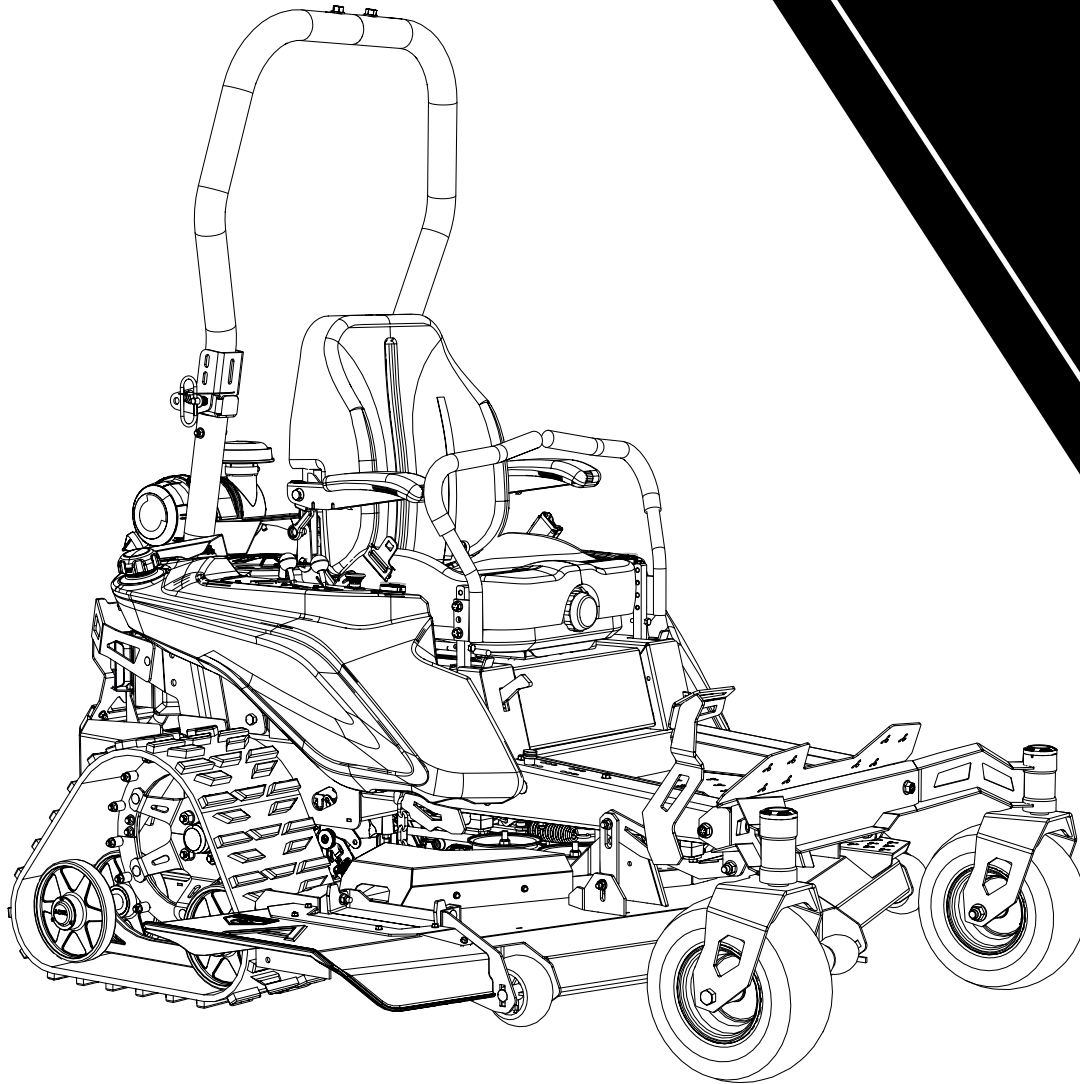


# ALTOZ<sup>®</sup>

## ZERO TURN MOWERS

MODEL LINE:  
TRX™ 354



## Operator's Manual

### ⚠ WARNING

ALL OPERATORS OF THIS MACHINE MUST READ AND UNDERSTAND THIS MANUAL AND ALL DECALS BEFORE OPERATING. FAILURE TO COMPLY WITH THESE INSTRUCTIONS CAN RESULT IN PERSONAL INJURY OR DEATH.

ALTOZ, INC. • 20502 160TH STREET • GREENBUSH • MINNESOTA • 56726

## Product Identification

# Product Identification

### Record Identification Numbers

If you need to contact an Authorized Service Center for service or information, always provide the model and serial numbers of your machine.

The serial number decal is located on the frame next to the engine. Record the information from the serial number decal in the spaces provided.

DATE OF PURCHASE:

---

DEALER NAME:

---

DEALER PHONE:

---

SERIAL NUMBER DECAL



13-100.tif

MODEL NUMBER:

---

MODEL DESCRIPTION:

---

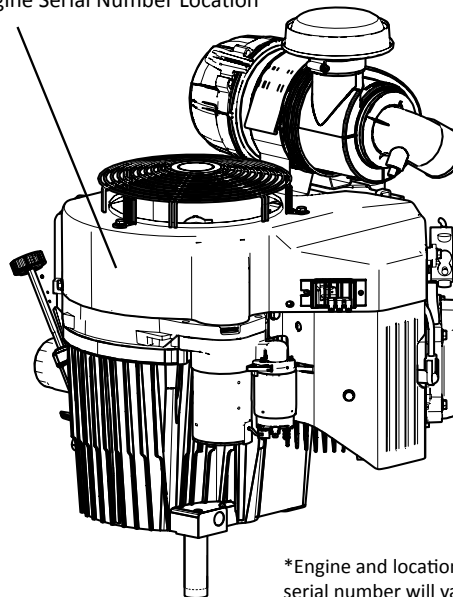
SERIAL NUMBER:

---

ENGINE SERIAL NUMBER (located on engine):

---

Engine Serial Number Location\*



\*Engine and location of serial number will vary.

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The engine serial number is located on a plate or decal on the engine. It may be necessary to lift the seat to access the serial number. Refer to the engine Owner's or Operator's Manual provided with your machine for the location of this information.

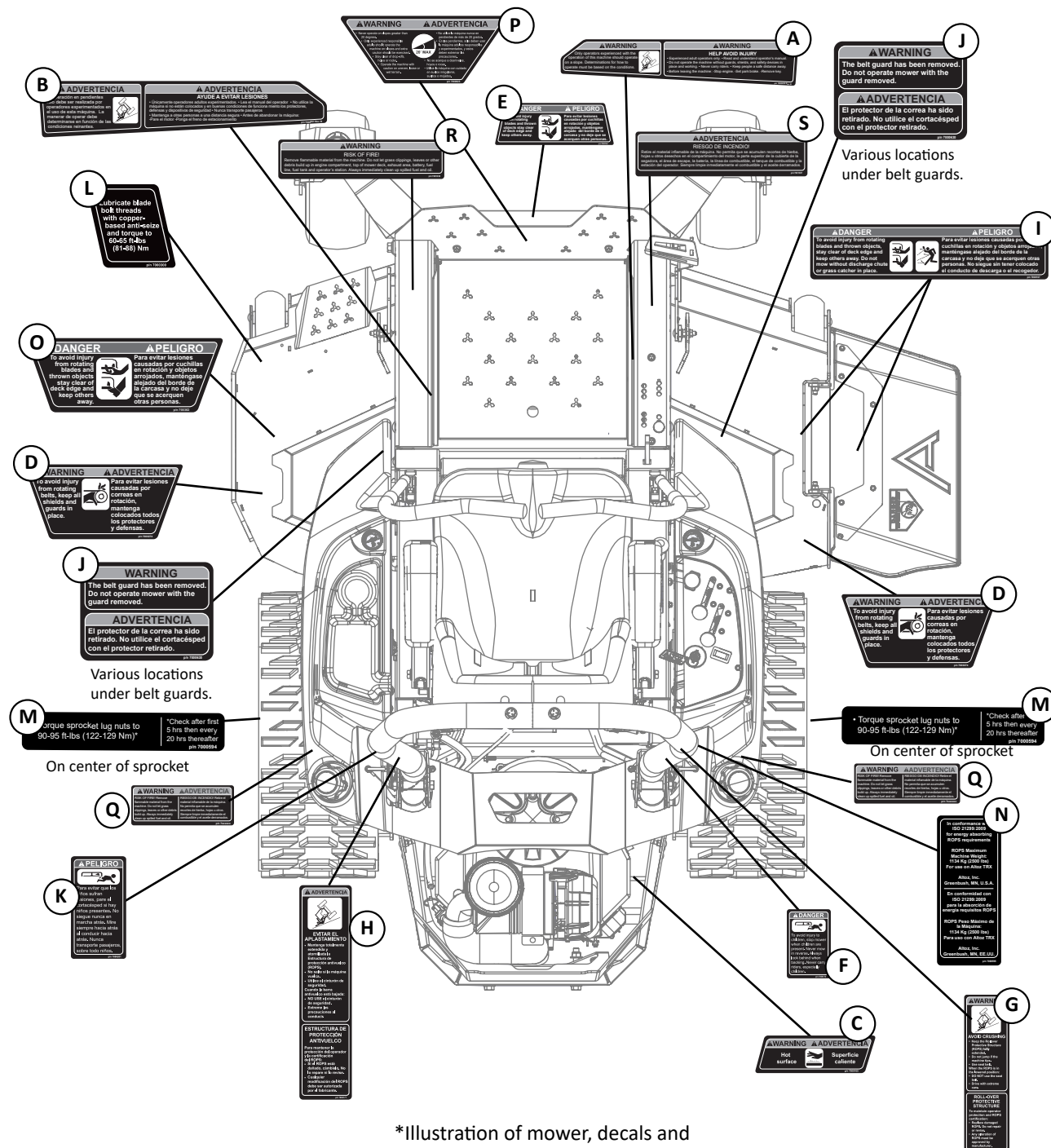
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## Operating Label Locations




\*Illustration of mower, decals and locations of decals may vary by model.

## Operating Labels

**⚠ WARNING**

Only operators experienced with the operation of this machine should operate on a slope. Determinations for how to operate must be based on the conditions.




**⚠ WARNING**

**HELP AVOID INJURY**

- Experienced adult operators only. • Read and understand operator's manual.
- Do not operate the machine without guards, shields, and safety devices in place and working. • Never carry riders. • Keep people a safe distance away.
- Before leaving the machine: -Stop engine. -Set park brake. -Remove key.

**⚠ ADVERTENCIA**

La operación en pendientes solo debe ser realizada por operadores experimentados en el uso de esta máquina. La manera de operar debe determinarse en función de las condiciones reinantes.




**⚠ ADVERTENCIA**

**AYUDE A EVITAR LESIONES**


- Únicamente operadores adultos experimentados. • Lea el manual del operador. • No utilice la máquina si no están colocados y en buenas condiciones de funcionamiento los protectores, defensas y dispositivos de seguridad. • Nunca transporte pasajeros.
- Mantenga a otras personas a una distancia segura. • Antes de abandonar la máquina: -Pare el motor. -Ponga el freno de estacionamiento.

**⚠ WARNING** **⚠ ADVERTENCIA**

**Hot surface**  **Superficie caliente**

**⚠ DANGER** **⚠ PELIGRO**


To avoid injury from rotating blades and thrown objects stay clear of deck edge and keep others away.



Para evitar lesiones causadas por cuchillas en rotación y objetos arrojados, manténgase alejado del borde de la carcasa y no deje que se acerquen otras personas.

**⚠ WARNING** **⚠ ADVERTENCIA**

To avoid injury from rotating belts, keep all shields and guards in place.



Para evitar lesiones causadas por correas en rotación, mantenga colocados todos los protectores y defensas.

**⚠ WARNING**


The belt guard has been removed. Do not operate mower with the guard removed.

**⚠ ADVERTENCIA**

El protector de la correa ha sido retirado. No utilice el cortacésped con el protector retirado.

**⚠ DANGER**

To avoid injury from rotating blades and thrown objects stay clear of deck edge and keep others away.



**⚠ PELIGRO**

Para evitar que los niños sufran lesiones, pare el cortacésped si hay niños presentes. No siga nunca en marcha atrás. Mire siempre hacia atrás al conducir hacia atrás. Nunca transporte pasajeros, sobre todo niños.

**⚠ WARNING**

**AVOID CRUSHING**


- Keep the Rollover Protective Structure (ROPS) fully extended.
- Do not jump if the machine tips.
- Use seat belt.

When the ROPS is in the lowered position:

- DO NOT use the seat belt.
- Drive with extreme care.

**⚠ DANGER**

To avoid injury to children, stop mower when children are present. Never mow in reverse. Always look behind when backing. Never carry riders, especially children.



**⚠ DANGER**

Lubricate blade bolt threads with copper-based anti-seize and torque to 60-65 ft-lbs (81-88) Nm

**⚠ PELIGRO**

Para evitar lesiones causadas por cuchillas en rotación y objetos arrojados, manténgase alejado del borde de la carcasa y no deje que se acerquen otras personas.


**⚠ WARNING**

Torque sprocket lug nuts to 90-95 ft-lbs (122-129 Nm)\*

\*Check after first 5 hrs then every 20 hrs thereafter

**⚠ DANGER**

To avoid injury from rotating blades and thrown objects, stay clear of deck edge and keep others away. Do not mow without discharge chute or grass catcher in place.



**⚠ PELIGRO**

Para evitar lesiones causadas por cuchillas en rotación y objetos arrojados, manténgase alejado del borde de la carcasa y no deje que se acerquen otras personas. No siga sin tener colocado el conducto de descarga o el recogedor.

**⚠ WARNING** **⚠ ADVERTENCIA**

**RISK OF FIRE!**

Remove flammable material from the machine. Do not let grass clippings, leaves or other debris build up in engine compartment, top of mower deck, exhaust area, battery, fuel line, fuel tank and operator's station. Always immediately clean up spilled fuel and oil.


**⚠ ADVERTENCIA**

**RIESGO DE INCENDIO!**

Retire el material inflamable de la máquina. No permita que se acumulen recortes de hierba, hojas u otros desechos en el compartimento del motor, la parte superior de la cubierta de la segadora, el área de escape, la batería, la línea de combustible, el tanque de combustible y la estación del operador. Siempre limpie inmediatamente el combustible y el aceite derramados.

**⚠ DANGER** **⚠ PELIGRO**

To avoid injury from rotating blades and thrown objects stay clear of deck edge and keep others away.



**⚠ WARNING** **⚠ ADVERTENCIA**

**RISK OF FIRE!**

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Retire el material inflamable de la máquina. No permita que se acumulen recortes de hierba, hojas u otros desechos en el compartimento del motor, la parte superior de la cubierta de la segadora, el área de escape, la batería, la línea de combustible, el tanque de combustible y la estación del operador. Siempre limpie inmediatamente el combustible y el aceite derramados.

**⚠ ADVERTENCIA**

**EVITAR EL APLASTAMIENTO**

- Mantenga totalmente extendida y atornillada la Estructura de protección antivuelco (ROPS).
- No salte si la máquina vuelca.
- Utilice el cinturón de seguridad.

Quando la barra antivuelco está bajada:

- NO USE el cinturón de seguridad.
- Extreme las precauciones al conducir.

**ESTRUCTURA DE PROTECCIÓN ANTIVUELCO**

Para mantener la protección del operador y la certificación del ROPS:

- Si el ROPS está dañado, cámbielo. No lo repare ni lo revise.
- Cualquier modificación del ROPS debe ser autorizada por el fabricante.

In conformance with ISO 21299:2009 for energy absorbing ROPS requirements

ROPS Maximum Machine Weight: 1134 Kg (2500 lbs) For use on Altoz TRX

Altoz, Inc. Greenbush, MN, U.S.A.

En conformidad con ISO 21299:2009 para la absorción de energía requisitos ROPS

ROPS Peso Máximo de la Máquina: 1134 Kg (2500 lbs) Para uso con Altoz TRX

Altoz, Inc. Greenbush, MN, EE.UU.

**ROLL-OVER PROTECTIVE STRUCTURE**

To maintain operator protection and ROPS certification:

- Replace damaged ROPS. Do not repair or revise.
- Any alteration of ROPS must be approved by manufacturer.

# Introduction

## Thank You for Purchasing an Altoz® Zero-turn Mower!

Congratulations on your purchase of an Altoz Zero-turn Mower. Altoz mowers are skillfully engineered and manufactured to give you years of trouble-free, dependable operation.

## Using Your Operator's Manual

The purpose of this Operator's Manual is to assist an operator in learning the proper way to operate the machine, and to provide regular service and maintenance procedures to maximize the machine's longevity.

This manual is an important part of your machine. Keep it available and refer to it often. Make sure other operators read and understand this manual before they operate the machine. This manual should remain with the machine if and when you sell it.

Reading the Operator's Manual will help you and others avoid personal injury and prevent damage to the machine. Information given in this manual provides for effective use of the machine. Knowing how to operate the machine correctly will allow you to train others who may operate this machine.

The Operator's Manual is organized into sections to help you understand all of the operating messages and learn the controls so you can operate this machine correctly. It provides specific operating and servicing information.

Illustrations and images shown in this manual may differ slightly from your machine, but will be similar enough to help you understand the instructions.

Occasionally, information may be provided referring to RH and LH sides of the machine. Right-hand (RH) and left-hand (LH) are determined by facing in the direction the machine will travel when going forward.

## Warranty Registration

To validate and begin your warranty protection, your authorized Altoz Dealer must register the machine **within ten (days)** following the date of purchase. As the new owner of an Altoz Zero-turn Mower, you should verify that your authorized Altoz Dealer has registered your machine in a timely manner.

**NOTE: Do not use or operate any attachment not approved by Altoz. Any unauthorized alteration, modification or use of attachments or options can void your warranty.**

## ⚠ WARNING

**The use of any attachment not approved by Altoz or other alterations or modifications can result in death or severe personal injury. Do not use unapproved attachments or alter or modify your Altoz mower.**

## Engine Manual

A separate Engine Manual is included with your owner's packet that contains additional engine information that will not be repeated in this manual. It is important to read and understand this manual before operating the engine. Keep the Engine Manual with the owner's packet for future reference.

## Parts, Service and Warranty

Use original Altoz Replacement Parts only. These parts are available through your local authorized Altoz Dealer. If warranty repair or service is needed, work must be done by an authorized Altoz Dealer. Be sure to provide your machine identification numbers for the most prompt and efficient attention. For later reference, record your machine's identification numbers on the inside front cover of this manual.

