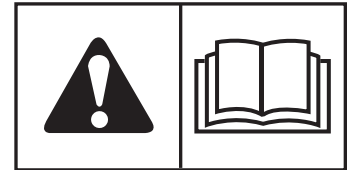




Operator's Manual



Pacer Series

17.5 HP Walk-behind Mower

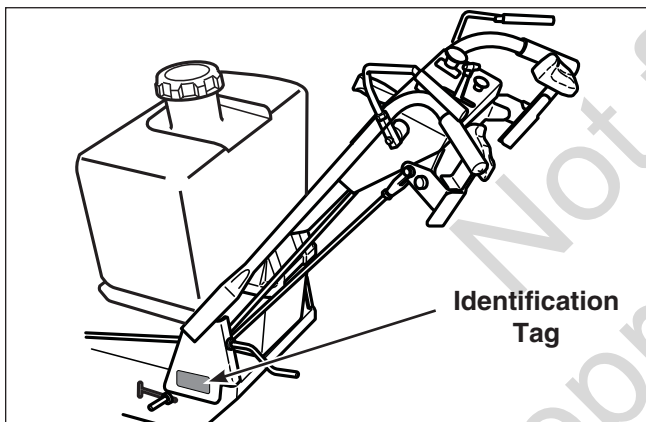
Mfg. No. Description

5900515 Pacer, 17.5 HP Walk-Behind Mower & 32" Mower Deck

Thank you for purchasing this quality-built Simplicity product. We're pleased that you've placed your confidence in the Simplicity brand. When operated and maintained according to the instructions in this manual, your Simplicity product will provide many years of dependable service.

This manual contains safety information to make you aware of the hazards and risks associated with this machine and how to avoid them. This machine is designed and intended to be used and maintained according to the manual for finish cutting of established lawns and is not intended for any other purpose. It is important that you read and understand these instructions thoroughly before attempting to start or operate this equipment. **Save these instructions for future reference.**

Product Identification Tag



The Illustrated Parts List for this machine can be downloaded from www.simplicitymfg.com. Please provide model and serial number when ordering replacement parts.

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Product Reference Data

When contacting your authorized dealer for replacement parts, service, or information you MUST have these numbers.

Record your model name/number, manufacturer's identification numbers, and engine serial numbers in the space provided for easy access. These numbers can be found in the locations shown.

NOTE: For location of engine identification numbers, refer to the engine owner's manual.

PRODUCT REFERENCE DATA	
Unit Model Number	Unit SERIAL Number
Mower Deck Model Number	Mower Deck SERIAL Number
Dealer Name	Date Purchased
ENGINE REFERENCE DATA	
Engine Make	Engine Model
Engine Type/Spec	Engine Code/Serial Number

⚠ WARNING

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

⚠ WARNING

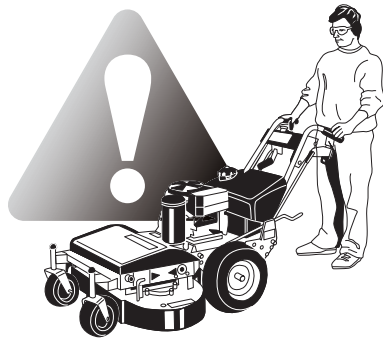
Battery posts, terminals, and related accessories contain lead and lead compounds – chemicals known to the State of California to cause cancer and reproductive harm. Wash hands after handling.

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NOTE: In this manual, “left” and “right” are referred to as seen from the operating position.

Operator Safety



Operating Safety

Congratulations on purchasing a superior-quality piece of lawn and garden equipment. Our products are designed and manufactured to meet or exceed all industry standards for safety.

Do not operate this machine unless you have been trained. Reading and understanding this operator's manual is a way to train yourself.

Power equipment is only as safe as the operator. If it is misused, or not properly maintained, it can be dangerous! Remember, you are responsible for your safety and that of those around you.

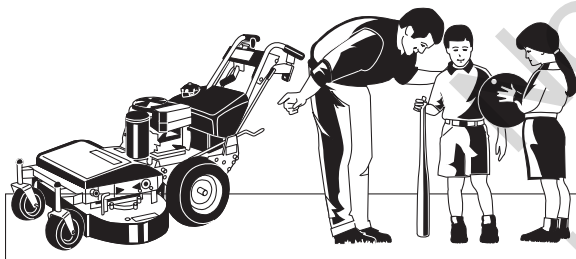
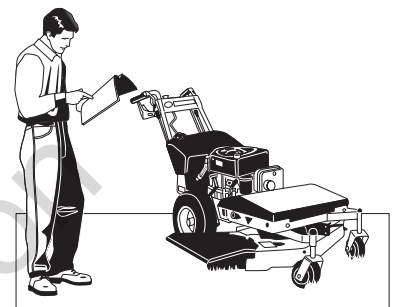
Use common sense, and think through what you are doing. If you are not sure that the task you are about to perform can be safely done with the equipment you have chosen, ask a professional: contact your local authorized dealer.

Read the Manual

The operator's manual contains important safety information you need to be aware of BEFORE you operate your unit as well as DURING operation.

Safe operating techniques, an explanation of the product's features and controls, and maintenance information is included to help you get the most out of your equipment investment.

Be sure to completely read the Safety Rules and Information found on the following pages. Also completely read the Operation section.



Children

Tragic accidents can occur with children. Do not allow them anywhere near the area of operation. Children are often attracted to the unit and mowing activity. Never assume that children will remain where you last saw them. If there is a risk that children may enter the area where you are mowing, have another responsible adult watch them.

Slope Operation

Operation on slopes can be dangerous. Using the unit on a slope that is too steep where you do not have adequate wheel traction (and control) can cause sliding, loss of steering, control, and possible rollover. You should not operate on a slope greater than a 5.4 foot rise over a 20 foot length (15 degrees).

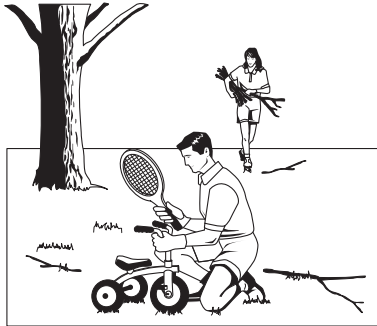
Always mow across slopes, not up and down (to maintain traction on the wheels) and avoid sudden turns or rapid speed changes.

Reduce speed and use extreme caution on ALL slopes.

Also, note that the surface condition you are on can greatly impact your ability to safely operate this machine. Operating on wet or slippery slopes can cause sliding and loss of steering and control. Do not operate on slopes that are slippery, wet, or have soft soil conditions.

If you feel unsure about operating the unit on a slope, don't do it. It's not worth the risk.





Thrown Objects

This unit has spinning mower blades. These blades can pick up and throw debris that could seriously injure a bystander. Be sure to clean up the area to be mowed and remove objects that could be thrown by the blade **BEFORE** you start mowing.

Do not operate this unit without the entire grass catcher or discharge guard (deflector) in place.

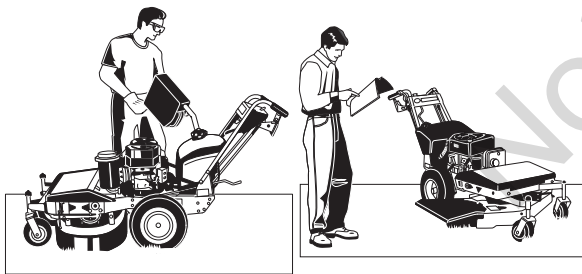
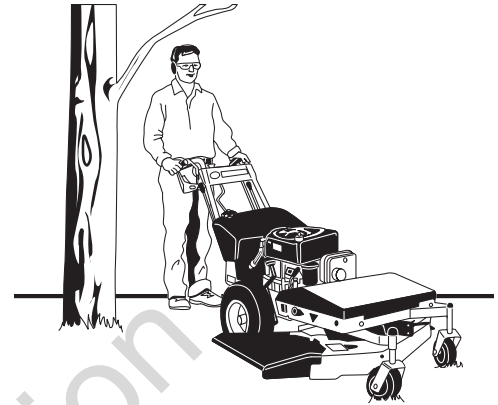
Also, do not allow anyone in the area while the unit is running! If someone does enter the area, shut the unit off immediately until they leave.

Moving Parts

This equipment has many moving parts that can injure you or someone else. However, if you stay in the operator zone (area behind the handles and controls), and follow the safety rules in this operator's manual, the unit is safe to operate.

The mower deck has spinning mower blades that can amputate hands and feet. Do not allow anyone near the unit while it is running! Keep safety devices (guards, shields, and switches) in place and working.

To help you, the operator, use this equipment safely, it is equipped with an operator-present safety system. Do **NOT** attempt to alter or bypass the system. See your dealer immediately if the system does not pass all the safety interlock system tests found in this manual.



Fuel and Maintenance

Always disengage all drives, shutoff the engine, and remove the key before doing any cleaning, refueling, or servicing.

Gasoline and its vapors are extremely flammable. Do not smoke while operating or refueling. Do not add fuel while engine is hot or running. Allow engine to cool for at least 3 minutes prior to adding fuel.

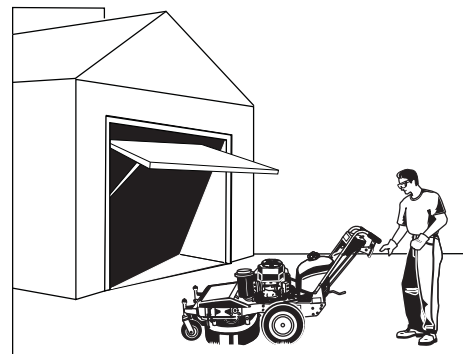
Do not add fuel indoors, in an enclosed trailer, garage, or any other enclosed area that is not well ventilated. Gasoline spills should be cleaned up promptly and before operation begins.

Gasoline should be stored only in sealed containers approved for fuel.


Proper maintenance is critical to the safety and performance of your unit. Keep the unit free of grass, leaves, and excess oil. Be sure to perform the maintenance procedures listed in this manual, especially periodically testing the safety system.

Enclosed Areas

Only operate this unit outdoors and away from unventilated areas such as inside garages or enclosed trailers. The engine emits poisonous carbon monoxide gas and prolonged exposure in an enclosed area can result in serious injury or death.





Read these safety rules and follow them closely. Failure to obey these rules could result in loss of control of unit, severe personal injury or death to you, or bystanders, or damage to property or equipment. **This mowing deck is capable of amputating hands and feet and throwing objects.** The triangle  in text signifies important cautions or warnings which must be followed.

General Operation

1. Read, understand, and follow all instructions in the manual and on the unit before starting.
2. Do not put hands or feet near rotating parts or under the machine. Keep clear of the discharge opening at all times.
3. Only allow responsible adults, who are familiar with the instructions, to operate the unit (local regulations can restrict operator age).
4. Clear the area of objects such as rocks, toys, wire, etc., which could be picked up and thrown by the blade(s).
5. Be sure the area is clear of other people before mowing. Stop the unit if anyone enters the area.
6. Never carry passengers.
7. Do not mow in reverse unless absolutely necessary. Always look down and behind before and while travelling in reverse.
8. Never direct discharge material toward anyone. Avoid discharging material against a wall or obstruction. Material may ricochet back toward the operator. Stop the blade(s) when crossing gravel surfaces.
9. Do not operate the machine without the entire grass catcher, discharge guard (deflector), or other safety devices in place and operational.
10. Slow down before turning.
11. Never leave a running unit unattended. Always disengage the blades (PTO), set parking brake, stop engine, and remove keys before dismounting.
12. Disengage blades (PTO) when not mowing. Shut off engine and wait for all parts to come to a complete stop before cleaning the machine, removing the grass catcher, or unclogging the discharge guard.
13. Operate the machine only in daylight or good artificial light.
14. Do not operate the unit while under the influence of alcohol or drugs.
15. Watch for traffic when operating near or crossing roadways.
16. Use extra care when loading or unloading the unit into a trailer or truck.
17. Always wear eye protection when operating this unit.
18. Data indicates that operators, age 60 years and above, are involved in a large percentage of power equipment-related injuries. These operators should evaluate their ability to operate the equipment safely enough to protect themselves and others from injury.
19. Follow the manufacturer's recommendations for wheel weights or counterweights.

20. Keep in mind the operator is responsible for accidents occurring to other people or property.
21. All drivers should seek and obtain professional and practical instruction.
22. Always wear substantial footwear and trousers. Never operate when barefoot or wearing sandals.
23. Before using, always visually check that the blades and blade hardware are present, intact, and secure. Replace worn or damaged parts.
24. Disengage attachments before: refueling, removing an attachment, making adjustments (unless the adjustment can be made from the operator's position).
25. When the machine is parked, stored, or left unattended, lower the cutting means unless a positive mechanical lock is used.
26. Before leaving the operator's position for any reason, engage the parking brake (if equipped), disengage the blades (PTO), stop the engine, and remove the key.
27. To reduce fire hazard, keep the unit free of grass, leaves, & excess oil. Do not stop or park over dry leaves, grass, or combustible materials.
28. OSHA regulations may require the use of hearing protection when exposed to sound levels greater than 85 dBA for an 8 hour time period.

