Form No. 3406-103 Rev C

Adapter Kit

2013 and After 100in Rear Discharge Deck for Groundsmaster® 7210 Series Traction Unit

Model No. 31104

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.

Note: This adapter kit is used to mount the 100-inch Rear Discharge Deck onto Groundsmaster® 7210 Series traction units with serial numbers 313000001 and up.

8111 Lyndale Avenue South
Bloomington, MN 55420

Register at www.Toro.com.

CE

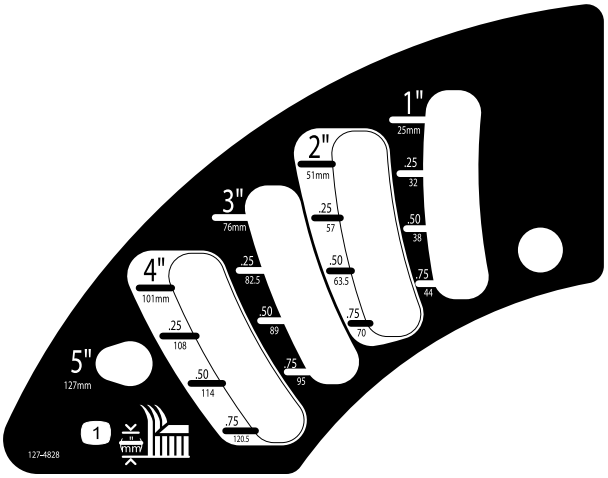
Original Instructions (EN)
Printed in the USA

3406-103 C

Safety

Safety and Instructional Decals

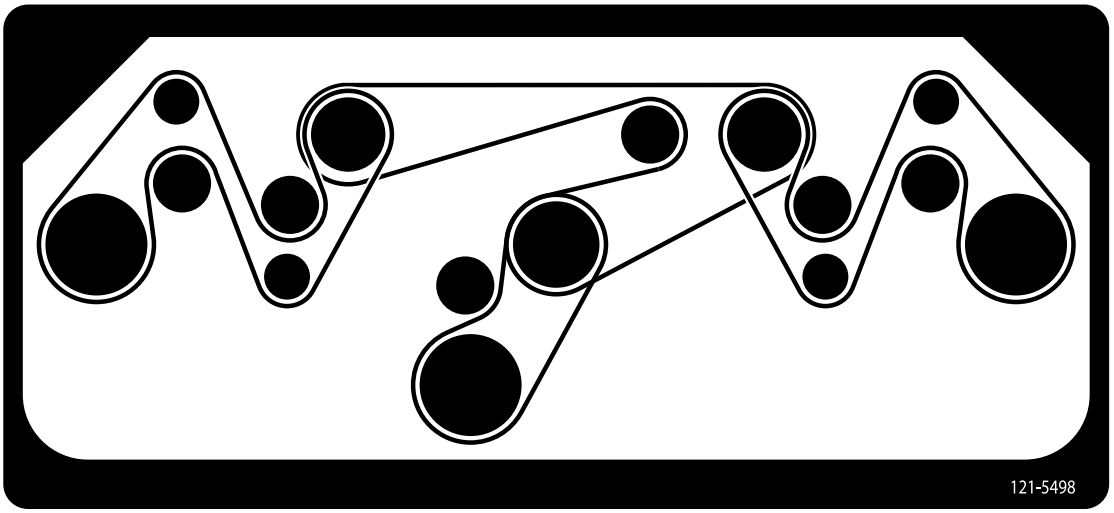
Safety decals and instructions are easily visible to the operator and are located near any area of potential danger. Replace any decal that is damaged or lost.



decal127-4828

127-4828

1. Height of cut



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121-5498

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 deck.
3	Long plate Small plate	1 1	Weld the plates into the frame (2013, 2014, and certain 2015 models only).
4	Height-of-cut decal Bolt Washer Locknut Belt-routing decal Orifice disc Tee fitting Hydraulic hose—53 cm (21 inches) long Hydraulic hose—43 cm (17 inches) long Deck wire harness Fuse block and fuse Ground block Screw Nut Jumper strip Shunt wire harness	1 1 1 1 1 1 2 1 1 1 1 1 2 2 1 1	Install the adapter kit.
5	Relay bracket (with timer installed) Relay Bolt (10-24 x 0.56 inch) Locknut Lift-delay wire harness	1 5 2 2 1	Install the timer.
6	Fender mount Right fender Thread-forming screw (5/16 x 5/8 inch) Bolt (1/4 x 5/8 inch) Nut (1/4 inch)	1 1 2 2 2	Install the right fender.
7	Left fender Nut (3/8 inch) Bolt (3/8 x 3/4 inch)	1 2 2	Install the left fender.
8	No parts required	–	Complete the installation.

