

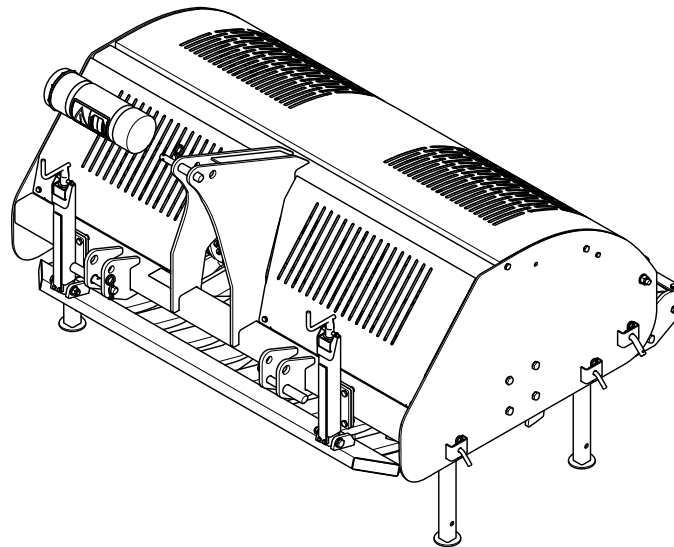
# BULLS EYE™

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## Operator's Manual

### RotaQuake 630

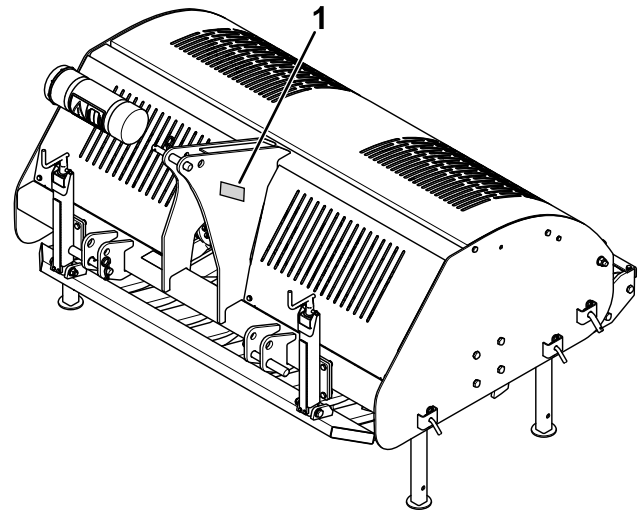
Model No. 46454—Serial No. 321000001 and Up



**⚠ WARNING**

**CALIFORNIA  
Proposition 65 Warning**

**Use of this product may cause exposure to chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.**



g347059

**Figure 1**

- 1. Model and serial number location

Model No. \_\_\_\_\_

Serial No. \_\_\_\_\_

# Introduction

This attachment aerates and decompacts soil. It is intended to be used by professional, hired operators in commercial applications. It is designed primarily for working large areas on well-maintained lawns in parks, golf courses, sports fields, and on commercial grounds. Using this product for purposes other than its intended use could prove dangerous to you and bystanders.

Read this information carefully to learn how to operate and maintain your product properly and to avoid injury and product damage. You are responsible for operating the product properly and safely.

Visit [www.Toro.com/Bullseye](http://www.Toro.com/Bullseye) for product safety and operation training materials, accessory information, help finding a dealer, or to register your product.

Whenever you need service, genuine Bullseye parts, or additional information, contact an Authorized Service Dealer or Bullseye Customer Service and have the model and serial numbers of your product ready. [Figure 1](#) identifies the location of the model and serial numbers on the product. Write the numbers in the space provided.

This manual identifies potential hazards and has safety messages identified by the safety-alert symbol ([Figure 2](#)), which signals a hazard that may cause serious injury or death if you do not follow the recommended precautions.



g000502

**Figure 2**

- 1. Safety-alert symbol

This manual uses 2 words to highlight information. **Important** calls attention to special mechanical information and **Note** emphasizes general information worthy of special attention.

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# Safety

## General Safety

This product is capable of causing personal injury. Always follow all safety instructions to avoid serious personal injury.

- Read and understand the contents of both this *Operator's Manual* and the operator's manual of the traction unit before using this machine. Ensure that everyone using this product knows how to use this machine and the traction unit and understands the warnings.
- Use your full attention while operating the machine. Do not engage in any activity that causes distractions; otherwise, injury or property damage may occur.
- Do not put your hands or feet near moving components of the machine.
- Do not operate the machine without all guards and other safety protective devices in place and working on the machine.
- Keep the machine away from bystanders while it is moving.
- Keep children out of the operating area. Never allow children to operate the machine.
- Stop the machine, shut off the engine, engage the parking brake of the traction unit, remove the key, and wait for all moving parts to stop before servicing, fueling, or unclogging the machine.

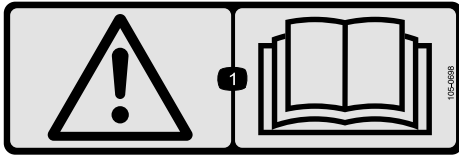
Improperly using or maintaining this machine can result in injury. To reduce the potential for injury, comply with these safety instructions and always pay attention to the safety-alert symbol , which means Caution, Warning, or Danger—personal safety instruction. Failure to comply with these instructions may result in personal injury or death.

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# Safety and Instructional Decals



Safety decals and instructions are easily visible to the operator and are located near any area of potential danger. Replace any decal that is damaged or missing.



decal105-0698

**105-0698**

1. Warning—read the *Operator's Manual*.

**▲ WARNING: Cancer and Reproductive Harm - [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).  
For more information, please visit [www.ticoCAProp65.com](http://www.ticoCAProp65.com)**

decal133-8061

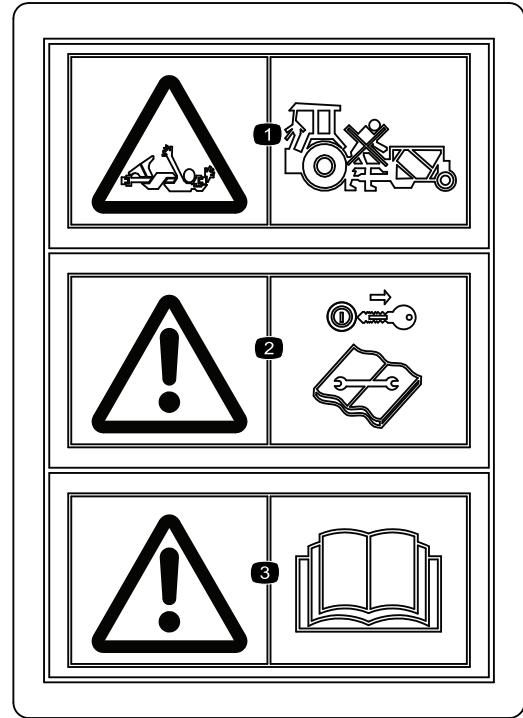
**133-8061**



decal144-7905

**144-7905**

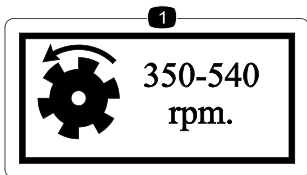
1. Thrown object hazard—keep bystanders away.
2. Warning—remove the key, secure the machine from movement, and read the *Operator's Manual* before performing maintenance.



decal144-8338

**144-8338**

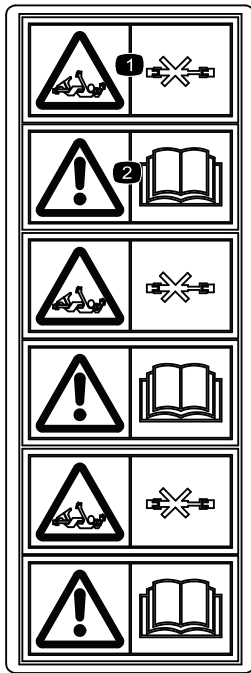
1. Entanglement hazard—keep away from moving parts..
2. Warning—remove the key before performing maintenance; read the *Operator's Manual*.
3. Warning—read the *Operator's Manual*.



decal144-8256

**144-8256**

1. PTO—350 to 540 rpm



decal144-8339

**144-8339**

1. Entanglement hazard—keep away from moving parts.
  2. Warning—read the *Operator's Manual*.
-

# Setup

## 1

### Removing the Attachment from the Pallet

No Parts Required

#### Procedure

The attachment is shipped vertically on the pallet. Perform the following instructions to remove it from the pallet.

#### **⚠ DANGER**

The attachment is unstable and could swing when lifted, injuring anyone beneath it or around it.

- Refer to the lifting machine operator's manual to ensure that it is rated to lift the attachment.
- Ensure the lift height is kept to a minimum and only high enough to remove the shipping material.
- Do not crawl under the attachment.

1. Mount a lifting cable to the lifting points at both sides of the attachment.

**Note:** Refer to the lifting machine *Operator's Manual* to ensure that it is rated to lift the attachment.

2. Raise the attachment (including the pallet) 50 mm (2 inches) from the ground.
3. Gently lower the attachment in a controlled way as shown in [Figure 3](#) until it is placed on the ground.
4. Remove the hitch pins.
5. Remove the pallet.
6. Install the hitch pins.