For engine or transmission warranty, parts or service, refer to the corresponding manual and warranty policy provided with this machine.

## Tips for Better Mowing

- Don't cut grass too short. This is especially important for cool season grasses. Height recommendations vary depending on the grass variety, but in general, cutting the grass at a higher height provides for a deeper root system, looks better and is less likely to allow weed growth.
- Don't remove more than one-third of the grass at any one cutting. Removing more than one-third of the grass plant leaves grass less resistant to disease and the stress of hot summer weather.
- Try to avoid mowing when grass is wet.
- Leaving grass clippings on the lawn is good for the grass. Grass clippings quickly decompose and add nutrients back into the soil. In some locations, throwing grass clippings in the garbage for landfill is actually banned.
- Contrary to popular opinion, grass clippings do not add to thatch buildup. Grass blades are made up of about 75% water.
- Mow in a different direction with each mowing, especially with shorter grass types, to ensure a more even cut. Grass blades will grow straighter and be less likely to develop into a set pattern.
- Keep mower blades sharp.
- Grass variety does matter when determining mowing height. A quick search on the internet can provide recommendations for variety-specific heights.

# Safety

## Operate with Safety in Mind

Attention to proper operating techniques and regular inspections and maintenance are critical to protect your investment and maximize its longevity. Even more importantly, it can help to protect you or others that may operate the machine. As the owner of this machine, it is your responsibility to ensure that each person operating it has read and understands the information contained in this manual and all information on the machine.

This Operator's Manual contains important messages that bring attention to potential safety concerns and situations that may damage your machine. It also contains important operating instructions and servicing information.

Altoz Zero Turn Mowers and this Operator's Manual use the following terms and symbols to bring attention to the presence of hazards of various risk levels and important information concerning the use and maintenance of the machine.

### DANGER

This symbol and text indicate an imminently hazardous situation which, if ignored, will result in death or serious injury.

### WARNING

This symbol and text indicate the presence of a hazard which can cause severe personal injury or death to an operator or bystander, or substantial property damage if ignored.

### CAUTION

This symbol and text indicate the presence of a hazard which can cause minor personal injury or property damage if ignored.

### CAUTION

The word CAUTION without the symbol is used in situations that may result in property damage, but not personal injury.




**NOTE:** The word "NOTE" is followed by supplementary information worthy of particular attention relating to the operation or servicing of the machine, but is not related to a hazardous condition.

Be sure to follow all instructions and related precautions as they are meant for your safety and protection. Store this manual in a readily accessible location for future reference.

## Training

- Read and understand this Operator's Manual. If the operator cannot read and understand English, it is the owner's responsibility to thoroughly explain the information contained within the manual and labels on the machine to them.
- Watch and understand the operation instructional DVD provided with this mower and provide the DVD to any operator to watch and understand prior to operating this machine.
- Read, understand and follow all labels on this machine and instructions in the manuals provided **before operating this machine**.
- Be thoroughly familiar with the controls and the proper use of this machine. Keep this manual in a safe place and provide it to each operator prior to operation for reference and ensure they have reviewed all safety and operational information.
- Only allow responsible adults, who are familiar with these instructions, to operate this machine. Local regulations may restrict the age of the operator. Never permit children under the age of 16 to operate this machine.
- Data indicates that operators age 60 years or older are involved in a large percentage of riding mower-related injuries. You, as the owner, should evaluate potential operators' abilities to operate this machine safely enough to protect themselves and others from serious injury.

## Proper Operating Attire

-  Do not operate this machine while wearing sandals, tennis shoes, sneakers, shorts or any type of loose-fitting clothing. Long hair, loose clothing or jewelry can get tangled in moving parts. Always wear long pants and safety shoes when operating this machine.
-  Always wear safety goggles or safety glasses with side shields when operating machine.
-  Always wear adequate ear protection such as ear plugs or ear muffs when operating this machine. Prolonged exposure to loud noises can cause impairment or loss of hearing. Do not wear radio or music headphones. Safe service and operation requires your full attention.



## Checking Mowing Area

- Inspect and clear mowing area of objects that might be thrown. Keep people and pets out of mowing area.
- Low-hanging branches and similar obstacles can injure the operator or interfere with mowing operation. Before mowing, identify potential obstacles such as low-hanging branches, and trim or remove those obstacles.
- Study mowing area. Set up a safe mowing pattern. Do not mow where traction or stability may be hazardous.
- Before mowing, test drive the area with the mower lowered but not running. Slow down when you travel over rough ground.
- Plan your mowing pattern before mowing to account for the discharged material.

## General Operating Precautions

### **⚠ WARNING**

**Only adult operators with proper training should operate this machine. Thoroughly read and understand this operator's manual.**

### **⚠ WARNING**

**Do not operate the machine without guards, shields, and safety devices in place and working.**

### **⚠ WARNING**

**Never carry riders. Keep people a safe distance away.**

### **⚠ DANGER**

**To avoid injury from rotating blades and thrown objects, stay clear of deck edge and keep others away.**

### **⚠ WARNING**

**To avoid injury from rotating belts, keep all shields and guards in place.**

### **⚠ CAUTION**

**Before leaving the machine: stop the engine, set the park brake and remove the key from the ignition.**

- ⚠ This mower is capable of amputating hands and feet, and of throwing objects. Failure to observe these safety instructions could result in serious injury or death. Keep hands, feet and clothing away from all moving parts and from under the machine.

- ⚠ Inspect machine before operating it. Be sure all hardware is tight. Repair or replace damaged, badly worn, or missing parts. Be sure guards and shields are in good condition and fastened in place. Make any necessary adjustments before you operate.
- ⚠ Clean flammable material from the machine. Prevent fires by keeping engine compartment, top of mower deck, exhaust area, battery, fuel line, fuel tank and operator's station clean of grass clippings, leaves, accumulated trash or other debris. Always immediately clean up spilled fuel and oil.
- ⚠ Check fuel lines, tank, cap, and fittings frequently for cracks or leaks. Replace if necessary.
- ⚠ Before using this machine, always visually inspect to see that the blades, blade bolts and the mower assembly are not worn and damaged. Replace worn and damaged blades and bolts in sets to preserve balance.
- ⚠ Make sure spark plug, muffler, fuel cap and air cleaner are in place before starting the engine.
- ⚠ Do not operate this machine without the entire discharge guard or other safety devices in place and working. Never operate with the discharge deflector raised, removed, or altered, unless using a grass catcher.
- ⚠ Always be aware of where discharged material is being directed. Never direct discharged material toward a person or pet. Avoid discharging material against a wall or obstruction. Material may ricochet back toward the operator. Stop the blades when crossing gravel surfaces.
- ⚠ Be sure the machine is in neutral and the parking brake is locked before starting engine. Only start the engine from the operator's position on the seat.
- ⚠ Be sure the area is clear of bystanders before operating. Stop machine if anyone enters the area.
- ⚠ Do not mow in reverse. Always look down and behind before and while backing.
- ⚠ Slow down before turning.
- ⚠ Operate machine only in daylight or good artificial light.
- ⚠ Do not operate the machine if you are fatigued or sick, pregnant, or under the influence of drugs or alcohol.
- ⚠ Disengage blades when not mowing.
- ⚠ Shut off engine, remove key and wait for all parts to come to a complete stop before cleaning the machine, removing a grass catcher or unclogging the discharge chute. Use a stick to clear a plugged discharge area. Never use your hand or foot!
- ⚠ Watch for traffic when operating near, or when crossing roadways. Stop blades before crossing roads or sidewalks.

# Safety

- ⚠ Use extra care when loading or unloading the machine into a trailer or truck. Use full width ramps for loading or unloading a machine.
- ⚠ Do not change the engine governor settings or overspeed the engine. Operating the engine at excessive speed can increase the hazard of personal injury and the risk of engine failure.
- ⚠ If the mower blade hits an object, stop the engine immediately and inspect the mower blade and blade mounting bolt. Make any necessary repairs before operating the machine again.
- ⚠ Maintain fire safety by stopping to remove any combustible materials periodically as required, especially when mowing in areas of high debris that create a potential for fire risk.

## ⚠ WARNING

**RISK OF FIRE! Remove flammable material from the machine. Do not let grass clippings, leaves or others debris build up in engine compartment, top of mower deck, exhaust area, battery, fuel line, fuel tank and operator's station. Always immediately clean up spilled fuel and oil.**

- ⚠ If an abnormal vibration occurs, stop the machine and inspect it. Make any necessary repairs before you operate the machine again.
- ⚠ When the machine is left unattended, stored, or parked, lower the mower deck.
- ⚠ Never leave a running machine unattended. Always turn off the blades, stop the engine and remove the key before leaving the machine.

## Protect Children

## ⚠ WARNING

**To avoid injury to children, stop mower when children are present. Never mow in reverse, Always look down and behind when backing. Never carry riders, especially children.**

- Children are attracted to lawn mowers and mowing activities. They don't understand the dangers of rotating blades, materials that can be thrown, or the fact that the operator could be unaware of their presence.
- Children who have been given rides in the past may suddenly appear in the mowing area for another ride and be run over or backed over by the machine.
- Tragic accidents with children can occur if the operator is not alert to their presence, especially when a child approaches a machine from behind. Before and while backing up, stop the mower blades and look down and behind this machine carefully, especially for children.

- Never carry children on this machine, even with the blades off. Do not tow children in a cart or trailer. They can fall off and be seriously injured or interfere with safe machine operation.
- Never allow children or an untrained person to operate this machine. Instruct all operators not to give children a ride on this machine or an attachment.
- Stay alert to the presence of children. Never assume that children will remain where you last saw them. Turn the machine off if a child enters the work area.
- Use extreme care when approaching blind corners, shrubs, trees, or other objects that may block your view of a child.

## Operating on a Slope

## ⚠ WARNING

**To avoid serious injury or death, use extreme caution when operating on slopes.**

## ⚠ WARNING

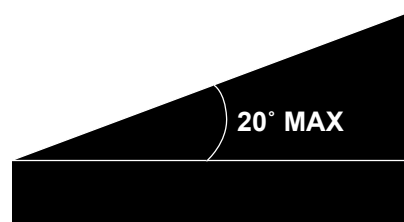
**Only operators experienced with the operation of this machine should operate on a slope. An experienced operator will better be able to determine how the slope should be mowed depending on the conditions. In all cases, read and follow all operating messages in this section regarding slope operation.**

## ⚠ WARNING

**The ROPS (rollover protection system) will minimize the chance of injury or death in the event of a rollover provided the operator's seat belt is fastened and the ROPS is in the raised and secured position. Failure to use the seat belt can result in serious injury or death in the event of a rollover.**

## ⚠ WARNING

**Never operate the machine on slopes greater than 20 degrees. Operating on slopes greater than 20 degrees can cause the machine to overturn which can result in severe injury or death.**



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

## ⚠ WARNING

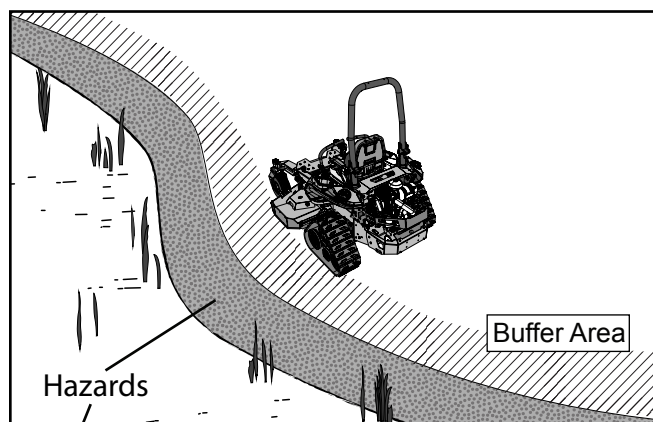
**Drive slowly on slopes.**

- Choose a low speed so you will not have to stop or shift while on a slope. Use low range when operating on slopes.
- Avoid starting, stopping or turning on a slope. If the tires or tracks lose traction, disengage the blades and proceed slowly, straight down the slope.
- Keep all movement on slopes slow and gradual. Do not make sudden changes in speed or direction, which could cause the machine to roll over.
- Be careful when mowing or operating machine on wet grass. The tires or tracks might lose traction. Tires or tracks can lose traction on slopes even though the brakes are functioning properly.

## ⚠ CAUTION

**Be careful when mowing or operating machine near hazards such as drop-offs, ditches, embankments or bodies of water.**

- Be careful when mowing near hazards (e.g., drop-offs, ditches, embankments or bodies of water). The machine could suddenly roll over if a wheel or track goes over the edge or if the edge caves in. Leave a buffer area between the machine and any hazard. If you have any concern about the slope or stability of the ground near the hazard, use a walk behind mower or hand trimmer.



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- Watch for holes, ruts, bumps, rocks, or other hidden objects. Tall grass can hide obstacles. Uneven terrain could overturn the machine.
  - Always keep the machine in gear when going down slopes. Do not shift to neutral and coast downhill.
  - Maintain a sufficient supply of fuel for continuous operation on a slope. A minimum of one-half tank of fuel is required in the tank the fuel is being drawn from.
  - Never try to stabilize the machine by putting your foot on the ground.
  - Be aware of what is at the bottom of a slope. Extreme caution should be used when there is a hazard such as water, cliff, road, building or rocks at the bottom of the slope.
  - Attachments and accessories will decrease the machines stability at any angle of operation. Only use attachments and accessories approved by Altoz.
- Do not mow on any slope that makes you feel uncomfortable.

# Safety

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## Clean Flammable Material from Machine

### **⚠ WARNING**

**Clean flammable material from the machine.**

- Accumulation of grass clippings, leaves or other debris creates a risk of fire from contact with hot mower components or from sparks created by the blades striking rocks or similar objects.
- Always make sure your mower is clean and free of grass, leaves and other debris before operating.
- Pay attention to build-up of grass, leaves or other debris while operating. If build-up occurs, stop the machine, disengage the mower and turn off the engine. Clean debris from mower using a stick or similar device. **DO NOT USE** hands or other body parts to clean debris as mower components or debris can be very hot and cause burns.
- For added safety and to protect yourself, your mower and the environment, carry a working fire extinguisher while operating mower.

## Towing Loads Safely

- Stopping distance increases with speed and weight of towed load. Travel slowly and allow extra time and distance to stop.
- Follow manufacturer's recommendations for weight limit for towed equipment. Maximum towing weight is 250 pounds.
- Excessive towed load can cause loss of traction and loss of control on slopes. Avoid slopes when towing.
- Never allow children or others in or on towed equipment.
- Use only approved hitches. Tow only if the machine has a hitch designed for towing. Do not attach towed equipment except at the approved hitch point and hitch.
- Do not turn sharply. Use additional caution when turning or operating under adverse surface conditions. Use care when reversing.
- Do not shift to neutral and coast downhill.

## Handling Gasoline Safely

### **⚠ WARNING**

**To avoid personal injury or property damage, use extreme care when handling gasoline. Gasoline is extremely flammable and its vapors are explosive.**

- Do not smoke or allow other sources of ignition around gasoline.
- Prevent fire and explosion that can be caused by static electrical discharge. Static electrical discharge can ignite gasoline vapors in an ungrounded container.
- This machine is designed to run on regular unleaded gasoline with an 87 octane rating or higher. Blends containing up to 10% ethanol are acceptable. Never use gasoline containing methanol or gasoline containing more than 10% ethanol (e.g., E15 or E85) because the engine and fuel system may be damaged.
- Use only an approved, non-metal, portable gasoline container approved by the Underwriter's Laboratory (U.L.) or the American Society for Testing & Materials (ASTM). If using a funnel, make sure it is plastic and has no screen or filter.
- Never add gasoline to, or drain gasoline from the machine indoors. Move machine outdoors and provide adequate ventilation.
- Never remove the gas tank cap or add gasoline with the engine running. Allow engine to cool before refueling.
- Keep the nozzle in contact with the rim of the gas tank or container opening at all times until the fueling is complete. Do not use a nozzle lock-open device.
- Never overfill the gas tank.
- Replace all gas container caps securely after use.
- Clean up spilled gasoline immediately. If it is spilled on clothing, change clothing immediately. If it is spilled near the machine, do not attempt to start the engine but move the machine away from the area of spillage. Avoid creating any source of ignition until the gasoline vapors have dissipated.
- Never store the machine or gasoline container where there is or could be an open flame, spark or pilot light (such as on a water heater or other appliance).

## Tire/Track Safety

- Always maintain the correct track tension found in the Service and Maintenance section.
- Never heat or weld a wheel and tire assembly or sprocket. Welding can structurally weaken or deform the wheel or sprocket.
- Do not attempt to mount a track without the proper equipment and experience to perform the job.
- Check tires and tracks often, especially before operating the machine, for cuts, foreign objects such as nails, damaged rims, missing lug nuts or missing bolts.
- Check the rear sprocket lug nut torque after the first 5 hours of operation and every 20 hours thereafter.
- Check that all guide wheel and sprocket assembly hardware is tightened to the specified torque. A serious accident causing severe injury could occur if wheel/sprocket hardware is not tight.

