Form No. 3399-406 Rev C

Rear Roller Brush MVP Kit

Reelmaster® 3550 Series 18-inch Cutting Unit with 5-inch Reel and Universal Groomer

Model No. 133-0152

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.

Installation

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 brush and the reel motor.
Roller-brush assembly	1	Install the kit.
Retaining ring	1	
Drive-housing assembly	1	
90-degree grease fitting	1	
Carriage bolt	2	
Weight	2	
Locknut	2	
Drive pulley	1	
Hex-drive bolt (5/16 x 1/2 inch)	7	
Belt	1	
Shim washer (as required for belt alignment)	1	
Drive cover	1	
Bumper plate	1	
Belt-alignment tool	1	
High height-of-cut brush (optional)	—	Install the high height-of-cut brush—for HOC greater than 2.5 cm (1 inch).
Front bumper assembly (sold separately)	1	Install the front bumper assembly.
Washer	2	
Rear bumper assembly (sold separately)	1	Install the rear bumper assembly.

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CE

Original Instructions (EN)
Printed in the USA

3399-406 C

Note: Install the universal groomer kit first; refer to the groomer installation instructions.

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 when cutting above 25 mm (1 inch). Refer to the procedure for Installing the High Height-of-Cut Brush (Optional).**

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

Determining the Roller-Brush Orientation

Refer to Figure 1 to determine the position of the roller brush and reel motor.

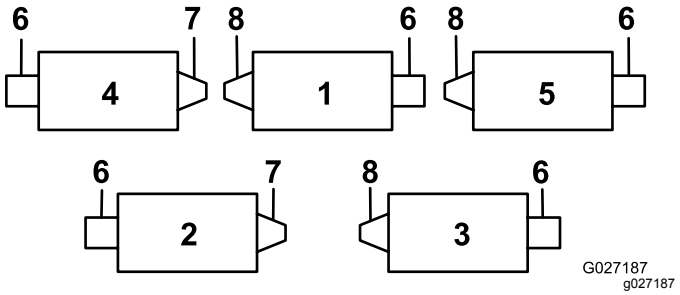

Figure 1

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

Note: These instructions and illustrations show the installation of the kit on cutting units with the universal groomer mounted on the left end of the cutting unit.

Installing the Kit

Installing the Grease Fitting

1. Remove the grease fitting for the roller from the side of the cutting unit that has the roller-brush housing (Figure 3).

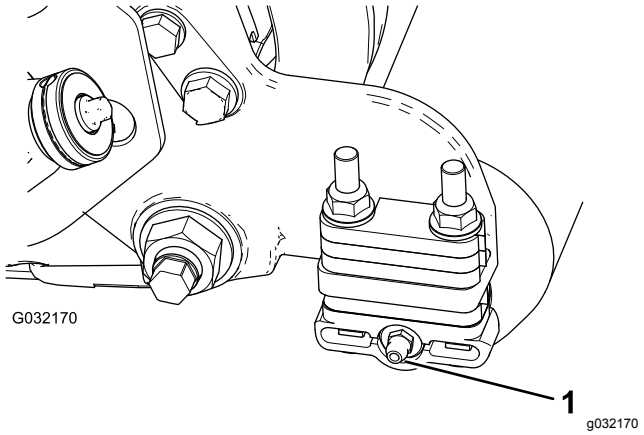

Figure 2

1. Grease fitting

2. Install the 90-degree grease fitting so that it faces rearward (Figure 2).

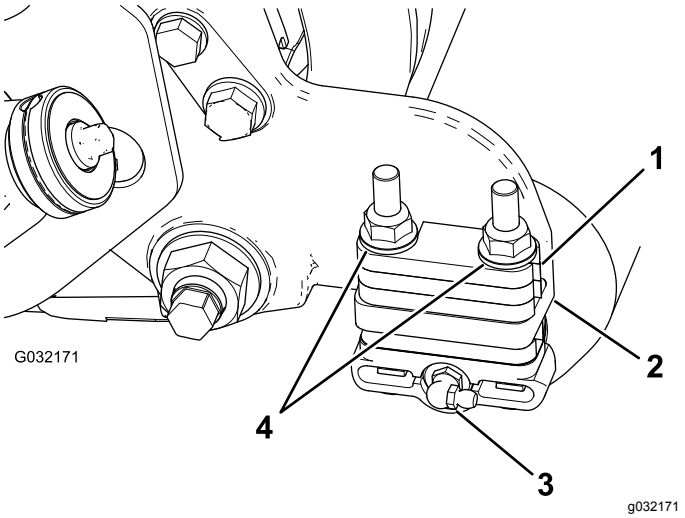

Figure 3

1. 6 mm (1/4 inch) spacer
2. Side-plate mounting flange
3. 90-degree grease fitting
4. Flange locknuts (remove)

Installing the Weights

Install the weights to the cutting unit as shown in Figure 4.

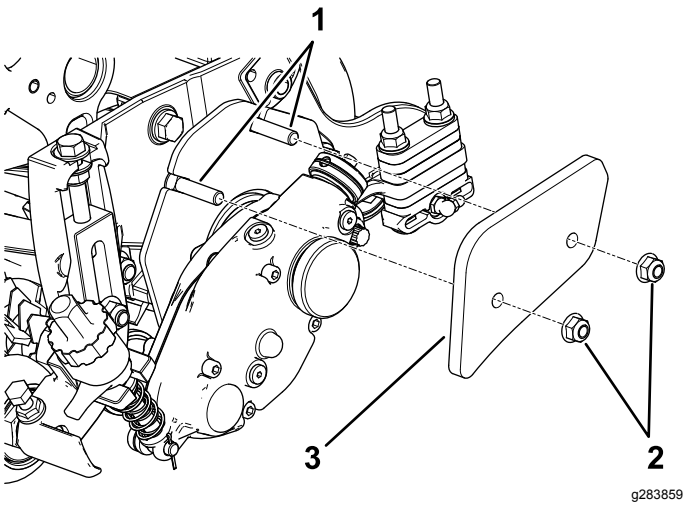

Figure 4

1. Carriage bolts (5/16 x 1 inch)
2. Flange nuts (5/16 inch), torque to 20 to 26 N·m (15 to 19 ft-lb)
3. Weights

Installing the Roller-Brush Assembly

1. Remove the 2 flange locknuts securing each roller bracket to the side plates, **as well as any 6 mm (1/4 inch) spacers positioned on the top side of the side-plate mounting flange** (Figure 3).

