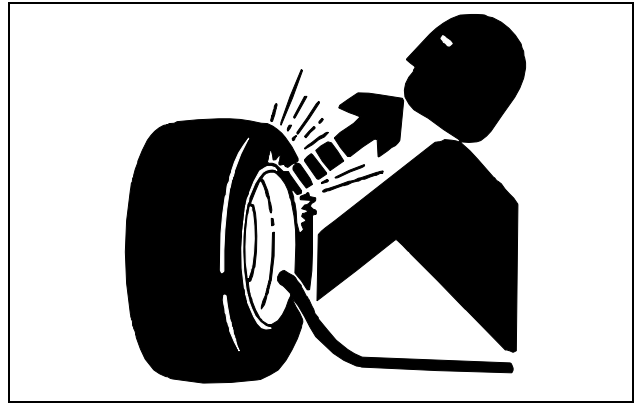


MIF

- Never remove fuel cap, or add fuel with engine running or hot. Allow engine to cool for several minutes.
- Never store equipment with fuel in the tank inside a building where fumes may reach an open flame or spark.
- Allow engine to cool before storing in any enclosure.
- To reduce fire hazard, keep engine free of grass, leaves, or excessive grease.

Tire Safety

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



MIF

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

Handling Fuel Safely

Fuel and fuel vapors are highly flammable:



MIF

- Do not refuel machine while you smoke, when machine is near an open flame or sparks, or when engine is running. Stop engine and allow to cool before filling.
- Never remove the fuel cap or add fuel with the engine running.
- Never fill fuel tank or drain fuel from a machine in an enclosed area. Fill fuel tank outdoors.
- Prevent fires. Clean up spilled fuel immediately.

SAFETY

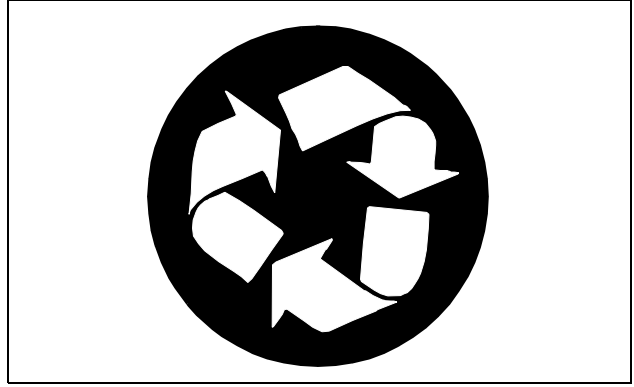
- Do not store machine with fuel in tank in a building where fumes may reach an open flame or spark.
- Prevent fire and explosion caused by static electric discharge. Use only non-metal, portable fuel containers approved by the Underwriter's Laboratory (U.L.) or the American Society for Testing & Materials (ASTM). If using a funnel, make sure it is plastic and has no screen or filter.



- Static electric discharge can ignite gasoline vapors in an ungrounded fuel container. Remove the fuel container from the bed of a vehicle or the trunk of a car and place on the ground away from the vehicle before filling. Keep nozzle in contact with container opening while filling.
- When practical, remove equipment from trailers or truck beds and refuel them on the ground. If this is not possible, use a portable, plastic fuel container to refuel equipment on a truck bed or trailer.
- For gasoline engines, do not use gas with methanol. Methanol is harmful to your health and to the environment.

Handling Waste Product and Chemicals

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



- DO NOT use beverage containers for waste fluids - someone may drink from them.
- See your local Recycling Center or John Deere dealer to learn how to recycle or get rid of waste products.
- A Material Safety Data Sheet (MSDS) provides specific details on chemical products: physical and health hazards, safety procedures, and emergency response techniques. The seller of the chemical products used with your machine is responsible for providing the MSDS for that product.

OPERATING

Engine Break-In

Poor engine performance can result from improper break-in or incomplete break-in time. Break-in is the period of initial run time that seats the piston rings to the cylinder wall.

New engines need to be run hard, under varying loads for at least 5 hours and may not be completely broken-in until after 50 hours. Follow these guidelines:

- Run engine at full throttle during operation. Use partial throttle only for 30-60 seconds to warm a cold engine.
- Run engine under load by mowing, blowing snow, etc.
- Check oil and coolant (if equipped) levels often. Top off as necessary.
- Follow the break-in service intervals.

Engine may show these symptoms during break-in:

- Excess exhaust smoke at startup and during operation.
- High oil consumption.
- Low power/compression.
- Slight surging at full throttle when not under load.
- Fuel in the oil.

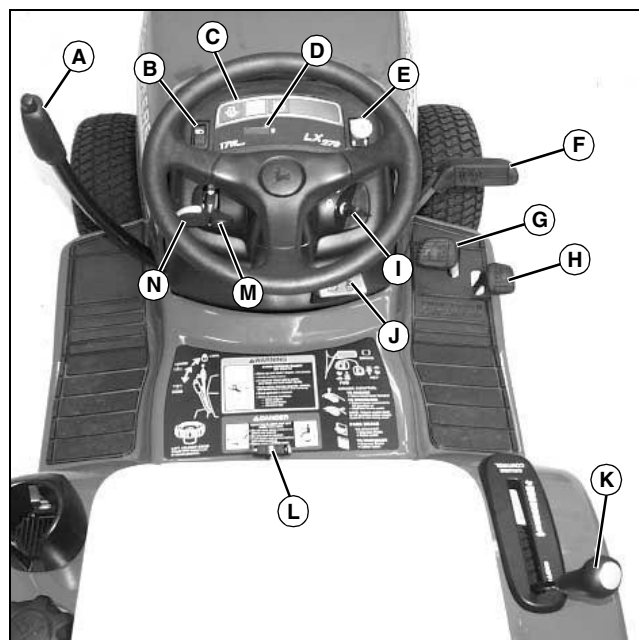
Daily Operating Checklist

- ☐ Test safety systems.
- ☐ Check tire pressure.
- ☐ Check fuel level.
- ☐ Check engine oil level.
- ☐ Check transmission oil level.
- ☐ Check coolant level on liquid cooled engine.
- ☐ Remove grass and debris from machine.
- ☐ Clean air intake screen.
- ☐ Check area below machine for leaks.

Avoid Damage to Plastic and Painted Surfaces

- Do not wipe plastic parts unless rinsed first.
- Insect repellent spray may damage plastic and painted surfaces. Do not spray insect repellent near machine.
- Be careful not to spill fuel on machine. Fuel may damage surface. Wipe up spilled fuel immediately.

Operator Station Controls



MX8385

- A - Attachment Lift Lever
- B - Light Switch
- C - Indicator Lights
- D - Hour Meter
- E - PTO/RIO Switch
- F - Brake Pedal
- G - Forward Travel Pedal
- H - Reverse Travel Pedal
- I - Key Switch
- J - Park Brake Lever
- K - Cruise Control Lever
- L - Mower Height Control Knob
- M - Choke Lever
- N - Throttle Lever

OPERATING

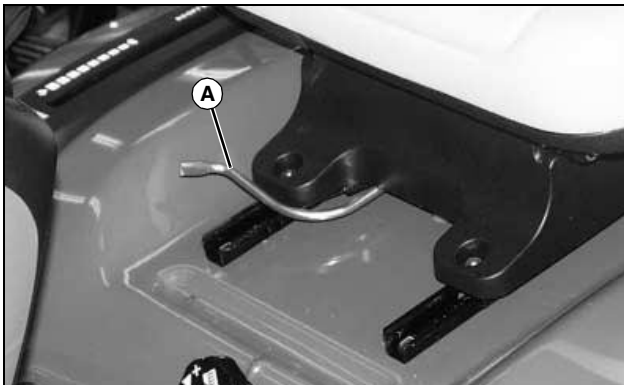
Miscellaneous Controls



A - Free-Wheeling Lever

Adjusting Seat

Adjusting Seat Position

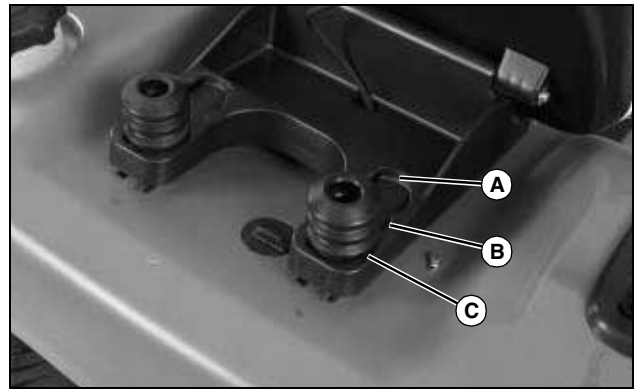


1. Push lever (A) to the left.
2. Slide seat forward or rearward to desired position.
3. Release lever.

Adjusting Ride Comfort

IMPORTANT: Avoid damage! To prevent damage to seat switch and seat base, do not operate without suspension coils in place.

1. Lift seat.
2. Rotate suspension coils into desired position:



- Move coils to front position (A) for softest ride.
- Move coils to middle position (B) for average ride.
- Move coils to rear position (C) for firm ride.

NOTE: Additional suspension coils can be installed for extra support. See your John Deere dealer.

Adjusting Cutting Height

NOTE: Cutting height can be adjusted from approximately 25-100 mm (1-4 in.). Cut height is approximately 100 mm (4 in.) when lift lever is in transport position.

Mower must be raised completely before turning height control knob.

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



3. Turn mower height control knob (A) to desired cutting height. Mower will be at set cutting height when lowered.
4. Adjust mower wheels.

OPERATING

Adjusting Mower Wheels



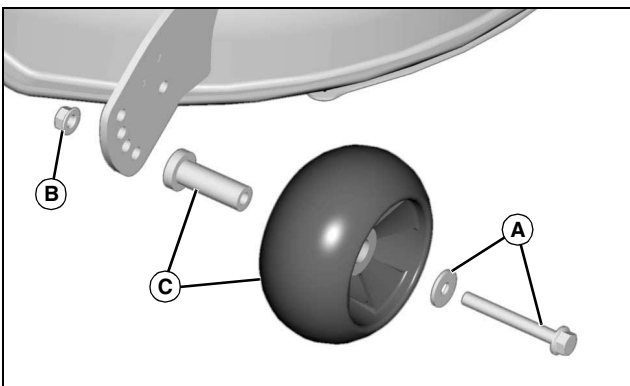
CAUTION: Avoid injury! Rotating blades are dangerous. Before adjusting or servicing mower:

- Disconnect spark plug wire(s) 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:

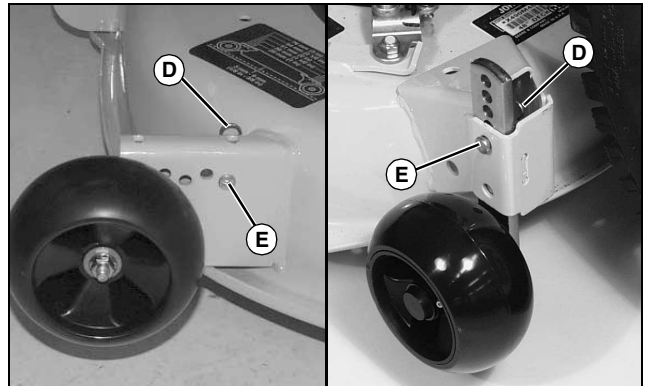
- Mower wheels must not ride on the ground unless power flow is installed. Use of power flow requires special mower wheel adjustment.
- Check wheel adjustment each time cutting height is changed.

1. Park machine safely on a level surface. (See Parking Safety in the SAFETY section).
2. Inflate tires to correct pressure.
3. Put lift lever in transport position.
4. Adjust cutting height.
5. Lower mower to cutting position.
6. Measure distance between mower wheels and ground surface:
 - Freedom42 Mower - All wheels should be 3-13 mm (1/8-1/2 in.) from ground.
 - 42C Mower - All wheels should be 3-9 mm (1/8-3/8 in.) from ground.
 - 48C and 54C Mower - All wheels should be 6-13 mm (1/4-1/2 in.) from ground.
7. Adjust mower wheels to correct height:



- Freedom42 Mower - Remove bolt and washer (A) and nut (B). Move wheel and bushing (C) to proper hole

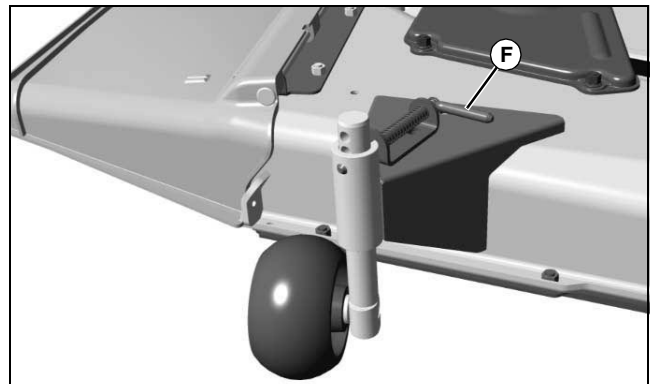
position. Secure with bolt, washer, and nut. Tighten nut to 34 N•m (25 lb-ft).



MX8382 MX8381

Picture Note: 42C shown left, 48C shown right.

- 42C and 48C Mower - Remove spring locking pin (D) and drilled pin (E). Move wheel to proper hole position. Install pins.



MX8332

- 54C Mower - Pull pin (F) outward and move wheel to proper hole position. Release pin to lock wheel in position.

Adjusting Mower Level (Side-to-Side)



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

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

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

1. Park machine safely on a level surface. (See Parking

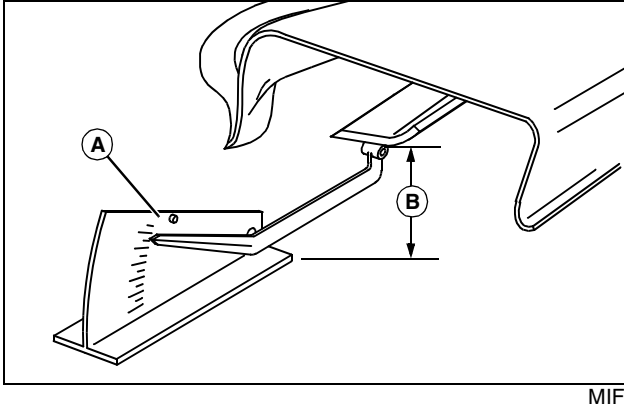
OPERATING

Safely in the SAFETY section).

2. Inflate tires to the correct pressure.
3. Adjust cutting height to 50 mm (2 in.).
4. Lower mower to cutting position.

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

5. Turn left blade parallel to axle and complete measurement. Hold drive belt and turn right blade parallel to machine axle and complete measurements.

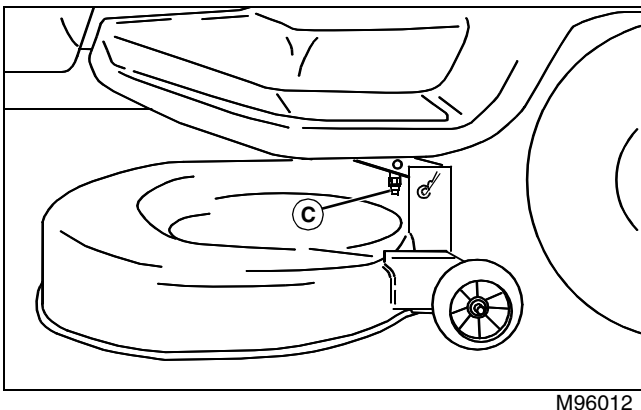


Picture Note: A convenient leveling gauge (A) is available from your John Deere dealer.

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

NOTE: Cutting height can closely match knob setting by adjusting lift links on both sides of deck.

Deck will not lock in transport position if adjusted too high.



Picture Note: Left side shown.

7. Adjust lift links, turn nut (C):
 - Clockwise to raise left side of mower.
 - Counterclockwise to lower left side of mower.

Adjusting Mower Level (Front-to-Rear)

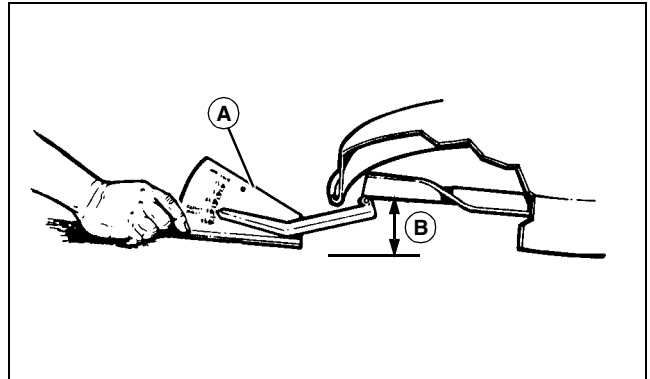


CAUTION: Avoid injury! Rotating blades are dangerous. Before adjusting or servicing mower:

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

NOTE: Mower wheels should not contact the ground during leveling.

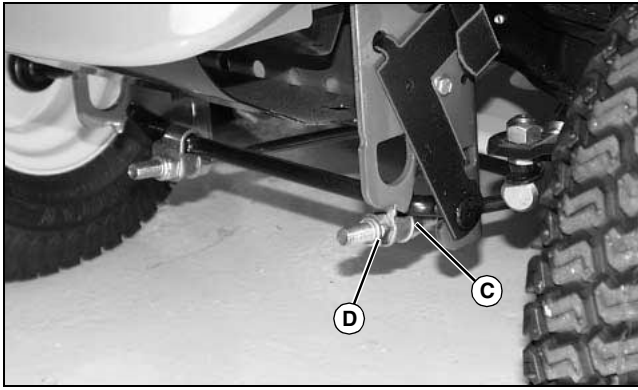
1. Park machine safely on a level surface. (See Parking Safely in the SAFETY section.)
2. Inflate tires to the correct pressure.
3. Adjust cutting height to 50 mm (2 in.).
4. Lower mower deck completely.
5. Turn right blade so blade tip points straight forward.



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

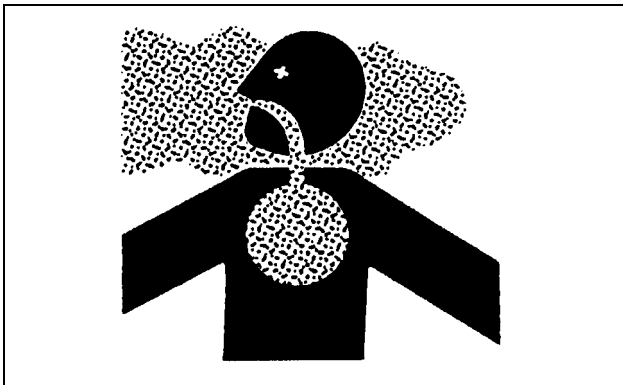
6. Measure distance (B) from blade tip to level surface:
 - Freedom42 Mower - The difference between the front and rear blade tip measurements must not be more than 3 mm (1/8 in.)
 - 42C Mower - The front blade tip must be 3-9 mm (1/8-3/8 in.) lower than rear blade tip.
 - 48C and 54C Mower - The front blade tip must be 3-6 mm (1/8-1/4 in.) lower than rear blade tip.
7. Adjust front-to-rear mower level if necessary:

OPERATING



- a. Loosen rear nut (C) on each side of front lift rod.
 - b. Turn front nut (D) on each side clockwise to raise front of mower or counterclockwise to lower it.
 - c. Tighten rear nuts after adjustment is complete.
8. Check adjustment by measuring blade tips again.

Testing Safety Systems



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

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

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

- Connect a pipe extension to the engine exhaust pipe to direct the exhaust fumes out of the area.
- Allow fresh outside air into the work area to clear the exhaust fumes out.

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

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

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

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 crank. If engine cranks, there is a problem with your safety interlock circuit.

Testing Park Brake

1. Park machine safely. (See Parking Safely in the SAFETY section.)
2. Lock the park brake.
3. Try to push machine manually.

Result: Park brake must prevent machine from moving. If machine moves, park brake needs to be adjusted.

Testing 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 PTO switch.
5. Try to start engine.

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

Testing Seat Switch

Test 1

1. Start the engine.
2. Move throttle lever to maximum speed position.
3. Unlock the park brake.
4. Engage the PTO switch.

OPERATING

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

Result: Engine should begin to stop. PTO should shut off immediately and mower blades should stop.

Test 2

1. Disengage the PTO switch.
2. Start the engine.
3. Unlock the park brake.
4. 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.

Test 3

1. Start the engine.
2. Lock the park brake.
3. Raise up off seat. Do not get off machine.

Result: Engine should continue to run.

Testing Reverse Implement Option (RIO)



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

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

1. Park machine safely. (See Parking Safely in the SAFETY section.)
2. Start the engine.
3. Engage PTO to start attachment.
4. Look behind the machine to be sure there are no bystanders.
5. Begin reverse travel by depressing reverse foot pedal.

Result: Attachment should stop operation. If attachment continues to operate as machine begins travel in reverse, do not continue to operate mower.

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.

Locking Park Brake



M96408

1. Push and hold down brake pedal (A).
2. Pull up park brake lever (B) to lock park brake.
3. Release brake pedal. Pedal should stay down and park brake lever should stay up in locked position.

Unlocking Park Brake

1. Push and hold down brake pedal (A).
2. Push down park brake lever (B) to unlock park brake.
3. Release brake pedal. Pedal should come up to operating position.

Using Headlights

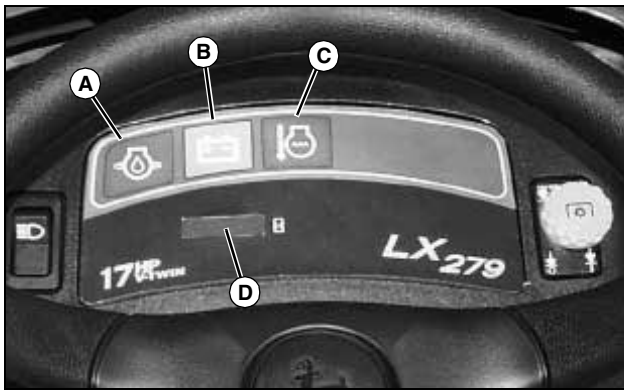


MX8386

- Press at top of light switch (A) to turn headlights on.
- Press at bottom of light switch (A) to turn headlights off.

OPERATING

Using Indicator Lights and Hour Meter



MX8387

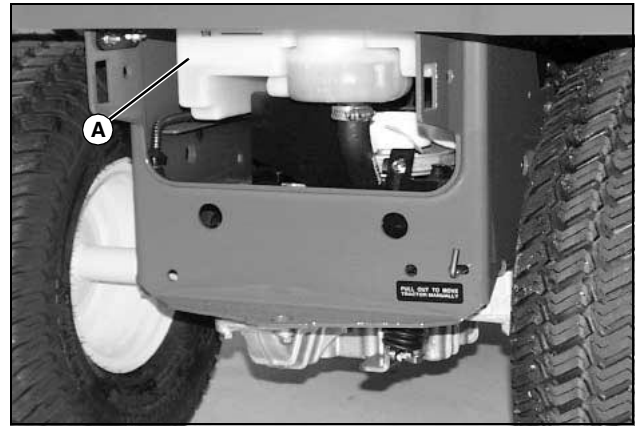
A - Oil Pressure Indicator - will come on when you turn the key to the run position. Indicator should go out when engine is started. If indicator comes on during operation, engine oil pressure is too low. Stop engine and perform appropriate service.

B - Battery Discharge Indicator - will come on when you turn the key to the run position. Indicator should remain on during the starting cycle and then go off. The indicator may remain on at low idle or if battery charge is low and the PTO and headlights are turned on. If indicator comes on during normal operation, stop engine and perform appropriate service.

C - Coolant Temperature Indicator (Model LX279 Only) - will not come on when you turn the key to the run position. If indicator comes on during operation, coolant temperature is above normal operating temperature. Stop engine and perform appropriate service. Coolant light will come on momentarily when key is turned to the start position.

D - Hour Meter - shows the number of hours the engine has run. The hour meter will run with the engine off when the key is in the run position with the operator's seat occupied or the park brake locked with PTO off. Use the hour meter to determine when your machine has reached the recommended service intervals.

Checking Fuel Level



MX8384

Check fuel level in fuel tank (A).

