Form No. 3398-629 Rev A

Roll-Over Protection System Kit

2009 or 2010 TITAN® ZX Zero-Turn-Radius Riding Mower

Model No. 121-2984

Installation Instructions

Installation

Note: Determine the left and right sides of the machine from the normal operating position.

Shutoff the engine and wait for all moving parts to stop.

Installing the Rollbar Supports

Complete the following steps for both left and right rollbar supports.

Note: If preferred, the rear wheels may be removed for easier access to the brace.

1. Loosely secure the brace and seat belt bracket to the frame with a bolt (1/2 x 1-1/4 inches) and locknut (Figure 1) allowing it to swing freely.

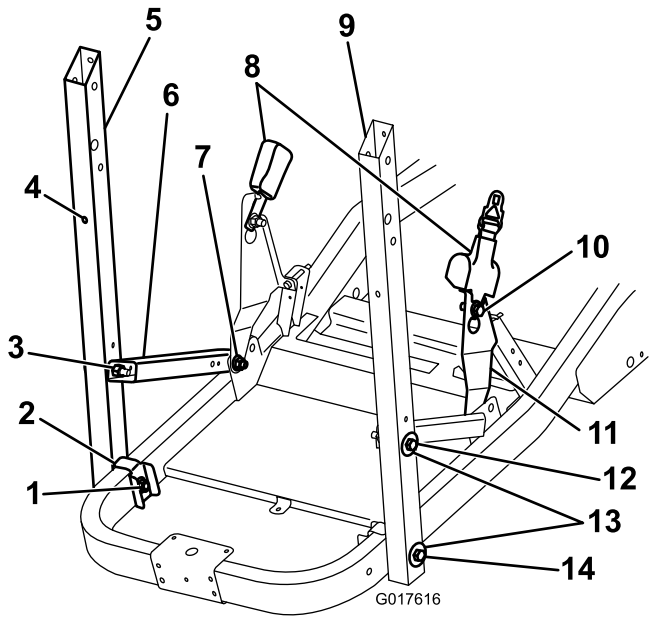


Figure 1

1. Locknut
2. Reinforcing bracket
3. Hex nut
4. Small rubber bumper
5. Rollbar support
6. Brace
7. Bolt (1/2 x 1-1/4 inches) and locknut
8. Seat belt
9. Cutout faces the rear
10. Flange-head bolt and locknut
11. Seat-belt bracket
12. Bolt (1/2 x 3-1/2 inches)
13. Large washers
14. Bolt (1/2 x 4-1/2 inches)

2. Loosely attach the rollbar support and reinforcing bracket to the frame using a bolt (1/2 x 4-1/2 inches), washer, and locknut as shown in Figure 1.

   Note: Ensure that the cutout at the top of the rollbar support faces the rear of the machine.

3. Attach the brace to the rollbar support with a bolt (1/2 x 3-1/2 inches), washer, and hex nut (Figure 1).

   Note: Note the orientation of the reinforcing bracket.

4. Attach the seat belt assembly to the seat belt bracket with a flange-head bolt and locknut (Figure 1).

Attaching the Pivot Brackets

Assemble the pivot brackets to the rollbar as shown in Figure 2. Leave the bolts loose enough that the parts are free to shift around.

Note: Ensure that the locknuts are on the inside of the support tube.

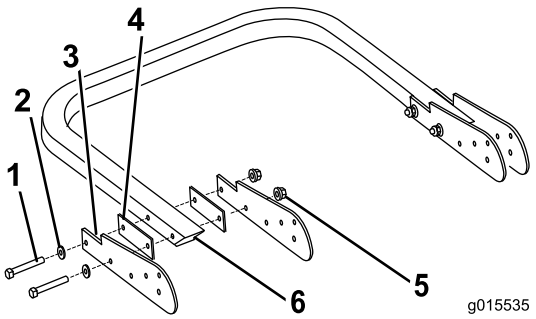


Figure 2

1. Bolt (1/2 x 3-1/2 inches)
2. Flat washer
3. Pivot bracket, notch facing up
4. Flat spacer
5. Flange locknut
6. Rollbar, cutout facing down

