Form No. 3456-956 Rev A

Rear Roller Brush Kit

Reelmaster® 3550 Series 18-inch Cutting Unit

Model No. 03916

Installation Instructions

This product complies with all relevant European directives. For details, please see the Declaration of Incorporation (DOI) at the back of this publication.

Loose Parts

Use the chart below to verify that all parts have been shipped.

Description	Qty.	Use
No parts required	–	Determine the position of the roller brushes and reel motors.
Roller-brush housing	5	Install the roller brush.
Socket-head bolt (3/8 x 1 inch)	10	
Right roller-brush assembly	2	
Left roller-brush assembly	3	
Shoulder bolt	5	
Right belt cover/plate assembly	2	
Left belt cover/plate assembly	3	
Bolt (1/4 x 5/8 inch)	10	
Spacer	5	
Drive pulley	5	
Flange-head bolt (3/8 x 1-1/4 inches)	5	
Belt	5	
Shim washer (as required for belt alignment)	5	
Right driveshaft (cutting units 2 and 4 only)	2	
Left driveshaft (cutting units 1, 3, and 5 only)	3	
90° grease fitting	5	
No parts required	–	Install the high height-of-cut brush.
Front bumper assembly	1	Install the front bumper assembly.
Washer	2	
Rear bumper assembly	1	Install the rear bumper assembly.

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Original Instructions (EN)

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Note: Determine the left and right sides of the cutting unit from behind the cutting unit.

Important: **Use the Rear Roller Brush Kit only when cutting in the height-of-cut range of 6 to 25 mm (1/4 to 1 inch). Use the high height-of-cut brush (Part No. 121-3199) when cutting above 25 mm (1 inch). Refer to the procedure for Installing High Height of Cut Brush.**

You may use the Rear Roller Brush Kit (Model 03916) on the following:

Cutting Unit Models: 03911, 03912, 03480, 03481, 03485, and 03486 for the Reelmaster 3550 Traction Unit.

Determining the Roller Brush Orientation

Use the following diagram to determine the position of the roller brushes and reel motors.

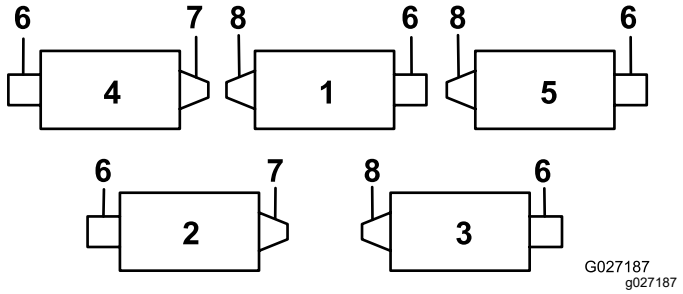

Figure 1

1. Cutting unit 1
2. Cutting unit 2
3. Cutting unit 3
4. Cutting unit 4
5. Cutting unit 5
6. Reel motor
7. Right roller-brush drive assembly
8. Left roller-brush drive assembly

Installing the Roller Brush

Installing the Driveshaft

1. Park the machine on a level surface and engage the parking brake.
2. Ensure that the cutting units are disengaged.
3. Shut off the engine and remove the key from the ignition.
4. Remove the nuts and the counterweights on the cutting unit.
5. Restrain the reel for removal; refer to Restraining the Reel for Removing Threaded Inserts (page 10).
6. Use the Toro driveshaft tool (Part No. Tor4112) to remove the cutting-unit threaded insert for the rear roller-brush drive (Figure 2) and discard it.

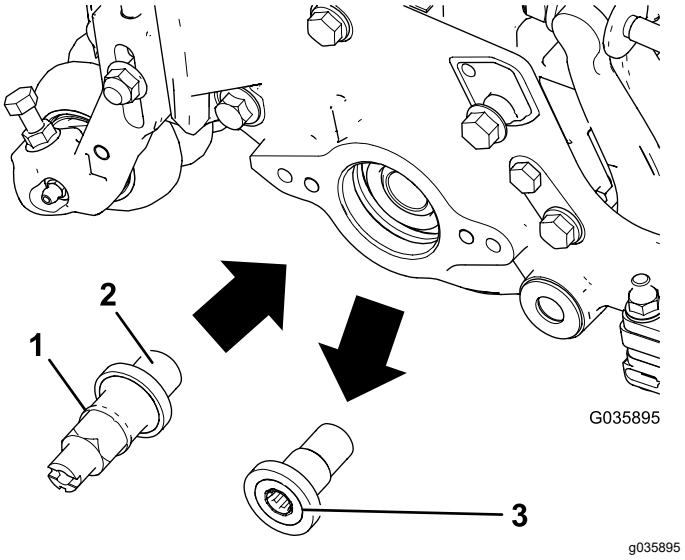

Figure 2

1. Driveshaft (left side shown)
2. Apply 242 Loctite (Blue) here
3. Threaded insert (insert with left-hand threads has ring on it)

Note: Cutting units 1, 3, and 5 have inserts with left-hand threads.

Cutting units 2 and 4 have inserts with right-hand threads (Figure 1).

7. Restrain the reel for installation; refer to Restraining the Reel Installing Threaded Inserts (page 11).
8. Apply 242 Loctite (blue) to the threads on the appropriate driveshaft (Figure 2) and install the driveshaft, torquing it to 115 to 128 N·m (85 to 95 ft-lb).

Note: Use only 1 driveshaft.

The driveshaft with left-hand threads is for cutting units 1, 3, and 5.

The driveshaft with right-hand threads is for cutting units 2 and 4.

Preparing to Install the Roller-Brush Assembly

1. Remove the straight grease fitting and install the 90° grease fitting in the same spot (Figure 3).

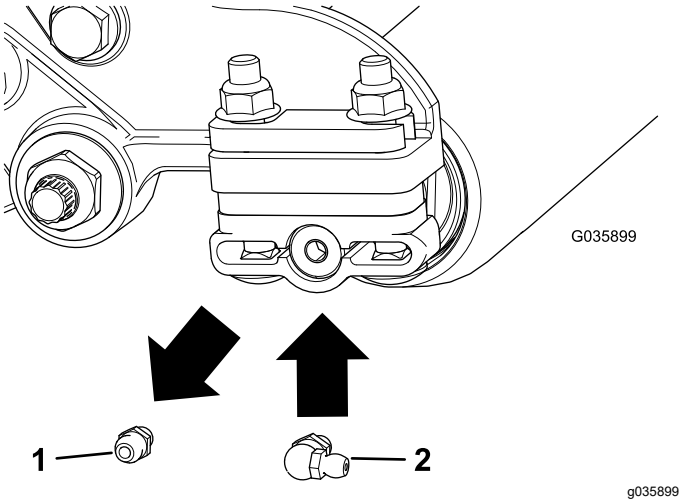

Figure 3

1. Straight grease fitting (remove)
2. 90° grease fitting

2. Mount the roller-brush housing to the reel bearing housing with 2 socket-head bolts (3/8 x 1 inch) as shown in Figure 5. Position the roller-brush housing so that the threaded hole is toward the front of the cutting unit.