Starting the Engine



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

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

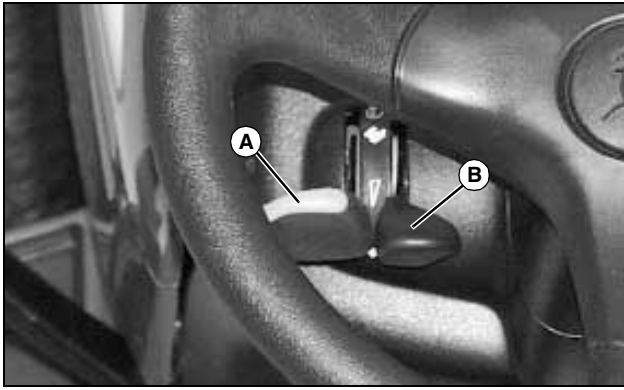
Do not run an engine in an enclosed area without adequate ventilation.

- **Connect a pipe extension to the engine exhaust pipe to direct the exhaust fumes out of the area.**
- **Allow fresh outside air into the work area to clear the exhaust fumes out.**

NOTE: Engine will not start unless park brake is applied and PTO is disengaged.

1. Sit on seat.
2. Make sure PTO switch is disengaged.
3. Push down brake pedal.

OPERATING



MX8388

4. Adjust throttle setting:

- If engine is cold, move throttle lever (A) between the half throttle and fast throttle positions.
- If engine is warm, move throttle lever (A) to slow throttle position.

5. Adjust choke setting:

- If engine is cold, push and hold choke lever (B) all the way up to the choke position.
- If engine is warm, push and hold choke lever (B) half way up or do not use at all depending on engine temperature.



MX8389

6. Turn key to run position (C).

7. Make sure the oil pressure and battery discharge indicators illuminate.

IMPORTANT: Avoid damage! Starter may be damaged if operated longer than 20 seconds at a time. Wait two minutes between starting intervals if engine does not start immediately.

8. Turn key to start position (D) for no more than 5 seconds.

9. Release key to run position (C) and release choke lever when engine starts. If engine does not start:

- a. Wait 10 seconds.

- b. Hold choke lever in the choke position.

- c. Turn key to start position again for no longer than 5 seconds. Release key and choke lever when engine starts.

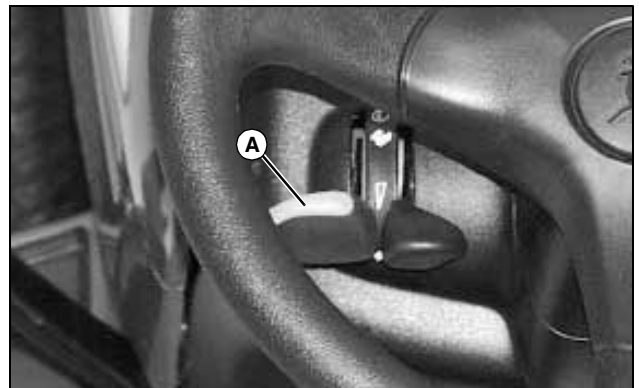
- d. Repeat procedure if necessary.

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

10. Run engine at half throttle for 30-60 seconds to allow warm-up before operating.

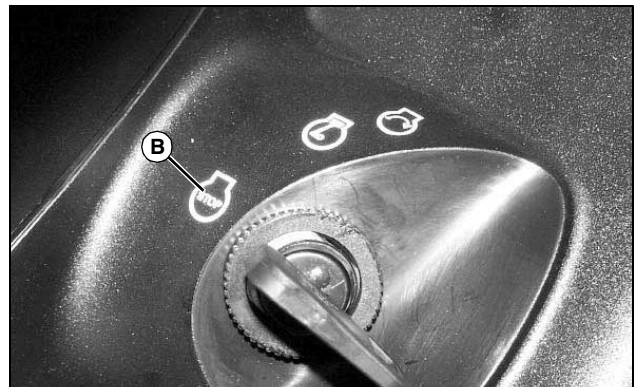
Stopping the Engine

1. Stop the machine.



MX8388

2. Move throttle lever (A) to the slow position. Allow engine to idle for several seconds.



MX8389

3. Turn key to stop position (B).

4. Lock the park brake.

5. Remove the key.

OPERATING

Using Travel Controls

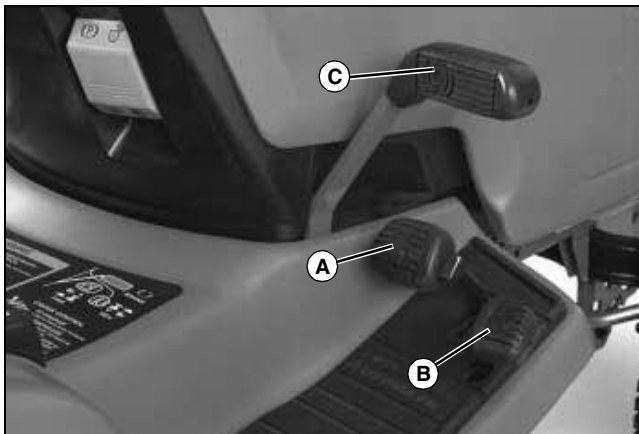


CAUTION: Avoid injury! Children or bystanders can be injured or killed by moving machine and rotating blades. Before traveling forward or rearward:

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

Forward Travel

1. Start the engine.
2. Unlock the park brake.



M96408

3. Push down slowly on forward pedal (A) until desired travel speed is obtained.
4. Release forward pedal and machine will automatically return to neutral and stop.

Reverse Travel

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

1. Stop the machine.
2. Push PTO knob down to the off position to disengage attachment.
3. Look behind the machine to be sure there are no bystanders nearby.
4. Push down slowly on reverse pedal (B).

Stopping

1. Release either travel pedal, machine will automatically return to neutral and stop.
2. Push down brake pedal (C).

Using the Reverse Implement Option (RIO)

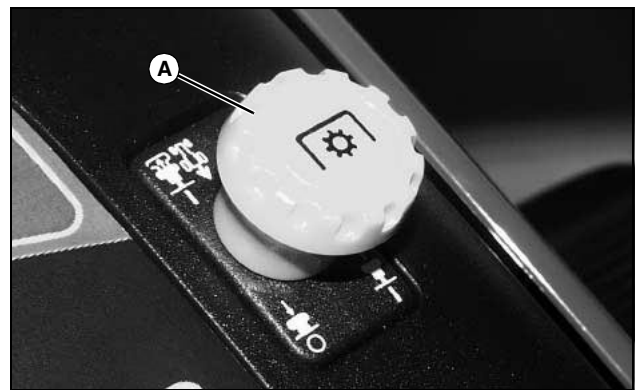


CAUTION: Avoid injury! Children or bystanders can be injured or killed by moving machine and rotating blades. Before traveling forward or rearward:

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

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

1. Stop the machine. Allow attachment to run.
2. Look behind the machine to be sure there are no bystanders.



MX8383

3. Lift PTO switch (A) past the PTO engagement position while depressing reverse foot pedal slightly.

NOTE: If the attachment stops while positioning the machine, return PTO switch to off position. Repeat this procedure from the beginning.

4. As the machine begins to move backward, release the PTO switch and position the machine.
5. Resume forward travel. The attachment should continue operating.
6. Repeat procedure to position the machine again.

OPERATING

Using Cruise Control



CAUTION: Avoid injury! Do not use cruise control when going down hills. Machine speed will increase.

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

IMPORTANT: Avoid damage! The reverse pedal linkage will be restricted if the cruise control lever is not completely rearward in the OFF position.

Manually pull cruise control lever completely rearward to OFF when not in use.

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

Engaging Cruise Control



MX8385

1. Put cruise control lever (A) in OFF position.
2. Move cruise control lever forward to the slow speed position to begin forward machine travel.
3. Continue to move lever forward to increase speed.
4. Release lever when desired cruise speed is reached.

Disengaging Cruise Control

- Move cruise control lever (A) completely rearward to OFF position, or
- Push down park brake pedal (B), then move cruise control lever (A) completely rearward to OFF position.

Using PTO (Power Take-Off)

NOTE: PTO operation will stop if reverse pedal is depressed. Understand the Reverse Implement Option (RIO) system before operating the PTO.

1. Start the engine. If necessary, allow engine to warm up before operating PTO.

NOTE: Always operate at maximum throttle speed when PTO is engaged.



MX8388

2. Move throttle lever (A) to fast position.
3. Move PTO switch (B) to desired position:
 - Engage PTO - Lift up on switch lever to "I" position.
 - Disengage PTO - Push down on switch lever to "O" position.
 - Maintain PTO engagement in reverse - Lift and hold switch lever in the highest position.

Pushing Machine (Using Free-Wheeling Lever)



CAUTION: Avoid injury! With the free-wheeling valve open, the machine will have unrestricted motion.

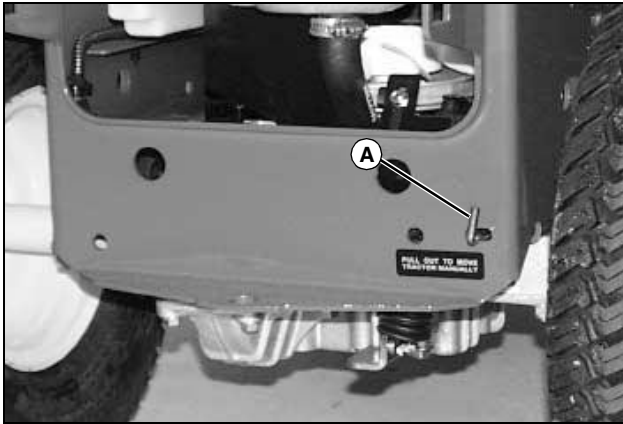
- The machine may free-wheel out of control if the free-wheeling valve is opened with the machine on an incline.
- Park the machine on a level surface before opening the free-wheeling valve.

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

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

1. Unlock the park brake.

OPERATING



MX8384

2. Pull out on free-wheeling lever (A).
3. Push machine to desired location.

NOTE: The free-wheeling lever will return to operating position when brake pedal is pressed.

Unplugging Mower or Optional Bagger



CAUTION: Avoid injury! Rotating blades are dangerous:

- Park the machine safely and lock the park brake before getting off the seat.
- Turn the mower off.
- Stop the engine.

Before getting off the seat:

1. Stop machine.
2. Disengage mower blades.
3. Move throttle lever to slow position.
4. Lower mower to the ground.
5. Lock the park brake.
6. Stop the engine.
7. Remove the key.
8. Wait for all moving parts to stop.

Transporting Machine on Trailer

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



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

- Park trailer on a level surface.
- Keep wheels away from drop-offs and edges.

1. Park trailer on a level surface.
2. Drive forward onto heavy-duty trailer with sides.
3. Lower mower to trailer deck.
4. Lock the park brake.
5. Fasten machine to trailer with heavy-duty straps, chains, or cables. Both front and rear straps must be directed down and outward from machine.
6. Strap down hood.

Using Weights



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

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

NOTE: Install weights using the instructions provided with your weights. Remove weights when not required.

Using Front Weights

Install front wheel weights for better stability and steering control when you use equipment such as the rear-mounted grass bagger.

Using Rear Weights

Install rear weight bracket kit with suitcase weights or rear wheel weights when using front-mounted attachments such as a snowthrower or blade.

Installing Tire Chains

IMPORTANT: Avoid damage! Loose tire chains can cause machine damage. Periodically check chain tightness and adjust as necessary.

NOTE: Chains are available from your John Deere dealer.

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

OPERATING

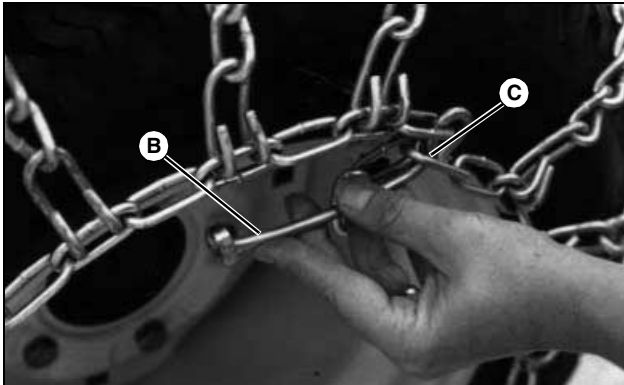
SAFETY section.)

2. Lay chains out flat with the cross chain hook ends facing downward.
3. Remove any twists and tangles from cross chain and rim chain.
4. Drive machine onto chains.



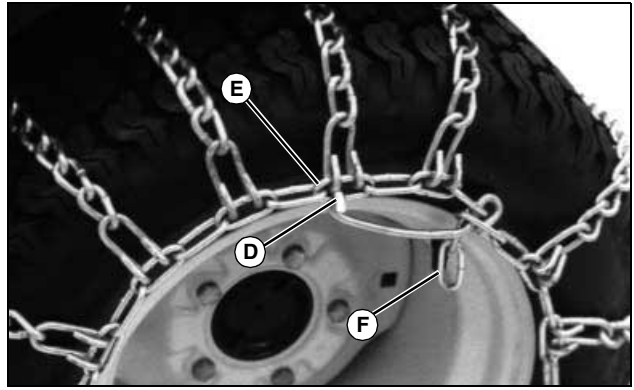
M73743

5. Drape chain over tire with the lever fastener on outside of tire and cross link hooks (A) facing upward and away from tire.
6. Adjust chain for straightness and an even amount of cross chain links on each side of tire.
7. Place the first cross chain (opposite the end with fastener and inside hook) under tire.
8. Pull the inside rim chain tight and hook the inside hook.



M73744

9. Pull the outside rim chain tight and hook the outside lever fastener (B) by running the end through a free link (C).

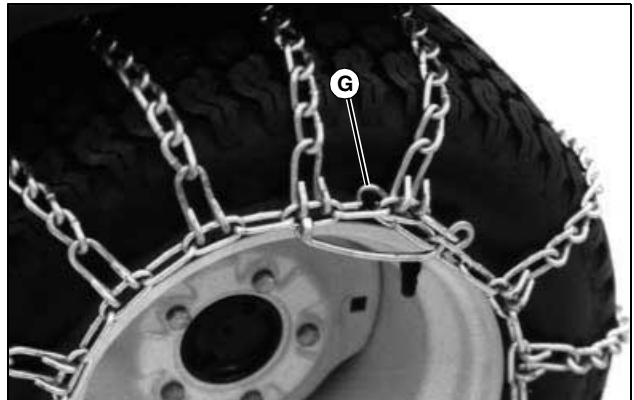


M73745

10. Close the fastener by rotating it back 180° and engaging the hook (D) on the end of the fastener into a rim chain link (E).

Make sure the chain is centered on the tire with approximately the same number of free rim links (F) on the inside and outside.

NOTE: The chain should be as tight as possible. If chain is loose, unhook the fastener and pull chain tight again.



M73746

11. Tie excess rim chain links (G) back to the rim chain.
12. Drive forward on chains 9-12 m (30-40 ft.) and recheck for tightness. Adjust as necessary.

Mowing Tips

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

- Keep mower blades sharp. Dull blades will tear grass; tips of grass will then turn brown.
- Cutting grass too short may kill grass and let weeds grow easily. The suggested finished cut height range is 44-70 mm (1-3/4 to 2-3/4 in.).
- Adjust cutting height to remove only 1/3 of the grass at a time.

OPERATING

- Do not mow wet grass.
- Mow grass often. Short grass clippings will decay quickly.
- Mow with engine at full throttle.
- Adjust travel speed to match mowing conditions:
 - Travel at slow speed when you mow thick, tall grass, make sharp turns or trim around objects.
 - Travel at moderate speed when you mow thin grass.
- Use a different mowing pattern each time you mow. Overlap mowing paths 50-100 mm (2-4 in).
- Drive over ridges and through shallow ditches straight-on, not at an angle.
- A thick layer of mulched leave can prevent sunlight from getting to grass and smother it. Taller grass heights allow mulched leaves to disperse easier in lawn. Mulch leaves several times if needed.
- Use a thatcher in late spring or summer to pull up dead grass and aerate ground.

REPLACEMENT PARTS

Service Literature

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

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

Parts

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

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

When you order parts, your John Deere dealer needs your machine serial number and engine serial number. These are the numbers that you recorded in the Product Identification section of this manual.

Item	Part Number
Engine Oil Filter:	
LX266	AM125424
LX277, LX277AWS	AM107423
LX279	AM107423
LX288	AM125424
Seat Suspension Coils	M127973
Traction Drive Belt:	
LX266, LX277, LX279, LX288	M127521
LX277AWS	M127524
Light Bulbs:	
Headlamps	AD2062R
Instrument Panel	AD62407

Tractor

Item	Part Number
Air Cleaner Foam Element:	
LX266	M131303
LX277, LX277AWS	M137555
LX279	M76076
LX288	LG272490
Air Cleaner Paper Element:	
LX266	M145944
LX277, LX277AWS	M137556
LX279	M76077
LX288	LG394018
Battery	TY21755
Fuel Filter	AM116304
Spark Plug:	
LX266	M78543
LX277, LX277AWS	TY6081
LX279	M138938
LX288	M78543
Fuse, 15 amp	99M7065

Mower Deck

Item	Part Number
Primary Belt (engine to mower):	
Freedom42	M140502
42C Mower	M143019
48C Mower	M143019
54C Mower	M143019
Secondary Belt (mower spindles):	
Freedom42 (timing belt)	M141558
42C Mower	M43820
48C Mower	M110313
54C Mower	M143923
Freedom42 Blade Kit (includes blades and hardware)	AM130172
42C Blades:	
Standard	M139976
Mulching	M139975
Bagging	M139977
48C Blades:	
Standard	M127500
Mulching	M127673

REPLACEMENT PARTS

Item	Part Number
54C Blades:	
Standard	M143520
Mulching	M145516

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

SERVICE INTERVALS

Servicing Your Machine

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

- Engine components may become dirty or plugged when operating in extreme heat, dust or other severe conditions.
- Engine oil and spark plugs may lose efficiency if vehicle is operated constantly at slow or low engine speeds or with frequent short trips.

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

Initial Break-In

After First 5 Hours of Operation

- Check/tighten wheel bolts (model LX277AWS).
- Lubricate front wheel spindles.

After First 25 Hours of Operation

- Check/tighten wheel bolts (model LX277AWS).
- Check/tighten loose hardware.
- Change engine oil and filter.
- Check transmission oil level.
- Check coolant level (model LX279).

After First 50 Hours of Operation

- Check/tighten wheel bolts (model LX277AWS).
- Change engine oil and filter.

After First 100 Hours of Operation

- Check/tighten wheel bolts (model LX277AWS).
- Change engine oil and filter.

Every 25 Hours

- Check mower blades.

Every 50 Hours

- Check tire pressure.
- Check transmission oil level.
- Lubricate front wheel spindles.
- Lubricate front axle pivot (model LX277AWS).

- Lubricate mower gage wheels.
- Lubricate mower blade spindles.
- Check/service air cleaner elements.
- Check/tighten wheel bolts (model LX277AWS).

Every 100 Hours or Annually (whichever comes first)

- Check/tighten loose hardware.
- Check battery electrolyte level.
- Clean battery.
- Change engine oil and filter.
- Inspect spark plugs and check gap.
- Check mower belts.
- Check and adjust mower timing belt (Freedom42).
- Sharpen mower blades.

Every 200 Hours or Two Years (whichever comes first)

- Replace fuel filter.
- Change radiator coolant (model LX279).
- Check radiator hoses and clamps (model LX279).

Every 500 Hours or Two Years (whichever comes first)

- Change engine coolant (model LX279).

Every 500 Hours

NOTE: See your John Deere dealer for these services.

- Check engine idle speeds.
- Check carburetor adjustment.
- Check and adjust valve clearance.
- Check fuel lines.

SERVICE LUBRICATION

Grease

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

The recommended John Deere greases are effective within an average air temperature range of -29 to 135 degrees C (-20 to 275 degrees F).

If operating outside that temperature range, contact your Servicing dealer for a special-use grease.

The following greases are preferred:

- John Deere Multi-Purpose SD Polyurea Grease
- John Deere Multi-Purpose HD Lithium Complex Grease
- John Deere Moly High Temperature EP Grease

If not using any of the preferred greases, be sure to use a general all-purpose grease with an NLGI grade No.2 rating.

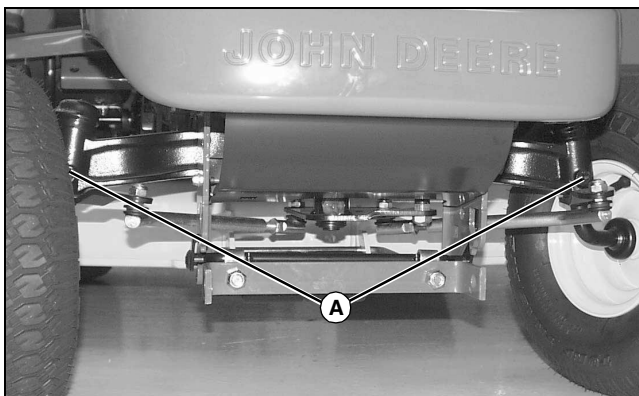
Wet or high speed conditions may require use of a special-use grease. Contact your Servicing dealer for information.

Lubricating Front Wheel Spindles



CAUTION: Avoid injury! Do not work under a raised machine unless it is safely supported. A machine that slips and falls off a jack could cause serious injury or death.

1. Raise front of machine with a safe lifting device so front wheels are slightly off the ground.



M97150

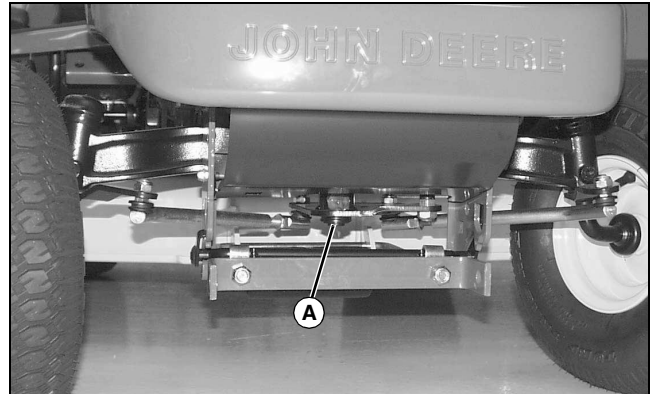
2. Lubricate front spindles (A) with recommended grease.
3. Turn steering wheel back and forth to distribute grease in spindles.
4. Lower machine to the ground.
5. Remove lifting device.

Lubricating Front Axle and Rear Steering Pivots (LX277AWS Only)



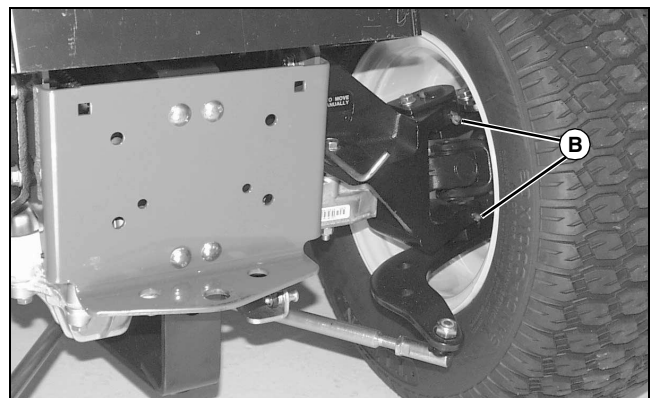
CAUTION: Avoid injury! Do not work under a raised machine unless it is safely supported. A machine that slips and falls off a jack could cause serious injury or death.

1. Raise front of machine with a safe lifting device so front wheels are slightly off the ground.



M97150

2. Lubricate front axle pivot (A) with recommended grease.
3. Turn steering wheel back and forth to distribute grease in spindles.
4. Lower machine to the ground.
5. Raise rear of machine with a safe lifting device so rear wheels are slightly off the ground.