   Note: Do not remove the bolts. Keep the flange locknuts for future assembly.

2. Position the left or right roller-brush-assembly mounting brackets onto the roller-bracket bolts (Figure 5).

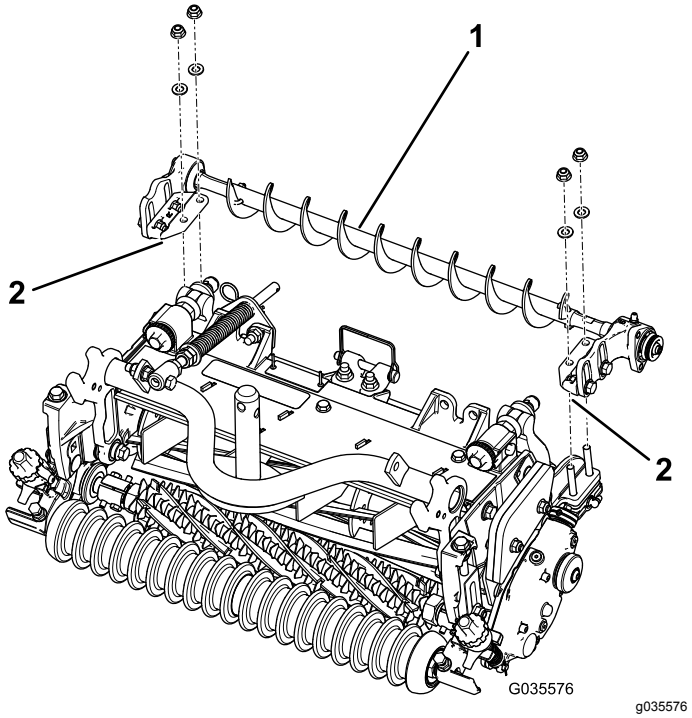

Figure 5

1. Left roller-brush assembly
2. Roller-brush mounting bracket

Important: **Attach the mounting brackets for the roller-brush assembly directly to the top surface of the side-plate mounting flange of the cutting unit.** ***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.**

3. Loosely secure the brush-assembly mounting brackets to the cutting-unit side plates with the previously removed nuts.
4. Slide each excluder seal outward until the lip seals are in light contact with each bearing housing (Figure 6).

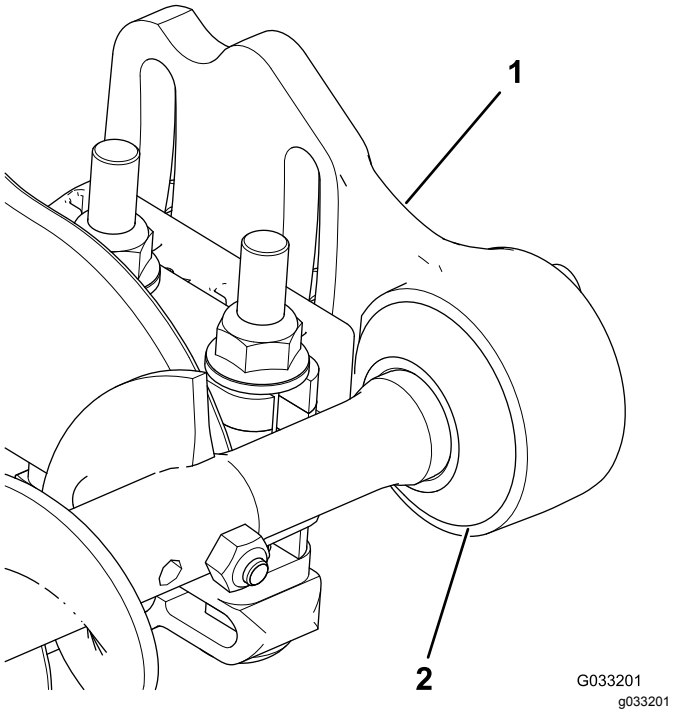

Figure 6

1. Bearing housing
2. Excluder seal

Installing the Roller-Brush Housing

1. Remove and discard the groomer drive cap.

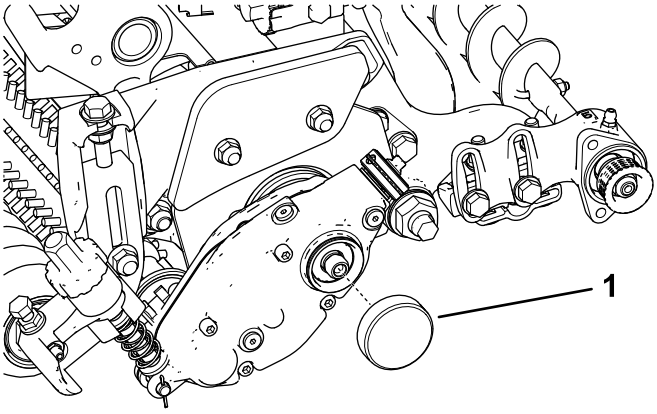

Figure 7

1. Cap

2. Install the left or right roller-brush housing (Figure 8).

   Note: Ensure that the idler-pulley assembly is installed on the bottom as shown in Figure 8.

