

OPERATOR'S MANUAL

Pro HW Series

Record Product Information

Before setting up and operating your new equipment, please locate the model plate on the equipment and record the information in the provided area to the right. You can locate the model plate by lifting up the seat and looking under the seat pan. This information will be necessary, should you seek technical support via our web site or with your local authorized service dealer.

Model Number

Serial Number

WARNING

Read and follow all safety rules and instructions in this manual before attempting to operate this machine.

Failure to comply with these instructions may result in personal injury - SAVE THESE INSTRUCTIONS.

WARNING

CALIFORNIA PROPOSITION 65

Engine Exhaust, some of its constituents, and certain vehicle components contain or emit chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

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. www.p65warnings.ca.gov

NOTE: This Operator's Manual covers several models. Features may vary by model. Not all features in this manual are applicable to all models and the model depicted may differ from yours.



SAFE OPERATION PRACTICES

⚠ WARNING



This symbol points out important safety instructions which, if not followed, could endanger the personal safety and/or property of yourself and others. Read and follow all instructions in this manual before attempting to operate this machine. Failure to comply with these instructions may result in personal injury. When you see this symbol, **HEED ITS WARNING!**

⚠ DANGER

This machine was built to be operated according to the safe operation practices in this manual. As with any type of power equipment, carelessness, or error on the part of the operator can result in serious injury. This machine is capable of amputating hands and feet and throwing objects. Failure to observe the following safety instructions could result in serious injury or death.

GENERAL OPERATION

1. Read this Operator's Manual carefully in its entirety before attempting to assemble this machine. Read, understand, and follow all instructions on the machine and in the manuals before operation. Keep this manual in a safe place for future and regular reference and for ordering replacement parts.

IMPORTANT! If the operator cannot read English, the owner is responsible for explaining the information in this manual.

2. Be completely familiar with the controls and the proper use of this machine before operating it.
3. This machine is a precision piece of power equipment, not a plaything. Therefore, exercise extreme caution at all times. This machine has been designed to perform one job: to mow grass. Do not use it for any other purpose.
4. Do not allow anyone to operate or maintain this machine who has not read the manual. **Never allow children under 16 years of age to operate this machine.**
5. Only responsible individuals who are familiar with these rules of safe operation should be allowed to use this machine. The owner is responsible for training the users, and is responsible for accidents or injuries occurring to themselves or others.
6. Thoroughly inspect the area where the equipment is to be used. Remove all stones, sticks, wire, bones, toys, and other foreign objects, which could be tripped over or picked up and thrown by the blade. Thrown objects can cause serious personal injury.
7. Plan your mowing pattern to avoid discharge of material toward roads, sidewalks, bystanders, and the like. Also, avoid discharging material against a wall or obstruction, which may cause discharged material to ricochet back toward the operator.
8. To help avoid blade contact or a thrown object injury, stay in operator zone behind handles and keep children, bystanders, helpers, and pets at least 75 feet (23 meters) from mower while it is in operation. Stop machine if anyone enters area.
9. Always wear safety glasses or safety goggles during operation and while performing an adjustment or repair to protect your eyes. Thrown objects which ricochet can cause serious injury to the eyes.
10. Wear sturdy, rough-soled work shoes and close-fitting slacks and shirts. Shirts and pants that cover the arms and legs and steel-toed shoes are recommended. Never operate this machine in bare feet, sandals, slippery, or light-weight (e.g. canvas) shoes.
11. Do not put hands or feet near rotating parts or under the cutting deck. Contact with blade can amputate fingers, hands, toes, and feet.
12. A missing or damaged discharge cover can cause blade contact or thrown object injuries.
13. Many injuries occur as a result of the mower being pulled over the foot during a fall caused by slipping or tripping. Do not hold on to the mower if you are falling; release the handle immediately.
14. Do not operate the mower while under the influence of alcohol or drugs.
15. Do not allow anyone to ride on this mower. No passengers.
16. Do not engage the self-propelled mechanism on machines so equipped while starting engine.
17. Slow down before turning. Operate the machine smoothly. Avoid erratic operation and excessive speed.
18. The operator presence control levers located at each handle are designed for your safety. Do not try to defeat their operation. If the blade clutch is engaged or the transmission is in gear, releasing both handles will shut off the mower's engine.
19. Never operate the mower in wet grass. Always be sure of your footing. A slip and fall can cause serious personal injury. If you feel you are losing your footing, release the blade control handle immediately and the blade will stop rotating within 7 seconds.
20. Mow only in daylight or good artificial light. Walk, never run.
21. Stop the blade when crossing gravel drives, walks, or roads.
22. Always keep both hands on the handles when mowing. Always walk, never run.
23. Never engage the blade clutch when the engine is running unless you are on grass that you intend to mow.
24. Never raise the mower deck while the blades are rotating.
25. Never walk or stand on the discharge side of a mower with the engine running. Disengage the blade clutch if another person approaches while you are operating a mower.
26. Never leave the mower unattended without disengaging the blade clutch, shifting the transmission into neutral, placing the neutral latch levers in the neutral lock position, shutting off the engine, and removing the key from the ignition switch.
27. Always park the mower and start the engine on a level surface with the transmission in neutral, the blade clutch disengaged, and the neutral latch levers in the neutral lock position.
28. If the equipment should start to vibrate abnormally, stop the engine and check immediately for the cause. Vibration is generally a warning of trouble.
29. Shut the engine off and wait until the blade comes to a complete stop before removing the grass catcher or unclogging the chute. The cutting blade continues to rotate for 7 seconds after the blade control is released. Never place any part of the body in the blade area until you are sure the blade has stopped rotating.
30. Never operate mower without proper trail shield, discharge cover, grass catcher, blade control handle, or other safety protective devices in place and working. Never operate mower with damaged safety devices. Failure to do so can result in personal injury.
31. Muffler and engine become hot and can cause a burn. To avoid serious burns, do not touch the engine or muffler while the engine is running or until it has cooled for at least 30 minutes after it has been shut off.
32. Never attempt to make a wheel or cutting height adjustment while the engine is running.
33. Only use parts and accessories made for this machine by the manufacturer. Failure to do so can result in personal injury.

SAFE OPERATION PRACTICES

34. On pull-start models, when starting engine, pull cord slowly until resistance is felt, then pull rapidly. Rapid retraction of starter cord (kickback) will pull hand and arm toward engine faster than you can let go. Broken bones, fractures, bruises, or sprains could result.
35. When operating this machine in the forward or reverse direction, do not allow the steering levers to return to the neutral position on their own. Always maintain a firm grip on the levers, operate them smoothly, and avoid any sudden movements of the levers when starting or stopping.
36. If situations occur which are not covered in this manual, use care and good judgement. Contact Customer Support for assistance or the name of the nearest service dealer.

SLOPE OPERATION

Slopes are a major factor related to slip and fall accidents, which can result in severe injury. Operation on slopes requires extra caution. If you feel uneasy on a slope, do not mow it. For your safety, use the Slope Gauge included as part of this manual to measure slopes before operating this machine on a sloped or hilly area. If the slope is greater than 15° (25%), do not mow it.

Do:

1. Mow across the face of slopes; never up and down. Always turn uphill. Exercise extreme caution when changing direction on slopes.
2. Watch for holes, sprinkler heads, ruts, rocks, hidden objects, or bumps which can cause you to slip or trip. Tall grass can hide obstacles.
3. Always be sure of your footing. A slip and fall can cause serious personal injury. Check the area thoroughly before mowing. Slow down and use extra care.

Do Not:

1. Do not mow near drop-offs, ditches, or embankments, you could lose your footing or balance.
2. Do not mow slopes greater than 15° (25%) as shown on the slope gauge.
3. Do not mow on wet grass. Unstable footing could cause slipping.

WARNING

Do not mow up and down the slope. You could slip and slide into the mower, or the mower could lose traction and steering control.

SLOPE GAUGE (BACK COVER)

WARNING

Slopes are a major factor related to slip and fall accidents which can result in severe injury or death. All slopes require extra caution. If you feel uneasy on the slope, do not mow it. Do not mow on slopes greater than 15° (25%). Do not mow up and down slopes, only mow across slopes.

USE THE SLOPE GAUGE ON THE BACK COVER AS SHOWN TO DETERMINE IF A SLOPE IS TOO STEEP FOR SAFE OPERATION!

To check the slope, proceed as follows:

1. Open manual to the back cover and fold along the dashed line.
2. Locate a vertical object on or behind the slope (e.g. a pole, building, fence, tree, etc.).
3. Align either side of the slope gauge with the object.
4. Adjust gauge up or down until the left corner touches the slope.
5. If there is a gap below the gauge, the slope is too steep for safe operation.

CHILDREN

1. Tragic accidents can occur if the operator is not alert to the presence of children. Children are often attracted to the mower and the mowing activity. They do not understand the dangers. Never assume that children will remain where you last saw them.
 - a. Keep children out of the mowing area and under watchful care of a responsible adult other than the operator.
 - b. Be alert and turn mower off if a child enters the area.
 - c. Before and while moving backwards, look behind and down for small children.
 - d. Use extreme care when approaching blind corners, doorways, shrubs, trees, or other objects that may obscure your vision of a child who may run into the mower.
 - e. Keep children away from hot or running engines. They can suffer burns from a hot muffler.
 - f. Do not allow anyone to operate or maintain this machine who has not read the manual. Never allow children under 16 years of age to operate this machine.

HYDRAULIC DEVICES AND SYSTEMS

Hydraulic fluid escaping under pressure may have sufficient force to penetrate skin and to 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.

WARNING

Keep body and hands away from pinholes or nozzles that could eject hydraulic fluid under high pressure. Use paper or cardboard, not your hands, to search for leaks! Wear gloves and safety glasses.

Safely relieve all pressure in the system before performing any work on the system, and make sure that:

- The ignition switch is OFF.
- The key is removed.
- The engine spark plug wire(s) is removed.
- All connections to the negative terminal of the battery are removed.
- The park brake is set.
- All by-pass valves, if so equipped, are open.
- Hydraulic controls are actuated to release pressure on pumps, cylinders, etc. If "float" positions are available, they should be used.

After the above operations are completed, it should be safe to begin disconnecting the lines or components. It is still a good idea to cover the connection with a cloth shield and then gently loosen connections.

WARNING

Make sure all hydraulic fluid connections are tight and all hydraulic hoses and lines are in good condition before applying pressure to the system.

SERVICE

Safe Handling of Fuel

To avoid personal injury or property damage use extreme care in handling gasoline. Gasoline is extremely flammable and the vapors are explosive. Serious personal injury can occur when gasoline is spilled on yourself or your clothes, which can ignite. Wash your skin and change clothes immediately.

- Use only an approved gasoline container and fill slowly to decrease the chance of static electricity buildup and spillage.
- Never fill containers inside a vehicle or on a truck or trailer bed with a plastic liner. Always place containers on the ground away from your vehicle before filling.

SAFE OPERATION PRACTICES

- 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.
- Keep the 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.
- Extinguish all cigarettes, cigars, pipes, and other sources of ignition.
- Never fuel machine indoors because flammable vapors will accumulate in the area.
- If the fuel container spout will not fit inside the fuel tank opening, use a funnel.
- If the fuel tank has to be drained, do this outdoors.
- Never remove gas cap or add fuel while engine is hot or running. Allow engine to cool at least 5 minutes before refueling.
- Never over fill fuel tank. Fill the tank to the bottom of the filler neck, allowing some space in the tank for fuel expansion.
- Replace gasoline cap and tighten securely.
- If gasoline is spilled, wipe it off the engine and equipment. Move machine to another area. Wait 5 minutes before starting engine.
- Never store the machine or fuel container near an open flame, spark, or pilot light as on a water heater, space heater, furnace, clothes dryer, or other gas appliances.
- To reduce fire hazard, keep machine 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 at least 5 minutes before storing.

GENERAL SERVICE

WARNING

Never let children or untrained people operate or service this mower.

1. Never run an engine indoors or in a poorly ventilated area. Engine exhaust contains carbon monoxide, an odorless and deadly gas.
2. Before cleaning, repairing, or inspecting, make certain the blade and all moving parts have stopped. Disconnect the spark plug wire and ground against the engine to prevent unintended starting.
3. Check the blade and engine mounting bolts at frequent intervals for proper tightness. Also, visually inspect blade for damage (e.g., bent, cracked, worn). Replace blade with the original equipment manufacturer's (O.E.M.) blade only, listed in this manual. Use of parts which do not meet the original equipment specifications may lead to improper performance and compromise safety!
4. Mower blades are sharp and can cut. Wrap the blade or wear gloves, and use extra caution when servicing them.
5. Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition.
6. Never tamper with safety devices. Check their proper operation regularly.
7. If you hit a solid object while mowing, disengage the blade clutch, place the neutral latch levers in the neutral lock position, shift the transmission into neutral, and stop the engine. Disconnect the spark plug wire(s) and inspect for damage. Repair any damage and make sure the blades are in good condition and the blade bolts are tight before restarting the engine.
8. Never attempt to make a wheel or cutting height adjustment while the engine is running.