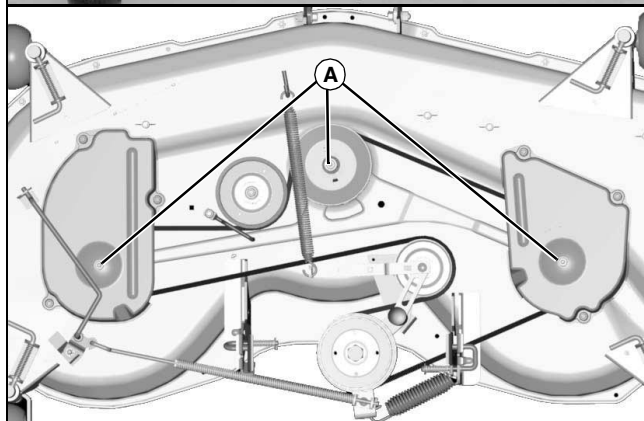
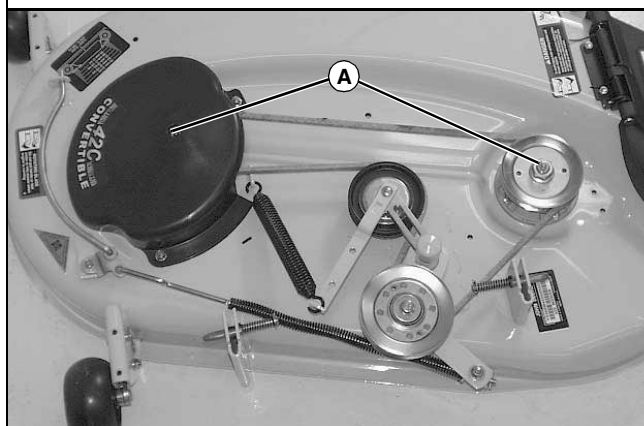
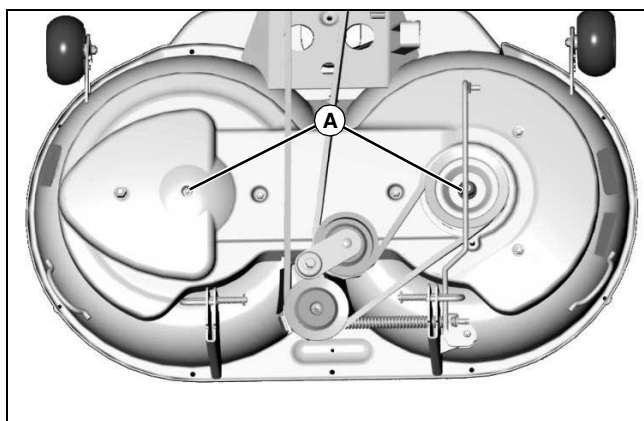


M97140

6. Lubricate two steering pivots (B) at each wheel with recommended grease.
7. Turn steering wheel back and forth to distribute grease.
8. Lower machine to the ground.
9. Remove lifting device.

SERVICE LUBRICATION

Lubricating Blade Spindles

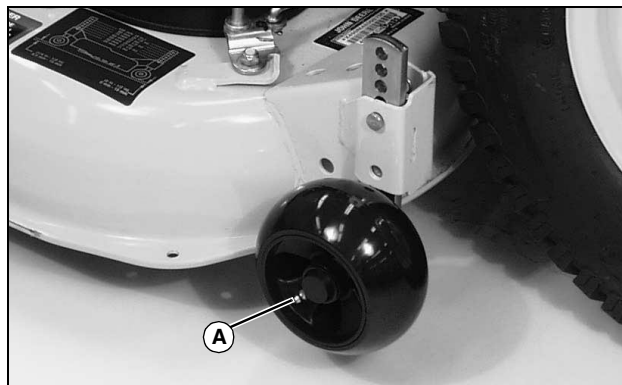


MX3868 M97146 MX8378

**Picture Note: Top - Freedom42, Center - 42C
Bottom - 48C and 54C.**

Lubricate spindles (A) with recommended grease.

Lubricating Mower Wheels (48C and 54C Mowers Only)



M96021

Lubricate mower wheel grease fittings (A).

- 48C Mower - Rear wheels only.
- 54C Mower - Front and rear wheels.

SERVICE ENGINE

Engine Warranty Maintenance Statement

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

Avoid Fumes



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

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

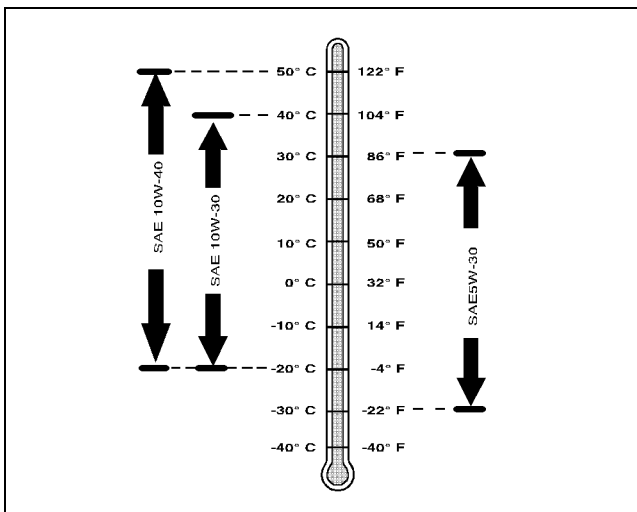
Do not run an engine in an enclosed area without adequate ventilation.

- **Connect a pipe extension to the engine exhaust pipe to direct the exhaust fumes out of the area.**
- **Allow fresh outside air into the work area to clear the exhaust fumes out.**

Engine Oil

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

The following John Deere oils are preferred:



MX4888

- TURF-GARD®
- PLUS-4®

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

- API Service Classification SG or higher

Checking Engine Oil Level

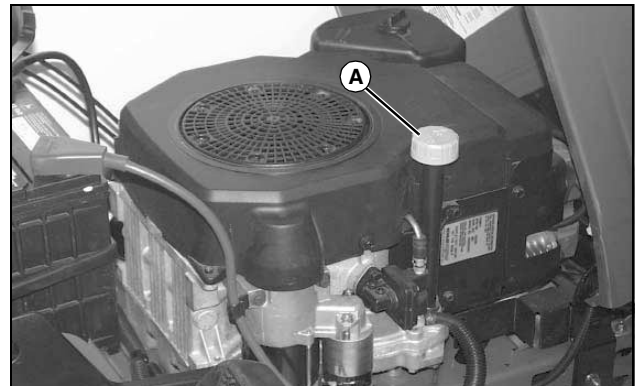
IMPORTANT: Avoid damage! Failure to check the oil level regularly could lead to serious engine problems if oil level is low:

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

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

Make sure engine is cold when checking engine oil level.

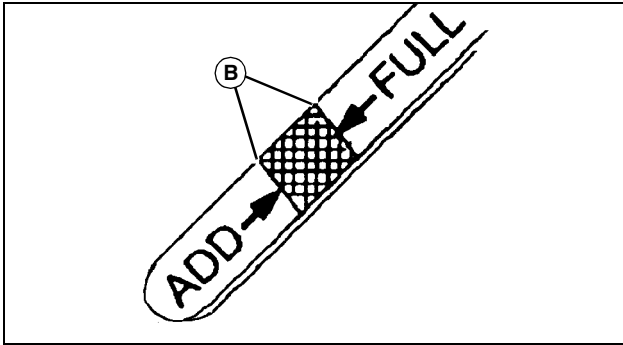
1. Park machine safely. (See Parking Safely in the SAFETY section.)
2. Lift hood.



MX8390

3. Clean area around dipstick (A) to prevent debris from falling into crankcase.
4. Remove dipstick. Wipe with clean cloth.
5. Install dipstick:
 - LX266, LX277, LX277AWS and LX279 - Install dipstick in tube but do not tighten. Allow dipstick threads to rest on top of tube and rotate cap counterclockwise until it "clicks" or drops into place.
 - LX288 - Install and tighten dipstick.
6. Remove dipstick.

SERVICE ENGINE

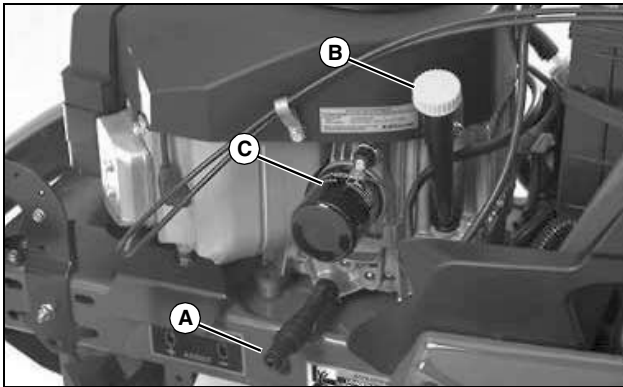


M88476

7. Check oil level on dipstick. Oil must be between ADD and FULL marks (B).
8. If oil level is low, add oil to bring oil level no higher than FULL mark on dipstick.
9. Install and tighten dipstick. Lower hood.

Changing Engine Oil and Filter

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



M97130

Picture Note: LX277 shown.

4. Put drain pan under drain valve (A). If available, install drain hose.
5. Open drain valve and drain oil into oil drain pan. Allow oil to drain completely.
6. Remove dipstick (B).
7. Change oil filter:
 - a. Wipe dirt from around oil filter (C).
 - b. Place a drain pan or funnel under filter tray.
 - c. Remove old filter and wipe off filter tray.
 - d. Apply a light coat of fresh oil to filter seal.

e. Install replacement oil filter by turning oil filter to the right (clockwise) until rubber seal contacts filter base. Tighten filter an additional one-half turn.

8. Close drain valve.
9. Add oil:
 - LX266, LX277, LX277AWS and LX279: 1.8 L (1.9 qt)
 - LX288: 1.7 L (1.8 qt)
10. Install and tighten dipstick.
11. Start and run engine at idle to check for leaks. Stop engine. Fix any leaks before operating.
12. Check oil level, add oil if necessary.

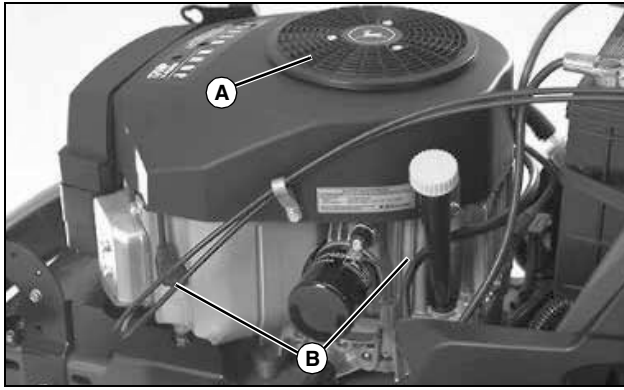
Cleaning Air Intake Screen and Engine Fins

IMPORTANT: Avoid damage! The engine requires a large amount of air intake when running. Reduced air intake can cause overheating:

- Keep air intake screen and cooling fins clean.
- Keep covers and screens in place.

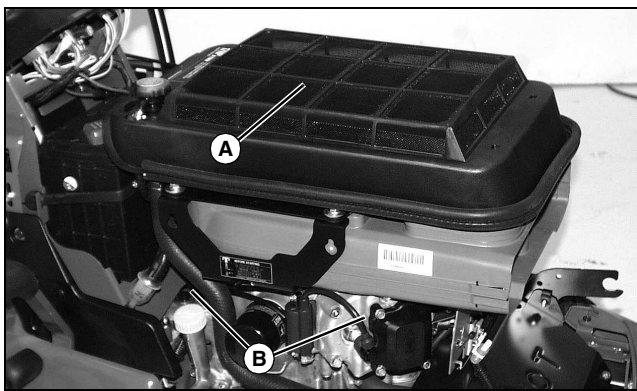
1. Park machine safely. (See Parking Safely in the SAFETY section.)

SERVICE ENGINE



M97130

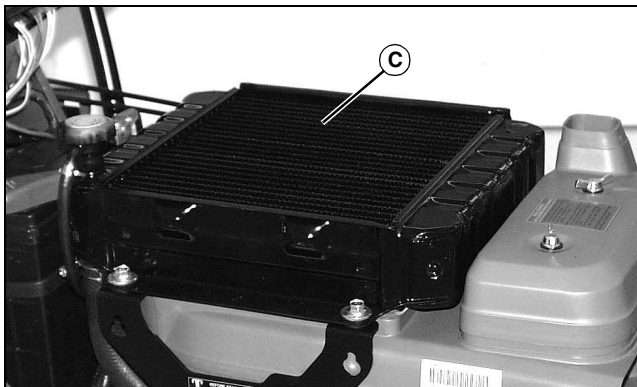
Picture Note: LX277 shown.



M97133

Picture Note: LX279 shown.

2. Clean air intake screen (A), cooling fins, and external surfaces (B), with rag, brush, vacuum or compressed air.



M97134

3. LX279 Only - When operating in extremely dirty conditions, remove air intake screen and clean radiator screen (C).

4. Lower hood.

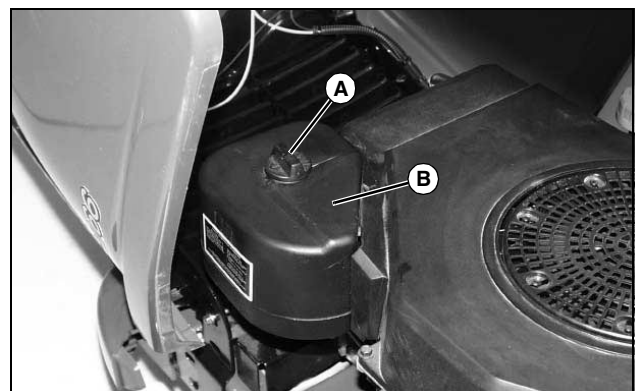
Servicing Air Cleaner (LX266, LX277 and LX277AWS)

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



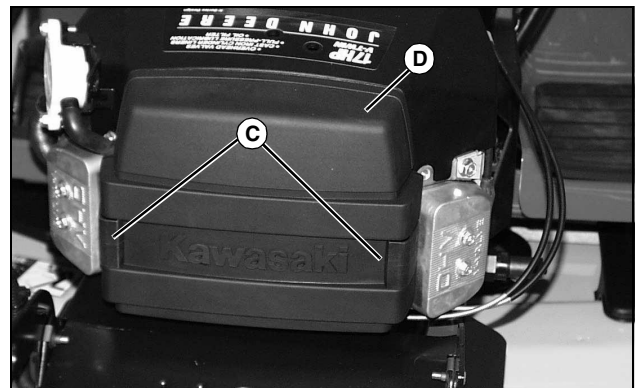
CAUTION: Avoid injury! Touching hot surfaces can burn skin. The engine and components will be hot if the engine has been running. Allow the engine to cool before servicing.

2. Allow engine to cool.
3. Raise or remove hood as needed to access air cleaner.
4. Remove air cleaner cover:



MX8391

- LX266 - Loosen knob (A) and remove cover (B).



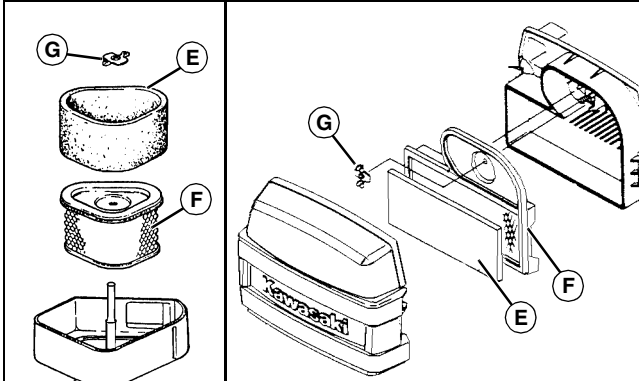
M97137

- LX277 and LX277AWS - Release latches (C) and remove cover (D).

SERVICE ENGINE

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

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



MX8392 M97141

Picture Note: LX266 shown left, LX277 and LX277AWS shown right.

5. Inspect foam pre-cleaner (E) without removing it. If pre-cleaner is dirty:

- a. Remove pre-cleaner carefully without removing paper element (F).
- b. Wash it in a solution of warm water and liquid detergent. Rinse, squeeze out excess water in a dry cloth, and allow to air dry.
- c. Add approximately 30 ml (1 oz) of clean engine oil to pre-cleaner. Squeeze pre-cleaner to distribute oil evenly.

6. Inspect paper element (F) without removing it. If element is damaged or very dirty:

- a. Remove wing nut (G).
- b. Remove paper element carefully from air cleaner housing. Discard the element.
- c. Clean the air cleaner housing carefully to prevent dirt from entering the carburetor.
- d. Install new paper element into air cleaner. Make sure element is seated properly.
- e. Install wing nut.

7. Install pre-cleaner on paper element.

8. Install air cleaner cover. Do not overtighten.

9. Install or lower hood.

Servicing Air Cleaner (LX279)

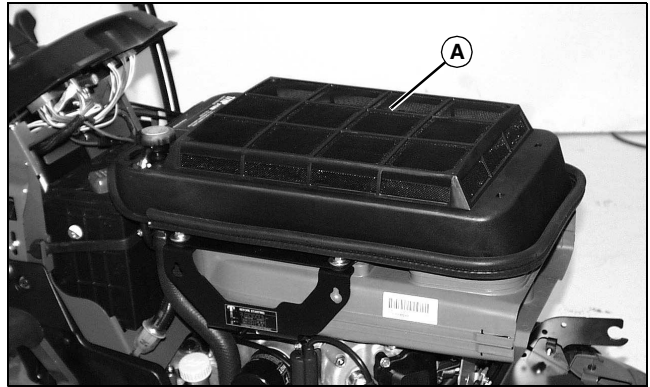
1. Park machine safely. (See Parking Safely in the SAFETY section.)



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

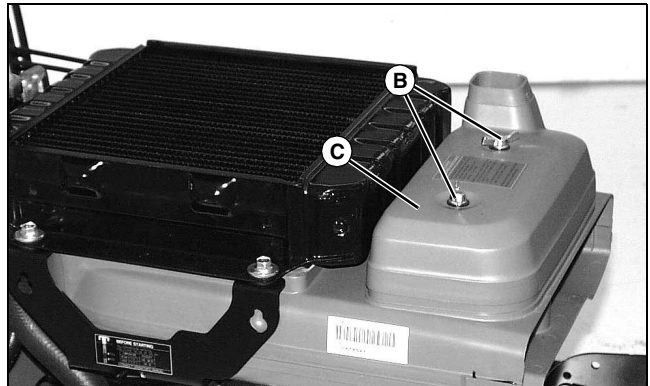
2. Allow engine to cool.

3. Raise or remove hood.



M97133

4. Remove air intake screen (A):



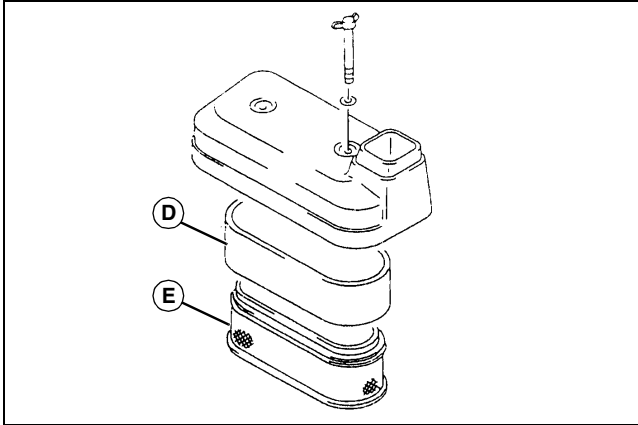
M97134

5. Remove thumb screws and washers (B) and cover (C).

SERVICE ENGINE

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

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



M78985a

6. Inspect foam precleaner (D) without removing it. If precleaner is dirty:

- a. Remove precleaner carefully without removing paper element (E).
- b. Wash it in a solution of warm water and liquid detergent. Rinse, squeeze out excess water in a dry cloth, and allow to air dry.
- c. Add approximately 30 ml (1 oz) of clean engine oil to precleaner. Squeeze precleaner to distribute oil evenly.

7. Inspect paper element (E) without removing it. If element is damaged or very dirty:

- a. Remove paper element carefully from air cleaner housing. Discard the element.
- b. Clean the air cleaner housing carefully to prevent dirt from entering the carburetor.
- c. Install new paper element into air cleaner. Make sure element is seated properly.

8. Install precleaner on paper element.

9. Install air cleaner cover. Do not overtighten.

10. Install or lower hood.

Servicing Air Cleaner (LX288)

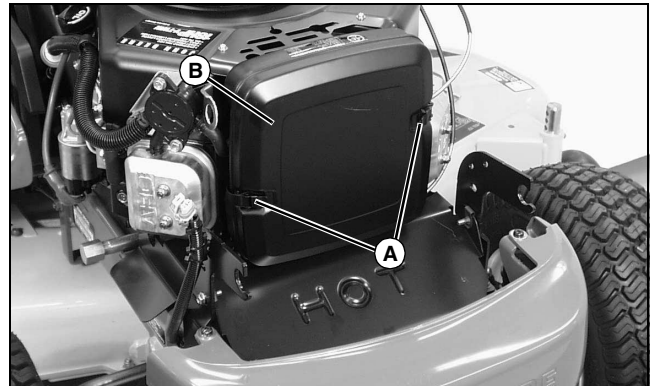
1. Park machine safely. (See Parking Safely in the SAFETY section.)



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

2. Allow engine to cool.

3. Raise or remove hood.

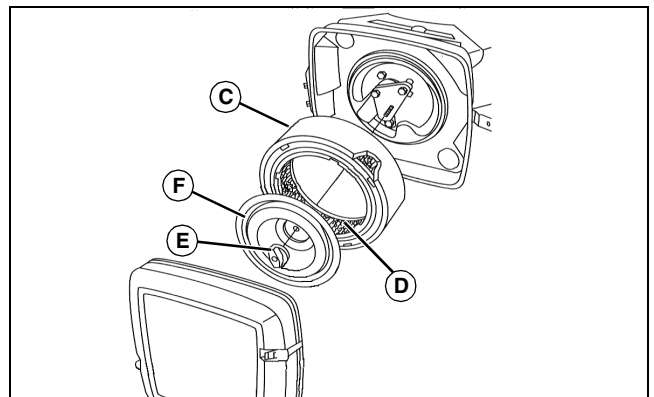


M96058

4. Release latches (A) and remove cover (B).

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

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



M88591

5. Inspect foam precleaner (C) without removing it. If precleaner is dirty:

- a. Remove precleaner carefully without removing paper element (D).
- b. Wash it in a solution of warm water and liquid detergent. Rinse, squeeze out excess water in a dry

SERVICE ENGINE

cloth, and allow to air dry.

- c. Add approximately 30 ml (1 oz) of clean engine oil to precleaner. Squeeze precleaner to distribute oil evenly.

6. Inspect paper element (D) without removing it. If element is damaged or very dirty:

- a. Remove knob (E) and plate (F).
- b. Remove paper element carefully from air cleaner housing. Discard the element.
- c. Clean the air cleaner housing carefully to prevent dirt from entering the carburetor.
- d. Install new paper element into air cleaner. Make sure element is seated properly.
- e. Install plate and secure with knob.

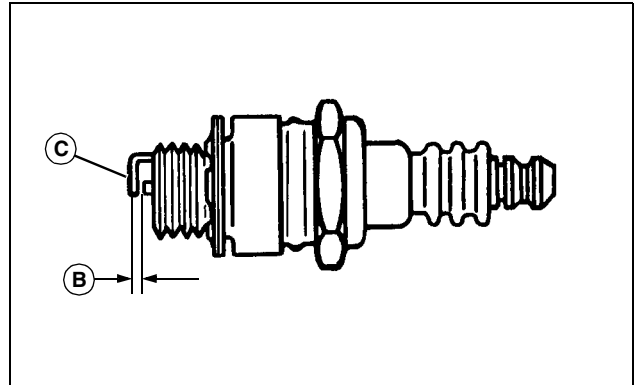
7. Install precleaner on paper element.
8. Install and latch the air cleaner cover.
9. Install or lower hood.

7. Inspect spark plugs for:

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

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

8. Replace spark plugs as necessary.



M85200

Checking Spark Plugs



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

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



M97130

Picture Note: LX277 shown.

4. Disconnect spark plug wire(s) (A).
5. Remove spark plug(s).
6. Clean each spark plug carefully with a wire brush.

9. Check plug gap (B) with a wire feeler gauge. To change gap, bend outer electrode (C).

- LX266, LX277, LX277AWS - Gap must be 1.00 mm (0.040 in.).
- LX279 - Gap must be 0.70 mm (0.028 in.).
- LX288 - Gap must be 0.76 mm (0.030 in.).

10. Install and tighten spark plugs:

- LX266 - 40 N•m (29 lb-ft).
- LX277, LX277AWS - 15 N•m (133 lb-in.).
- LX279 - 17 N•m (150 lb-in.).
- LX288 - 20 N•m (177 lb-in.).

11. Connect spark plug wires.

12. Install or lower hood.

Adjusting Carburetor

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

If engine is operated at altitudes above 1829 m (6,000 ft), some carburetors may require a special high altitude main jet. See your John Deere dealer.