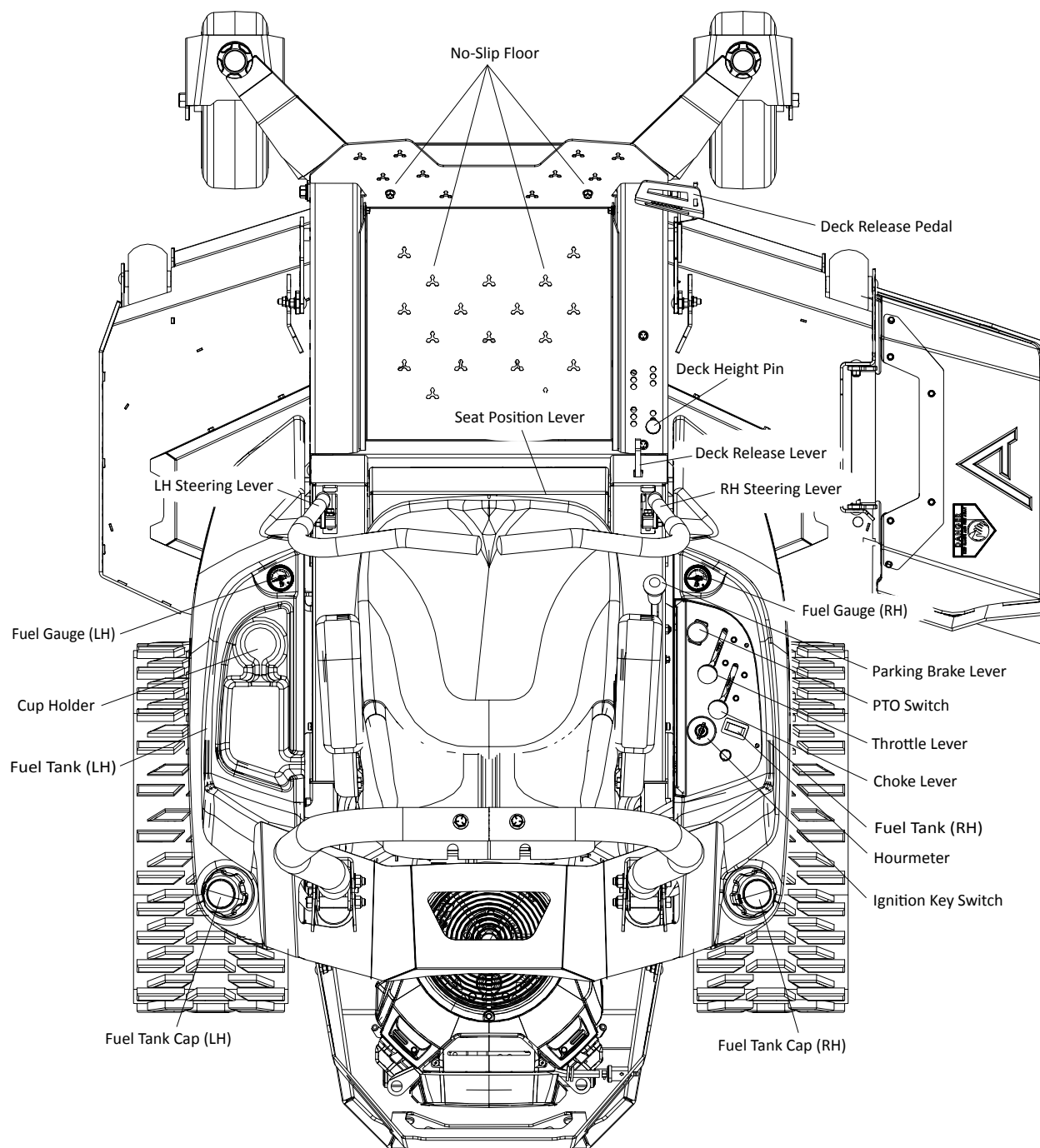
## Safety Tips for Handling Batteries

- Keep sparks and flames away from the battery. Inspect the battery in natural light.
- Remove jewelry and wrist watches, which might make electrical contact and create sparks.
- Wear safety goggles or a face shield when inspecting or cleaning battery.
- Avoid chemical burns by not rubbing eyes or skin while working with the battery.
- If acid does enter your eye, immediately flood with running water for at least 30 minutes. See a doctor as soon as possible.
- If acid contacts your skin, wash the affected area immediately with plenty of water.
- Wash your hands immediately after working with a battery.
- Clean up all acid spills and flush clothing with a water and baking soda solution.
- Keep batteries away from children.
- Smoking or open flames should never be present near a battery, and ventilation is important.

## Protect the Environment

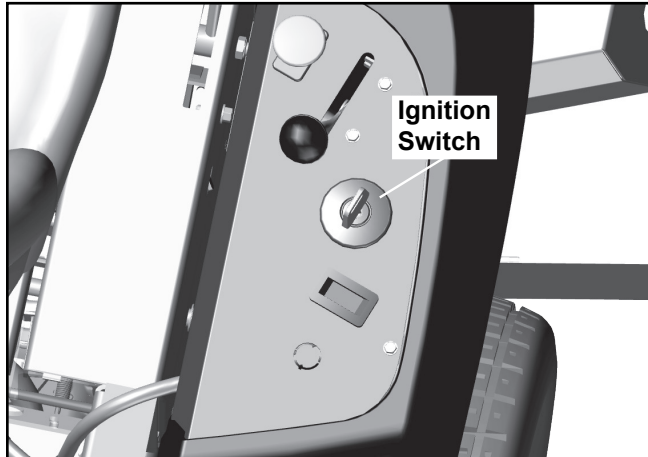
- Fuel and other flammable liquids are considered hazardous. To help preserve the environment, properly discard used batteries, oils and fluids.
- Fluids like transmission oil, gear oil, motor oil and antifreeze can be processed and recycled into new fluids. See your local Recycling Center or authorized Altoz dealer to learn how to get rid of waste products.
- Refer to the engine Owner's Manual and transmission Owner's Manual for other information related to responsibly discarding waste materials.

# Controls & Features



NOTE: Not all controls and features are available on all models. Appearance will vary by model.

## Ignition Switch



15-0302-00.ai

The ignition switch is located on the RH console to the right of the seat. The ignition switch has three positions:

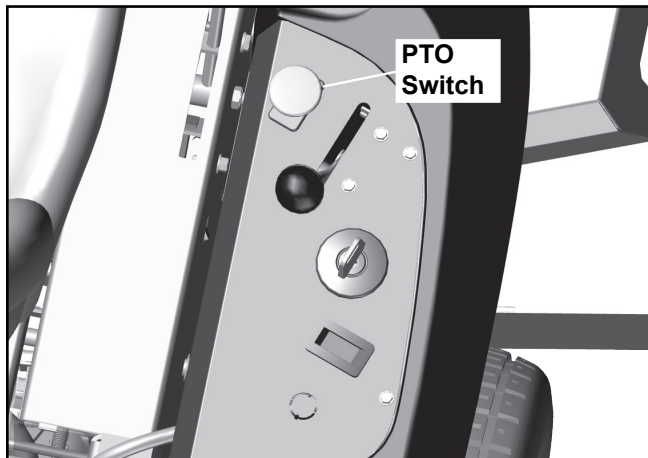
STOP - The engine and electrical system are turned off.

RUN - The machine's electrical system is energized.

START - The starter motor will turn over the engine.

See the Operating the Machine section for more information.

## PTO Switch

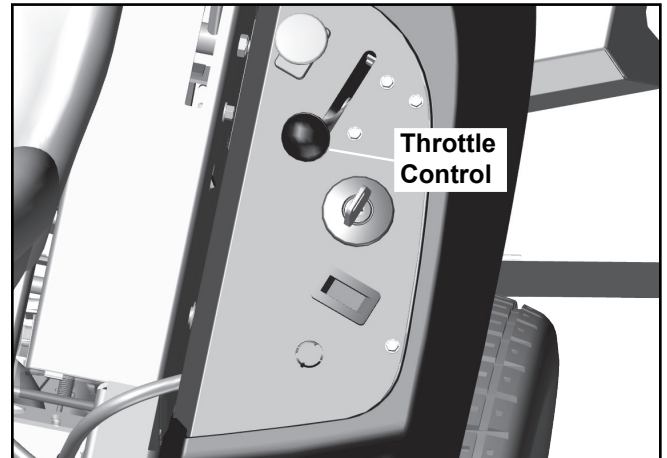


15-0303-00.ai

The PTO switch is located on the RH console. It controls the clutch that turns the blades of the mower deck. To engage the mower, pull the switch UP. To disengage the mower, push the switch DOWN. See the Operating the Machine section for more information.

**NOTE:** The engine will not start if the PTO switch is engaged (i.e., in the UP position).

## Throttle Control

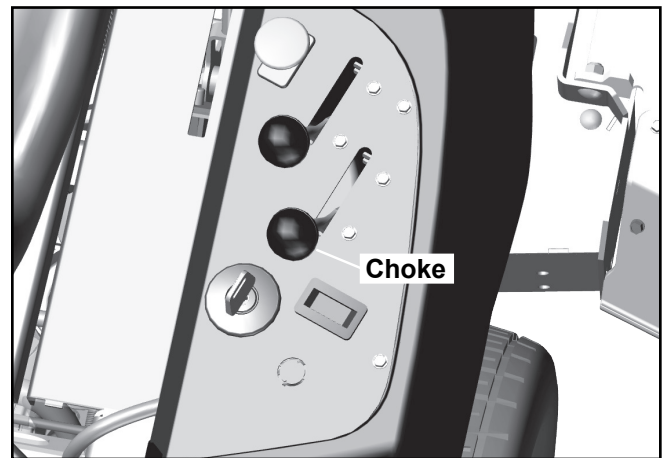


15-0304-00.ai

The throttle control is located on the RH console to the right of the seat. It controls the speed of the engine. Pull back to slow the engine speed. Push forward to increase the engine speed. See the Operating the Machine section for more information.

**NOTE:** The throttle should be at full speed when mowing.

## Choke (if equipped)

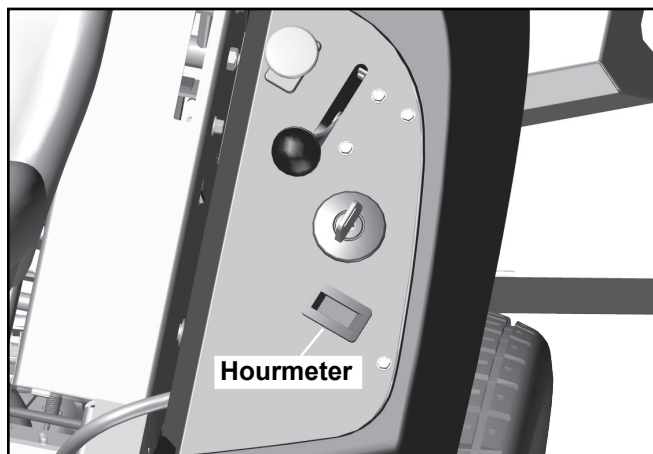


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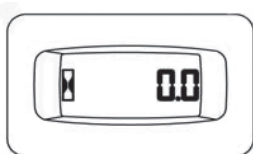
The choke is used as an aid in starting a cold engine. Moving the choke lever forward will put the choke in the "ON" position and moving the choke lever to the rear will put it in the "OFF" position. **Do Not** run a warm engine with the choke in the "ON" position.

# Controls & Features

## Hourmeter



15-0306-00.ai



13-101.tif

The hourmeter is a non-resettable meter that will show the total hours the key has been on with the operator seated on the machine.

## Fuel Tank Caps

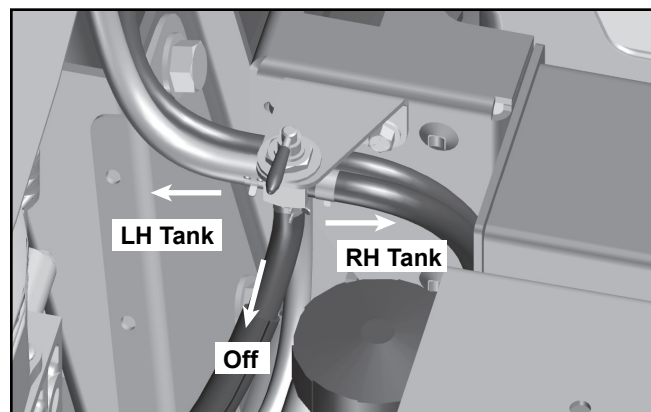
The fuel tank caps are located on the top of the fuel tank. To remove, turn the cap counter-clockwise. Always re-install the fuel tank cap tightly on the fuel tank after removing.

## Fuel Gauges

The fuel gauges are located on top of the fuel tank. It shows the approximate level of fuel remaining in the tank.

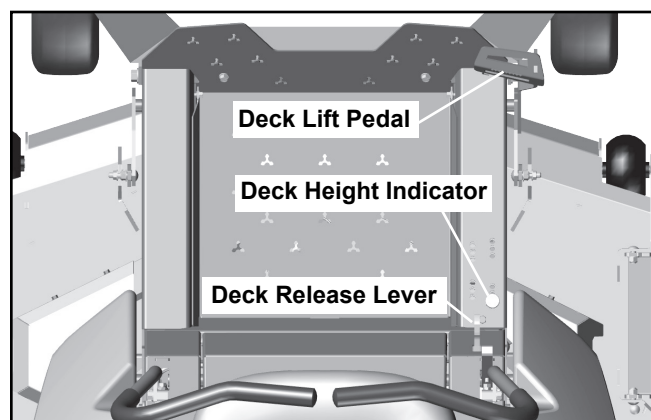
## Fuel Valve/Shut-off

The fuel valve is located behind the seat on the left side of the engine. The valve opens the fuel flow or shuts it off completely. Rotate the valve to the desired position.



16-0256-00.ai

## Deck Lift/Release Pedal

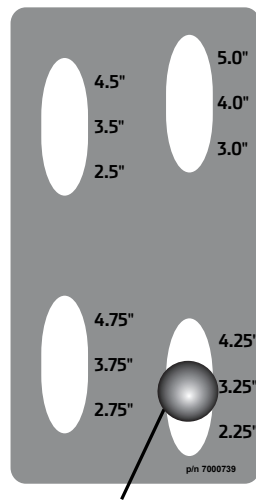


15-0308-00.ai

The deck lift pedal is located on the right front corner of the foot platform, and is used to raise and lower the mower deck. The deck release lever is used to release the deck, allowing it to be lowered. See Adjustments section for more information.



## Deck Height Indicator

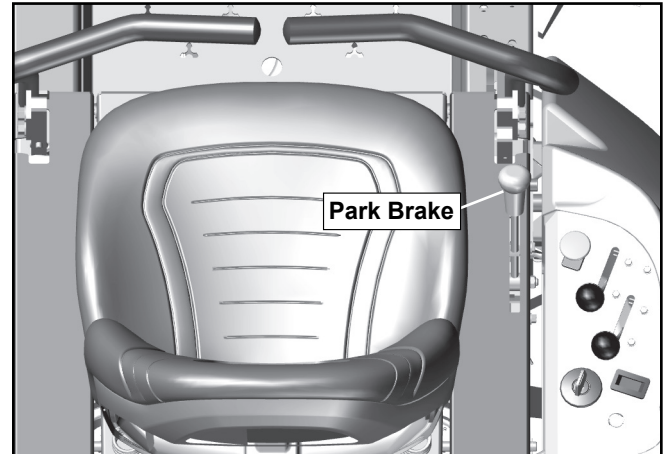


**Deck Height Pin**

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The deck height indicator (if equipped) consists of several holes located to the right of the foot platform and a pin that is inserted in the hole representing the desired mow height. Each hole corresponds to a change in the deck height. The deck height is adjustable from 1-1/2 in. to 4-1/4 in. (38 - 108 mm). See Adjustments section for more information.

## Park Brake



15-0310-00.ai

The park brake is located to the right of the operator's seat. To engage the park brake, pull the lever back; to release the park brake, push the lever forward.

## Steering Levers

The steering levers are used to control the speed and direction of the rear wheels independently of each other. The LH steering lever controls the rear LH wheel; the RH steering lever controls the rear RH wheel. When the wheels are turning in the same direction at the same speed, the machine will move in a straight line. By controlling the speed of each wheel with the steering levers, turning (including "zero radius turning") can be accomplished. See the Operating the Machine and Adjustments sections for more information.

# Controls & Features

## Moving Machine with Engine Off

### CAUTION

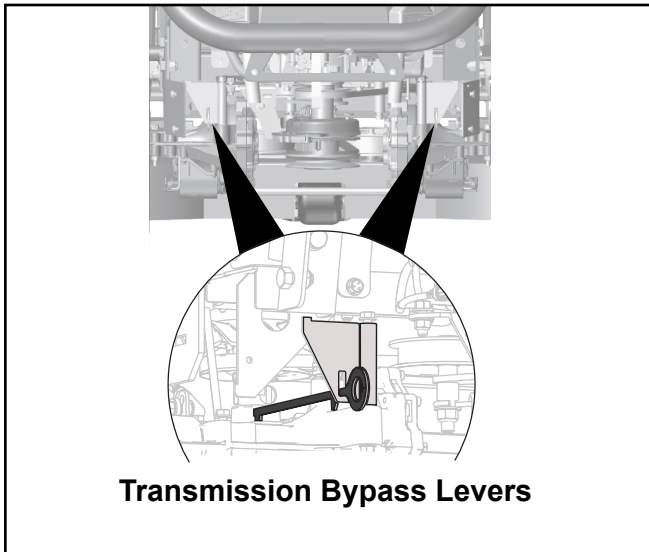
To avoid damaging the transmission when moving manually: (1) move the machine by hand only and (2) **DO NOT TOW** the machine or use another vehicle to move it.

### ⚠ WARNING

Do not start or operate the machine with the bypass valves set to the **BYPASS** position. Valves must be set to **RUN** (the screw turned to the run position) before the engine is started.

If it becomes necessary to move the machine manually, the transmission hydraulic pumps are equipped with bypass valves. The bypass valve is a screw on the transmission housing.

## Transmission Bypass Lever

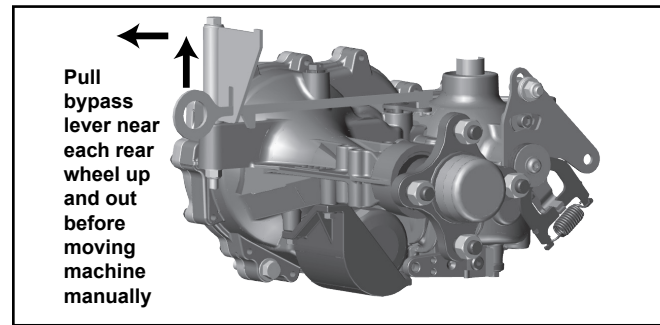


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**NOTE:** The engine must be off before bypassing the hydraulic pumps.

1. Transmission bypass levers are located under the machine on the transmission housings near each rear wheel.
2. Lock the parking brake.

3. To disable the transmissions, pull each lever up and out of the keyhole slot to the bypass position. Release the lever with the stop outside the bracket to lock in the bypass position.



15-0010-00.ai

4. Unlock the parking brake.

### ⚠ WARNING

**Avoid possible injury! When the bypass valve is open, the machine will have unlimited motion.**

### ⚠ WARNING

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

5. Move machine by hand to desired location.
6. Pull each lever up and return through the keyhole slot to the **RUN** position to enable the transmission. Remember to perform the same procedure for each rear wheel.

# Pre-ride Inspection

## Checklist to Follow Each Time Before Operating

Taking a few minutes to perform a pre-operating check before operating the machine each time will help you find potential small problems before they can become larger ones. It makes the machine safer to operate and improves the quality of the cut.

- Test safety interlock system (see Safety Interlock System section).
- Check fuel level. Fill the fuel tank(s) with only fresh, clean unleaded gasoline with an octane rating of 87 or higher. DO NOT OVERFILL - allow space in the tank(s) for the fuel to expand.