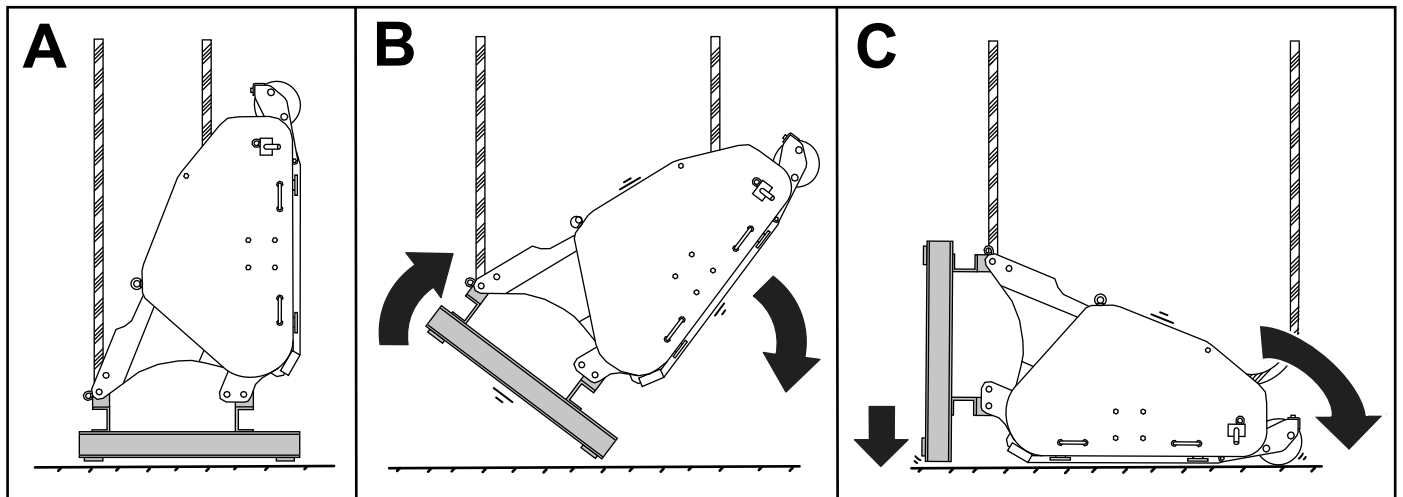


Figure 3

g347978

# 2

## Installing the Knives and Gearbox Breather

No Parts Required

### Procedure

1. Install the attachment to a traction unit; refer to [Connecting to a 3-Point Hitch \(page 10\)](#) and [Connecting the PTO Driveshaft \(page 12\)](#).
2. Raise the attachment off the ground.
3. Perform the following steps to shut off the traction unit:
  - A. Ensure that the traction unit is parked on a level surface.
  - B. Engage the parking brake.
  - C. Shut off the traction unit and remove the key.
4. Lower the adjustable legs on the attachment.
5. Start the engine, carefully lower the attachment to the ground, then shut off the engine and remove the key.
6. Open the hatch; refer to [Opening the Hatch \(page 21\)](#).
7. Remove the loose parts from the hatch.

### **⚠ WARNING**

**The blades are sharp; contacting a blade can result in serious personal injury.**

**Wear gloves when installing the blades.**

8. Remove the indicated hardware in [Figure 4](#).

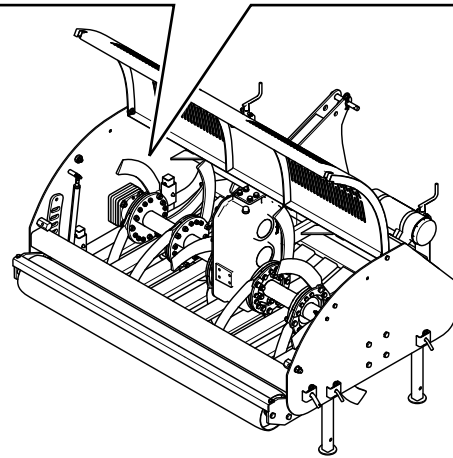
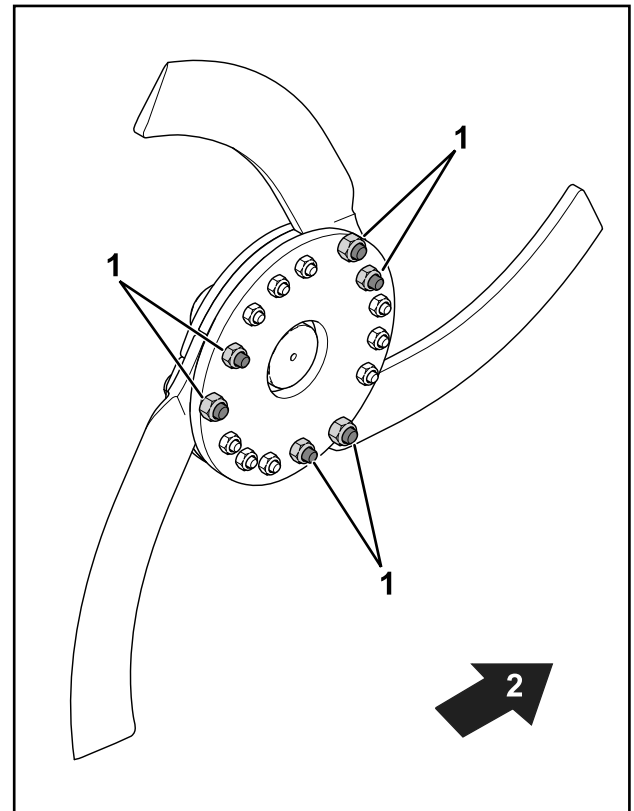


Figure 4

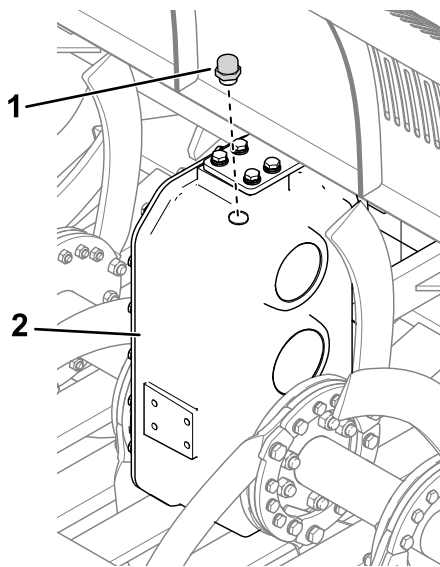
g348675

1. Hardware—bolts and nuts
2. Front of the attachment

9. Use the hardware to install the knives as shown in [Figure 4](#).

Torque the hardware to 176 to 217 N·m (130 to 160 ft·lb).

10. Install the breather to the gearbox ([Figure 5](#)).



**Figure 5**

1. Breather

2. Gearbox

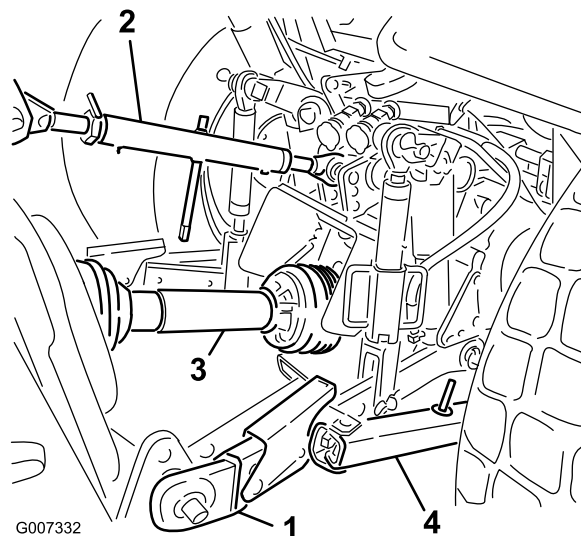
- 
11. Close the hatch and secure it with the previously removed hardware.

# 3

## Inspecting the Machine

No Parts Required

### Checking the Traction Unit Requirements



**Figure 6**

3-Point Hitch and PTO Components

1. Lower link arm

3. PTO driveshaft

2. Upper link arm

4. Sway link

Use the following list as a reference:

- Refer to the specifications section for the recommended horse power and the minimum lifting capacity for the traction unit; [Specifications \(page 9\)](#).
- The traction unit must have a category I or II 3-point hitch.
- Set the sway links to 50 mm (2 inches) of lateral movement; refer to your traction unit *Operator's Manual* for sway-link adjustment instructions.
- The traction unit must have a PTO output-shaft speed of 540 rpm.
- Adequate front-end weight (ballast) to offset the weight of the machine.
- Check the tire air pressure of the traction unit.  
Adjust the tire air pressure as needed.

**Important:** Do not exceed the maximum or minimum tire inflation pressures as recommended by tire manufacturer.



## Checking the Ballast Requirements

### **⚠ WARNING**

Mounting the machine to the rear of the traction unit decreases the weight on its front axle.

Failure to add required ballast may result in an accident and severe injury or death.

- To ensure adequate steering control and stability, you may need to add ballast to the front of the traction unit.
- Refer to the traction unit *Operator's Manual* for ballast requirements.

# Product Overview

## Specifications

### Traction Unit Requirements

Minimum lifting capacity	750 kg (1,654 lbs)
Recommended traction unit output-power rating	22 to 34 kW (30 to 45 hp)
Tow system	3-point hitch, category 1 or 2

### Attachment Specifications

Width	180.3 cm (71 inches)
Length	149.8 cm (59 inches)
Height	106.6 cm (42 inches)
Working width	1.6 m (63 inches)
Working depth	Adjustable; up to 25.4 cm (10 inches)
Maximum working speed	1.6 km/h (1 mph)
Tractor speed measured at 540 rev/min on PTO	0.5 to 1.5 km/h (0.3 to 0.9 mph)
Weight	615 kg (1,355 lb)
Number of knives	18
Number of knife discs	6
Distance between knife discs	260 mm (10.2 inches)
Knife thickness	12 mm (0.47 inch)

# Operation

**Important:** Refer to the traction unit *Operator's Manual* for operating instructions.

## Before Operation

### Before Operation Safety

- Never allow children or untrained people to operate or service the machine. Local regulations may restrict the age of the operator. The owner is responsible for training all operators and mechanics.
- Keep your hands clear of the joint pivot areas when handling the PTO driveshaft.
- Do not step on, over, or under the PTO or driveshafts.
- Become familiar with the safe operation of the equipment, operator controls, and safety signs.
- Know how to stop the machine and shut off the engine of the traction unit quickly.
- Do not use PTO spline adapters or extensions.
- Ensure that the guards and shields are properly installed and maintained. Replace missing, damaged, or worn guards and shields before using the machine.
- Ensure that the PTO driveshaft does not contact the drawbar.
- Inspect the area where you will use the machine and remove all objects that the machine could strike.
- Ensure that your traction unit is suitable for use with an implement of this weight by checking with your traction unit supplier or manufacturer.
- Shut off the machine, shut off the engine and remove the key of the traction unit, and wait for all moving parts to stop before making any adjustments to the machine.