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Attaching the Rollbar

1. Insert the cylindrical spacer in the pivot holes in both rollbar supports (Figure 3).

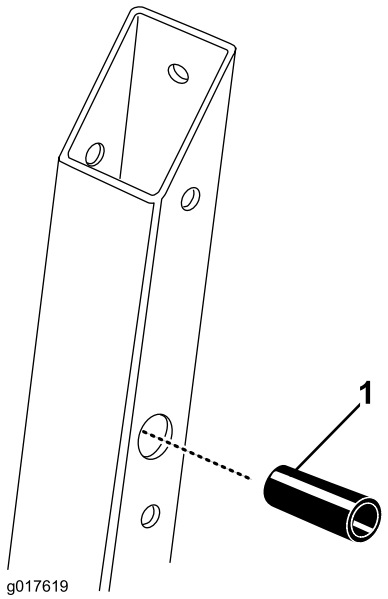


Figure 3

1. Cylindrical spacer

2. Lift the rollbar with the cutouts in the ends of the tube facing up and align the pivot holes with the cylindrical spacers in the rollbar supports.

   Note: Have a second person help you to perform the next step.

3. Attach the rollbar to the rollbar supports as shown in Figure 4. Leave the bolts just loose enough to allow the rollbar to freely pivot.

   Note: Ensure that the tab to which the lanyard is attached is angled away from the surface of the pivot bracket.

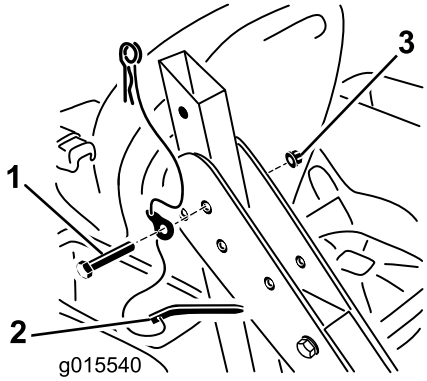


Figure 4

1. Bolt (1/2 x 3-1/2 inches)
2. Pivot pin with hairpin and lanyard
3. Locknut

4. Raise the rollbar into the upright position and lock it in place with both pivot pins as shown in Figure 5.

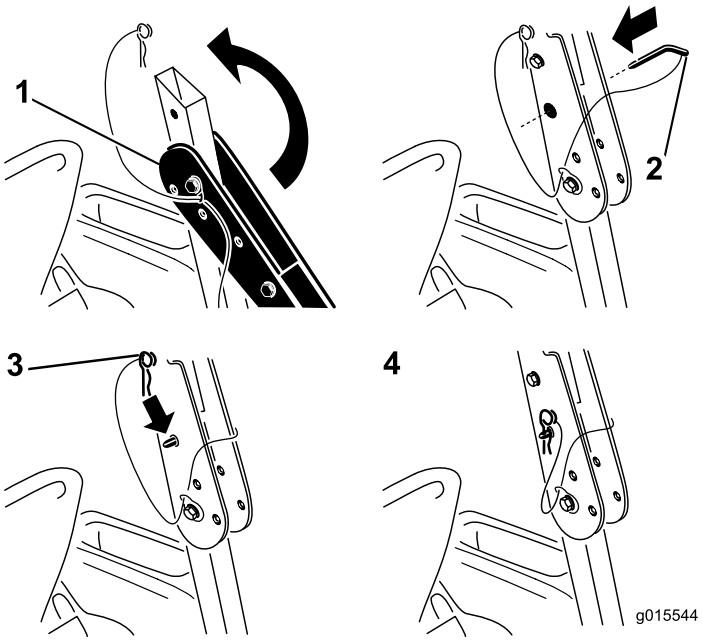


Figure 5

1. Rollbar
2. Pivot pin
3. Hairpin
4. Rollbar, upright and locked

Making the Final Adjustments

1. Tighten the fasteners in the order specified in the following table. Use Figure 1 and Figure 2 to help identify the parts.

Sequence	Description	Torque
1	3 bolts on each side attaching the pivot brackets to the rollbar and rollbar support. Ensure that the tab to which the lanyard is attached is pointed upward.	400 ± 40 in-lb (45 ±.4 N-m)
2	2 bolts on each side attaching the rollbar support to the frame and the rollbar support to the brace.	300 ± 30 in-lb (34 ± 3 N-m)
3	1 bolt on each side attaching the braces to the machine frame.	75 ± 8 ft-lb (102 ± 11 N-m)

Note: Do not exceed torque specifications. Doing so may cause structural damage to the ROPS or to the frame of the machine.