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

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

SERVICE ENGINE

control system.

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

Replacing Fuel Filter

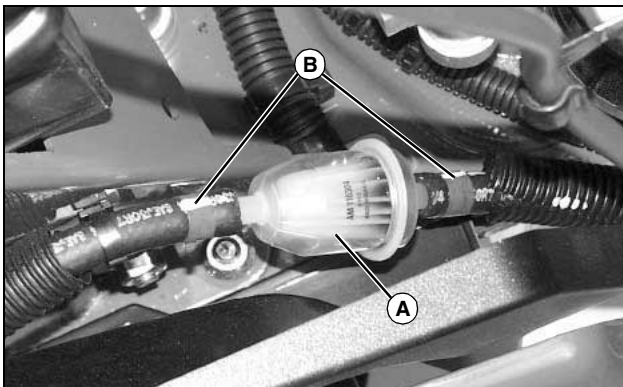


CAUTION: Avoid injury! Fuel vapors are explosive and flammable:

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

NOTE: Change filter when fuel is low to prevent excessive fuel spillage.

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



MX8393

4. Place a drain pan under fuel filter (A).
5. Note direction of arrow on fuel filter so new filter can be installed in the same direction.
6. Use a pliers to slide hose clamps (B) away from fuel filter.
7. Disconnect hoses from filter.

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

8. Make sure arrow on new filter is pointing in the direction of fuel flow. Connect hoses to filter.
9. Slide hose clamps in position to secure filter.
10. Check for leaks.
11. Lower the hood.

Recommended Engine Coolant

The following John Deere coolant is preferred:

- COOL-GARD™ PRE-DILUTED SUMMER COOLANT (TY16036).
- COOL-GARD™ CONCENTRATED SUMMER COOLANT (TY16034)

If neither of the above coolants is available, use an ethylene glycol base coolant that meets the following specification:

- ASTM D4985 (JDM H24A2)

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

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

Certain geographical areas may require lower temperature protection. See the label on your antifreeze container or consult your John Deere dealer to obtain the latest information and recommendations.

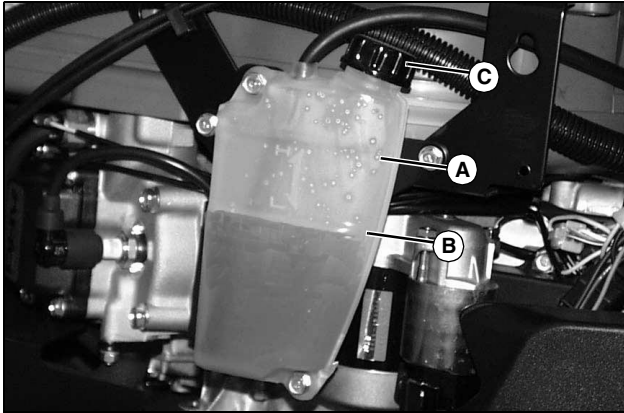
Checking Coolant Level (LX279)

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

- Do not operate engine without coolant or with plain water.
- Use antifreeze approved for use in aluminum engines.
- Do not exceed a 50% antifreeze mixture for the coolant.
- Do not pour coolant or water into radiator when engine is hot.

SERVICE ENGINE

1. Park machine safely on a level surface. (See Parking Safely in the SAFETY section.)
2. Raise hood.
3. Check coolant level:



M97132a

- If engine is hot, coolant should be up to “H” mark (A) on recovery tank.
 - If engine is cold, coolant should be at “L” mark (B) on recovery tank.
4. Remove cap (C) from recovery tank if coolant is low. Add ethylene glycol antifreeze (without stop-leak additive) and water in a 50:50 ratio to bring coolant up to proper level.
 5. Install and tighten recovery tank cap.
 6. Clean debris from air intake screens and radiator.
 7. Check condition of hoses. Check for leaks or loose connections.

Servicing Cooling System



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

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

Draining Cooling System

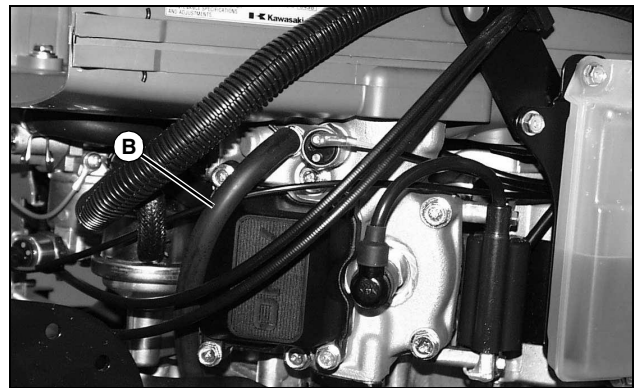
1. Park machine safely on a level surface. (See Parking Safely in the SAFETY section.)

2. Allow engine to cool.
3. Raise hood.



M97136

4. Loosen and remove radiator cap (A) slowly to release all pressure, then tighten cap.



M97135

5. Locate hose (B) between water pump and cylinder head on left side of engine. Loosen upper hose clamp with pliers.
6. Position a bucket below the hose.
7. Remove hose from fitting on cylinder head. Drain all coolant into bucket.

NOTE: If pressure has been released from radiator and cap is tight, only a small amount of coolant should escape from cylinder head.

8. Install hose and clamp to cylinder head fitting after coolant has drained completely.
9. Flush the cooling system.

Flushing Cooling System

1. Remove radiator cap.
2. Fill cooling system with clean water and John Deere Cooling System Cleaner, or John Deere Cooling System Quick Flush or an equivalent. Follow directions on the can.
3. Install and tighten radiator cap.
4. Start and run engine until it reaches operating temperature.

SERVICE ENGINE

5. Stop the engine.
6. Drain cooling system immediately before rust and dirt settle.
7. Install hose and clamp.

Filling Cooling System

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

- **Do not operate engine without coolant or with plain water.**
- **Use antifreeze approved for use in aluminum engines.**
- **Do not exceed a 50% antifreeze mixture for the coolant.**
- **Do not pour coolant or water into radiator when engine is hot.**

1. Allow radiator to cool.
2. Remove radiator cap.
3. Fill cooling system. Coolant capacity is 2.6 L (2.8 qt).
4. Install and tighten radiator cap.
5. Run engine until it reaches operating temperature.
6. Stop the engine.
7. Check coolant level while engine is hot and after cooling to ensure proper level in recovery tank. If necessary, fill recovery tank to proper level.
8. Tighten hose clamps if necessary.
9. Lower the hood.

SERVICE TRANSMISSION

Transmission Oil

IMPORTANT: Avoid damage! Dirt and debris in the hydraulic oil can cause damage to the transmission:

- Do not drain or change the transmission oil.
- See your John Deere dealer for service.
- Do not mix transmission oils.

SAE 5W30 engine oil with API classification of SE or higher is recommended in the transmission.

Checking Transmission Oil Level

IMPORTANT: Avoid damage! Dirt and debris in the hydraulic oil can cause damage to the transmission:

- Do not drain or change the transmission oil.
- See your John Deere dealer for service.
- Do not mix transmission oils.

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

IMPORTANT: Avoid damage! Hot hydraulic oil will expand and show incorrect oil level. Check level in reservoir when engine is off and oil is cold.

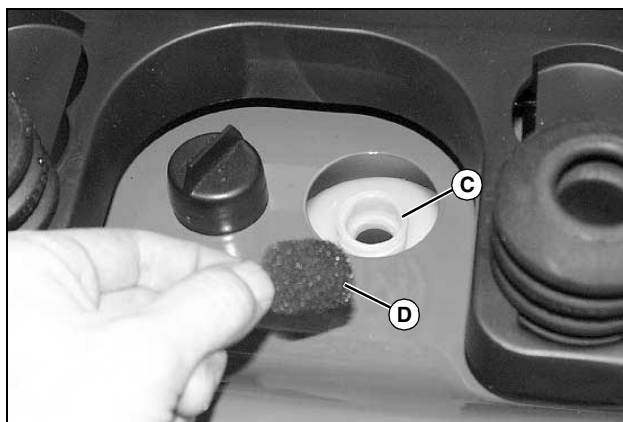
2. Allow machine to cool.



MX8394

3. Locate transmission oil reservoir at rear of machine. Reservoir is marked FULL (A) and ADD (B).

IMPORTANT: Avoid damage! Contamination can damage the hydraulic system. Clean thoroughly around reservoir fill cap before opening.



MX8395

4. If oil level is low, slide operator's seat ahead and tip it forward to access reservoir (C). Clean area around reservoir cap.

5. Remove cap and filter (D).

6. Add SAE 5W30 oil until oil level is at FULL mark on reservoir.

7. Install filter and cap.

8. Lower and adjust operator's seat.

9. Start engine.

10. Operate machine forward and in reverse several times.

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

12. Wait at least 3 minutes for hydraulic oil to cool.

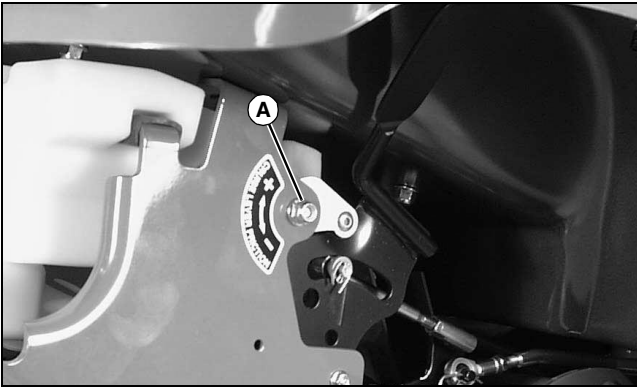
13. Check oil level again. Add oil if necessary.

Adjusting Cruise Control Lever

NOTE: The cruise control lever is held in position by an adjustable friction mechanism pre-set at the factory. The amount of friction can be adjusted for the operator's preference or to accommodate normal wear.

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

SERVICE TRANSMISSION



M96061

Picture Note: Right wheel shown removed for clarity. Removal of wheel is not required.

2. Locate adjusting bolt (A) at right wheel well.
3. Turn adjusting bolt so cruise control lever moves easily forward and rearward while remaining stationary in any desired position:
 - Clockwise (+) - increases friction on lever.
 - Counterclockwise (-) - decreases friction on lever.

SERVICE MOWER - FREEDOM42

Removing Mower



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

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

1. Park machine safely. (See Parking Safely in the SAFETY section.)
2. Put lift lever in the transport position.
3. Turn mower height control knob to "0" position.

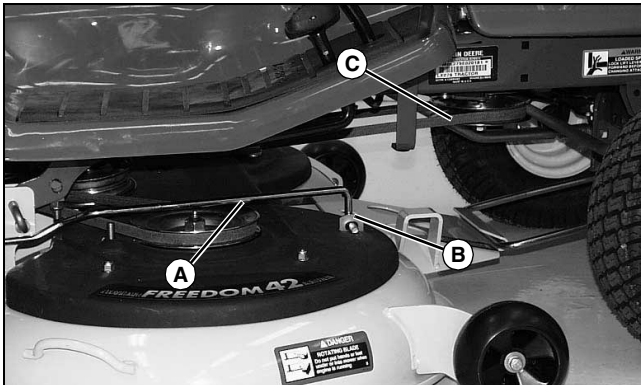


CAUTION: Avoid injury! Lift lever is spring-assisted and may have unexpected movement. Lock the lift lever in forward position before removing or installing the mower.

4. Lock the lift lever in forward position.

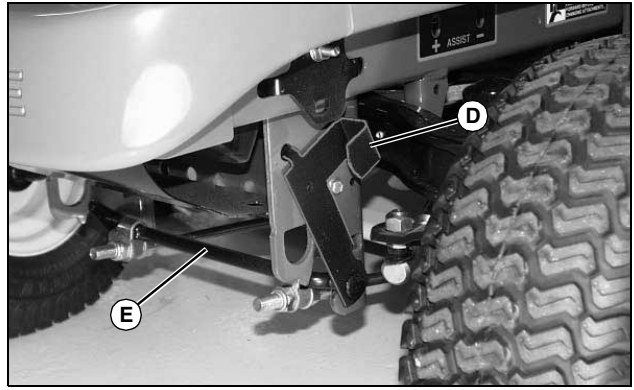


CAUTION: Avoid injury! Belt tension rod is spring-assisted and under tension. Keep a secure grasp on rod at all times while releasing or applying drive belt tension.



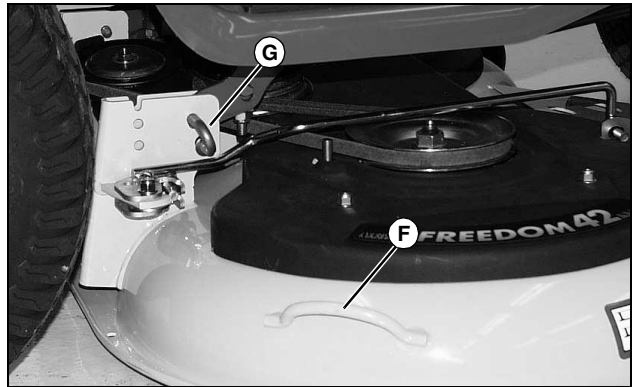
MX0237

5. Remove drive belt tension:
 - a. Grasp and hold tension rod (A) securely.
 - b. Disengage rod from retaining bracket (B).
 - c. Move rod as far as possible toward rear wheel to remove all belt tension.
6. Hold tension rod in the released position. Remove mower drive belt (C) from engine drive sheave.
7. Move tension rod to the latched position.



M95976

8. Pull out and push down on lever (D) to release front lift rod assembly.
9. Remove front lift rod assembly (E) from machine and mower deck.



MX3862

10. Lift up on rear of mower using handle (F). Pull outward on J-pin (G) to disconnect draft arms. Repeat at other side.
11. Put lift lever in the transport position.
12. Slide mower deck out from under machine.

Installing Mower



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

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

IMPORTANT: Avoid damage! If equipped, remove tire chains before installing mower to machine to prevent mower damage.

SERVICE MOWER - FREEDOM42

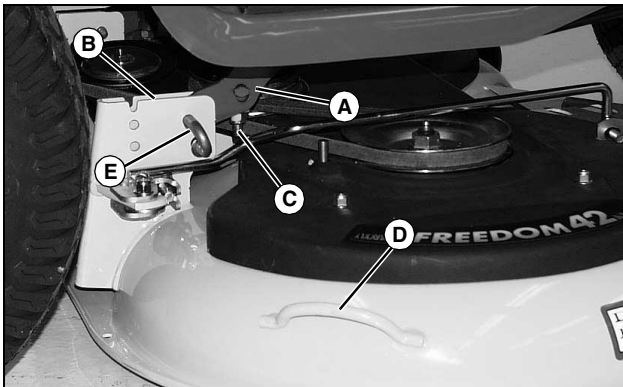
1. Park machine safely. (See Parking Safely in the SAFETY section.)
2. Put lift lever in the transport position.
3. Turn mower height control knob to "0" position.
4. Slide mower under machine.



CAUTION: Avoid injury! Lift lever is spring-assisted and may have unexpected movement.

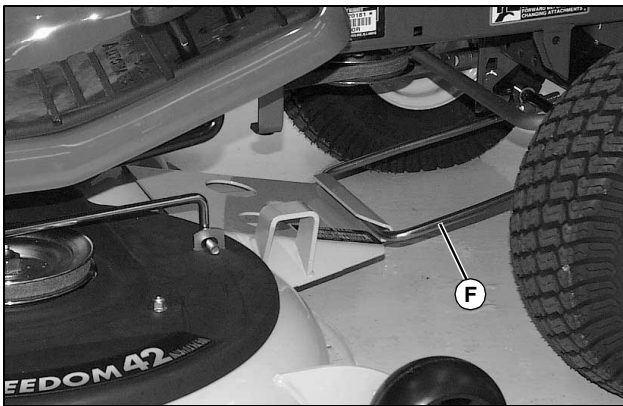
Lock the lift lever in forward position before removing or installing the mower.

5. Lock the lift lever in forward position.



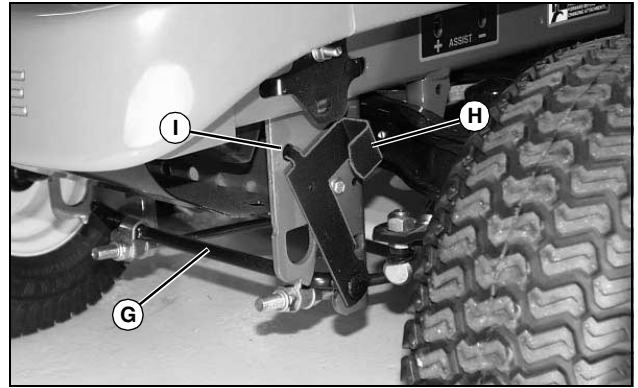
MX3862

6. Place lift arms (A) between mower lift brackets (B).
7. Make sure belt is routed to the inside of lift link (C).
8. Lift up on rear of mower using handle (D). Release J-pin (E) to connect mower deck to lift arms. Repeat at other side.



MX0240

9. Hook front lift rod assembly (F) into mower bracket.



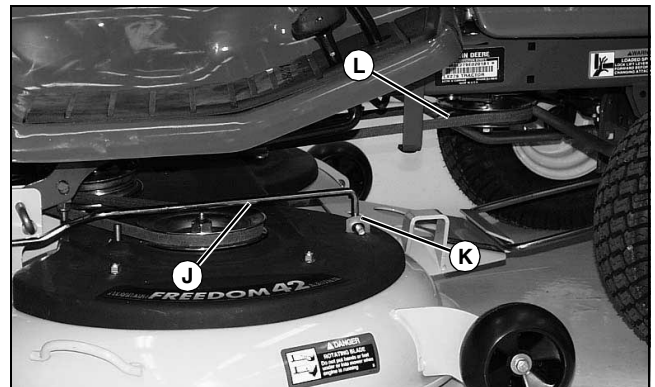
M95976

10. Place front lift rod (G) into frame hooks so lever (H) is at left side of machine. Make sure rod is seated in frame hooks.

11. Push up lever (H) until tab (I) locks into hole in frame.



CAUTION: Avoid injury! Drive belt tension rod is spring-assisted and under tension. Keep a secure grasp on rod at all times while releasing or applying drive belt tension.



MX0237

12. Remove drive belt tension rod (J) from bracket (K) and pivot rod clockwise as far as possible.

13. Hold tension rod in the released position. Install mower drive belt (L) onto engine drive sheave.



CAUTION: Avoid injury! Drive belt tension rod is spring-assisted and under tension. Keep a secure grasp on rod at all times while releasing or applying drive belt tension.

14. Pivot the drive belt tension rod toward front of machine to tighten drive belt. Hook tension rod into bracket on mower.

15. Adjust the lift assist spring if necessary.

16. Adjust mower level front-to-rear and side-to-side.

SERVICE MOWER - FREEDOM42

17. Adjust mower wheels for desired cutting height.

Adjusting Lift Assist Spring

NOTE: The weight of the mower affects ease of lifting. Adjust the lift assist spring for your particular mower deck model.



1. Make sure yellow indicator (A) is aligned with the proper mark for the mower deck model installed. If not, adjust the lift assist spring so the indicator is aligned with the correct mower deck mark.

2. Turn adjusting bolt (B) at front of machine frame to adjust lift assist spring:

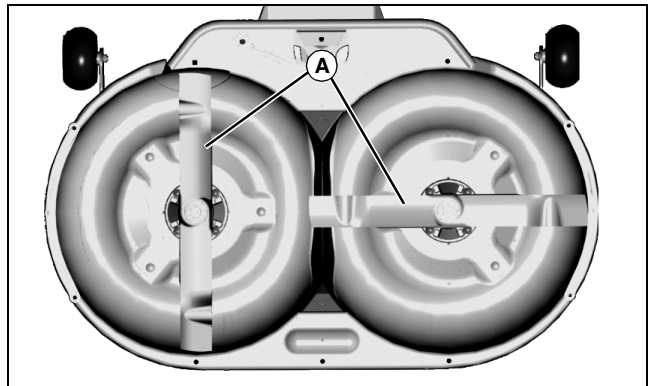
- Clockwise - Increases spring tension and moves indicator toward front of machine for heavier mowers.
- Counterclockwise - Decreases spring tension and moves indicator toward rear of machine for lighter mowers.

Checking Mower Blade Timing

IMPORTANT: Avoid damage! Mower blade impact can cause blades to become out of time. Do not operate mower before checking blade condition and timing.

1. Park machine safely. (See Parking Safely in the SAFETY section).
2. Remove mower deck.
3. Check condition of mower blades. Replace if damaged.

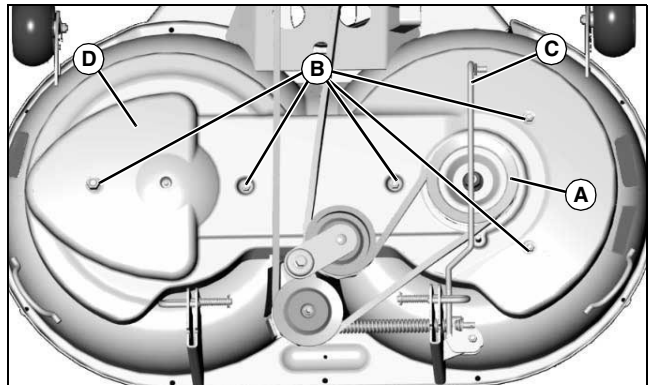
IMPORTANT: Avoid damage! Mower blades can collide if not properly timed. Blades must be aligned perpendicular (90°) to each other.



4. Make sure mower blades (A) are aligned perpendicular (90°) to each other. If not, adjust mower timing belt.

Adjusting Mower Timing Belt

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



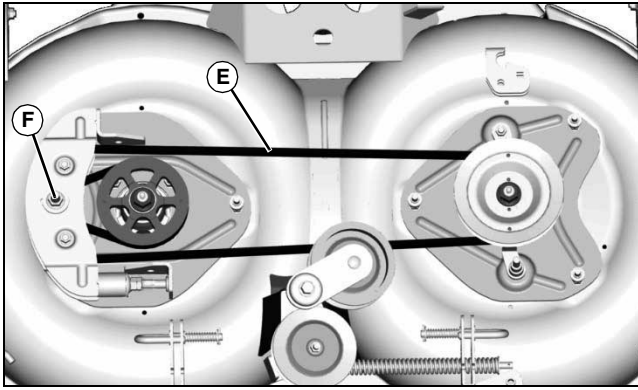
3. Remove drive belt from right spindle sheave (A).
4. Remove five nuts (B).



CAUTION: Avoid injury! Drive belt tension rod is spring-assisted and under tension. Keep a secure grasp on rod at all times while releasing or applying drive belt tension.

5. Remove drive belt tension rod (C) from bracket and pivot rod clockwise as far as possible.
6. Hold tension rod in the released position and remove deck cover (D). Release tension rod slowly.

SERVICE MOWER - FREEDOM42



MX3867

7. Check timing belt (E) for damage.

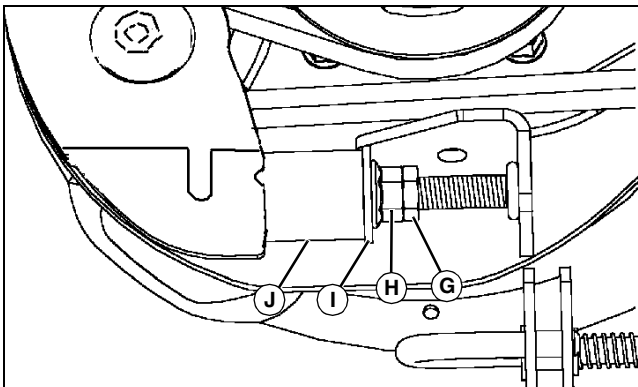
- If belt is damaged, replace it.
- If belt is not damaged, complete remaining steps to adjust belt.

8. Loosen center nut (F) on idler assembly. Do not remove the nut.

IMPORTANT: Avoid damage! Mower blades can collide if not properly timed. Blades must be aligned perpendicular (90°) to each other.

9. Make sure mower blades are aligned perpendicular (90°) to each other.

10. Rotate the spindle sprockets clockwise several turns and check belt is seated properly in sprockets and idlers.



MX0234

11. Adjust timing belt tension:

- a. Loosen jam nut (G) and adjusting nut (H) so there is a small gap between washer (I) and spring bushing (J).
- b. Turn adjusting nut (H) clockwise until washer (I) makes solid contact with spring bushing (J).