## Understanding the Traction Unit Controls

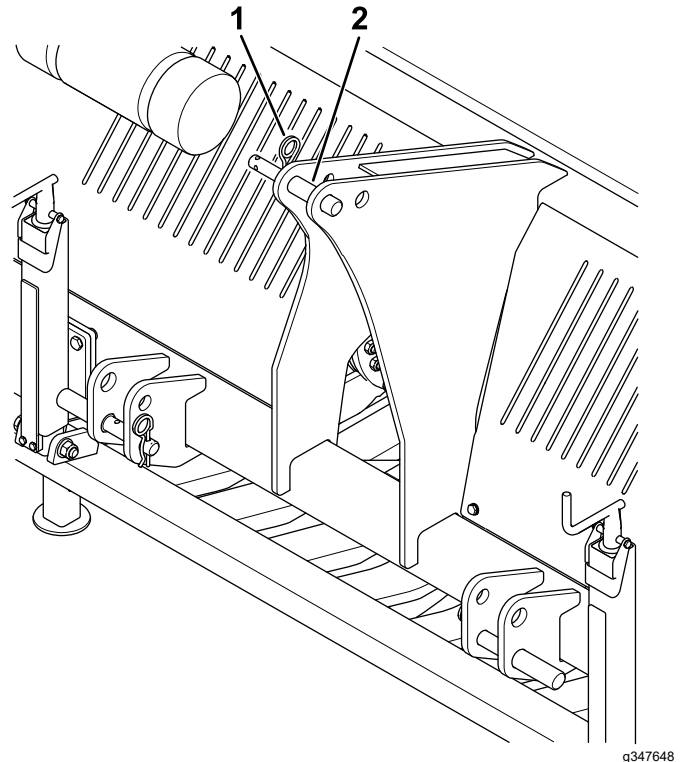
Familiarize yourself with the operation of the following traction unit controls before operating the attachment:

- PTO engagement
- Three-point hitch (raise/lower)
- Clutch
- Throttle
- Gear selection
- Parking brake

## Connecting to a 3-Point Hitch

### Connecting the Lower Link Arms

1. Ensure that the attachment is positioned on a level surface for installation.
2. Remove the hairpin cotters from the hitch pins.



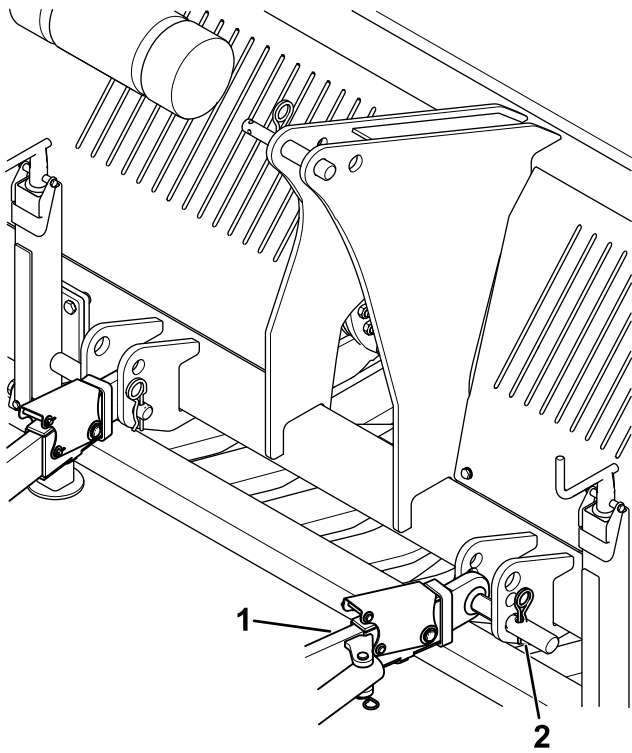
**Figure 7**

1. Hairpin cotter (3)
2. Hitch pin (3)

3. Back the traction unit squarely up to the attachment so that the lower connecting arms can be attached to the frame.
4. Engage the parking brake, shut off the engine, and remove the key from the ignition. Wait for the engine and all moving parts to stop before leaving the operator's seat.

**Note:** For maximum ground clearance, install the hitch pins in the lower mounting holes of the hitch plate for the attachment.

5. Insert the right and left lower link arms onto the hitch pins.



**Figure 8**

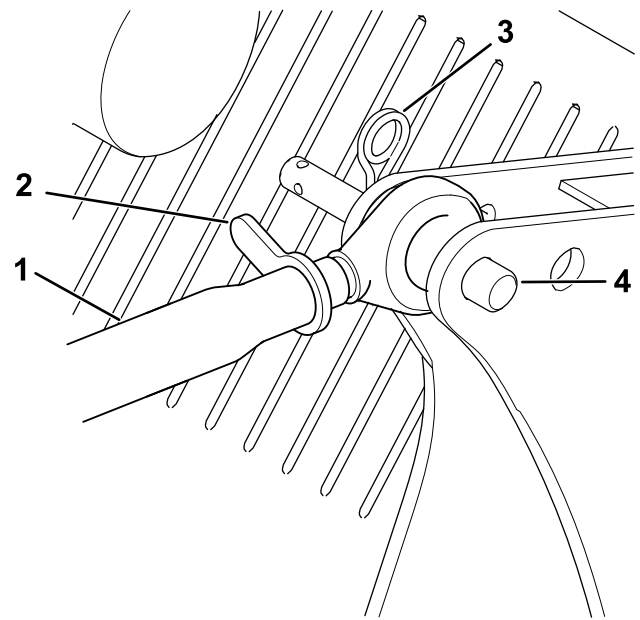
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1. Lower link arm (2)
  2. Hitch pin and hairpin cotter (2)
- 
6. Secure the lower link arms to the hitch pins using the hairpin cotters.

## Connecting the Upper Link Arm

1. Connect the upper link arm to the bracket and secure it with the link pin and the hairpin cotter (Figure 9).

**Note:** Use the slotted hole if you would like the attachment to follow the terrain during operation.

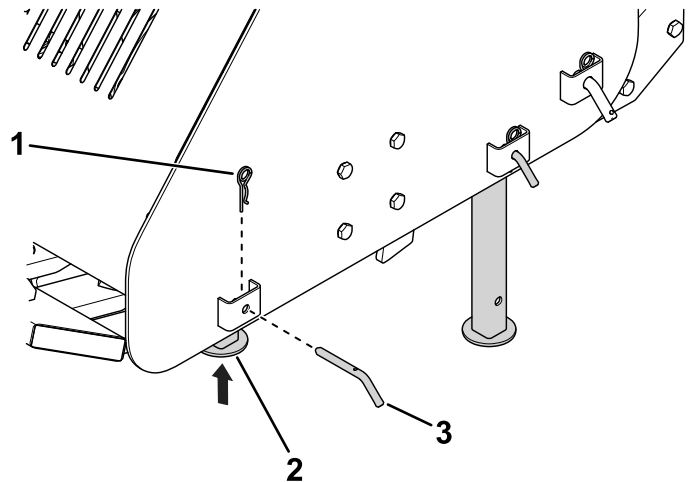


**Figure 9**

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- |                   |                   |
|-------------------|-------------------|
| 1. Upper link arm | 3. Hairpin cotter |
| 2. Jam nut        | 4. Link pin       |

2. Grease the threaded steel upper link arm tubes.
3. Rotate the upper link arm to tighten or loosen the link as needed.
4. Tighten the jam nut to secure the upper link arm into position.
5. Start the traction unit and lift the attachment off the ground.
6. Shut off the traction unit, remove the key, and raise the attachment storage stands (Figure 10).



**Figure 10**

g349299

- |               |              |
|---------------|--------------|
| 1. Catter pin | 3. Hitch pin |
| 2. Stand leg  |              |

# Connecting the PTO Driveshaft

## Adjusting the PTO Driveshaft Length

Adjust the length of the PTO driveshaft whenever you install the attachment to a different traction unit.

**Important:** If the length of PTO is not adjusted properly, using the attachment can damage the traction unit or the attachment. The overlapping length of the cylinders must be at least 150 mm (6 inches). The length changes when you lift or install the attachment on a different traction unit.

1. Park the machine on a level surface, engage the parking brake, and lower the attachment to the ground.
2. Shut off the engine and remove the key.
3. Pull the PTO driveshaft sections apart (Figure 11).

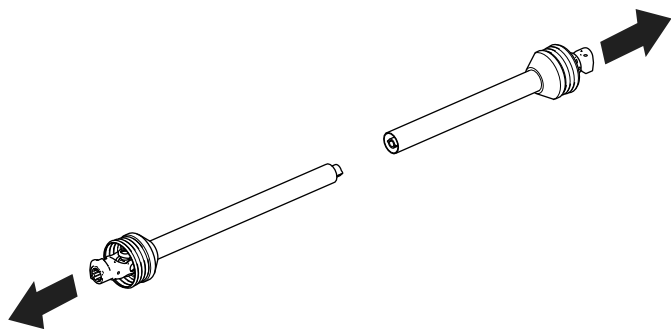


Figure 11

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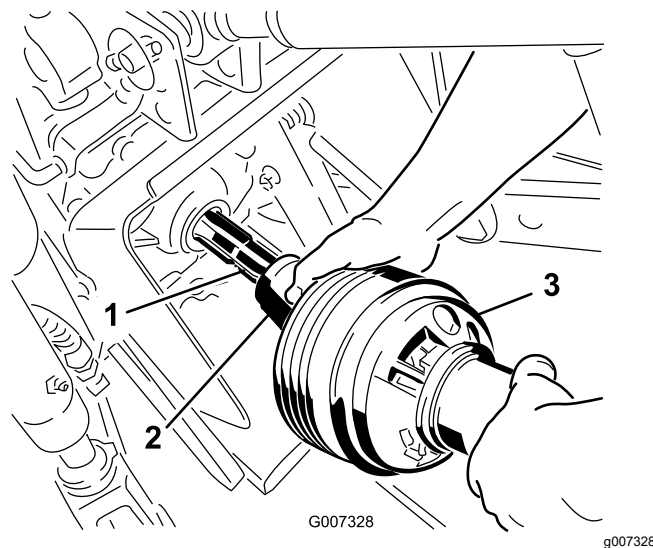