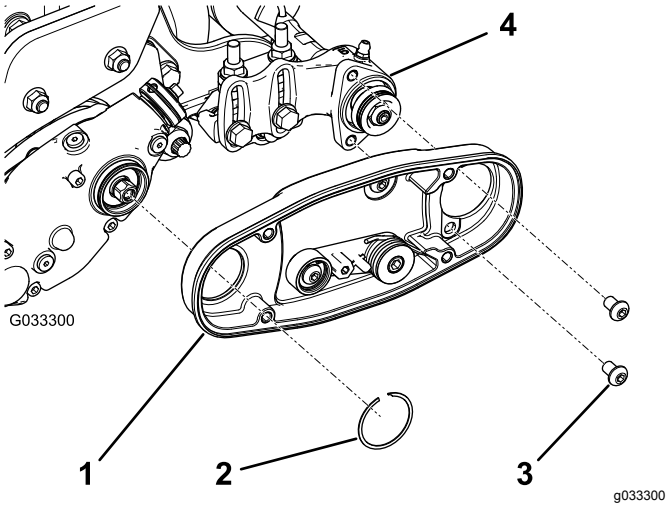

Figure 8

1. Roller-brush housing
2. Retaining ring
3. Bolt (2)
4. Bearing housing

To change the idler-pulley assembly to a right-drive configuration, refer to Figure 9.

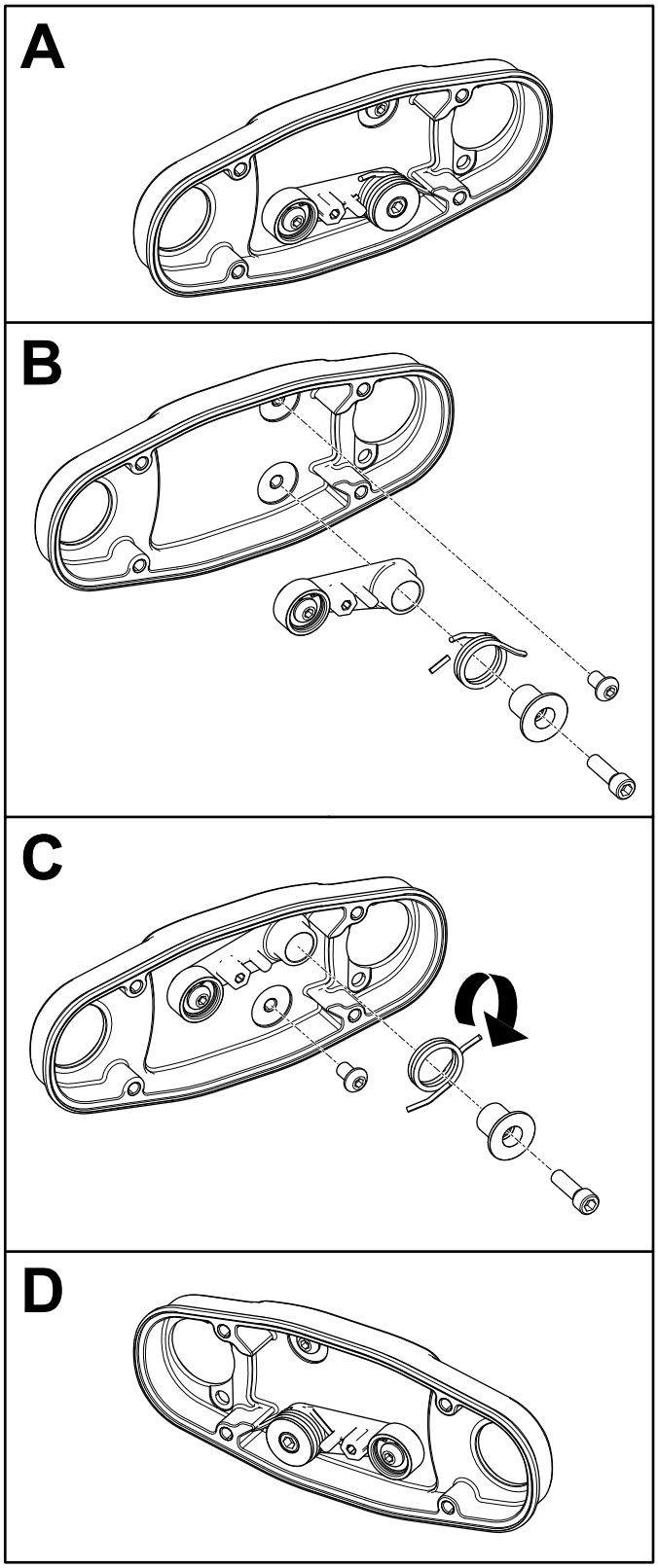

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Figure 9

3. Apply 242 Loctite (blue) to the 2 bolts (5/16 x 1/2 inch) and use them to mount the roller-brush housing to the bearing housing (Figure 8).

   Note: Torque the bolts to 20 to 26 N·m (15 to 19 ft-lb).

4. Secure the roller-brush housing to the groomer-drive housing with the retaining ring (Figure 8).
5. Ensure that the roller-brush housing is parallel to the cutting-unit side plate. Proceed as follows:
   A. Loosen the 2 flange locknuts securing the roller-brush mounting bracket to the cutting-unit side plate (Figure 10).
   B. Rotate the roller-brush-bearing housing until the brush plate is parallel to the cutting-unit side plate (Figure 10).
   C. Tighten the 2 flange locknuts securing the roller-brush mounting bracket to the cutting-unit side plate (Figure 10).