   Note: Ensure that the O-ring is properly positioned in the roller-brush housing (Figure 4).

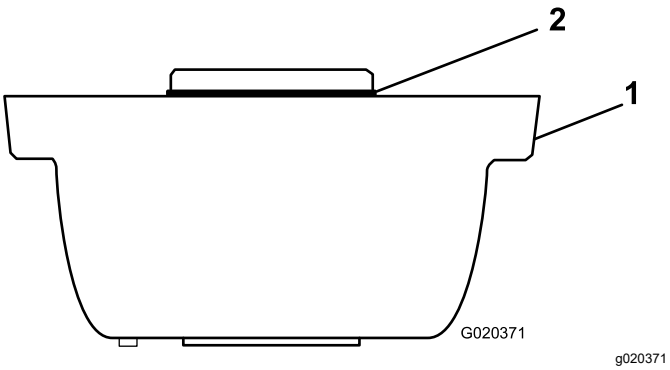

Figure 4

1. Roller-brush housing
2. O-ring

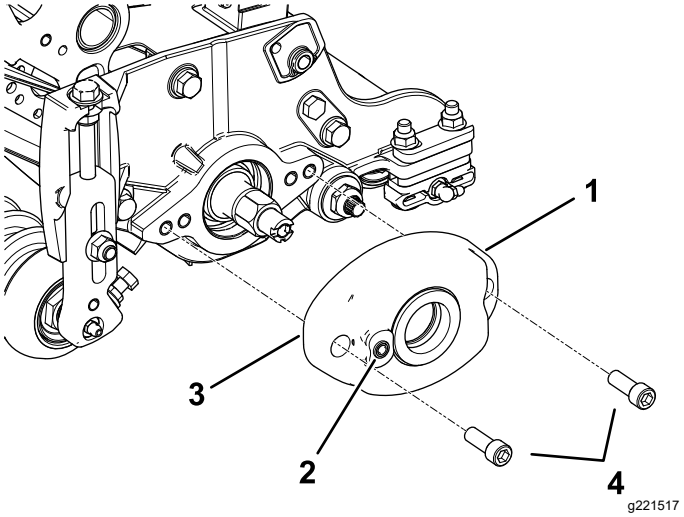

Figure 5

1. Roller-brush housing
2. Threaded hole in housing
3. O-ring
4. Hex-socket bolt

Installing the Roller-Brush Assembly

1. Remove the 2 flange locknuts securing each roller bracket to the side plates (Figure 6).

   Also, remove any 6 mm (1/4 inch) spacers positioned on the top side of the side-plate mounting flange.

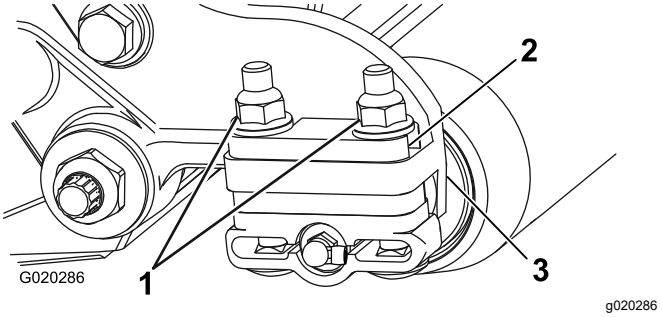

Figure 6

1. Remove these nuts securing each end of the roller.
2. Spacer—1/4 inch (6 mm)
3. Side-plate mounting flange

2. Position the roller-brush assembly mounting brackets onto the roller-bracket bolts (Figure 7). Secure the brush assembly mounting brackets to the cutting-unit side plates with the nuts previously removed.

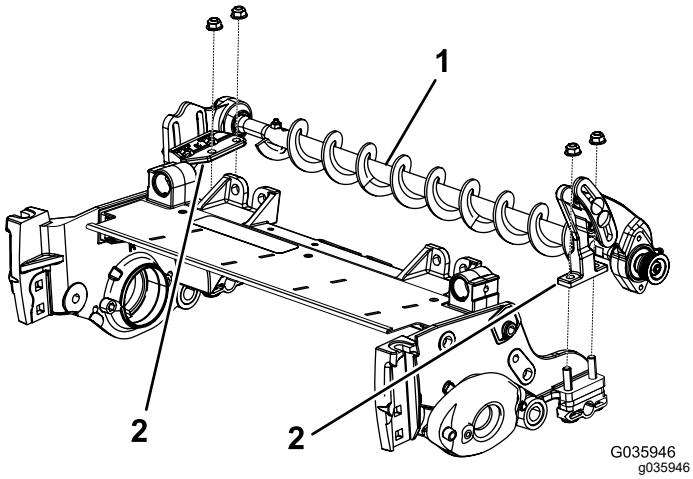

Figure 7
Left-Side Drive Shown

1. Roller-brush assembly (left-drive configuration shown)
2. Roller-brush mounting bracket

Important: **The roller-brush assembly mounting brackets must be mounted directly to the top surface of the cutting unit side-plate mounting flange.** ***Do not put spacers between the roller-brush mounting brackets and the side-plate mounting flanges.*** **Save the additional 6 mm (1/4 inch) spacers for potential later use.**