9. Grass catcher components, discharge cover, and trail shield are subject to wear and damage which could expose moving parts or allow objects to be thrown. For safety protection, frequently check components and replace immediately with original equipment manufacturer's (O.E.M.) parts only, listed in this manual. Use of parts which do not meet the original equipment specifications may lead to improper performance and compromise safety!
10. Do not change the engine's governor setting or over-speed the engine. The governor controls the maximum safe operating speed of the engine.
11. Check fuel line, tank, cap, and fittings frequently for cracks or leaks. Replace if necessary.
12. Do not crank engine with spark plug removed.
13. Maintain or replace safety and instruction labels, as necessary.
14. Follow this manual for safe loading, unloading, transporting, and storage of this machine.
15. Always refer to the Operator's Manual for proper instructions on off-season storage.
16. Observe proper disposal laws and regulations. Improper disposal of fluids and materials can harm the environment.

DO NOT MODIFY ENGINE

To avoid serious injury or death, do not modify engine in any way. Tampering with the governor setting can lead to a runaway engine and cause it to operate at unsafe speeds. Never tamper with factory setting of engine governor.

NOTICE REGARDING EMISSIONS

Engines which are certified to comply with California and federal EPA emission regulations for SORE (Small Off Road Equipment) are certified to operate on regular unleaded gasoline, and may include the following emission control systems: Engine Modification (EM), Oxidizing Catalyst (OC), Secondary Air Injection (SAI) and Three Way Catalyst (TWC), if so equipped.

When required, models are equipped with low permeation fuel lines and fuel tanks for evaporative emission control. California models may also include a carbon canister. Please contact Customer Support for information regarding the evaporative emission control configuration for your model.

SPARK ARRESTOR

WARNING

This machine is equipped with an internal combustion engine and should not be used on or near any unimproved forest-covered, brush-covered, or grass-covered land unless the engine's exhaust system is equipped with a spark arrestor meeting applicable local or state laws (if any).

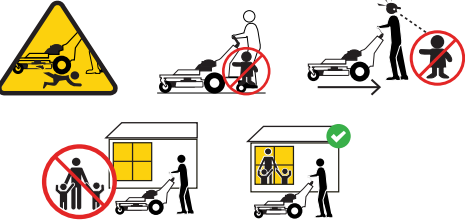
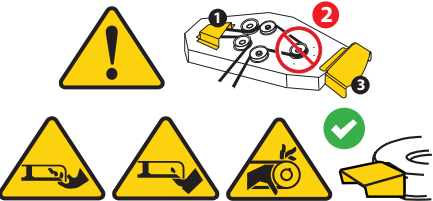
If a spark arrestor is used, it should be maintained in effective working order by the operator. In the State of California the above is required by law (Section 4442 of the California Public Resources Code). Other states may have similar laws. Federal laws apply on federal lands.

A spark arrestor for the muffler is available through your nearest engine authorized service dealer or contact the service department, P.O. Box 361131, Cleveland, Ohio 44136-0019.

SAFE OPERATION PRACTICES

SAFETY SYMBOLS

This page depicts and describes safety symbols that may appear on this product. Read, understand, and follow all instructions on the machine before attempting to assemble and operate.

Symbol	Description
 OPESymbol.com	WARNING - READ OPERATOR'S MANUAL - Read, understand, and follow all the safety rules and instructions in the manual(s) and on the machine before attempting to operate this machine. Failure to comply with this information may result in personal injury or death. Keep this manual in a safe location for future and regular reference. Using a Smart Phone, scan the QR code symbol to learn more information concerning the warnings contained on this machine. You can also go to www.OPESymbol.com for more information.
	WARNING - TRAINING - Read the Operator's Manual and other training material. It is the owner's responsibility to provide training to operate or service the equipment.
	WARNING - AVOID THROWN OBJECTS INJURY - Keep helpers at least 75 feet (23 meters) from machine during operation. Remove all stones, sticks, wire, bones, toys, and other foreign objects which could be picked up and thrown by the blade(s). Do not operate the machine without the discharge cover or entire grass catcher in its proper place.
	WARNING - AVOID CHILD BACKOVER/RUNOVER/BLADE INJURY - To avoid back-over accidents, always look behind and down for small children. Never carry children, even with the blade(s) shut off. Keep bystanders, children, and pets inside during operation under the watchful care of a responsible adult other than the operator. Stop machine if anyone enters the area.
	WARNING - AVOID TIP-OVER/ROLL-OVER INJURY - Do not operate machine on a slope greater than 15° (25%). Do not mow up or down slopes, only mow across slopes that are less than 15° (25%). Use low speeds and avoid sudden turns on slopes. Stay at least 10 feet (3 meters) from drop-offs, ditches, embankments, or the edge of water.
	WARNING - AVOID FIRES - Your machine is designed to cut normal residential grass of a height no more than 10" (25 cm). Do not attempt to mow through unusually tall, dry grass (e.g., pasture), or piles of dry leaves. Allow machine to cool at least five minutes before fueling or storing inside an enclosed garage or storage shed.
	WARNING - AVOID AMPUTATION INJURY - Do not put hands or feet near rotating parts or under the cutting deck. Contact with the blade(s) can amputate hands and feet. Ensure that all safety devices (guards, shields, switches, etc.) are in place and working. Belt and/or blade spindle contact can crush or injure body parts.

⚠ WARNING

Your Responsibility—Restrict the use of this power machine to persons who read, understand, and follow the warnings and instructions in this manual and on the machine - SAVE THESE INSTRUCTIONS!

SET-UP

THANK YOU

Thank you for purchasing this product. It was carefully engineered to provide excellent performance when properly operated and maintained.

Please read this entire manual prior to operating the equipment. It instructs you how to safely and easily set up, operate and maintain your machine. Please be sure that you, and any other persons who will operate the machine, carefully follow the recommended safety practices at all times. Failure to do so could result in personal injury or property damage.

All information in this manual is relative to the most recent product information available at the time. Review this manual frequently to familiarize yourself with the machine, its features and operation. Please be aware that this Operator's Manual may cover a range of product specifications for various models. Characteristics and features discussed and/or illustrated in this manual may not be applicable to all models. We reserve the right to change product specifications, designs and equipment without notice and without incurring obligation.

If applicable, the power testing information used to establish the power rating of the engine equipped on this machine can be found at www.opei.org or the engine manufacturer's web site.

If you have any problems or questions concerning the machine, phone your local authorized service dealer or contact us directly. We want to ensure your complete satisfaction at all times.

Throughout this manual, all references to right and left side of the machine are observed from the operating position.

CONTENTS OF CARTON

- Mower (1)
- Mower Operator's Manual (1)
- Engine Operator's Manual (1)

MOWER SET-UP

DISCHARGE CHUTE DEFLECTOR (IF NECESSARY)

⚠ WARNING

Never operate the mower deck without the chute deflector installed and in the down position.

The discharge chute deflector must be installed before operating the mower. To install the discharge chute deflector, proceed as follows:

1. Remove the carriage screws (a) and flange lock nuts (b) installed on the mounting bracket (c) on the deck (Figure 1).

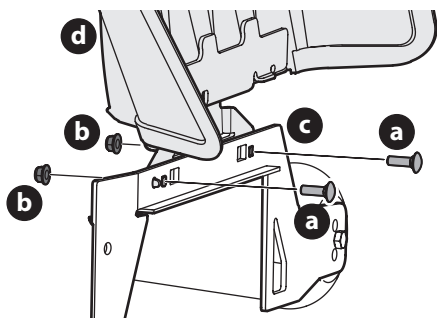


Figure 1

2. With the previously removed hardware (a and b), install the discharge chute deflector (d) on the deck (Figure 1).

Connecting the Battery Cables

⚠ WARNING

CALIFORNIA PROPOSITION 65: 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.

⚠ WARNING

When attaching battery cables, always connect the **POSITIVE (Red)** wire to its terminal first, followed by the **NEGATIVE (Black)** wire.

For shipping reasons, both battery cables on your equipment may have been left disconnected from the terminals at the factory. To connect the battery cables, proceed as follows:

NOTE: The positive battery terminal is marked Pos. (+). The negative battery terminal is marked Neg. (–).

1. Remove the plastic cover, if present, from the positive battery terminal and attach the red cable to the positive battery terminal (+) with the bolt (a) and sems nut (b) (Figure 2).

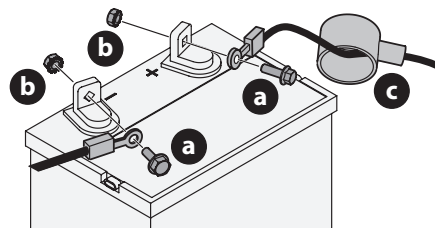


Figure 2

2. Position the red rubber boot (c) over the positive battery terminal to help protect it from corrosion.
3. Remove the plastic cover, if present, from the negative battery terminal and attach the black cable to the negative battery terminal (–) with the bolt (a) and sems nut (b) (Figure 2).

NOTE: If the battery is put into service after the date shown on top/side of battery, charge the battery as instructed in the Product Care section prior to operating the mower.

Fuel and Oil

1. The fuel tank has a capacity of five gallons. Remove the fuel cap by turning it counter-clockwise. Use only clean, fresh (no more than 30 days old), unleaded gasoline. Do not overfill the fuel tank. Fill the tank to the bottom of the filler neck, allowing some space in the tank for fuel expansion.

⚠ WARNING

Use extreme care when handling gasoline. Gasoline is extremely flammable and the vapors are explosive. Never fuel the machine indoors or while the engine is hot or running. Extinguish cigarettes, cigars, pipes, and other sources of ignition.

2. Your mower is shipped with oil in the engine. However, you **MUST** check the oil level before operating. Refer to the Engine Operator's Manual for oil checking procedures.

⚠ WARNING

Always check the engine oil level before each use as instructed in the Engine Operator's Manual. Add oil as necessary. Failure to do so may result in serious damage to your engine.

Tire Pressure

The recommended operating rear tire pressure is 12 psi. The caster wheels are semi-pneumatic and do not require air pressure. Check the tire pressure periodically and maintain equal pressure in both rear tires at all times.

IMPORTANT! Refer to the tire sidewall for exact tire manufacturer's recommended or maximum psi. Do not overinflate. Uneven tire pressure could cause the cutting deck to mow unevenly.

OPERATION

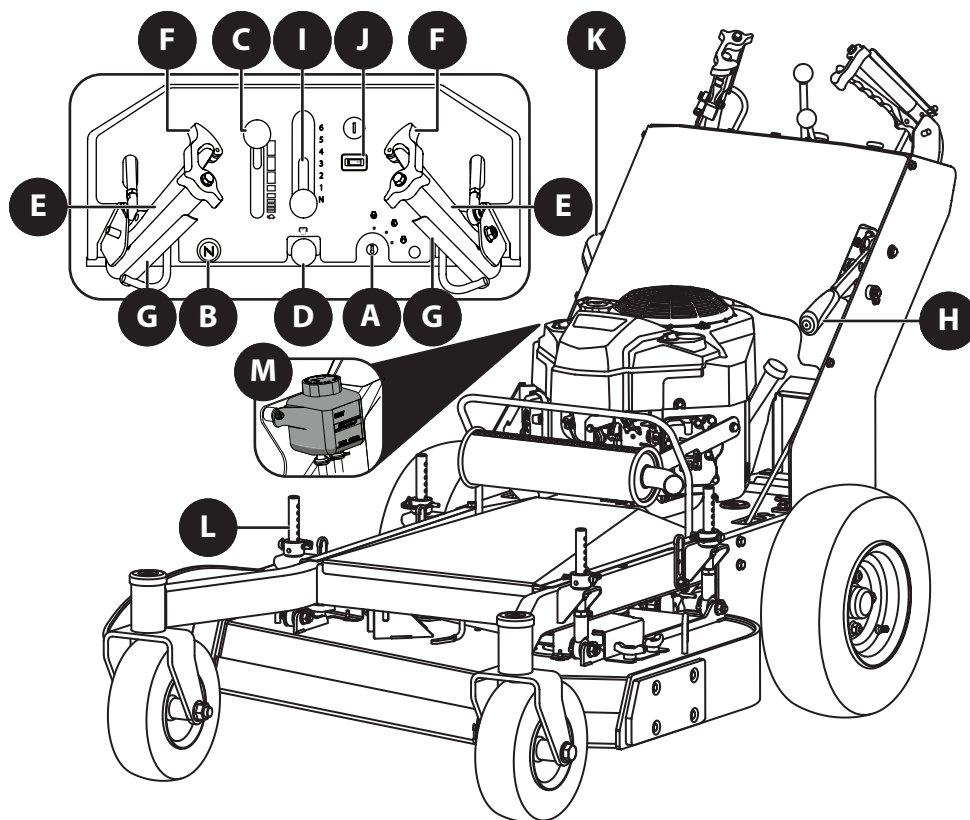


Figure 3

NOTE: This Operator's Manual covers several models. Mower features may vary by model. Not all features in this manual are applicable to all mower models and the mower depicted may differ from yours.