1

Preparing the Machine

No Parts Required

Procedure

1. Park the machine on a level surface with the deck in the **fully raised** position.
2. Shut off the engine, engage the parking brake, and remove the key from the ignition switch.

2

Removing the Existing Deck

No Parts Required

Procedure

Note: If the machine is not equipped with a deck, skip this procedure and proceed to 4 Installing the Adapter Kit (page 7).

Note: When the deck is in the raised position, the pull-link torsion spring tension (Figure 1) is reduced, making it much easier to disconnect the pull links from the machine.

1.

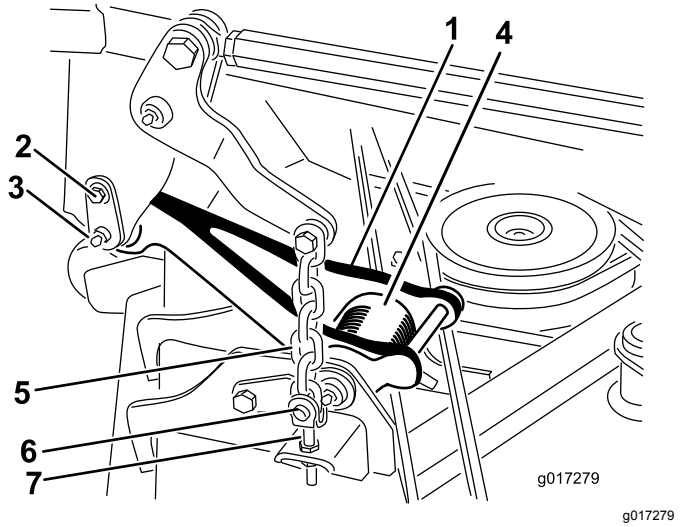

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Figure 1

1. Pull link (deck raised)
2. Shoulder screw
3. Retainer pin
4. Torsion spring
5. Deck-lift chain
6. Clevis pin
7. Adjustment clevis

2. Disconnect the pull link from each side of the machine (Figure 1).
   A. Remove the shoulder screw that secures the retainer pin to the carrier frame (Figure 1).
   B. Carefully slide the retainer pin from the carrier frame and the pull link (Figure 1).
3. Note the location of the height-of-cut pin in the height-of-cut bracket (Figure 2), and remove the height-of-cut pin from the height-of-cut bracket.

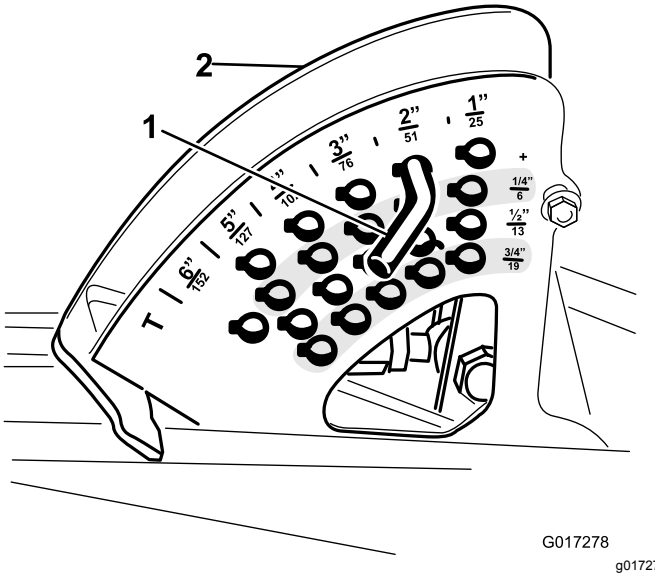

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Figure 2

1. Height-of-cut pin
2. Height-of-cut bracket

4. Start the engine and fully lower the deck. Shut off the engine and remove the key from the ignition switch.

   Note: Lowering the deck onto furniture dollies eases the removal of the deck.