WARNING

It is a violation of California Public Resource Code, Section 4442, to use or operate the engine on any forest-covered, brush-covered, or grass-covered land unless the exhaust system is equipped with a spark arrester, as defined in Section 4442, maintained in effective working order. Other states or federal jurisdictions may have similar laws. Contact an Authorized Service Dealer to obtain a spark arrester designed for the exhaust system installed on this engine.

WARNING



Extended exposure to excessively high sound levels can result in hearing loss.

- This machine produces sound levels in excess of 85 dBA at the operator's ear and can cause hearing loss through extended periods of exposure.
- Wear hearing protection when operating this machine.

Transporting and Storage

1. When transporting the unit on an open trailer, make sure it is facing forward, in the direction of travel. If the unit is facing backwards, wind lift could damage the unit.
2. Always observe safe refueling and fuel handling practices when refueling the unit after transportation or storage.
3. Never store the unit (with fuel) in an enclosed poorly ventilated structure. Fuel vapors can travel to an ignition source (such as a furnace, water heater, etc.) and cause an explosion. Fuel vapor is also toxic to humans and animals.
4. Always follow the engine manual instructions for storage preparations before storing the unit for both short and long term periods.
5. Always follow the engine manual instructions for proper start-up procedures when returning the unit to service.
6. Never store the unit or fuel container inside where there is an open flame or pilot light, such as in a water heater. Allow unit to cool before storing.

Slope Operation

Slopes are a major factor related to loss-of-control and tip-over accidents, which can result in severe injury or death. Operation on all slopes requires extra caution. If you cannot back up the slope or if you feel uneasy on it, do not operate on it.

Control of a walk-behind or ride-on machine sliding on a slope will not be regained by the application of the brake. The main reasons for loss of control are: insufficient tire grip on the ground, speed too fast, inadequate braking, the type of machine is unsuitable for its task, lack of awareness of the ground conditions, incorrect hitching and load distribution.

1. Mow across slopes, not up and down.
2. Watch for holes, ruts, or bumps. Uneven terrain could overturn the unit. Tall grass can hide obstacles.
3. Choose a slow speed so that you will not have to stop or change speeds while on the slope.
4. Do not mow on wet grass. Tires may lose traction.
5. Avoid starting, stopping, or turning on a slope. If tires lose traction (i.e. machine stops forward motion on a slope), disengage the blade(s) (PTO) and drive slow off the slope.
6. Keep all movement on slopes slow and gradual. Do not make sudden changes in speed or direction, which could cause the machine to rollover.
7. Use extra care while operating machines with grass catchers or other attachments; they can affect the stability of the unit. Do not use on steep slopes.
8. Do not try to stabilize the machine by putting your foot on the ground (ride-on units).
9. Do not mow near drop-offs, ditches, or embankments. The mower could suddenly turn over if a wheel is over the edge of a cliff or ditch, or if an edge caves in.
10. Do not use grass catchers on steep slopes.
11. Do not mow slopes if you cannot back up them.
12. See your authorized dealer/retailer for recommendations of wheel weights or counterweights to improve stability.
13. Remove obstacles such as rocks, tree limbs, etc.
14. Use slow speed. Tires may lose traction on slopes even though the brakes are functioning properly.
15. Do not turn on slopes unless necessary, and then, turn slowly and gradually uphill, if possible. Never mow down slopes.

⚠ WARNING



Operating on steep slopes can be dangerous.

- Select slow ground speed before driving onto a slope. Use extra caution when operating on slopes with a rear-mounted grass catcher.
- Mow across the face of slopes, not up and down, use caution when changing directions and **DO NOT START OR STOP ON A SLOPE.**

Children

Tragic accidents can occur if the operator is not alert to the presence of children. Children are often attracted to the unit and the mowing activity. Never assume that children will remain where you last saw them.

1. Keep children out of the mowing area and under the watchful care of another responsible adult.
2. Be alert and turn unit off if children enter the area.
3. Before and during reverse operation, look behind and down for small children.
4. Never carry children, even with the blade(s) off. They may fall off and be seriously injured or interfere with safe unit operation. Children who have been given rides in the past may suddenly appear in the mowing area for another ride and be run over or backed over by the machine.
5. Never allow children to operate the unit.
6. Use extra care when approaching blind corners, shrubs, trees, or other objects that may obscure vision.

Emissions

1. Engine exhaust from this product contains chemicals known, in certain quantities, to cause cancer, birth defects, or other reproductive harm.
2. Look for the relevant Emissions Durability Period and Air Index information on the engine emissions label.

Ignition System

1. This spark ignition system complies with Canadian ICES-002.

Service and Maintenance

Safe Handling of Gasoline

1. Extinguish all cigarettes, cigars, pipes, and other sources of ignition.
2. Use only approved gasoline containers.
3. Never remove the gas cap or add fuel with the engine running. Allow the engine to cool before refueling.
4. Never fuel the machine indoors.
5. Never store the machine or fuel container where there is an open flame, spark, or pilot light such as near a water heater or other appliance.
6. Never fill containers inside a vehicle or on a truck bed with a plastic bed liner. Always place containers on the ground away from your vehicle before filling.
7. Remove gas-powered equipment from the truck or trailer and refuel it on the ground. If this is not possible, then refuel such equipment on a trailer with a portable container, rather than from a gasoline dispenser nozzle.
8. Keep nozzle in contact with the rim of the fuel tank or container opening at all times until fueling is complete. Do not use a nozzle lock-open device.
9. If fuel is spilled on clothing, change clothing immediately.
10. Never over-fill the fuel tank. Replace gas cap and tighten securely.
11. Use extra care in handling gasoline and other fuels. They are flammable and vapors are explosive.
12. If fuel is spilled, do not attempt to start the engine but move the machine away from the area of spillage and avoid creating any source of ignition until fuel vapors have dissipated.
13. Replace all fuel tank caps and fuel container caps securely.
12. Do not use gasoline containing METHANOL, gasohol containing more than 10% ETHANOL, gasoline additives, or white gas because engine/fuel system damage could result.
13. If the fuel tank must be drained, it should be drained outdoors.
14. Replace faulty silencers/mufflers.
15. Maintain or replace safety and instruction labels as necessary.
16. Use only factory authorized replacement parts when making repairs.
17. Always comply with factory specifications on all settings and adjustments.
18. Only authorized service locations should be utilized for major service and repair requirements.
19. Never attempt to make major repairs on this unit unless you have been properly trained. Improper service procedures can result in hazardous operation, equipment damage and voiding of manufacturer's warranty.
20. On multiple blade mowers, take care as rotating one blade can cause other blades to rotate.
21. Do not change engine governor settings or over-speed the engine. Operating the engine at excessive speed can increase the hazard of personal injury.
22. Disengage drive attachments, stop the engine, remove the key, and disconnect the spark plug wire(s) before: clearing attachment blockages and chutes, performing service work, striking an object, or if the unit vibrates abnormally. After striking an object, inspect the machine for damage and make repairs before restarting and operating the equipment.
23. Never place hands near the moving parts, such as a hydro pump cooling fan, when the rider is running. (Hydro pump cooling fans are typically located on top of the transaxle).
24. Units with hydraulic pumps, hoses, or motors:
WARNING: Hydraulic fluid escaping under pressure may have sufficient force to penetrate skin and cause serious injury. If foreign fluid is injected into the skin it must be surgically removed within a few hours by a doctor familiar with this form of injury or gangrene may result. Keep body and hands away from pin holes or nozzles that eject hydraulic fluid under high pressure. Use paper or cardboard, and not hands, to search for leaks. Make sure all hydraulic fluid connections are tight and all hydraulic hoses and lines are in good condition before applying pressure to the system. If leaks occur, have the unit serviced immediately by your authorized dealer.

Service & Maintenance

1. Never run the unit in an enclosed area where carbon monoxide fumes may collect.
2. Keep nuts and bolts, especially blade attachment bolts, tight and keep equipment in good condition.
3. Never tamper with safety devices. Check their proper operation regularly and make necessary repairs if they are not functioning properly.
4. Keep unit free of grass, leaves, or other debris build-up. Clean up oil or fuel spillage. and remove any fuel-soaked debris. Allow machine to cool before storage.
5. If you strike an object, stop and inspect the machine. Repair, if necessary, before restarting.
6. Never make adjustments or repairs with the engine running.
7. Check grass catcher components and the discharge guard frequently and replace with manufacturer's recommended parts, when necessary.
8. Mower blades are sharp. Wrap the blade or wear gloves, and use extra caution when servicing them.
9. Check brake operation frequently. Adjust and service as required.
10. Maintain or replace safety and instructions labels, as necessary.
11. Do not remove the fuel filter when the engine is hot as spilled gasoline may ignite. Do not spread fuel line clamps further than necessary. Ensure clamps grip hoses firmly over the filter after installation.
25. **WARNING:** Stored energy device. Improper release of springs can result in serious personal injury. Springs should be removed by an authorized technician.
26. Models equipped with an engine radiator: **WARNING:** Stored energy device. To prevent serious bodily injury from hot coolant or steam blow-out, never attempt to remove the radiator cap while the engine is running. Stop the engine and wait until it is cool. Even then, use extreme care when removing the cap.

Safety Decals

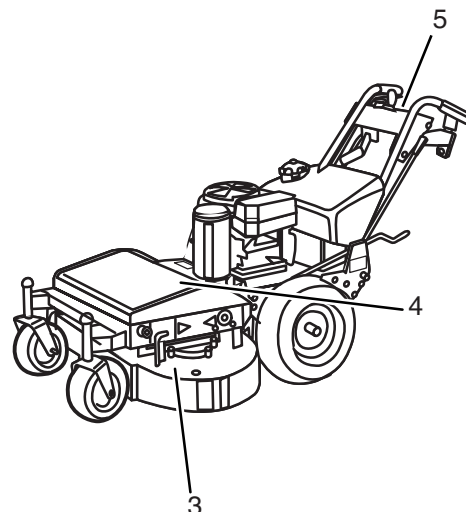
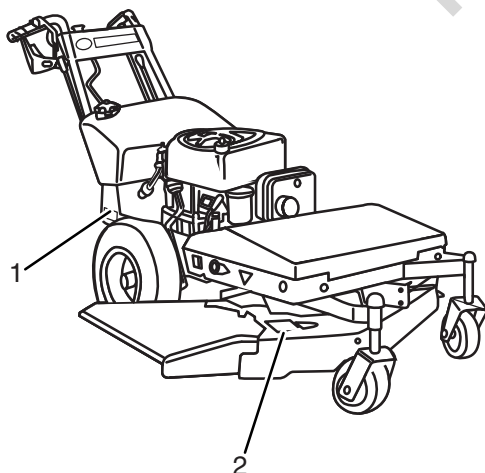
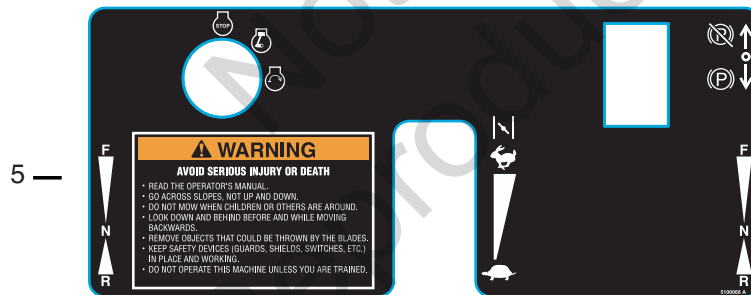
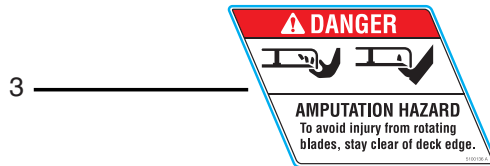
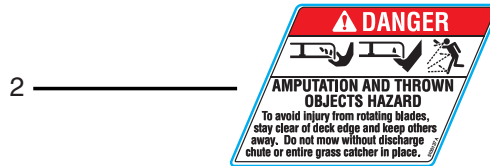
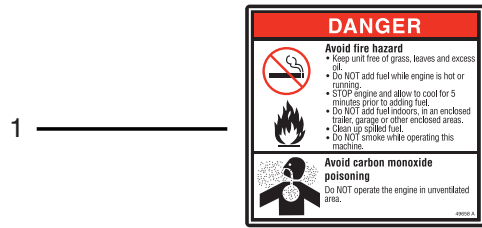
This unit has been designed and manufactured to provide you with the safety and reliability you would expect from an industry leader in outdoor power equipment manufacturing.

Although reading this manual and the safety instructions it contains will provide you with the necessary basic knowledge to operate this equipment safely and effectively, we have placed several safety labels on the unit to remind you of this important information while you are operating your unit.

All DANGER, WARNING, CAUTION and instructional messages on your rider and mower should be carefully read and obeyed. Personal bodily injury can result when these instructions are not followed. The information is for your safety and it is important! The safety decals below are on your rider and mower.

If any of these decals are lost or damaged, replace them at once. See your local dealer for replacements.

These labels are easily applied and will act as a constant visual reminder to you, and others who may use the equipment, to follow the safety instructions necessary for safe, effective operation.





Safety Interlock System

This unit is equipped with safety interlock switches. These safety systems are present for your safety, do not attempt to bypass safety switches, and never tamper with safety devices. Check their operation regularly.

Operational SAFETY Checks

Your unit is equipped with an operator presence switch safety system. Check the operator presence switch operation every fall and spring with the following tests.

Test 1 — Engine should NOT crank if:

- PTO switch is engaged.
- Parking brake is not engaged.