Installing the Roller-Brush Plate

1. Slide each excluder seal outward until the lip seals are in light contact with each bearing housing (Figure 8).

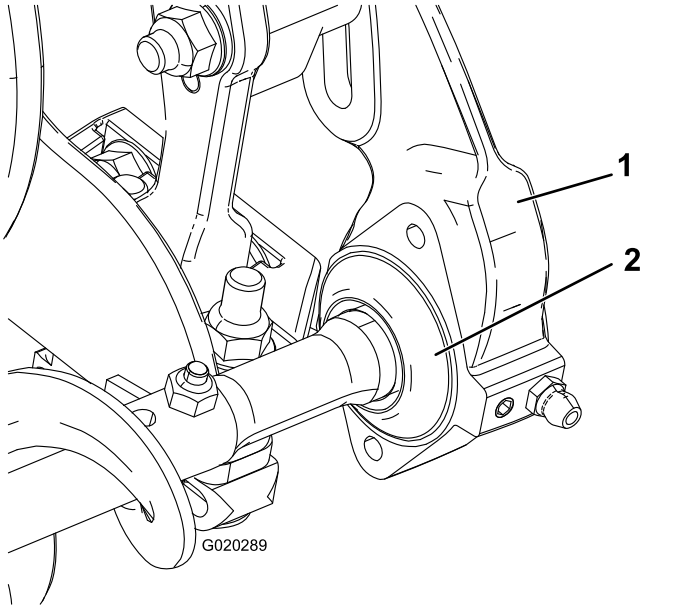

Figure 8

1. Bearing housing
2. Excluder seal

2. Use a 5/16–18 tap to remove the paint from the threads before installing the shoulder bolt (Figure 9).
3. Apply a coating of grease to the inner diameter of the grommet in the bearing housing (Figure 9).

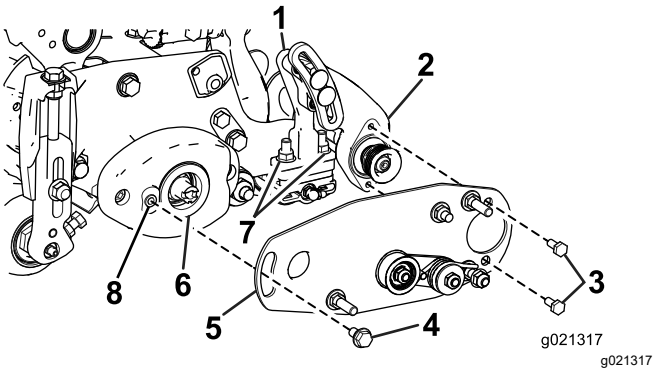

Figure 9

1. Roller-brush mounting bracket
2. Roller-brush bearing housing
3. Bolt
4. Shoulder bolt
5. Roller-brush pivot plate assembly
6. Grommet in bearing housing
7. Flange locknuts
8. Use a 5/16–18 tap to remove the paint from the threads before installing the shoulder bolt.

4. Loosen but do not remove the bolts securing the roller-brush bearing housing to the roller-brush mounting bracket (Figure 9).
5. Ensure that the roller-brush pivot plate is configured so that the idler-pulley assembly is installed on the bottom as shown Figure 9.

6. Align the roller-brush pivot plate to the roller-brush bearing housing (Figure 9).

   Note: When the protrusion on the pivot plate is inserted into the grommet in the bearing housing, ensure that the grommet stays properly seated in the housing.

   The roller-brush pivot plate is properly seated when there is no resistance from the rubber grommet and it pivots freely.

7. Apply 242 Loctite (blue) to the 2 bolts (5/16 x 5/8 inch) and use them to mount the brush plate to the roller-brush bearing housing (Figure 9). Torque the bolts to 20 to 25 N·m (15 to 19 ft-lb).

8. Ensure that the roller-brush plate is parallel to the cutting-unit side plate. If it is not parallel, proceed as follows:

   A. Loosen the 2 flange locknuts securing the roller-brush mounting bracket to the cutting-unit side plate (Figure 9).

   B. Rotate the roller-brush bearing housing until the brush plate is parallel to the cutting-unit side plate (Figure 9).

   C. Tighten the 2 flange locknuts securing the roller-brush mounting bracket to the cutting-unit side plate (Figure 9).

Positioning the Roller Brush

1. Loosen the 2 bolts securing each roller-brush bearing housing to the roller-brush mounting bracket (Figure 10).

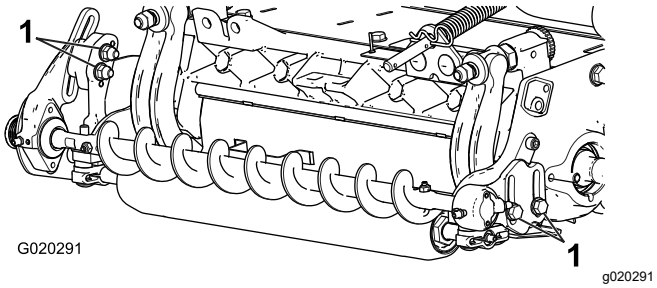

Figure 10

1. Loosen these bolts.

2. Position the roller brush so that it is in light contact with (i.e., just touching or resting on) the rear roller (Figure 11).

   Important: **The roller-brush shaft must not contact the cutting-unit side plate.**

   Heavy brush contact on the roller will cause premature brush wear.

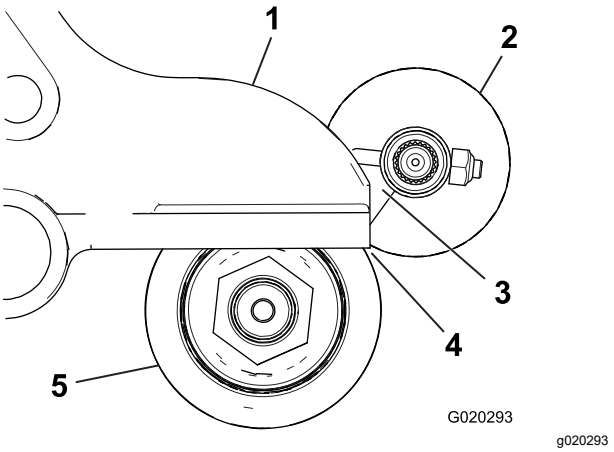

Figure 11

1. Side plate
2. Roller brush
3. Ensure that there is clearance here.
4. Light contact
5. Rear roller

   Note: The roller-brush shaft must be parallel to the rear roller.

   The orientation of the non-drive roller-brush bearing housing should be the same as drive-side bearing housing.

3. Tighten the 2 bolts securing each roller-brush bearing housing to the roller-brush mounting brackets.

4. Apply 242 Loctite (blue) to the shoulder bolt (Figure 9).

5. Secure the brush plate to the roller-brush housing with the shoulder bolt (Figure 9).

   Note: Torque the bolt to 20 to 25 N·m (15 to 19 ft-lb).

   The shoulder bolt should not clamp the plate to the housing.