12. Tighten center nut on idler assembly to 73 N•m (54 lb-ft).

13. Tighten jam nut against adjusting nut to 27 N•m (20 lb-ft).

14. Hold tension rod in the released position and install the

deck cover over timing belt and right spindle. Release tension rod slowly.

15. Make sure deck cover is seated on shoulder of cover support spacers and secure with five nuts.

16. Install drive belt on right spindle sheave.



CAUTION: Avoid injury! Drive belt tension rod is spring-assisted and under tension. Keep a secure grasp on rod at all times while releasing or applying drive belt tension.

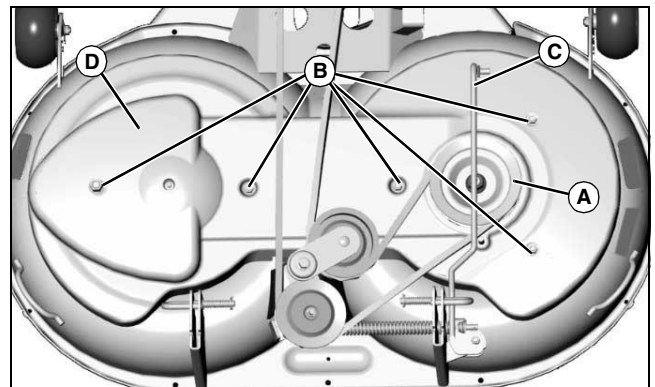
17. Pivot the drive belt tension rod counterclockwise and hook into bracket on mower.

18. Install mower deck.

Replacing Mower Timing Belt

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

2. Remove mower deck.



MX3868

3. Remove drive belt from right spindle sheave (A).

4. Remove five nuts (B).

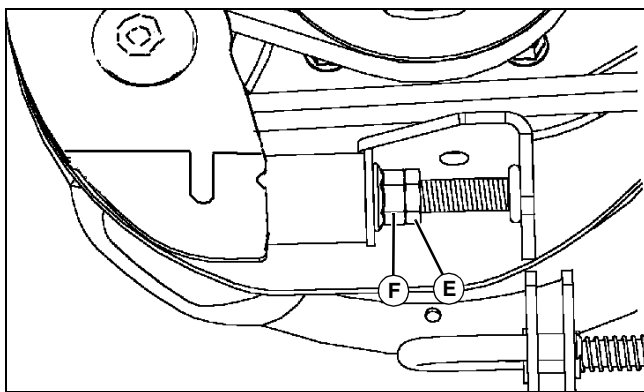


CAUTION: Avoid injury! Drive belt tension rod is spring-assisted and under tension. Keep a secure grasp on rod at all times while releasing or applying drive belt tension.

5. Remove drive belt tension rod (C) from bracket and pivot rod clockwise as far as possible.

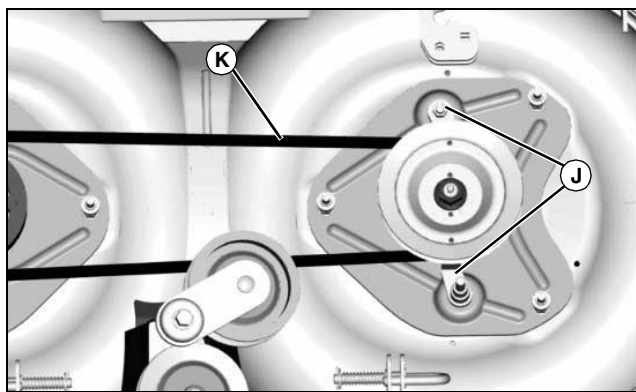
6. Hold tension rod in the released position and remove deck cover (D). Release tension rod slowly.

SERVICE MOWER - FREEDOM42



MX0234

7. Turn jam nut (E) and adjusting nut (F) counterclockwise to end of threaded rod. Remove the tensioning spring assembly.



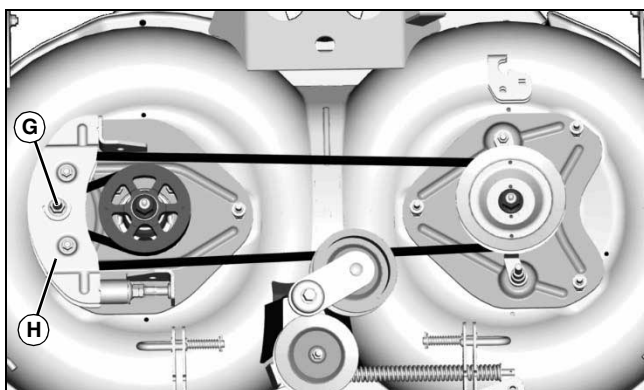
MX3867

10. Loosen belt guides (J) and rotate away from belt.

11. Remove timing belt (K).

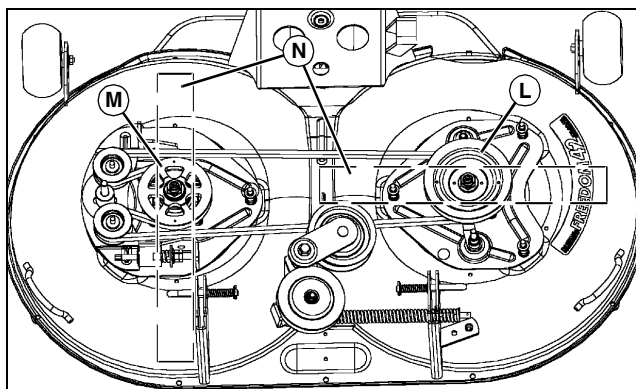
IMPORTANT: Avoid damage! Mower blades can collide if not properly aligned. Align blades perpendicular (90°) to each other.

NOTE: The drain holes in sheave (L) and indentations in timing sprocket (M) are in alignment with the mower blades.



MX3867

8. Remove center nut and washer (G) from the idler assembly. Remove idler assembly (H) from left support plate. Do not loosen the other idler assembly hardware.

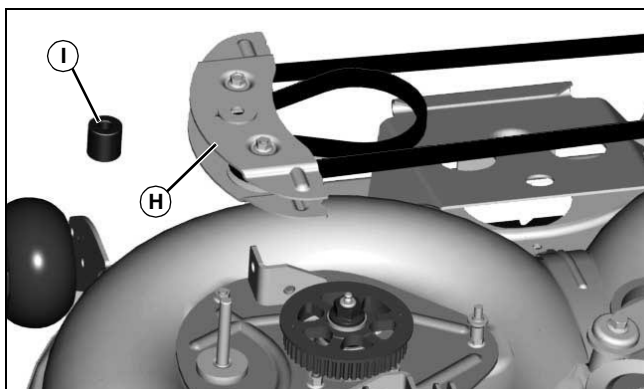


MX0236

12. Position mower blades (N) perpendicular (90°) to each other.

IMPORTANT: Avoid damage! Handle timing belt with care. Do not crimp, fold, or twist the belt.

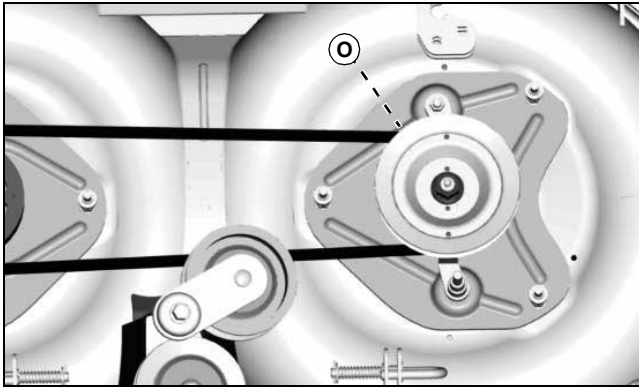
13. Install new timing belt:



MX3863

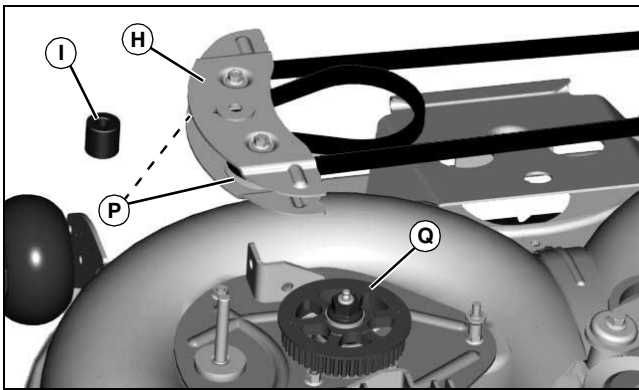
9. Remove spacer (I) located between the idler assembly plates. Remove idler assembly (H) from timing belt.

SERVICE MOWER - FREEDOM42



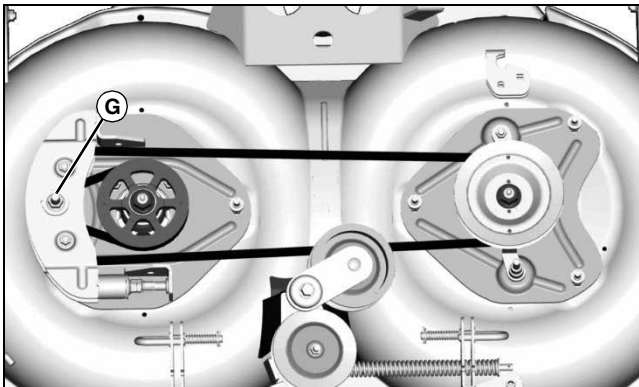
MX3867

- a. Route belt around right spindle sprocket (O) located under mower drive belt sheave.



MX3863

- b. Route belt around outside of idlers (P). Pull a belt loop between the idlers and through idler assembly (H).
c. Insert spacer (I) between idlers (P).
d. Install idler assembly onto stud of left support plate.
e. Wrap belt loop around spindle sprocket (Q).

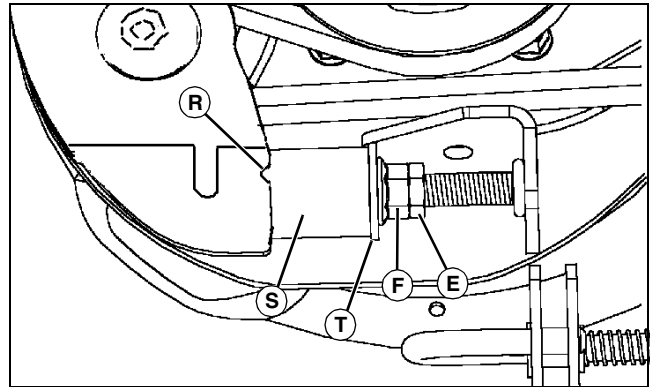


MX3867

14. Install washer and center nut (G) on idler assembly. Leave nut one turn loose.

15. Make sure mower blades are still positioned perpendicular (90°) to each other.

IMPORTANT: Avoid damage! Do not overtighten the belt tensioning spring assembly.

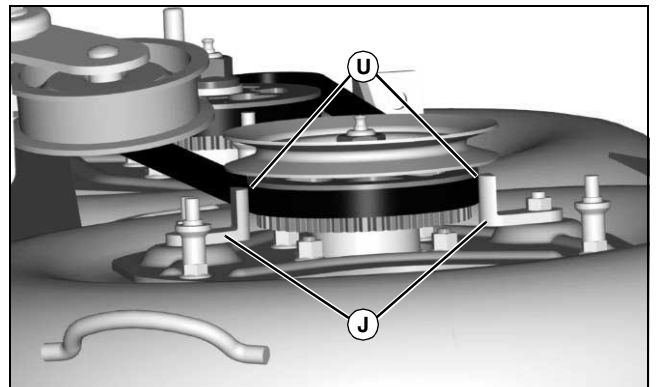


MX0234

16. Install tensioning spring assembly and adjust timing belt:

- Align notch (R) of idler assembly with tab on spring bushing (S).
- Rotate adjusting nut (F) clockwise until washer (T) makes solid contact with spring bushing.
- Turn adjusting nut an additional 1/2 turn to allow for new belt stretch. Do not overtighten.
- Rotate right spindle sheave several turns clockwise and observe belt is seated properly in sprockets and idlers.
- Tighten jam nut (E) against adjusting nut.

17. Tighten center nut on idler assembly to 73 N•m (54 lb-ft).



MX0235

18. Adjust belt guides:

- Hold a 1 mm (0.039 in.) thickness gauge between belt guides and sprocket rim at location (U).
- Rotate belt guides (J) against thickness gauge.
- Tighten belt guide nuts to 24 N•m (18 lb-ft).
- Remove thickness gauge.

SERVICE MOWER - FREEDOM42

- e. Rotate the spindle clockwise and make sure belt does not contact belt guides. Clearance between belt and guides must be $1 \pm 0.5 \text{ mm}$ ($0.039 \pm 0.020 \text{ in.}$).

19. Hold tension rod in the released position and install the deck cover over timing belt and right spindle. Release tension rod slowly.

20. Make sure deck cover is seated on shoulder of cover support spacers and secure with five nuts.

21. Install drive belt on right spindle.



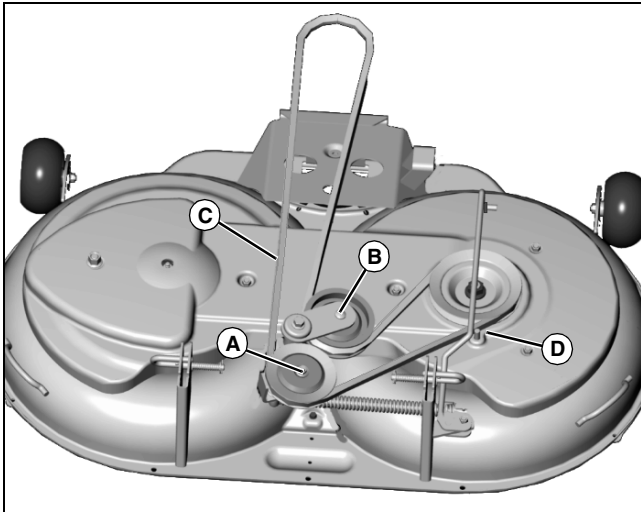
CAUTION: Avoid injury! Drive belt tension rod is spring-assisted and under tension. Keep a secure grasp on rod at all times while releasing or applying drive belt tension.

22. Pivot the drive belt tension rod counterclockwise and hook into bracket on mower.

23. Install mower deck.

Replacing Mower Drive (Primary) Belt

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



MX0239

3. Loosen idler sheave (A) and tensioning sheave (B).
4. Remove drive belt (C).
5. Clean belt with a clean cloth.
6. Inspect belt for wear or damage. Replace as necessary.

IMPORTANT: Avoid damage! Make sure belt is routed to the inside of the belt guide.

7. Install belt to mower so it is routed to the inside of belt

guide (D).

8. Tighten idler sheave and tensioning sheave.
9. Install the mower.

Checking for Bent Mower Blades



CAUTION: Avoid injury! Service mower blades safely:

- Disconnect spark plug wires or negative (-) battery cable to prevent accidental startup.
- Mower blades are sharp. Always wear gloves when handling mower blades or working near blades.

1. Park machine safely. (See Parking Safely in the SAFETY section).
2. Raise mower to transport position to access blades.
3. Measure distance between blade tip and flat ground surface.
4. Rotate blade 180° and measure other blade tip.
5. Install new blade if the difference between the two blade tip measurements is more than 3 mm ($1/8 \text{ in.}$).
6. Repeat for other blade.

Servicing Mower Blades



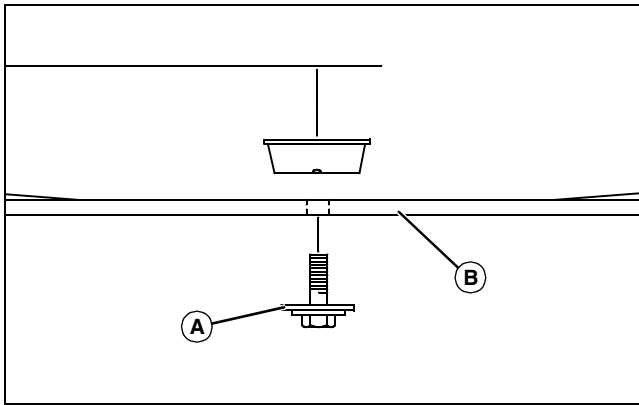
CAUTION: Avoid injury! Service mower blades safely:

- Disconnect spark plug wires or negative (-) battery cable to prevent accidental startup.
- Mower blades are sharp. Always wear gloves when handling mower blades or working near blades.

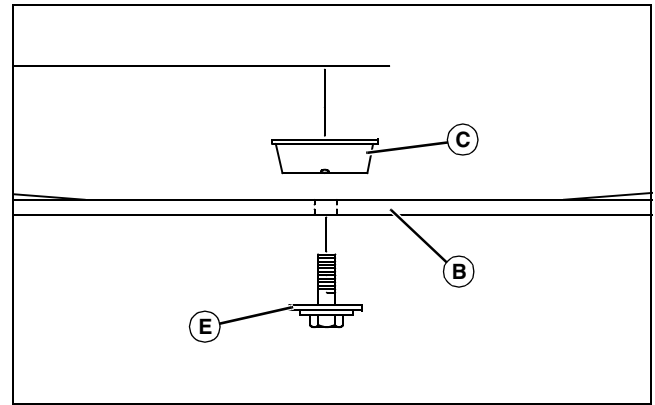
Removing Mower Blades

1. Park machine safely. (See Parking Safely in the SAFETY section.)
2. Raise or remove mower deck.
3. Hold mower blade with glove to prevent blade from spinning.

SERVICE MOWER - FREEDOM42



MIF



MIF

4. Loosen and remove bolt with washer (A) and blade (B).
5. Inspect blade condition. Sharpen, balance, or replace blades as necessary.

Installing Mower Blades

IMPORTANT: Avoid damage! Mower blades must be installed properly to prevent loosening and damage:

- Bottom side of blades are marked **RIGHT** and **LEFT** with directional arrows for proper installation.
- Do not lubricate or use power tools to install blade bolts. Use hand torque wrench to tighten blade bolts.

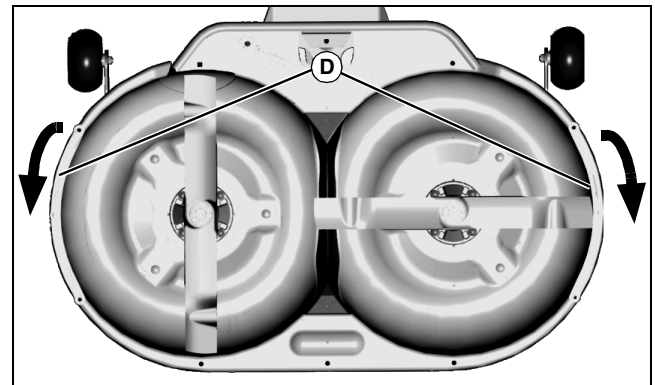


MX0237

1. Identify right and left sides of mower deck. Rear draft brackets (A) are marked "R" (right) and "L" (left).
2. Identify "RIGHT" and "LEFT" blades as marked on bottom side of each blade.

3. Position correct side mower blade (B) onto mower spindle with cutting edge towards the ground. Align key on bottom of spindle with slot in blade.

4. Make sure deflector cup (C) is seated properly between mower spindle and blade.



MX0238

5. Locate directional arrows (D) on outside edges of mower deck. Make sure directional arrow on blade matches directional arrow on mower.
6. Install bolt with washer (E). Hand tighten bolt until blade makes complete contact with spindle.
7. Hold mower blade with glove to prevent blade from spinning. Tighten blade bolt to 62 N•m (46 lb-ft).
8. Check mower blade timing and adjust if necessary.

Sharpening Blades

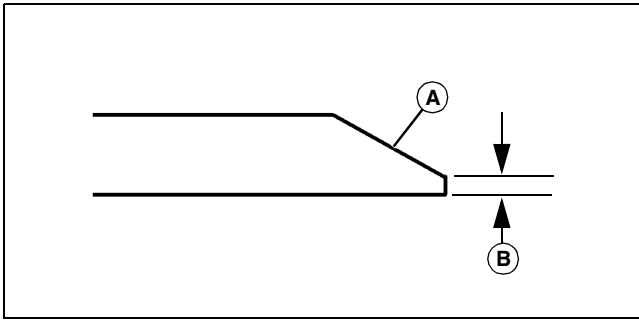


CAUTION: Avoid injury! Mower blades are dangerous:

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

SERVICE MOWER - FREEDOM42

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



- Keep original bevel (A) when grinding.
- Blade should have 0.40 mm (1/64 in.) cutting edge (B) or less.
- Balance blades before installing.

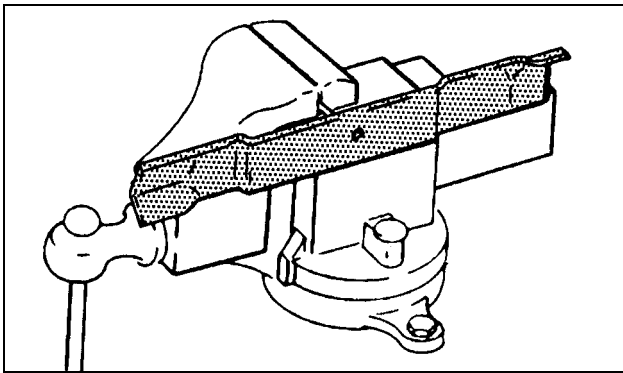
Balancing Blades



CAUTION: Avoid injury! Mower blades are dangerous:

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

1. Clean blade.



2. Put blade on nail in a vise. Turn blade to horizontal position.
3. Check balance. If blade is not balanced, heavy end of blade will drop.
4. Grind bevel of heavy end. Do not change blade bevel.

SERVICE MOWER - 42C, 48C, 54C

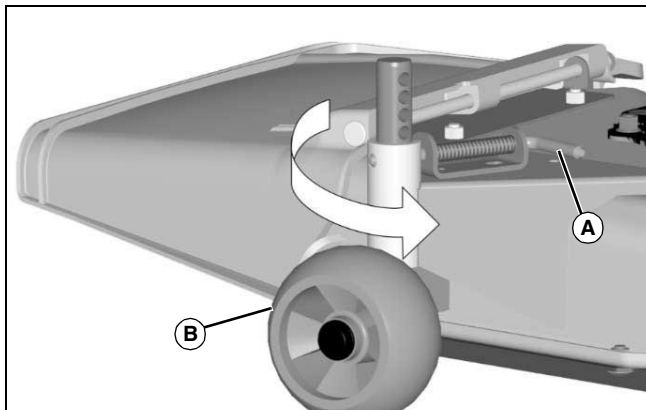
Removing Mower



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

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

1. Park machine safely. (See Parking Safely in the SAFETY section.)
2. Put lift lever in the transport position.
3. Turn mower height control knob to "0" position.



MX8331

4. 54C Mower Only - Rotate all mower wheels to allow mower deck to be rolled outward away from machine:
 - a. Pull out on pin (A).
 - b. Rotate mower wheel (B) 90° and align hole in wheel shaft with pin.
 - c. Release pin to lock mower wheel in rotated position.



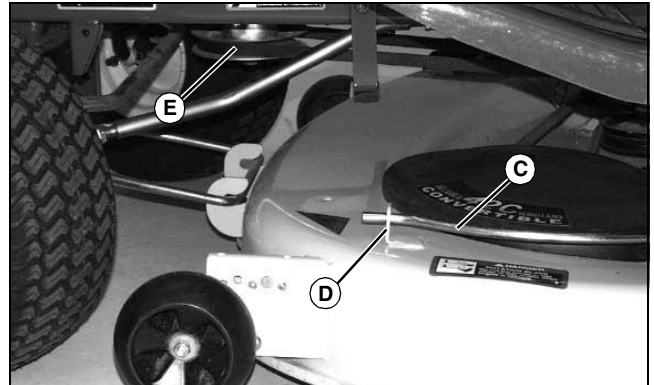
CAUTION: Avoid injury! Lift lever is spring-assisted and may have unexpected movement.

Lock the lift lever in forward position before removing or installing the mower.