Test 2 — Engine SHOULD crank if:

- PTO switch is NOT engaged.
- Parking brake is engaged.

Test 3 — Engine should SHUT OFF if:

- Operator releases the engine kill / operator presence handles with the PTO engaged.
- Operator releases the engine kill / operator presence handles with the parking brake disengaged.

Test 4 — Blade Brake Check

Mower blades and mower drive belt should come to a complete stop within five (5) seconds after electric PTO switch is turned off (or operator rises off seat). If mower drive belt does not stop within five (5) seconds, see your dealer.

NOTE: Once the engine has stopped, PTO switch must be turned off, parking brake must be engaged, and the motion control handles must be locked in the NEUTRAL position after the operator returns to the seat in order to start the engine.

⚠ WARNING

If the unit does not pass a safety test, do NOT operate it. See your authorized dealer. Under no circumstance should you attempt to defeat the purpose of the safety interlock system.

Safety Icons

The alert symbol (⚠) is used to identify safety information about hazards that can result in personal injury. A signal word (DANGER, WARNING, or CAUTION) is used with the alert symbol to indicate the likelihood and the potential severity of the injury. In addition, a hazard icon may be used to represent the type of hazard. An explanation of hazard levels and icons are as follows:

⚠ DANGER

This indicates a hazard which, if not avoided, **will result in serious injury or death.**

⚠ WARNING

This indicates a hazard which, if not avoided, **could result in serious injury or death.**

⚠ CAUTION

This indicates a hazard which, if not avoided, **might result in serious injury or death.**

NOTICE

This message presented without the alert symbol indicates a situation where the unit or property could be damaged.

North American Safety Icons



Alert



Toxic Fumes



Read the Manual



Open Flame Hazard



Fire Hazard



Amputation - Rotating Parts



Amputation - Hand In Blade



Amputation - Foot In Blade



Thrown Objects



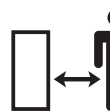
Hot Surface



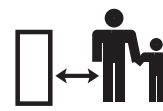
Wear Protective Gear



Pinch Point



Maintain a safe distance



Keep Children Away



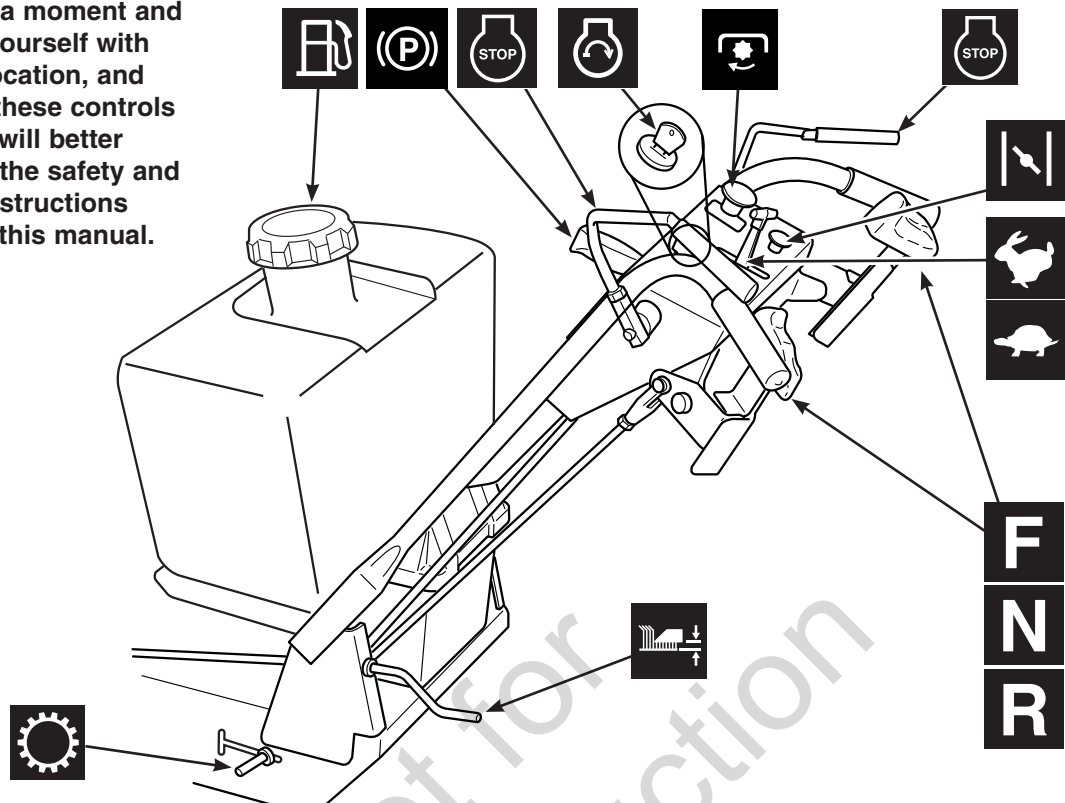
Kickback



Remove Key Before Servicing

Features & Controls

Please take a moment and familiarize yourself with the name, location, and function of these controls so that you will better understand the safety and operating instructions provided in this manual.



Control Functions

The information below briefly describes the function of individual controls. Starting, stopping, driving, and mowing require the combined use of several controls applied in specific sequences. To learn what combination and sequence of controls to use for various tasks see the OPERATION section.

Hydraulic Release Rod


The hydraulic release rod deactivates the transmission so that the unit can be pushed by hand. See *Pushing the Mower By Hand* for operation information.

Fuel Tank Cap

To remove the cap, turn counterclockwise.

Parking Brake




 DISENGAGE Releases the parking brake.

 ENGAGE Locks the parking brake.

Pull the parking brake lever back to engage the parking brake. Move the lever fully forward to disengage the parking brake. **NOTE:** To start the unit the parking brake must be engaged.

Ignition Switch

The ignition switch starts and stops the engine, it has three positions:

-  OFF Stops the engine and shuts off the electrical system.
-  RUN Allows the engine to run and powers the electrical system.
-  START Cranks the engine for starting

NOTE: Never leave the ignition switch in the RUN position with the engine stopped-this drains the battery.

PTO (Power Take Off) Switch

The PTO switch engages and disengages the mower. Pull UP on the switch to engage, and push DOWN to disengage.



Engine Kill / Operator Presence Handles

These handles are a major factor in the safety interlock system of the mower. Both handles are tied together so depressing one handle depresses both. The operator must depress the handles in order to deactivate the engine kill system. Handles must be depressed to disengage the parking brake and engage the PTO switch.



Choke

Close the choke for cold starting. Open the choke once the engine starts. A warm engine may not require choking. Pull the knob UP to close the choke. Push to knob DOWN to open the choke.



Cutting Height Adjustment Handle

The cutting height adjust handle controls the mower cutting height. To adjust the mower cutting height, turn the crank handle clockwise to raise the cutting height. Turn the crank handle counterclockwise to lower the cutting height. Observe the cutting height indicator on the left side of the mower deck.



Throttle Control

The throttle controls engine speed. Move the throttle forward to increase engine speed and back to decrease engine speed. Always operate at FULL throttle.



Ground Speed Control Handles Operator Presence

These handles control the ground speed of the mower. The left and right handles are tied together so you can operate either lever to control the mower's ground speed.

Moving a handle forward towards "F" increases the FORWARD speed of the mower. Moving a handle back towards "R" increases the REVERSE speed. Moving the handles to "N" neutral position stops mower travel.

NOTE: The further a handle is moved away from the neutral position the faster the mower will travel.

Operation

General Operating Safety

Before first time operation:

- Be sure to read all information in the Safety and Operation sections before attempting to operate this mower.
- Become familiar with all of the controls and how to stop the unit.
- Drive in an open area without mowing to become accustomed to the unit.

Checks Before Starting

- Check that crankcase is filled to full mark on the dipstick. See the engine Operator's Manual for instructions and oil recommendations.
- Make sure all nuts, bolts, screws and pins are in place and tight.
- Make sure fuel shut off valve is in the ON position.
- Fill the fuel tank with fresh fuel. Refer to engine manual for fuel recommendations.

⚠ WARNING



Read the Operator's Manual before attempting to operate the machine.

- If you do not understand how a specific control functions, or have not yet thoroughly read the FEATURES and CONTROLS section, do so now.
- Do NOT attempt to operate the mower without first becoming familiar with the location and function of ALL controls.

⚠ WARNING



- Before leaving the operator's position for any reason, engage the parking brake, disengage the PTO, stop the engine and remove the key.
- To reduce fire hazard, keep the engine and mower free of grass, leaves and excess grease. Do NOT stop or park rider over dry leaves, grass or combustible materials.
- Gasoline is highly flammable and must be handled with care. Never fill the tank when the engine is still hot from recent operation. Do NOT allow open flame, smoking or matches in the area. Avoid over-filling and wipe up any spills.

Starting the Engine

1. Make sure the PTO switch is disengaged and the parking brake is engaged.
2. **NOTE: A warm engine may not require choking.**
Set the engine throttle control to FAST throttle position. Then fully close the choke by pulling the knob OUT fully.
3. Insert the key into the ignition switch and turn it to START.
4. After the engine starts, gradually open the choke (push knob down fully). Reduce to half throttle speed and allow to warm up.

Warm up the engine by running it for at least a minute before engaging the PTO switch or driving the rider.

5. **After warming the engine, ALWAYS operate the unit at FULL THROTTLE when mowing.**

In the event of an emergency the engine can be stopped by simply turning the ignition switch to STOP. Use this method only in emergency situations. For normal engine shut down follow the procedure given in Stopping The Rider.

Driving the Mower

- Make sure the PTO switch is disengaged.
- Start the engine (see STARTING THE ENGINE).
- Set the throttle control to FULL.
- Push down on both engine kill / operator presence handles to deactivate engine kill system. Push the brake lever forward to disengage the parking brake.
- With your thumbs, pressing the ground speed control levers forward will move the mower forward. Pulling them back will move the mower backwards. The farther the levers are pushed or pulled will result in a faster ground speed.
- To slow the mower, gently release your thumb pressure on the ground speed control levers to return them to the neutral position.

While it is not recommended, traveling up and down slopes may be required from time to time. These guidelines are listed for your safety.

Traveling Up a Slope

Since the hill climbing ability of the machine will probably far exceed any other machine you may have operated, caution should be observed.

- Never make abrupt speed or directions changes on a slope.
- Never push down on the handle bars while going up a grade. A slight lifting pressure is recommended to keep the front wheels on the ground.

Traveling Down a Slope

A very slow ground speed should always be used when traveling down a slope. This can be accomplished by GENTLY moving the ground speed control levers towards the reverse direction.

Stopping the Mower

1. Returning the ground speed control levers to the neutral position will stop movement.
2. Disengage the PTO by pushing down on the PTO switch.
3. Engage the parking brake by pulling the handle up until it locks into position.
4. Move the throttle control to mid-throttle position and turn the ignition key to OFF. Remove the key.

⚠ WARNING

Operating on steep slopes can be dangerous.

- Select slow ground speed before driving onto a slope. Use extra caution when operating on slopes with a rear-mounted grass catcher.
- Mow across the face of slopes, not up and down, use caution when changing directions and **DO NOT START OR STOP ON A SLOPE.**

Cutting Height Adjustment - 32" Model

The cutting height can be adjusted within two different ranges. See Figure 1 for deck height indicator. Before adjusting the cutting height, you must first determine the average cutting height. Depending on the range you plan to use, it may be necessary to adjust the deck lift pivot locations and the pulley spacer positions. See Figures 1, 2 & 3 for pulley and pivot positions in relation to the cutting range.

To Adjust the Cutting Range:

1. Remove the mower deck drive belt. See Belt Removal & Replacement Section for proper procedure.
2. Remove the spindle nut (**B, Figure 2**) fastening the pulley to the spindle. Remove the pulley and key. Move the pulley spacers into the proper position in relation to the cutting range. Reinstall the pulley and key. Reinstall the nut and torque to 85-90 ft. lbs. (115-122 Nm).
3. Remove the pivot bolts and nuts (**A**) and reinstall at the proper position in relation to the cutting range. Reinstall the bolts and nuts and tighten securely.
4. Reinstall the mower deck drive belt. See Belt Removal & Replacement Section for proper procedure.

To Adjust the Cutting Height:

Turn the crank handle clockwise to raise the mower deck or counterclockwise to lower the mower deck. See Figure 4.