### CAUTION

**Using stale, contaminated or improper fuel can result in engine and fuel system damage. Repairs caused by stale, contaminated or improper fuel are not covered by the warranty.**

- Check engine oil level as indicated in the engine Operator's or Owner's Manual. It is also located in the Service and Maintenance section of this manual.
- Check the transmission oil level.
- Check that all fasteners on the machine are tightened securely. Make sure to check the track system (ie; guide wheels, sprocket assembly bolts, sprocket lug nuts), the mower deck (ie; mower blades, blade hub, spindle mounting bolts) and the front fork assembly (ie; front wheel mounting bolt, TorqFlex socket head cap screw).
- Check the tension of the mower deck drive belt. Replace drive belt if worn, frayed or stretched.

### ⚠ CAUTION

**Mower blades are sharp. Wear protective gloves when servicing or adjusting the mower blades.**

- Ensure that the mower deck is level side to side and front to back. To check front to back level, rotate the outside blades to be parallel with the body of the machine. With the operator seated, the front of the blade should be approximately 1/4 in. lower than the rear of the blade. If deck needs adjustment, refer to the Checking and Adjusting Mower Deck Level section.
- Remove grass and debris from the engine compartment, muffler area and on top of mower deck before and after operating machine.

- Inspect the tracks, sprockets and undercarriage components. Remove any debris from the track system. If debris is allowed to build up in the track system excessive wear or damage to the track and undercarriage components can occur (see note below).
- Clean engine air intake screen.
- Check area below machine for leaks.

**NOTE: Minor damage to the rubber surface on the guide wheels and the track is acceptable. Minor damage includes small nicks, small cuts and small pieces that are missing. Minor damage will not adversely affect the machine's performance. The track and guide wheels should be replaced when damaged or if wear adversely affects performance.**

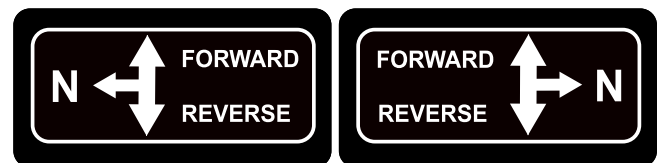
## Check Tires/Tracks

Check the front tires for damage before each use. Inspect the tracks for missing drive lugs on the inside of the track and traction lugs on the outside. Check the tension on each track. Properly adjusted tension on the rear tracks is important for stability of the machine.

## Safety Interlock System

The machine is equipped with a safety interlock system that consists of the park brake switch, seat switch, PTO switch and steering lever switches. Check this system daily, prior to operation. If there is a malfunction during one of these procedures, do not operate the machine. See your authorized dealer for service.

## Steering Lever Positions



13-083.ai

**NOTE: Start position for the steering levers is when they are fully extended outward in the neutral lock position.**

## Test Park Brake

1. Move the steering levers outward to the start position. Disengage the park brake.
2. Try to start the engine. The engine should not crank.

**NOTE: If the engine cranks there is a problem with the safety interlock system. Do not operate the machine. See your authorized Altoz dealer.**

# Pre-ride Inspection

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## Test PTO switch

1. Lock the park brake. Engage the mower clutch by lifting up the PTO switch.
2. Try to start the engine. The engine should not crank.

**NOTE: If the engine cranks there is a problem with the safety interlock system. Do not operate the machine. See your authorized Altoz dealer.**

## Test Steering Lever Switches

1. Move the steering levers inward to the neutral position. Engage the park brake.
2. Try to start the engine. The engine should not crank.

**NOTE: If the engine cranks there is a problem with the safety interlock system. Do not operate the machine. See your authorized Altoz dealer.**

3. Sit in seat. Move the steering levers outward to the start position. Start the engine.
4. Move the right steering lever inward. The engine should stop.

**NOTE: If the engine doesn't stop there is a problem with the safety interlock system. Do not operate the machine. See your authorized Altoz dealer.**

5. Move the steering levers outward to the start position. Start the engine.
6. Release the park brake.
7. Move the right steering lever inward. The engine should continue running.

**NOTE: If the engine stops there is a problem with the safety interlock system. Do not operate the machine. See your authorized Altoz dealer.**

8. Engage the park brake and repeat steps 3-7 using the left steering lever.

## Test Seat Switch

1. Move the steering levers outward to the start position. Engage the park brake. Disengage the mower deck (push down the PTO switch).
2. Start the engine and move the throttle up to maximum engine speed.
3. Slowly raise up out of the seat. The engine should stop.

**NOTE: If the engine does not stop there is a problem with the safety interlock system. Do not operate the machine. See your authorized Altoz dealer.**

# Initial Set-up and Break-in

Your Altoz Dealer has set up the machine and verified that it is ready for use. It is a good idea to perform a couple of checks yourself before you operate the machine for the first time.

### **Check Engine Oil Level**

Check engine oil level as indicated in the engine Operator's or Owner's manual. It is also located in the Service and Maintenance section of this manual.

### **Check Electronic Safety Interlock System**

Perform safety system check to make sure the electronic safety interlock circuit is functioning properly. Perform all tests. See Safety Interlock System in the Operating and Adjustments section.

### **Check Mower Deck Level**

Check mower deck level. See Checking and Adjusting Mower Deck Level in the Operating and Adjustments section.

### **Engine Break-in**

The first few hours of a new engine's life have a significant impact on how effectively the engine will perform, how much oil it will consume and how long it will last. Proper engine break-in will produce an engine that achieves maximum power output with the least amount of oil consumption due primarily to the piston rings having seated properly to the cylinder wall.

Refer to the engine Owner's or Operator's Manual provided with this machine for proper break-in procedures and maintenance. Change the oil and filter as recommended after the recommended hours of initial operation.

### **Transmission Break-in**

The machine's hydrostatic transmission is factory-filled, sealed and normally does not require additional oil between oil change intervals. However, it is recommended to change the transmission oil after the first 100 hours of operation and then every 400 hours thereafter. See your authorized Altoz dealer for this service.

# Operating the Machine

### Practice Driving First!

Before operating the machine – especially if you have never operated a zero-turn mower before – become familiar with the steering levers and how the machine responds. For your safety and for the safety of others, it is essential that you learn and practice how the machine accelerates, steers and stops.

#### Steering Lever Positions

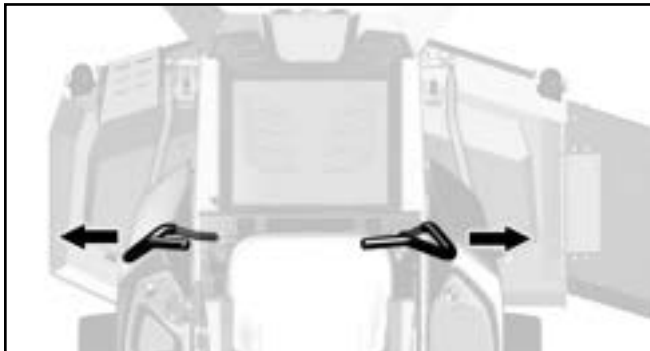


13-083.ai

**NOTE:** Start position for the steering levers is when they are fully extended outward to the neutral lock position.

### Neutral Lock Position - Starting the Machine

1. The operator must be seated on the seat,
2. The park brake must be engaged,
3. The mower blades must be disengaged (i.e., the PTO switch must be pushed down), and
4. The steering levers must be fully extended to the neutral lock position.



13-012.tif

**NOTE:** When the steering levers are in the neutral lock position, forward and reverse movements are prevented.

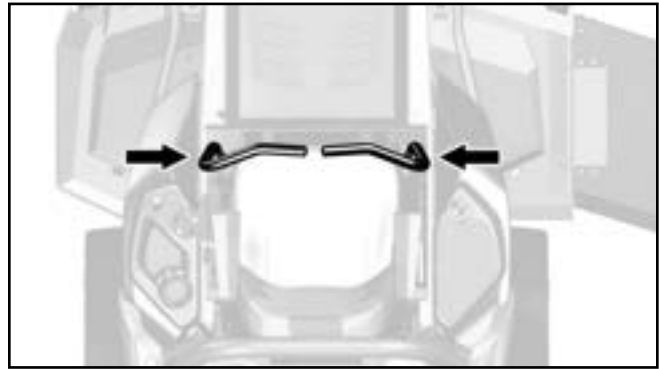
5. To use the choke on models equipped with a manual choke, push the choke lever all the way forward. As the engine warms, you can gradually pull the lever back toward you until the engine is running smoothly. Once the engine is up to temperature, the choke should be completely off.

6. Turn the key to the START position. Release the key immediately once the engine has started. If the motor does not start within 5 seconds, turn the key to the OFF position. Apply choke if the engine is cold and try to start the engine again. Do not hold the key in the START position and continue to crank the engine. Damage to the starter can occur.
7. Once the engine is started and warmed up, set the throttle control at the desired engine speed.

**NOTE:** The throttle should be at full speed when mowing.

### Neutral Position

With the engine running and the steering levers in the neutral position, engine speed can be adjusted with the throttle lever.



13-013.tif

To stop the machine in an emergency, move the steering levers quickly to the neutral position.

### Using the Steering Levers

The machine's steering levers are very responsive. The general rule should always be to make steering lever movements slow and gradual. Avoid sudden movements. Your skill as an operator and ease of operation will develop with practice and experience.

### ⚠ CAUTION

The further away the steering levers are from the neutral position, the faster the machine will travel.

## Straight Forward and Reverse Travel

Travelling in a straight line, whether moving forward or reverse, takes practice. When the steering levers are moved equally either forward or back, the machine should move in a straight line. If the machine doesn't move in a straight line, the steering levers may need adjustment (see Adjusting Tracking).

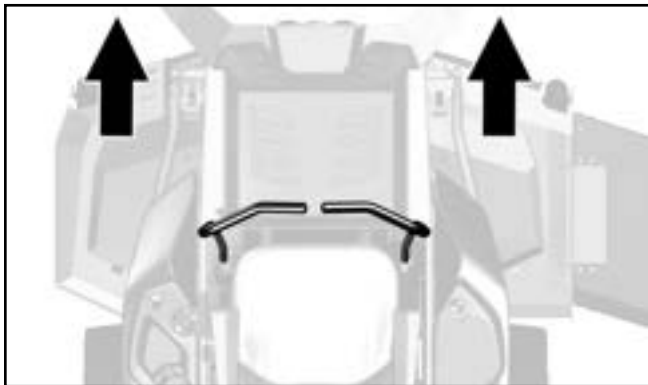
To initiate movement from the neutral lock position:

1. Move the throttle to the full-open position.
2. Disengage the park brake.
3. Move the steering levers to the neutral position.
4. Move the steering levers forward to begin travelling forward.
5. Move the steering levers backward to begin travelling in reverse.

### ⚠ CAUTION

**Always gradually move the steering levers. Never "slam" them forward or back quickly. Doing so can cause the wheels to leave the ground and/or could cause you to lose control of the machine. It will also damage the drive belt.**

Gradually move both steering levers forward ahead of neutral to increase speed and travel forward. Gradually move both steering levers backward towards neutral to decrease speed.

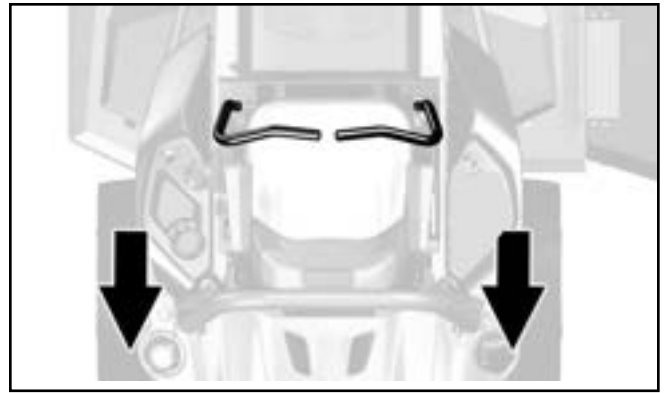


13-014.tif

### ⚠ WARNING

**Always be aware of what is behind the machine before backing up. Do not mow in reverse unless absolutely necessary. Always look down and behind before and while backing up.**

Push the PTO switch down to disengage the mower blades before moving in reverse. Look down and behind before attempting to travel in reverse.

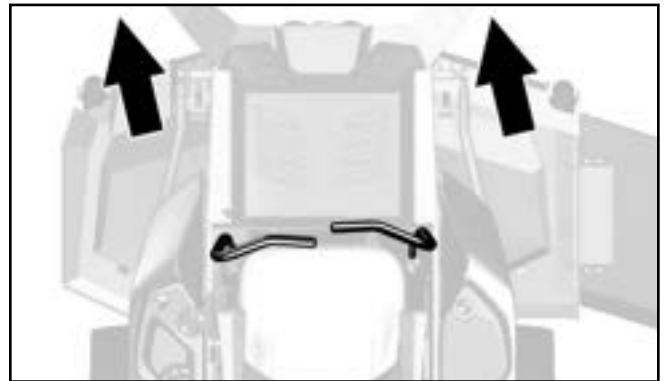


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Gradually move both steering levers back from neutral to increase speed and travel in reverse. Gradually move both steering levers forward towards neutral to decrease speed.

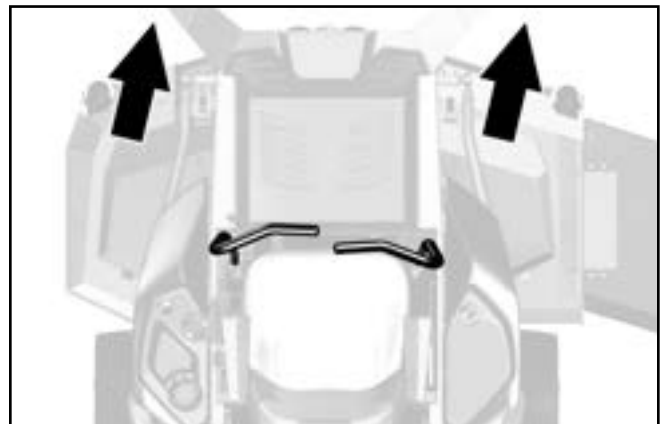
## Gradual Turns

To make a gradual left turn, push the right steering lever slightly ahead of the left steering lever.



13-016.tif

To make a gradual right turn, push the left steering lever slightly ahead of the right steering lever.



13-018.tif

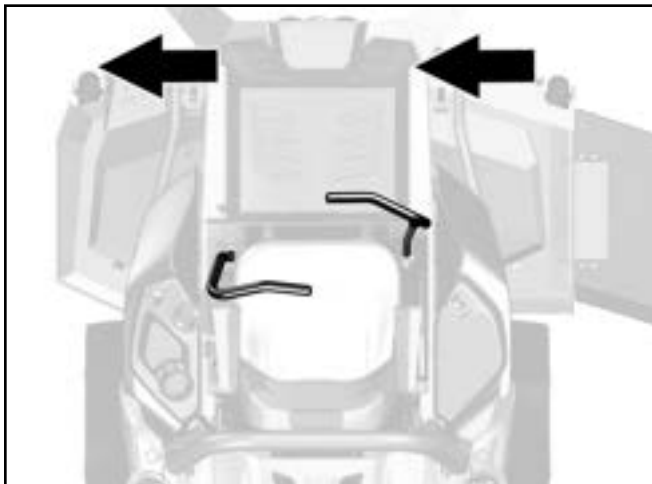
# Operating the Machine

## Zero Radius Turns

### ⚠ WARNING

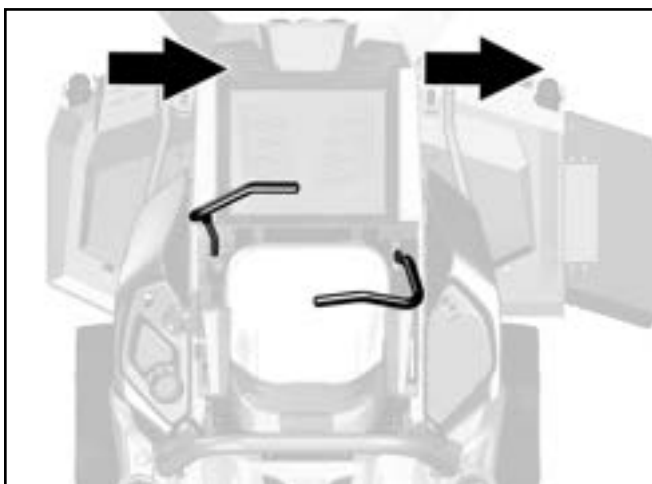
Zero radius turns should only be performed when the machine is stopped or at a near stop. The machine can spin very rapidly if care is not taken.

To perform a zero radius turn to the left, push the right steering lever forward and pull the left steering lever backward equally and at the same time.



13-017.tif

To perform a zero radius turn right, push the left steering lever forward and pull the right steering lever backward equally at the same time.



13-019.tif

## PTO Switch

### ⚠ WARNING

Keep others away from rotating blades and the possibility of thrown objects. Do not mow in reverse unless absolutely necessary. Always look down and behind before and while backing up.

### ⚠ WARNING

Keep hands and feet away from the blades at all times the machine is running, even when the blade switch is turned off.

1. Make sure the mower deck height is set to the desired cut height. Reduce the engine RPM to approximately 1/2 throttle before engaging the mower blades.

**NOTE:** The mower blades should not be engaged with the mower deck lowered into thick grass. For thick grass, it is better to raise the mower deck before engaging the mower blades and then lower it once the mower blades are turning.

2. Pull the PTO switch up to engage the mower clutch.
3. The throttle should be in the full-open position when mowing.
4. Push the steering levers forward slowly. Mow at a safe travel speed.
5. To disengage the mower blades, lower the engine speed and depress the PTO switch.

## Stopping Engine

1. Move both steering levers to the neutral position to stop movement of the machine. Move the steering levers to the neutral lock position.
2. Reduce the throttle.
3. Push the PTO switch down to disengage the mower clutch.
4. Lock the park brake.
5. Allow the engine to "cool down" for 20 seconds.
6. Turn the ignition key to the STOP position. Remove the ignition key before leaving the machine.