NOTE: All references in this manual to the left or right side and front or back of the machine are from the operating position only. Exceptions, if any, will be specified.

A. KEY SWITCH

The key switch is located on the console to the rear of the hour meter. The key switch has three positions on electric start models and two positions on recoil start models.

-  **OFF/STOP** — The engine and electrical system are turned off/stopped.
-  **ON** — On recoil starter models, the mower electrical system is energized and the engine can be started using the recoil starter. On electrical starter models, the mower's electrical system is energized and the engine is running.
-  **START** (electric start models only) — The starter motor will turn over the engine. Release the key immediately when the engine starts.

NOTE: To prevent accidental starting and/or battery discharge, remove the power key from the key switch when the mower is not in use.

B. CHOKE KNOB

The choke knob is located on the control panel below the throttle control lever and to the left of the PTO knob. The choke is engaged by pulling upward on the choke knob. Engaging the choke closes the choke plate on the carburetor and aids in starting the engine. To disengage the choke, push the choke control knob down fully.



C. THROTTLE CONTROL LEVER

The throttle control lever is located on the middle of the control panel and is used to control engine speed. Moving the throttle control upward/forward will increase the engine speed from slow to fast.

D. PTO (POWER TAKE-OFF) KNOB

The PTO knob is located on the center, bottom of the control panel and is used to engage the mowing deck. To operate, lift the PTO knob up fully. To stop the blades, push the PTO knob down fully.



E. STEERING LEVERS

The steering levers are located under the left and right handles. When the levers are released, the mower will move ahead in a straight line if the engine is running and the transmission is engaged in a forward gear. Steering is accomplished by squeezing the steering lever on the side to which the turn is to be made. A slight lever squeeze will provide a gentle turn. Squeezing the lever more will provide a sharper turn and continued lever squeezing will create a pivot turn. When the steering lever is in the neutral position, wheels will come to a stop. Pulling both levers completely against the handle will move the mower in reverse.

F. NEUTRAL LATCH LEVERS

Pivoted inside each handle, there is a neutral latch lever which works with each of the steering levers. When either of the steering levers is squeezed and its neutral latch lever pushed forward and engaged in the neutral lock position, the wheel on that side of the unit will stop moving. When both steering levers are squeezed and both neutral latch levers are pushed forward and engaged in the neutral lock position, the unit will stop moving.



OPERATION

G. OPERATOR PRESENCE LEVERS

The operator presence levers are located above the right and left handles. At least one of these operator presence levers must be held down on the handles in order to engage the shift lever or PTO. Releasing the operator presence levers with either the shift lever in gear (out of neutral) or PTO engaged will shut off the engine.

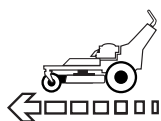
IMPORTANT! One or both operator presence levers must be depressed when in gear or mowing.

H. PARKING BRAKE LEVER

The parking brake lever is located on the left of the front panel of the mower, and when pulled upward, engages the parking brake. Do not engage the parking brake while moving.

NOTE: If the speed control lever is not fully in the neutral position when engaging the parking brake, the engine will stop.

I. SPEED CONTROL LEVER



The speed control lever is located in the center of the control panel between the throttle control lever and the hour meter. It is used to control the speed of the mower independent of the engine speed. Moving the lever forward increases the speed of the mower. The range of speed is from neutral (N) to six (6) which is the fastest speed.

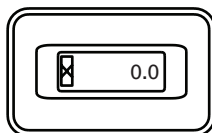
IMPORTANT! In order to start the engine the lever must be pulled back to the neutral (N) position.

J. HOUR METER AND SERVICE MINDER

The hour meter and service minder is located on the upper section of the control panel to the right of the speed control lever. It records the hours that the mower has been operated and engine speed (RPM) in the digital display.

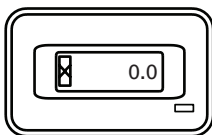
Hour Meter (if equipped)

The hour meter is activated whenever the engine is running. Keep a record of the actual hours of operation to assure all maintenance procedures are completed according to the instructions in this Operator's Manual and the Engine Operator's Manual.



Hour Meter and Service Minder with MODE Button (if equipped)

The hour meter and service minder is activated whenever the engine is running. Keep a record of the actual hours of operation to assure all maintenance procedures are completed in accordance with the instructions in this Operator's Manual and the Engine Operator's Manual. The hour meter and service minder is equipped with a MODE button that can toggle between available functions and can be used to reset service alerts. Press and hold the MODE button for 3 seconds while in service alert mode or when in a service alarm mode to reset.



NOTE: When the engine is running the hourglass symbol is illuminated/blinks to indicate it is recording the hours of mower operation, regardless of whether the engine is started.

K. FUEL TANK AND CAP

The fuel tank and cap are located on the right, rear side of the mower. Turn the fuel cap to remove. The fuel cap is tethered to the mower to prevent its loss. Do not attempt to remove the cap from the mower. Fill tank to the FULL (F) line. Do not overfill the tank.

Push the cap downward on the fuel tank fill neck and turn clockwise until it clicks to tighten. Always re-install the fuel cap tightly onto the fuel tank after removing.



⚠ WARNING

Never fill the fuel tank when the engine is running. If the engine is hot from recently running, allow to cool for several minutes before refueling. Highly flammable gasoline could splash onto the engine and cause a fire.

L. DECK LIFT ADJUSTMENT PINS

The four cotter pins are located on the frame of the mower and are used to change the cutting height of the deck. Each hole represents a 1/2" change in the deck height.



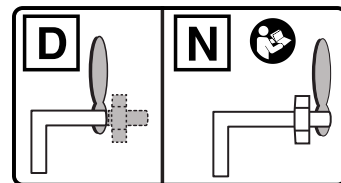
M. TRANSMISSION OIL EXPANSION RESERVOIR CAP

The transmission oil expansion reservoir cap is located on the right of the mower between the engine and the side panel. Turn the cap counter-clockwise to open and clockwise to close. Use only 20W50 oil and see the Product Care section of this manual for filling instructions and more information.



TRANSMISSION BYPASS LEVERS (NOT SHOWN)

The transmission bypass levers (one for each RH and LH transmission) are located above the rear of the deck under the floor panel.



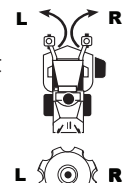
When engaged, the two levers open a bypass within the hydrostatic transmissions, which allows the mower to be pushed short distances by hand. Refer to the Product Care section for instructions on using the bypass feature.

⚠ CAUTION

Never tow your mower. Towing the mower with the rear wheels on the ground may cause severe damage to the transmissions.

TRACKING KNOB (NOT SHOWN)

The tracking knob is located at the back of the mower under the right side of the control panel. The tracking knob is used to adjust mower creeping and/or mower tracking. See the Product Care section of this manual for more information.



RECOIL STARTER HANDLE (IF EQUIPPED/ NOT SHOWN)

The recoil starter is located on the engine on recoil starter models.

OPERATION

Starting the Engine

⚠ WARNING

Never run the engine indoors or in a poorly ventilated area. Engine exhaust contains carbon monoxide, an odorless and deadly gas.

Refer to the Set-Up section of this manual for gasoline and oil fill-up instructions. Make certain you thoroughly understand all of the safety precautions before you attempt to operate this machine. Move the mower outdoors to a "test area" where you can operate the mower for about half an hour without being disturbed. After the first full day of mowing, all nuts, bolts and screws should be rechecked for proper tightness and the belts should be rechecked for proper tension.

OPERATION

1. To start the engine on electric start models proceed with Step a, for recoil starter models skip ahead to Step 2.

- a. Move the speed control lever to the neutral (N) position.
- b. Disengage the PTO.
- c. Place the neutral latch levers in the neutral lock position.
- d. Make sure the spark plug wire is connected.
- e. Pull the choke knob all the way up to engage the choke.

NOTE: If the engine is warmed up, it may not be necessary to engage the choke.

- f. Move the throttle lever midway between the FAST and SLOW positions.

NOTE: When operating the mower be certain that the throttle lever is always in the FAST position. Operating with the throttle at less than full throttle may lead to shortened battery life.

- g. Put the power key in the key switch and turn the key to the START position. After the engine starts, release the key and the key will return to the ON position.

⚠ CAUTION

Do not hold the key in the START position for longer than ten seconds at a time. Doing so may cause damage to your engine's electric starter.

2. To start engine on recoil starter model, proceed with Step a.
 - a. Put the power key in the key switch and turn the key to the ON position.
 - b. Stand on the left side (as viewed from the operator's position behind the handlebars) of the mower. Be sure your feet are safely away from the underside of the mower deck and all mower controls are released.
 - c. Grasp the starter rope handle and pull slowly until the rope pulls slightly harder. Let rope rewind slowly. Then pull the rope with a rapid, full arm stroke. Let the rope return slowly. If the engine fails to start after three pulls, repeat the instructions (try moving the throttle lever into the FAST position).
 - d. When the engine starts, operate the mower in the FAST throttle setting and disengage the choke.

Stopping the Engine

⚠ WARNING

If you strike a foreign object, stop the engine and remove the power key. Thoroughly inspect the machine for any damage. Repair the damage before restarting and operating.

1. Place both steering levers in the neutral (N) position and lock into the neutral position with the neutral latch levers to stop the mower.
2. Place the speed control lever into the neutral (N) position.
3. If the PTO is engaged, push down on the PTO knob to disengage the PTO and stop the blades.
4. Move the throttle control lever into the SLOW position.
5. Let the mower run at idle for one minute.
6. Turn the power key counter-clockwise to the OFF position.
7. Remove the power key from the key switch to prevent unintended starting.

Engaging the Drive

⚠ WARNING

Avoid sudden starts, excessive speed, and sudden stops.

1. Start the engine as instructed earlier in this section and move the throttle control into the FAST position.

2. Refer to Figure 4 for the following instructions.

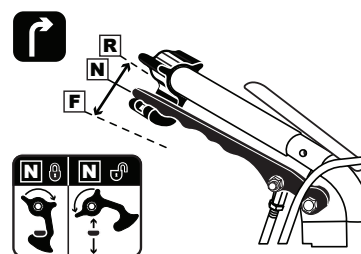


Figure 4

3. To travel FORWARD:
 - a. Move the speed control lever (I in Figure 3 on page 7) forward to about one third of full speed (position 2) until you are fully familiar with the operation of the mower.
 - b. Hold operator presence levers against handle grips.
 - c. While holding operator presence levers, slowly squeeze steering levers to release neutral latch levers from the neutral lock position.
 - d. Slowly release steering levers and the mower will move ahead in a straight line. To turn the mower, squeeze the steering lever on the side to which you want to turn.
 - e. To stop the mower's forward motion, squeeze both steering levers toward handle grips until the mower stops and place the neutral latch levers into the neutral lock position.

IMPORTANT! Squeezing the left steering control only will create a counter-clockwise pivot or U-turn and squeezing the right steering control only will create a clockwise pivot or U-turn.

4. To travel in REVERSE:

⚠ DANGER

Look behind the mower before and during reverse operation. Stop the mower blades before operating in reverse.

- a. Disengage the blades.
- b. Stop the mower's forward motion by squeezing both steering levers toward handle grips to the neutral position.

⚠ WARNING

To avoid possible bodily injury and to prevent damage to the transmission, the mower must be completely stopped before attempting to shift from forward to reverse or reverse to forward.

- c. Check that the area behind is clear.
- d. While still holding the operator presence levers against the handles, slowly squeeze both steering levers against the handle grips and the mower will begin to move backward.

IMPORTANT! While moving in reverse, squeezing the left steering control only will create a clockwise pivot or U-turn and squeezing the right steering control only will create a counter-clockwise pivot or U-turn.

⚠ WARNING

Do not leave the operator's position without first disengaging the PTO. If leaving the mower unattended, also turn the engine off and remove the ignition key.

OPERATION

Engaging the Blades

⚠ WARNING

To help avoid blade contact or a thrown object injury, keep bystanders, helpers, children, and pets at least 75 feet (23 meters) from the machine while it is in operation. Stop machine if anyone enters the area.