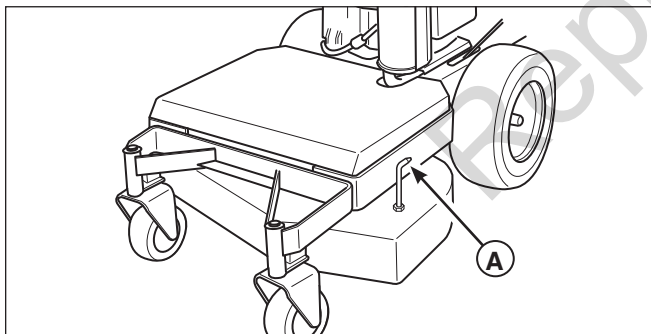


Figure 1. Deck Height Indicator
A. Height Indicator Pin

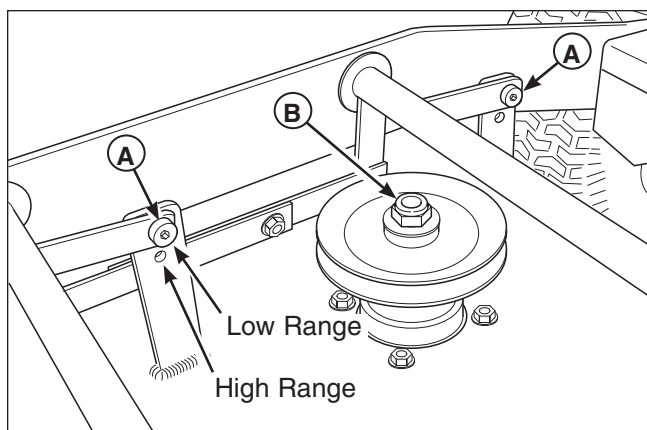


Figure 2. Pulley & Pivot Position
A. Pivot Bolts & Nuts
B. Spindle Nut

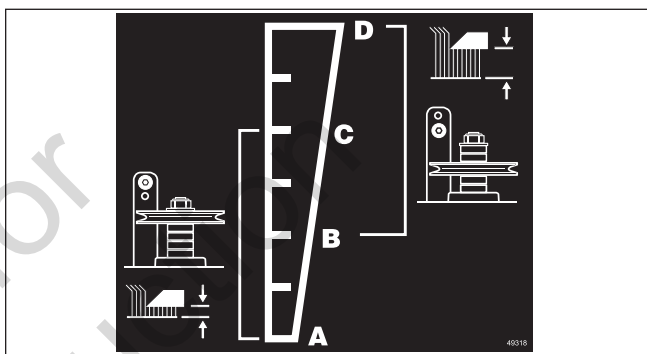


Figure 3. Deck Height, Pulley & Pivot Position

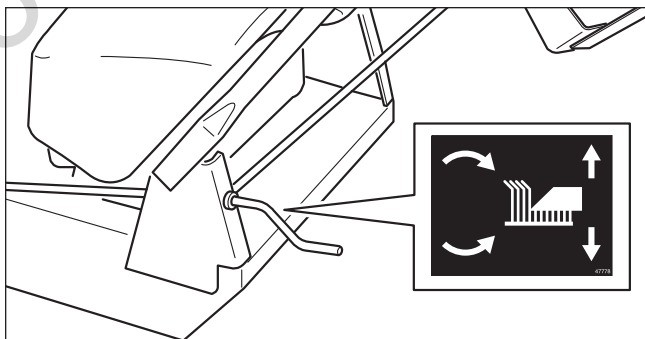


Figure 4. Cutting Height Adjustment

Mowing

Before mowing, set the cutting height as described in the *Troubleshooting, Adjustments & Service* section.

1. Engage the parking brake. Make sure the PTO switch is disengaged and the ground speed control levers are in the NEUTRAL position.
2. Start the engine (see *Starting the Engine*).
3. Set the throttle to FULL.
4. Push down on engine kill / operator presence handles to deactivate engine kill system. Push the brake lever forward to disengage the parking brake.
5. Begin mowing. See *Mowing Recommendations* section for tips on mowing patterns and lawn care. See *Troubleshooting* section for information on troubleshooting common cutting problems.
6. When finished, shut off the PTO.
7. Stop the engine (see *Stopping the Mower and Engine*).

Mowing Recommendations

Several factors can affect how well your machine cuts grass. Following proper mowing recommendations can improve the performance and life of your machine.

Height of Grass

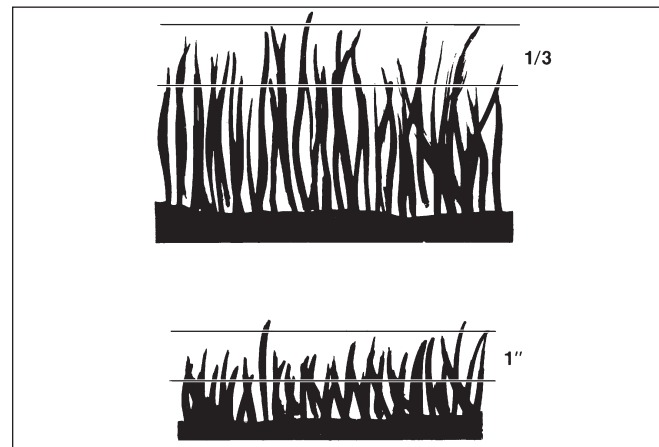
Often cutting height is a matter of personal preference. Typically, you should mow the grass when it is between three and five inches high. The proper cutting height range for a specific lawn will depend upon several factors, including the type of grass, the amount of rainfall, the prevailing temperature, and the lawn's overall condition.

Cutting the grass too short causes weak, thin grass plants, which are easily damaged by dry periods and pests. Cutting too short is often more damaging than allowing the grass to be slightly higher.

Letting grass grow a bit longer—especially when it is hot and dry—reduces heat build-up, preserves needed moisture and protects the grass from heat damage and other problems. However, allowing grass to grow too high can cause thin turf and additional problems.

Cutting off too much at one time shocks the plant's growth system and weakens the grass plants. **A good rule of thumb is the 1/3 rule: to cut no more than one third of the grass height, and never more than 1 inch at a time.**

The amount of grass you are able to cut in one pass is also effected by the type of mowing system you are using (for example, broadcasting with side discharge decks can process a much larger volume of grass than mulching does).

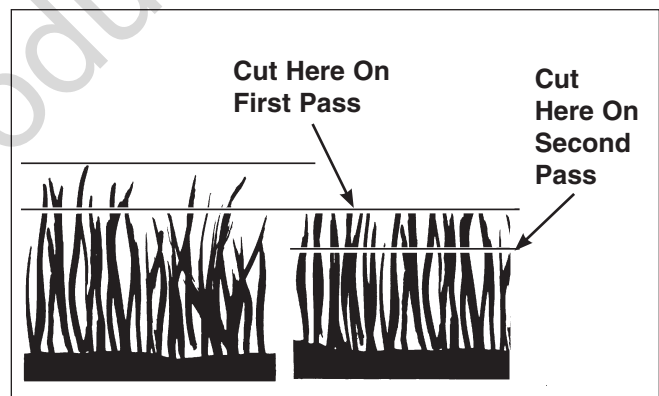


Proper Cutting Height

Tall Grass Requires Incremental Cutting

For extremely tall grass, set the cutting height at maximum for the first pass, and then reset it to the desired height and mow a second or third time.

Don't cover the grass surface with a heavy layer of clippings. Consider using a grass collection system and starting a compost pile.



Incremental Cutting

When and How Often to Mow

The time of day and condition of the grass greatly affect the results you'll get when mowing. For the best results, follow these guidelines:

1. Mow when the grass is between three and five inches high.
2. Mow with sharp blades. Short clippings of grass one inch or shorter decompose more quickly than longer blades. Sharp mower blades cut grass cleanly and efficiently, preventing frayed edges which harm the grass.
3. Mow at time of day when the grass is cool and dry. Late afternoon or early evening often provide these ideal mowing conditions.
4. Avoid mowing after rain or even heavy dew, and never mulch when the grass is wet (moist grass does not mulch well, and clumps beneath the mower deck).

Mowing Patterns

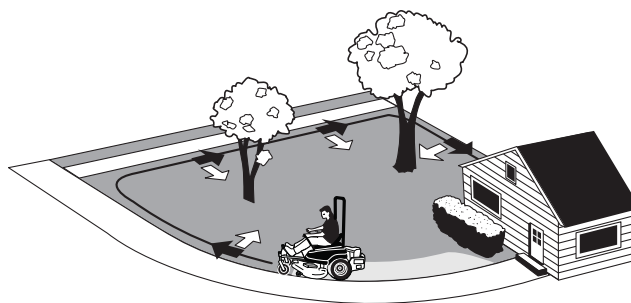
Always start mowing on a smooth, level area.

The size and type of area to be mowed will determine the best mowing pattern to use. Obstructions such as trees, fences and buildings, and conditions such as slopes and grades must also be considered.

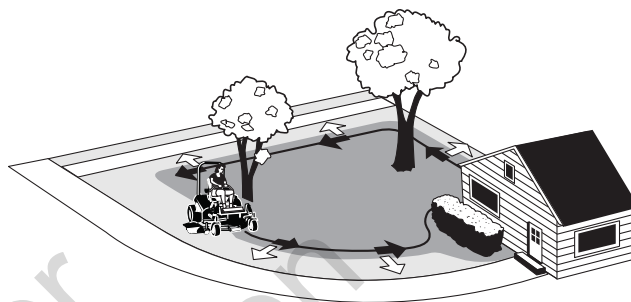
1. Cut long straight strips overlapping slightly.
2. Where possible, change patterns occasionally to eliminate matting, graining or a corrugated appearance.
3. For a truly professional cut, mow across the lawn in one direction, then recut the lawn by mowing perpendicular to the previous cut.

Note: Always operate the engine at full throttle when mowing.

If you hear the engine slowing down, you are mowing too fast—using a slower ground speed will improve the cutting efficiency of the blades and prevents many common cutting problems. Use an appropriate ground speed for the thickness and height of the grass you are cutting (3rd gear or slower for manual gear models). If you hear the engine slowing down you are mowing too fast, use a slower ground speed.



Where possible, make one or two passes around the outside of the area discharging the grass INTO the lawn to keep the cut grass off fences and walks.



The remainder of the mowing should be done in the opposite direction so that the clippings are dispersed OUT onto the area of lawn previously cut.

Mowing Methods

Proper Broadcast Mowing

Broadcasting, or side-discharging, disperses fine clippings evenly over the entire lawn. Many golf courses use this method. Your mower has a deep dish deck to allow freer circulation of clippings so they are broadcast evenly over the lawn.

Engine Speed & Ground Speed for Broadcasting

Always operate the engine at full throttle when mowing. If you hear the engine slowing down, you are mowing too fast—using a slower ground speed will improve the cutting efficiency of the blades and prevents many common cutting problems.

ALWAYS use an appropriate ground speed for the thickness and height of the grass you are cutting (3rd gear or slower for manual gear models). If you hear the engine slowing down you are mowing too fast, use a slower ground speed.

How Much Grass to Cut Off When Broadcasting

Mow when the grass is 3-5 inches long. Do not cut the grass shorter than 2 to 2-1/2 inches. Do not cut off more than 1 inch of grass in a single pass.

Proper Mulching

Mulching consists of a mower deck which cuts and recuts clippings into tiny particles and which then blows them down INTO the lawn. These tiny particles decompose rapidly into by-products your lawn can use. UNDER PROPER CONDITIONS, your mulching mower will virtually eliminate noticeable clippings on the lawn surface.

NOTE: When mulching under heavy cutting conditions, a rumbling sound may be present and is normal.

Mulching Requires EXCELLENT Mowing Conditions

Mulching mowers cannot function properly if the grass is wet, or if the grass is simply too high to cut. Even more than normal mowing, mulching requires that the grass be dry and the appropriate amount is cut.

Do not use the mower as a mulching mower during the first two or three mowings in the spring. The long grass blades, quick growth, and often wetter conditions are more suitable for broadcasting (side-discharging) or grass bagging operation.

Engine Speed & Ground Speed for Broadcasting

Use full engine throttle matched with a slow ground speed so that clippings will be finely cut. Ground speed while mulching should be HALF of the speed that would be used when broadcasting (side discharging) under similar conditions. Since mulching requires more horsepower than broadcasting, using a slower ground speed is vitally important for proper mulching operation.

How Much Grass to Mulch

The best mulching action typically results from cutting only the top 1/2 inch to 3/4 inch of grass blade. This provides short clippings which decompose properly (much more quickly than longer clippings). The ideal cutting height will vary with climate, time of year, and quality of your lawn. We recommend that you experiment with both the cutting height and ground speed until you achieve the best cut. Start with a high cutting height and using progressively lower settings until you find a cutting height that is matched to your mowing conditions and preferences.



Mulching Action

Pushing the Mower by Hand

NOTICE

- Towing the unit will cause hydraulic pump and wheel motor damage.
- Do NOT tow mower.
- Do NOT use another vehicle to push or pull this unit.

1. Disengage the PTO, turn the ignition OFF, and remove the key.
2. Slide the hydraulic release rod forward and lock into the top of the “T” slot. See Figure 5.
3. Push the parking brake lever fully forward to disengage the parking brake. The mower can now be pushed by hand.
4. After moving the mower, re-engage the transmission (DRIVE position) by releasing the rod from the “T” and sliding the release handle towards the rear of the machine.

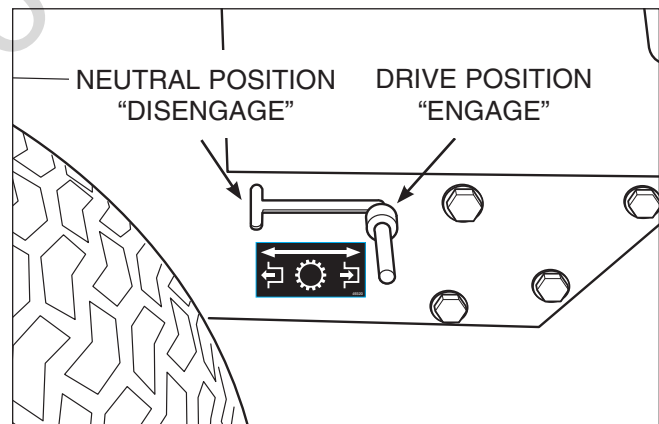




Figure 5. Hydraulic Release Rod

Storage

⚠ WARNING	
 	<p>Fuel and its vapors are extremely flammable and explosive.</p> <p>Fire or explosion can cause severe burns or death.</p>
<ul style="list-style-type: none">• Never store the unit, with gasoline in the engine or the fuel tank, in a heated shelter or in enclosed, poorly ventilated enclosures. Gasoline fumes may reach an open flame, spark or pilot light (such as a furnace, water heater, clothes dryer, etc.) and cause an explosion.• Handle gasoline carefully. It is highly flammable and careless use could result in serious fire damage to your person or property.• Drain fuel into an approved container outdoors away from open flame or sparks.	