### ⚠ CAUTION

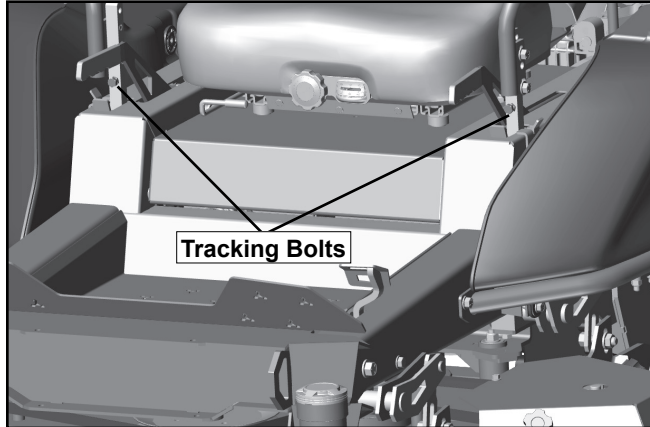
Never leave the machine unattended with the key in the ignition. Lock the park brake and remove the key to prevent children or others from gaining access.



## Adjusting Tracking

If the machine does not travel in a straight line while in full-forward position, it may be necessary to adjust the tracking of the steering levers.

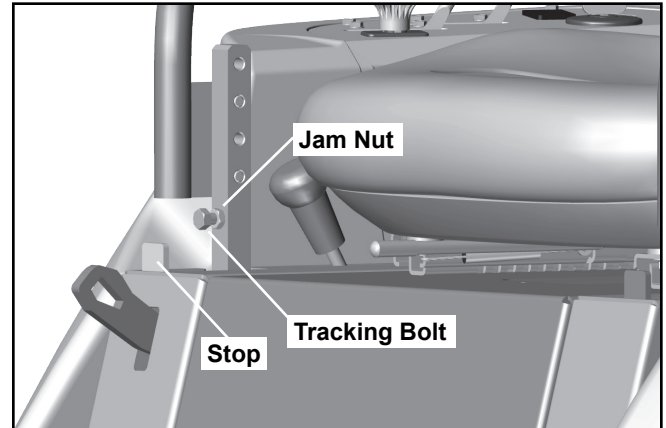
1. Tracking adjustments are made using the tracking bolts. These act as a limiting device for the steering levers when in the full-forward position.



16-0318-00.ai

2. Move the machine to a flat, open, unobstructed area (e.g., empty parking lot or open field).
3. Test operate the machine by driving it at full throttle with both steering levers in the full-forward position.

4. Stop the machine before making an adjustment to the tracking. To correct drift to the right, turn the LH tracking bolt in (counterclockwise). To correct drift to the left, turn the RH tracking bolt in (counterclockwise).



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## Neutral Creep

Neutral creep is a slight forward or backward movement of the machine when the engine is running and the steering levers are in the neutral position and the parking brake is off. If the neutral creeps occurs, do not operate the machine. See an authorized Altoz service dealer.

## Roll Over

### **⚠ WARNING**

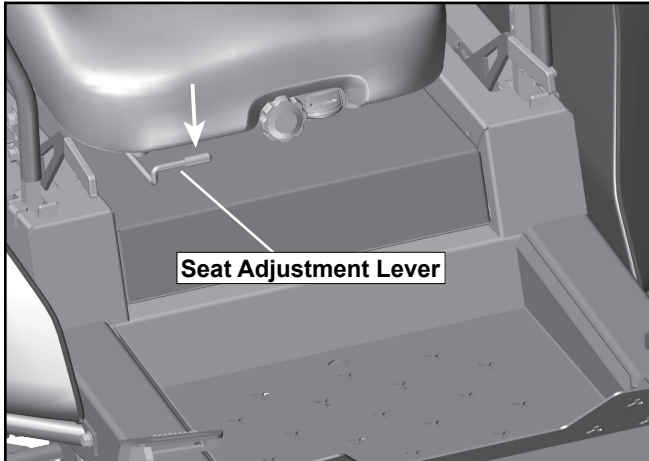
**If the machine ever overturns, do not operate until it has been inspected and serviced by an authorized Altoz dealer.**

## Adjustments

# Adjustments

**NOTE:** Seats depicted will vary depending on model. Not all features are available on all models.

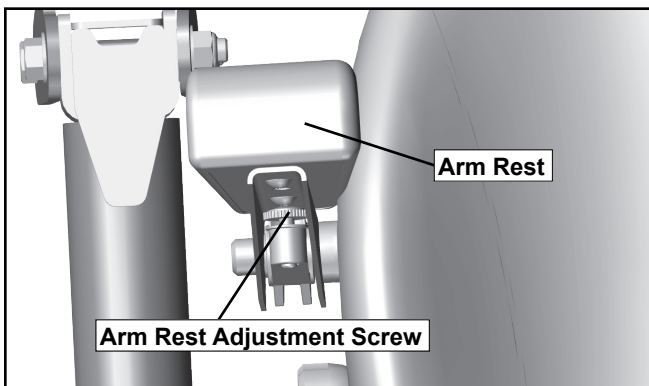
### Seat Position Adjustment



16-0312-00.ai

1. Push on the seat adjustment lever.
2. Slide seat forward or back to desired position. Adjust to the most comfortable position that allows you to operate the controls.
3. Release seat adjustment lever to lock in position. Move the seat back and forth to confirm it is locked in position.

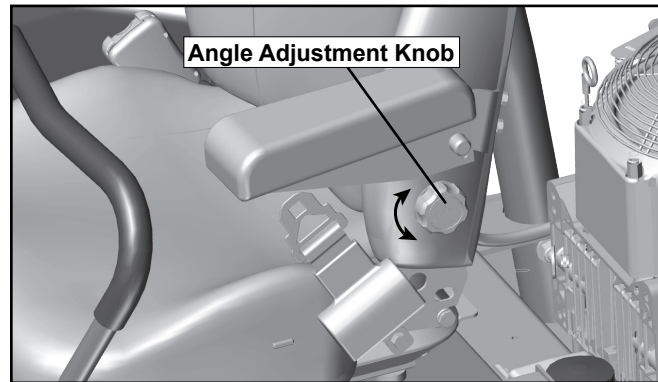
### Arm Rest Adjustment



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1. Raise the arm rest (RH shown). The adjustment screw serves as a stop once the arm rest is lowered. Turn the adjustment screw counterclockwise to raise the arm rest or turn it clockwise to lower the arm rest. Each arm rest may be adjusted independently to the most comfortable position.

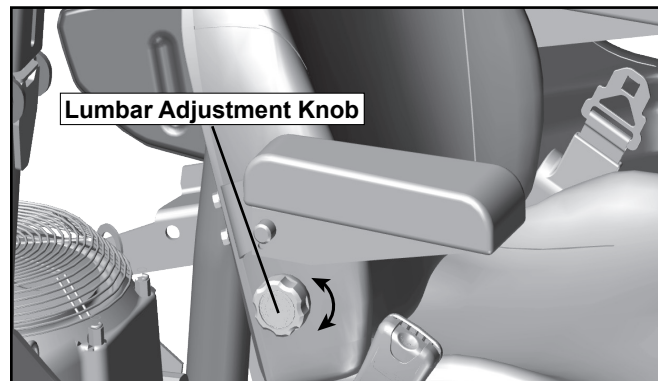
### Seat Back Angle Adjustment



18-0042-00.ai

1. On the LH side of the seat, rotate the angle adjustment knob to adjust the angle of the seat. Turning clockwise decreases the seat back angle; turning counterclockwise increases the seat back angle (i.e., reclines more).

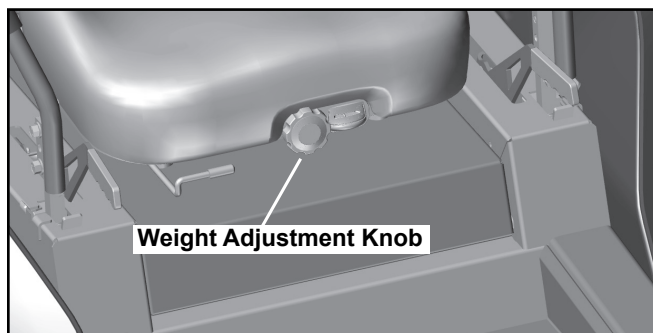
### Lumbar Adjustment



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1. On the RH side of the seat, rotate the lumbar adjustment knob to adjust the lumbar supporting region of the seat. Rotating the lever clockwise increases support; rotating the lever counterclockwise decreases support.

## Rider Weight Adjustment



16-0311-00.ai

1. Turn the rider weight adjustment knob to adjust the suspension of the seat for your weight.

## Seat Belt

Each time before operating, the seat belt and ROPS must be inspected to ensure they are in working order. Inspect the seat belt for wear from normal machine use, misuse, or degradation. If the seat belt does not pass these pre-operating items, see your authorized Altoz dealer to replace the seat belt before operation.

1. Check for dirt or debris in the latch. Clean if necessary.
2. Latch the seat belt. Check to make sure the latch securely holds the buckle. Check to make sure the release button releases the buckle. The seat belt should latch and release easily.
3. Check for damage to any part of the seat belt strap such as cuts, loose stitching or fraying.

### ⚠ WARNING

**Always latch the seat belt when operating the machine with ROPS in the raised position. Failing to do so could cause severe injury or death in the event of a roll over.**

### ⚠ WARNING

**Do not use the seat belt when the ROPS is temporarily in the lowered position.**

## Roll Over Protection System (ROPS)

The Roll Over Protection System (ROPS) and seat belt are designed to reduce operator injury in the event the machine is involved in an overturn accident. Do not modify or remove the ROPS and always operate the machine with the ROPS in the upright position and the seat belt fastened. If the ROPS must be lowered (for example, to drive under a low branch), do not use the seat belt and raise the ROPS as soon as clearance allows.



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### ⚠ WARNING

**Keep the ROPS in the raised position and fasten the seat belt when operating. Do not jump off if the machine tips or rolls over when the ROPS is in the raised position.**

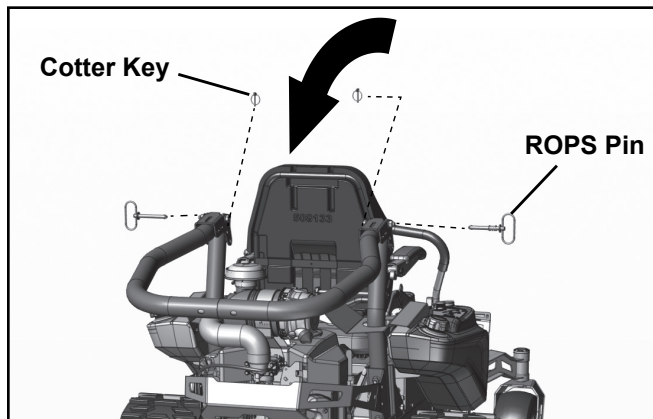
1. To raise the ROPS if it has been temporarily lowered, remove the nuts and bolts; then raise the ROPS to the upright position. Install both bolts and nuts.

### ⚠ WARNING

**Always latch the seat belt when operating the machine with ROPS in the raised position. Failing to do so could cause severe injury or death in the event of a roll over.**

# Adjustments

- To temporarily lower the ROPS (for example, to drive under a low branch), remove the nuts and bolts; then lower the ROPS. Raise the ROPS and secure with bolts and nuts as soon as clearance allows.



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## ⚠ WARNING

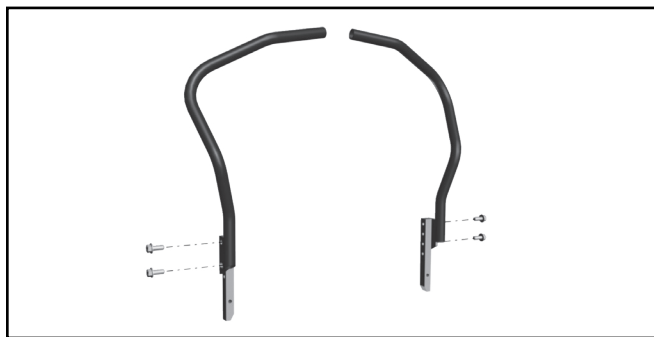
**Do not use the seat belt when the ROPS is temporarily in the lowered position.**

## ⚠ WARNING

**If the machine ever overturns, do not operate until it has been inspected and serviced by an authorized Altoz dealer.**

## Adjusting Steering Levers

- The steering levers may be adjusted. To adjust the steering lever height, remove the two bolts. Raise or lower the steering lever to the operator's comfort level.



13-035.tif

- The steering levers can also be adjusted slightly forward and backward within the slotted holes.

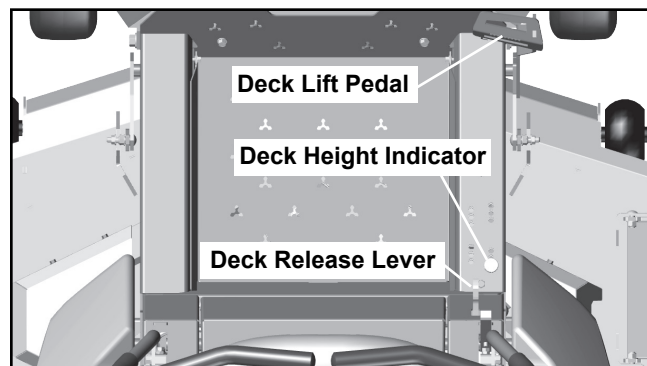
- Apply Loctite 243 to the threads of the fasteners; then torque the fasteners to 26 ft-lb (35 Nm). Be sure to tighten all hardware securely after adjusting steering levers.

## Adjusting Cutting Height

Cutting height is adjustable in 1/4" (6 mm) increments as shown in the table below. Height of transport position of the deck is also provided.

Model	Cutting Height		
	Min.	Max.	Trans. Pos.
TRX 354	2-1/4" (57 mm)	5" (127 mm)	5-1/2" (140 mm)

- To change the cutting height, push in the deck lift pedal all the way down to the transport position (highest position), until the lever lock catches; then release the deck lift pedal.
- Move the adjustment pin to the hole corresponding to the height of the desired cut.
- Push the deck lift pedal all the way down; then push down on the deck release lever. Slowly release the deck lift pedal which will lower the deck to the desired cutting height.



15-0308-00.ai

- To raise the deck to transport position (highest position), push the deck lift pedal in all the way. Once the deck release catches, release the deck lift pedal.

## Checking and Adjusting Mower Deck Level

### ⚠ WARNING

**Never perform service or adjustment on the mower deck, belt, blades, etc., when the engine is running. Shut off engine and remove key.**

- Make sure machine is on a flat, level surface.
- Set the deck at the desired mowing height.

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

- Engage the park brake, shut off the engine and remove the key from the ignition.

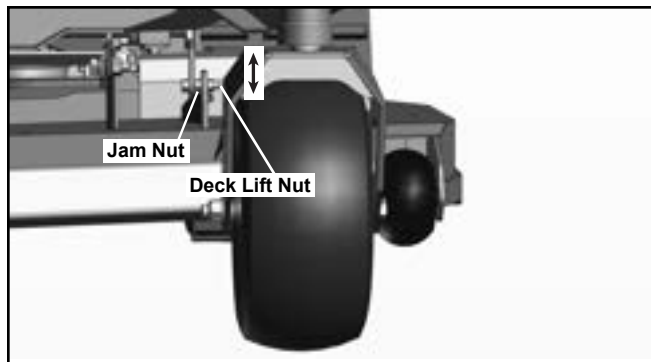
## Mower Deck Level - Side to Side

The mower deck is level side to side when a measurement taken from the edge of the mower blade on the right side of the deck to the ground is within 1/8 inch (about 3 mm) of the mower blade on the left side.

### ⚠ CAUTION

**Mower blades are sharp. Wear protective gloves when servicing or adjusting the mower blades.**

- Position the mower blades so that the outermost blades are perpendicular to the body of the machine.
- Measure from the outermost front tip of the right blade to the ground and record the measurement. Measure from the outermost front tip of the left blade to the ground and record the measurement. The two measurements must be within 1/8 inch (3 mm).
- To adjust side to side level, the rear deck mount on the right side should be used as a starting reference.
- To make an adjustment, loosen the bolts; then raise or lower the side of the deck (RH shown) to the desired height. Tighten the bolts to 26 ft-lb (35 Nm).



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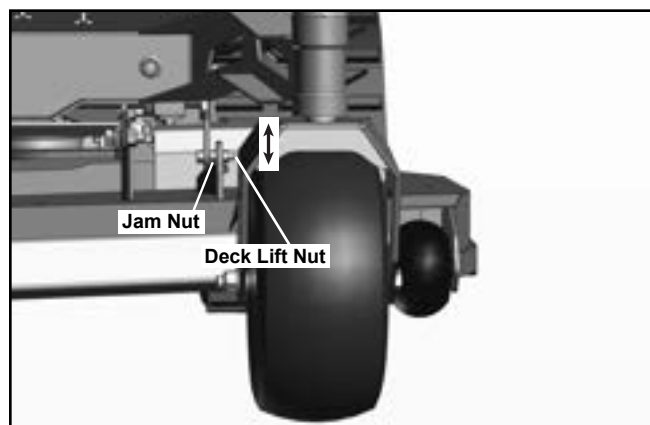
## Mower Deck Level - Front to Back

The mower deck is level front to back when the front tips of the blades are 1/4 in. lower than the back tips. To check front to back level, rotate the outside blades to be parallel with the body of the machine. With the operator seated, the front of the blade should be approximately 1/4 in. lower than the rear of the blade. This is called blade pitch.

### ⚠ CAUTION

**Mower blades are sharp. Wear protective gloves when servicing or adjusting the mower blades.**

- Set the deck at the desired mowing height.
- Position the mower blades so that the outermost blades are parallel to the body of the machine.
- Measure from the front tip of the right blade to the ground and record the measurement. Measure from the back tip of the right blade to the ground and record the measurement. The back measurement should be 1/4 in. (6 mm) more than the front measurement.
- If the mower deck is level side to side, then adjust the front two lift links up or down equally will provide the necessary blade pitch. To make an adjustment, loosen the bolts; then raise or lower the deck to the desired height (RH shown). Tighten the bolts to 26 ft-lb (35 Nm).



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## Adjust Deck Wheels

### CAUTION

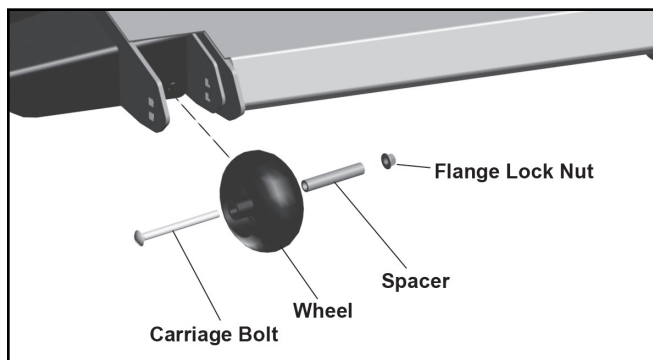
**The mower deck wheels are not designed to support the entire weight of the deck; they are intended as an anti-scalp feature. Do not adjust to a position that supports the mower deck weight when set to the desired cut height.**

- Park the machine on a flat, level surface. Turn off the engine.
- Engage the park brake, shut off the engine and remove the key from the ignition.
- Set the desired deck height and lower the mower deck into the cutting position.