Figure 12

g007328

1. PTO output shaft (traction unit)
2. PTO shaft coupler
3. PTO driveshaft section

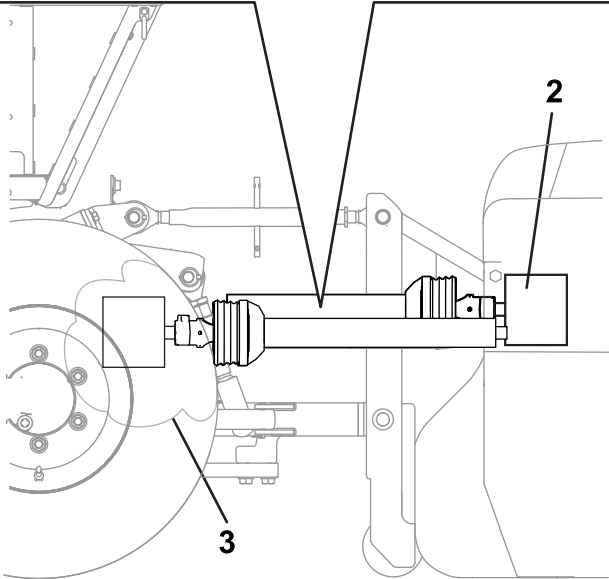
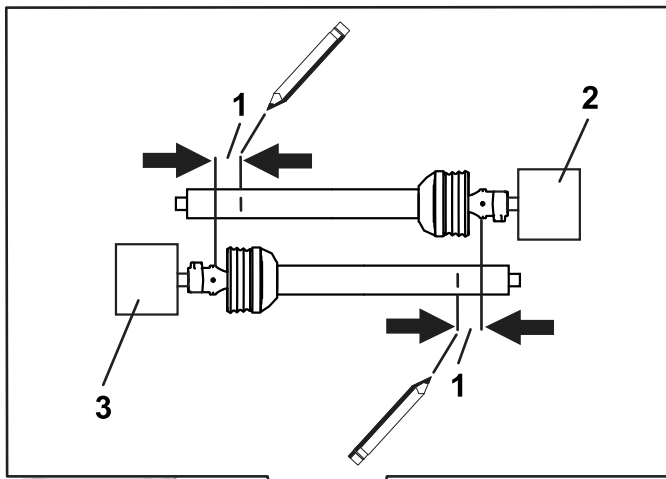
5. Hold the driveshaft sections parallel to each other to determine if they are too long (Figure 13).

**Note:** Each driveshaft section must be 76 mm (3 inches) from the U-joint (Figure 13).

6. If the driveshaft sections are too long, mark 76 mm (3 inches) back from U-joint on each section (Figure 13).

4. Assemble the outer PTO driveshaft section to the traction-unit PTO output shaft (Figure 12).

**Note:** Pull on the driveshaft to ensure that the locking pin engages the PTO output shaft.



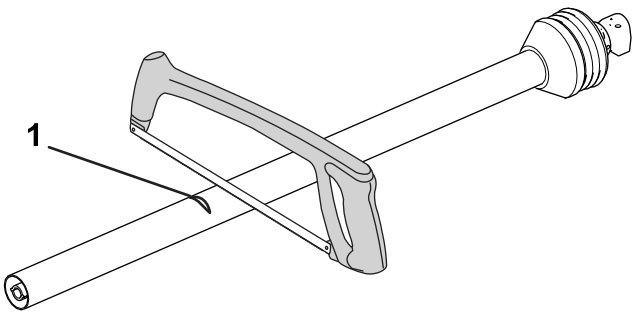
**Figure 13**

g347524

- 1. 76 mm (3 inches)
- 2. Attachment gearbox
- 3. Traction-unit PTO output shaft

- 7. Remove and cut each section at the mark (Figure 14).

**Note:** Ensure the same amount is removed from each section.

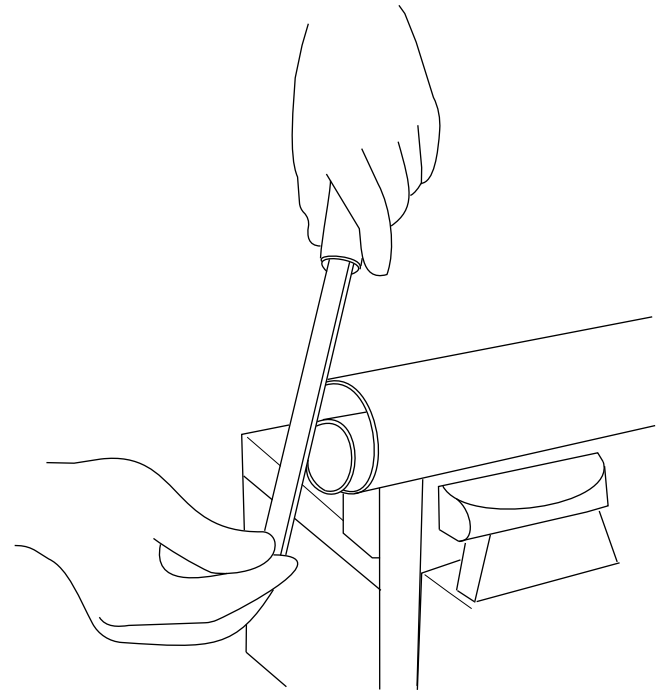


**Figure 14**

g347473

- 1. Cut the driveshaft section.

- 8. Deburr the ends of the sections (Figure 15).



**Figure 15**

g347459

- 9. Assemble the outer PTO driveshaft section to the PTO shaft of the traction unit (Figure 12).
- 10. Raise the attachment to the position where the traction-unit PTO output shaft and gearbox input shaft are furthest apart (Figure 16).
- 11. Hold the driveshaft sections parallel to each other and check to ensure that they overlap 150 mm (6 inches) or more (Figure 16).

**Note:** If the sections do not overlap 150 mm (6 inches), contact your authorized distributor.

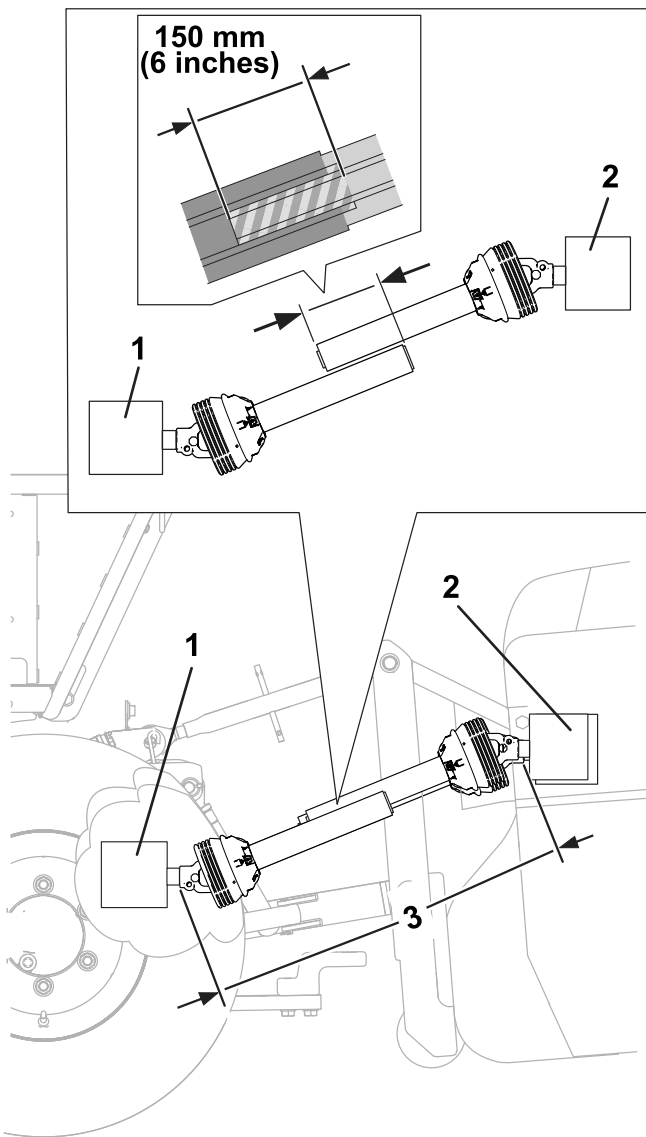


Figure 16

g347621

1. Attachment gearbox
2. Traction-unit PTO output shaft
3. Shafts furthest apart

## Installing the PTO Driveshaft

**Important:** Refer to the PTO driveshaft owner's manual for additional operating and safety information.

### ⚠ CAUTION

Operating the machine without the PTO guards and shields may cause injury or death.

Keep all PTO guards and shields in place.

**Important:** When connecting the PTO, ensure that the attachment is not lifted higher than necessary. Lifting the attachment too high causes the PTO driveshaft knuckles to break (Figure 17).

The PTO can operate up to an angle of 25°, but operating it beyond 30° angle may severely damage the shaft.

**Note:** Ensure the cross bearings are aligned as shown in Figure 17.

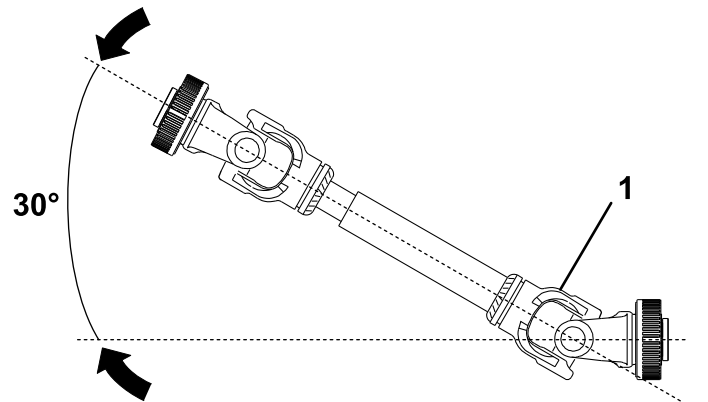


Figure 17

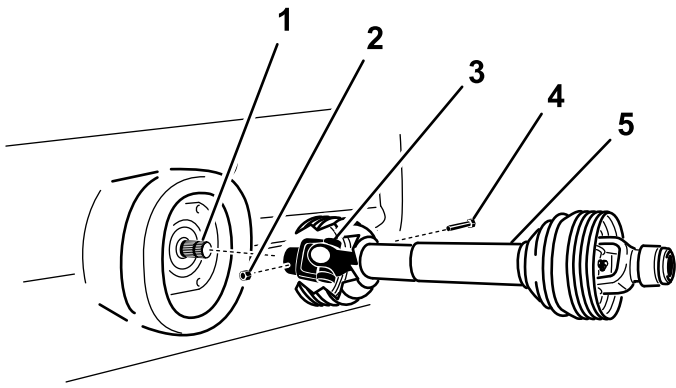
g345626

1. Breakage occurs here.

12. Grease and assemble the sections.

**Important:** Do not use the attachment if the PTO driveshaft is damaged; replace the damaged driveshaft before operation.

