Form No. 3407-721 Rev A

Brake Replacement Kit

Twister® or Workman® Utility Vehicle

Model No. 136-1199

Installation Instructions

⚠ WARNING

CALIFORNIA
Proposition 65 Warning

This product contains a chemical or chemicals known to the State of California to cause cancer, birth defects, or reproductive harm.

Installation

Loose Parts

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

Procedure	Description	Qty.	Use
1	No parts required	–	Prepare the machine.
2	No parts required	–	Remove the existing brake assembly.
3	Right spindle Left spindle Brake-caliper assembly Flange-head bolt (3/8 x 1 inch) Rotor Hex-socket bolt (5/16 x 3/4 inch) Front brake-line assembly Banjo washer Banjo bolt Clip Bleed screw	1 1 2 4 2 8 1 4 2 2 2	Install the new brake assembly.
4	No parts required	–	Bleed the brake calipers.
5	No parts required	–	Install the wheels.
6	No parts required	–	Adjust the front wheel toe-in.
7	No parts required	–	Burnish (break-in) the brakes.

8111 Lyndale Avenue South
Bloomington, MN 55420

Register at www.Toro.com.

CE

Original Instructions (EN)
Printed in the USA

3407-721 A

1

Preparing the Machine

No Parts Required

Procedure

1. Park the machine on a level surface.
2. Engage the parking brake.
3. Shut off the engine and remove the key from the key switch.

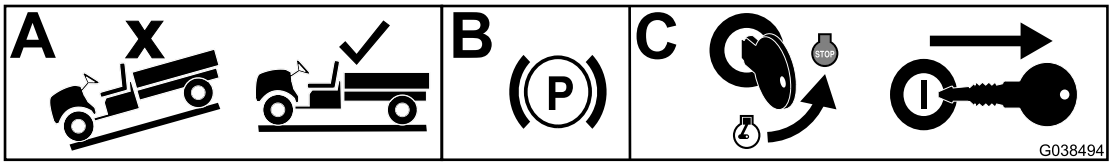

Figure 1

2

Removing the Existing Brake Assembly

No Parts Required

Procedure

1. Lift the front of the machine and support it with jack stands.
2. Remove the lug nuts that secure the wheel to the hub (Figure 2).

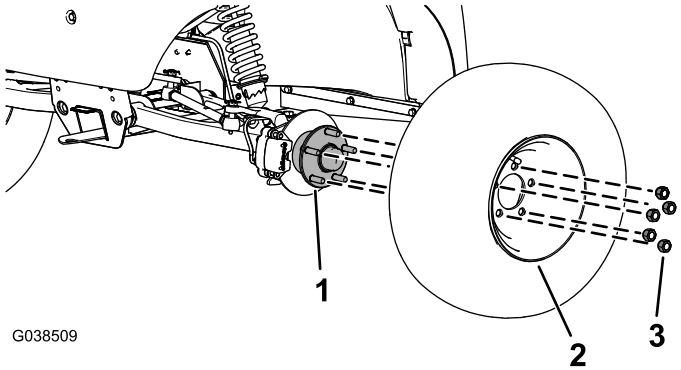

Figure 2

1. Hub
2. Wheel
3. Lug nut

3. Remove the banjo bolt and washer from the brake-caliper assembly, and remove the front brake line from the brake-caliper assembly (Figure 3).

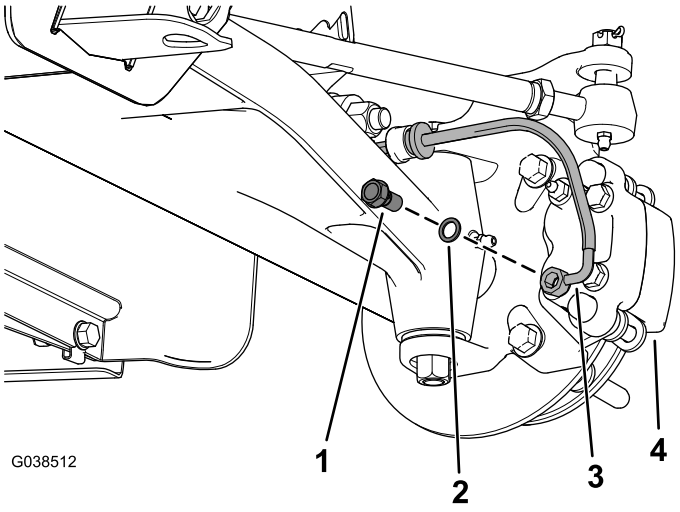

Figure 3

1. Banjo bolt
2. Banjo washer
3. Front brake line
4. Brake-caliper assembly

4. Remove the flange-head bolts (3/8 x 1 inch) that secure the bracket for the brake-caliper assembly to the spindle and remove the brake-caliper assembly from the spindle (Figure 4).