Installing the Drive Pulley

1. Install the spacer onto the shaft in the bearing housing (Figure 12).

2. Install the drive pulley onto the spacer and onto the driveshaft (Figure 12).

   Note: Ensure that the pulley tabs are positioned in the slot in the driveshaft.

3. Secure the pulley and spacer to the driveshaft with a flange-head bolt (3/8 x 1-1/4 inches); refer to Figure 12. **Torque the bolt to 47 to 54 N·m (35 to 40 ft-lb).**

   Important: **If the bolt is *not* properly torqued, *the bolt will come loose.***

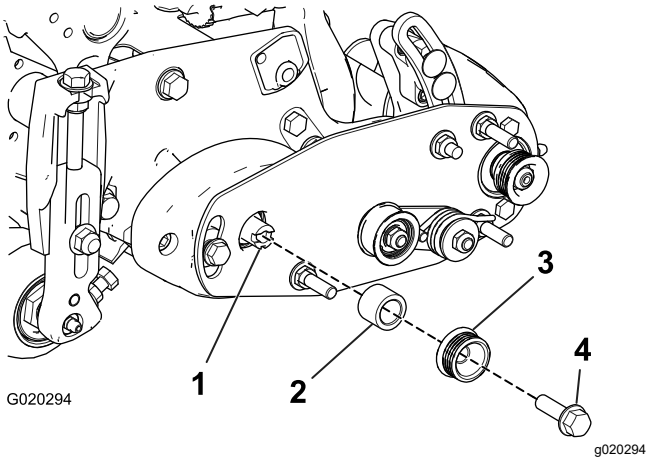

Figure 12

1. Driveshaft
2. Spacer
3. Drive pulley
4. Bolt—torque to 47 to 54 N·m (35 to 40 ft-lb)

Installing the Belt

1. Loop the belt around the **drive** pulley and then over the top of the idler pulley (Figure 13).

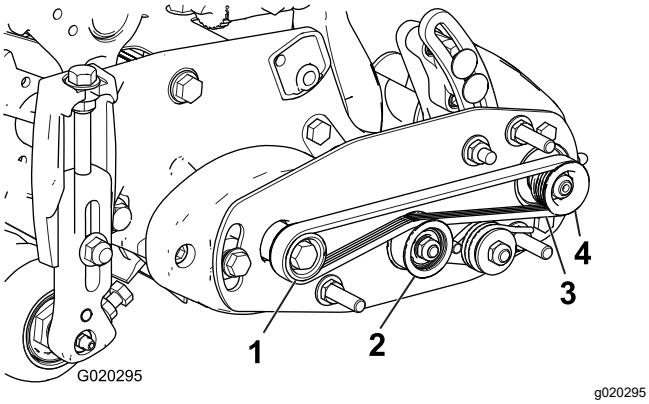

Figure 13

1. Drive pulley
2. Idler-pulley assembly
3. Belt
4. Driven pulley

2. Start the belt on the **driven** pulley (Figure 13).
3. Use a 9/16-inch deep-well socket to rotate the brush assembly and guide the belt onto the driven pulley (Figure 14).

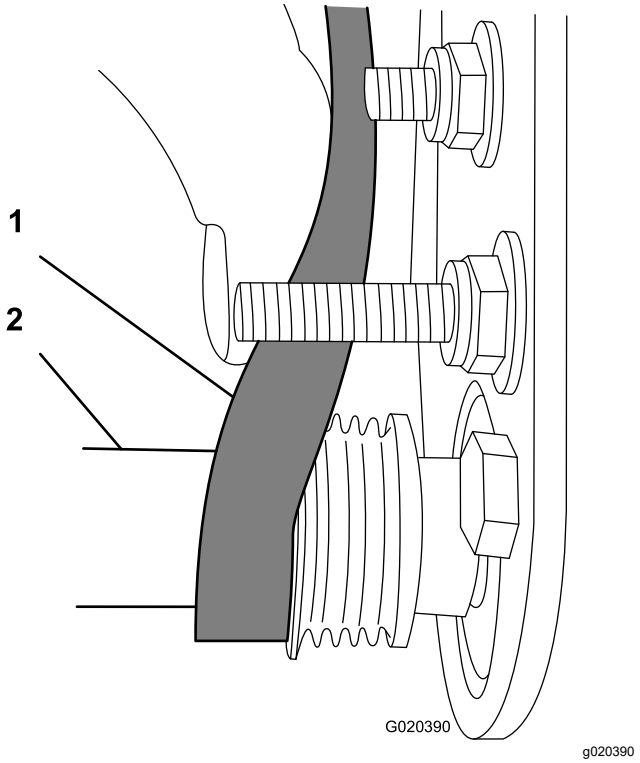

Figure 14

1. Belt
2. 9/16-inch deep-well socket

Important: **Make sure that the ribs on the belt are properly seated in the grooves in each pulley and that the belt is in the center of the idler pulley.**

4. Push down on the idler pulley to ensure that the idler-pulley assembly pivots freely.

Completing the Installation

1. Check the alignment of the belt/pulleys as follows:
   A. The belt must be properly tensioned (installed) prior to checking the alignment.
   B. Lay a straight edge along the outer face of the **drive** pulley (Figure 15). **Do not** lay the straight edge across both the drive and driven pulleys.
   C. The outer faces of the drive and driven pulleys should be in line within 0.76 mm (0.030 inch).
   D. If the pulleys are not aligned, refer to Checking the Pulley Alignment (page 9).
   E. If the pulleys are aligned, continue with the installation.
   F. **Do not** use the idler pulley to check the alignment.

   Important: **The belt may fail prematurely if the pulleys are not properly aligned.**