1. Move the throttle control lever to the FAST position.
2. Engage the operator presence levers.
3. Pull up on the PTO knob until it engages and the blades start rotating.

Operating on Slopes

Refer to the Slope Gauge on the back cover of this Operator's Manual to help determine slopes where you may safely operate the mower.

⚠ WARNING

Do not mow on inclines with a slope in excess of 15° (25%). The mower could overturn and cause serious injury.

- Mow across the face of slopes; never up and down.
- Exercise extreme caution when changing direction on slopes.
- Watch for holes, ruts, rocks, hidden objects or bumps which can cause you to slip or trip. Tall grass can hide obstacles.
- Always be sure of your footing. A slip and fall can cause serious personal injury.
- Do not mow near drop-offs, ditches or embankments, you could lose your footing or balance.
- Do not mow slopes greater than 15° (25%) as shown on the Slope Gauge.
- Do not mow on wet grass. Unstable footing could cause slipping.

Setting Deck Height

To adjust the deck height, adjust the clevis pin location in the deck adjustment pins and the deck lift adjustment collars.

1. Securely grasp one of the three handles on the deck (see Figure 5 for location) and lift slightly to remove the cotter pin (a) (Figure 6).

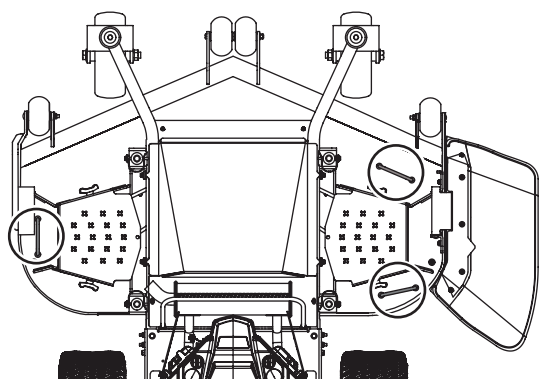


Figure 5

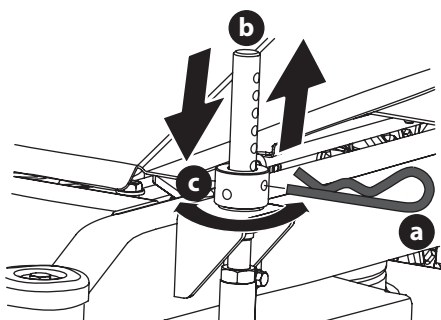


Figure 6

2. Raise or lower the deck on the deck adjustment pin (b) and in combination with the deck lift adjustment collar (c), find the desired height (Figure 6).
3. Insert the cotter pin (a) back into the deck adjustment pin (b) at the desired position (Figure 6).
4. Repeat these steps for the other three deck adjustment pins making sure the height is the same for all four deck adjustment pins.

Mowing

The following information will be helpful when operating your mower.

⚠ WARNING

Plan your mowing pattern to avoid discharge of materials toward roads, sidewalks, bystanders, and the like. Also, avoid discharging material against a wall or obstruction which may cause discharged material to ricochet back toward the operator.

- Be sure area is clear of rocks, sticks, toys, wire or other objects that could be thrown by the mower. Survey the entire area to be mowed. Make sure that the accessories and attachments would be suitable for use on the terrain.
- Use care when approaching blind corners, shrubs, trees or other objects that could obstruct vision.
- To mow grass and produce a striped pattern:
 - Pick a point on the opposite side of the area to be mowed (post, tree, shrub, etc).
 - If on a hillside, start at the bottom so that the turns are uphill rather than downhill.
 - Align the mower so as to head directly toward the object on the far side.
 - Slowly increase the speed of the machine to match cutting conditions, terrain and operator familiarity with the controls and keep the machine headed directly toward the alignment object. Do not go fast as to reduce cut quality or to be uncomfortable in controlling the speed and direction of the machine.
- When approaching the other end of a strip, slow down or stop before turning. A U-turn is recommended.
- To prevent rutting or grooving of the turf, change the direction that the strips are mowed by approximately 45° the next, and each subsequent, time that the area is mowed.
- If the grass is repeatedly mowed in the same direction, it will be "trained" so that the striped appearance is more pronounced and longer lasting. Grooving of the turf from the tires will occur.
- For emptying material collection systems or for any other operation involving the mower deck, before leaving the operator station:
 - Disengage the mower blades.
 - Squeeze the steering controls and latch the neutral locks.
 - Place the gear shift lever in neutral.
 - Shut off the engine.
 - Apply wheel chocks and/or engage the parking brake.

Transporting Mower

- If ramps are used, be sure they are secured to the trailer, truck bed, etc., and are designed for the application.
- The mower should be pushed or pulled onto or off the trailer, truck bed, etc., never try to drive it on.
- Engage the parking brake, secure mower with chocks, straps, etc.
- Make sure accessories and attachments are secured or removed.

PRODUCT CARE

MAINTENANCE SCHEDULE

⚠ WARNING

Before performing any type of maintenance/service, disengage all controls and stop the engine. Wait until all moving parts have come to a complete stop. Disconnect the spark plug wire(s) and negative battery cable to prevent unintended starting. Always wear safety glasses during operation or while performing any adjustments or repairs.

Follow the Maintenance Schedule given below. This chart describes service guidelines only.

Refer to the Engine Operator's Manual for engine maintenance items listed in the table below.

NOTE: This Operator's Manual covers several models. Tractor features may vary by model. Not all features in this manual are applicable to all tractor models and the tractor depicted may differ from yours.

	Before Each Use	1st Five Hours	Every 40 Hours	Every 100 Hours	Every 300 Hours	Prior to Storing
Check/Clean Engine Intake Screens & Cooling Fans *	✓					✓
Check/Clean Exhaust Manifold, Muffler Pipe & Muffler Shields *	✓					✓
Check/Clean Top & Underside of Deck, Under & Around Spindle Covers & Belt Area *	✓					✓
Check/Clean Around Fuses, Wiring & Wiring Harnesses *	✓					✓
Check/Clean Around Transmission, Axle & Fans *	✓					✓
Clean Mower	✓					✓
Check Fuel Level	✓					
Check Belts & Controls	✓					
Check Engine Oil Level	✓					
Check Loose or Missing Parts	✓					
Clean or Replace Air Filter Element	✓		✓			
Lube Deck Idler Pulley Pivot Arms	✓					
Change Engine Oil & Filter		✓		✓		
Sharpen & Balance Blades			✓			
Lube Brake Lever Points			✓			
Lube Handle Control Bellcrank Pivot			✓			
Lube Transmission-Jackshaft Couplers			✓			
Lube Ball Joint			✓			
Check Spark Plug Condition & Gap				✓		✓
Change Hydraulic Oil & Filter †					✓	

* — Perform more frequently under dusty conditions.

† — Change the hydraulic oil and filter after the first 50-100 hours.

NOTE: This Operator's Manual covers several models. Mower features may vary by model. Not all features in this manual are applicable to all mower models and the mower depicted may differ from yours.

⚠ WARNING

Before performing any maintenance or repairs, disengage the PTO, engage the parking brake, stop the engine, and remove the key to prevent unintended starting.

POST-OPERATION MOWER CARE

After each operation of the mower, the following procedures should be implemented to extend the life of your mower and ensure safe operating conditions.

⚠ DANGER

Failure to follow these recommendations may result in serious injury to yourself or others and may cause damage to the mower.

Cleaning the Underside of the Deck

Rinse grass clippings from the deck's underside and prevent the buildup of corrosive chemicals.

⚠ WARNING

Make certain the mower's discharge chute is directed AWAY from people, your house, garage, parked cars, etc.

1. Disengage the PTO, set the parking brake and stop the engine.

PRODUCT CARE

2. Use a hose to spray the underside of the deck.

NOTE: Make sure that the hose is not routed under the deck and is clear of all moving parts.

3. After cleaning your deck, return to the operator's position and engage the PTO. Keep the deck running for a minimum of two minutes, allowing the underside of the deck to thoroughly dry.

Cleaning the Mower

⚠ WARNING

If the mower has been recently run, the engine, muffler, and surrounding metal surfaces will be hot and can cause burns to the skin. Let the engine cool for at least 5 minutes. Exercise caution to avoid burns.

Your mower should be cleaned after each use and under certain conditions, i.e. dry conditions and/or mulching situations, additional cleaning may be necessary.

One of the best ways to keep your mower running efficiently and to reduce fire risk is to regularly remove debris buildup from the mower. Follow the recommendations below and contact your authorized dealer with any questions.

- Allow the machine to cool in an open area before cleaning.
- Do not use water on any part of the mower except the underside of the cutting deck. Doing so can cause damage to the mower's spindle bearings, electrical system and engine, leading to premature failures. The use of compressed air and/or leaf blower will help keep the mower clean.
- Clean around the exhaust manifold, fuses, all wiring and harnesses, muffler pipe, muffler shield, engine intake screens and cooling fins, etc (Figure 7).

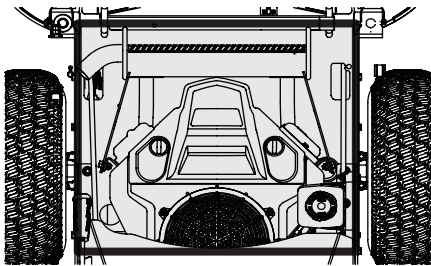


Figure 7

- Clean the top of the mower deck, under the spindle covers and belt area (Figure 8).

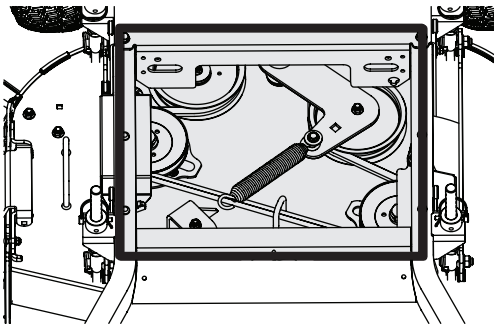
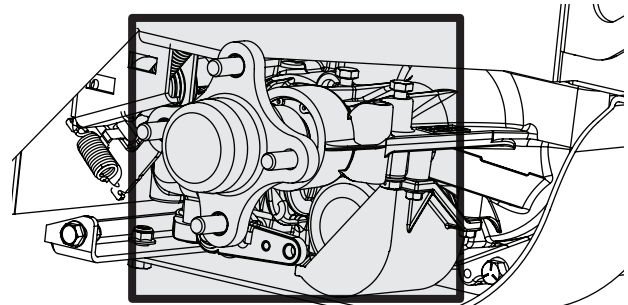


Figure 8

- Clean around and near the transmission, axle and the fan area (Figure 9).



Wheel Not Shown For Clarity

Figure 9

- Debris can accumulate anywhere on the mower, especially on horizontal surfaces. Additional cleaning may be necessary when mowing in dry conditions or when mulching.
- Fuel leaks/spills, oil leaks/spills and excess lubrication can also become collection sites for debris. Immediate repair and cleaning up oil or fuel spills can help reduce fire hazards.
- In addition to cleaning the mower before operating and storing, do not attempt to mow unusually tall grass (10" or higher), dry grass (e.g., pasture) or piles of dry leaves. Dry grass or leaves may contact the engine exhaust and/or build up on the mower deck presenting a potential fire hazard.

Storing the Mower

- Allow the machine to cool in an open area before storing.
- Do not park the mower near any flammable materials (wood, cloth or chemicals) or any open flames or other potential source of ignition (furnace, water heater or any other type of heater).
- Remove all combustible materials from the mower before storing. Empty cargo boxes, grass catchers or containers.
- Always shut off fuel flow when storing or transporting if mower is equipped with a fuel shutoff.
- Check the fuel system (lines, tank, cap and fittings) frequently for cracks or leaks. Repair and clean as necessary.

MAINTENANCE

Engine

Refer to the Engine Operator's Manual for all engine maintenance intervals, procedures, specifications and instructions.

CHANGING THE ENGINE OIL

⚠ WARNING

If the engine has been recently run, the engine, muffler, and surrounding metal surfaces will be hot and can cause burns to the skin. Exercise caution to avoid burns.

Maintain oil level as instructed in Engine Operator's Manual. Be careful not to spill oil on any of the belts.

To complete an oil change, proceed as follows:

1. Run the engine for a short time to warm the engine oil. The oil will flow more freely and carry away more impurities. Use care to avoid burns from hot oil.