   Note: Elevate the front of the machine to move the deck away from the machine.

5. Remove the bolts and nuts that secure the 4 lift chains to the lift arms on the deck (Figure 1).

6. Disconnect the end yoke of the PTO driveshaft from the deck gearbox shaft as follows:

   A. Remove the roll pin from the end yoke and the gearbox shaft (Figure 3).

      Note: Retain the roll pin.

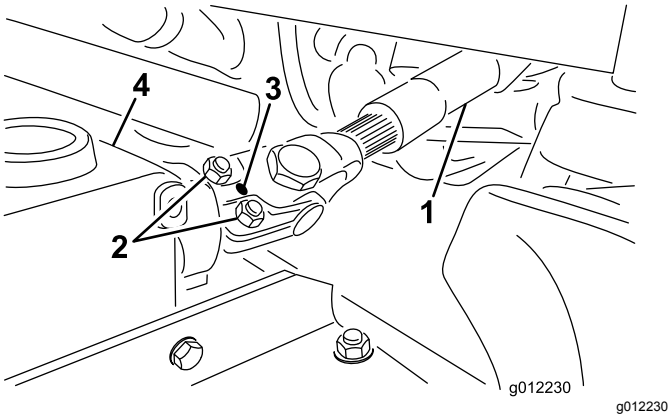

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Figure 3

1. Driveshaft
2. Bolts and locknuts
3. Roll pin
4. Gearbox

   B. Loosen the 2 bolts and locknuts (Figure 3).

   C. Slide the driveshaft end yoke from the gearbox shaft.

   D. Raise the driveshaft and tie it to the frame.

7. Slide the deck away from the machine.

3

Welding the Plates into the Frame

Parts needed for this procedure:

1	Long plate
1	Small plate

Procedure

This procedure is for all 2013 and 2014 models and the following 2015 models:

- Model 30495, Serial Number 315000101–315000178
- Model 30487, Serial Number 315000101–315000196
- Model 30695, Serial Number 315000101–315000131
- Model 30487N, Serial Number 315000101–315000105

⚠ WARNING

CALIFORNIA
Proposition 65 Warning

Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. Wash hands after handling.

⚠ WARNING

Welding can cause severe burns, eye damage, and electrocution to you and others.

- **Always use proper welding and safety equipment and follow proper safety protocols while welding.**
- **Have a qualified trained welding professional, such as your Authorized Toro Distributor, perform these procedures.**

1. Disconnect the battery cables from the battery posts.

   Important: **Disconnect the negative cable from the battery post before disconnecting the positive cable.**

2. Sand off the paint in the areas to be welded to achieve good weld penetration (Figure 4).
3. Clamp the plates to the frame and weld according to the diagrams in Figure 4.
4. After the frame has cooled, touch up the exposed metal parts with black touch-up paint (Toro Part No. 112-0176 or 500-41).
5. Connect the battery cables to the battery posts.