1. Assemble the PTO driveshaft to the gearbox input shaft of the attachment.

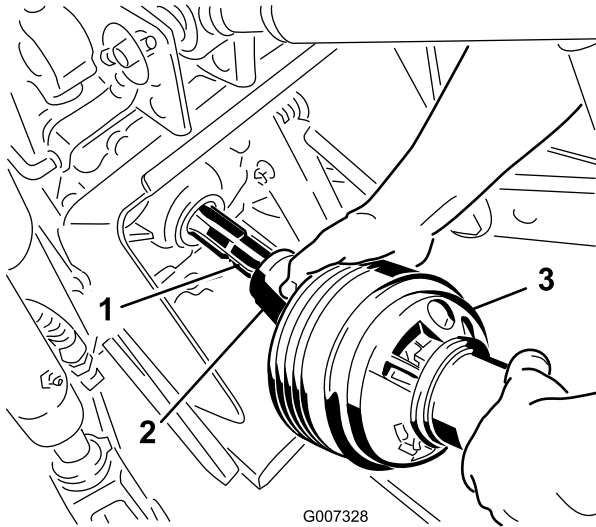


**Figure 18**

g345541

- |                        |                   |
|------------------------|-------------------|
| 1. Gearbox input shaft | 4. Bolt           |
| 2. Nut                 | 5. PTO driveshaft |
| 3. PTO shaft coupler   |                   |

2. Assemble the PTO driveshaft to the PTO output shaft of the traction unit.



**Figure 19**

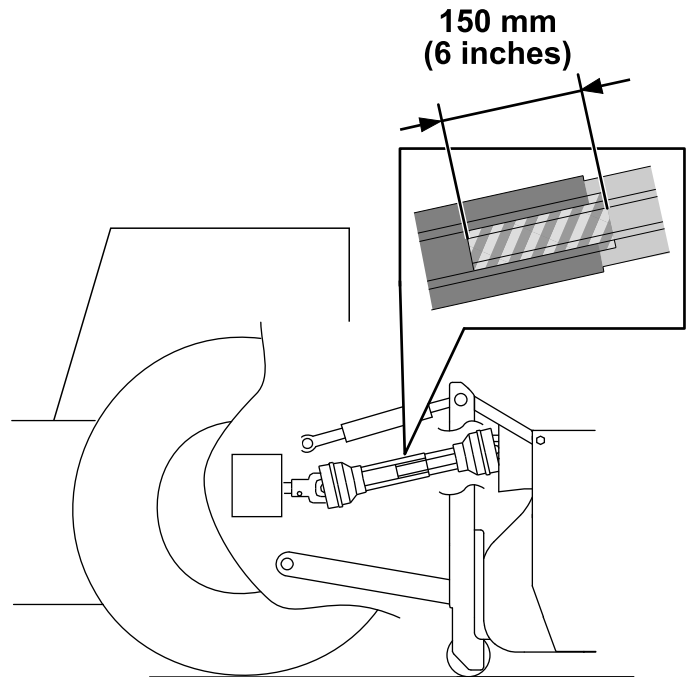
G007328

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- |                                     |                        |
|-------------------------------------|------------------------|
| 1. PTO output shaft (traction unit) | 3. PTO driveshaft unit |
| 2. PTO shaft coupler                |                        |

3. Slide the PTO driveshaft forward as far as the PTO output shaft allows.
4. Pull back on the locking collar of the PTO shaft coupler to secure the PTO driveshaft. Slide the PTO driveshaft back and forth to ensure that it is locked securely.

5. Verify that the telescoping tube has a minimum of 150 mm (6 inches) overlap when the attachment is raised to the maximum height.

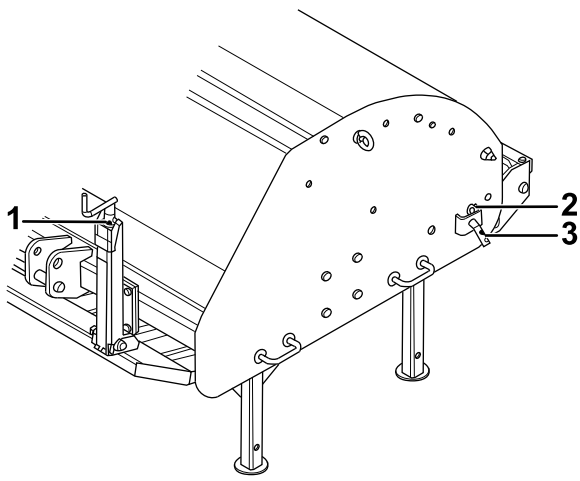


**Figure 20**

g345507

## Adjusting the Operating Depth

1. Install the attachment to the traction unit; refer to [Connecting to a 3-Point Hitch \(page 10\)](#) and [Connecting the PTO Driveshaft \(page 12\)](#).
2. Raise the attachment above the ground.
3. Pull out the pins from the plates on the sides of the attachment ([Figure 21](#)).

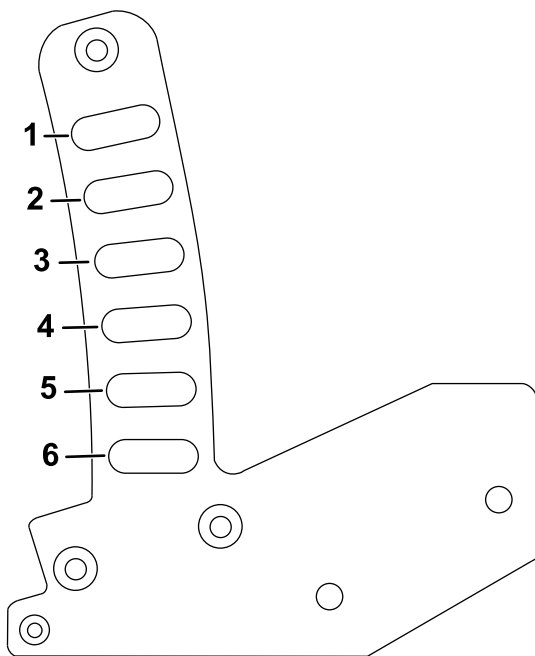


**Figure 21**  
Left side shown

g347013

- |               |        |
|---------------|--------|
| 1. Jack       | 3. Pin |
| 2. Side plate |        |

- Adjust the depth indicators on the inside of the attachment to your desired operating depth (Figure 22).



**Figure 22**

g347014

- |                        |                        |
|------------------------|------------------------|
| 1. 50 mm (1.9 inches)  | 4. 170 mm (6.7 inches) |
| 2. 90 mm (3.5 inches)  | 5. 210 mm (8.3 inches) |
| 3. 130 mm (5.1 inches) | 6. 250 mm (9.8 inches) |

- Install the pins to the side plates.
- Adjust the jacks at the front of the attachment.

On the jacks, an indicator strip shows the operating depth. Ensure that the jacks and depth indicators at the rear of the attachment are set to the same depth.

## Practicing the Operating Procedures

Before using the attachment, find a clear area and practice operating the traction unit with the attachment installed.

**Important:** If there are sprinkler heads, electrical or communication lines, or other obstructions in the area being aerated, mark these locations to ensure that these items are not damaged during operation.

- Operate the traction unit using the recommended gear settings and PTO drive speeds and become thoroughly familiar with the traction unit handling with the attachment.
- Practice stopping and starting, raising the attachment, lowering the attachment, disengaging the PTO drive, and aligning the attachment with previous passes.

Practice sessions help you gain confidence in the performance of the attachment and help ensure that you are using it properly.

### **⚠ WARNING**

**Adjusting or maintaining the attachment while the traction unit is running may result in an accident and severe injury or death.**

- Before leaving the operator's seat, engage the parking brake, shut off the engine, remove the key, and wait for all moving parts to stop.**
- Lower the attachment onto the storage stands or appropriate blocking or jacks before servicing or repairing the attachment.**
- Ensure that all safety devices are secured in proper place before resuming operation.**

## During Operation

### During Operation Safety

- The owner/operator can prevent and is responsible for accidents that may cause personal injury or property damage.
- Wear appropriate clothing, including eye protection; long pants; substantial, slip-resistant footwear; and hearing protection. Tie back long hair and do not wear loose clothing or loose jewelry.
- Use your full attention while operating the machine. Do not engage in any activity that



causes distractions; otherwise, injury or property damage may occur.

- Do not operate the machine when tired, ill, or under the influence of alcohol or drugs.
- Never carry passengers on the machine and keep bystanders and pets away from the machine during operation.
- Operate the machine only in good visibility to avoid holes or hidden hazards.
- Before you start the engine, ensure that all drives are in neutral, the PTO is disengaged, the parking brake is engaged, and you are in the operating position.
- Keep your hands and feet away from moving parts.
- Look behind and down before backing up to be sure of a clear path.
- Use care when approaching blind corners, shrubs, trees, or other objects that may obscure your vision.
- Do not run the PTO with the attachment raised.
- Stop the attachment whenever you are not using it.
- Stop the machine, shut off the engine, remove the key, wait for all moving parts to stop, and inspect the machine after striking an object or if there is an abnormal vibration in the machine. Make all necessary repairs before resuming operation.
- Slow down and use caution when making turns and crossing roads and sidewalks with the machine. Always yield the right-of-way.
- Reduce speed on rough roads and surfaces.
- When attached to a traction unit, and in the raised position, the weight of the attachment affects stability, braking and steering. Exercise caution when transporting between working areas.
- Never leave a running machine unattended.
- Before leaving the operating position, do the following:
  - Ensure that the PTO is disengaged.
  - Park the machine on a level surface.
  - Engage the parking brake.
  - Lower the attachment.
  - Shut off the engine and remove the key.
  - Wait for all moving parts to stop before leaving the machine.
- Do not operate the machine when there is the risk of lightning.
- Use Bullseye accessories, attachments, and replacement parts only.
- For disassembly or repair of all steel PTO driveshaft parts (tubes, bearings, joints, etc.), contact your authorized distributor. Removing components for repairs and assembly may

damage some parts if not performed with special tools by trained technicians.