# Adjustments

## Front Deck Wheels

1. To adjust the front deck wheels, remove the flange lock nut and carriage bolt securing the wheel and spacer to the mower deck.



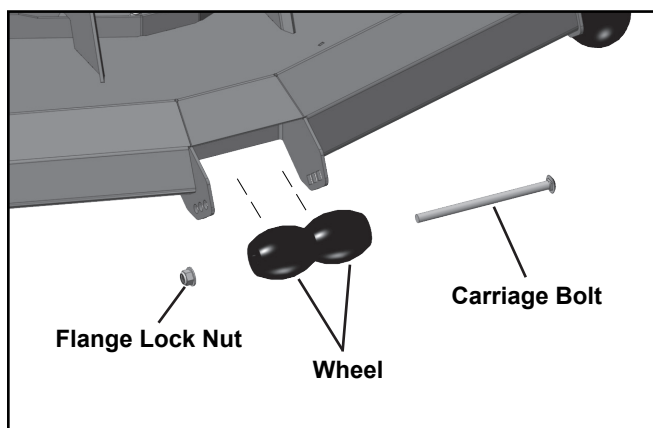
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2. Install the wheel in the index hole that will provide 1/2 in. to 1 in. (2.5 to 5 cm) clearance to the ground with deck lowered to the desired cutting height. Install the spacer in the wheel; then secure with the carriage bolt and flange lock nut.

**NOTE:** With the deck set to desired mow height, the front deck wheels should be 1/2 in. to 1 in. (2.5 to 5 cm) above the ground. Do not adjust wheels to support the weight of the deck.

## Center Deck Wheels

1. The center set of deck wheels can be adjusted. To adjust, remove the flange lock nut and carriage bolt securing the deck wheels to the mower deck.



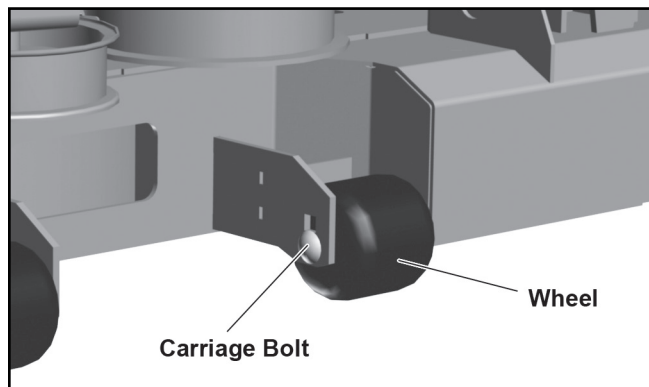
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2. Mount the wheels in the desired set of holes and secure with carriage bolt and flange lock nut.

**NOTE:** With the deck set to the desired mow height, the center deck wheels should be 1/2 in. to 1 in. (2.5 to 5 cm) above the ground. Do not adjust wheels to support the weight of the deck.

## Rear Deck Wheels

1. To adjust the rear deck wheels, remove the nut securing the wheel to the mower deck.
2. Mount the wheel in the desired set of holes and secure with carriage bolt and flange lock nut.



13-042.tif

**NOTE:** With the deck set to desired mow height, the rear deck wheels should be 1/2 in. to 1 in. (2.5 to 5 cm) above the ground. Do not adjust wheels to support the weight of the deck.



# Service and Maintenance

## Practice Safe Service and Maintenance

Before performing any maintenance or repairs on this machine, read and understand the following cautionary statements.

- ⚠ Only qualified, trained adults should service this machine.
- ⚠ Never run the engine in a closed area where dangerous carbon monoxide fumes can collect.
- ⚠ Ensure that all nuts and bolts are tight, especially blade attachment bolts.
- ⚠ Never tamper with safety devices. Check regularly that all safety devices operate properly and are not damaged or inoperative.
- ⚠ Keep machine free of grass, leaves or other debris build-up. Clean up oil or fuel spillage and remove any fuel-soaked debris. Allow the machine to cool before storing inside a building, an enclosed trailer or other similar storage location.
- ⚠ If you strike a foreign object, stop the engine and inspect the machine. Make any necessary repairs before restarting.
- ⚠ Never make any adjustments or repairs with the engine running. Wait for all movement to stop on machine before adjusting, cleaning or repairing.
- ⚠ Disconnect the battery before making any repairs. Disconnect the negative terminal first and positive last. To connect the battery, connect the positive terminal first and the negative terminal last.
- ⚠ Check the discharge chute frequently for cracks, deformation or damage in general and replace with manufacturer's recommended parts, when necessary.
- ⚠ Mower blades are sharp. Wear protective gloves when servicing blades.
- ⚠ Never attempt to straighten or weld a bent blade. Replace a bent blade with a new blade.
- ⚠ Check brake operation frequently. See an authorized Altoz dealer to adjust and service as required.
- ⚠ Operating and instruction labels must be visible at all times. If a label becomes damaged or unreadable, contact your authorized Altoz dealer for free replacement labels.
- ⚠ On multi-bladed machines, rotating one blade can cause other blades to rotate. Keep this in mind when servicing the blades, or when working around them.
- ⚠ Keep hands, feet, clothing, jewelry, and long hair away from any moving parts.
- ⚠ Lower any attachments to the ground before cleaning or servicing machine. Disengage all power and stop the engine. Lock park brake and remove the key. Let machine cool.
- ⚠ If the machine must be raised for service work, use jack stands to support components.
- ⚠ Before servicing machine, carefully release pressure from any components with stored energy. Examples are hydraulic components or springs.
- ⚠ Keep all parts in good condition and properly installed and tightened. Fix damage immediately. Make sure worn or broken parts are replaced.
- ⚠ Charge batteries in an open, well-ventilated area, away from sparks. Unplug the battery charger before connecting it to, or disconnecting it from, the battery. Wear protective clothing and use insulated tools.

## Service Intervals

Routine service and maintenance are critical to keep the machine running optimally for many years. Recommended services and intervals are meant to serve as a general guideline. Time needed between service or maintenance can be affected by operating conditions (for example, very dusty or dirty environments). If you have questions about service intervals or maintenance items, see your authorized Altoz Dealer.

The SmarTrac monitor on the machine will illuminate a red light when it is time to check scheduled maintenance items. It does not tell you specifically what needs to be checked or serviced, but rather that a certain amount of time has elapsed. If the maintenance light comes on, note how many hours the machine has been operated since the last maintenance and refer to the service interval items.

## Lubrication

When lubrication is needed, be sure to use Valvoline® General Multi-purpose Grease or equivalent for most operating conditions.

If operating in extreme conditions (e.g., extreme hot or cold, very dusty or wet), contact your Altoz dealer for more information about lubrication recommendation.

# Service and Maintenance

## Break-In Period (after first 5-8 hours)

**NOTE: Refer to the engine manufacturers manual for the specific break-in time period.**

- Change engine oil.
- Change engine oil filter.
- Check transmission oil level.
- Check the rear sprocket lug nut torque - 90-95 ft-lb (122-129 Nm). (5 hours)
- Check the tension on the rear tracks. (5 hours)

## 8 hours or Daily

- Inspect ROPS.
- Check engine oil and add, if necessary.
- Check mower blades.
- Check for loose hardware on the track assemblies, mower decks and front fork assemblies.
- Check the underside of the deck and the discharge chute. Clean out any grass or debris as needed.
- Remove grass and debris from the track system, engine compartment, muffler area and on top and underneath the mower deck.
- Inspect seat and ensure seat belt is operating properly.

## Every 20 Hours

- Check the rear sprocket lug nut torque - 90-95 ft-lb (122-129 Nm).
- Check the tension on the rear tracks.
- Check tracks and guide wheels for any damage.

## Every 100 Hours

- Check mower deck and belts.
- Inspect air filter or air cleaner (in dusty or dirty conditions, check the air filter more often). The engine Owner's or Operator's manual provided with the machine contains information specific to the engine regarding the air cleaning system.
- Change engine oil (see engine Owner's or Operator's Manual for more information and for recommended intervals between oil changes).
- Clean oil cooler and blow out engine shroud (see engine Owner's or Operator's Manual for more information).
- Check transmission oil level.
- Change spark plugs (see engine Owner's or Operator's Manual for more information).
- Change transmission oil (after first 100 hours, then every 400 hours thereafter) - dealer service is recommended for changing transmission oil.
- Rotate tracks side to side - recommended for maximum life of the tracks.

## Every 250 Hours

- Replace fuel filter and air filter.
- Adjust/lap valves and clean combustion chamber (Briggs & Stratton) - dealer service is recommended.

## Every 400 Hours

- Change transmission oil (after first 100 hours, then every 400 hours thereafter) - dealer service is recommended for changing transmission oil.
- Check ROPS system and mounting hardware for damage, wear or misuse. If any is found, do not use machine until repaired. See an authorized Altoz dealer for service on ROPS system. All ROPS hardware must be tightened securely.
- Service starter - see and authorized Altoz dealer.

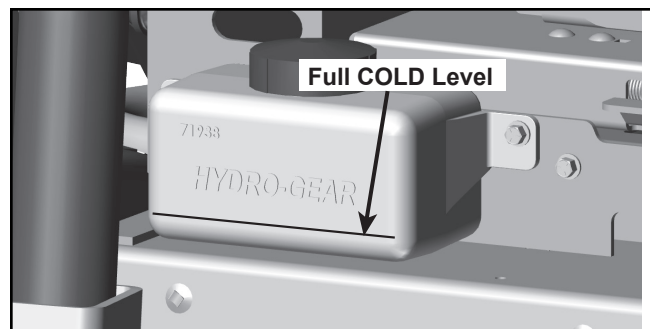
## Transmission Oil

A 20W-50 engine oil is recommended for normal operating procedures.

## Checking Transmission Oil

**NOTE: Check the oil when the transmission is cool.**

1. Lift up the seat to the fully open position.
2. Check the oil level in both of the expansion tanks. The oil should be at the "FULL COLD" level on the expansion tank.

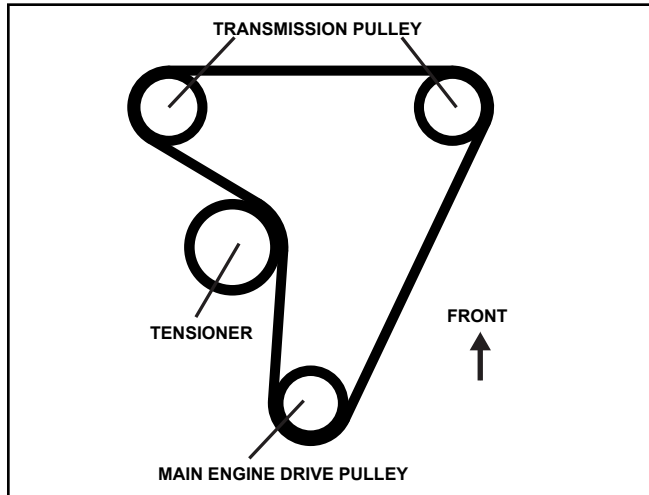


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3. If the level is below the "FULL COLD" mark on the expansion tank, add oil to the expansion tank until it reaches the "FULL COLD" level.



## Transmission Belt Routing



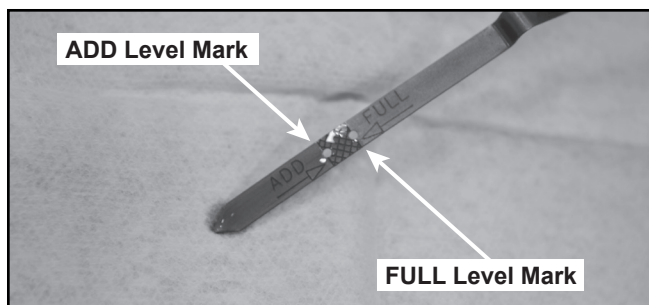
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## Engine Oil

### Checking

To check the oil level, follow the procedure below:

1. Set the machine on a flat level surface and place the steering levers in the neutral lock position.
2. Lift the seat and lock it in the raised position.
3. Clean the area around the oil gauge. The oil gauge is located on the front right side of the engine.
4. Remove the oil gauge and wipe it with a clean cloth.
5. Insert the oil gauge into the tube **but do not thread on**.
6. Remove the oil gauge to check the oil level. The level should be between the "ADD" and the "FULL" marks. **DO NOT OVERFILL.**



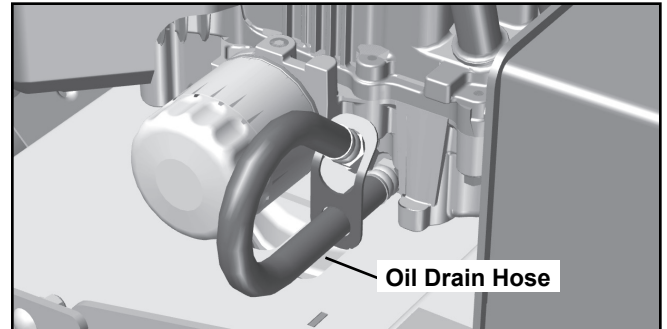
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**NOTE:** Oil gauges vary by model.

## Changing Engine Oil and Filter

**NOTE:** Refer to the engine manufacturer's manual for further engine oil information.

1. Place the machine on a flat level surface and allow the engine to run to warm the oil; then stop the engine.
2. Remove the hose from the holder on the side of the engine; then remove the cap from the hose and drain the oil from the engine into a suitable container.



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**NOTE:** The oil filter location will vary depending on model.

### **WARNING**

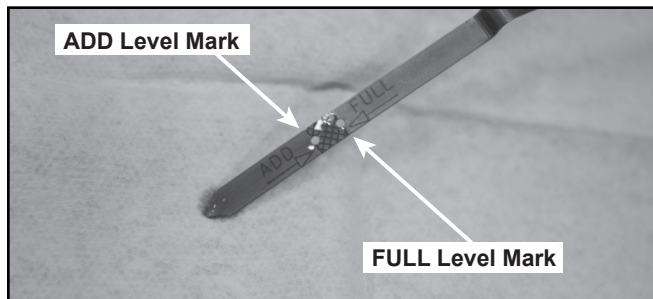
**Hot engine oil can cause severe burns. Allow the engine temperature to drop from hot to warm level before draining or handling the oil, or the oil filter.**

**NOTE:** Before removing the oil filter, place a rag, pan or similar container to catch any of the oil that drains from the engine after the filter has been removed. Wipe up any of the oil that may have spilled while changing the filter.

3. Rotate the oil filter counterclockwise and remove it from the engine. Dispose of the oil filter properly. Clean the area around the oil filter sealing surface.
4. Apply a thin film of clean engine oil on the seal of the new filter.
5. Install the new filter by rotating it clockwise until the seal contacts the mounting surface; then rotate the filter 3/4 more by hand.
6. Clean the oil gauge area of any debris; then refill engine with fresh oil (**see the engine Owner's Manual for oil recommendations and quantity.**)
7. Start and run the engine for a couple of minutes. As the engine warms up, check for any oil leaks around the filter.
8. Stop the engine and check the oil level.

# Service and Maintenance

- Oil may need to be added to compensate for a drop in oil level due to the oil filter capacity. The level should be between the “ADD” and the “FULL” marks. **DO NOT OVERFILL.**



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**NOTE:** Oil gauges vary by model.

## **WARNING**

Engine oil is a toxic substance. Dispose of used oil properly. Contact your local authorities for approved disposal methods or possible recycling.

## Servicing Engine

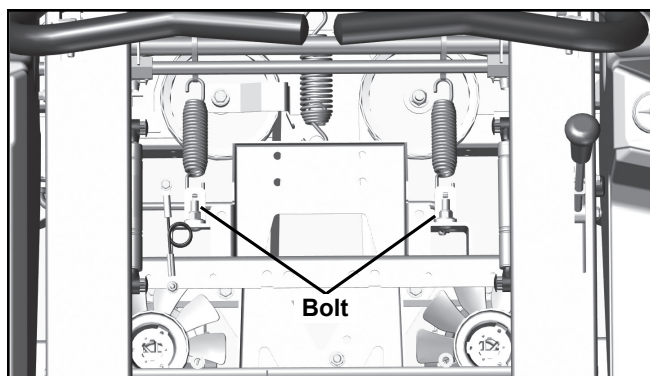
The engine Owner's or Operator's Manual provided with the machine contains important information about the engine, including a periodic maintenance chart and service procedures.

## Servicing Transmission

Periodic maintenance and servicing the transmission should be performed by an authorized Altoz dealer. Refer to the Periodic Service Chart on the machine or in this manual for recommended procedures and intervals.

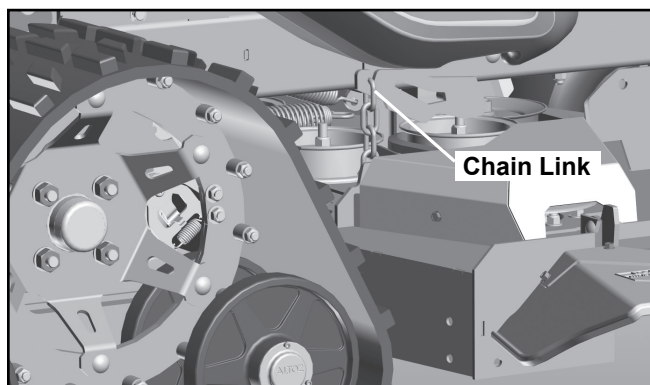
## Mower Deck - Removal

- Park the machine on a flat surface. Set the deck in transport position.
- Set the parking brake. Turn off the engine and remove the ignition key.
- Lift up the seat to the fully open position; then remove the bolts that secure the deck lift assist springs to the frame of the machine.