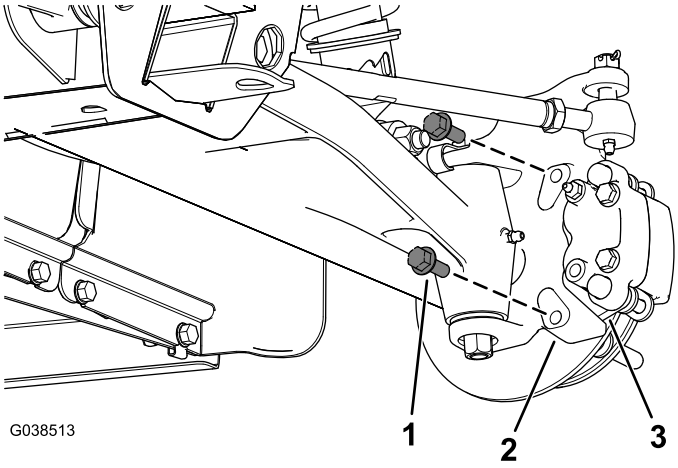

Figure 4

1. Flange-head bolt (3/8 x 1 inch)
2. Spindle
3. Caliper bracket (brake-caliper assembly)

5. Remove the front brake line from the master cylinder (Figure 5).

Note: Discard the front brake line.

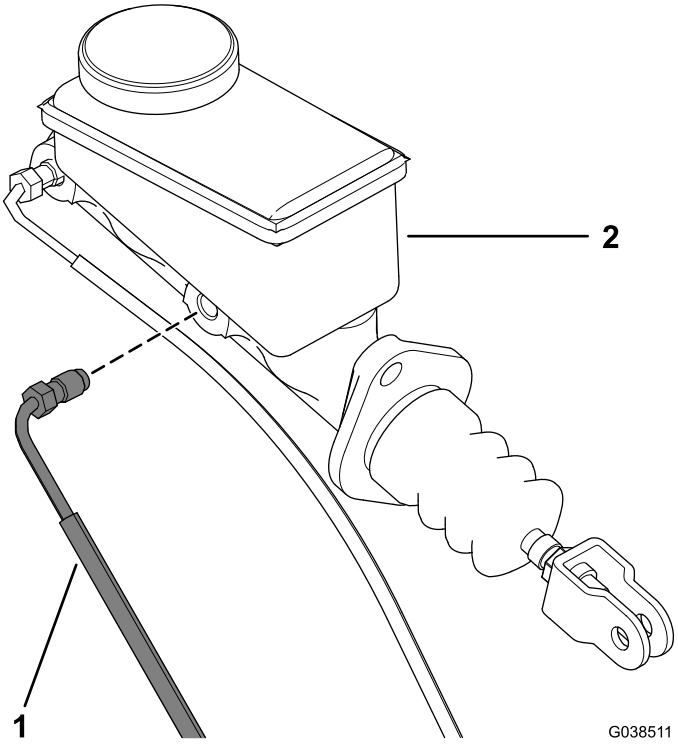

Figure 5

1. Front brake line
2. Master cylinder

6. Remove the dust cap, hairpin cotter, nut retainer, and jam nut, and remove the hub and rotor from the spindle (Figure 6).

Note: Retain the hub, dust cap, jam nut, nut retainer, and hairpin cotter.

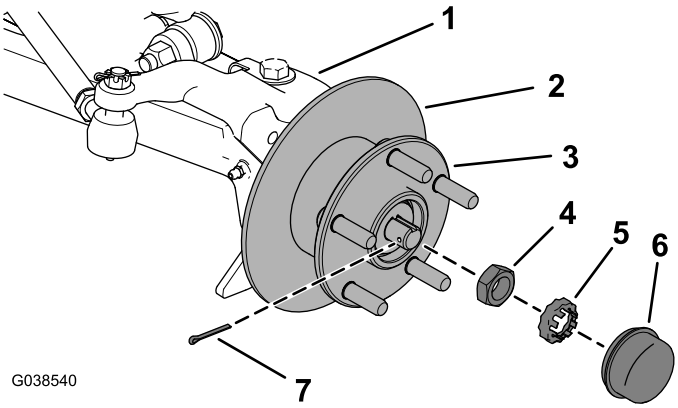

Figure 6

1. Spindle
2. Rotor
3. Hub
4. Jam nut
5. Nut retainer
6. Dust cap
7. Hairpin cotter

7. Remove the 4 hex-socket bolts (5/16 x 3/4 inch), and remove the rotor from the hub (Figure 7).

Note: Discard the rotor and 4 hex-socket bolts (5/16 x 3/4 inch).