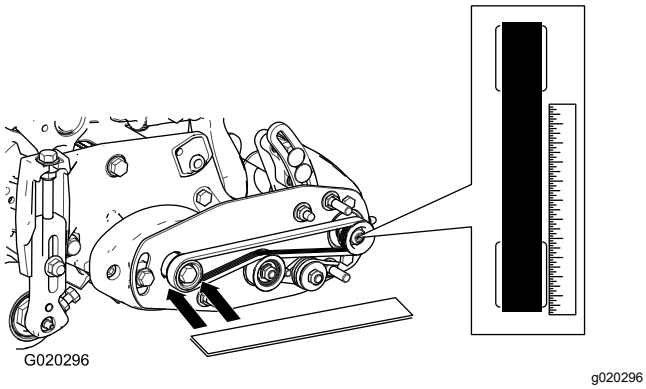

Figure 15

2. Slide the belt cover onto the mounting bolts and secure it with 2 flange nuts (Figure 16).

   Important: **Do not overtighten the nuts as damage to the cover may occur.**

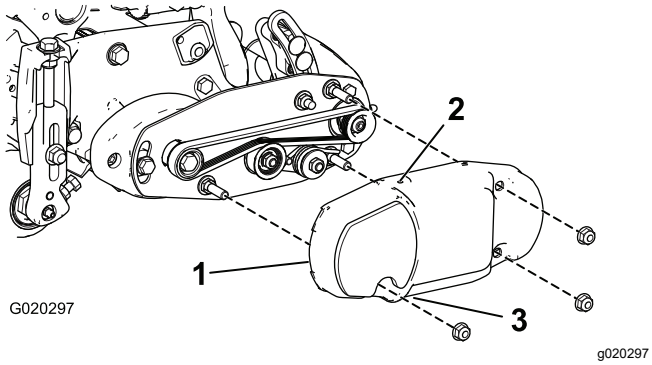

Figure 16

1. Belt cover
2. Setscrew installed
3. Setscrew removed

3. Lubricate the grease fittings on each of the roller-brush bearing housings with No. 2 lithium grease (Figure 17).

   Note: Wipe off any excess grease, specifically around the excluder seals.

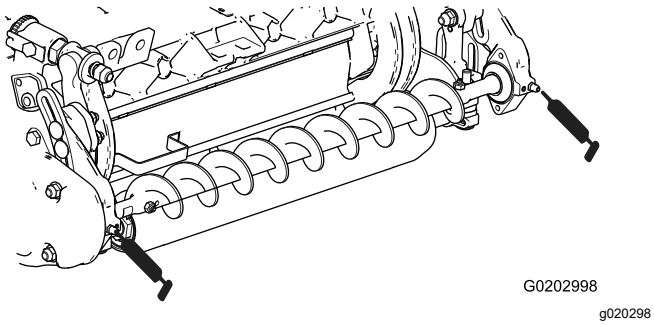

Figure 17

Installing the High Height-of-Cut Brush

Optional

Install the high height-of-cut brush (Part No. 121-3199) when cutting above 2.5 cm (1 inch) height of cut (i.e., 5 or more spacers installed below the side-plate pad).

1. If a roller brush is installed on the cutting unit, remove the 2 bolts, washers, and nuts securing the non-drive bearing housing to the bearing-housing mounting bracket (Figure 18) and (Figure 19).

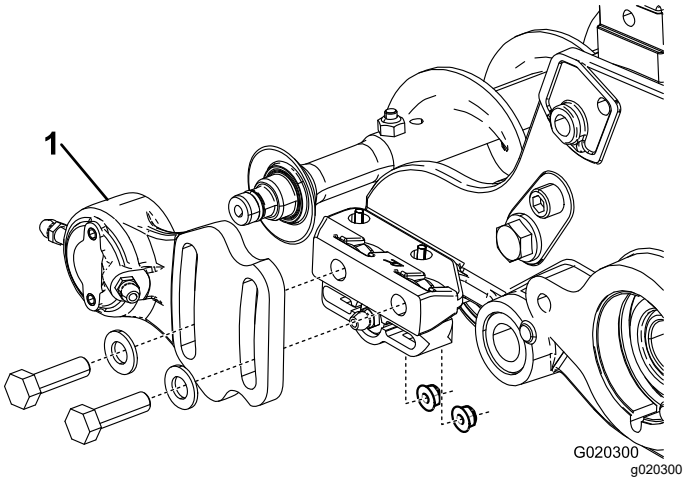

Figure 18

1. Non-drive bearing housing

2. Slide the non-drive bearing housing and excluder seal off the brush shaft (Figure 19).

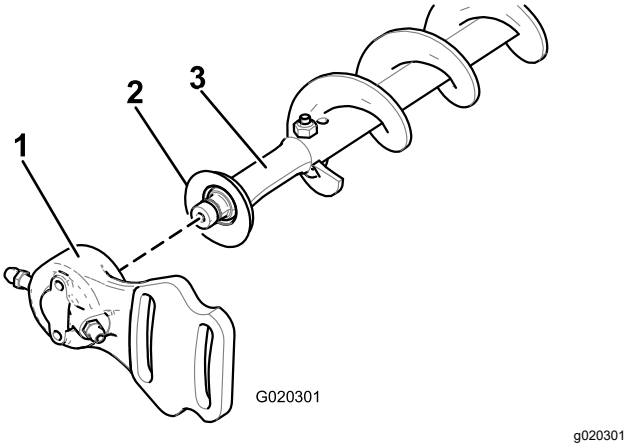

Figure 19

1. Non-drive bearing housing
2. Excluder seal
3. Brush shaft

3. Remove the 2 J-bolts and nuts (Figure 20).

4. Slide the existing brush off the brush shaft (Figure 20).
5. Loosen the 2 bolts, washers, and nuts securing the drive-bearing housing to the bearing-housing mounting bracket (Figure 20).
6. Slide the high height-of-cut brush onto the brush shaft (Figure 20).
7. Clamp the brush onto the shaft with the 2 J-bolts and nuts previously removed (Figure 20).

   Important: **Insert the threaded end of the J-bolts through the outer holes of the brush shaft while hooking the curved ends of the J-bolts into the inner holes.**
8. Torque the J-bolt locknuts to 2 to 3 N·m (20 to 25 in-lb).

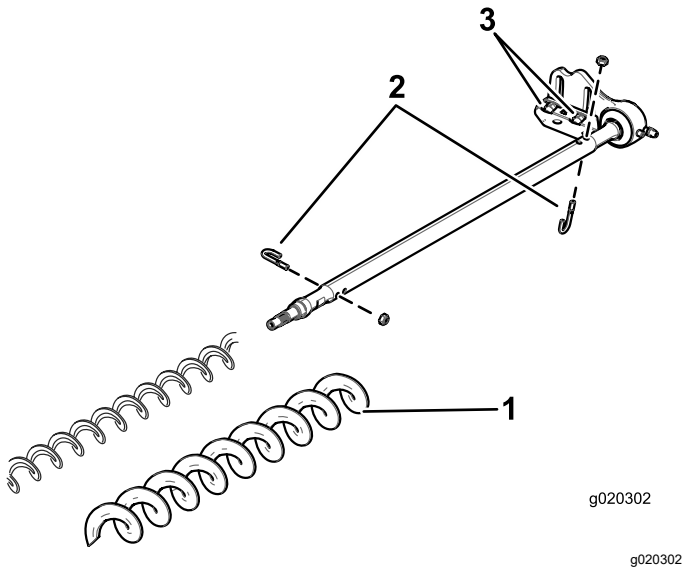

Figure 20

1. High height-of-cut brush
2. J-bolt
3. Loosen these bolts.

9. Install the excluder seal and the non-drive bearing housing onto the brush shaft (Figure 19).
10. Mount the non-drive bearing housing to the bearing-housing mounting bracket with the 2 bolts, washers, and nuts previously removed.