PRODUCT CARE

2. Locate the oil drain hose on the engine (Figure 10).

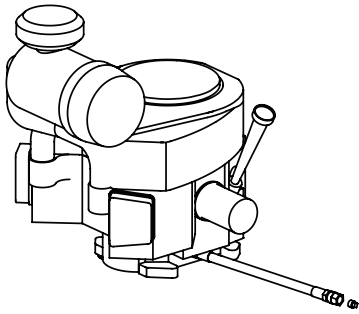


Figure 10

3. Route the free end of the oil drain hose toward an appropriate oil collection container with at least a 2.5 quart capacity, to collect the used oil.
NOTE: Avoid getting oil on the muffler when draining.
4. While holding the free end of the oil drain hose over the oil collection container, unscrew the square-head hose plug from the end of the hose (Figure 10). Drain the engine oil into the collection container.
5. Remove the oil filter to make sure all the oil is drained.
6. After draining the oil, wipe any residual oil from the oil drain hose. Thread the square head plug into the drain hose fitting and fully tighten the plug.
7. Replace the oil filter and refill the engine with new oil as instructed in the Engine Operator's Manual. Refer to the Engine Operator's Manual for information regarding the volume and weight of engine oil.
8. Route the hose back along the frame as it was before removal.

Lubrication

Periodically lubricate all pivot points with a quality lubricating oil.

Tires

Check the tire air pressure after every 50 hours of operation or weekly. Keep the tires inflated to the recommended pressures. Improper inflation will shorten the tire service life and produce an uneven cut. The recommended operating rear tire pressure is 12 psi. Observe the following guidelines:

- Do not inflate a tire above the maximum pressure shown on the sidewall of the tire.
- Do not reinflate a tire that has been run flat or seriously under-inflated. Have it inspected and serviced by a qualified tire mechanic.

Battery Information

⚠ WARNING

Should battery acid accidentally splatter into the eyes or onto the skin, rinse the affected area immediately with clean cold water. If there is any further discomfort, seek prompt medical attention.

If acid spills on clothing, first dilute it with clean water, then neutralize with a solution of ammonia/water or baking soda/water.

NEVER connect (or disconnect) battery charger clips to the battery while the charger is turned on, as it can cause sparks.

Keep all sources of ignition (cigarettes, matches, lighters) away from the battery. The gas generated during charging can be combustible.

As a further precaution, only charge the battery in a well ventilated area.

Always shield eyes and protect skin and clothing when working near batteries.

Batteries contain sulfuric acid and may emit explosive gases. Use extreme caution when handling batteries. Keep batteries out of the reach of children.

The battery may present a risk of fire or chemical burn if misused. Do NOT open, disassemble, overheat, or incinerate the battery.

BATTERY MAINTENANCE

- Some batteries are filled with battery acid and then sealed at the factory. However, even a "maintenance free" battery requires some maintenance to ensure its proper life cycle.
- Spray the terminals and exposed wire with a battery terminal sealer, or coat the terminals with a thin coat of grease or petroleum jelly, to protect against corrosion.
- Always keep the battery cables and terminals clean and free of corrosion.
- Some models are equipped with a battery containing a liquid electrolyte. Handle the battery with care and avoid tipping to prevent leakage.

⚠ WARNING

Batteries contain sulfuric acid and may emit explosive gases. Use extreme caution when handling batteries. Keep batteries out of the reach of children.

BATTERY STORAGE

1. When storing the mower for extended periods, disconnect the negative battery cable. It is not necessary to remove the battery.
2. All batteries discharge during storage. Keep the exterior of the battery clean, especially the top. A dirty battery will discharge more rapidly.
3. The battery must be stored with a full charge. A discharged battery can freeze sooner than a charged battery. A fully charged battery will store longer in cold temperatures than hot.
4. Recharge the battery before returning to service. Although the mower may start, the engine charging system may not fully recharge the battery.

PRODUCT CARE

REMOVING THE BATTERY

⚠ WARNING

Battery posts, terminals, and related accessories contain lead and lead compounds. Wash hands after handling.

1. Remove the flange lock nut (a) and carriage screw (b) holding the battery hold-down bracket (c) in place (Figure 11).

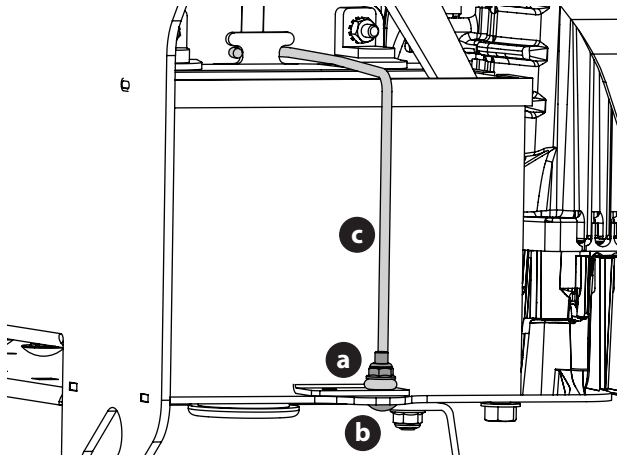


Figure 11

2. Remove the battery hold-down bracket.
3. Remove the hex cap screw and sems nut securing the black negative battery lead to the negative battery post (marked NEG (-)). Move the cable away from the negative battery post.
4. Remove the hex cap screw and sems nut securing the red positive battery lead to the positive battery post (marked POS (+)).
5. Carefully slide the battery out of the mower.
6. Install the battery by repeating the above steps in the reverse order.

Using the Transmission Bypass Rods

If for any reason the mower will not drive or you wish to move the mower, the two hydrostatic transmissions are equipped with a bypass rod that will allow you to manually move the mower short distances.

⚠ WARNING

Do not tow the mower, even with the bypass rod engaged. Serious transmission damage will result from doing so.

1. Engage the transmission bypass by pulling out on the bypass rod (a) and then placing it down in the slot before releasing (Figure 12).

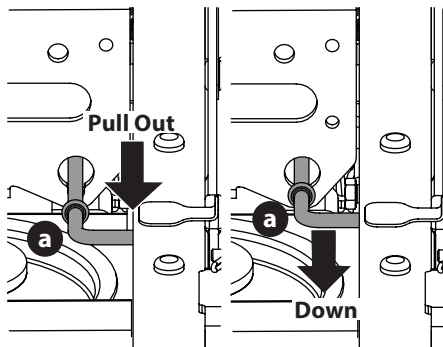


Figure 12

2. To release the transmission bypass, pull out and let the bypass rod slide back into the frame.

Hydrostatic Transmission

The mower is equipped with dual integrated hydrostatic pumps/transaxles that are sealed. However, this model is equipped with a transmission oil expansion reservoir. Under normal operating conditions, the oil level in the expansion reservoir does not need to be checked and no additional oil is needed. If checking the reservoir oil level, proceed as follows:

NOTE: See the Maintenance Schedule table for transmission oil changing intervals.

⚠ WARNING

Check the oil level **ONLY** before starting the mower when the transmission oil is fully cooled.

1. Clean the reservoir cap and the area around the cap to prevent debris from contaminating the transmission oil (Figure 13).

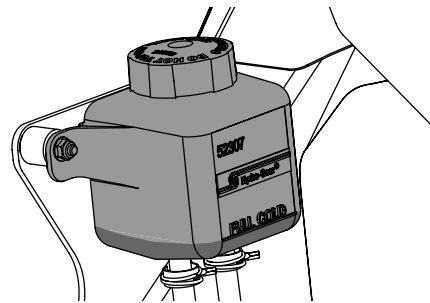


Figure 13

2. Turn the reservoir cap counter-clockwise to remove, then check the oil level in the reservoir. Oil should be visible at the bottom of the cup, but the oil level must **NOT** be above the "FULL COLD" line (Figure 13). **DO NOT FILL THE RESERVOIR.**
3. If necessary to add oil because of some type of leakage, use a quality 20W50 motor oil and add only enough oil to bring the level to the "FULL COLD" line. Reinstall the cap and fully tighten.

NOTE: Prior to the initial operation of the mower, the oil level in the reservoir may be slightly higher than the maximum due to air in the oil lines. Operation of the mower will eventually purge the air from the lines and the oil level will settle to the maximum.

Mower Storage

If your mower is not going to be operated for an extended period of time (30 days to approximately six months), the mower should be prepared for storage. Store the mower in a dry and protected location. If stored outside, cover the mower (including the tires) to protect it from the elements. The procedures outlined below should be performed whenever the mower is placed in storage.

1. Change the engine oil and filter following the instructions provided in the Engine Operator's Manual packed with this manual.

⚠ WARNING

Never store the mower with fuel in the tank indoors or in poorly ventilated enclosures, where fuel fumes may reach an open flame, spark, or pilot light as on a furnace, water heater, clothes dryer, etc.

PRODUCT CARE

- a. To prevent gum deposits from forming inside the engine's carburetor and causing possible malfunction of the engine, use a fuel stabilizer or completely empty the fuel system for storage between 30 and 90 days:

⚠ WARNING

Fuel left in the fuel tank deteriorates and will cause serious starting problems.

- Read the product manufacturer's instructions and recommendations.
 - Add to clean, fresh gasoline the correct amount of stabilizer for the capacity of the fuel system.
 - Fill the fuel tank with treated fuel and run the engine for 2-3 minutes to get stabilized fuel into the carburetor.
- b. Emptying the fuel system for storage of more than 90 days:
 - Prior to putting the mower in storage, monitor fuel consumption with the goal of running the fuel tank empty.
 - Run the engine until it begins to stall. Use the choke (if equipped) to keep the engine running until all fuel in the carburetor has been exhausted.
 - Referring to the Engine Operator's Manual, drain the fuel from the carburetor bowl.
2. Clean the engine and the entire mower thoroughly.
 3. Fully charge the battery, then disconnect the negative cable at the battery to prevent possible discharge. Recharge the battery periodically when in storage.

NOTE: Remove the battery if exposed to prolonged periods of sub-freezing temperatures. Store in a cool, dry location where temperatures are above freezing.
 4. Lubricate all lubrication points.

NOTE: Using a pressure washer or garden hose is not recommended for cleaning your mower. It may cause damage to electrical components, spindles, pulleys, bearings or the engine. The use of water will result in shortened life and reduce serviceability.

Removing the Mower from Storage

1. Check the engine oil.
2. Fully charge the battery and inflate the tires to the recommended pressure.
3. Fill the fuel tank with clean, fresh gasoline.
4. Start the engine and allow to idle for a few minutes to ensure engine is operating properly.
5. Drive the mower without a load to make certain all the mower systems are functioning properly.

ADJUSTMENTS

⚠ WARNING

Shut the engine off, remove the ignition key, and engage the parking brake before making adjustments. Protect your hands by using heavy gloves when handling the blades.

Deck Leveling

LEVELING THE DECK

NOTE: Check the mower's tire pressure before performing any deck leveling adjustments.

Refer to Tires for information regarding tire pressure. Always level the deck side-to-side before front to rear.

If the cutting deck appears to be mowing unevenly, a side-to-side adjustment can be performed. Adjust if necessary as follows:

1. Park the mower on a flat level surface.
2. Measure the distance from the outside of the left blade tip to the ground and the distance from the outside of the right blade tip to the ground. Both measurements taken should be equal. If they are not, proceed to the next step.
3. There are four adjustment points on the deck. Each of the deck lift adjustment pins has an adjustment bolt (a) (Figure 14). Raise or lower each side of the deck using the four bolts (a) until the side-to-side height is equal.

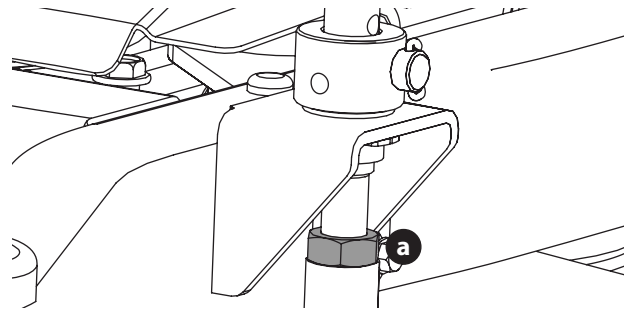


Figure 14

The front of the deck should be between 1/4-3/8" lower than the rear of the deck. Adjust if necessary as follows:

1. Raise or lower the front and/or rear of the deck using the four adjustment bolts (a) on the deck lift adjustment pins until the front of the deck is 1/4-3/8" lower than the rear of the deck (Figure 14).

Adjusting the Gauge Wheels (if equipped)

⚠ WARNING

Keep hands and feet away from the discharge opening of the cutting deck.

The front gauge wheels on the mower deck are an anti-scalp feature, and should not ride on the ground. The front gauge wheels should be approximately 1/4-1/2" above the ground when the deck is set in the desired height setting.