2. If necessary, install both small rubber bumpers. Press the small flange on the back of each into the holes on the back of the rollbar supports (Figure 1).

3. Remove the pivot pins and ensure that the rollbar pivots freely up and down. If it does not, remove

the rollbar and verify that the cylindrical spacers are correctly installed as previously described in Attaching the Rollbar (page 2).

4. If the conical rubber bumpers are not pre-installed do the following:
   Unlock the rollbar and put it in the down position. Install the conical rubber bumpers inside the cutout at the top of the rollbar supports as shown in Figure 6. Secure the bumpers using the flange nuts (5/16 inch).

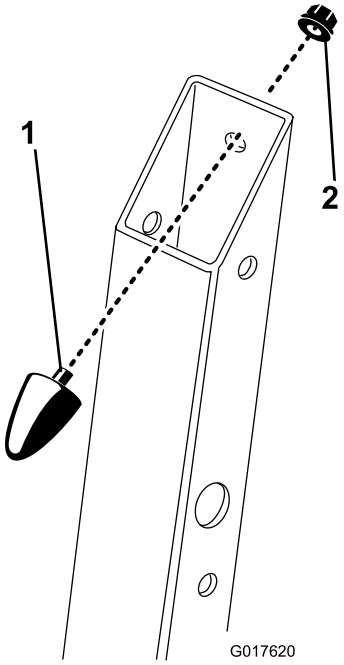


Figure 6

1. Conical rubber bumper 2. Flange nut

5. Lock the rollbar in the upright position with the pivot pins. Use the hairpins at the end of each lanyard to secure the pivot pins (Figure 5).

   Important: You must insert the hairpins at the end of both lanyards into the holes on the straight end of each pivot pin until they lock in place.

Using the Rollover Protection System (ROPS)

⚠ WARNING

There is no rollover protection when the roll bar is in the down position, and injury or death may result.

- **Keep the roll bar in the raised and locked position and wear the seat belt.**
- **Lower the roll bar only when absolutely necessary.**
- **Do not wear the seat belt when the roll bar is in the down position.**
- **Drive slowly and carefully.**
- **Raise the roll bar as soon as clearance permits.**
- **Check carefully for overhead clearances (i.e. branches, doorways, electrical wires) before driving under any objects and do not contact them.**

Important: Lower the roll bar only when absolutely necessary.

1. To raise the roll bar, remove the hair pin cotter and remove the locking pins.
2. Raise the roll bar to the upright position (Figure 7).

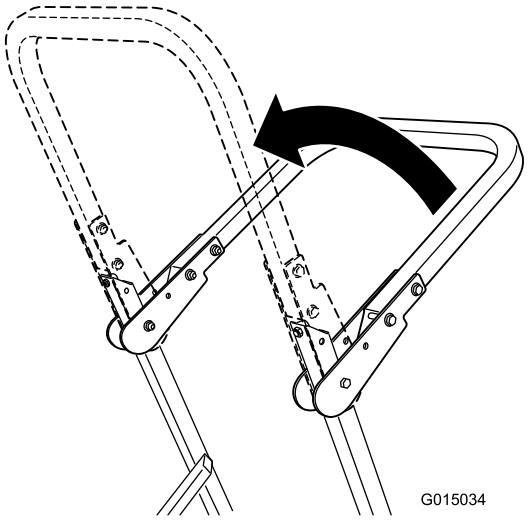


Figure 7

Important: Always use the seat belt with the roll bar in the raised position.

3. Install the locking pins. Secure the pins by installing the hair pin cotter (Figure 8).

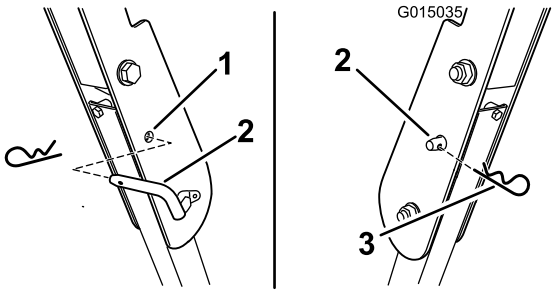


Figure 8

1. Hole in ROPS
2. Locking pin
3. Hair pin cotter

4. To lower the roll bar, remove the hair pin cotter and remove the locking pin (Figure 8).
5. Lower the roll bar to the down position.
6. Use the two locking and cotter pins to secure the bar.