Important: **Connect the positive cable before connecting the negative cable.**

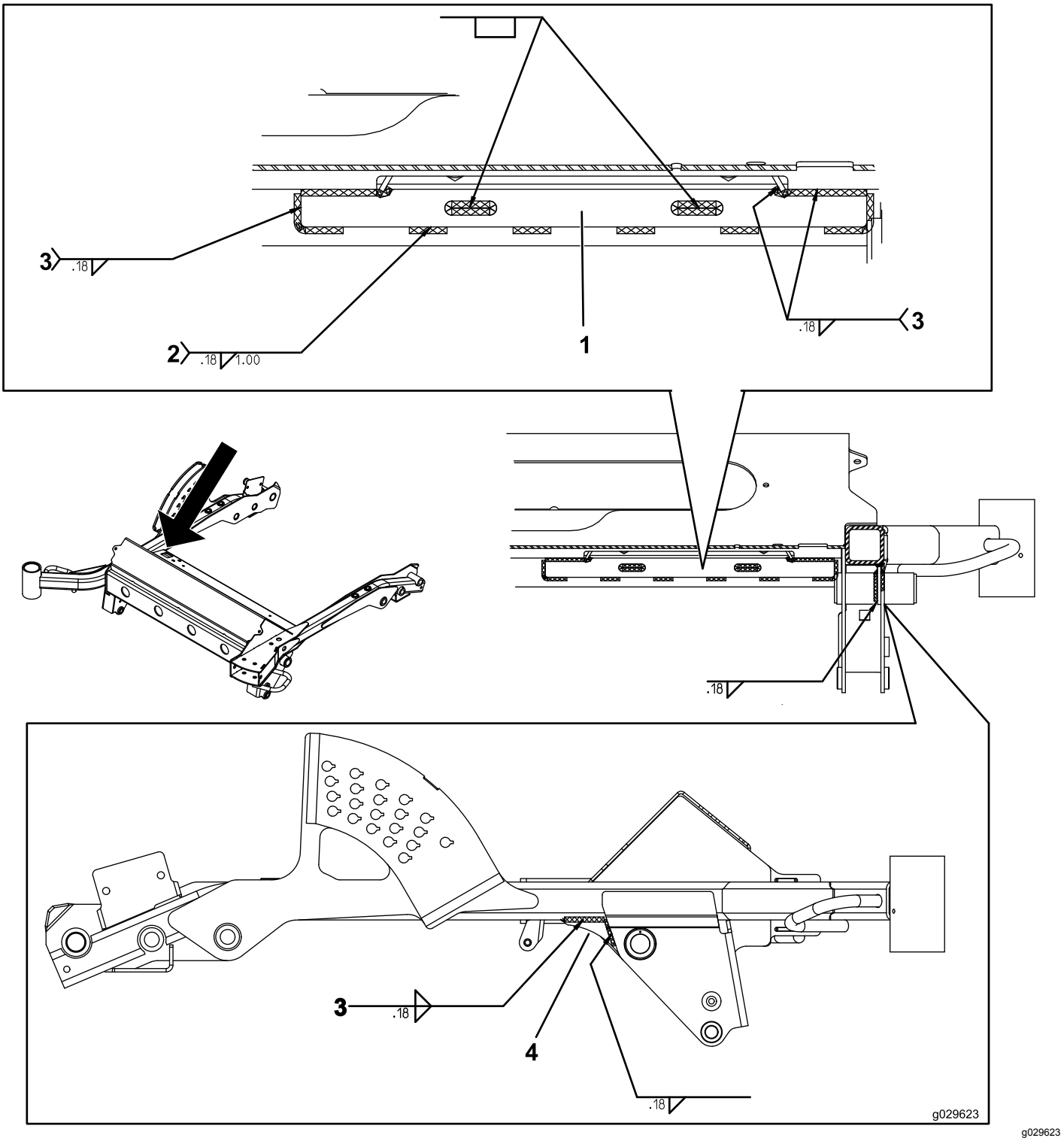

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Figure 4

1. Long plate
2. Make 6 welds here.
3. Continue the weld around the corner (2X).
4. Small plate

4

Installing the Adapter Kit

Parts needed for this procedure:

1	Height-of-cut decal
1	Bolt
1	Washer
1	Locknut
1	Belt-routing decal
1	Orifice disc
2	Tee fitting
1	Hydraulic hose—53 cm (21 inches) long
1	Hydraulic hose—43 cm (17 inches) long
1	Deck wire harness
1	Fuse block and fuse
1	Ground block
2	Screw
2	Nut
1	Jumper strip
1	Shunt wire harness

Applying the Decals

1. Remove the existing height-of-cut decal from the height-of-cut bracket on the machine (Figure 5).

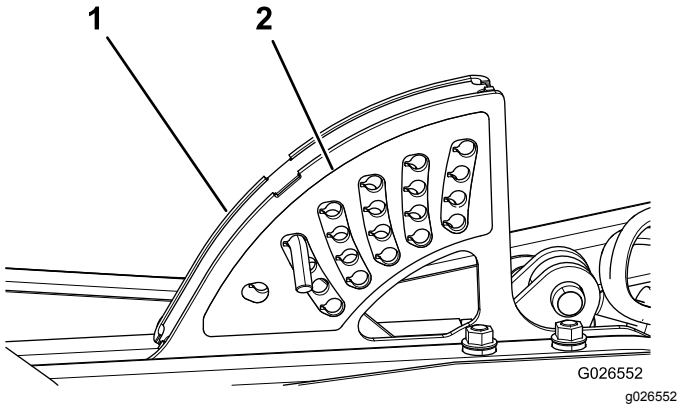

Figure 5

1. Height-of-cut bracket
2. Height-of-cut decal

2. Make sure that the mounting surface is clean before installing the new decal.
3. Affix the new height-of-cut decal to the bracket (Figure 6).