    Note: Be careful not to knock the seal spring off.
11. Tighten the 2 bolts, washers, and nuts securing the drive-bearing housing to the bearing-housing mounting bracket.

Installing the Front Bumper Assembly

For Cutting Units 1 and 4 Only

1. Lower the cutting units to the ground.
2. Remove the existing flange-head bolts and the round bumpers (Figure 21).

   Note: Retain the flange-head bolts for installing the front bumper assembly. Discard the round bumpers.

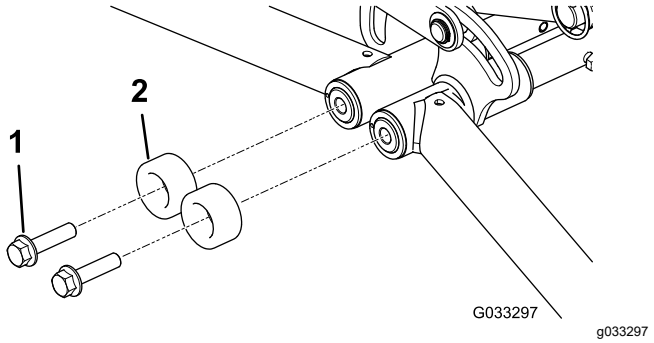

Figure 21

1. Flange-head bolt, existing (2)
2. Round bumper, existing (2)—discard

3. Apply 242 Loctite (blue) to the threads of the bolts.
4. Loosely install the front bumper assembly and the washers as shown in Figure 22.

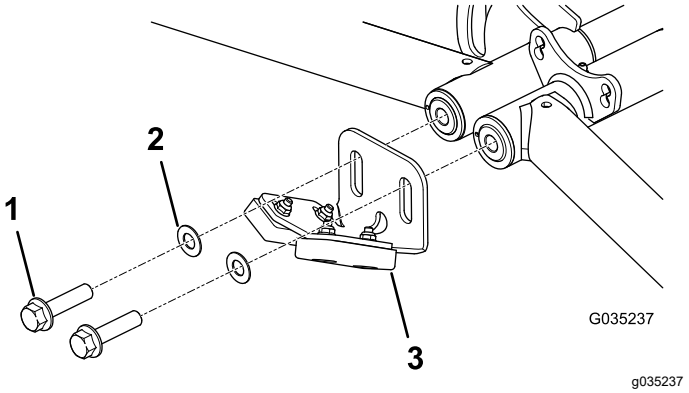

Figure 22

1. Flange-head bolt, existing (2)
2. Washer (2)
3. Bumper assembly

5. Adjust the front bumper so that it contacts the rear-roller-brush housings when the cutting units are raised and level.

   Note: When the bumper is positioned correctly, torque the bolts to 91 to 113 N·m (67 to 83 ft-lb).

Installing the Rear Bumper Assembly

For Cutting Units 2 and 3 Only

1. Lower the cutting units to the ground.
2. Install the rear bumper assembly as shown in Figure 23.

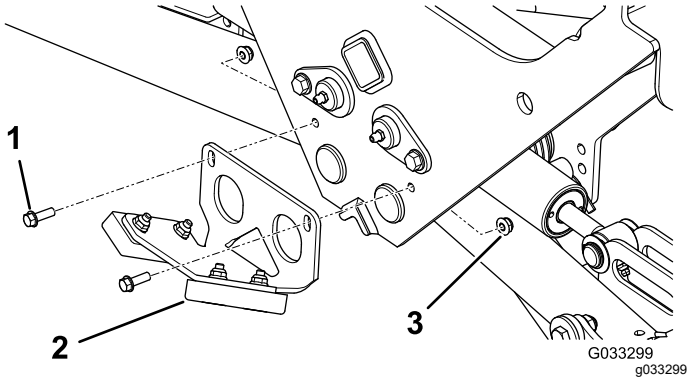

Figure 23

1. Flange-head bolt (2)
2. Rear bumper assembly
3. Locknut (2)

Maintenance

- Ensure that the brush is parallel to the roller with 1.5 mm (0.060 inch) clearance to light contact.
- Grease the fittings every 50 hours and after every washing.
- When replacing the roller brush, torque the J-bolts to 2 to 3 N·m (20 to 25 in-lb).
- When replacing the driven pulley, torque the nut to 36 to 45 N·m (27 to 33 ft-lb).
- When replacing the drive pulley, torque the bolt to 47 to 54 N·m (35 to 40 ft-lb).

Important: **Backlapping at the incorrect reel speed may loosen and strip the drive-pulley threads. Refer to the cutting unit *Operator's Manual* for the backlapping procedure.**

Note: The roller brush, the idler bearing, and the belt are considered consumable items.

Checking the Pulley Alignment

1. The driven pulley (at the roller-brush shaft) can move in or out (Figure 24).

   Note: Make note of which way the pulley needs to move.

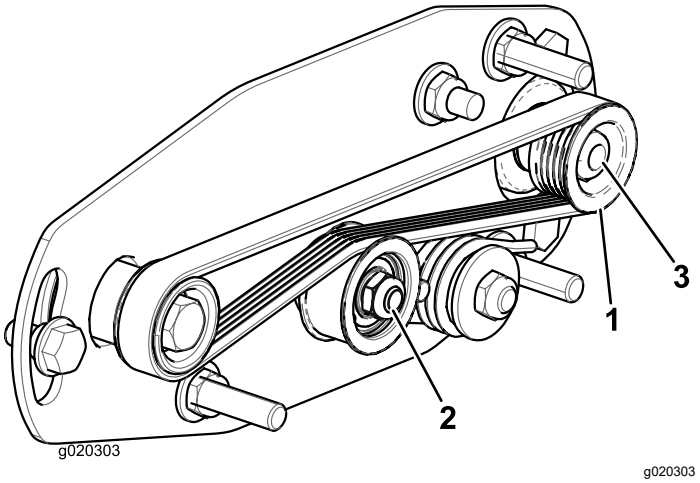

Figure 24

1. Driven pulley
2. Idler-pulley assembly
3. Driven-pulley nut

2. While rotating the reel, which rotates the drive pulley, pry the belt off the drive pulley (Figure 24).

   Note: Wear a padded glove or use a heavy rag to rotate the reel.
3. Remove the locknut securing the driven pulley to the brush shaft (Figure 24 or Figure 25).