5. Lock the lift lever in forward position.

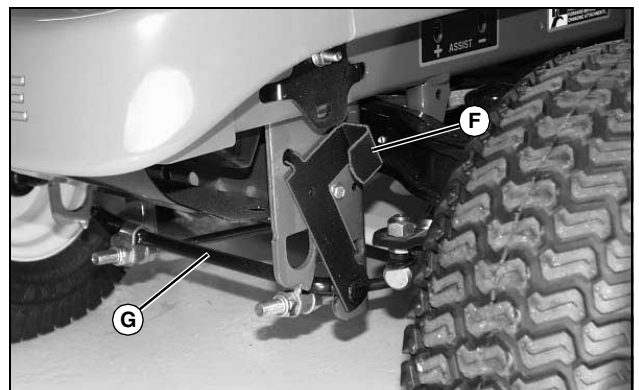


CAUTION: Avoid injury! Belt tension rod is spring-assisted and under tension. Keep a secure grasp on rod at all times while releasing or applying drive belt tension.



MX0068

6. Remove drive belt tension:
 - a. Grasp and hold tension rod (C) securely.
 - b. Disengage rod from retaining bracket (D).
 - c. Move rod as far as possible toward rear wheel to remove all belt tension.
7. Hold tension rod in the released position. Remove mower drive belt (E) from engine drive sheave.
8. Move tension rod to the latched position.

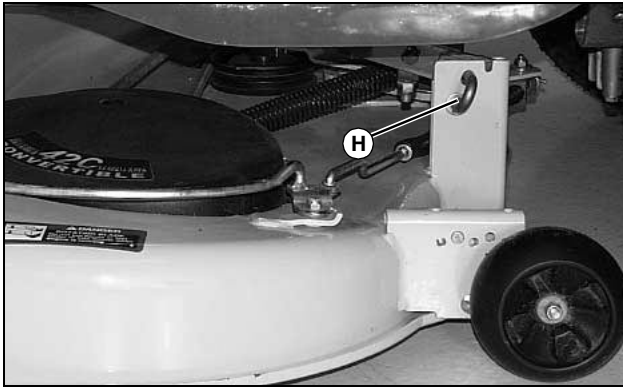


M95976

9. Pull out and push down on lever (F) to release front lift rod assembly.
10. Remove front lift rod assembly (G) from machine and mower deck.

SERVICE MOWER - 42C, 48C, 54C

NOTE: It may be necessary to manually lift up on rear of mower deck to pull out J-pins.



MX0069

11. Pull outward on J-pins (H) at both sides of mower to disconnect draft arms.

12. Put lift lever in the transport position.

13. Slide mower deck out from under machine. Remove 54C mower from right side only.

Installing Mower



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

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

IMPORTANT: Avoid damage! If equipped, remove tire chains before installing mower to machine to prevent mower damage.

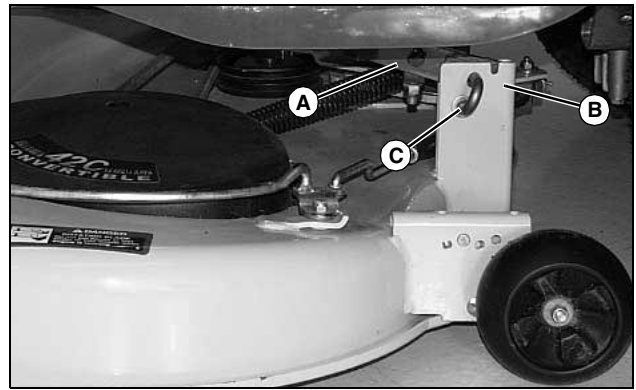
1. Park machine safely. (See Parking Safely in the SAFETY section.)
2. Put lift lever in the transport position.
3. Turn mower height control knob to "0" position.
4. Slide mower under machine.



CAUTION: Avoid injury! Lift lever is spring-assisted and may have unexpected movement.

Lock the lift lever in forward position before removing or installing the mower.

5. Lock the lift lever in forward position.



MX0069

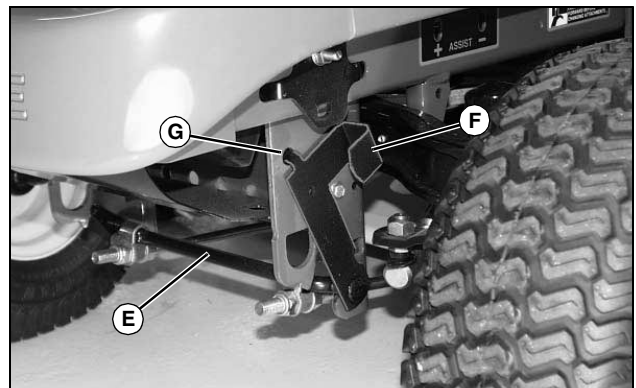
6. Place lift arms (A) between mower lift brackets (B).

7. Release J-pin (C) to connect mower deck to lift arms. Repeat at other side.



MX0068

8. Hook front lift rod assembly (D) into mower bracket.



M95976

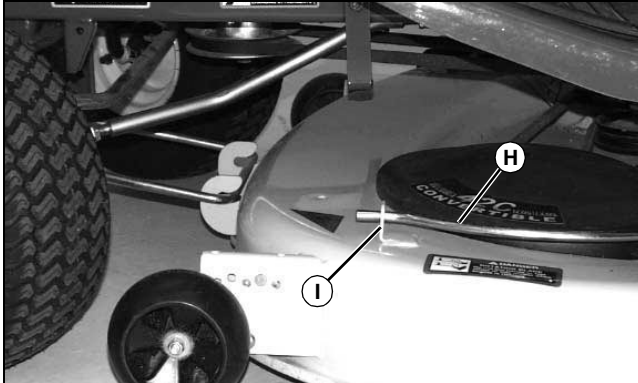
9. Place front lift rod (E) into frame hooks so lever (F) is at left side of machine. Make sure rod is seated in frame hooks.

10. Push up lever (F) until tab (G) locks into hole in frame.

SERVICE MOWER - 42C, 48C, 54C



CAUTION: Avoid injury! Drive belt tension rod is spring-assisted and under tension. Keep a secure grasp on rod at all times while releasing or applying drive belt tension.



MX0068

11. Remove drive belt tension rod (H) from bracket (I) and pivot rod as far as possible toward rear wheel to remove all belt tension.

12. Hold tension rod in the released position. Install mower drive belt (J) onto engine drive sheave.



CAUTION: Avoid injury! Drive belt tension rod is spring-assisted and under tension. Keep a secure grasp on rod at all times while releasing or applying drive belt tension.

13. Pivot the drive belt tension rod toward front of machine to tighten drive belt. Hook tension rod into bracket on mower.

14. 54C Mower Only - Rotate mower wheels to operating position.

15. Adjust the lift assist spring if necessary.

16. Adjust mower level front-to-rear and side-to-side.

17. Adjust mower wheels for desired cutting height.

Adjusting Lift Assist Spring

NOTE: The weight of the mower affects ease of lifting. Adjust the lift assist spring for your particular mower deck model.



MX8396

1. Make sure yellow indicator (A) is aligned with the proper mark for the mower deck model installed. If not, adjust the lift assist spring so the indicator is aligned with the correct mower deck mark.

2. Turn adjusting bolt (B) at front of machine frame to adjust lift assist spring:

- Clockwise - Increases spring tension and moves indicator toward front of machine for heavier mowers.
- Counterclockwise - Decreases spring tension and moves indicator toward rear of machine for lighter mowers.

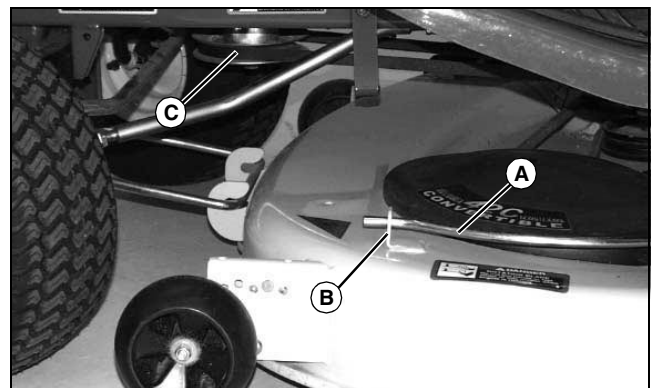
Replacing Mower Drive (Primary) Belt

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

2. Lock mower deck in the forward position.



CAUTION: Avoid injury! Belt tension rod is spring-assisted and under tension. Keep a secure grasp on rod at all times while releasing or applying drive belt tension.



MX0068

3. Remove drive belt tension:

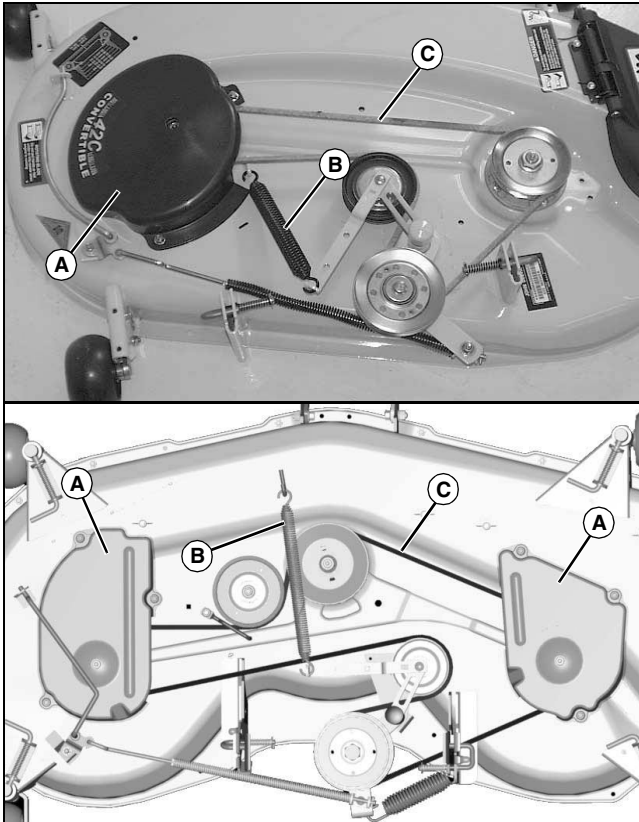
- a. Grasp and hold tension rod (A) securely.

SERVICE MOWER - 42C, 48C, 54C

- b. Disengage rod from retaining bracket (B).
- c. Move rod as far as possible toward rear wheel to remove all belt tension.
4. Hold tension rod in the released position.
5. Remove mower drive belt (C) from engine drive sheave and mower drive sheave.
6. Clean belt with a clean cloth.
7. Inspect belt for wear or damage. Replace as necessary.
8. Install belt on mower sheave and engine sheave.
9. Pivot the drive belt tension rod toward front of machine to tighten drive belt. Hook tension rod into bracket on mower.

Replacing Mower Deck (Secondary) Belt

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



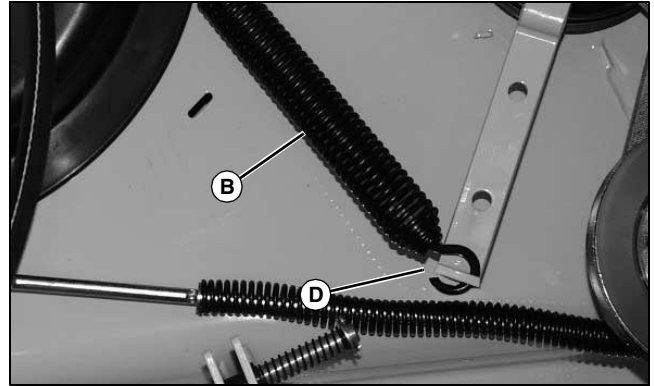
Picture Note: 42C shown upper, 48C and 54C shown lower.

3. Remove belt shields (A).



CAUTION: Avoid injury! Springs are installed under tension. Use caution when attaching or disconnecting springs. Wear eye protection.

4. Disconnect idler spring (B).
5. Remove mower belt (C).
6. Clean upper mower deck and sheaves.
7. Inspect belt for wear and damage. Replace if necessary.
8. Install belt on mower.



9. Connect idler spring (B). Make sure open end (D) of the spring hook faces outward on the idler arm.
10. Install belt shields.
11. Install mower to machine.

Checking for Bent Mower Blades

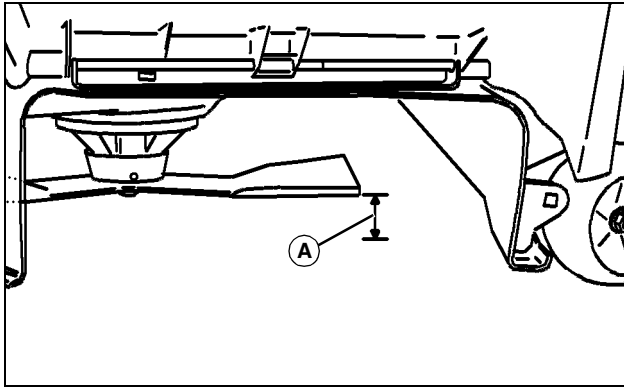


CAUTION: Avoid injury! Service mower blades safely:

- Disconnect spark plug wires or negative (-) battery cable to prevent accidental startup.
- Mower blades are sharp. Always wear gloves when handling mower blades or working near blades.

1. Park machine safely. (See Parking Safely in the SAFETY section).
2. Lock lift lever in forward position.

SERVICE MOWER - 42C, 48C, 54C



MX4897

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

Servicing Mower Blades

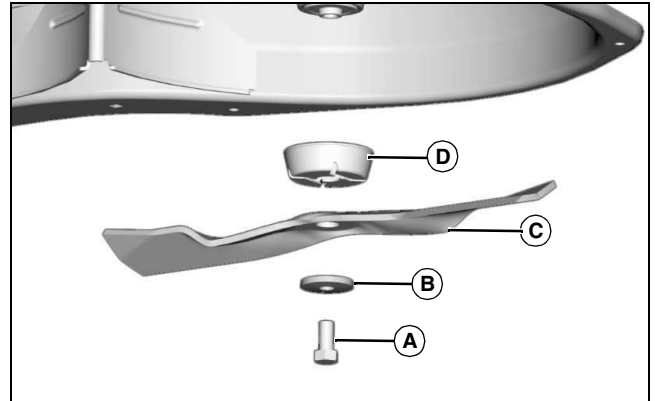


CAUTION: Avoid injury! Service mower blades safely:

- Disconnect spark plug wires or negative (-) battery cable to prevent accidental startup.
- Mower blades are sharp. Always wear gloves when handling mower blades or working near blades.

Removing Mower Blades

1. Park machine safely. (See Parking Safely in the SAFETY section.)
2. Raise or remove mower deck.
3. Block mower blade with a piece of wood to prevent it from spinning.



MX7589A

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

Installing Mower Blades

1. Make sure deflector cup (D) is seated properly between mower spindle and blade.
2. Position mower blade (C) with cutting edge towards the ground onto the mower spindle.
3. Install blade washer (B) with cup side toward the blade.
4. Install and tighten bolt (A) by hand until mower blade is in full contact (fully seated) with spindle.
5. Block mower blade with a piece of wood to prevent spinning.
6. Tighten blade bolt:
 - 42C Mower - 75 N•m (55 lb-ft).
 - 48C and 54C Mowers - 68 N•m (50 lb-ft).
7. Repeat for all blades.

Sharpening Blades

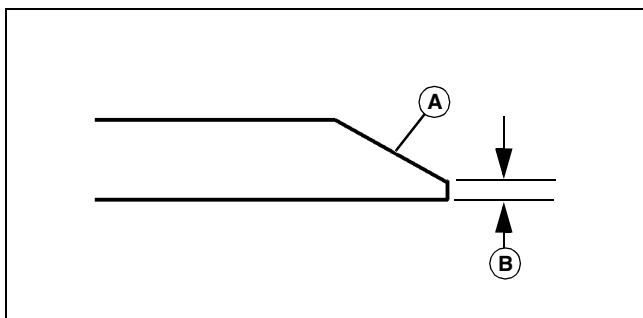


CAUTION: Avoid injury! Mower blades are dangerous:

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

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

SERVICE MOWER - 42C, 48C, 54C



MX8333

- Keep original bevel (A) when grinding.
- Blade should have 0.40 mm (1/64 in.) cutting edge (B) or less.
- Balance blades before installing.

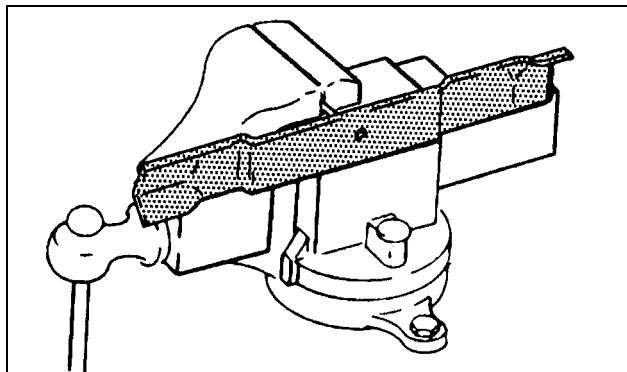
Balancing Blades



CAUTION: Avoid injury! Mower blades are dangerous:

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

1. Clean blade.



M61524

2. Put blade on nail in a vise. Turn blade to horizontal position.
3. Check balance. If blade is not balanced, heavy end of blade will drop.
4. Grind bevel of heavy end. Do not change blade bevel.

SERVICE 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.**

Checking Battery Electrolyte Level



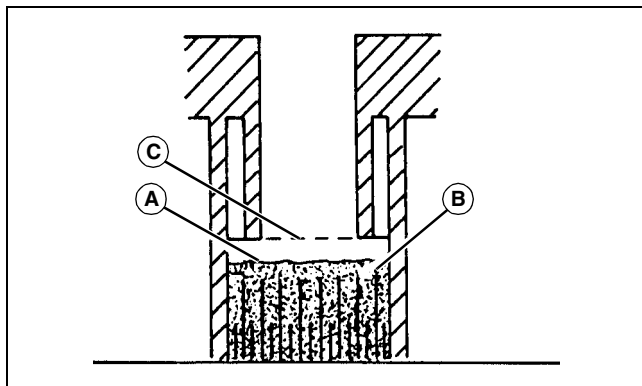
CAUTION: Avoid injury! Battery electrolyte contains sulfuric acid. It is poisonous and can cause serious burns:

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

1. Park machine safely. (See Parking Safely in the SAFETY section.)
2. Raise the hood.
3. Remove manifold caps on top of battery.

IMPORTANT: Avoid damage! Acid may leak from the battery while it is charging. Make sure the battery is filled correctly.

Do not fill the cells to the bottom of the filler neck.



M39772

4. Check electrolyte level. Electrolyte level (A) should be 6 mm (1/4 in.) above plates (B) and below filler neck (C).
5. Add distilled water if necessary.

6. Install manifold caps.
7. Check battery cable hardware and tighten if necessary.
8. Lower hood.

Removing and Installing the Battery

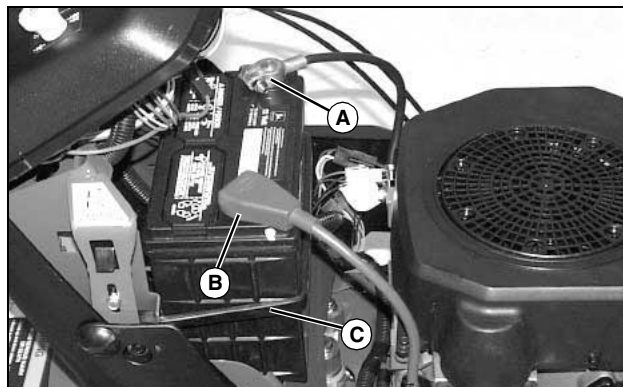


CAUTION: Avoid injury! The battery produces a flammable and explosive gas. The battery may explode:

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

Removing

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



MX8397

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

SERVICE ELECTRICAL

Installing

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

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

1. Place battery on battery tray so battery posts are facing toward front of machine.
2. Connect positive (+) battery cable.
3. Connect negative (-) battery cable.
4. Apply general purpose grease or silicone spray to terminals to help prevent corrosion.
5. Slide red cover over positive battery terminal.
6. Secure black rubber strap (C).

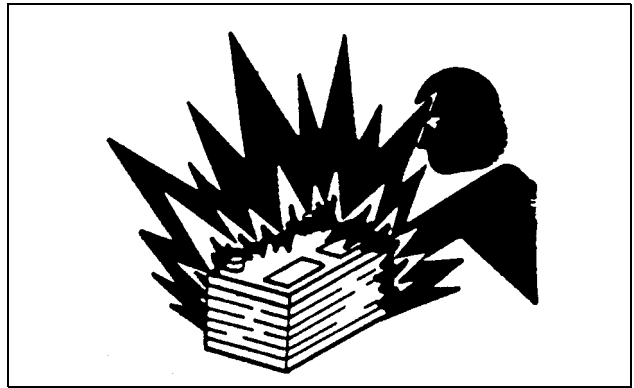
Cleaning Battery and Terminals

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

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

1. Park machine safely. (See Parking Safely in the SAFETY section.)
2. 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. Apply petroleum jelly or silicone spray to terminal to prevent corrosion.
7. Install battery.

Using Booster Battery

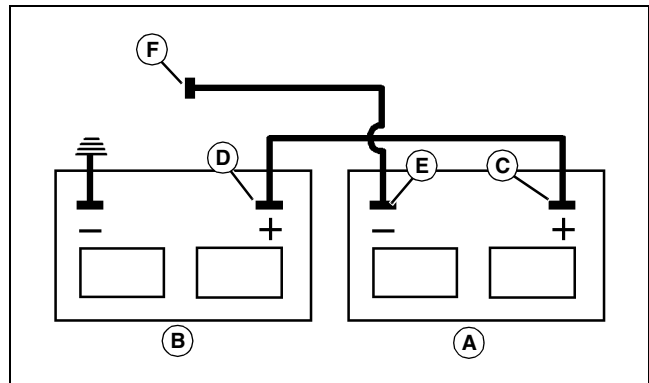


TS204



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

- Do not attempt to jump start a frozen battery. Warm to 16 °C (60 °F).
- Do not smoke near battery.
- Wear eye protection and gloves.
- Keep sparks and flames away.
- 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.



MX4663

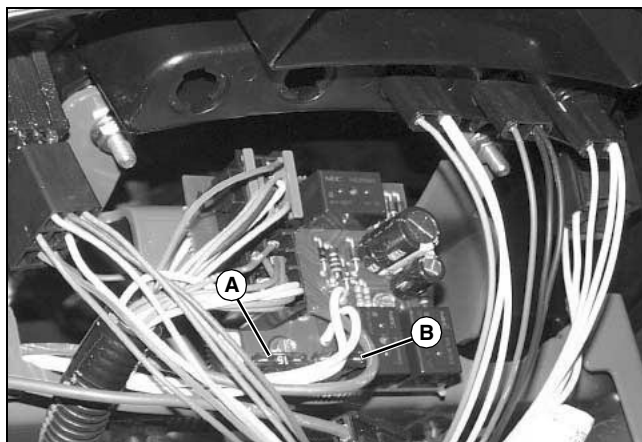
1. Connect positive (+) booster cable to booster battery (A) positive (+) post (C).
2. Connect the other end of positive (+) booster cable to the disabled vehicle battery (B) positive (+) post (D).
3. Connect negative (-) booster cable to booster battery negative (-) post (E).
4. Connect the other end (F) of negative (-) booster cable to a metal part of the disabled machine frame away from battery.

SERVICE ELECTRICAL

5. Start the engine of the disabled machine and run machine for several minutes.
6. Carefully disconnect the booster cables in the exact reverse order: negative cable first and then the positive cable.

Replacing Fuses

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

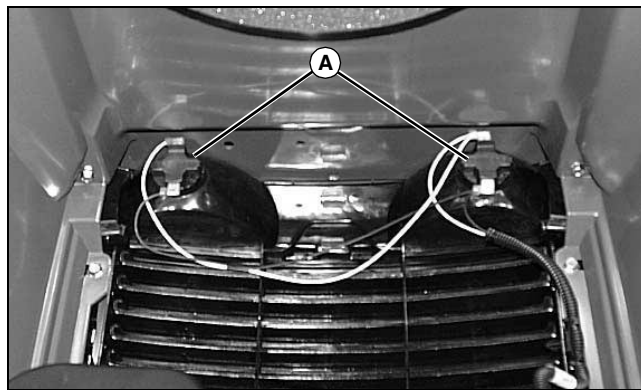


MX8398

3. Pull defective starter fuse (A) or headlight fuse (B) out of socket.
4. Check metal clip in fuse window and discard fuse if clip is broken.
5. Push new 15 Amp fuse into socket.
6. Lower hood.