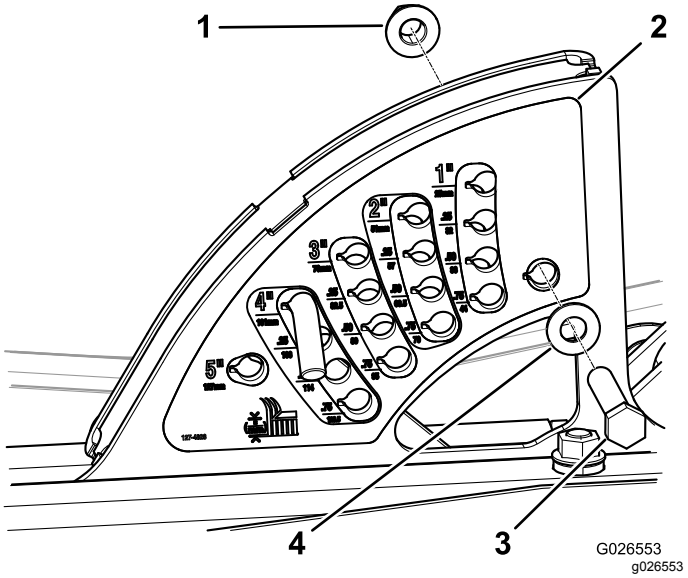

Figure 6

1. Locknut (1/2 inch)
2. New height-of-cut decal
3. Bolt (1/2 x 2-3/4 inches)
4. Washer

4. Install the bolt (1/2 x 2-3/4 inches), flat washer, and locknut (1/2 inch) in the lower rear hole of the new decal as shown in Figure 6.

   Note: This keeps the deck from lowering and contacting the ground if the height-of-cut pin is removed.
5. Pivot open the floor plate (Figure 7).

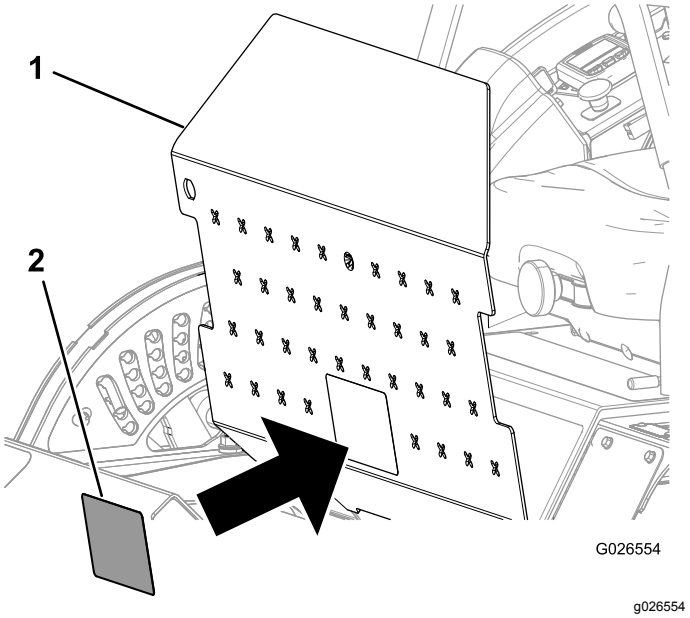

Figure 7

1. Floor plate
2. Belt-routing decal

6. Affix the new belt-routing decal over the existing decal (Figure 7).

   Note: Make sure that the mounting surface is clean before installing the new decal.

Assembling the Deck-Lift Manifold

⚠ WARNING

Hydraulic fluid escaping under pressure can penetrate skin and cause injury.

- **Make sure that all hydraulic fluid hoses and lines are in good condition and all hydraulic connections and fittings are tight before applying pressure to the hydraulic system.**
- **Seek immediate medical attention if fluid is injected into skin.**
- **Keep your body and hands away from pinhole leaks or nozzles that eject high-pressure hydraulic fluid.**
- **Use cardboard or paper to find hydraulic leaks.**
- **Safely relieve all pressure in the hydraulic system before performing any work on the hydraulic system.**

1. Install the orifice disc into the deck-lift manifold as follows:
   A. Remove the nut securing the spacer/coil assembly to the solenoid valve in port “A” on the lift-valve manifold (Figure 8).