Temporary Storage (30 Days Or Less)

Remember, the fuel tank will still contain some gasoline, so never store the unit indoors or in any other area where fuel vapor could travel to any ignition source. Fuel vapor is also toxic if inhaled, so never store the unit in any structure used for human or animal habitation.

Here is a checklist of things to do when storing your unit temporarily or in between uses:

- Keep the unit in an area away from where children may come into contact with it. If there's any chance of unauthorized use, remove the spark plug(s) and put in a safe place. Be sure the spark plug opening is protected from foreign objects with a suitable cover.
- If the unit can't be stored on a reasonable level surface, chock the wheels.
- Clean all grass and dirt from the mower.

Long Term Storage (Longer Than 30 Days)

Before you store your unit for the off-season, read the Maintenance and Storage instructions in the Safety Rules section, then perform the following steps:

- Drain crankcase oil while engine is hot and refill with a grade of oil that will be required when unit is used again.
- Prepare the mower deck for storage as follows:
 - a. Remove mower deck from the unit.
 - b. Clean underside of mower deck.
 - c. Coat all bare metal surfaces with paint or light coat of oil to prevent rusting.
- Clean external surfaces and engine.
- Prepare engine for storage. See engine owner's manual.
- Clean any dirt or grass from cylinder head cooling fins, engine housing and air cleaner element.
- Cover air cleaner and exhaust outlet tightly with plastic or other waterproof material to keep out moisture, dirt and insects.
- Completely grease and oil unit as outlined in the Normal Care section.
- Clean up unit and apply paint or rust preventative to any areas where paint is chipped or damaged.

Regular Maintenance

Maintenance Schedule

The following schedule should be followed for normal care of your rider and mower. You will need to keep a record of your operating time. Determining operating time is easily accomplished by observing the elapsed time recorded by the hour meter.

MOWER
Every 8 Hours or Daily
Check safety interlock system
Check mower blade stopping time
Check mower for loose hardware
Clean debris from engine compartment
Every 25 Hours or Annually*
Clean deck & check / replace mower blades**
Lubricate mower
Check tire pressure
Every 100 Hours or Annually*
Clean battery & cables
Check / Adjust PTO clutch

* Whichever comes first.

** More often in hot (over 85°F; 30° C) weather or dusty operating conditions.

ENGINE
Before Each Use
Check engine oil level
Every 25 Hours or Annually*
Check / Clean cooling fins & intake**
Every 50 Hours or Annually*
Inspect / Clean spark arrester***
Every 100 Hours or Annually**
Check Fuel Filter
Refer to Engine Owner's Manual
Service air filter
Change engine oil and filter
Check / Replace spark plugs

* Whichever comes first

** More often in hot (over 85°F; 30° C) weather or dusty operating conditions.

*** If equipped. Replace if damaged.

Check Tire Pressures

Tire pressure should be checked periodically, and maintained at the levels shown in the chart. Note that these pressures may differ slightly from the "Max Inflation" stamped on the side-wall of the tires. The pressures shown provide proper traction improve cut quality, and extend tire life.

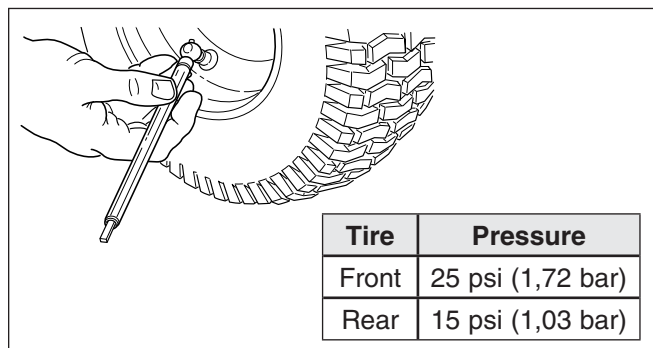


Figure 5. Checking Tire Pressure

Checking / Adding Fuel

To add fuel:

1. Stop the engine and allow to cool for at least 3 minutes.
2. Remove the fuel cap.
3. Fill the tank to the bottom of the filler neck. This will allow for fuel expansion.

NOTE: Do not overfill. Refer to your engine manual for specific fuel recommendations.

4. Install and hand tighten the fuel cap.

Fuel Filter

The fuel filter is located in the fuel line between fuel tank and carburetor, near the fuel pump. If filter is dirty or clogged, replace as follows:

1. Disconnect the negative battery cable.
2. Place a container below the filter to catch spilled fuel.
3. Using a pliers, open and slide hose clamps from fuel filter.
4. Remove hoses from filter.
5. Install new filter in proper flow direction in fuel line.
6. Secure with hose clamps.
7. Reconnect the negative battery cable when finished.

Change Oil & Filter

1. Warm engine by running for a few minutes. (Refer to the engine operator's manual for oil & filter replacement instructions.)
2. Park machine and place the rear tires on a 2 x 4 block of wood or park machine on a slight downhill grade.
3. Place a small pan under the oil drain hose to catch the oil. Using the appropriate tools, remove the cap (**B, Figure 6**) from the oil drain hose (**A**) and drain the engine oil.
4. After draining, replace the cap and wipe up any spilled oil.
5. Place an absorbent shop cloth under the engine oil filter. Remove the engine oil filter and replace with a new one.
6. Remove the shop cloth and wipe up any spilled oil.

Inspect Muffler and Spark Arrester

Inspect the muffler for cracks, corrosion, or other damage. Remove the spark arrester, if equipped, and inspect for damage or carbon blockage. If replacement parts are required, make sure to use only original equipment replacement parts.

⚠ WARNING



Fuel and its vapors are extremely flammable and explosive.

Fire or explosion can cause severe burns or death.

- Gasoline is highly flammable and must be handled with care. Never fill the tank when the engine is still hot from recent operation. Do NOT allow open flame, smoking or matches in the area. Avoid over-filling and wipe up any spills.
- Do NOT remove fuel filter when engine is hot, as spilled gasoline may ignite. Do NOT spread hose clamps further than necessary. Ensure clamps grip hoses firmly over filter after installation.

NOTICE

Do NOT use gasoline containing METHANOL, gasohol containing more than 10% ethanol, gasoline additives, premium gasoline, or white gas because engine/fuel system damage could result.

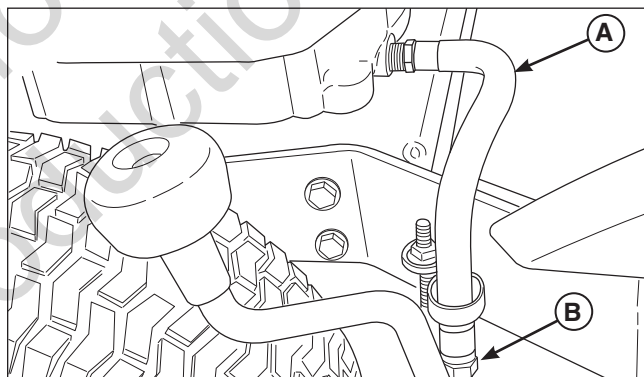


Figure 6. Engine Oil Drain

A. Oil Drain Hose

B. Cap

⚠ WARNING

Replacement parts must be the same and installed in the same position as the original parts or fire could result.

Lubrication

Lubricate the unit at the following lubrication points.

Grease:



- front caster wheel axles
- front caster wheel pivots
- ground speed control shaft pivots

Use grease fittings when present. Disassemble parts to apply grease to moving parts when grease fittings are not installed.

Not all greases are compatible. Use automotive-type lithium grease.

Oil:



- engine kill / operator presence handle pivots
- ground speed control lever pivots
- discharge chute pivots
- cutting height adjust handle pivots
- deck lift pivots

Generally, all moving metal parts should be oiled where contact is made with other parts. Keep oil and grease off belts and pulleys. Remember to wipe fittings and surfaces clean both before and after lubrication.


Battery Maintenance

NOTE: This unit is equipped with a maintenance-free battery. Only check the battery fluid of a standard battery.

1. Remove the rubber strap and battery box cover.
2. Remove the battery filler cap (**A, Figure 7**). Fluid must be even with the split ring full mark. If not, add distilled water.
3. Reinstall the filler cap.
4. Reinstall the battery box cover and rubber strap.

Cleaning the Battery and Cables

1. Disconnect the cables from the battery, negative cable first (**C**).
2. Remove the battery and clean the compartment with a solution of baking soda and water.
3. Clean the battery terminals and cable ends with a wire brush until shiny.
4. Reinstall the battery and reattach the battery cables, positive cable first (**B**).
5. Coat the cable ends and battery terminals with petroleum jelly or non-conducting grease.

⚠ WARNING	
	Keep open flames and sparks away from the battery.
<ul style="list-style-type: none"> • Be careful when handling the battery. Avoid spilling electrolyte. Keep flames and sparks away from the battery. • When removing or installing battery cables, disconnect the negative cable FIRST and reconnect it LAST. If not done in this order, the positive terminal can be shorted to the frame by a tool. 	

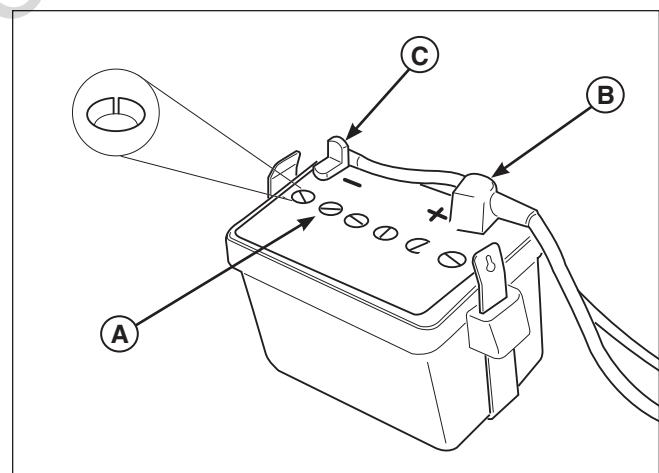



Figure 7. Battery Compartment

- A. Vent Cap(s)
- B. Positive (+) Terminal & Cable
- C. Negative (-) Terminal & Cable

Servicing the Mower Blades

Removing the Mower Blade

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

1. Wedge the wooden block between the mower blade and the mower deck housing to keep the mower blade from turning.
2. To remove the mower blade, use the appropriate tools to remove the mower blade mount bolt (Figure 8).

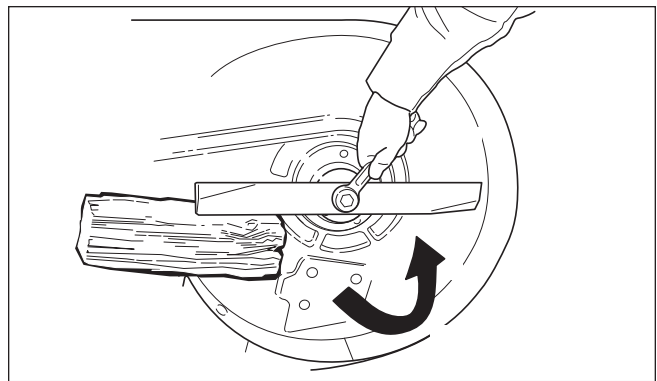



Figure 8. Loosening the Mower Blade for Removal

Inspecting the Mower Blade

⚠ WARNING	
	Avoid injury! A worn or damaged blade can break, and a piece of the mower blade could be thrown into the operator's or bystander's area, resulting in serious personal injury or death.
<ul style="list-style-type: none"> • Inspect the mower blade every 25 hours or at least once a year. • If the mower blade hits a solid object, stop the engine immediately and inspect the mower blades. • Never weld or straighten bent mower blades. 	

1. Inspect the mower blade (Figures 9 & 10). Discard a mower blade with any of these conditions:
 - 1.) Has more than .5" (12,7 mm) of the mower blade metal removed from previous sharpening or wear (D, Figure 9).
 - 2.) The air lifts are excessively eroded (B & C, Figure 10) and the notch (C) is .25" (6,35 mm) deep or greater.
 - 3.) Mower blade is bent or broken.
2. If the cutting edges are not sharp or have nicks, sharpen the blades.