- Do not operate the attachment if the PTO or driveshaft guards are missing.
- Be careful when turning the machine so that the traction unit tires do not contact the PTO driveshaft.
- Secure hydraulic hoses, electrical wiring, ropes, and other items to keep them from contacting the PTO driveshaft guard.

## Slope Safety

- Review the traction unit specifications to ensure that you do not exceed its slope capabilities.
- Slopes are a major factor related to loss of control and rollover accidents, which can result in severe injury or death. You are responsible for safe slope operation. Operating the machine on any slope requires extra caution.
- Review and understand the slope instructions in the manual and on the traction unit.
- Evaluate the site conditions to determine if the slope is safe for machine operation, including surveying the site. Always use common sense and good judgment when performing this survey.
- Review the slope instructions listed below for operating the machine on slopes and to determine whether you can operate the machine in the conditions on that day and at that site. Changes in the terrain can result in a change in slope operation for the machine.
- Avoid starting, stopping, or turning the machine on slopes. Avoid making sudden changes in speed or direction. Make turns slowly and gradually.
- Do not operate a machine under any conditions where traction, steering, or stability are in question.
- Remove or mark obstructions such as ditches, holes, ruts, bumps, rocks, or other hidden hazards. Tall grass can hide obstructions. Uneven terrain could overturn the machine.
- Be aware that operating the machine on wet grass, across slopes, or downhill may cause the machine to lose traction. Loss of traction to the drive wheels may result in sliding and a loss of braking and steering.
- Use extreme caution when operating the machine near drop-offs, ditches, embankments, water hazards, or other hazards. The machine could suddenly roll over if a wheel goes over the edge or the edge caves in. Establish a safety area between the machine and any hazard.
- Identify hazards at the base of the slope. If there are hazards, mow the slope with a power walk-behind mower.

- If possible, keep the attachment lowered to the ground while operating on slopes. Raising the attachment while operating on slopes can cause the machine to become unstable.
- Use extreme caution with other attachments. These can change the stability of the machine and cause a loss of control. Always keep the machine in gear when going down slopes. Do not coast downhill (applicable only to gear-drive units).

## Transporting the Attachment

To begin transport operation, raise the attachment and disengage the PTO. To avoid loss of control, traverse steep inclines slowly, approach rough areas at reduced speed and cross severe undulations carefully.

**Important:** Do not exceed transport speeds of 12 km/h (7.5 mph).

## Using the PTO

Before engaging the PTO, verify the following:

- The angle of the pivot pins are 25° or less and never exceeding 30°.
- The pivot pins are aligned.
- The overlap of the PTO cylinders is at least 150 mm (6 inches).
- The PTO protection guard is not damaged.

## Operating the Attachment

1. Inspect the attachment to ensure that all parts are properly functioning.
2. Raise the attachment and drive to the location where you will use the attachment.

**Important:** Do not exceed 12 km/h (7.5 mph) while transporting the attachment.

3. Lower the attachment until the knives almost contact the ground.
4. Engage the PTO at a low rpm.
5. Increase the PTO speed to approximately 300 rpm.
6. Drive the traction unit forward slowly and allow the attachment to smoothly lower to the ground.

**Important:** Ensure that the PTO is engaged before you lower the attachment to the ground. If you place the attachment into the soil while the PTO is not running, this may cause serious damage to the attachment.

7. Increase the PTO speed to a maximum 540 rpm.
8. Increase the traction unit speed to a maximum of 1.5 km/h (0.9 mph).

**Important:** Always work in straight lines. Curves may cause damage to the soil.

Once you have completed your job, perform the following steps:

1. After operating the attachment, raise it so that the knives are out of the ground.
2. Decrease the PTO speed to approximately 300 rpm.
3. Disengage the PTO and raise the attachment further.
4. Drive to the next location as needed.

## After Operation

### After Operation Safety

- Park the machine on a level surface; engage the parking brake; shut off the engine; remove the key; and wait for all movement to stop before leaving the machine.
- Do not step on, over, or under the driveshaft.
- Do not use the restrain chain of the PTO-shaft guard to support the shaft when transporting or storing the mower.
- Do not rest the PTO shaft on the ground.
- Do not allow the PTO-shaft guards to pull apart.

- Keep all parts of the machine in good working condition and all hardware tightened.
- Replace all worn, damaged, or missing decals.

## Removing the Attachment

1. Park the machine on a level surface with the attachment in the raised position, engage the parking brake, shut off the engine, and remove the key from the traction unit.
2. Lower the attachment stands (Figure 23).

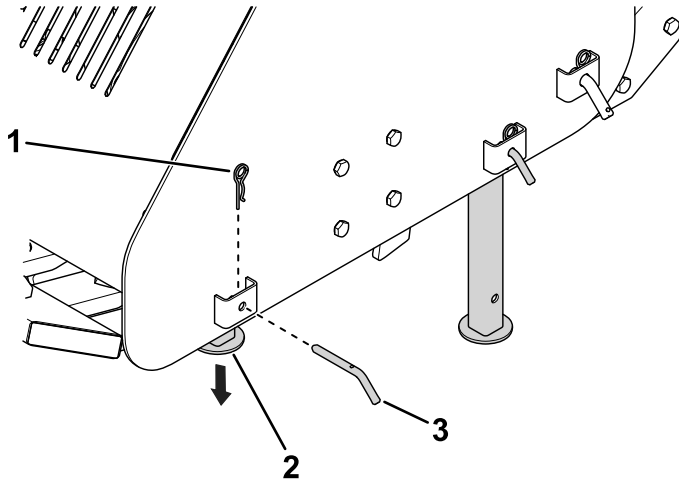


Figure 23

g349300

1. Cotter pin
2. Stand leg
3. Hitch pin

3. Start the traction unit and carefully lower the attachment to the ground. Shut off the engine and remove the key.
4. Remove the PTO driveshaft from the attachment.

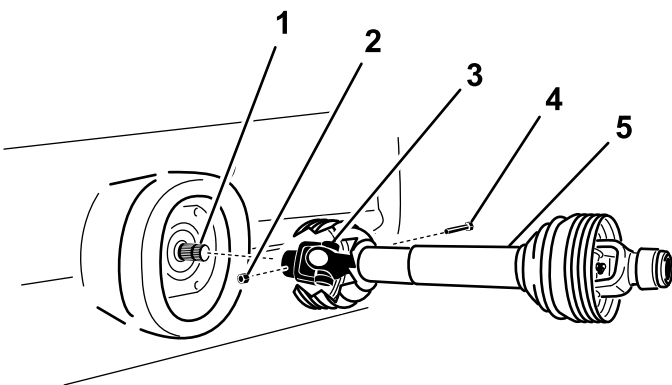


Figure 24

g345541

1. Gearbox input shaft
2. Nut
3. PTO shaft coupler
4. Bolt
5. PTO driveshaft

5. Remove the PTO driveshaft from the traction unit.

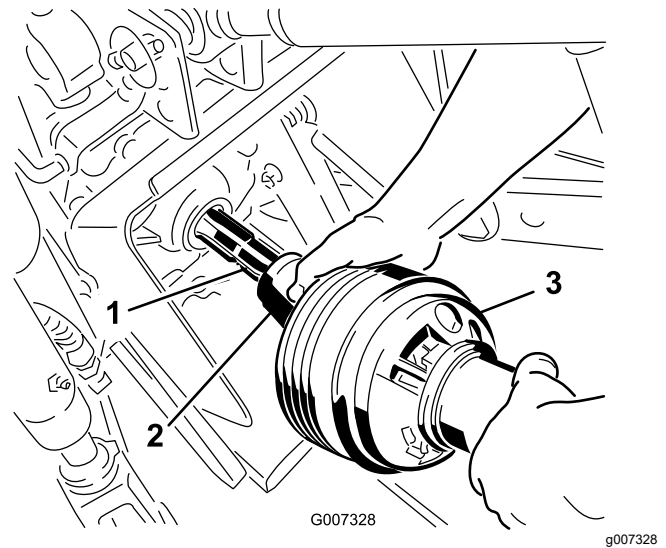


Figure 25

G007328

g007328

1. PTO output shaft (traction unit)
2. PTO shaft coupler
3. PTO driveshaft unit

6. Loosen the upper link jam nut and rotate the upper link (Figure 26) so that the attachment is on the stand legs and on level ground.