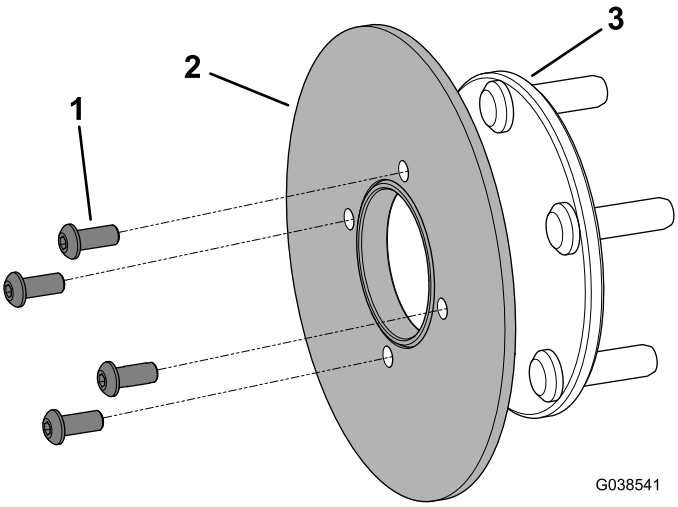

Figure 7

1. Hex-socket bolt (5/16 x 3/4 inch)
2. Rotor
3. Hub

8. Remove the hairpin cotter and slotted hex nut from the tie rod ball joint, and disconnect the tie rod from the spindle (Figure 8).

   Note: Retain the hairpin cotter and slotted hex nut.

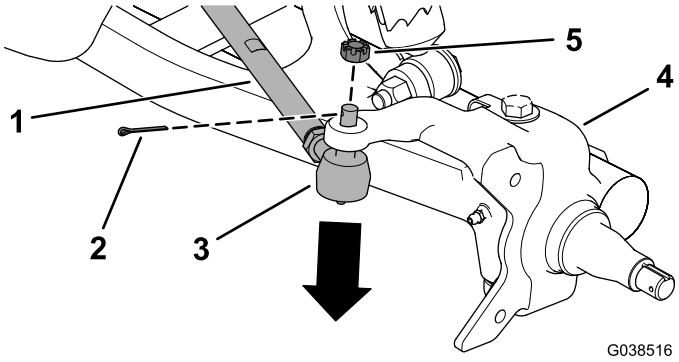

Figure 8

1. Tie rod
2. Hairpin cotter
3. Ball joint
4. Spindle
5. Slotted hex nut

9. Remove the hex-head bolt (1/2 x 6 inches), clip, and locknut (1/2 inch) from the control arm, and remove the spindle (Figure 9).

   Note: Retain the hex-head bolt (1/2 x 6 inches) and locknut (1/2 inch).

   Note: Discard the spindle.

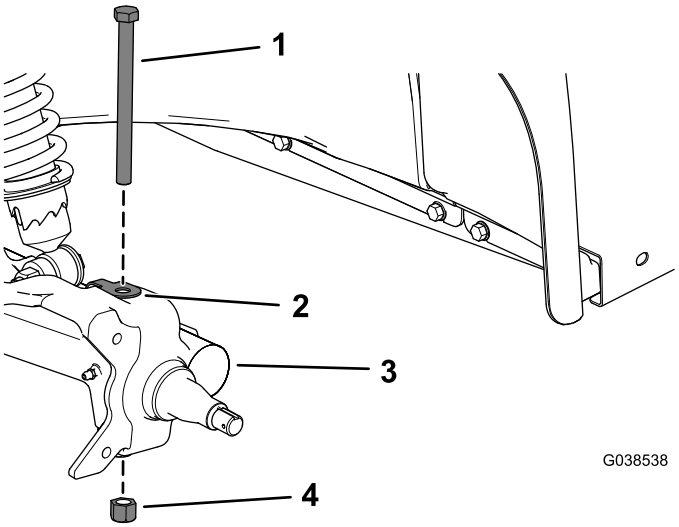

Figure 9

1. Hex-head bolt (1/2 x 6 inches)
2. Clip
3. Spindle
4. Locknut (1/2 inch)

10. Repeat steps 2 through 9 on the other side of the machine.

3

Installing the New Brake Assembly

Parts needed for this procedure:

1	Right spindle
1	Left spindle
2	Brake-caliper assembly
4	Flange-head bolt (3/8 x 1 inch)
2	Rotor
8	Hex-socket bolt (5/16 x 3/4 inch)
1	Front brake-line assembly
4	Banjo washer
2	Banjo bolt
2	Clip
2	Bleed screw

Procedure

1. Install the front brake line to the master cylinder (Figure 5).
2. Install the spindle assembly to the control arm using the hex-head bolt (1/2 x 6 inches), clip, and locknut (1/2 inch) as shown in Figure 9.
3. Torque the locknut (1/2 inch) to 102 to 136 N·m (75 to 100 ft-lb).
4. Install the tie rod to the spindle assembly using the slotted hex nut and hairpin cotter (Figure 8).

   Note: If the hole does not align to install the cotter key, tighten only to align the slotted nut to ensure that the hole for the hairpin cotter is visible, then install the hairpin cotter.

5. Torque the slotted hex nut to 27 to 34 N·m (20 to 25 ft-lb).
6. Install the rotor to the hub using 4 hex-socket bolts (5/16 x 3/4 inch) as shown in Figure 7.
7. Torque the 4 hex-socket bolts (5/16 x 3/4 inch) to 12 to 15 N·m (9 to 11 ft-lb).

8. Install the rotor and hub assembly to the spindle by performing the following:
   A. Tighten the jam nut while turning the hub to seat the bearings, and torque the jam nut to 16 to 20 N·m (12 to 15 ft-lb) as shown in Figure 6.
   B. Loosen the jam nut until it is away from the tab washer and hub, and torque the jam nut to 169 to 226 N·cm (15 to 20 in-lb) while rotating the hub (Figure 6).
   C. Install the nut retainer over the jam nut, ensure that the hole for the hairpin cotter is visible, and install the hairpin cotter (Figure 6).
   D. Install the dust cap (Figure 6).
9. Install the new brake-caliper assembly to the spindle using 2 flange-head bolts (3/8 x 1 inch) as shown in Figure 4.
10. Torque the 2 flange-head bolts (3/8 x 1 inch) to 47 to 54 N·m (35 to 40 ft-lb).
11. Install the bleed screw into the top hole of the brake-caliper assembly (Figure 10).

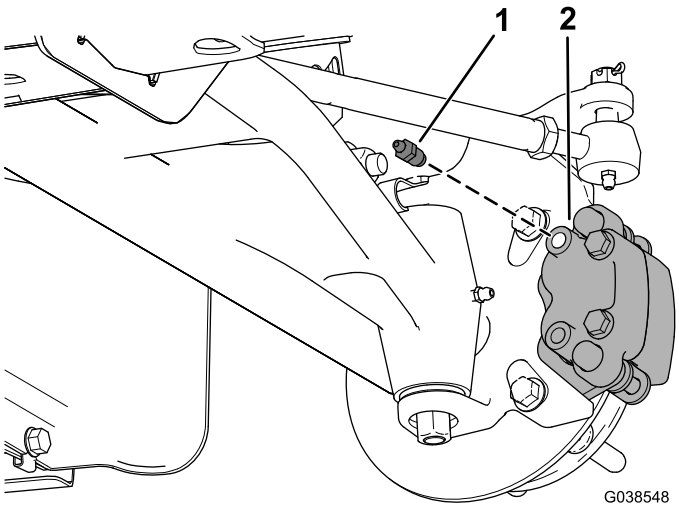

Figure 10

1. Bleed screw
2. Top hole of the brake-caliper assembly

12. Torque the bleed screw to 6 to 7.5 N·m (4.5 to 5.5 ft-lb).
13. Install the front brake line to the brake-caliper assembly using a banjo bolt and 2 banjo washers (Figure 3).
14. Torque the banjo bolt to 12 to 15 N·m (9 to 11 ft-lb).

4

Bleeding the Brake Calipers

No Parts Required

Procedure

Important: You will need 2 people to perform this procedure.

1. Push down the brake pedal fully.
2. With brake pedal pushed down fully, loosen the bleed screw 1/4 turn (Figure 11).
3. With brake pedal pushed down fully, tighten the bleed screw 1/4 turn (Figure 11).