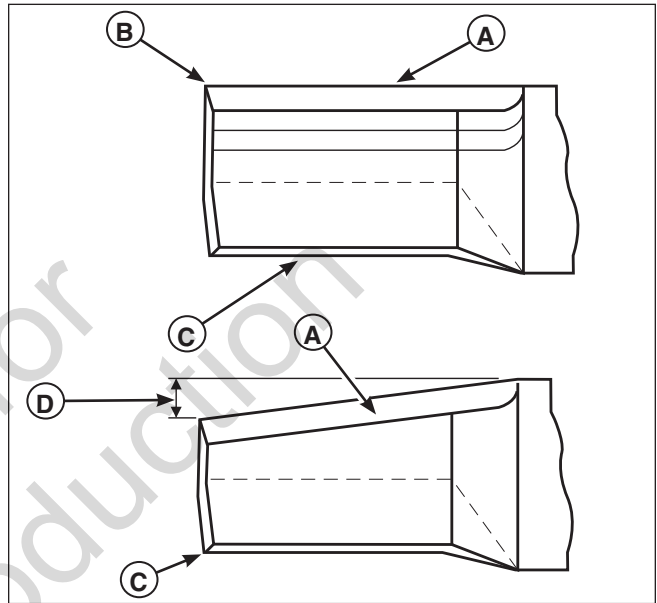


Figure 9. Inspecting the Mower Blade Tips

- A. Mower Blade Cutting Edge
- B. Square Corner
- C. Air Lift
- D. Wear Measurement **DISCARD** Mower Blade If greater than .5" (12,7 mm)

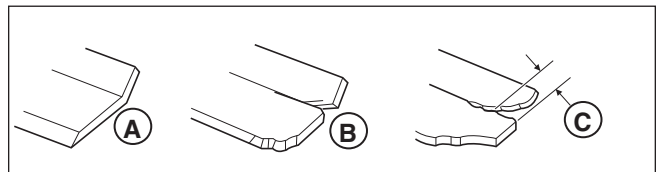



Figure 10. Inspecting the Mower Blade Air Lifts


- A. New Mower Blade
- B. Mower Blade at Wear Limit (A notch begins to form)
- C. Mower Blade in Dangerous Condition (Notch measures .25" (6,35 mm) or greater **DO NOT USE**. Replace with new blade.)

Sharpening the Mower Blade

⚠ WARNING	
	Avoid injury! Mower blades are sharp.
<ul style="list-style-type: none"> • Always wear gloves when handling mower blades or working near blades. • Always wear safety eye protection when grinding. 	

1. Sharpen the mower blade with grinder, hand file or electric blade sharpener.
2. Sharpen the mower blade by removing an equal amount of material from each end of the mower blade.
3. Keep the original bevel (**A, Figure 11**) when grinding. **Do not** change the mower blade bevel.
4. The mower blade should have a maximum 1/64" (0,40 mm) cutting edge (**B**) or less.
5. Balance the mower blades before installing.

Balancing the Mower Blades

⚠ WARNING	
	Avoid injury! Keep mower blades balanced.
An unbalanced mower blade can create excessive vibration and damage the unit or cause mower blade failure.	

1. Clean the mower blade to remove any dried grass or other debris.
2. See Figure 12. Put the mower blade on a nail in a vise and turn the mower blade to the horizontal position.
3. Check the balance of the mower blade. If either end of the mower blade moves downward, sharpen the heavy end until the mower blade is balanced.
4. Repeat the process until the mower blade remains in the horizontal position.

Reinstalling the Mower Blades.

1. Wedge a wooden block between the mower blade and the mower deck housing to keep the mower blade from turning.
2. Reinstall each mower blade with the air lifts pointing up towards the mower deck as shown in Figure 13. Secure with the mower blade mounting bolt and flat washer (**A & B, Figure 13**) and torque to 70 ft. lbs (94 Nm).

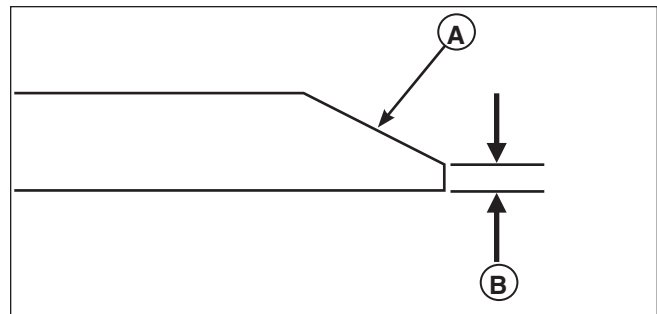


Figure 11. Sharpening the Mower Blade
A. Mower Blade Bevel
B. Mower Blade Cutting Edge

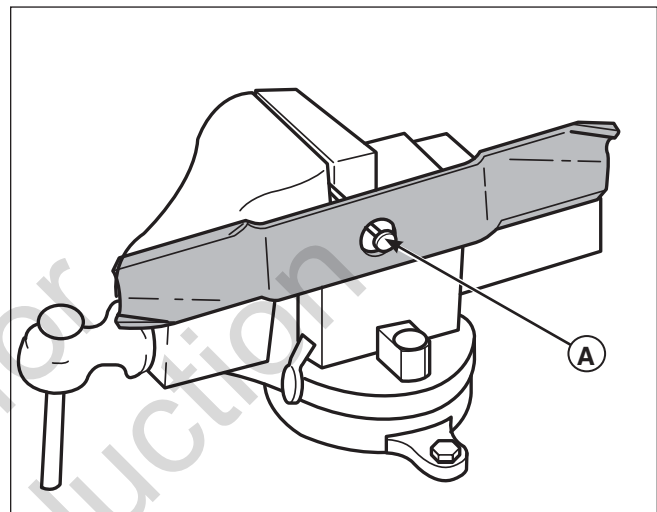


Figure 12. Balancing the Mower Blade
A. Nail

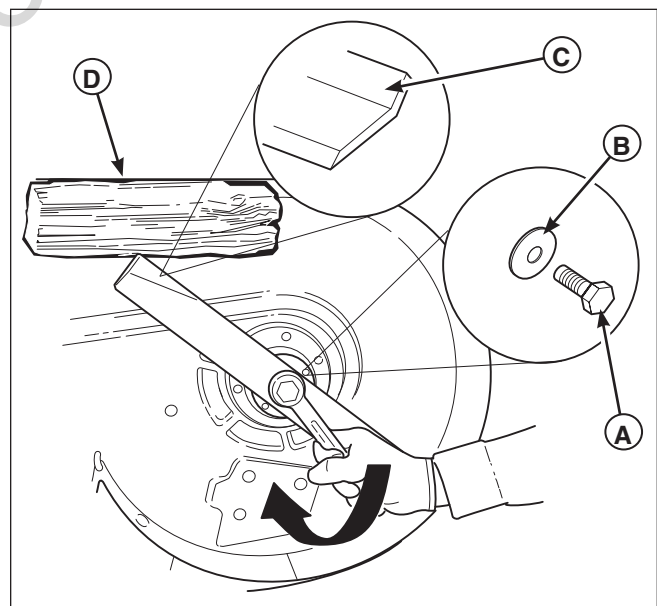


Figure 13 Tightening the Mower Blade for Installation
A. Mower Blade Mounting Bolt
B. Flat Washer
C. Mower Blade Air Lift (Points Up For Installation)
D. 4 X 4 Wooden Block

Deck Leveling Adjustment

To Level the Mower Deck:

1. Park machine on a flat, level surface.
2. Raise the mower deck until it reaches the upper stop.

Procedure if mower deck is in the HIGH RANGE:

3. Place 2 x 4 blocks under the outside edges of the mower deck with the 3-1/2" sides being vertical. Place a 1/8" (3 mm) thick spacer on top of the rear 2 x 4 blocks. (See Figure 14)
4. Lower the mower deck until the deck rests against the 2 x 4 blocks and spacers.
5. Loosen the bolts (A, Figure 15) that secure the connecting links (B) together. This will remove any tension from the mounting linkages and pivots.
6. Retighten the bolts securely.
7. Verify that the deck height indicator (C) is aligned with the 4" mark. Adjust the indicator position if necessary.
8. Remove the blocks from under the mower deck.

Procedure if the mower deck is in the LOW RANGE:

3. Place 2 x 4 blocks under the outside edges of the mower deck with the 1-1/2" sides being vertical. Place a 1/8" (3 mm) thick spacer on top of the rear 2 x 4 blocks. (See Figure 14).
4. Lower the mower deck until the deck rests against the 2 x 4 blocks and spacers.
5. Loosen the bolts (A, Figure 15) that secure the connecting links (B) together. This will remove any tension from the mounting linkages and pivots.
6. Retighten the bolts securely.
7. Verify that the deck height indicator (C) is aligned with the 2" mark. Adjust the indicator position if necessary.
8. Remove the blocks from under the mower deck.

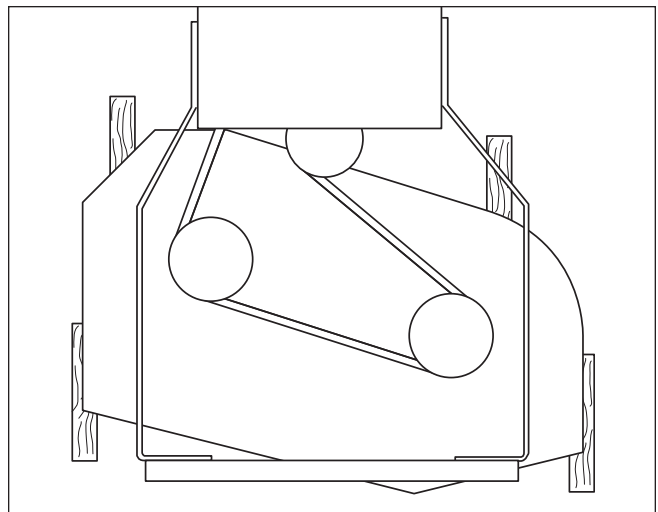


Figure 14. 2 x 4 Placement

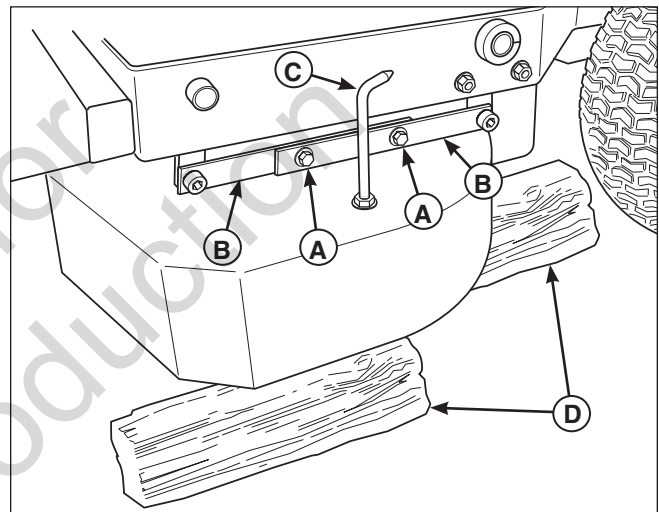


Figure 15. Deck Leveling Linkages

- A. Linkage Bolts
- B. Connecting Links
- C. Deck Height Indicator
- D. 2 x 4 Blocks

Mower Belt Replacement

NOTICE

To avoid damaging belts, do NOT pry belts over pulleys.

1. Park machine on a flat, level surface.
2. Remove the mower deck shield.
3. Push the idler arm towards the left-hand side of the machine (non-discharge side) to release the spring tension on the drive belt. (See Figure 16)
4. Slide the drive belt over the edge of the idler pulley (A). Release the idler arm.
5. Remove the old belt and replace with a new one. Make sure the V-side of the belt runs in the pulley grooves.
6. Install the drive belt on the spindle pulleys and the PTO clutch pulley. Again, push the idler arm towards the left-hand side of the machine and install the belt onto the idler pulley (A).
7. Run the mower under no-load condition for about 5 minutes to break in the belt.

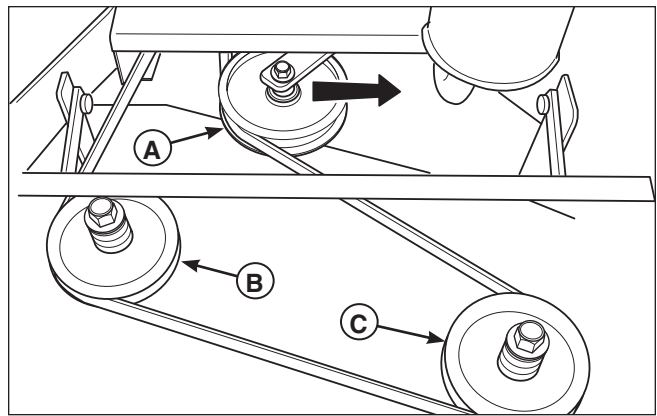


Figure 16. Mower Deck Drive Belt (32" Model)

A. Idler Pulley

B. Right-Hand Spindle Pulley

C. Left-Hand Spindle Pulley

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Transaxle Drive Belt Replacement

1. Park machine on a flat, level surface.
2. Remove the rear shield.
3. Remove the mower deck drive belt from the PTO clutch. See instructions above.

⚠ WARNING



Spring loaded components can kick back causing injury.

Use extreme caution when removing the spring, due to the increased tension in the spring during removal. Injury may result if the spring is prematurely released.

4. Insert a spring hook through the opening in the right-hand side of the engine deck. Use the coat hanger to remove the spring (**A, Figure 17**) from the anchor pin (**C**).
5. Remove the belt from the idler pulley. Then remove the belt from the transaxle drive pulley and pull towards front of machine. Remove the belt from the drive pulley on the engine and drop belt around the PTO clutch to completely remove from machine.
6. Replace the old belt with a new belt. Install the new belt around the PTO clutch and onto the drive pulley on the engine. Reinstall belt onto the transaxle drive pulley and then onto the idler pulley. Make sure the V-side of the belt runs in the pulley grooves.
7. Using the spring hook, reinstall the spring onto the anchor pin.
8. Reinstall the rear shield.