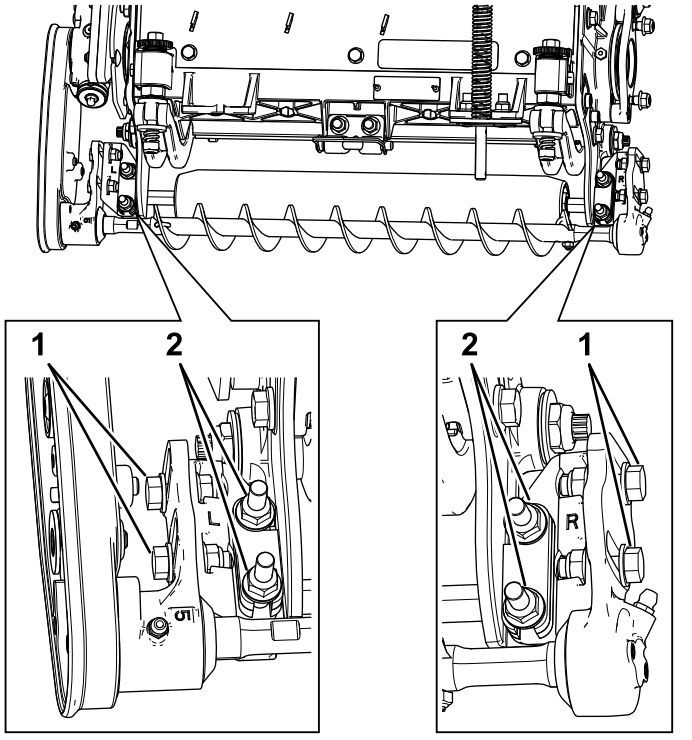

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Figure 10

1. Loosen these bolts for positioning the roller brush.
2. Loosen these nuts for making the roller-brush plate parallel.

Positioning the Roller Brush

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

   Note: The bolts should be loose from the factory.

2. Position the roller brush so that it is just touching or resting on the rear roller (Figure 11).

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

   Important: **Heavy brush contact on the roller causes premature brush wear.**

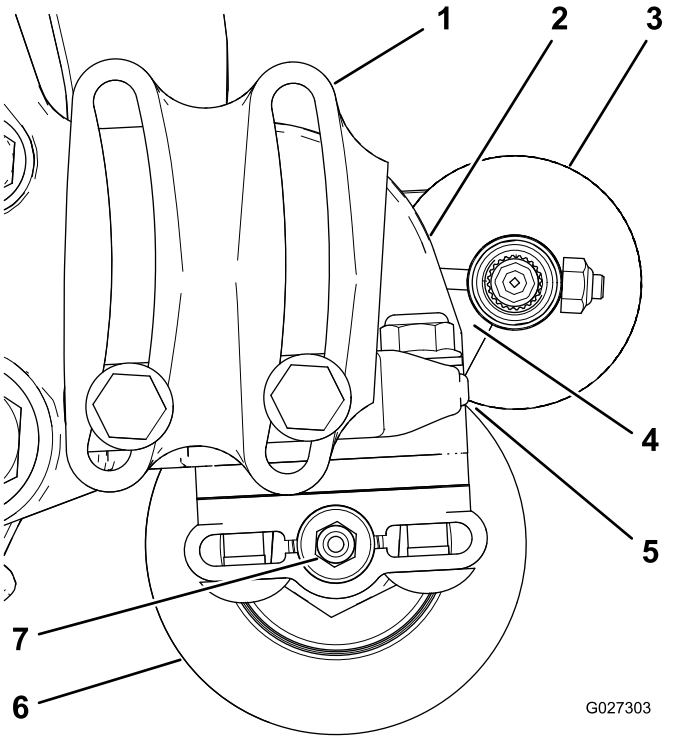

Figure 11

1. Bearing housing (some parts not shown)
2. Side plate
3. Roller brush
4. Ensure that there is clearance here.
5. Light contact
6. Rear roller
7. Grease fitting

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

   Important: **Position both roller-brush-bearing housings so that they are parallel to the ground to ensure clearance for the rear-roller grease fitting.**

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

Installing the Drive Pulley

1. Restrain the reel for installation; refer to Restraining the Reel for Installing Threaded Inserts (page 12).
2. Install the drive pulley onto the groomer shaft (Figure 12).

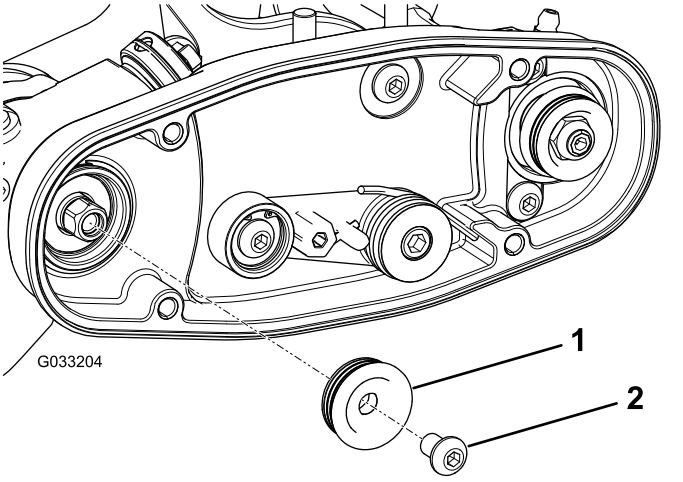

Figure 12

1. Drive pulley
2. Hex-drive bolt—torque to 20 to 26 N·m (15 to 19 ft-lb)

3. Apply 242 Loctite (blue) to the hex-drive bolt and use the bolt to secure the pulley to the driveshaft; refer to Figure 12.

   Note: Torque the bolt to 20 to 26 N·m (15 to 19 ft-lb).