Replacing Headlight Bulb

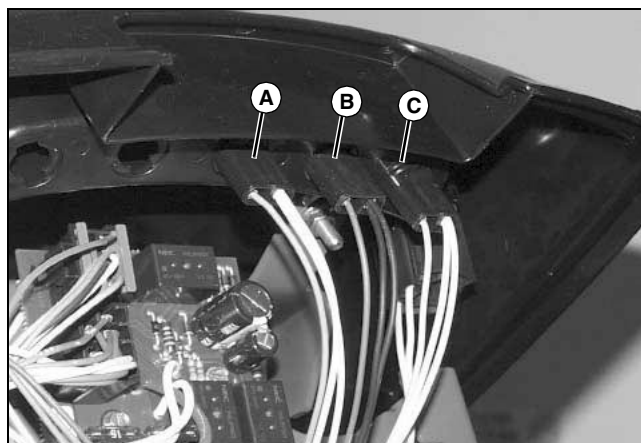
1. Park machine safely. (See Parking Safely in the SAFETY section.)
2. Raise hood.



MX8399

3. Turn bulb socket (A) 1/4 turn counterclockwise to remove socket from headlight housing.
4. Push bulb down and rotate 1/8 turn counterclockwise to remove bulb from the socket.
5. Replace defective bulb with new bulb.
6. Insert bulb socket into housing, push in and rotate 1/4 turn clockwise to install.
7. Lower hood.

Replacing Indicator Light Bulb



MX8398

1. Rotate indicator bulb socket 1/8 turn counterclockwise to remove:
 - Model LX279 Only - Coolant temperature light (A).
 - Battery discharge light (B).
 - Oil pressure indicator light (C).
2. Pull bulb from socket.
3. Push new bulb into socket.
4. Install socket into holder and rotate 1/8 turn clockwise to secure.

SERVICE MISCELLANEOUS

Filling Fuel Tank

Use regular grade 87 octane unleaded fuel.

Add John Deere fuel stabilizer to fuel before using it in your machine to prevent engine damage due to stale fuel.

Follow directions on stabilizer container.



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

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

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

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

1. Park machine safely. (See Parking Safely in the SAFETY section.)
2. Allow machine to cool for several minutes.
3. Lift seat.
4. Remove grass clippings and other debris from tank area.

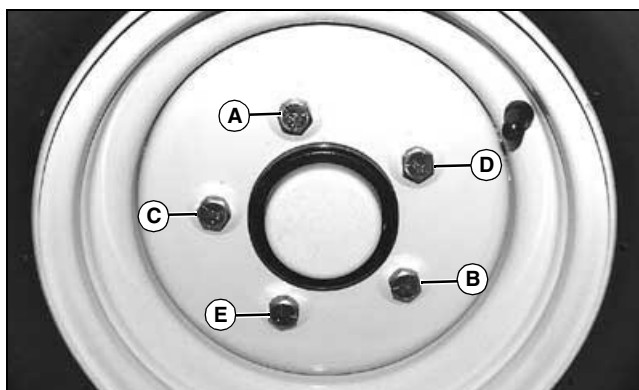


MX8400

5. Remove fuel tank cap (A).
6. Fill tank with fuel only to bottom of filler neck.
7. Install fuel tank cap.

Checking Wheel Bolt Torque (LX277AWS)

NOTE: Check wheel bolt torque often during the first 100 hours of operation.



M99521

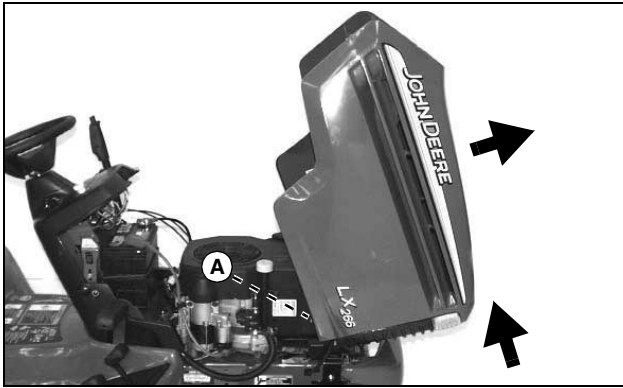
Tighten rear wheel bolts evenly in proper sequence (A), (B), (C), (D), and (E) until snug. Finish tightening to 55 N•m (41 lb-ft).

Removing and Installing Hood

Removing Hood

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

SERVICE MISCELLANEOUS

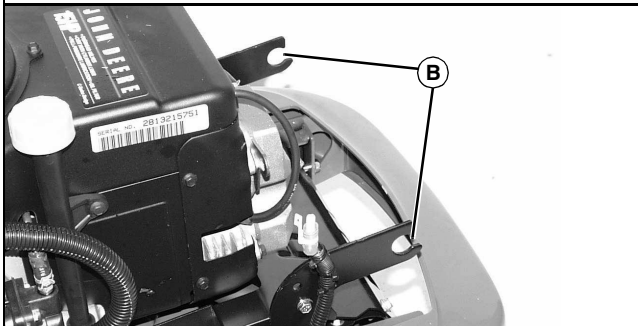
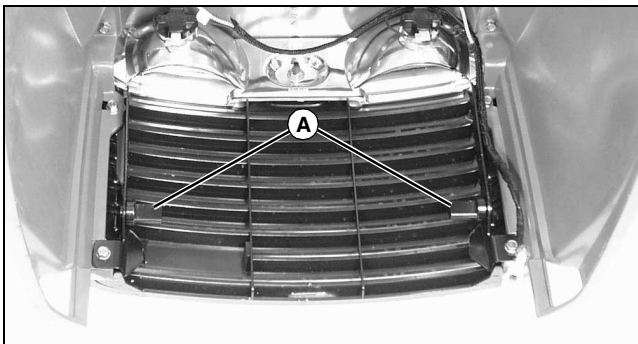


MX8401

3. Disconnect headlight wiring harness (A).
4. Lift and pull hood away from machine.

Installing Hood

IMPORTANT: Avoid damage! Use care not to pinch or scrape headlight harness when installing hood.

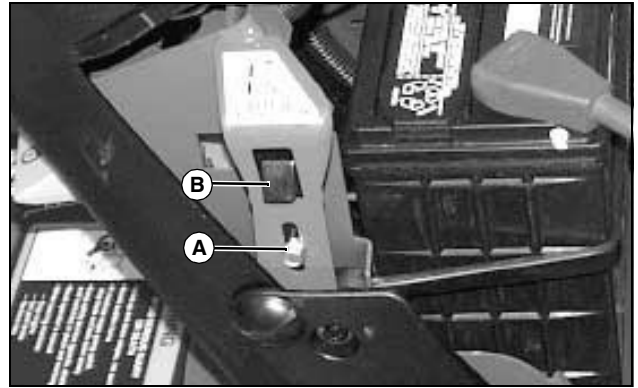


M96024 M96435

1. Align hood pivot studs (A) with pivot brackets (B) and install hood.
2. Connect wiring harness.
3. Close hood.

Adjusting Hood Latches

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



MX8397

2. Lift hood.
3. Loosen cap screw (A).
4. Move latch up or down as needed.
5. Tighten cap screw.
6. Adjust hood latch on other side.

Cleaning and Repairing Plastic Surfaces

Your John Deere dealer has the professional materials needed to properly remove surface scratches from plastic surfaces, do not attempt to paint over marks or scratches on plastic parts.

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

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

1. Rinse hood and entire machine with clean water to remove dirt and dust that may scratch the surface.
2. Wash surface with clean water and a mild liquid automotive washing soap.
3. Dry thoroughly to avoid water spots.
4. Wax the surface with a liquid automotive wax. Use products that specifically say "contains no abrasives."

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

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

SERVICE MISCELLANEOUS

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 John Deere 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.

TROUBLESHOOTING

Using Troubleshooting Chart

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

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

Engine

If	Check
Poor Engine Performance	Fuel • Dirt in fuel system or fuel is old. Replace fuel with fresh stabilized fuel. Obtain fuel from another supplier before suspecting machine problems. Suppliers blend fuels differently and changing suppliers will generally solve any performance problems. • Fuel blended 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. Break-in: • Improper break-in or incomplete break-in time. Repeat break-in following proper procedures, or extend break-in time 5 hours before suspecting machine problems.
Engine Will Not Start	Brake is not pushed down. PTO switch is in ON position. Fuse is blown. Spark plug wire is loose or disconnected. Spark plug not gapped correctly. Fuel filter is gummed or plugged. Stale fuel.
Engine Is Hard To Start	Fuel filter is gummed or plugged. Carburetor dirty or out of adjustment. See your John Deere dealer. Spark plug is fouled. Faulty spark plug or wire. Spark plug is not gapped correctly. Loose or corroded electrical connections. Stale fuel. Choke adjusted incorrectly. Engine oil viscosity not correct.

TROUBLESHOOTING

If	Check
Engine Misses Under Load	Faulty spark plug. Stale fuel. Fuel filter gummed or plugged.
Engine Vapor Locks	Fuel tank vent plugged. Dirt in fuel filter. Cooling fins plugged. Loose hose connection at fuel filter or fuel pump.
Engine Runs Unevenly (Surges)	Engine not broken-in. Cooling fins plugged. Loose electrical connections. Choke or throttle cable sticking. Plugged fuel line or fuel filter. Stale, dirty or improper fuel. Air cleaner element plugged.
Engine Overheats	Air cleaner element plugged. Cooling fins plugged. Engine air intake screen plugged. Engine oil low or too high. Engine operated too long at slow engine speed. Model LX279 - Low coolant level, faulty radiator cap or cooling fins plugged.
Engine Will Not Idle	Spark plug not gapped correctly. Faulty spark plug.
Engine Has Low Power or Compression	Engine not broken-in. Engine overheating. Too much oil in engine. Dirty air cleaner. Faulty spark plug. Travel speed is too fast for conditions.
Engine Knocks	Low engine speed. Stale or low octane fuel. Engine overloaded. Engine oil level low.
Engine Stops or Misses When Operating On Hills	Fuel tank less than half full. Operator raising off seat.
Engine Backfires	Faulty spark plug.
Black Exhaust Smoke	Air filter is dirty or oil soaked.

TROUBLESHOOTING

If	Check
Blue or White Exhaust Smoke	Engine not broken-in.
High Oil Consumption	Engine not broken-in.
Spark Plugs Foul	Engine not broken-in.
Fuel in the Engine Oil	Engine not broken-in.

Tractor

If	Check
Machine Vibrates Too Much	Attachment drive belts worn or damaged. Traction drive belt damaged or worn. Dirt on drive sheaves.
Machine Will Not Move With Engine Running	Parking brake locked. Transmission oil level low.
Machine Moves With Engine Running And Foot Pedals In Neutral	Linkage out of adjustment.
Machine Rolls Or Freewheels On An Incline With Engine On Or Off And Pedals In Neutral	Normal situation. Always set parking brake.
Cruise Control Lever Creeps Or Requires High Effort To Move	Cruise control lever not adjusted properly.

Electrical

If	Check
Starter Does Not Work Or Will Not Turn Engine	Brake pedal not down. PTO lever switch is in on position. Battery terminals corroded. Battery dead or low charge. Fusible link in starting circuit is blown. See your John Deere dealer.
Battery Will Not Charge	Dead cell in battery. Low engine speed or excessive idling. Battery cables and terminals dirty.
Lights Do Not Operate	Light plug disconnected. Loose or burned out bulb.

TROUBLESHOOTING

Mower

If	Check
Discharge Chute Plugged	Travel speed too fast. Grass too long. Grass too wet. Engine rpm not at wide open throttle. Restricted air flow. Belt installed incorrectly.
Patches Of Grass Uncut	Travel speed too fast. Engine rpm not at wide open throttle. Mower deck needs cleaning. Mower blades are dull or damaged.
Belt Slipping	Debris in sheaves. Worn belt.
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 Machine	Engine rpm too low. Travel speed too fast. Debris wrapped around mower spindles.
Uneven Cut	Mower deck not leveled properly. Travel speed too fast. Blades dull. Mower wheels not adjusted correctly. Tire pressure unequal.
Uneven Clipping Distribution	Cutting height set too low. Travel speed too fast. Grass is too wet. Freedom42 Mower - Right and left blades may be interchanged.
Mower Makes Unusual Noise (Freedom42 Only)	Timing belt out of adjustment.

TROUBLESHOOTING

If	Check
Mower Deck Is Difficult To Lift	Lift assist spring not adjusted properly for deck size.
Grass Tips Are Jagged And Turn Grayish Brown After Mowing	Dull mower blades. Mower deck not leveled properly.
Mower (Or Other Attachment) Stops When Reverse Foot Pedal Is Depressed And Attachment Is Engaged	Normal operation of Reverse Implement Option.

STORAGE

Storing Safety



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

- Run the engine only long enough to move the machine to or from storage.
- Do not store vehicle with fuel in the tank inside a building where fumes may reach an open flame or spark.
- Allow the engine to cool before storing the machine in any enclosure.

Preparing Machine for Storage

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

Preparing Fuel and Engine For Storage

Fuel

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

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

If you are not using "Stabilized Fuel":

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

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

2. Turn on engine and allow to run until it runs out of fuel.

3. Turn key to off position.

IMPORTANT: Avoid damage! Stale fuel can produce varnish and plug carburetor 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.

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. Remove spark plugs. Put 30 mL (1 oz.) of clean engine oil in cylinders.
5. Install spark plugs, but do not connect spark plug wires.
6. Crank the engine five or six times to allow oil to be distributed.
7. Clean the engine and engine compartment.
8. Remove battery.
9. Clean the battery and battery posts. Check the electrolyte level.
10. Store the battery in a cool, dry place where it will not freeze.

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

11. Charge the battery.

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

Removing Machine From Storage

1. Check tire pressure.
2. Check engine oil level.
3. Check battery electrolyte level. Charge battery if necessary.
4. Install battery.
5. Check spark plug gap. Install and tighten plugs to specified torque.

STORAGE

6. Lubricate all grease points.
7. Run the engine 5 minutes without the mower or any attachments running to allow oil to be distributed throughout engine.
8. Be sure all shields and guards or deflectors are in place.

ASSEMBLY

Install Steering Wheel

1. Apply multi-purpose lubricant to steering shaft.
2. Install steering wheel onto shaft with John Deere logo in the upright position.



M96429

3. Install shoulder bolt (A). Drive bolt in until head of bolt contacts steering wheel.
4. Install washer and nut (B).
5. Tighten nut until it is snug. Do not pull washer or bolt head into steering wheel.

Check Tire Pressure



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

- Do not attempt to mount a tire without the proper equipment and experience to perform the job.
- Do not inflate the tires above the recommended pressure.
- Do not weld or heat a wheel and tire assembly. Heat can cause an increase in air pressure resulting in an explosion. Welding can structurally weaken or deform the wheel.
- Do not stand in front or over the tire assembly when inflating. Use a clip-on chuck and extension hose long enough to allow you to stand to one side.

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

Tire Size	Pressure
Front: 15x6.0-6	70-97 kPa (10-14 psi)
Rear: 20x10.0-8	56-70 kPa (8-10 psi)

Level Mower Deck

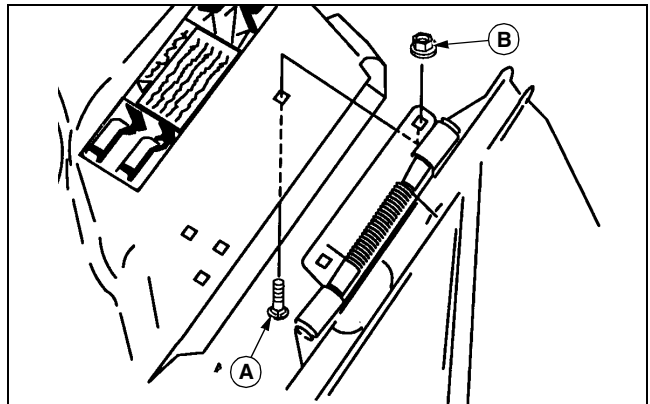
Level the mower deck side-to-side and front-to-rear.

Install Discharge Chute (42C, 48C and 54C Mowers)



CAUTION: Avoid injury! Never operate mower without discharge chute in place.

NOTE: Attaching hardware is provided in the bag of parts.



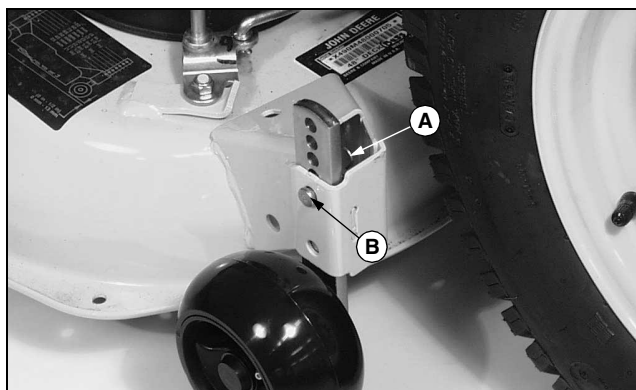
M47397

1. Install discharge chute to mower deck with two M8x16 bolts (A) and lock nuts (B).
2. Tighten nuts to 20 N•m (15 lb-ft).

Install Mower Wheels (48C and 54C Mowers)

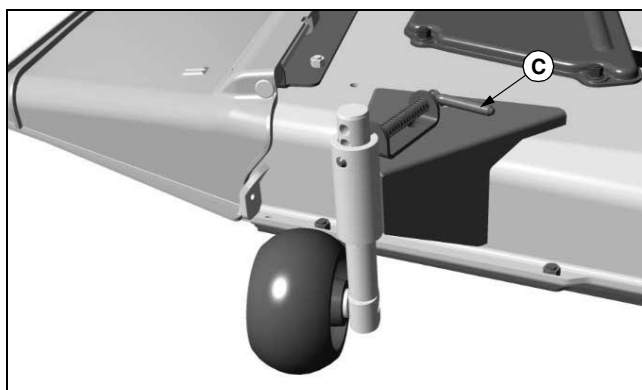
1. Raise mower deck.
2. Remove wheels from mower and install in operating position:

ASSEMBLY



M96011

- 48C Mower - Remove spring locking pin (A) and drilled pin (B). Move wheel to operating position. Install pins.



MX8332

- 54C Mower - Pull pin (C) outward and move wheel to operating position. Release pin to lock wheel in position.

Check Engine Oil Level

IMPORTANT: Avoid damage! Dipstick must be properly inserted into dipstick tube to ensure accurate measurement. Reference the oil check procedure in the this manual if necessary.

Check engine oil level. Add oil if necessary.

Charge and Connect Battery



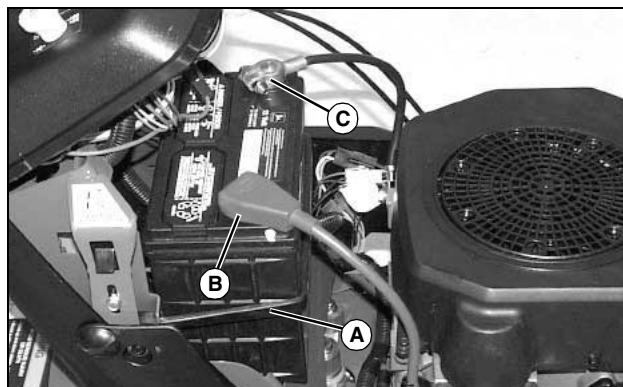
CAUTION: Avoid injury! Prevent Battery Explosions:

- Keep sparks, lighted matches, and open flame away from the top of battery. Battery gas can explode.
- Never check battery charge by placing a metal object across the posts. Use a volt-meter or hydrometer.
- Do not charge a frozen battery; it may explode. Warm battery to 16°C (60°F).

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

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

1. Raise hood.



MX8397

2. Release rubber strap (A) and remove battery.
3. Remove protective caps from battery terminals. Retain the black negative cap.
4. Charge battery. Full charge is 12.6 volts.
5. Install black protective cap over negative (-) terminal.
6. Install battery with terminals toward front of machine. Secure with rubber strap.
7. Connect red positive cable (B) to positive (+) battery terminal. Tighten the connection.
8. Apply general purpose grease or silicone spray to terminal to help prevent corrosion. Slide red cover over positive (+) terminal.
9. Remove and discard protective cap from negative (-) battery terminal.
10. Connect black negative cable (C) to negative (-) battery terminal. Tighten the connection.

ASSEMBLY

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

Break-In Electric PTO Clutch



CAUTION: Avoid injury! Make sure area is clear of bystanders. Run machine in a well-ventilated area.

IMPORTANT: Avoid damage! Do not break-in clutch without mower deck installed. Clutch must be burnished against drive resistance of mower deck.

1. Move machine to a hard, level surface.
2. Lock park brake.
3. Start the engine.
4. Lower mower deck completely.
5. Move throttle lever to half speed position. Allow engine to warm 30-60 seconds.
6. Leave throttle at half speed position.
7. Engage PTO and run mower for 5 seconds.
8. Disengage PTO and wait 15 seconds for clutch to cool.
9. Repeat this cycle 15 to 20 times to properly burnish PTO clutch.

SPECIFICATIONS

Engine

Model LX266

Make.....	Kohler
Engine Model Number	CV460S-26511
Horsepower	11.9 kW (16 hp)
Cylinders	One
Cycle	Four
Cooling Type	Air
Oil Filter.....	Replaceable Full Flow Filter
Air Cleaner	Paper Element with Foam Precleaner
Spark Plug Gap	1 mm (0.040 in.)
Spark Plug Torque	40 N•m (30 lb-ft)

Model LX277, LX277AWS and LX279

Make.....	Kawasaki
Engine Model Number: LX277 and LX277AWS	FH500V
Engine Model Number: LX279.....	FD501V
Horsepower	12.7 kW (17 hp)
Cylinders	Two
Cycle	Four
Cooling Type: LX277 and LX277AWS.....	Air
Cooling Type: LX279	Liquid
Oil Filter	Replaceable Full Flow Filter
Air Cleaner	Paper Element with Foam Precleaner
Spark Plug Gap	
LX277 and LX277AWS	1 mm (0.040 in.)
LX279	0.7 mm (0.028 in.)
Spark Plug Torque	
LX277 and LX277AWS	15 N•m (133 lb-in.)
LX279	17 N•m (150 lb-in.)

Model LX288

Make.....	Briggs & Stratton
Engine Model Number	DBS18-350777
Horsepower	13.4 kW (18 hp)
Cylinders	Two
Cycle	Four
Cooling Type.....	Air
Oil Filter.....	Replaceable Full Flow Filter
Air Cleaner	Paper Element with Foam Precleaner

SPECIFICATIONS

Spark Plug Gap	0.76 mm (0.030 in.)
Spark Plug Torque	20 N•m (177 lb-in.)

Drivetrain

Transaxle	Tuff Torq, Hydrostatic
Number of Speeds	Variable

Travel Speeds at Full Engine RPM

Forward	0-8.8 km/h (0-5.5 mph)
Reverse	0-4.8 km/h (0-3 mph)

Battery

Voltage	12 V
CCA	500 amp
Reserve Capacity	85 minutes
BCI Group Size	51

Tires

Front	16x6.00-6
Rear	20x10.00-8
Inflation Front	70-97 kPa (10-14 psi)
Inflation Rear	56-70 kPa (8-10 psi)

Steering and Brakes

Steering	Open Sector and Pinion
Brakes	Internal Wet Disc

Capacities

Fuel Tank	
LX266, LX277, LX279 and LX288	11.5 L (3.0 gal)
LX277AWS	10.4 L (2.75 gal)
Coolant System (LX279 only)	2.6 L (2.8 qt)
Engine Oil (with filter)	
LX266, LX277, LX277AWS and LX279	1.8 L (1.9 qt)
LX288	1.7 L (1.8 qt)

SPECIFICATIONS

Dimensions

Overall Height	110.7 cm (43.6 in.)
Overall Length	176.3 cm (69.4 in.)
Overall Width	93.5 cm (36.8 in.)