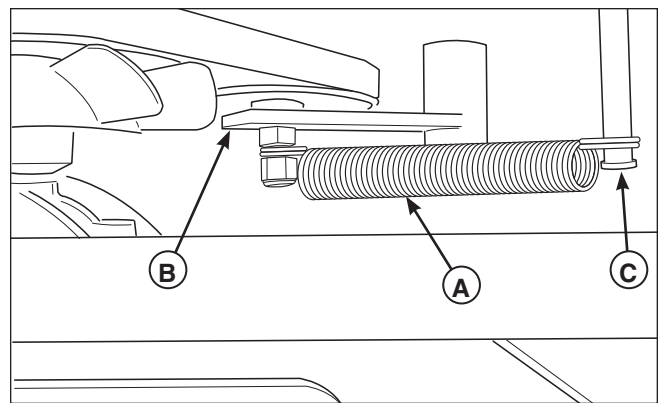


Figure 17. Transaxle Drive Belt

- A. Spring
- B. Drive Idler Arm
- C. Anchor Pin

Ground Speed Control Lever Location Adjustment

The control levers can be adjusted in two ways to provide a comfortable working range when operating the machine at the average mowing speed. Adjust both the lever height and lever position at the same time to obtain the most comfortable working position

Adjusting the Lever Height:

1. Loosen the lever fastener (B, **Figure 18**) to adjust the lever height. Make sure the levers are parallel with the handle bars in both forward and reverse without contacting the handle bars.

Adjusting the Lever Position:

1. Remove the hairpin and clevis pin (D) that fasten the control rod (E) to the lever pivot (C).
2. Loosen the jam nut (F) and adjust the position of the clevis on the rod. By shortening the rod (turning the clevis clockwise), it will move the lever forward. By lengthening the rod (turning the clevis counter-clockwise), it will move the lever rearward. Adjust until the desired lever position is obtained and tighten the jam nuts.
3. Reinstall the clevis on the lever pivot and secure with the clevis pin and hairpin (D).

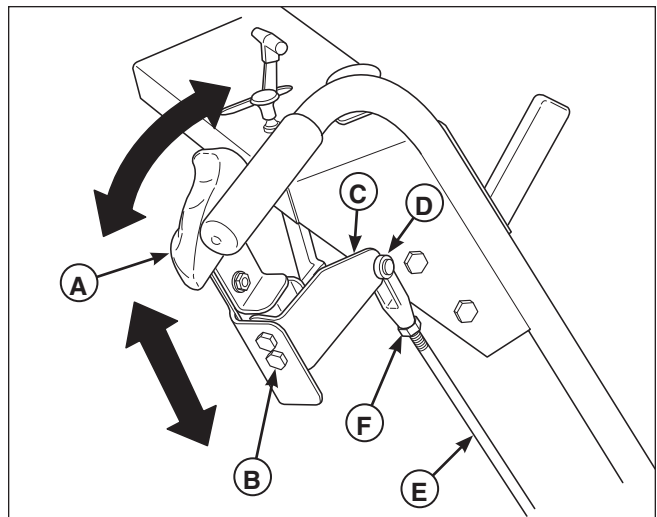


Figure 18. Ground Speed Control Lever Adjustment

- A. Control Lever
- B. Lever Fastener
- C. Lever Pivot
- D. Clevis Pin & Hairpin
- E. Control Rod
- F. Jam Nut

Battery Charging

A dead battery or one too weak to start the engine may be the result of a defect in the charging system or other electrical component. If there is any doubt about the cause of the problem, see your dealer. If you need to replace the battery, follow the steps under Cleaning the Battery & Cables in the Regular Maintenance Section.

To charge the battery, follow the instructions provided by the battery charger manufacturer as well as all warnings included in the safety rules sections of this book. Charge the battery until fully charged (until the specific gravity of the electrolyte is 1.250 or higher and the electrolyte temperature is at least 60° F). Do not charge at a rate higher than 10 amps

⚠ WARNING



Keep open flames and sparks away from the battery.

- Be careful when handling the battery. Avoid spilling electrolyte. Keep flames and sparks away from the battery.
- When removing or installing battery cables, disconnect the negative cable FIRST and reconnect it LAST. If not done in this order, the positive terminal can be shorted to the frame by a tool.

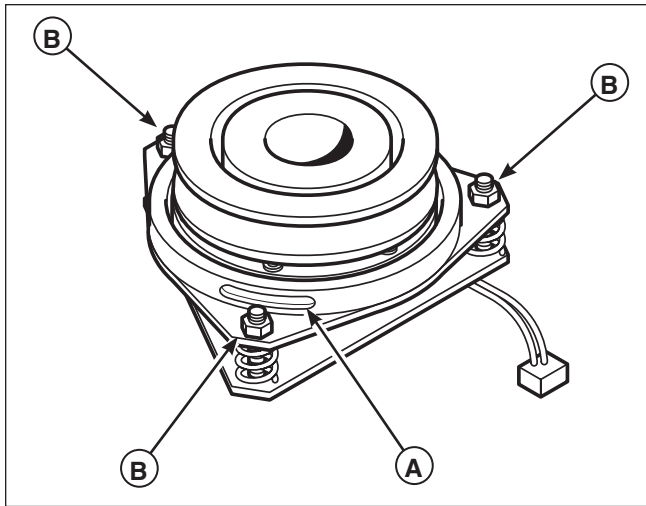


Figure 19. PTO Clutch Adjustment
 A. Adjustment Window (Qty. 3 one shown)
 B. Adjustment Nut

PTO Clutch Adjustment

When to check the PTO clutch adjustment:

- After every 100 hours of operation
- If the PTO clutch is slipping
- If the PTO clutch will NOT engage
- If a new PTO clutch is installed.

Adjusting the PTO Clutch

1. Remove the key from the ignition switch and disconnect the spark plug wires to prevent the possibility of accidental starting while the PTO is being adjusted.
2. See Figure 19. Note the position of the three (3) adjustment windows (**A, Figure 19**) in the side of the brake plate and the nylock adjustment nuts (**B**).
3. Insert a .016" - .018" (0,40 - 0,45 mm) feeler gauge (**C, Figure 20**) through each window, positioning the gauge between the rotor face and the armature face as shown in Figure 20.
4. Alternatively tighten the adjustment nuts (**B, Figure 19**) until the rotor face and armature face just contacts the gauge.
5. Check the windows for an equal amount of tension when the gauge is inserted and removed, and make any necessary adjustments by tightening or loosening the adjustment nuts.

NOTE: The actual air gap between the rotor and armature may vary even after performing the adjustment procedure. This is due to dimensional variations on component parts, and is an acceptable condition.

6. Check the mower blade stopping time. The mower blades and mower drive belt should come to a complete stop within seven (7) seconds after the electric PTO switch is turned off.

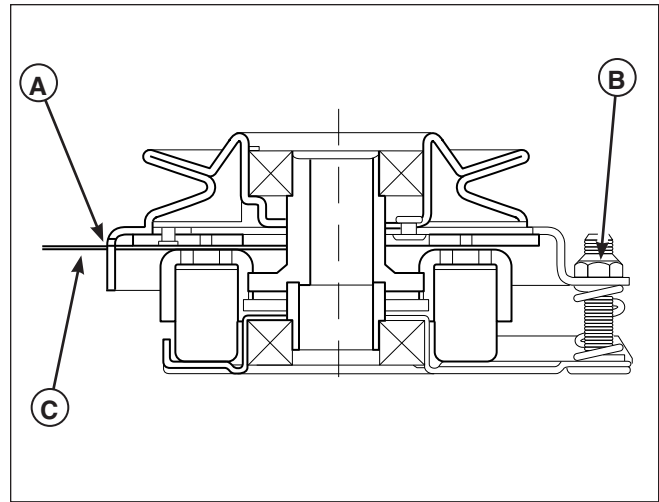


Figure 20. Adjust PTO Clutch
 A. Window
 B. Adjustment Nut
 C. .016" - .018" (0,40 - 0,45 mm) Feeler Gauge

⚠ WARNING



Remove the ignition key prior to performing adjustments on the unit.

- To avoid serious injury, perform adjustments on the machine only when the engine is stopped and the parking brake is engaged.
- Always remove the ignition key, disconnect the spark plug wire and fasten it away from the spark plug before performing adjustments on the machine, to prevent accidental starting of the engine.

Blade Brake Check

Mower blades and mower deck drive belt should come to a complete stop within seven (7) seconds after electric PTO switch is turned off.


1. With the parking brake engaged, the PTO disengaged and an operator sitting in the seat, start the engine.
2. Have an assistant observe the mower drive belt through the open end of the left hand spindle cover. Engage the PTO and wait several seconds. Disengage the PTO and check the amount of time it takes for the mower drive belt to stop.
3. If the mower drive belt does not stop within seven (7) seconds, perform the PTO Clutch Adjustment. If the belt still does not stop within seven (7) seconds, see your dealer.

Troubleshooting

While normal care and regular maintenance will extend the life of your equipment, prolonged or constant use may eventually require that service be performed to allow it to continue operating properly.

The troubleshooting guide below lists the most common problems, their causes and remedies.

See the information on the following pages for instructions on how to perform most of these minor adjustments and service repairs yourself. If you prefer, all of these procedures can be performed for you by your local authorized dealer.

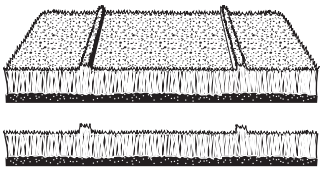
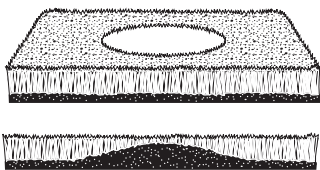
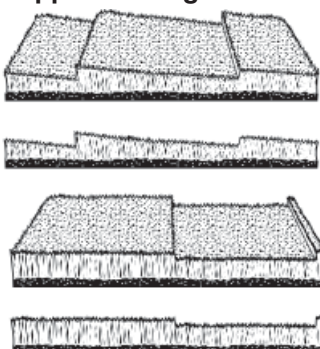
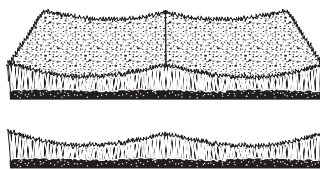
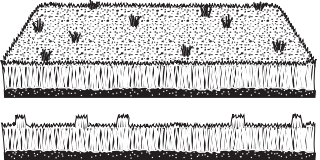
⚠ WARNING	
	Remove the ignition key prior to performing maintenance on the unit.
<ul style="list-style-type: none"> • To avoid serious injury, perform maintenance on the machine only when the engine is stopped and the parking brake is engaged. • Always remove the ignition key, disconnect the spark plug wire and fasten it away from the spark plug before beginning the maintenance, to prevent accidental starting of the engine. 	

Troubleshooting the Rider		
Problem	Cause	Remedy
Engine will not turnover or start	Parking brake not engaged.	Engage parking brake.
	PTO (electric clutch) switch in ON position.	Place in OFF position.
	Out of fuel.	If engine is hot, allow to cool, then refill the fuel tank.
	Engine flooded.	Move choke control to CLOSED position.
	Fuse blown.	Replace fuse.
	Battery terminals require cleaning.	Clean the battery terminals.
	Battery discharged or dead.	Recharge or replace.
	Wire loose or broken.	Visually check wiring & replace broken or frayed wires. Tighten loose connections.
	Solenoid or starter motor faulty.	Repair or replace. See dealer.
	Safety interlock switch faulty.	Replace as needed. See dealer.
	Spark plug(s) faulty, fouled, or incorrectly gapped.	Clean and gap or replace. See engine manual.
	Water in fuel.	Drain fuel & replace with fresh fuel.
	Gas is old or stale.	Drain fuel & replace with fresh fuel.
Engine starts hard or runs poorly	Fuel mixture too rich.	Clean air filter. Check choke adjustment.
	Spark plug(s) faulty, fouled, or incorrectly gapped.	Clean and gap or replace. See engine manual.
Engine knocks	Low oil level.	Check/Add oil as required.
	Using wrong grade engine oil.	See engine manual.
Excessive oil consumption	Engine running too hot.	Clean engine fins, blower screen and air cleaner.
	Using wrong weight oil.	See engine manual.
	Too much oil in crankcase.	Drain excess oil.
Engine exhaust is black	Dirty air filter.	Replace air filter. See engine manual.
	Engine choke control is in CLOSED position.	Open choke control.