   Important: **If you do *not* properly torque the bolt, *the bolt will come loose.***

Installing the Belt

1. Install the belt onto the pulleys as follows:
   - Loop the belt around the **drive** pulley and then over the top of the idler pulley (Figure 13).

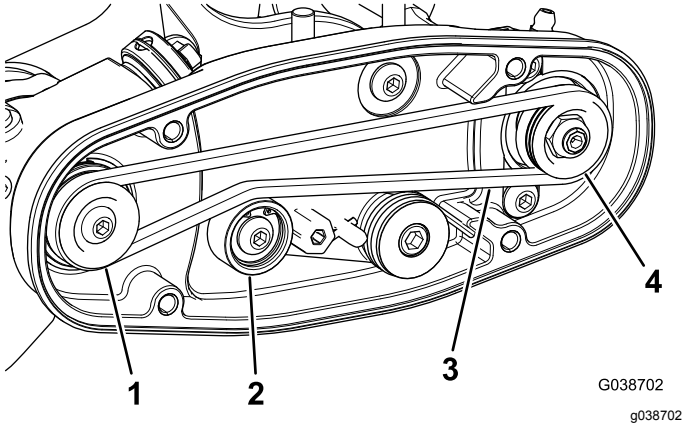

Figure 13

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

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

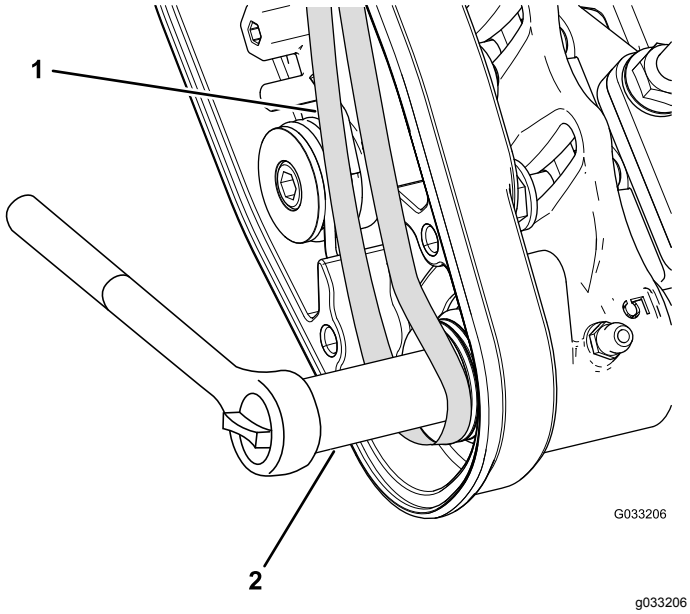

Figure 14

1. Belt	2. Deep-well socket (9/16-inch)

Important: **Ensure 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.**

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

Completing the Installation

1. Check the pulley alignment of the belt; refer to Checking the Pulley Alignment (page 10).
2. If the pulleys are aligned, continue with the installation. If they are not; refer to Adjusting the Pulley Alignment (page 10).
3. Align the belt cover with the mounting holes and secure the cover with 4 bolts (Figure 15).

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

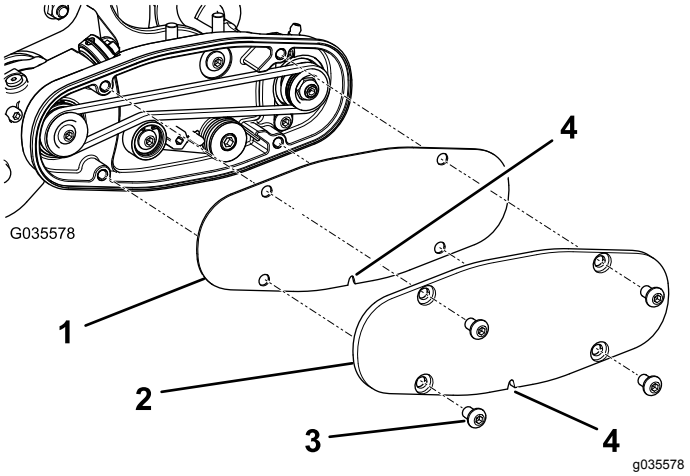

Figure 15

1. Metal cover	3. Screw (4)
2. Plastic cover	4. Drainage hole on bottom

4. Tighten the nuts securing the brush-assembly mounting brackets to the cutting-unit side plates.
5. Lubricate the grease fittings on each of the roller brush bearing housings with No. 2 lithium grease (Figure 16).

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

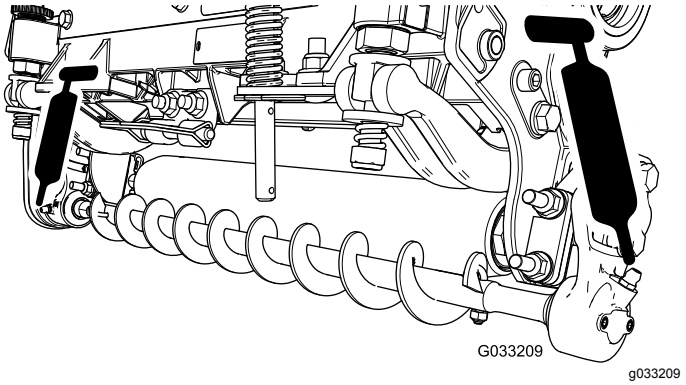

Figure 16

Installing the High Height-of-Cut Brush (Optional)

Install the high height-of-cut brush (sold separately) when the height of cut is 2.5 cm (1 inch) or more (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 17 and Figure 18).