Note: Use a 1/2-inch wrench on the roller-brush shaft flats to keep it from rotating.

4. Remove the driven pulley from the shaft (Figure 25).
5. If the pulley needs to move out, add a 0.8 mm (0.032 inch) thick spacer (Figure 25). If the pulley needs to move in, remove the existing 0.8 mm (0.032 inch) thick spacer.
6. Install the pulley.

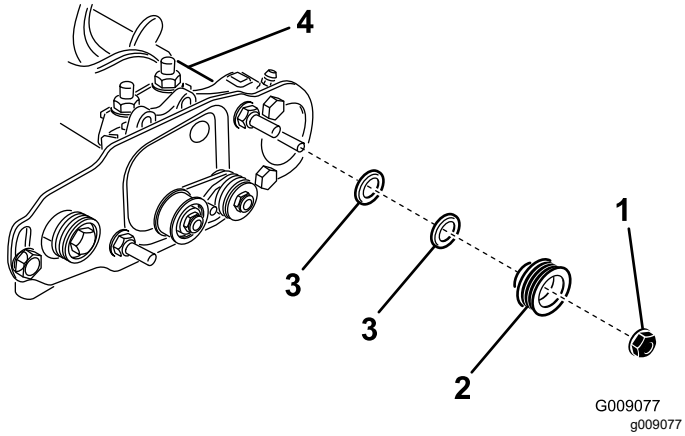

Figure 25

1. Locknut
2. Driven pulley
3. Spacer—0.8 mm (0.032 inch) thick
4. Brush-shaft flats

7. While holding the brush-shaft flats, secure the pulley on the shaft with the 3/8-16 flange nut previously removed.

   Note: Seat the locknut; then torque it to 36 to 45 N·m (27 to 33 ft-lb).
8. Install the belt onto the pulleys as follows:
   A. Loop the belt around the **drive** pulley and then over the top of the idler pulley (Figure 26).

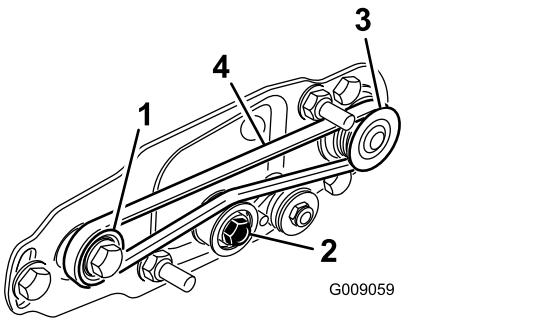

Figure 26

1. Drive pulley
2. Idler-pulley assembly
3. Driven pulley
4. Belt

   B. Start the belt on the **driven** pulley (Figure 26).
   C. Use a 9/16-inch deep-well socket to rotate the brush assembly and guide the belt onto the driven pulley (Figure 27).

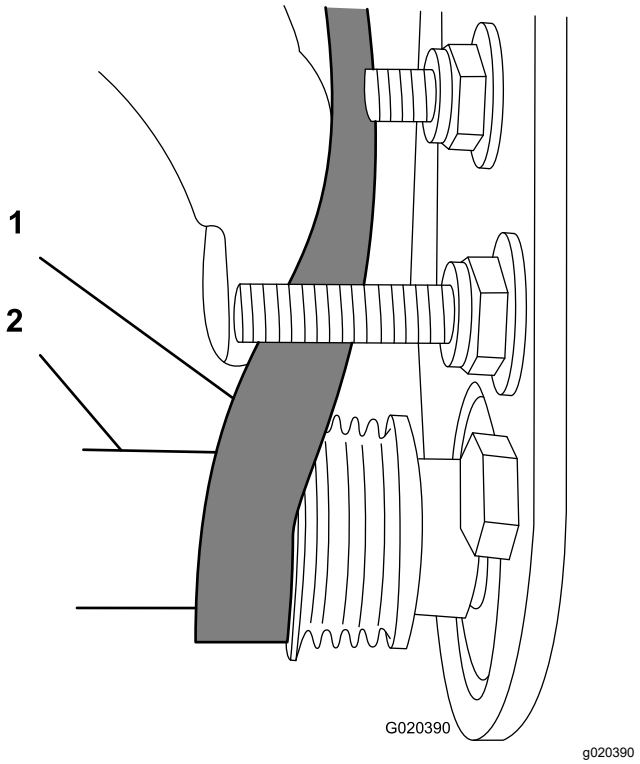

Figure 27

1. Belt
2. 9/16-inch deep-well socket

Important: **Make sure that the ribs on the belt are properly seated in the grooves in each pulley and that the belt is in the center of the idler pulley.**

9. Check the pulley alignment and adjust it if necessary.

Restraining the Reel

⚠ WARNING

The cutting reel blades are sharp and capable of amputating hands and feet.

- **Keep your hands and feet outside of the reel.**
- **Ensure that the reel is restrained before servicing it.**

Restraining the Reel for Removing Threaded Inserts

1. Loosen the shield-bolt on the left side of the cutting unit and raise the rear shield (Figure 28).

2. Insert a long-handled pry bar (recommended 3/8 x 12 inches with screwdriver handle) through the back of the cutting reel, closest to the side of the cutting unit that you will be torquing (Figure 28).
3. Place the pry bar against the weld side of the reel support plate (Figure 28).

   Note: Insert the pry bar between the top of the reel shaft and the backs of 2 reel blades so that the reel will not move.