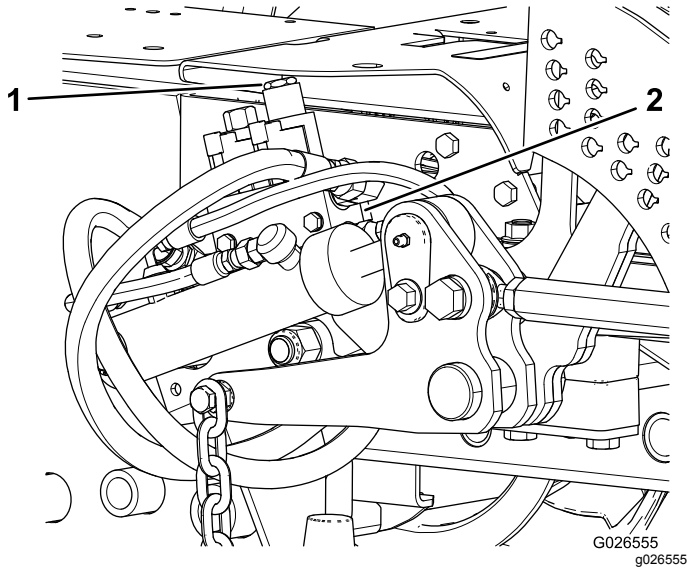

Figure 8

1. Nut
2. Lift-valve manifold

   B. Slide the coil up to obtain access to the solenoid valve, and gently break the solenoid valve loose (Figure 9).

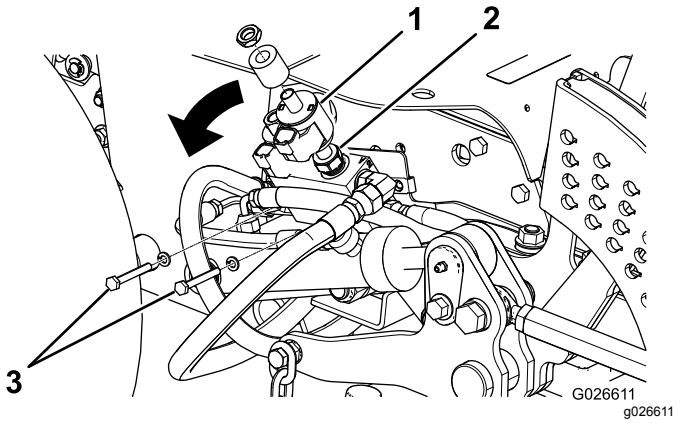

Figure 9

1. Coil
2. Solenoid valve
3. Bolts

   C. Remove the 2 bolts securing the lift-valve manifold (Figure 9).
   D. Tip the lift-valve manifold outward (Figure 9).
   E. Remove the spacer, the coil, and the solenoid valve from the lift-valve manifold (Figure 10).

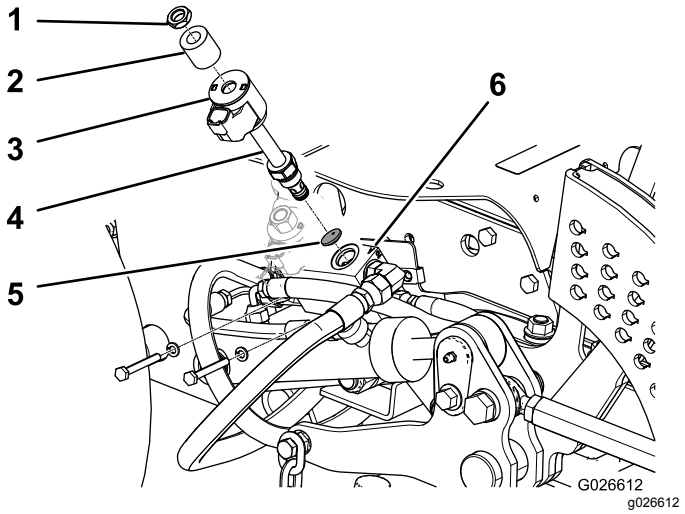

Figure 10

1. Nut
2. Spacer
3. Coil
4. Solenoid valve
5. Orifice disc
6. Manifold

   F. Insert the orifice disc into the opening of the manifold, positioning it so that the chamfered end is inward (Figure 10).
   G. Thread the solenoid valve into the manifold and torque the valve to 27 N·m (20 ft-lb).