Using the deck lift handle, set the deck in the desired height setting, then check the gauge wheel distance from the ground below. If necessary, adjust the front gauge wheels as follows:

1. Visually check the distance between the front gauge wheels and the ground. If the gauge wheels are near or touching the ground, they should be raised. If more than 1/2" above the ground, they should be lowered.
2. Remove the lock nut (a) securing one of the front gauge wheels (b) to the deck. Remove the front gauge wheel (b), hex screw (c) and spacer (d) (Figure 15).

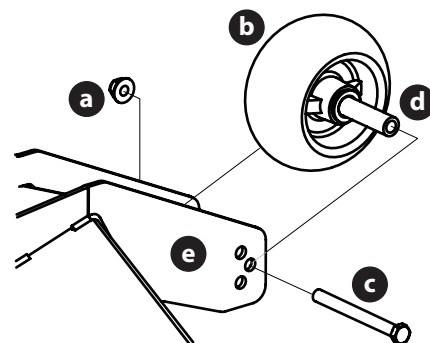


Figure 15

PRODUCT CARE

3. Insert the hex screw (c) into one of the three index holes in the front gauge wheel bracket (e) that will give the front gauge wheel (b) a 1/4-1/2" clearance with the ground (Figure 15).
4. Note the index hole of the just-adjusted front gauge wheel (b), and adjust the other front gauge wheels (b) into the respective index hole of the other front gauge wheel bracket (e) (Figure 15).

SERVICE

Charging the Battery

Test and, if necessary, recharge the battery after the mower has been stored for a period of time.

A voltmeter or load tester reading of 12.4 volts (DC) or lower across the battery terminals indicates that the battery needs to be charged.

MODELS WITH LEAD-ACID BATTERY

- A lead-acid battery charger should be used. Recommended charge rate is 4A/14.7V.
- If your battery charger is automatic, charge the battery until the charger indicates that charging is complete. If the charger is not automatic, charge for no fewer than eight (8) hours.

MODELS WITH AGM BATTERY

- An AGM battery charger should be used. Recommended charge rate is 1.1A/14.8V.

IMPORTANT! Do NOT use an automotive charger.

- If your battery charger is automatic, charge the battery until the charger indicates that charging is complete. If the charger is not automatic, charge for no fewer than eight (8) hours.

Jump Starting

WARNING

Failure to use this starting procedure can cause sparking, and the gases in the battery to explode.

1. Connect the end of one cable to the disabled machine battery's positive terminal; then connect the other end of that cable to the booster battery's positive terminal.
2. Connect one end of the other cable to the booster battery's negative terminal; then connect the other end of that cable to the frame of the disabled mower, as far from the battery as possible.
3. Start the disabled mower following the normal starting instructions previously provided; then disconnect the jumper cables in the exact reverse order of their connection.
4. Have the mower's electrical system checked and repaired as soon as possible to eliminate the need for jump starting.

Servicing Electrical System

FUSE

Always use the same capacity fuse for replacement. If you have a recurring problem with blown fuses, have the mower's electrical system checked by your authorized service dealer.

Safety Interlock System and Switch Operation Checks

After the engine has warmed up, shut off the ignition and check the operation of the safety switches.

- Make certain that the engine will not start unless the key switch is turned on, the transmission is in neutral and the blade clutch is disengaged. Place the neutral latch levers in the neutral lock position. If the engine will start with the transmission in any gear (not neutral), immediately shut off the engine and contact customer service. If the engine will start with the blade clutch engaged, immediately shut off the engine and contact customer service.

To check operator presence controls:

1. With the neutral locks engaged, start the engine and hold the left operator presence control lever down against the left handle and move the transmission shift lever into first gear. Now take your hand off the operator presence control lever and the engine should die. If it does not, immediately shut off the engine and contact customer service.
2. Repeat this procedure using the right operator presence control lever.
3. Shift the transmission into neutral, restart the engine, hold one of the operator presence controls down against the handle and engage the blade clutch. Now take your hand off of the operator presence lever and the engine should die. If it does not, immediately shut off the engine and disengage the blade.

ELECTRIC PTO CLUTCH

This clutch operates when the engine is running, the operator is in the operator's position and the PTO is engaged. This electric clutch is normally a trouble free device. If a problem develops and the blades do not turn, first check the 20 amp fuse, then investigate the wiring harness and the connections to the seat switch, the PTO switch and the electric blade clutch. Then check the PTO switch and the electric blade clutch. If the PTO clutch is still not working properly, see an authorized service dealer.

Deck Removal

WARNING

The muffler and any surrounding parts at the rear of the mower may be extremely hot, and could cause serious burns. Use extreme caution when near the muffler. Allow the muffler to fully cool before removing the belt from the PTO pulley.

Remove the mower deck from the mower as follows:

1. Lower the deck to the ground.
2. Apply the parking brake. Remove ignition key and the spark plug cap.
3. Using a 1/2" drive in the idler pulley bracket (a), turn the wrench counter-clockwise and slide the deck belt off the PTO pulley. See Figure 16 for 36" decks and Figure 17 on page 17 for 48" and 54" decks.

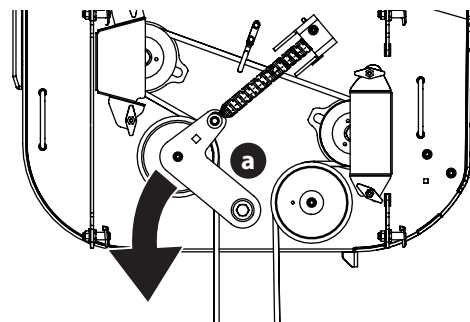


Figure 16

PRODUCT CARE

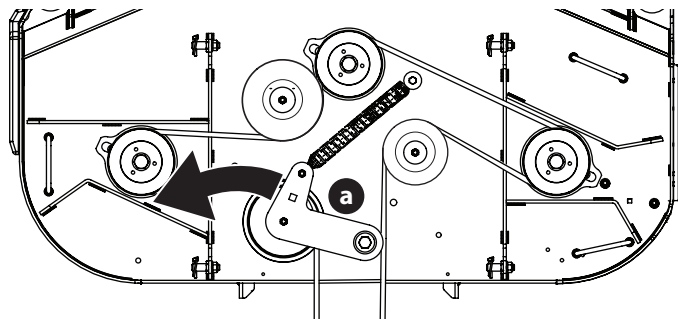


Figure 17

- Remove the four lynch pins (a) that secure the deck to the deck lift assembly (Figure 18).

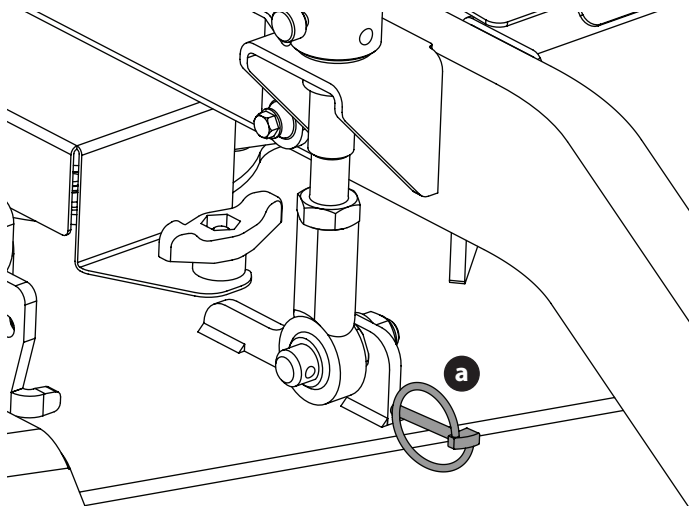


Figure 18

- Turn front wheels as if to make a pivot turn.
- Shift the deck toward the right side of the mower and remove.
- To install, reverse the process.

Replacing the Deck Belt

- Set the parking brake. Remove ignition key and both spark plug caps.
- Remove the deck (refer to Deck Removal).
- Remove the wing knobs (a) securing the belt covers to the deck (Figure 19).

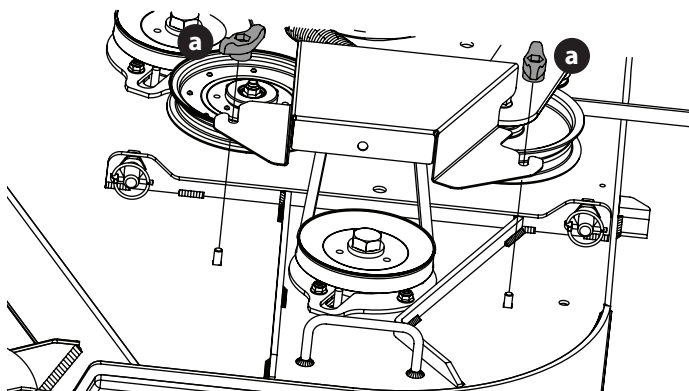


Figure 19

- The speed nut should hold the carriage screw in place.
- Remove the belt from around the pulleys. On 36" decks, a belt keeper rod (a) will also need removed. Remove the two bolts securing the belt keeper rod (a) to the deck (Figure 20).

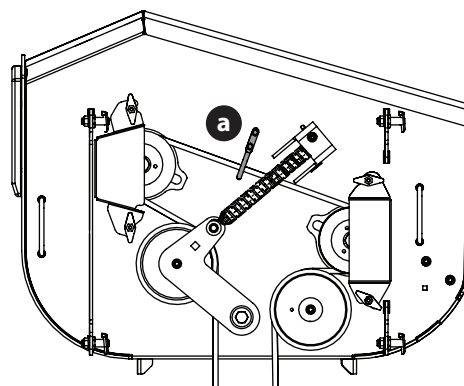


Figure 20

⚠ WARNING

Avoid pinching injuries. Never place your fingers on the idler spring or between the belt and a pulley while removing the belt.

- Route the new belt as shown in Figure 20 for 36" decks and Figure 21 for 48" and 54" decks. Then reinstall the deck.

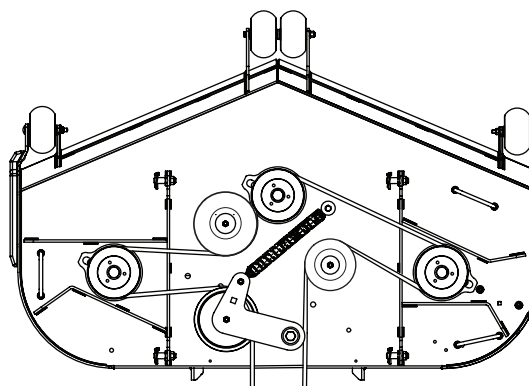


Figure 21

Replacing the Blades

⚠ WARNING

Before performing any maintenance, disengage the PTO, engage the parking brake lever, turn the ignition key to the "OFF" position and remove the key from the switch. Protect your hands by using heavy gloves when handling the blades. When servicing the mower deck, be careful not to cut yourself on the sharpened blades.

- Remove the deck as instructed in the Deck Removal section.
- Jack up the front of the mowing deck about one foot and block it in that position.

PRODUCT CARE

3. Wrap a rag around one end of the blade (a) and grasp it to prevent it from turning, or secure the blade (a) by placing a block of wood (b) between the blade (a) and the deck housing (c) (Figure 22).

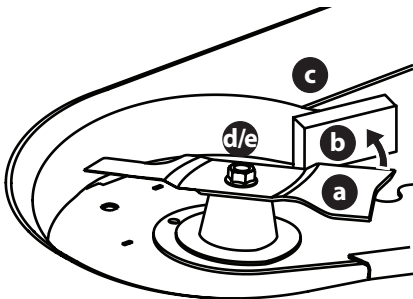


Figure 22

4. Remove the flange lock nut (d) and flat washer (e) at the blade (a) and remove the blade (Figure 22).
5. To replace the blade, reverse the above process and tighten nut to 90-110 ft-lbs.

NOTE: When replacing the blade, be sure to install the blade with the side of the blade marked "Bottom" or "Grass Side" (or with a part number stamped in it) facing the ground when the mower is in the operating position.

⚠ WARNING

Never mow with dull blades. Blades that are bent should be replaced. The cutting blades are sharp and can cause severe injury. Wrap the cutting surface of the blade with a rag and wear heavy gloves to avoid injury.

Sharpening the Blades

1. Set the parking brake.
2. Clean any debris from the blades. Keep blades sharp and free of build up at all times.
3. To properly sharpen the cutting blades, remove equal amounts of metal from both ends of the blades along the cutting edges, parallel to the trailing edge, at a 25°-30° angle. Always grind each cutting blade edge equally to maintain proper blade balance (Figure 23).