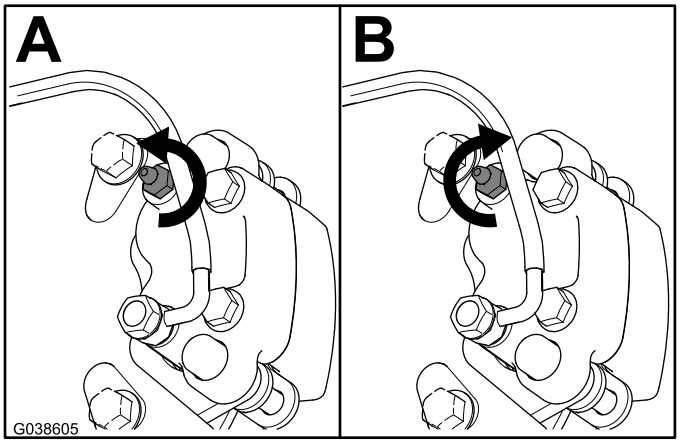

Figure 11

4. Repeat this process until air no longer releases from the calipers.

   Note: When air no longer releases, you should not see anymore air bubbles in the brake fluid.
5. Fill the master cylinder with brake fluid; refer to your *Operator's Manual.*

5

Installing the Wheels

No Parts Required

Procedure

1. Install the wheel onto the hub using the previously removed lug nuts (Figure 2).
2. Torque the lug nuts in a star pattern to 102 to 129 N·m (75 to 95 ft-lb).

6

Adjusting the Front Wheel Toe-in

No Parts Required

Procedure

The toe-in should be 0 to 6 mm (0 to 1/4 inch).

- Check the tire pressure to ensure that the front tires are inflated to 82 kPa (12 psi).
- Either, add weight to the driver's seat equal to the average operator who will run the machine, or have an operator sit on the seat. The weight or operator must remain on the seat for the duration of the procedure.
- On a level surface, roll the machine straight back 2 to 3 m (6 to 10 ft) and then straight forward to the original starting position. This allows the suspension to settle into the operating position.
- Measure the toe-in with the wheels facing straight ahead.

1. Measure the distance between both of the front tires at the axle height at both the front and rear of the front tires (Figure 12).

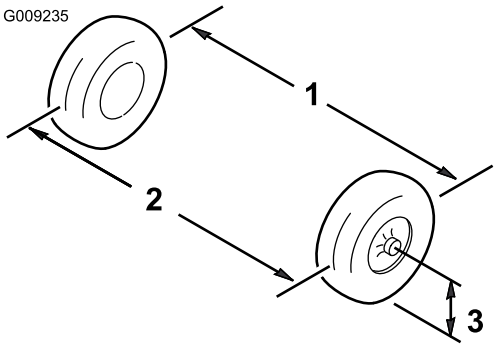

Figure 12

1. Tire center line—back
2. Tire center line—front
3. Axle center line

2. If the measurement does not fall within 0 to 6 mm (0 to 1/4 inch), loosen the jam nuts at the outer end of the tie rods (Figure 13).

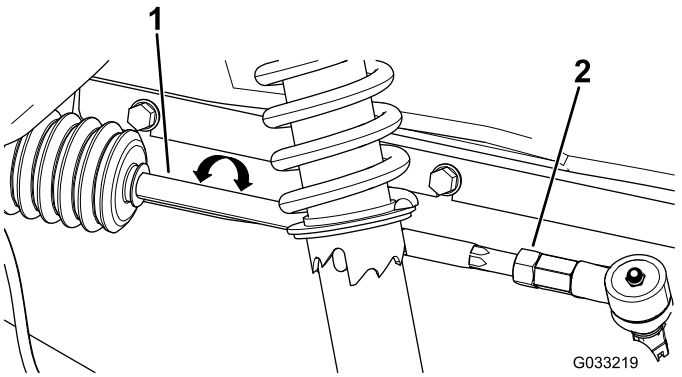

Figure 13

1. Tie rod
2. Jam nut

3. Rotate both tie rods to move the front of the tire inward or outward.
4. Tighten the tie rod jam nuts when the adjustment is correct.
5. Ensure that there is full travel of the steering wheel in both directions.

7

Burnishing the Brakes

No Parts Required

Procedure

To ensure optimum performance of the brake system, burnish (break-in) the brakes before use.

1. Bring the machine up to full speed, apply the brakes to rapidly stop the machine without locking up the tires.
2. Repeat this procedure 10 times, waiting 1 minute between stops, to avoid overheating the brakes.

   Important: This procedure is most effective if the machine is loaded with 227 kg (500 lb).

Count on it.