   Note: Do not overtighten the valve.

   H. Install the coil/spacer assembly onto the solenoid valve (Figure 10).

I. Secure the coil/spacer assembly to the valve with the nut (Figure 10) and torque the nut to 7 N·m (5 ft-lb).

J. Install the lift-valve manifold using the bolts removed in step C.

2. Remove the hose from the rear port on the deck-lift cylinder (Figure 11).

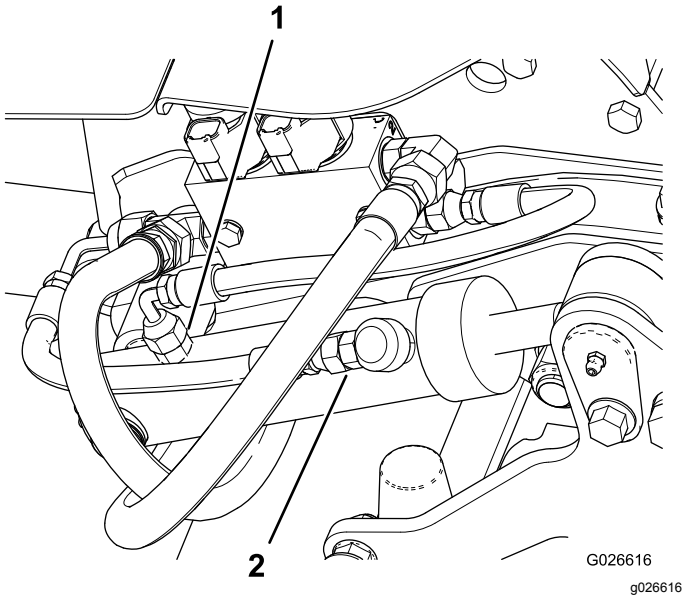

Figure 11

1. Rear port
2. Front port

3. Install the tee fitting as shown in Figure 12.

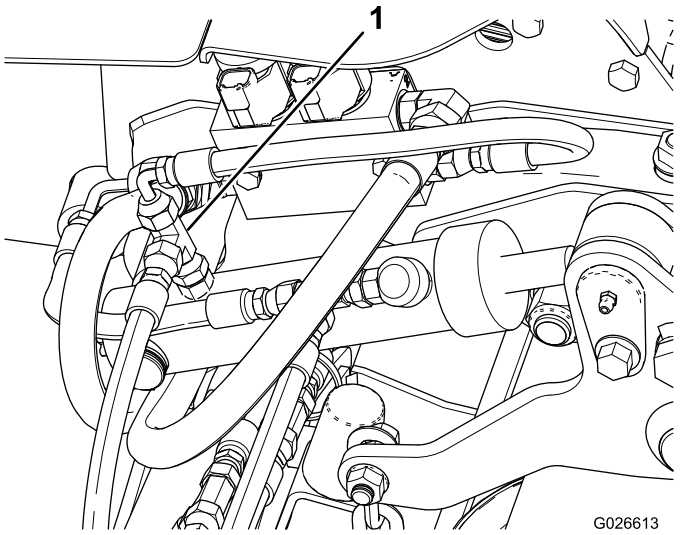

Figure 12

1. Tee fitting

4. Install the existing hose to the top of the tee fitting (Figure 12).
5. Install the short hose supplied in the kit to the outer port on the right wing-lift cylinder (Figure 13).