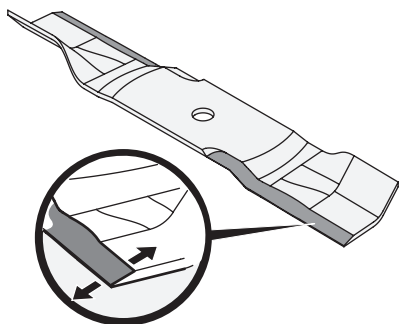


Figure 23

⚠ WARNING

If a blade is bent or otherwise damaged, replace the blade with a new one. Use only original equipment blades.

⚠ WARNING

A poorly balanced blade will cause excessive vibration, may damage the machine, and/or result in personal injury.

4. Test the blade's balance using a blade balancer. Grind metal from the heavy side until it balances evenly.

NOTE: When replacing the blade, be sure to install the blade with the side marked "Bottom" or "Grass Side" (or with a part number stamped in it) facing the ground when the mower is in the operating position.

⚠ WARNING

Use a torque wrench to tighten the blade flange lock nut to between 90-110 ft-lbs.

Changing the Spindle Assembly

1. Remove the deck as instructed in the Deck Removal section.
2. Jack up the front of the mowing deck about one foot and block it in that position.
3. Remove the deck cover.
4. Remove the drive belts. See Replacing the Deck Belt.
5. Remove the blade. See Replacing the Blades.
6. Remove the hex lock screw (a) and flat washer (b) securing the spindle pulley (c) to the spindle assembly (d) (Figure 24).

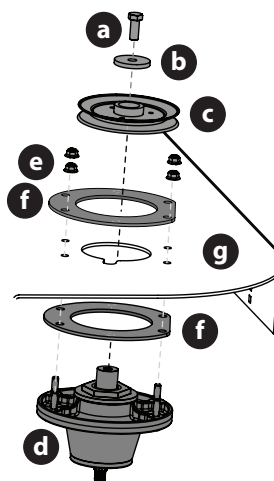


Figure 24

7. Remove the four (4) flange lock nuts (e) securing the spindle assembly (d) and the two support plates (f) to the deck shell (g) (Figure 24).
8. Reverse the process to install the spindle assembly. When installing the new spindle assembly be sure to install the hardware exactly (Figure 24). Torque the hex lock screws (a) to 90-110 ft-lbs and the flange lock nuts (e) to 13-20 ft-lbs.

Changing the Transmission Drive Belt

Several components must be removed and special tools used in order to change the mower's transmission drive belt. See your authorized service dealer to have the transmission drive belt replaced.

Mower Creeping

Creeping is the slight forward or backward movement of the mower when the throttle is on and the drive levers are in the neutral position. If your mower creeps, adjust the neutral control as follows:

PRODUCT CARE

1. Remove the four screws (a) that secure the front panel (b) and remove the front panel (b) (Figure 25).

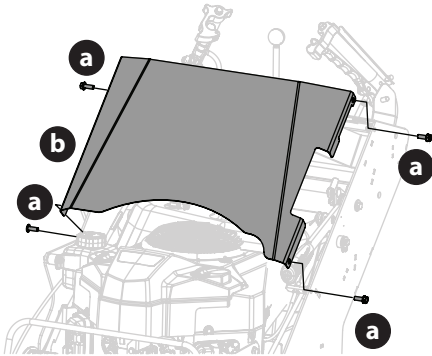


Figure 25

2. Adjust the tracking knob (a) until the threaded rod (b) is flush with the end (Figure 26). The length of the spring should be approximately 3-1/2" for proper adjustment.

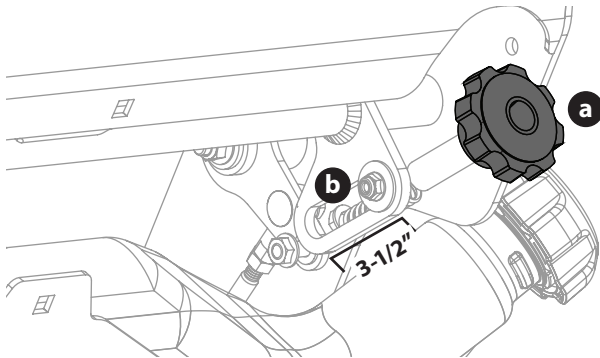


Figure 26

NOTE: The tracking knob is left-hand threaded, turn right to loosen and left to tighten.

3. Move the neutral lock levers (a) to the OPEN position (Figure 27).

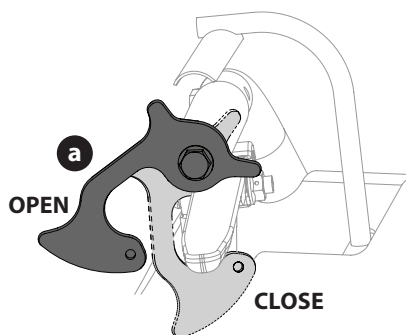


Figure 27

4. Loosen the jam nut (a) and zero out the transmission (Figure 28). Perform on both sides of the mower.

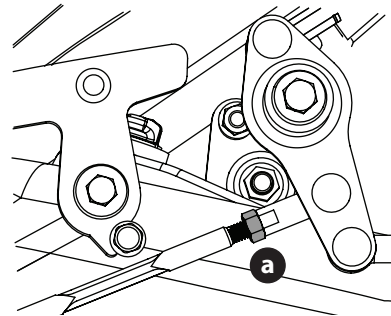


Figure 28

5. Move the neutral lock levers into the CLOSE position (Figure 27).
6. Loosen the jam nut (a) and adjust the rod until the steering lever (b) is seated in the neutral lock lever (c) (Figure 29).

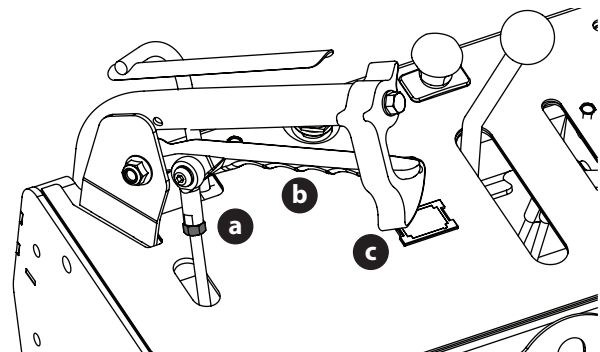


Figure 29

7. Close the neutral lock levers (Figure 27) and move the speed control lever to verify that there is no creeping. If the mower still creeps, try the adjustment again.

Mower Tracking

If your mower tracks to the left or right, a tracking adjustment is needed.

To adjust the tracking, use the tracking knob on the back of the mower and follow these instructions:

1. If the mower tracks (pulls) to the right, rotate the tracking knob to the left in 1/4-turn increments until the mower tracks straight (Figure 30). Turn left to go left.

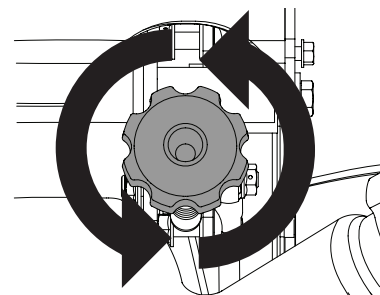


Figure 30

2. If the mower tracks (pulls) to the left, rotate the tracking knob to the right in 1/4-turn increments until the mower tracks straight (Figure 30). Turn right to go right.

PRODUCT CARE

TROUBLESHOOTING

WARNING

Before performing any type of maintenance/service, disengage all controls and stop the engine. Wait until all moving parts have come to a complete stop. Disconnect the spark plug wire(s) and negative battery cable to prevent unintended starting. Always wear safety glasses during operation or while performing any adjustments or repairs.

This section addresses minor service issues.

Problem	Cause	Remedy
Excessive vibration	1. Cutting blade loose or unbalanced. 2. Damaged or bent cutting blade.	1. Tighten blade and spindle. 2. Replace blade.
Uneven cut	1. Deck not properly leveled. 2. Cutting blade dull or damaged. 3. Uneven tire pressure.	1. Perform side-to-side deck adjustment. 2. Sharpen or replace cutting blade. 3. Check and correct tire pressure in the rear tires.
Mower will not mulch grass	1. Engine speed too low. 2. Wet grass. 3. Excessively high grass. 4. Dull blade.	1. Place throttle in FAST (rabbit) position. 2. Do not mulch when grass is wet. 3. Mow once at a high cutting height, then mow again at desired height or make a narrower cutting swath. 4. Sharpen or replace blade.
Mower creeping	1. Neutral control linkage needs adjusted.	1. Adjust neutral control linkage.
Mower drifting	1. Mower tracking needs adjusted.	1. Adjust mower tracking.
Engine fails to start	1. PTO/Blade engaged. 2. Blown fuse. 3. Parking brake not engaged.	1. Place blade engage lever in disengaged (OFF) position. 2. Replace fuse(s). See Engine Operator's Manual. 3. Engage parking brake.

REPLACEMENT PARTS AND ACCESSORIES

REPLACEMENT PARTS

Part Number	Description
954-05703	36" Deck Belt
954-05814	48" Deck Belt
954-05813	54" Deck Belt
954-05812	Drive Belt
942-05458	Hi-Lift Blade, 18.5 (36" Deck)
942-04417	Hi-Lift Blade, 17.0 (48" Deck)
942-04416	Hi-Lift Blade, 19.0 (54" Deck)
618-07406	Deck Spindle
634-05451	Deck Wheel, 48" & 54" Decks
731-13254	Deck Skid Guard, 36" Deck
731-11926	Deck Skid Guard, 48" & 54" Decks
725P17130	AGM Battery (if equipped)
751-15884	Gas Cap
946-05434	Throttle Control Cable (if equipped)
946-05341B	Choke Control (if equipped)
925-06908	Ignition Key
946-05420B	Park Brake Cable, Left
946-05421B	Park Brake Cable, Right
931-05396C	Chute Assembly
634-05446	Rear Wheel Assembly, 36" Decks, 18 x 6.5-8
634-05474	Rear Wheel Assembly, 48" & 54" Decks, 20 x 10-8
634-05413A	Front Wheel Assembly, 11 x 4-5

ATTACHMENTS AND ACCESSORIES

Part Number	Description
59A50009150	Double Wheel Sully
59A50008150	Single Wheel Sully
59C50004150	Bagger
59A50003150	Mulch Kit
59B50005150	LED Light Kit
59A50007150	Mesh Storage Bag

CUB CADET LLC -- LIMITED WARRANTY

The limited warranty set forth herein is given by Cub Cadet LLC with respect to a new Cub Cadet® product (hereinafter “Product”) purchased and used in the United States and/or Canada to the Initial Purchaser (as defined herein). This limited warranty does not cover Emission Control Systems and is not a Federal Emission Control Warranty Statement, as defined by U.S. federal law. Please refer to the Federal Emission Control Warranty Statement in the operator’s manual for warranties covering Emission Control Systems.

Scope of the Limited Warranty

Cub Cadet LLC warrants that the Product (except with regard to the components and circumstances defined below as “Exclusions”) will be free from defects in materials and workmanship during the Warranty Period, as defined below. For purposes of this limited warranty, the “Initial Purchaser” is the first person/company to purchase this new Product from an authorized Cub Cadet dealer, distributor, and/or retailer of such products, including a party for whom said Product was purchased as a gift. This limited warranty is non-transferrable. During the Warranty Period, Cub Cadet LLC will, at its option, either repair or replace any original part that is covered by this limited warranty and is determined to be defective in workmanship or material. “Commercial Use” shall be defined as any commercial, professional, agricultural, institutional, or income-producing use of the Product. See notes below as to Commercial Use Warranty.