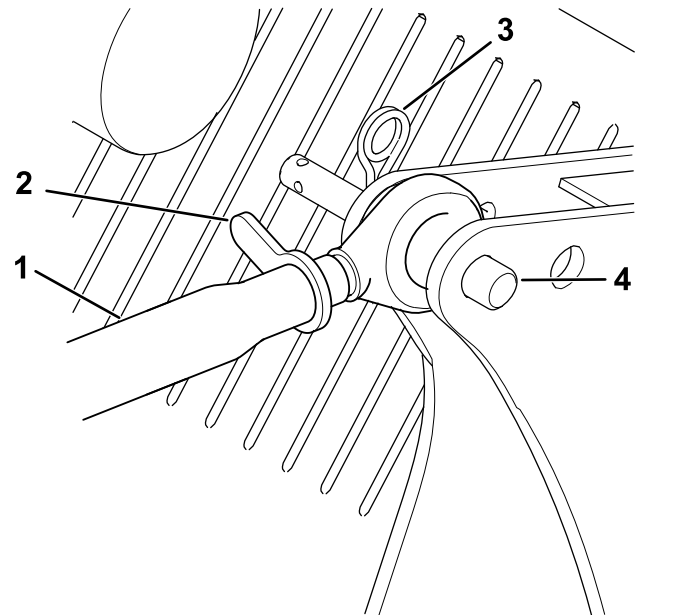


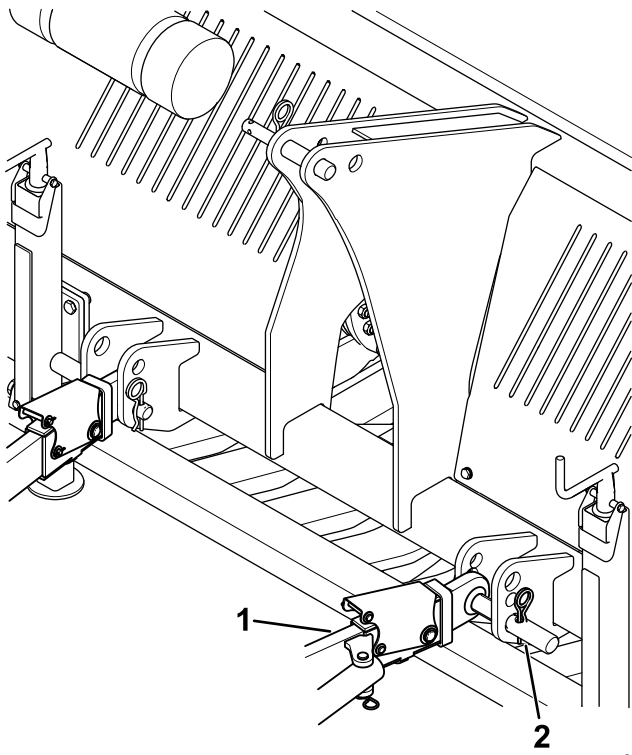
Figure 26

g347650

1. Upper link arm
2. Jam nut
3. Hairpin cotter
4. Link pin

7. Remove the upper link arms.
8. Remove the lower link arms (Figure 27).

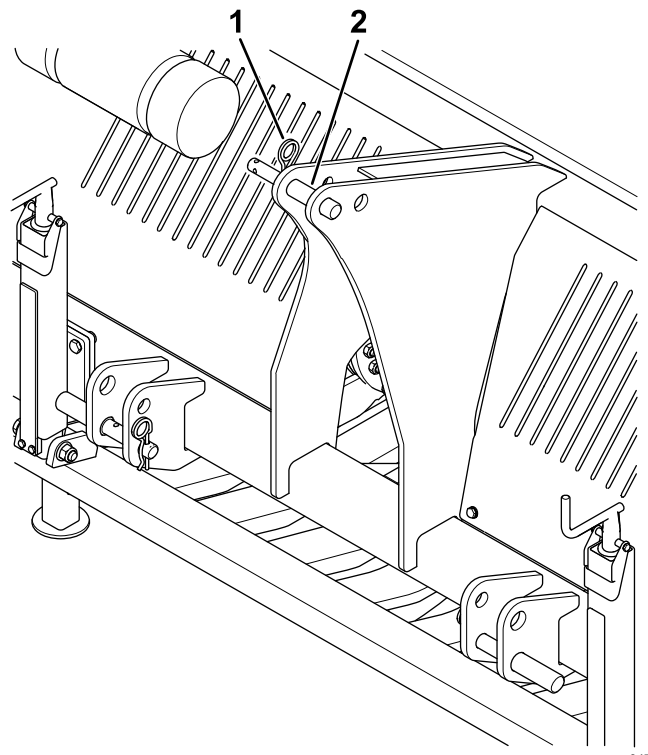
**Important:** Ensure that the attachment does not slide off the traction unit and cannot roll away.



g347649

**Figure 27**

- 1. Lower link arm (2)
- 2. Hitch pin and hairpin cotter (2)



g347648

**Figure 28**

- 1. Hairpin cotter (3)
- 2. Hitch pin (3)

- 
- 9. Start the traction unit and drive it away from the attachment.
  - 10. Install the hairpin cotters to the hitch pins ([Figure 28](#)).

# Maintenance

## Recommended Maintenance Schedule(s)

Maintenance Service Interval	Maintenance Procedure
Before each use or daily	<ul style="list-style-type: none"> <li>• Check the gearbox oil level.</li> <li>• Grease the PTO shaft.</li> <li>• Wash the attachment.</li> <li>• Check for loose fasteners and tighten them as necessary.</li> </ul>
Every 50 hours	<ul style="list-style-type: none"> <li>• Check the gearbox for oil leakage.</li> </ul>
Every 100 hours	<ul style="list-style-type: none"> <li>• Check the condition of the knives.</li> <li>• Check the sowing elements for dirt and/or damage.</li> <li>• Check the sowing pipes and/or funnels.</li> </ul>
Yearly	<ul style="list-style-type: none"> <li>• Service the PTO.</li> </ul>

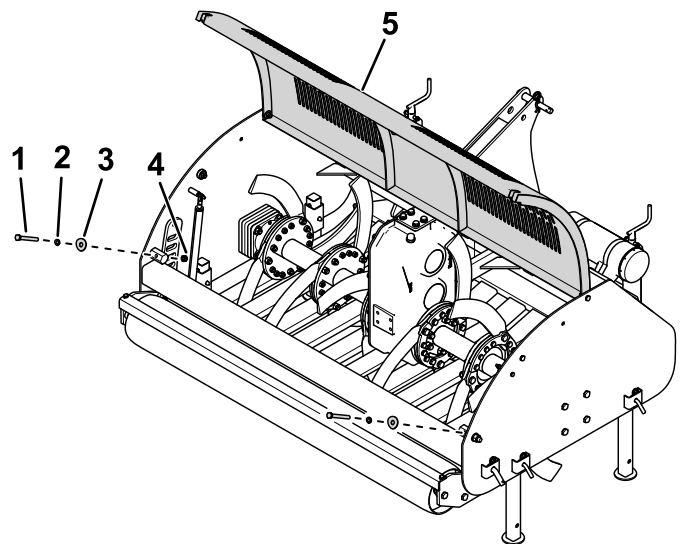
## Maintenance Safety

- Before adjusting, cleaning, servicing, or leaving the machine, do the following:
  - Position the machine on a level surface.
  - Move the throttle switch to the low-idle position.
  - Disengage the PTO (if applicable).
  - Ensure that the traction is in neutral.
  - Engage the parking brake.
  - Shut off the engine of the traction unit and remove the key.
  - Wait for all moving parts to stop.
  - Allow machine components to cool before performing maintenance.
- Perform only those maintenance instructions described in this manual. If major repairs are ever needed or assistance is desired, contact an authorized Bullseye distributor.
- Ensure that the machine is in safe operating condition by keeping nuts, bolts, and screws tight.
- If possible, do not perform maintenance while the engine is running. Keep away from moving parts.
- Carefully release pressure from components with stored energy.
- Support the machine with blocks or storage stands when working beneath it. Never rely on the hydraulic system to support the machine.
- Never crawl under the attachment. If necessary, tilt the attachment.
- Ensure that all guards are installed and secured after maintaining or adjusting the machine.
- To ensure safe, optimal performance of the machine, use only genuine Bullseye replacement parts. Replacement parts made by other

manufacturers could be dangerous, and such use could void the product warranty.

## Opening the Hatch

Remove the hardware shown in [Figure 29](#) and lift the hatch to access the knives and gearbox ([Figure 29](#)).



**Figure 29**

g347999

- |                 |          |
|-----------------|----------|
| 1. Bolt         | 4. Nut   |
| 2. Split washer | 5. Hatch |
| 3. Flat washer  |          |

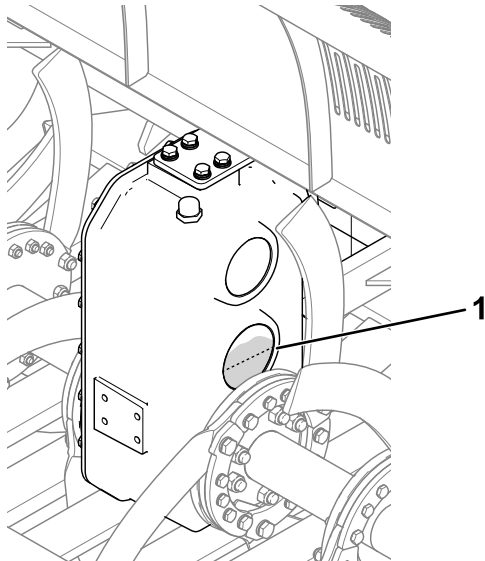
# Checking the Gearbox Oil Level

**Service Interval:** Before each use or daily  
Every 50 hours

**Gearbox-oil specification:** SAE 90

1. Open the hatch; refer to [Opening the Hatch \(page 21\)](#).
2. Check the oil level in the gearbox.

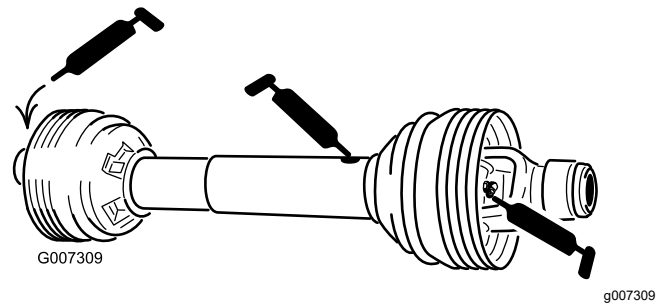
The gearbox oil level should be at or above the gauge centerline ([Figure 30](#)).



**Figure 30**

g349301

1. Gauge centerline



**Figure 31**

g007309

8. Grease the cylinders.
9. Assemble the PTO and mount it on the attachment.

## Checking the Knives

**Service Interval:** Every 100 hours

Check to ensure that the knives are not damaged or crooked. You can use a hammer and an anvil to straighten them, if needed.

If the knives are beyond repair, replace them.

## Washing the Attachment

Wash the attachment as needed using compressed air, if possible. Use water as little as possible to clean the attachment. You may use a rag when washing the attachment.

**Important:** Do not use brackish or reclaimed water to clean the attachment.

**Important:** Do not use power-washing equipment to wash the attachment. Power-washing equipment may loosen important decals or wash away necessary grease at friction points.

## Servicing the PTO

**Service Interval:** Yearly

Before each use or daily

1. Park the machine on a level surface, engage the parking brake, shut off the engine, and remove the key from the traction unit.
2. Secure the attachment from movement.
3. Disconnect the PTO from the traction unit and attachment.
4. Inspect the PTO components for damage; replace any damaged or worn components.
5. Clean all interlocking components.
6. Reassemble the components.
7. Grease the PTO shaft ([Figure 31](#)).