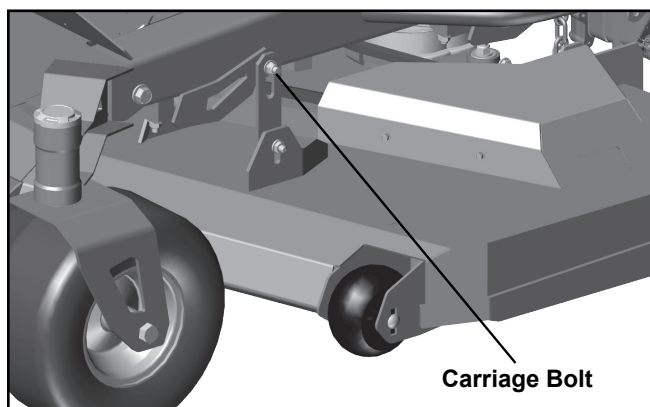
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- Remove the deck height adjustment pin; then lower the deck to the ground.
- Remove the mower deck belt from the clutch on the engine.
- Slightly lift up on the rear of the deck and remove the chain link from the hook on the rear jack shaft. Repeat for the other side.



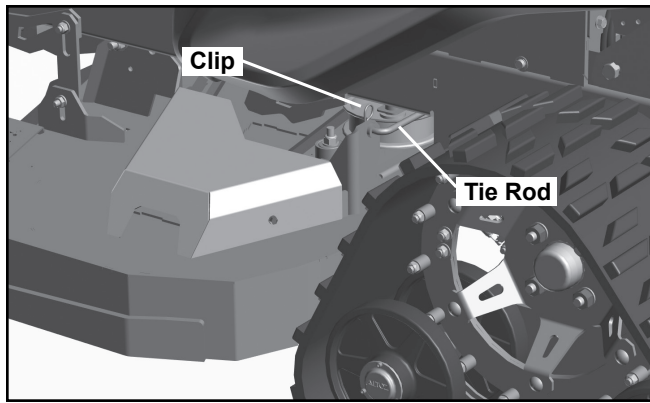
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- Remove the carriage bolts from the top of the front deck links.



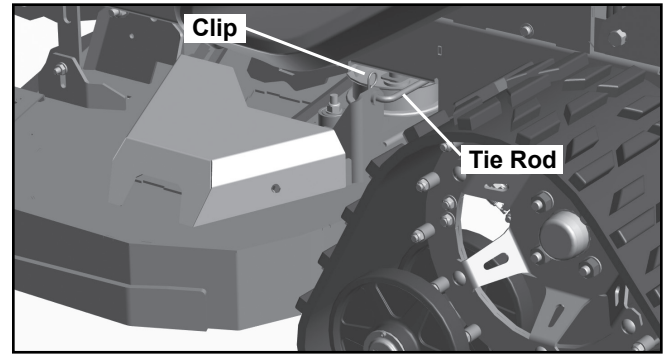
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- Remove the clip and tie rod from the LH rear of the deck.



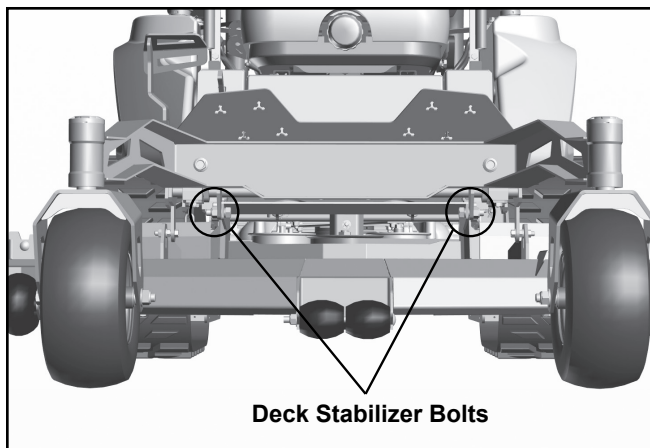
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3. Install the tie rod and clip to the LH rear of the deck.



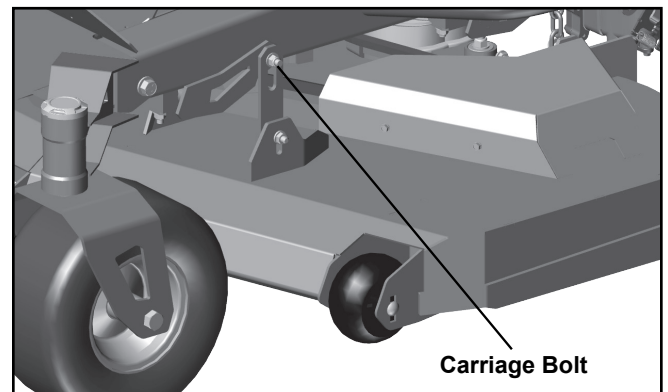
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9. Remove the two bolts from the front of the deck stabilizer.



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4. Install the carriage bolts on the top of the front deck links.

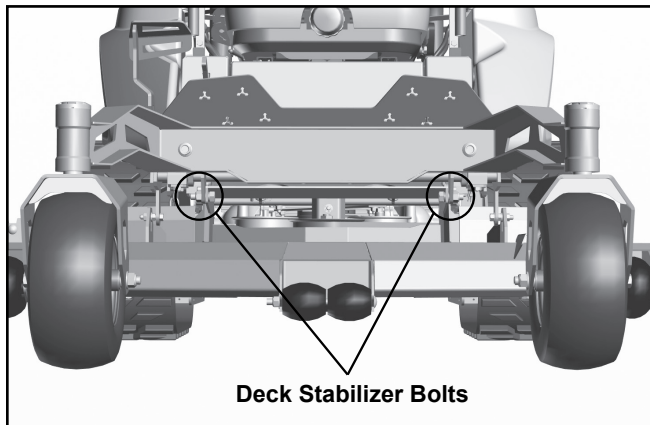


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10. Slide mower deck out from under machine.

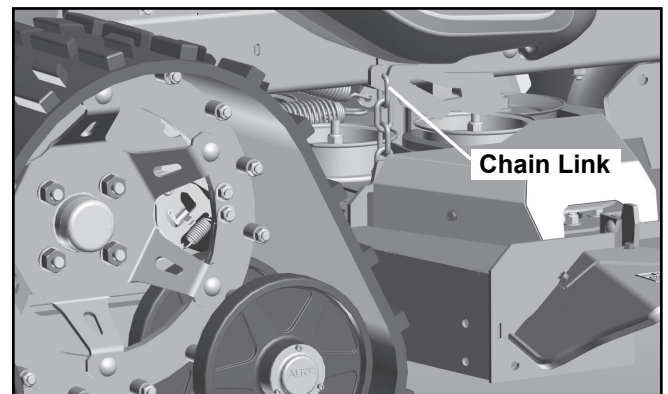
## Mower Deck - Installation

1. Slide mower deck under machine.
2. Install the mower deck to the front of the deck stabilizer with bolts.



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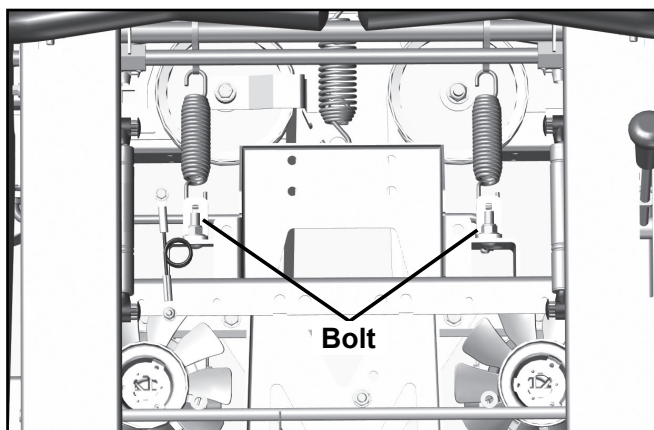
5. Slightly lift up on the rear of the deck and install the chain link on the hook on the rear jack shaft. Repeat for the other side.



18-0021-00.ai

6. Install the mower deck belt on the clutch on the engine.
7. Raise the deck to transport position.
8. Install the bolts the secure the deck lift assist springs to the frame of the machine.

# Service and Maintenance

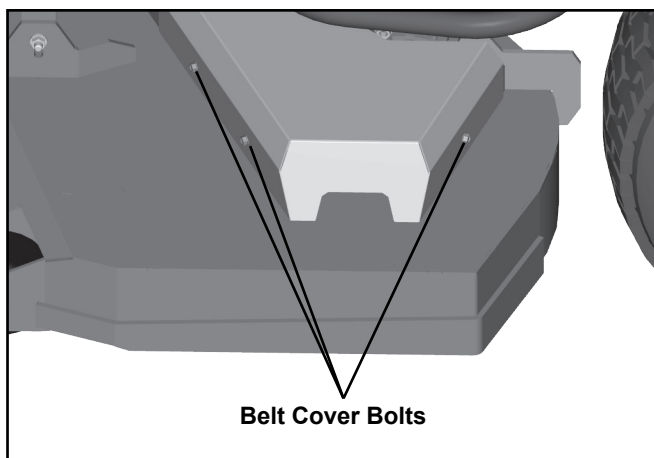


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## Mower Deck Belt - Removal

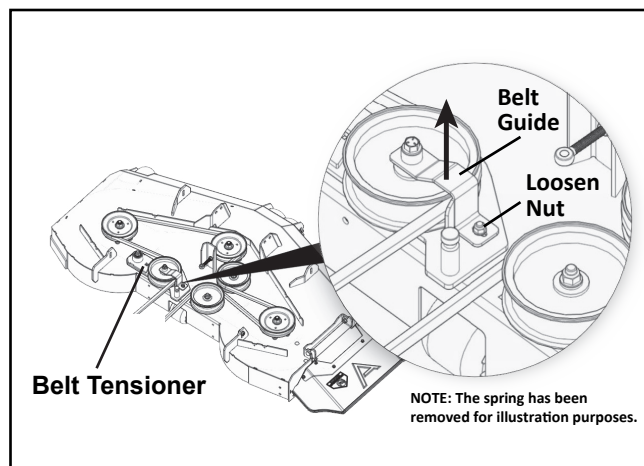
Inspect the mower deck belt frequently. If it is frayed, worn or damaged, it should be replaced before operating the machine.

1. Park the machine on a flat surface. Lower the deck to the ground.
2. Set the parking brake. Turn off the engine and remove the ignition key.
3. Remove the bolts from the LH and RH belt covers and remove the covers.



15-0022-00.ai

4. Remove any dirt or grass that may have accumulated.
5. Loosen the nut securing the belt guide; then swing and lift up on the belt guide to allow space for the belt to be removed.



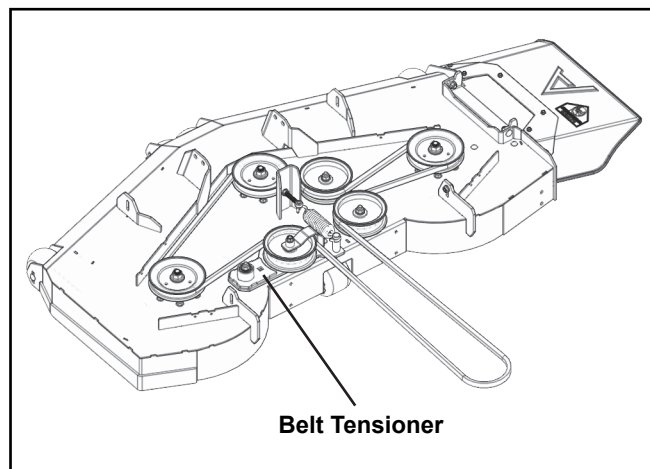
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6. The belt tensioner has a 1/2 in. square hole. Using a 1/2 in. drive breaker bar on the belt tensioner, rotate the wrench clockwise to release tension on the belt.

### ⚠ CAUTION

**The belt tensioner is under pressure. Injury can occur if the tensioner is released suddenly.**

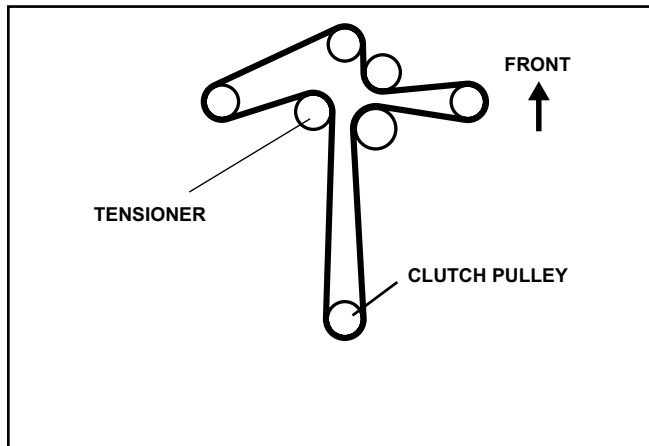
7. Carefully remove the belt from the pulleys.
8. Remove the belt from around the clutch pulley on the engine.



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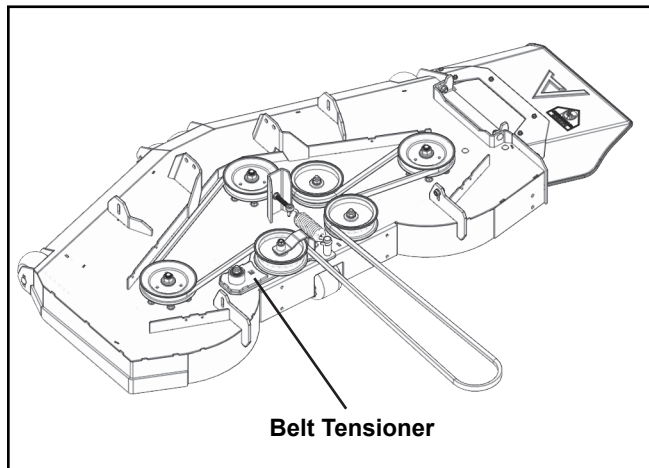


## Mower Blade Belt - Installing



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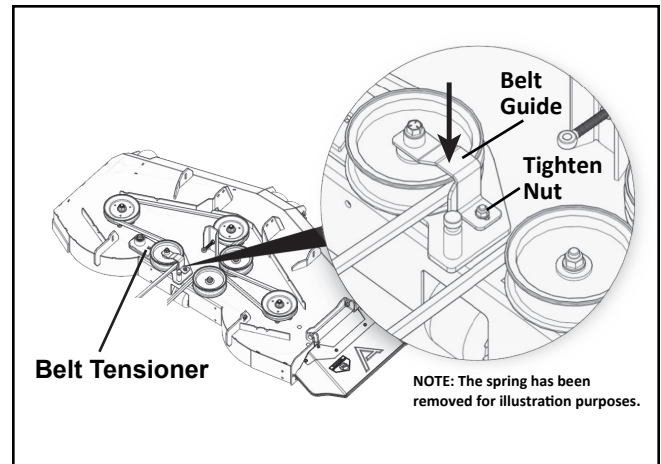
1. Refer to the routing decal on the machine or the illustrations for mower blade belt routing. Install the belt around each pulley starting with the clutch pulley on the engine.
2. Using a 1/2 in. drive breaker bar on the belt tensioner (the belt tensioner has a 1/2 in. square hole in it), rotate the wrench clockwise to release tension. Route the belt on the mower deck as shown in the following illustration.



15-0043-00.ai

**NOTE: Do not force the belt over the pulleys during installation or belt damage can occur.**

3. Tighten the nut to secure the belt guide. Torque the nut to 7.2 ft-lbs (9.8 Nm).



15-0045-00.ai

4. Install the two mower deck belt covers. Tighten all cover hardware securely.

## Mower Blades - Removal

### ⚠ CAUTION

**Mower blades are sharp. Wear protective gloves when servicing or adjusting the mower blades.**

### ⚠ CAUTION

**If a blade becomes bent or broken, replace with a new blade. Never attempt to straighten or weld a bent blade.**

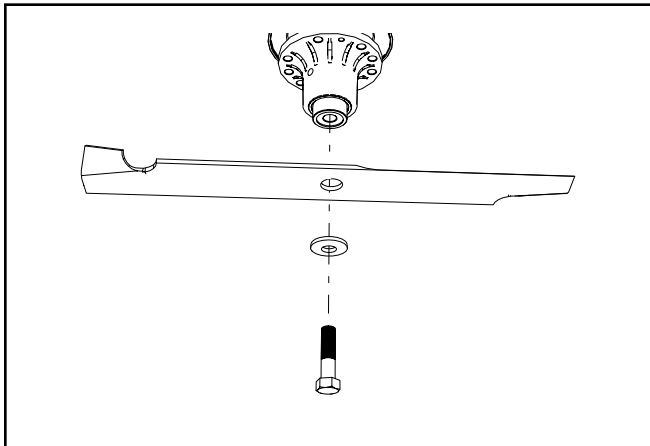
### ⚠ CAUTION

**On multi-bladed machines, rotating one blade can cause other blades to rotate. Keep this in mind when servicing the blades, or when working around them.**

1. Park the machine on a flat surface.
2. Set the parking brake. Turn off the engine and remove the ignition key.
3. Raise the mower deck to gain access to the mower blades, or if necessary, remove the mower deck.
4. Secure the blade(s) from turning with a block of wood.
5. Loosen and remove the hardware securing the blade(s) to the spindle assembly. Remove the blade(s).

# Service and Maintenance

## Mower Blades - Installation




13-065.ai

1. Be sure to position the mower blade(s) with the cutting edge toward the ground.

**NOTE: Make sure splined hub goes into the spindle straight.**

2. Apply a copper-based anti-seize lubricant to the threads of the blade mounting bolt as needed to prevent seizing.
3. Use a piece of wood to prevent the mower blade(s) from turning; then tighten the blade bolt to 70-75 lb-ft (95-102 Nm).