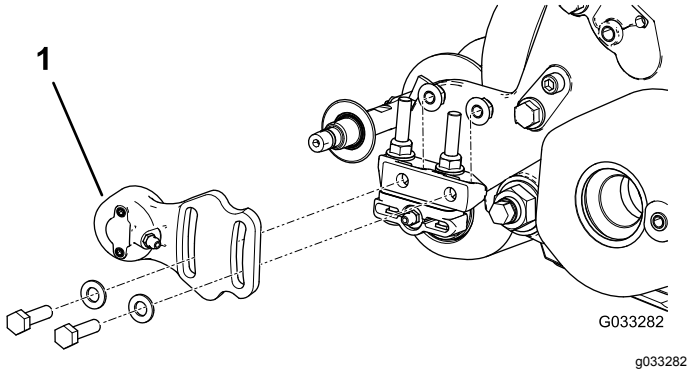

Figure 17

1. Non-drive-bearing housing

2. Slide the non-drive-bearing housing and the excluder seal off the brush shaft (Figure 18).

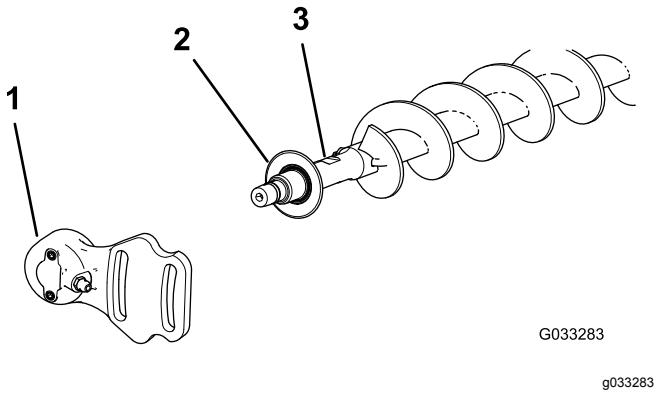

Figure 18

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

3. Remove the 2 J-bolts and the nuts (Figure 19).
4. Slide the existing brush off the brush shaft (Figure 19).
5. Loosen the 2 bolts, washers, and nuts securing the drive-bearing housing to the bearing-housing mounting bracket (Figure 19).
6. Slide the high height-of-cut brush onto the brush shaft (Figure 19).
7. Clamp the brush onto the shaft with the 2 J-bolts and nuts previously removed (Figure 19).

   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).

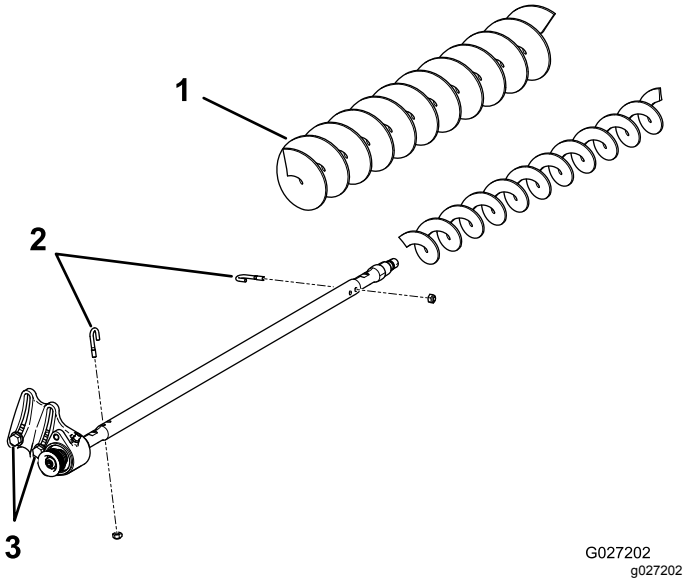

Figure 19

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

9. Install the excluder seal and the non-drive-bearing housing onto the brush shaft (Figure 18).
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 (Cutting Units 1 and 4 Only; Optional)

1. Lower the cutting units to the ground.
2. Remove the existing flange-head bolts and the round bumpers (Figure 20).

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

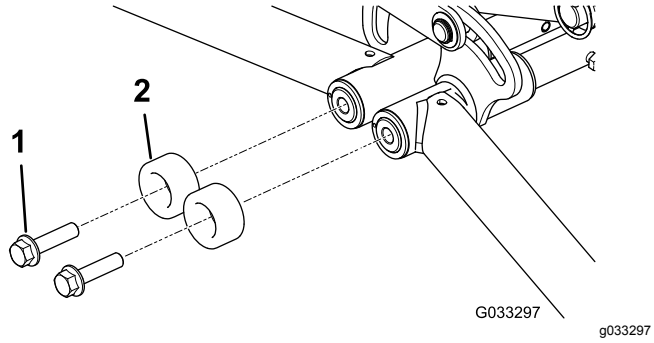

Figure 20

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 21.

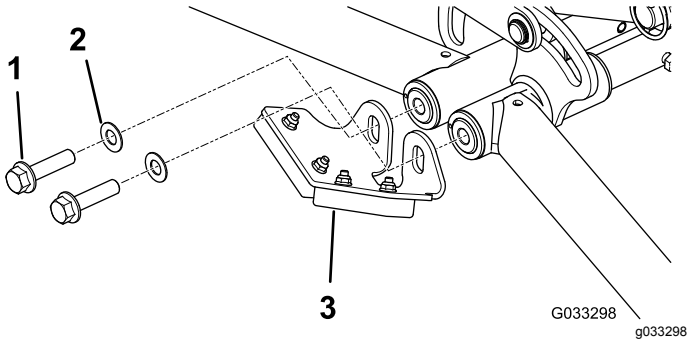

Figure 21

1. Flange-head bolt, existing (2)
2. Washer (2)
3. Front 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 (Cutting Units 2 and 3 Only; Optional)

Install the rear bumper assembly as shown in .