Cub Cadet® Warranty Information	
Handheld Product*	Warranty Period
Chainsaws, Cultivators, Blowers, Brushcutters, Trimmers	3 Year
Wheeled Chore and Snow Product*	
Chipper-Shredders, Chipper-Shredder Vacuums, Blowers, Log Splitters, Snow Blowers	3 Year
Tillers, String Trimmers, Lawn Edgers, Pressure Washers CC3224, CC3425 & CC4033	3 Year†
Pressure Washers	2 Year†
Battery Powered Product	
60 Volt Max Product Series, CC30E, XT1 LT42E, ZT1 42E	3 Year†
60 Volt Max Product Series, CC30E, XT1 LT42E, ZT1 42E Batteries	4 Year†
Gas Powered Product	
Ultima ZTX Series	4 Year/800 hour (whichever comes first)
Z-Force SX	4 Year/500 hour (whichever comes first)
Walk-Behinds, Wide-Area Walk-Behinds, CC30 Riders, XT1 & XT2 Enduro Series, RZT S/SX, Ultima ZT Series, Z-Force S	3 Year†
23" Walk-Behinds, XT3 Enduro Series	4 Year†
Rotary Spreader	1 Year
Gas Blowers, PRO HW, PRO X-636	2 Year
PRO Z 500/700/900, PRO X-648/654/660, TANK LZ/SZ	3 Year
PRO Z 100 S	2 Year/NHL (No Hour Limit) or 4 Year/500 hour (whichever comes first)
Utility Vehicle*	
Challenger Series, Volunteer Series	1 Year

Additional Warranty Notes
Lead-Acid Batteries: Are covered by a one (1) year prorated limited warranty against defects in material and workmanship, with 100% replacement during the first three (3) months, from the date of original purchase by the Initial Purchaser. After three (3) months, the battery replacement credit is based on the months remaining in the twelve (12) month period, dating back to the date of original purchase by the Initial Purchaser. Any replacement battery will be warranted only for the remainder of the original warranty period.
Frames: The frame, chassis, and front axle on all XT1, XT2 and XT3 products are covered for “Residential Use” by a five (5) year limited warranty. The frame on all Ultima ZT and ZTX series products are covered for “Residential Use” by a seven (7) year Limited Lifetime Warranty.
Mowing Decks: 1) Cub Cadet LLC warrants the mowing decks under the warranty of the product it came with unless otherwise stated. 2) When so equipped, the optional fabricated cutting deck shell (excluding wear parts, etc. thereon) shall be warranted against defects in material and workmanship for the lifetime of the product, namely for as long as it is owned by its Initial Purchaser or the party for whom it was originally purchased as a gift, or seven (7) years from the date of its initial sale to an Initial Purchaser, whichever comes first. 3) The deck shell, deck spindles, and deck steel pulleys (collectively the “Deck Assembly”) on PRO Z 500 / 700 / 900 and PRO X-600 product only, shall also be warranted to be free from defects in material and workmanship for up to an additional two (2) years (a total of five (5) years from date of purchase) or 1,750 cumulative hours of operation, whichever comes first. For purposes of clarity, no hour limitation applies during the initial three (3) year period described above.
Snow Blowers: Three-Stage and Two-Stage (excluding 2X 24 models) - Auger gear boxes have a five (5) year limited warranty.
L and S Series: RZT L/LX, Z-Force L/LX/SZ, PRO Z 100 L, Z-Force Commercial (LZ/SZ), and Tank (L/S): Please refer to warranty included with Operator’s Manual.
Attachments/Accessories: Please refer to warranty with Operator’s Manual.
*Limited Commercial Use Warranty: Handheld products – 90 days; Chipper-Shredder Vacuums, Blowers, Log Splitters, Snow Blowers – 1 year; Utility Vehicle – 6 month.
† No Commercial Use Warranty: Tillers, String Trimmers, Lawn Edgers, Pressure Washers, Battery Powered Product, Walk Behind Mowers, 60 Volt Max Product Series, CC30 Riders, Enduro Series, RZT S/SX, Ultima ZT Series, and Z-Force.

The limited warranty is non-transferrable

How to Get Service Under This Limited Warranty

In order to qualify for the limited warranty, as set forth herein, the repairs made under this warranty must be performed by an authorized Cub Cadet service provider. To locate a Cub Cadet service provider, contact your authorized Cub Cadet dealer, distributor, or retailer, or contact Cub Cadet LLC at P.O. Box 368023, Cleveland, Ohio 44136-0019, or call 1-877-282-8684, or log on to our Website at www.cubcadet.com. For Canada, contact MTD Products Limited, 97 Kent Ave, Kitchener, ON N2G 3R2, or call 1-800-668-1238, or log on to our Website at www.cubcadet.ca. This limited product warranty is provided by Cub Cadet LLC and is the only product warranty provided by Cub Cadet LLC for the Product. A COPY OF YOUR SALES RECEIPT IS REQUIRED FOR WARRANTY SERVICE.

What This Limited Warranty Does Not Cover

This limited warranty does not cover the following (the "Exclusions"):

1. Product purchased outside of the United States or Canada.
2. Emission Control Systems. These items are subject to a separate warranty under the applicable Federal Emission Control Warranty Statement. Please refer to the applicable Federal Emission Control Warranty Statement for terms and conditions relating to Emission Control Systems.
3. Damage due to lack of maintenance and/or improper maintenance, as described in the operator's manual.
4. Normal wear and tear resulting from use of the Product.
5. Normal Wear Parts (as defined herein) are warranted to be free from defects in material and workmanship for a period of thirty (30) days from the date of original purchase by the Initial Purchaser for residential use, and for 30 days or 100 hours (whichever occurs first) for Product used commercially. Depending on Product, Normal Wear Parts include, but are not limited to items such as: belts, blades, blade adapters, grass bags, rider deck wheels, seats, shave plates, skid shoes, tines, filters, nozzles, hoses, O-rings, spray guns, wands, tires, spark plugs, fuses, bump knobs, outer spools, cutting line, inner belts, starter pulley, starter rope, drive belts, saw chains, guide bars, and other consumable items.
6. Log splitter pumps, valves, and cylinders are covered for a period of one (1) year.
7. Use of the product that is not consistent with the intended use thereof, as described in the operating instructions, including, but not limited to, abuse, misuse and/or neglect of the Product, or any use inconsistent with and/or non-compliant with instructions contained in the Operator's Manual. This includes operation in sandy and/or corrosive environments.
8. Any Product that has been altered or modified in a manner not consistent with the original design of the Product or in a manner not approved by Cub Cadet LLC.
9. Paint repairs or replacements for defective paint (including materials and application) are covered for a period of three (3) months.
10. Wheel rims (when so equipped) are covered for a period of three (3) months for manufacturing defects.

This warranty does not cover, and Cub Cadet LLC disclaims any responsibility for, matters including, but not limited to, the following:

1. Loss of time or loss of use of the Product.
2. Transportation costs and other expenses incurred in connection with the transport of the Product to and from the authorized Cub Cadet service provider.
3. Any loss or damage to other equipment or personal items.
4. Damages caused by improper maintenance or the use of other than the specified fuel, oil, or lubricants, as approved in the operator's manual.
5. Damage resulting from the installation or use of any accessory or part not approved by Cub Cadet LLC for use with the Product.

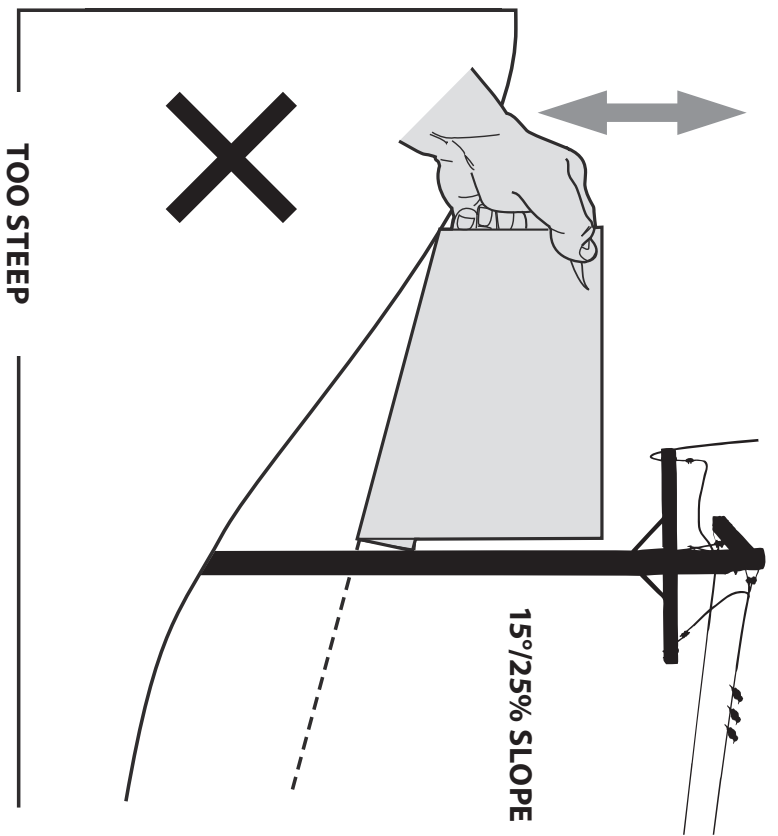
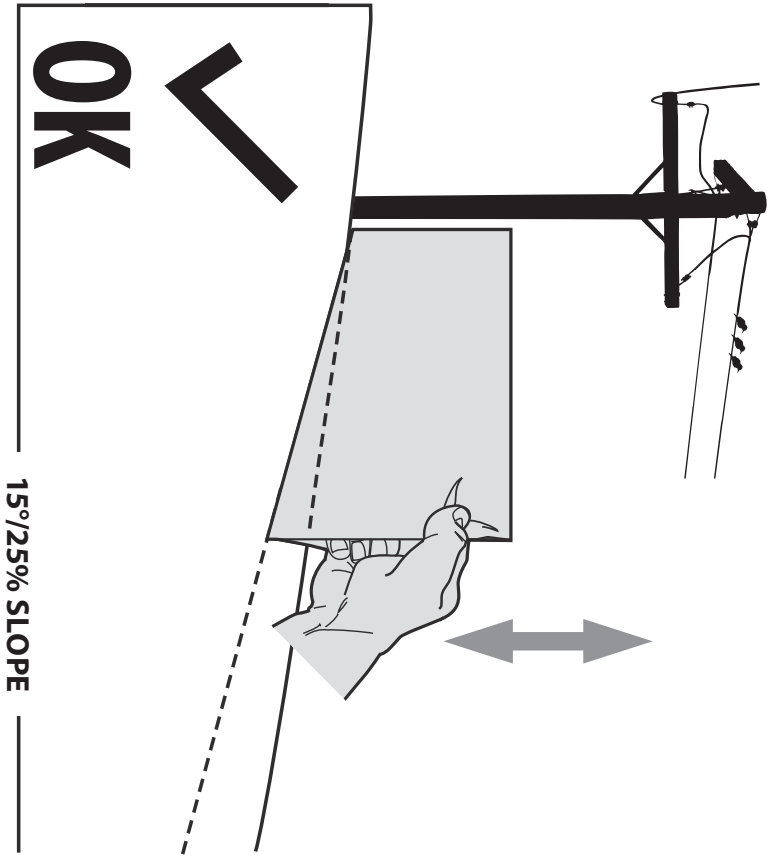
Limitations

1. THERE ARE NO IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. NO WARRANTY SHALL APPLY AFTER THE APPLICABLE WARRANTY PERIOD, AS SET FORTH ABOVE, AS TO THE PARTS AS IDENTIFIED. NO OTHER EXPRESS WARRANTY OR GUARANTY, WHETHER WRITTEN OR ORAL, EXCEPT AS MENTIONED ABOVE, GIVEN BY ANY PERSON OR ENTITY, INCLUDING A DEALER OR RETAILER, WITH RESPECT TO ANY, PRODUCT SHALL BIND CUB CADET LLC. DURING THE WARRANTY PERIOD, THE EXCLUSIVE REMEDY IS REPAIR OR REPLACEMENT OF THE DEFECTIVE PART, AS SET FORTH ABOVE. (SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.)
2. THE PROVISIONS, AS SET FORTH HEREIN, PROVIDE THE SOLE AND EXCLUSIVE REMEDY ARISING FROM THE SALE. CUB CADET LLC SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL LOSS OR DAMAGES INCLUDING, WITHOUT LIMITATION, FOR TRANSPORTATION OR FOR RELATED EXPENSES, OR FOR RENTAL EXPENSES TO TEMPORARILY REPLACE A WARRANTED PRODUCT. (SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE EXCLUSION OR LIMITATION MAY NOT APPLY TO YOU.)
3. IN NO EVENT SHALL RECOVERY OF ANY KIND BE GREATER THAN THE AMOUNT OF THE PURCHASE PRICE OF THE PRODUCT SOLD. ALTERATION OF THE SAFETY FEATURES OF THE PRODUCT SHALL VOID THIS LIMITED WARRANTY. YOU ASSUME THE RISK AND LIABILITY FOR LOSS, DAMAGE, OR INJURY TO YOU AND YOUR PROPERTY, AND/OR TO OTHERS AND THEIR PROPERTY, ARISING OUT OF THE USE OR MISUSE OR INABILITY TO USE THE PRODUCT.
4. This limited warranty extends to the Initial Purchaser only and, except as otherwise stated herein, the applicable Warranty Period will begin on the original date of purchase of the Product. In the event that the original date of purchase of the Product is indeterminable, then the Warranty Period shall be established as beginning on the Product's date of manufacture, as determined by Cub Cadet LLC, and ending six (6) months after the applicable Product Warranty Period, as defined above. In no event shall a Product's warranty extend beyond the applicable Warranty Period.

How State Law Relates to This Warranty

This limited warranty gives you specific legal rights, and you may also have other rights, which vary from state to state.

SLOPE GAUGE



15%/25% DASHED LINE