Weight

Net Weight (Without Mower or Fuel)

LX266	219 kg (483 lb)
LX277	221 kg (487 lb)
LX277AWS	254 kg (560 lb)
LX279	222 kg (490 lb)
LX288	221 kg (487 lb)

Freedom42 Mower

Mower Type	Mulch
Cutting Blades	2
Mower Weight	42 kg (92.5 lb)
Blade Bolt Torque	62 N•m (46 lb-ft)
Cutting Width	106.7 cm (42 in.)
Cutting Height (approximate)	25-102 mm (1-4 in.)
Height Adjustment	13-Position, 6.35 mm (1/4 in.) Increments

42C Mower

Mower Type	Mulch, Bag or Side Discharge
Cutting Blades	2
Mower Weight	37 kg (82 lb)
Blade Bolt Torque	75 N•m (55 lb-ft)
Cutting Width	106.7 cm (42 in.)
Cutting Height (approximate)	25-102 mm (1-4 in.)
Height Adjustment	13-Position, 6.35 mm (1/4 in.) Increments

48C Mower

Mower Type	Mulch, Bag or Side Discharge
Cutting Blades	3
Mower Weight	53 kg (117 lb)
Blade Bolt Torque	68 N•m (50 lb-ft)
Cutting Width	121.9 cm (48 in.)

SPECIFICATIONS

Cutting Height (approximate) 25-102 mm (1-4 in.)
Height Adjustment 13-Position, 6.35 mm (1/4 in.) Increments

54C Mower

Mower Type Mulch, Bag or Side Discharge
Cutting Blades 3
Mower Weight 67 kg (148 lb)
Blade Bolt Torque 68 N•m (50 lb-ft)
Cutting Width 137.2 cm (54 in.)
Cutting Height (approximate) 25-102 mm (1-4 in.)
Height Adjustment 13-Position, 6.35 mm (1/4 in.) Increments

Recommended Lubricants

Engine Oil TURF-GARD® or PLUS-4®
Transmission Oil SAE 5W30
Grease John Deere Multi-Purpose SD Polyurea Grease
..... John Deere Multi-Purpose HD Lithium Complex Grease
..... John Deere Moly High Temperature EP Grease

WARRANTY

Product Warranty

Product warranty is provided as part of John Deere's support program for customers who operate and maintain their equipment as described in this manual.

Engine related warranties stated in this manual refer only to emissions-related parts and components of your engine. The complete engine warranty, less emission-related parts and components, is provided separately as the "Limited Warranty for New John Deere Commercial & Consumer Equipment".

Limited Warranty For New John Deere Commercial & Consumer Equipment

(U.S. Only)

A. GENERAL PROVISIONS - The warranties described below are provided by John Deere Company ("John Deere") to the original purchasers of new Commercial & Consumer Equipment from John Deere or authorized John Deere dealers. Under these warranties, John Deere will repair or replace, at its option, any covered part which is found to be defective in material or workmanship during the applicable warranty term. Warranty service must be performed by a dealer or service center authorized by John Deere to sell and/or service the type of product involved, which will use only new or remanufactured parts or components furnished by John Deere. Warranty service will be performed without charge to the purchaser for parts or labor. The purchaser will be responsible, however, for any service call and/or transportation of product to and from the dealer's or service center's place of business, for any premium charged for overtime labor requested by the purchaser, and for any service and/or maintenance not directly related to any defect covered under the warranties below.

B. WHAT IS WARRANTED - All parts of any new John Deere product, except tires, radios, and batteries, are warranted for the number of months or operating hours specified below. John Deere Hand Held-Portable products are covered by a separate warranty. Warranty statements required by law covering engine emission-related parts and components are found in the Operator's Manual delivered with the machine.

COMMERCIAL & CONSUMER EQUIPMENT	WARRANTY TERM
1) In Residential (Private Homeowner) Application	24 Months
2) In Any Other Application	12 Months (Sabre by John Deere products - 90 days)
3) Regardless of Application:	
a) COMPACT UTILITY TRACTORS, WIDE AREA MOWERS, FRONT MOWER TRACTION UNITS (With diesel or 20 HP and above engines), ZTRAK MOWERS (except F620), COMMERCIAL WALK BEHIND MOWERS (30" or larger), and 7-IRON MOWER DECKS,	24 Months
b) Other mower decks, implements, and attachments for the equipment listed in 3a above, and 3d below.	12 Months or 1000 Hours Whichever Comes First
c) SKID STEERS and approved John Deere Skid Steer attachments	12 Months

COMMERCIAL & CONSUMER EQUIPMENT	WARRANTY TERM
d) UTILITY VEHICLES AND F620 ZTRAK MOWERS	12 Months or 1000 Hours Whichever Comes First

Each warranty term begins on the date of product delivery to the purchaser.

C. WHAT IS NOT WARRANTED - JOHN DEERE IS NOT RESPONSIBLE FOR THE FOLLOWING: (1) Used Products; (2) Any product that has been altered or modified in ways not approved by John Deere, including, but not limited to, setting injection pump fuel delivery above John Deere specifications; (3) Depreciation or damage caused by normal wear, lack of reasonable and proper maintenance, failure to follow operating instructions, misuse, lack of proper protection during storage, or accident; (4) Normal maintenance parts and service.

D. SECURING WARRANTY SERVICE - To secure warranty service, the purchaser must (1) report the product defect to an authorized dealer and request repair within the applicable warranty term, (2) present evidence of the warranty start date, and (3) make the product available to the dealer or service center within a reasonable period of time.

E. LIMITATION OF IMPLIED WARRANTIES AND OTHER REMEDIES - COMMERCIAL & CONSUMER EQUIPMENT - 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 Commercial & Consumer Equipment 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 PERIOD OF WARRANTY SET FORTH ON THIS PAGE. THE PURCHASER'S ONLY REMEDIES IN CONNECTION WITH THE BREACH OR PERFORMANCE OF ANY WARRANTY ON THE JOHN DEERE COMMERCIAL & CONSUMER EQUIPMENT ARE THOSE SET FORTH ON THIS PAGE. 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 the above limitations and exclusions may not apply to you.) This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

F. 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.

G. If further information is desired, contact your selling dealer.

Limited Warranty For New John Deere Commercial & Consumer Equipment

(Canada Only)

A. GENERAL PROVISIONS - The warranties described below are provided by John Deere Limited, 295 Hunter Road, P.O. Box 1000, Grimsby, Ontario, L3M 4H5 ("John Deere") to the original purchasers of new Commercial & Consumer Equipment ("Equipment") purchased from John Deere or authorized John Deere dealers. Under these warranties, John Deere will, unless otherwise required by law, repair or replace, at its option, any part covered under these warranties which is found to be defective in material or workmanship during the applicable warranty term. Warranty service must be performed by a dealer or sales service centre authorized by John Deere to sell and/or service the Equipment involved

WARRANTY

(the "authorized dealer"). The authorized dealer will use only new or remanufactured parts or components furnished or approved by John Deere. Warranty service will be performed without charge to the purchaser for parts or labour. However the purchaser will be responsible for any service call and/or transportation of Equipment to and from the authorized dealer's place of business, except where prohibited by law, and for any premium charged for overtime labour requested by the purchaser, and for any service and/or maintenance not directly related to any defect covered under these warranties. These warranties are transferable, provided the purchaser trades the Equipment to an authorized dealer and John Deere approves the warranty transfer.

B. WHAT IS WARRANTED - Subject to paragraph C, all parts of any new John Deere Equipment, except tires, radios, and batteries (which are warranted under separate warranty documents provided with each product), are warranted for the number of months or operating hours specified below. John Deere Hand Held-Portable products are covered by a separate warranty. Warranty statements covering engine emission-related parts and components are found in the Operator's Manual delivered with the Equipment.

COMMERCIAL & CONSUMER EQUIPMENT	WARRANTY TERM
1) IN RESIDENTIAL (Private Homeowner) APPLICATION	24 Months
2) IN ANY OTHER APPLICATION	12 Months
3) Regardless of Application: COMPACT UTILITY TRACTORS, WIDE AREA MOWERS, FRONT MOWER TRACTION UNITS (With diesel or 20 HP and above engines), ZTRAK MOWERS (except F620), COMMERCIAL WALK BEHIND MOWERS (30" or larger), and 7-IRON MOWER DECKS.	24 Months
4) Regardless of Application: SKID STEERS AND APPROVED JOHN DEERE SKID STEER ATTACHMENTS	12 Months
5) Regardless of Application: UTILITY VEHICLES AND F620 ZTRAK MOWERS, other mower decks, implements, and attachments for the equipment listed in 3) and 5).	12 Months or 1,000 Hours Whichever Comes First
6) SABRE by JOHN DEERE PRODUCTS	Residential (Private Homeowner) application - 24 months. In any other application - 90 Days

Each warranty term begins on the date of delivery of the Equipment to the Purchaser.

C. WHAT IS NOT WARRANTED - Pursuant to the terms of these warranties, JOHN DEERE IS NOT RESPONSIBLE FOR THE FOLLOWING: (1) Used Equipment (unless it is specifically covered by separate warranty documents); (2) Any Equipment that has been altered or modified in ways not approved by John Deere, including, but not limited to, setting injection pump fuel delivery above John Deere specifications; (3) Depreciation or damage caused by normal wear, lack of reasonable and proper maintenance, failure to follow operating instructions, misuse, lack of proper protection during storage, vandalism, the elements or collision or accident; (4) Normal maintenance parts or service; (5) Batteries, radios and tires.

D. SECURING WARRANTY SERVICE - To secure warranty service the purchaser must, (1) report the Equipment defect to an authorized dealer and request repair or replacement within the applicable warranty term; (2) present evidence of the warranty start date; and, (3) make the Equipment available to the authorized dealer within a reasonable period of time.

E. REPRESENTATION, CONDITION AND IMPLIED WARRANTY EXCLUSION - THERE ARE NO REPRESENTATIONS, CONDITIONS OR WARRANTIES OTHER THAN THOSE LISTED ABOVE. THIS EXCLUSION INCLUDES FUNDAMENTAL TERMS, REPRESENTATIONS, CONDITIONS AND WARRANTIES WHICH MAY BE EXPRESSED OR IMPLIED, VERBAL OR OTHERWISE, INCLUDING IMPLIED OR STATUTORY CONDITIONS OR WARRANTIES OF MERCHANTABILITY AND FITNESS, WHETHER PURSUANT TO THE SALE OF GOODS ACT OR ANY OTHER STATUTE OF ANY PROVINCE OR OTHERWISE, EXCEPT WHERE SUCH IMPLIED OR STATUTORY CONDITIONS OR WARRANTIES MAY NOT BE EXCLUDED BY LAW.

F. REMEDIES EXCLUSIVE - THE ONLY REMEDIES THE PURCHASER HAS IN CONNECTION WITH THE BREACH OR PERFORMANCE OF ANY WARRANTY ON THE EQUIPMENT ARE THOSE SET FORTH IN THIS WARRANTY, EXCEPT FOR THOSE REMEDIES PROVIDED BY LAW WHICH MAY NOT BE EXCLUDED. IN NO EVENT WILL AN AUTHORIZED DEALER, JOHN DEERE OR ANY COMPANY AFFILIATED WITH JOHN DEERE, BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES OR INJURIES, INCLUDING BUT NOT LIMITED TO, LOSS OF PROFITS, RENTAL OF SUBSTITUTE EQUIPMENT, OTHER COMMERCIAL LOSS, OR BE LIABLE FOR DAMAGES SUFFERED BY THE PURCHASER AS A RESULT OF FUNDAMENTAL BREACHES OF CONTRACT OR BREACHES OF FUNDAMENTAL TERMS. THE LIMITATION OF LIABILITY CONTAINED IN THIS PARAGRAPH SHALL ONLY BE EFFECTIVE TO THE EXTENT PERMITTED BY LAW.

G. PURCHASE ORDER REQUIRED - John Deere shall have no obligation under these warranties unless a Purchase Order has been signed by both the purchaser and an authorized dealer. In addition, a Product Warranty Registration must be on file at John Deere and include:

1. the purchaser's complete name and address;
2. a full description of the Equipment, including the complete product identification number; and,
3. date of delivery of the Equipment to the purchaser.

H. NO DEALER WARRANTY - Except for conditions or warranties which may not be excluded by law, the selling Dealer makes no warranty of its own on any item warranted by John Deere, and makes no warranty on other items unless it delivers to the purchaser a separate written warranty document specifically warranting the item. THE SELLING 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.

John Deere, Federal and California Emission Control System Warranty (Small Off-Road Gas Engines)

Your Warranty Rights and Obligations

The United States Environmental Protection Agency (EPA), the California Air Resources Board (CARB) and John Deere are pleased to explain the emission control system warranty on your 1995 or later small off-road equipment engine. In California, 1995 and later small off-road equipment engines must be designed, built and equipped to meet the State's stringent anti-smog standards. In other states, 1997 and later model year equipment engines must be designed, built and equipped to meet the U.S. EPA regulations for small non-road, spark ignition engines. John Deere must warrant the emission control system on your small off-road

WARRANTY

equipment engine for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your small off-road equipment engine.

Your emission control system may include parts such as the carburetor, fuel-injection system and ignition system. Also included may be connectors and other emission related assemblies.

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

John Deere Emission Control System Warranty Coverage

In California, 1995 and later small off-road equipment engines are warranted relative to emission control parts for two years. In other states, 1997 and later model year equipment engines are warranted relative to emission control parts for two years. If any emission related part on your engine is defective, the part will be repaired or replaced by John Deere.

Owner's Warranty Responsibilities

As the small off-road equipment engine owner, you are responsible for the performance of the required maintenance listed in your owner's manual. John Deere recommends that you retain all receipts covering maintenance on your small off-road equipment engine, but John Deere cannot deny warranty solely for lack of receipts or for your failure to ensure the performance of all scheduled maintenance.

As the small off-road equipment engine owner, you should however be aware that John Deere may deny you warranty coverage if your small off-road equipment engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

You are responsible for presenting your small off-road equipment engine to an authorized John Deere Commercial and Consumer Equipment Retailer as soon as a problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

If you have any questions regarding your warranty rights and responsibilities, you should contact your John Deere Commercial and Consumer Equipment Retailer, or the John Deere Customer Communications Center at 1-800-537-8233.

Length Of Warranty Coverage

John Deere warrants to the initial owner and each subsequent purchaser that the small off-road equipment engine is:

- Designed, built and equipped so as to conform with all applicable regulations adopted by the California Air Resources Board (CARB) for 1995 and later equipment engines, and all applicable regulations of the United States Environmental Protection Agency (EPA) for 1997 and later equipment engines; and
- Free from defects in materials and workmanship which can cause the failure of an emission warranted part for a period of two years after the engine is delivered to the initial retail purchaser. John Deere is liable for damages to other engine components caused by the failure of a warranted part during the warranty period. If any emission related part on your engine is defective, the part will be repaired or replaced by John Deere.

Warranted Parts

Coverage under this warranty extends only to the parts listed below (the emission control system parts) to the extent these parts were present on the engine purchased.

Fuel Metering System:

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

Air Induction System:

- Air Cleaner
- Intake manifold.

Ignition System:

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

Catalyst System:

- Exhaust manifold.

Miscellaneous Items Used in Above Systems

- Vacuum and temperature switches.
- Electronic controls.
- Hoses, belts, connectors and assemblies.

Since emission related parts may vary slightly from model to model, certain models may not contain all of these parts and certain models may contain functionally equivalent parts.

Warranty Service And Charges

Warranty service shall be provided during customary business hours at any authorized John Deere Commercial and Consumer Equipment Retailer located within the United States of America. Repair or replacement of any warranted part will be performed at no charge to the owner, including diagnostic labor which leads to the determination that a warranted part is defective, if the diagnostic work is performed at an authorized John Deere Commercial and Consumer Equipment Retailer. Any parts replaced under this warranty shall become the property of John Deere.

Maintenance Warranty Coverage

a) Any warranted part that is not scheduled for replacement as required maintenance must be warranted as to defects for the warranty period. Any such part repaired or replaced under the warranty must be warranted for the remaining warranty period.

b) Any warranted part that is scheduled only for regular inspection to the effect of "repair or replace as necessary" must be warranted as to defects for the warranty period. Any such part repaired or replaced under the warranty must be warranted for the remaining warranty period.

c) Any warranted part which is scheduled for replacement as required maintenance must be warranted as to defects only for the period of time up to the first scheduled replacement for that part. Any such part repaired or replaced under the warranty must be warranted for the remainder of the period prior to the first scheduled replacement point for that part.

d) Normal maintenance, replacement or repair of emission control devices and systems, which are being done at the customers expense, may be performed by any repair establishment or individual; however, warranty repairs must be performed by an authorized John Deere Commercial and Consumer Equipment Retailer.

e) Any replacement part that is equivalent in performance and durability may be used in the performance of any non-warranty maintenance or repairs, and shall not reduce the warranty obligations of John Deere.

Consequential Warranty Coverage

Warranty coverage shall extend to the failure of any engine components caused by the failure of any warranted part still under warranty.

Limitations

This Emission Control System Warranty shall NOT cover any of the following:

WARRANTY

- a) Repair or replacement required as a result of (i) misuse or neglect, (ii) improper maintenance or unapproved modifications, (iii) repairs improperly performed or replacements improperly installed, (iv) use of replacement parts or accessories not conforming to John Deere specifications which adversely affect performance and/or durability, (v) alterations or modifications not recommended or approved in writing by John Deere.
- b) Replacement parts, other services and adjustments necessary for normal maintenance.
- c) Transportation to and from the John Deere Commercial and Consumer Equipment Retailer, or service calls made by the Retailer.

Limited Liability

- a) The liability of John Deere under this Emission Control System Warranty is limited solely to the remedying of defects in materials or workmanship. This warranty does not cover inconvenience or loss of use of the small off-road equipment engine or transportation of the engine to or from the John Deere Commercial And Consumer Equipment 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 SMALL OFF-ROAD EQUIPMENT ENGINE FOR ANY OTHER PURPOSE.
- b) NO EXPRESS EMISSION CONTROL SYSTEM WARRANTY IS GIVEN BY JOHN DEERE WITH RESPECT TO THE ENGINE EXCEPT AS SPECIFICALLY SET FORTH IN THIS DOCUMENT. ANY EMISSION CONTROL SYSTEM WARRANTY IMPLIED BY LAW, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, IS EXPRESSLY LIMITED TO THE EMISSION CONTROL SYSTEM WARRANTY TERMS SET FORTH IN THIS DOCUMENT.
- c) No dealer is authorized to modify this Federal, California and John Deere Emission Control System Warranty.

Tire Warranty

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

Limited Battery Warranty

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

TO SECURE WARRANTY SERVICE

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

FREE REPLACEMENT

Any new battery which becomes unserviceable (not merely discharged) due to defects in material or workmanship within 90 days of purchase will be replaced free of charge. Installation costs will be covered by warranty if (1) the unserviceable battery was installed by a John Deere factory or dealer, (2) failure occurs within 90 days of purchase, and (3) the replacement battery is installed by a John Deere dealer.

PRO RATA ADJUSTMENT

Any new battery which becomes unserviceable (not merely discharged) due to defects in material or workmanship more than 90 days after purchase, but before the expiration of the applicable adjustment period, will be replaced upon payment of the battery's current list price less a pro rata credit for unused months of service. The applicable adjustment period is determined from the Warranty Code printed at the top of the battery and chart below. Installation costs are not covered by warranty after 90 days from the date of purchase.

THIS WARRANTY DOES NOT COVER

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

LIMITATION OF IMPLIED WARRANTIES AND PURCHASER'S REMEDIES

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

NO DEALER WARRANTY

The selling dealer makes no warranty of 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.

PRO RATA MONTHS OF ADJUSTMENT

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

Warranty Code	Warranty Period
A	40 Months
B	36 Months
C	24 Months

INDEX

A		Engine Oil and Filter, Changing	28
Air Cleaner (LX266, LX277 and LX277AWS), Servicing	29	Engine Warranty Maintenance Statement	27
Air Cleaner (LX279), Servicing	30	Engine and Fuel for Storage, Preparing	64
Air Cleaner (LX288), Servicing	31	Engine, Starting	15
Air Intake Screen and Engine Fins, Cleaning	28	Engine, Stopping	16
Axle Pivot, Lubricating Front	25	F	
B		Free-Wheeling Lever, Using	18
Bagger or Mower, Unplugging	19	Fuel Filter, Replacing	33
Battery Electrolyte Level, Checking	53	Fuel Level, Checking	15
Battery and Terminals, Cleaning	54	Fuel Safety	7
Battery, Check and Connect	67	Fuel Tank, Filling	56
Battery, Removing and Installing	53	Fuel and Engine for Storage, Preparing	64
Battery, Using Booster	54	Fuses, Replacing	55
Belt, Replacing Mower Deck (Secondary)	50	G	
Belt, Replacing Mower Drive (Primary)	44, 49	Grease	25
Blade Spindles, Lubricating	26	H	
Blades, Balancing	46, 52	Headlight Bulb, Replacing	55
Blades, Checking for Bent Mower	44, 50	Headlights, Using	14
Blades, Servicing Mower	44, 51	Hood Latches, Adjusting	57
Blades, Sharpening	45, 51	Hood, Removing and Installing	56
Brake Switch, Testing Park	13	Hour Meter and Indicator Lights, Using	15
Brake, Testing Park	13	I	
Brake, Using Park	14	Indicator Light Bulb, Replacing	55
Break-In, Engine	9	Indicator Lights and Hour Meter, Using	15
C		L	
Carburetor, Adjusting	32	Labels, Safety	1
Certification Label	3	Leveling Mower Front-to-Rear	12
Chains, Installing Tire	19	Leveling Mower Side-to-Side	11
Cleaning and Repairing Metal Surfaces	58	Lights, Using	14
Cleaning and Repairing Plastic Surfaces	57	Lubricants	25, 72
Controls, Miscellaneous	10	M	
Controls, Operator Station	9	Mower Blade Spindles, Lubricating	26
Coolant Level (LX279), Checking	33	Mower Blade Timing, Checking	40
Coolant, Recommended Engine	33	Mower Blades, Balancing	46, 52
Cooling System (LX279), Servicing	34	Mower Blades, Checking for Bent	44, 50
Cruise Control Lever, Adjusting	36	Mower Blades, Servicing	44, 51
Cruise Control, Using	18	Mower Blades, Sharpening	45, 51
Customer Service	78	Mower Deck (Secondary) Belt, Replacing	50
Cutting Height, Adjusting	10	Mower Drive (Primary) Belt, Replacing	44, 49
D		Mower Level (Front-to-Rear), Adjusting	12
Daily Operating Checklist	9	Mower Level (Side-to-Side), Adjusting	11
E		Mower Timing Belt, Adjusting	40
Emission Compliance Period	3	Mower Wheels, Adjusting	11
Emission Control System Certification Label	3	Mower Wheels, Lubricating	26
Engine Break-In	9	Mower or Bagger, Unplugging	19
Engine Coolant Level (LX279), Checking	33	Mower, Installing	38, 48
Engine Coolant, Recommended	33	Mower, Removing	38, 47
Engine Fins and Air Intake Screens, Cleaning	28	Mowing Tips	20
Engine Oil	27	O	
Engine Oil Level, Checking	27	Oil Level, Checking Engine	27

INDEX

Oil and Filter, Changing Engine	28
Oil, Engine	27
Operating Checklist, Daily	9
Operating Controls	9

P

PTO (Power Take-Off), Using	18
PTO Switch, Testing	13
Park Brake Switch, Testing	13
Park Brake, Testing	13
Park Brake, Using	14
Parts, Replacement	22
Plastic And Painted Surfaces, Avoid Damage To	9
Pushing Machine (Using Free-Wheeling Lever)	18

R

Reverse Implement Option (RIO), Testing	14
Reverse Implement Option (RIO), Using	17

S

Safety Messages	3
Safety Systems, Testing	13
Safety-Alert Symbol	1
Seat Switch, Testing	13
Seat, Adjusting	10
Service Intervals	24
Service Literature	22
Spark Plugs, Checking	32
Specifications	69
Storage, Preparing Machine for	64
Storage, Removing Machine from	64
Storing Safety	64

T

Testing Safety Systems	13
Timing Belt, Adjusting	40
Timing, Checking Mower Blade	40
Tire Chains, Installing	19
Tire Pressure, Check	66
Tire Safety	7
Transmission Oil	36
Transmission Oil Level, Checking	36
Transporting Machine on Trailer	19
Travel Controls, Using	17
Troubleshooting Chart	59

W

Warranty Maintenance Statement, Engine	27
Warranty, Product	73
Weights, Using	19
Wheel Bolt Torque (LX277AWS), Checking	56
Wheel Spindles, Lubricating Front	25

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 (Call 1-800-537-8233 to locate your nearest John Deere 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

Call the John Deere Customer Communications Center

- 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, call the Customer Communications Center.
- 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 13-digit 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 and our advisor will work with your dealer to investigate your concern.

SERVICE RECORD

Record Service Dates

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