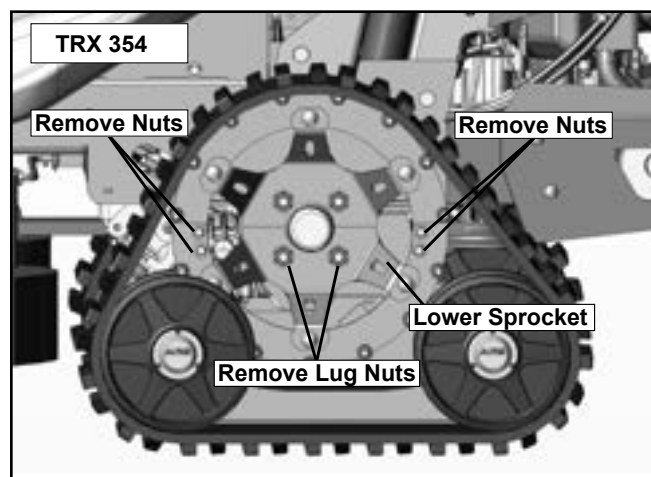
 **TORQUE SPECIFICATION**

**BLADE BOLT\***  
70-75 ft-lb (95-102 Nm)  
\*Apply a copper-based anti-seize lubricant to the blade bolt threads.

## Track Replacement

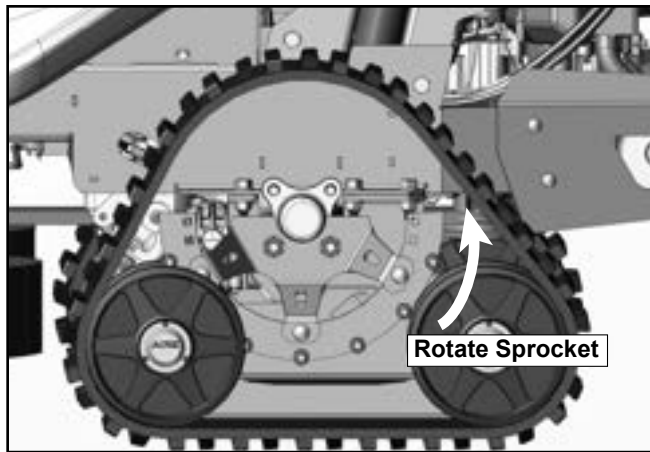
**NOTE: To aid in the removal of the tracks, use a floor jack and a set of jack stands rated to handle the weight of the mower.**

1. Park machine on a flat level surface; then set the parking brake. Remove the key. Chock the front wheels
2. Lift the machine with a floor jack and place it on two jack stands on the frame or rear bumper (not on torsion axle).
3. To disable the transmissions, pull each lever up and out of the keyhole slot to the bypass position. Release the lever with the stop outside the bracket to lock in the bypass position.
4. Release the parking brake. Rotate the track so that the split in the sprocket is horizontal; then remove the bolts, washers and nuts that mount the sprocket halves together, and the two lug nuts from the lower sprocket. Remove the lower sprocket.




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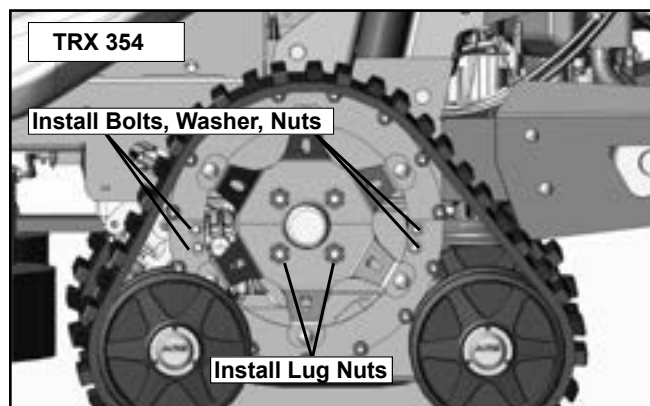
5. Rotate the track so that the upper sprocket is free from the track; then remove the track.
6. With half of the sprocket in the lower position, set the new track in place making sure the guide wheels are properly seated in the track.
7. Rotate the sprocket upward making sure the teeth on the sprocket are seated in the drive lugs of the track.



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8. Install the other half of the sprocket on the hub of the transmission. Apply Thread Locker (Loctite 243) to the threads of the lug nuts; then tighten the lug nuts hand tight. Rotate the sprockets so the one just installed is on the top.
9. Pull each lever up and return through the keyhole slot to the RUN position to enable the transmission. Install the bolts, washers and nuts that mount the two sprocket halves together; then tighten the lug nuts to 90-95 ft-lb (122-129 Nm). Tighten the sprocket connecting bolts to 26 ft-lb (35 Nm).

 TORQUE SPECIFICATION	
LUG NUT	90-95 ft-lb (122-129 Nm)
SPROCKET CONNECTING BOLTS	26 ft-lb (35 Nm)

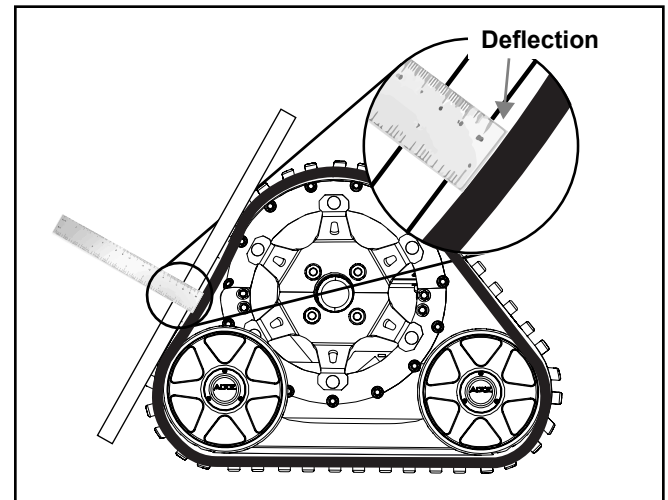


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10. Once the track is installed, the track tension must be checked before operating.

## Checking Track Tension

1. On a flat level surface, back the machine up so slack in the track is shifted to the back of the track assembly.
2. **Check Deflection** - Lay a straightedge on the back face of the track. Using a ruler, use *moderate* force to push in on the track perpendicular to the straightedge between the sprocket and the rear idler wheel. Note the amount of deflection on the ruler.



18-0037-00.ai

3. Deflection should be between 1/4" (6 mm) and 5/8" (16 mm).

## ⚠ CAUTION

**A track that is too tight can damage the transmission; if it is too loose, it can damage the track or derail. Make sure track deflection is between the recommended measurements.**

4. Shim as necessary to achieve proper deflection.

# Troubleshooting

## Troubleshooting

Refer to this table for common symptoms, possible causes and solutions for troubleshooting. If a symptom persists after trying the solution in this table, contact your authorized dealer.

SYMPTOM or PROBLEM	POSSIBLE CAUSE	SOLUTION
Uneven cut	<ol style="list-style-type: none"> <li>1. Deck not leveled correctly.</li> <li>2. Blade(s) bent or damaged.</li> <li>3. Blade(s) dull.</li> <li>4. Travel speed too fast.</li> <li>5. Mower deck wheels not adjusted correctly.</li> <li>6. Deck packed with grass.</li> <li>7. Blade(s) installed incorrectly.</li> </ol>	<ol style="list-style-type: none"> <li>1. Perform side to side deck adjustment.</li> <li>2. Replace blade(s); recommendation is to always replace blades as sets.</li> <li>3. Sharpen blade(s).</li> <li>4. Mow at a slower speed.</li> <li>5. Adjust mower deck wheels.</li> <li>6. Clean deck.</li> <li>7. Install blade(s) correctly.</li> </ol>
Grass is scalped	<ol style="list-style-type: none"> <li>1. Deck height too low.</li> <li>2. Mower deck wheels not adjusted correctly or worn.</li> <li>3. Terrain rough or uneven.</li> </ol>	<ol style="list-style-type: none"> <li>1. Raise deck height.</li> <li>2. Adjust mower deck wheels or replace if worn.</li> <li>3. Slow down in rough and uneven terrain.</li> </ol>
Discharge chute plugged	<ol style="list-style-type: none"> <li>1. Travel speed too fast.</li> <li>2. Grass too long.</li> <li>3. Grass too wet.</li> <li>4. Engine rpm too low.</li> <li>5. Deck packed with grass.</li> </ol>	<ol style="list-style-type: none"> <li>1. Mow at a slower speed.</li> <li>2. Raise mower deck; if grass is too long, it may take multiple passes.</li> <li>3. Wait for grass to dry.</li> <li>4. Throttle should be in full-open position when mowing. Check engine rpm.</li> <li>5. Clean deck.</li> </ol>
Belt slipping	<ol style="list-style-type: none"> <li>1. Pulleys, belt obstructed with debris.</li> <li>2. Worn belt.</li> <li>3. Belt loose.</li> <li>4. Deck packed with grass.</li> <li>5. Pulley spindle damaged.</li> <li>6. Blade(s) bent.</li> </ol>	<ol style="list-style-type: none"> <li>1. Remove debris.</li> <li>2. Replace belt.</li> <li>3. Adjust belt tension.</li> <li>4. Clean deck.</li> <li>5. Repair/replace pulley spindle.</li> <li>6. Replace blade(s).</li> </ol>
Starter does not crank	<ol style="list-style-type: none"> <li>1. Battery weak.</li> <li>2. Blades are engaged.</li> <li>3. Park brake not engaged.</li> <li>4. Steering levers are not in neutral lock position.</li> <li>5. Fuse is blown.</li> <li>6. Electrical system faulty.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check/charge battery.</li> <li>2. Disengage blades.</li> <li>3. Engage park brake.</li> <li>4. Steering levers must be in neutral lock position to start the machine.</li> <li>5. Replace blown fuse.</li> <li>6. Contact an authorized Altoz dealer.</li> </ol>
Engine cranks but won't start	<ol style="list-style-type: none"> <li>1. Fuel tank(s) empty.</li> <li>2. Fuel shutoff valve is closed.</li> <li>3. Fuel filter plugged or dirty.</li> <li>4. Air cleaner element dirty.</li> </ol>	<ol style="list-style-type: none"> <li>1. Fill fuel tank or switch to a full tank.</li> <li>2. Open fuel shutoff valve.</li> <li>3. Replace fuel filter.</li> <li>4. Clean or replace air cleaner element.</li> </ol>
Engine overheats	<ol style="list-style-type: none"> <li>1. Engine air intake screen plugged.</li> <li>2. Cooling fins plugged.</li> <li>3. Engine oil low.</li> </ol>	<ol style="list-style-type: none"> <li>1. Clean air intake screen.</li> <li>2. Clean cooling fins.</li> <li>3. Add engine oil.</li> </ol>
Abnormal vibrations	<ol style="list-style-type: none"> <li>1. Mower blades are bent or unbalanced.</li> <li>2. Mower blades loose.</li> <li>3. Drive belt damaged.</li> <li>4. Blade spindle bent.</li> <li>5. Track tension misadjusted/debris in track</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace bent or excessively dull blades.</li> <li>2. Tighten all mower blade hardware.</li> <li>3. Replace drive belt.</li> <li>4. Contact an authorized Altoz dealer.</li> <li>5. Adjust tension/clean debris from track</li> </ol>
Machine does not move	<ol style="list-style-type: none"> <li>1. Transmission bypass valve open or not fully closed.</li> <li>2. Drive belt worn, loose or broken.</li> <li>3. Park brake engaged.</li> <li>4. Transmission oil hot or level low.</li> </ol>	<ol style="list-style-type: none"> <li>1. Make sure both bypass screws are in the RUN position (XC models), or both bypass levers are pushed in (XP models).</li> <li>2. Replace drive belt.</li> <li>3. Disengage park brake.</li> <li>4. Allow oil to cool; add oil if necessary.</li> </ol>



# Storage and Pre-Season Preparation

If the machine will not be used for an extended period of time (60 days or longer), it should be prepared for storage. If possible, store the machine in a dry, well-protected enclosure. If machine is stored outside, cover it (including the wheels) with a waterproof cover.

### Machine Body

1. Inspect the machine. Repair any worn or damaged parts. To prevent rust, repair scratches on metal surfaces.
2. Thoroughly clean all grass, clippings, leaves and other debris from the machine, mower deck and under the mower deck.
3. Wash the machine, dry it off and apply a coat of wax to metal and plastic surfaces. Do not use high-pressure water or corrosive cleaning agents.
4. Apply a light coat of new engine oil to components that pivot or wear areas to prevent rust.

### Fuel Preparation

Unused fuel in the machine should be treated with a stabilizing agent. Fuel left untreated can cause gum deposits or varnish to form inside the engine's carburetor or injector components, causing possible engine malfunction.

The tank(s) should be filled with treated fuel prior to long-term storage. Filling the fuel tank(s) reduces the amount of air and helps reduce deterioration.

1. Read and follow the stabilizer manufacturer's instructions and recommendations.
2. Mix enough stabilizer with fresh, new fuel to fill the tank(s).
3. Run the engine for a few minutes to distribute the stabilized fuel.
4. Shut off the fuel valve(s). Allow the engine to run until it stops.

### ⚠ WARNING

**Fuel vapors are explosive and flammable. Do not store machine with fuel in the tank inside a building or other structure where fumes can reach an open flame or spark.**

### ⚠ WARNING

**Before storing, allow the machine to cool down. Fire can start from debris near or around the engine, or if the heat source is near combustible materials.**

### Engine

1. Refer to the engine owner's manual for specific storage information.
2. Clean the engine and engine compartment.
3. Remove the battery and store in a cool, dry place where it will not freeze. Use a battery tender to optimize the charging and maintenance of the battery while not being used.
4. Store the machine in a well-ventilated area.

### Preparing Machine After Storage

1. Visually inspect the machine body. Be sure all shields and guards are in place. Inspect belts.
2. Check engine oil and transmission oil levels.
3. Check battery. If necessary, charge the battery before installing it.
4. Open fuel shut-off valve(s).
5. Start the engine and allow to idle for a few minutes to allow oil to be distributed throughout the engine.
6. Test-drive the machine without the blade switch engaged to ensure it is functioning correctly.

# Specifications

## Specifications

### TRX 354 MODELS

VEHICLE SPECIFICATIONS	
Model	TRX 354
Length	81 in. (206 cm)
Overall Width (w/o chute)	55 in. (140 cm)
Height (with ROPS raised)	76 in. (193 cm)
Weight (with mower deck)	1220 lb (553 kg)
Max. Travel Speed (forward)	7 mph (11.3 km/hr)
Max. Travel Speed (reverse)	6 mph (9.6 km/hr)
ENGINE	
Manufacturer	Kawasaki
Type	Forced air cooled 4-stroke OHV
Engine Model	FT730V
Max. Horsepower (gross)	24hp
Total Displacement	726cc
Air Cleaner	Dual Element
Lubrication	Pressurized with oil pump
Oil Capacity	2.5 US qt (2.4 l)
FUEL SYSTEM	
Fuel System Type	Gasoline
Number of Fuel Tanks	2
Fuel Capacity	10 gal. (37.8 l)
Fuel Requirement	87 Octane (minimum) - blends containing up to 10% ethanol are acceptable
ELECTRICAL	
Starting System	Electric start
Battery	12V
BODY / DRIVETRAIN	
Transmission System	Dual Hydrostatic
Transmission Filtration	Spin-on type
Transmission Speed Range	Infinitely variable
Speed Control	2 hand levers - infinitely variable
Steering	Zero turn with dampners
Brake Type	Static hand lever
Parking Brake Type	Hand lever
Brake Clutch/Brake	Electromagnetic, ferrite static
Seat	Suspension seat with arm rests
Seat Adjustment	Operator weight, arm rests, lumbar and slider
R.O.P.S.	Certified 2-post foldable
MOWER DECK	
Mower Deck Lift System	Foot pedal

Mower Deck Type	AeroDeck™ fabricated side discharge
Deck Depth	4-1/2 in. (11.4 cm)
Cutting Height Increments	2.25 in. (5.7 cm) to 5 in. (12.7 cm)
Belt Type	Single deck belt - 5/8 in. Kevlar
Deck Steel Thickness	Multi-layered steel (0.270 in. total)
Number of Blades	3 high lift blades
Blade Tip Speed (max.)	18 500 sfpm
Available Deck - Cutting Widths	54 in. (137 cm)
Deck Weight (approx.)	177 lb (80 kg)
Deck Wheels (total)	5
WHEELS	
Front Wheel Size	13 x 6.50-6 Flat-free
Rear Track Size	11 in. (28 cm) x 71 in. (180 cm)
Track Lug Size	0.75 in. (1.9 cm)
Tire Thread - Front	Ribbed
Track Design - Rear	Turf Tread
GAUGES / INDICATORS	
Hourmeter	Non-resettable total hourmeter
Fuel Gauge	2 mechanical tank gauges

*\*See engine Owner's Manual for engine specifications.*

*Specifications and design subject to change without notice.*

# Periodic Service Chart

## PERIODIC SERVICE CHART

MAINTENANCE INDICATORS	HOUR INTERVAL	MAINTENANCE CATEGORY
------------------------	---------------	----------------------

### ENGINE INFORMATION

Vanguard Kawasaki

Check engine oil (add oil if needed)	8	8	Consult Engine Operator's Manual for detailed information and complete servicing information.
Oil change - see Engine Owner's Manual	100	50/100	
Inspect air filter(s) <sup>1</sup>	100	100	
Replace air filter(s) <sup>1</sup>	100	250	
Clean oil cooler/blow out engine shroud <sup>1</sup>	400	100	
Change spark plugs	100	100	
Replace fuel filter	400	250	
Check intake and exhaust valves <sup>2</sup>	100	100	
Adjust intake and exhaust valves <sup>2</sup>	250	250	

### CHASSIS and DRIVETRAIN INFORMATION

Inspect ROPS for damage	8	Daily
Check condition of blades	8	
Clean grass/debris from mower and engine	8	
Inspect seat and seat belt (replace if damaged)	8	
Check transmission oil (initial check)	8	

Check track tension	5 (every 20 after)	Consult operator's manual for detailed maintenance and service information.
Check sprocket mounting lug nuts	5 (every 20 after)	
Check idler wheels for wear or damage	5 (every 20 after)	

Grease machine - see Operator's Manual	100	Every 100 hours Maintenance Timer "A"
Check transmission oil level	100	
Change transmission oil (initial break-in only) <sup>2</sup>	100 <sup>3</sup>	
Check belts for cracks, wear or damage	100	
Inspect deck hanger bolts and linkage	20 (every 100 after)	

Change transmission oil <sup>2</sup>	400 <sup>3</sup>	Every 400 hours Maintenance Timer "B"
Check ROPS mounting hardware	400	

<sup>1</sup> Check/Replace more often in dusty and dirty conditions

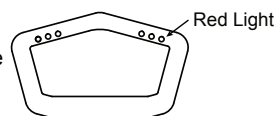
<sup>2</sup> Dealer service recommended

<sup>3</sup> Initial transmission oil change is at 100 hours and then every 400 hours thereafter

\*If the mower is equipped with a SmarTrac™ Monitoring System gauge, the maintenance timer is a red light that is located in the upper right corner of this gauge (see illustration below). When the light turns on, it signals that a maintenance item should be performed.

**IMPORTANT NOTE:** See your Operator's Manual for important Break-in Maintenance Requirements.

**NOTE:** Please contact your dealer for further explanation of service related information and instruction.



p/n 7000738

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# Notes

# Notes

# Notes



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