   Important: **Do not contact the cutting edge of any blades with the pry bar; this may damage the cutting edge and/or cause a high blade.**

   Important: **The insert on the left side of the cutting unit has left-hand threads. The insert on the right side of the cutting unit has right-hand threads.**

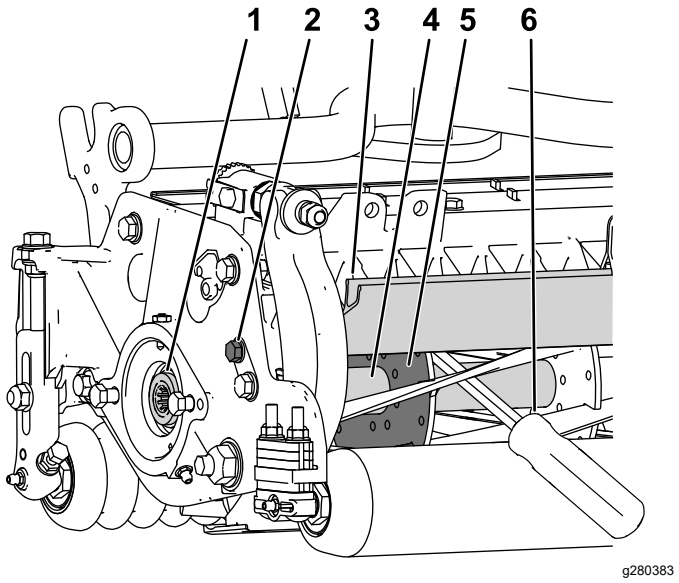

Figure 28

1. Threaded insert for removal
2. Loosen the shield bolt.
3. Rear shield
4. Reel shaft
5. Reel support plate
6. Pry bar inserted along the weld side of the reel support plate.

4. Rest the handle of the pry bar against the rear roller.
5. Complete the removal of the threaded insert while ensuring that the pry bar stays in place, then remove the pry bar.
6. Lower the rear shield and tighten the shield-bolt.

Restraining the Reel Installing Threaded Inserts

1. Insert a long-handled pry bar (recommended 3/8 x 12 inches with screwdriver handle) through the front of the cutting reel, closest to the side of the cutting unit that you will be torquing (Figure 29).
2. Place the pry bar against the weld side of the internal cutting reel reinforcement (Figure 29).

   Note: The pry bar should contact a blade at the front, the reel shaft, and a blade at the back of the back of the reel, locking it in place.

   Important: **Do not contact the cutting edge of any blades with the pry bar; this may damage the cutting edge and/or cause a high blade.**

   Important: **The insert on the left side of the cutting unit has left-hand threads. The insert on the right side of the cutting unit has right-hand threads.**

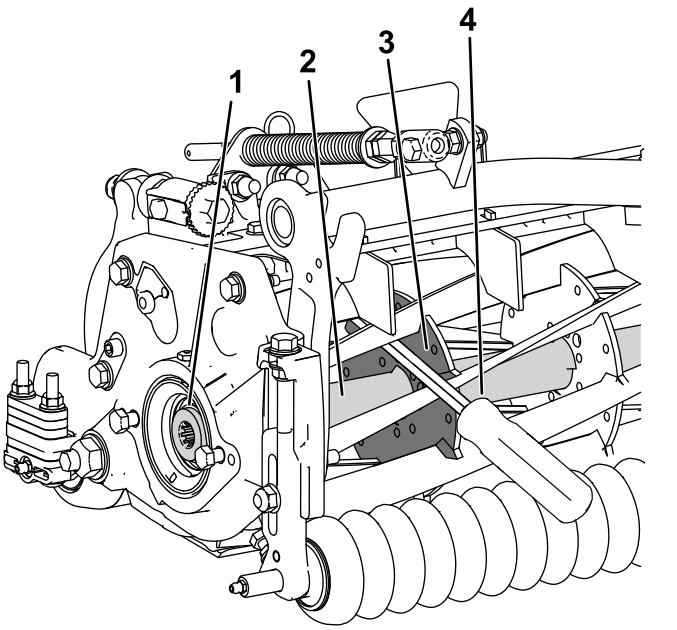

Figure 29

1. Threaded insert for installation
2. Reel shaft
3. Weld side of support plate
4. Pry bar

3. Rest the handle of the pry bar against the roller
4. Per the insert's installation instructions and torque requirements, complete the installation of the threaded insert while ensuring that the pry bar stays in place, then remove the pry bar.

Notes:

Notes:

Declaration of Incorporation

The Toro Company, 8111 Lyndale Ave. South, Bloomington, MN, USA declares that the following unit(s) conform(s) to the directives listed, when installed in accordance with the accompanying instructions onto certain Toro models as indicated on the relevant Declarations of Conformity.

Model No.	Serial No.	Product Description	Invoice Description	General Description	Directive
03916	—	Rear Roller Brush Kit for Reelmaster 3550 Series 18in Cutting Unit	RM3550 18” RBR (ONLY) KIT (FOR 5 CUS)	Roller Brush Kit	2000/14/EC and 2005/88/EC 2006/42/EC

Relevant technical documentation has been compiled as required per Part B of Annex VII of 2006/42/EC.

We will undertake to transmit, in response to requests by national authorities, relevant information on this partly completed machinery. The method of transmission shall be electronic transmittal.

This machinery shall not be put into service until incorporated into approved Toro models as indicated on the associated Declaration of Conformity and in accordance with all instructions, whereby it can be declared in conformity with all relevant Directives.

Certified:

Tom Langworthy
Engineering Director
8111 Lyndale Ave. South
Bloomington, MN 55420, USA
November 1, 2022

Authorized Representative:

Marcel Dutrieux
Manager European Product Integrity
Toro Europe NV
Nijverheidsstraat 5
2260 Oevel
Belgium

UK Declaration of Incorporation

The Toro Company, 8111 Lyndale Ave. South, Bloomington, MN, USA declares that the following unit(s) conform(s) to the regulations listed, when installed in accordance with the accompanying instructions onto certain Toro models as indicated on the relevant Declarations of Conformity.

Model No.	Serial No.	Product Description	Invoice Description	General Description	Regulation
03916	—	Rear Roller Brush Kit for Reelmaster 3550 Series 18in Cutting Unit	RM3550 18” RBR (ONLY) KIT (FOR 5 CUS)	Roller Brush Kit	S.I. 2001 No. 1701 S.I. 2008 No. 1597

Relevant technical documentation has been compiled as required per Schedule 10 of S.I. 2008 No. 1597.

We will undertake to transmit, in response to requests by national authorities, relevant information on this partly completed machinery. The method of transmission shall be electronic transmittal.

This machinery shall not be put into service until incorporated into approved Toro models as indicated on the associated Declaration of Conformity and in accordance with all instructions, whereby it can be declared in conformity with all relevant Regulations.

This declaration has been issued under the sole responsibility of the manufacturer.
The object of the declaration is in conformity with relevant UK legislation.

Tom Langworthy
Engineering Director
8111 Lyndale Ave. South
Bloomington, MN 55420, USA
November 1, 2022

Authorized Representative:

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Manager European Product Integrity
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United Kingdom

Count on it.