TROUBLESHOOTING

Troubleshooting the Rider continued		
Problem	Cause	Remedy
Engine runs, but mower will not drive	Hydraulic release rod in “neutral” position.	Move hydraulic release rod to the “drive” position.
	Belt is broken.	See Drive Belt Replacement.
	Drive belt slips.	See problem and cause below.
	Brake is not fully released.	See dealer.
Rider drive belt slips	Pulley or belt greasy or oily.	Clean as required.
	Tension too loose.	Adjust spring tension. See Drive Belt Replacement.
	Belt stretched or worn.	Replace belt.
Brake will not hold	Brake is incorrectly adjusted.	See Brake Adjustment.
	Brake pads worn.	Replace with new brake pads.
Mower drives or handles poorly	Loose control linkages.	Check and tighten any loose connections.
	Improper tire inflation	See Check Tire Pressures

Troubleshooting the Mower Deck		
Problem	Cause	Remedy
Mower will not raise.	Lift linkage not properly attached or damaged.	See dealer.
Engine stalls easily with mower engaged.	Engine speed too slow.	Set to full throttle.
	Ground speed too fast.	Decrease ground speed.
	Cutting height set too low.	Cut tall grass at maximum cutting height during first pass.
	Discharge chute jamming with cut grass.	Cut grass with discharge pointing towards previously cut grass.
Excessive mower vibration.	Blade mounting bolts are loose.	Tighten to 70 ft.lbs. (94 Nm).
	Mower blades, arbors or pulleys are bent.	Check and replace as necessary.
	Mower blades are out of balance.	Remove, sharpen and balance blades. See Maintenance section.
	Belt installed incorrectly.	Reinstall correctly.
Excessive belt wear or breakage.	Bent or rough pulleys.	Repair or replace.
	Using incorrect belt.	Replace with correct belt.
Mower drive belt slips or fails to drive.	Idler pulley spring broken or not properly attached.	Repair or replace as needed.
	Mower drive belt broken.	Replace drive belt.
Mower does not engage.	Electrical wiring damage.	Locate and repair damaged wire.
	Battery voltage too low.	Recharge battery and check alternator. See Battery Maintenance section.
	PTO clutch not adjusted.	See PTO Clutch Adjustment section.

Troubleshooting Common Cutting Problems		
Problem	Cause	Remedy
Streaking 	Blades are not sharp.	Sharpen your blades.
	Blades are worn down too far.	Replace your blades.
	Engine speed is too slow.	Always mow at FULL throttle.
	Ground speed is too fast.	Slow down.
	Deck is plugged with grass.	Clean out the mower.
	Not overlapping cutting rows enough.	Overlap your cutting rows.
	Not overlapping enough when turning.	When turning your cutting width decreases—overlap mower when turning.
Scalping 	Lawn is uneven or bumpy.	Roll or level the lawn.
	Mower deck cutting height is set too low.	Raise the cutting height.
	Ground speed is too fast.	Slow down.
	Deck is not levelled correctly.	Correctly level the deck.
	Tire pressure is low or uneven.	Check and inflate the tires.
Stepped Cutting 	Deck is not levelled correctly.	Level the deck correctly.
	Tires are not properly inflated.	Check and inflate the tires.
	Blades are damaged.	Replace the blades.
	Deck shell is damaged.	Repair or replace the deck.
	Mower spindle is bent or loose.	Repair or replace the spindle.
	Blades are installed correctly.	Reinstall the blades correctly.
Uneven Cutting 	Deck is not levelled correctly.	Level the deck correctly.
	Blades are dull or worn.	Sharpen or replace the blades.
	Blades are damaged.	Replace the blades.
	Deck is clogged with grass clippings.	Clean out the deck.
	Deck shell is damaged.	Repair or replace the deck.
	Mower spindle is bent or loose.	Repair or replace the spindle.
	Blades are installed incorrectly.	Reinstall the blades correctly.
	Tires are not properly inflated.	Check and inflate the tires.
Stingers 	Blades are not sharp or nicked.	Sharpen your blades.
	Blades are worn down too far.	Replace your blades.
	Engine speed is too low.	Always mow at full throttle.
	Ground speed is too fast.	Slow down.
	Deck is plugged with grass.	Clean out the mower.

SPECIFICATIONS

Specifications

NOTE: Specifications are correct at the time of printing and are subject to change without notice.

ENGINE:

17.5 HP Briggs & Stratton Electric Start*

Make	Briggs & Stratton
Model	ELS
Horsepower	17.5 @ 3400 rpm
Displacement	30.63 Cu. in (502 cc)
Electrical System	9 AMP regulated alternator
Oil Capacity	1.5 Q (1.4 L)

CHASSIS:

Fuel Tank	Capacity: 4 gallons (15.1 L)
Rear Wheels	Tire Size: 16 x 6.50 - 8 Inflation Pressure: 15 psi (1,03 bar)
Front Wheels	Tire Size: 9 x 3.5 - 4 Inflation Pressure: 25 psi (1,72 bar)

TRANSMISSIONS:

Hydro-Gear 334

Type	Unitized Drive Transaxle
Hydraulic Fluid	Maintenance Free
Speeds	Forward: 0-4.25 MPH (0-6.84 km/h)
@ 3400 rpm	Reverse: 0-4 MPH (0-6.4 km/h)
Continuous Torque Output	160 ft. lbs. (217 N.m.)
Maximum Weight on Axle	620 lbs. (281 Kg)

DIMENSIONS:

Overall Length	74" (188 cm)
Overall Width	32" (82 cm)
Height	41" (104 cm)
Weight (apx.)	330 lbs. (150 kg)

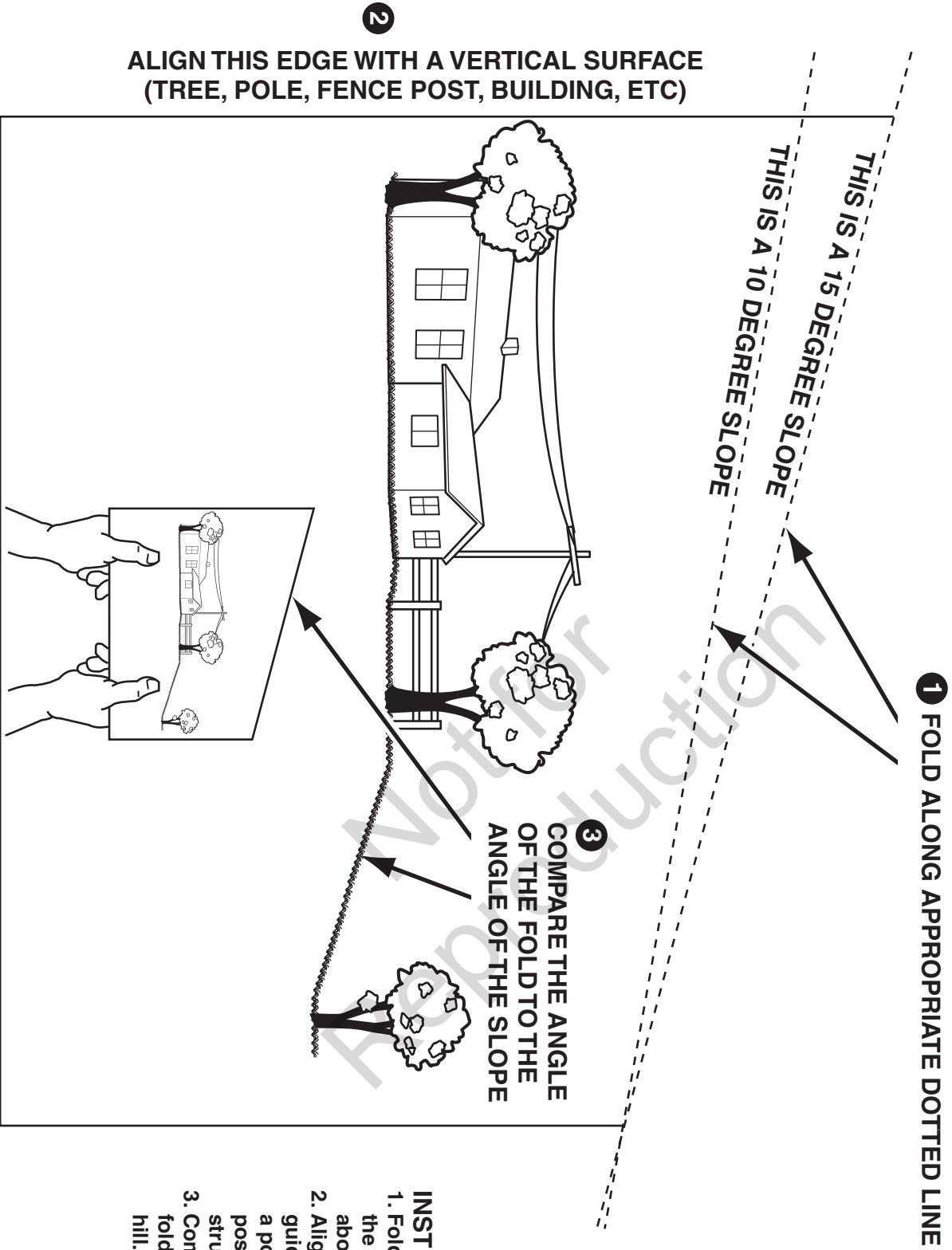
*Power Rating

The gross power rating for individual gas engine models is labeled in accordance with SAE (Society of Automotive Engineers) code J1940 (Small Engine Power & Torque Rating Procedure), and rating performance has been obtained and corrected in accordance with SAE J1995 (Revision 2002-05). Torque values are derived at 3060 RPM; horsepower values are derived at 3600 RPM. Net power values are taken with exhaust and air cleaner installed whereas gross power values are collected without these attachments. Actual gross engine power will be higher than net engine power and is affected by, among other things, ambient operating conditions and engine-to-engine variability. Given the wide array of products on which engines are placed, the gas engine may not develop the rated gross power when used in a given piece of power equipment. This difference is due to a variety of factors including, but not limited to, the variety of engine components (air cleaner, exhaust, charging, cooling, carburetor, fuel pump, etc.), application limitations, ambient operating conditions (temperature, humidity, altitude), and engine-to-engine variability. Due to manufacturing and capacity limitations, Briggs & Stratton may substitute an engine of higher rated power for this Series engine.

PARTS AND ACCESSORIES

Parts and Accessories

See an authorized dealer.



INSTRUCTIONS

1. Fold this page along the dotted line indicated above.
2. Align the left edge of this guide with a vertical tree, a power line pole, a fence post, or any vertical structure.
3. Compare the angle of the fold with the angle of the hill.

LIMITED WARRANTY

Briggs & Stratton Power Products Group, LLC will repair and/or replace, free of charge, any part(s) of the equipment that is defective in material or workmanship or both. Briggs & Stratton Corporation will repair and/or replace, free of charge, any part(s) of the Briggs and Stratton engine* (if equipped) that is defective in material or workmanship or both. Transportation charges on product submitted for repair or replacement under this warranty must be borne by purchaser. This warranty is effective for the time periods and subject to the conditions stated below. For warranty service, find the nearest Authorized Service Dealer using our dealer locator at www.SimplicityMfg.com.

There is no other express warranty. Implied warranties, including those of merchantability and fitness for a particular purpose, are limited to one year from purchase or to the extent permitted by law. Liability for incidental or consequential damages are excluded to the extent exclusion is permitted by law.

Some states or countries do not allow limitations on how long an implied warranty lasts, and some states or countries do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation and exclusion 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 or country to country.

WARRANTY PERIOD

<u>Item</u>	<u>Consumer Use</u>	<u>Commercial Use:</u>
Equipment	2 Years	1 Year
Engine*	2 Years	1 Year

The warranty period begins on the date of purchase by the first retail consumer or commercial end user, and continues for the period of time stated above. "Consumer use" means personal residential household use by a retail consumer. "Commercial use" means all other uses, including use for commercial, income producing or rental purposes. Once product has experienced commercial use, it shall thereafter be considered as commercial use for purposes of this warranty.

No warranty registration is necessary to obtain warranty on Briggs & Stratton products. Save your proof of purchase receipt. If you do not provide proof of the initial purchase date at the time warranty service is requested, the manufacturing date of the product will be used to determine warranty eligibility.

ABOUT YOUR WARRANTY

We welcome warranty repair and apologize to you for being inconvenienced. Warranty service is available only through servicing dealers authorized by Briggs & Stratton or BSPPG, LLC.

Most warranty repairs are handled routinely, but sometimes requests for warranty service may not be appropriate. This warranty only covers defects in materials or workmanship. It does not cover damage caused by improper use or abuse, improper maintenance or repair, normal wear and tear, or stale or unapproved fuel.

Improper Use and Abuse - The proper, intended use of this product is described in the Operator's Manual. Using the product in a way not described in the Operator's Manual or using the product after it has been damaged will void your warranty. Warranty is not allowed if the serial number on the product has been removed or the product has been altered or modified in any way, or if the product has evidence of abuse such as impact damage, or water/chemical corrosion damage.

Improper Maintenance or Repair - This product must be maintained according to the procedures and schedules provided in the Operator's Manual, and serviced or repaired using genuine Briggs & Stratton parts. Damage caused by lack of maintenance or use of non-original parts is not covered by warranty.

Normal Wear - Like all mechanical devices, your unit is subject to wear even when properly maintained. This warranty does not cover repairs when normal use has exhausted the life of a part or the equipment. Maintenance and wear items such as filters, belts, cutting blades, and brake pads (engine brake pads are covered) are not covered by warranty due to wear characteristics alone, unless the cause is due to defects in material or workmanship.

Stale Fuel - In order to function correctly, this product requires fresh fuel that conforms to the criteria specified in the Operator's Manual. Damage caused by stale fuel (carburetor leaks, clogged fuel tubes, sticking valves, etc) is not covered by warranty.

* Applies to Briggs and Stratton engines only. Warranty coverage of non-Briggs and Stratton engines is provided by the engine manufacturer.



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