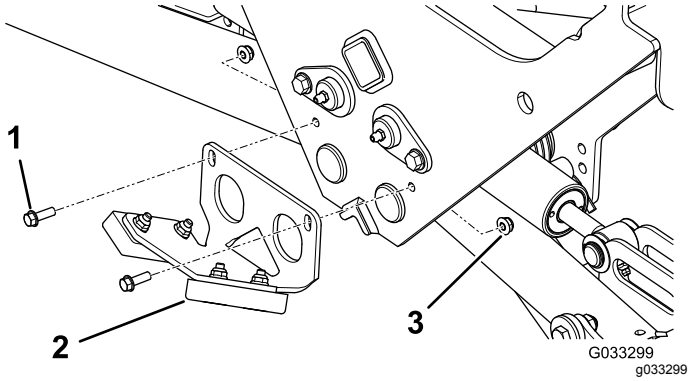

Figure 22

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 a roller brush, torque the J-bolts to 2 to 3 N·m (20 to 25 in-lb).
- When replacing the brush-shaft-driven pulley, torque the nut to 20 to 26 N·m (15 to 19 ft-lb).
- When replacing the brush-drive pulley, apply 242 Loctite (blue) and torque the bolt to 20 to 26 N·m (15 to 19 ft-lb).

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

Checking the Pulley Alignment

Important: **Ensure that the belt is properly tensioned prior to checking the alignment.**

1. Lay a straightedge along the outer face of the drive pulley (Figure 23).

   Important: **Only lay the straightedge across the drive pulley, do not lay it across the drive and the driven pulley.**

2. Ensure that the outer faces of the drive pulley and the driven pulley are in line within 0.76 mm (0.030 inch).

   Important: **Do not use the idler pulley to check the alignment.**

3. If the pulleys are not aligned, refer to Adjusting the Pulley Alignment (page 10).

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

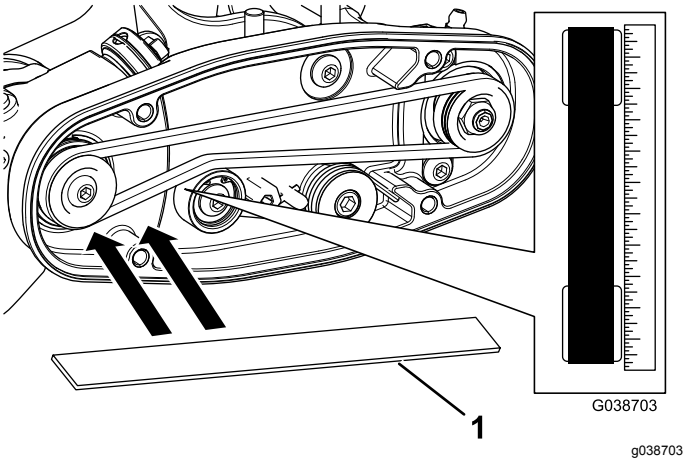

Figure 23

1. Alignment tool

Adjusting 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.

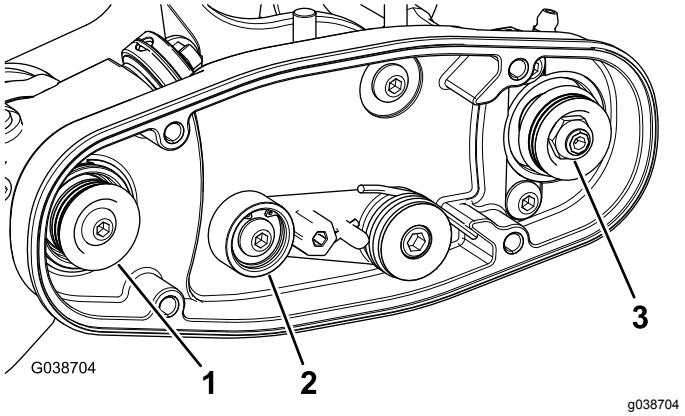

Figure 24

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

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

   Important: **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 washer (Figure 25).

   Important: **If the pulley needs to move in, remove the existing 0.8 mm (0.032 inch) thick washer.**

6. Install the pulley as shown in Figure 25.

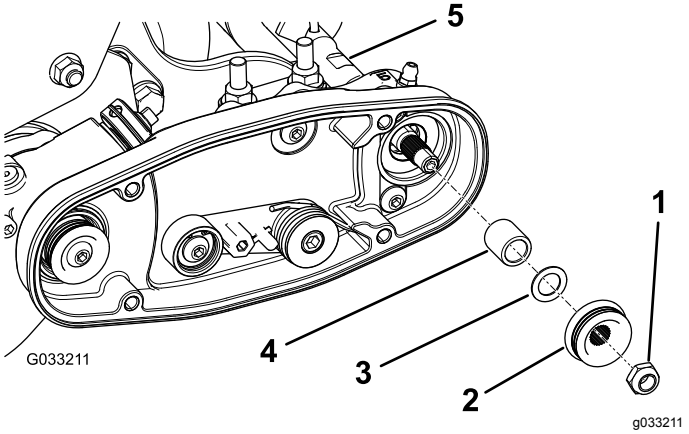

Figure 25

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

7. While holding the flats of the roller-brush shaft, secure the driven pulley on the shaft with the flange nut (3/8–16) previously removed.

   Note: Seat the locknut; then torque it to 20 to 26 N·m (15 to 19 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).