# Storage

## Storage Safety

- Before adjusting, cleaning, storing, or repairing the attachment, park the it on a level surface; engage the parking brake of the traction unit; shut off the engine; remove the key; and wait for all movement to stop before leaving the traction unit.
- Store the attachment on the storage stands positioned on a firm, level surface so that it does not sink or tip over.
- Store the attachment away from areas of human activity.
- Do not allow children to play on or around the stored attachment.

## Storing the Attachment

1. Wash the attachment; refer to [Washing the Attachment \(page 22\)](#).
2. Check and tighten all bolts, nuts, and screws. Repair or replace any part that is damaged.
3. Paint all scratched or bare metal surfaces with paint from an authorized Bullseye distributor.
4. Store the attachment on a level surface in a clean, dry garage or storage area.
5. Cover the attachment to protect it and keep it clean.

# Troubleshooting

Problem	Possible Cause	Corrective Action
Too much damage to the soil to be treated.	<ol style="list-style-type: none"> <li>1. Knives are damaged.</li> <li>2. Knives are crooked.</li> <li>3. Attachment is not in line with the tractor.</li> <li>4. Not driven in a straight line.</li> <li>5. Soil is too wet.</li> </ol>	<ol style="list-style-type: none"> <li>1. Try aligning the knives by straightening them using a hammer and anvil.</li> <li>2. Align the knives. Mount new ones.</li> <li>3. Adjust the attachment to align the knives with the tractor.</li> <li>4. Try driving in a straight line.</li> <li>5. Postpone the job until the soil has dried.</li> </ol>
The aerator shaft is not turning.	<ol style="list-style-type: none"> <li>1. Cam-clutch is engaged.</li> <li>2. Drive chain has broken.</li> <li>3. Gearbox damaged.</li> </ol>	<ol style="list-style-type: none"> <li>1. Repeat starting procedure</li> <li>2. Repair or replace the chain.</li> <li>3. Repair or replace the gearbox.</li> </ol>
Gearbox is leaking.	<ol style="list-style-type: none"> <li>1. Seal is leaking.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace seal.</li> </ol>
Cam-clutch is engaged too much.	<ol style="list-style-type: none"> <li>1. Cam-clutch is worn out</li> <li>2. Too many stones or rocks.</li> <li>3. Ground is too hard.</li> <li>4. Driving speed is too high.</li> <li>5. PTO speed is too low.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace cam-clutch</li> <li>2. Adjust the operating depth.</li> <li>3. Adjust the operating depth.</li> <li>4. Adjust the driving speed.</li> <li>5. Increase the PTO speed (rpm).</li> </ol>
Attachment is pushing the tractor forward.	<ol style="list-style-type: none"> <li>1. Tractor is too light.</li> <li>2. Driving speed is too high.</li> </ol>	<ol style="list-style-type: none"> <li>1. Weigh down the tractor or choose another type of tractor.</li> <li>2. Adjust the driving speed.</li> </ol>
Soil is insufficiently aerated.	<ol style="list-style-type: none"> <li>1. Too fast driving.</li> <li>2. Soil is too wet.</li> <li>3. PTO speed (rpm) is too low.</li> </ol>	<ol style="list-style-type: none"> <li>1. Drive more slowly.</li> <li>2. Postpone the job until the soil has dried.</li> <li>3. Raise the PTO speed (rpm).</li> </ol>
Knives are bringing up too much soil.	<ol style="list-style-type: none"> <li>1. Knives are crooked.</li> <li>2. Soil is too wet.</li> </ol>	<ol style="list-style-type: none"> <li>1. Align the knives. Mount new ones.</li> <li>2. Postpone the job until the soil has dried.</li> </ol>



**Notes:**

**Notes:**



## Warranty Statement

### One-Year Limited Warranty

#### Conditions and Products Covered

Your Bullseye product ("Product") is warranted to be free from defects in materials or workmanship for 1 year. Where a warrantable condition exists, we will repair the Product at no cost to you including diagnostics, labor, parts, and transportation. This warranty begins on the date the Product is delivered to the original retail purchaser.

#### Instructions for Obtaining Warranty Service

You are responsible for notifying the distributor or authorized dealer from whom you purchased the Product as soon as you believe a warrantable condition exists. If you need help locating a distributor or authorized dealer, or if you have questions regarding your warranty rights or responsibilities, you may contact us at:

Bullseye Commercial Products Service Department  
8111 Lyndale Avenue South  
Bloomington, MN 55420-1196

952-888-8801 or 800-952-2740

#### Items and Conditions Not Covered

Not all product failures or malfunctions that occur during the warranty period are defects in materials or workmanship. This warranty does not cover the following:

- Product failures which result from the use of non-Bullseye replacement parts, or from installation and use of non-Bullseye branded accessories and products, or unapproved modifications to the Product, accessory, or replacement part.
- Product failures which result from failure to perform recommended maintenance and/or adjustments.
- Product failures which result from misusing the Product or using it in an abusive, negligent, or reckless manner.
- Parts consumed through use that are not defective. Examples of parts which are consumed, or used up, during normal Product operation include, but are not limited to, blades, reels, rollers and bearings (sealed or greasable), bed knives, spark plugs, castor wheels and bearings, tires, filters, belts, and discs, seed element castings, rotors, brushes, scrapers, fraze blades, rake tines, PTO's, and draw bars.
- Failures caused by outside influence, including, but not limited to, weather, natural disaster, storage practices, contamination, use of unapproved fuels, coolants, lubricants, additives, fertilizers, water, or chemicals.
- Failure or performance issues due to the use of fuels (e.g. gasoline, diesel, or biodiesel) that do not conform to their respective industry standards.
- Normal noise, vibration, wear and tear, and deterioration. Normal "wear and tear" includes, but is not limited to, damage to seats due to wear or abrasion, worn painted surfaces, scratched decals or windows.

#### Parts

Parts scheduled for replacement, as required maintenance, are covered for the same warranty period as the product warranty. Parts replaced under this warranty are covered for the duration of the original product warranty. Bullseye may retain all parts being replaced. Bullseye will make the final decision whether to repair any existing part or assembly or replace it. Bullseye may use remanufactured parts for warranty repairs.

#### Maintenance is at Owner's Expense

Engine tune-up, lubrication, cleaning and polishing, replacement of filters, coolant, and completing recommended maintenance are some of the normal services Bullseye products require that are at the owner's expense.

#### General Conditions

Repair by an Authorized Distributor or Dealer is your sole remedy under this warranty.

**Neither Bullseye, nor any company involved in the manufacture, distribution, or sale of a Bullseye product shall be liable for indirect, incidental or consequential damages arising out of or related to the sale or use of the Product, including any cost or expense of providing substitute equipment or service during reasonable periods of malfunction or non-use pending completion of repairs under this warranty. Except for the emissions warranty referenced below, if applicable, there is no other express or implied warranty.**

Some states do not allow exclusions of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the above exclusions and limitations may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

#### Note Regarding Emissions Warranty

The emissions control system on your Product may be covered by a separate warranty from the engine manufacturer, meeting requirements established by the U.S. Environmental Protection Agency (EPA) and/or the California Air Resources Board (CARB). The hour limitations set forth above do not apply to the emissions control system warranty. Refer to the engine emission control warranty statement supplied with your product or contained in the engine manufacturer's documentation.

# California Proposition 65 Warning Information

## What is this warning?

You may see a product for sale that has a warning label like the following:



**WARNING: Cancer and Reproductive Harm—[www.p65Warnings.ca.gov](http://www.p65Warnings.ca.gov).**

## What is Prop 65?

Prop 65 applies to any company operating in California, selling products in California, or manufacturing products that may be sold in or brought into California. It mandates that the Governor of California maintain and publish a list of chemicals known to cause cancer, birth defects, and/or other reproductive harm. The list, which is updated annually, includes hundreds of chemicals found in many everyday items. The purpose of Prop 65 is to inform the public about exposure to these chemicals.

Prop 65 does not ban the sale of products containing these chemicals but instead requires warnings on any product, product packaging, or literature with the product. Moreover, a Prop 65 warning does not mean that a product is in violation of any product safety standards or requirements. In fact, the California government has clarified that a Prop 65 warning "is not the same as a regulatory decision that a product is 'safe' or 'unsafe.'" Many of these chemicals have been used in everyday products for years without documented harm. For more information, go to <https://oag.ca.gov/prop65/faqs-view-all>.

A Prop 65 warning means that a company has either (1) evaluated the exposure and has concluded that it exceeds the "no significant risk level"; or (2) has chosen to provide a warning based on its understanding about the presence of a listed chemical without attempting to evaluate the exposure.

## Does this law apply everywhere?

Prop 65 warnings are required under California law only. These warnings are seen throughout California in a wide range of settings, including but not limited to restaurants, grocery stores, hotels, schools, and hospitals, and on a wide variety of products. Additionally, some online and mail order retailers provide Prop 65 warnings on their websites or in catalogs.

## How do the California warnings compare to federal limits?

Prop 65 standards are often more stringent than federal and international standards. There are various substances that require a Prop 65 warning at levels that are far lower than federal action limits. For example, the Prop 65 standard for warnings for lead is 0.5 µg/day, which is well below the federal and international standards.

## Why don't all similar products carry the warning?

- Products sold in California require Prop 65 labelling while similar products sold elsewhere do not.
- A company involved in a Prop 65 lawsuit reaching a settlement may be required to use Prop 65 warnings for its products, but other companies making similar products may have no such requirement.
- The enforcement of Prop 65 is inconsistent.
- Companies may elect not to provide warnings because they conclude that they are not required to do so under Prop 65; a lack of warnings for a product does not mean that the product is free of listed chemicals at similar levels.

## Why does Toro include this warning?

Toro has chosen to provide consumers with as much information as possible so that they can make informed decisions about the products they buy and use. Toro provides warnings in certain cases based on its knowledge of the presence of one or more listed chemicals without evaluating the level of exposure, as not all the listed chemicals provide exposure limit requirements. While the exposure from Toro products may be negligible or well within the "no significant risk" range, out of an abundance of caution, Toro has elected to provide the Prop 65 warnings. Moreover, if Toro does not provide these warnings, it could be sued by the State of California or by private parties seeking to enforce Prop 65 and subject to substantial penalties.