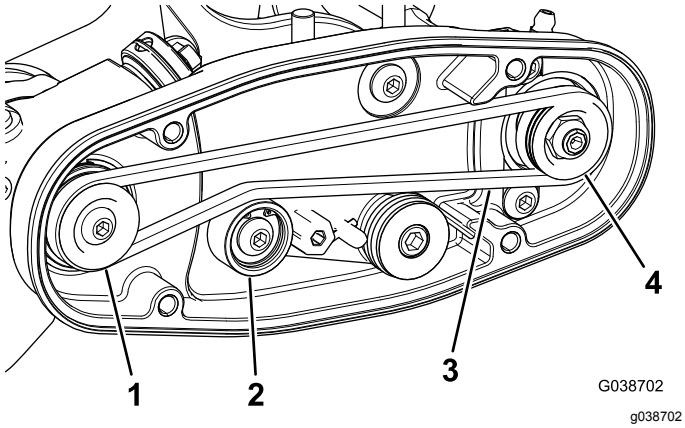

Figure 26

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

   B. Start the belt on the **driven** pulley (Figure 26).

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

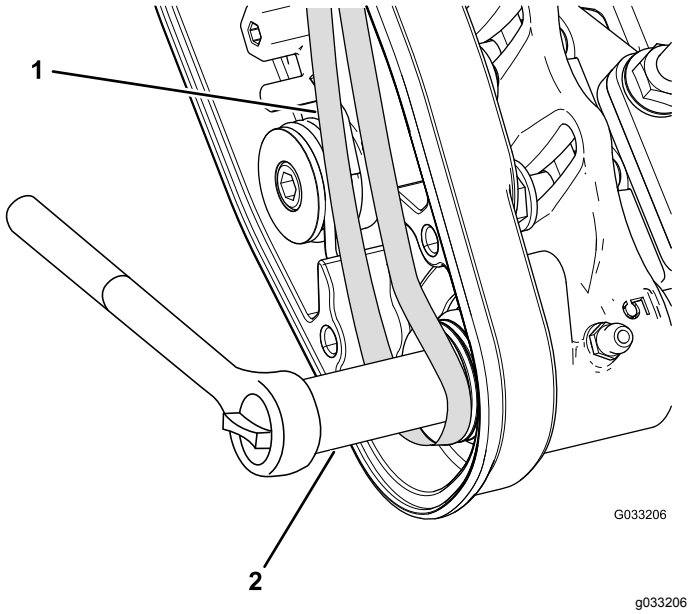

Figure 27

1. Belt
2. Deep-well socket (9/16-inch)

Important: **Ensure 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; refer to Checking the Pulley Alignment (page 10).

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 inch 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: **To avoid grinding the reel, do not contact the cutting edge of any blade 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.**

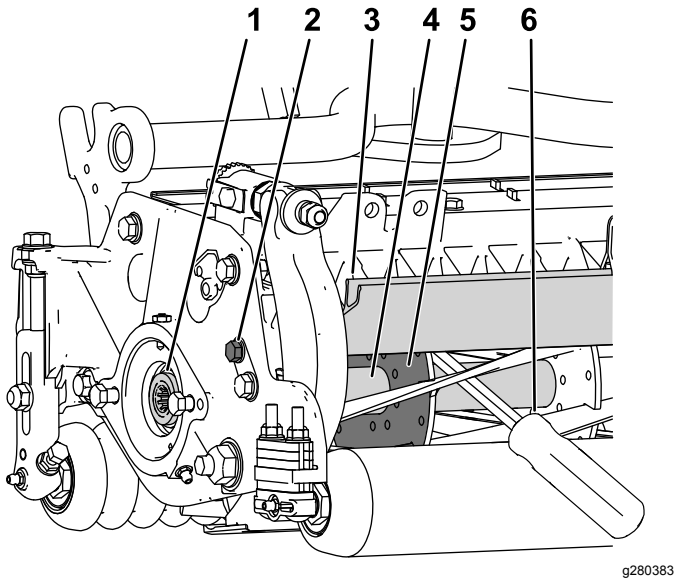

Figure 28

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 for Installing Threaded Inserts

1. Insert a long-handled pry bar (recommended 3/8 x 12 inch 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: **To avoid grinding the reel, do not contact the cutting edge of any blade 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.**

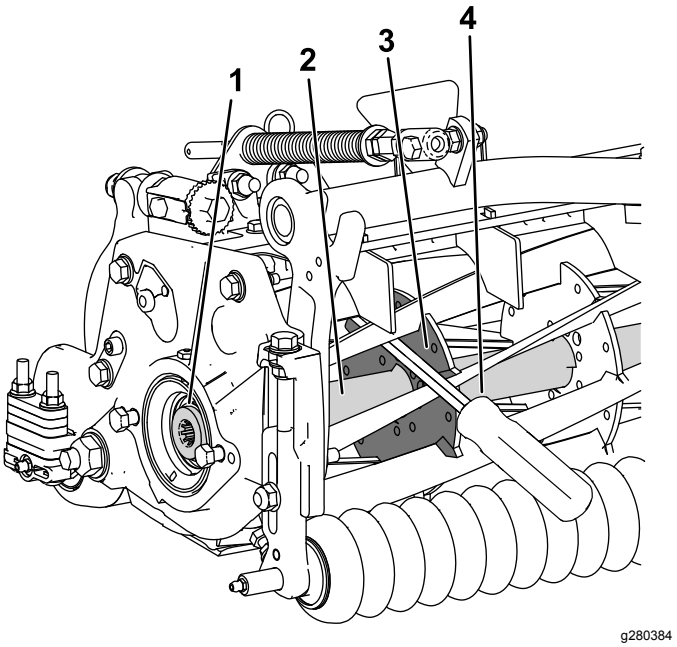

Figure 29

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:

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
133-0152	—	Rear Roller Brush MVP Kit, Reelmaster 3550 Series 18-inch Cutting Unit with 5-inch Reel and Universal Groomer	RM3550 18" RRB (FOR UNIVSL) MVP KIT	Roller Brush Kit	2000/14/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:

John Heckel
Sr. Engineering Manager
8111 Lyndale Ave. South
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