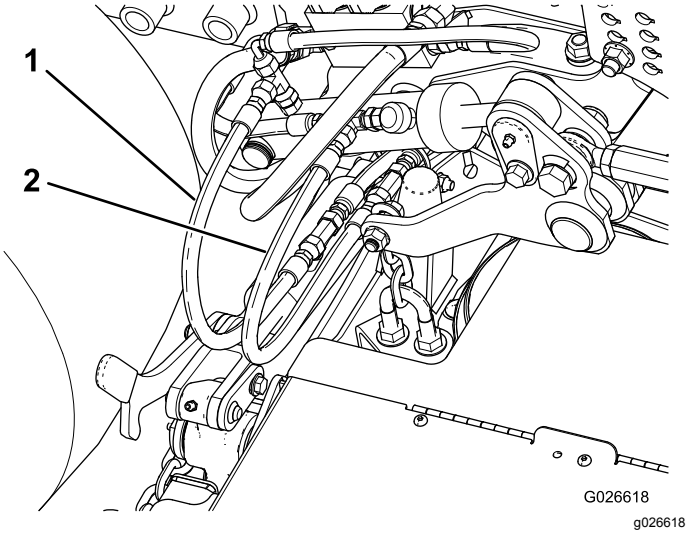

Figure 13

1. Short hose
2. Long hose

6. Install the other end of the short hose to the tee fitting on the rear port on the deck-lift cylinder (Figure 13).
7. Remove the hose from the front port of the deck-lift cylinder (Figure 11).
8. Install the tee fitting (Figure 14).

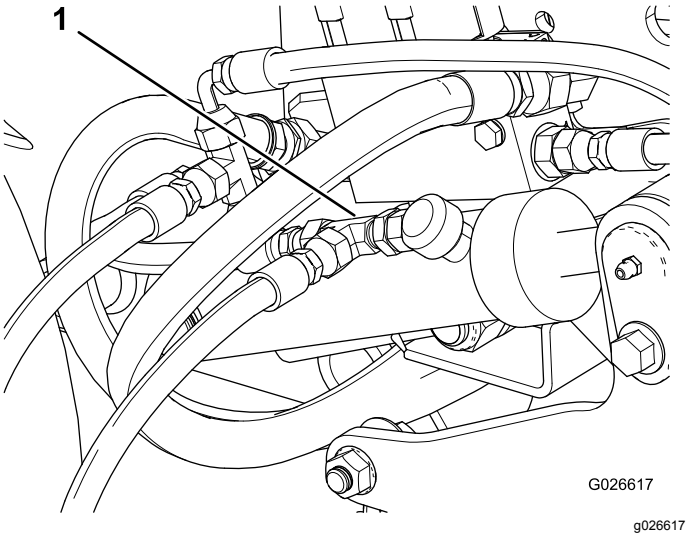

Figure 14

1. Tee fitting

9. Install the existing hose to the tee fitting.
10. Install the long hose supplied in the kit to the inboard port of the deck-lift cylinder.
11. Install the other end of the long hose to the tee fitting.

Removing the Front Rollers

1. Remove the hardware from the roller shafts (Figure 15).

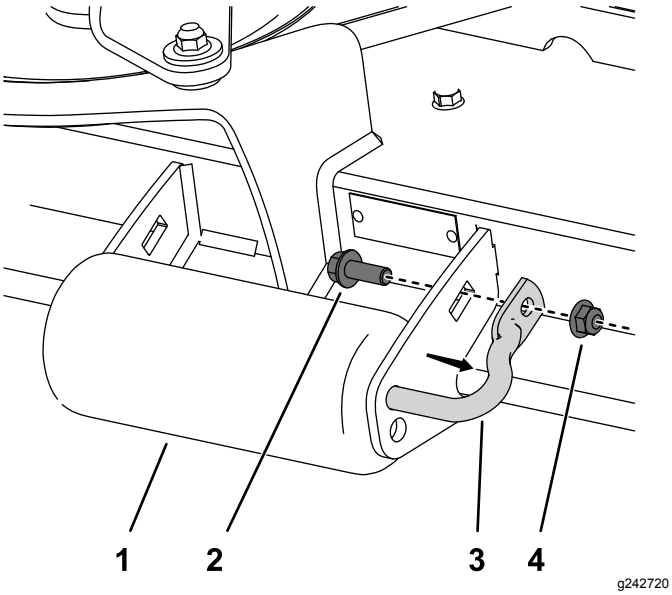

Figure 15

Center roller shown

1. Roller
2. Roller shaft bolt
3. Roller shaft
4. Roller shaft nut

2. Remove the 3 front rollers and roller shafts from the deck.

Mounting the Deck to the Machine

1. Remove the nuts securing the lift chain U-bolts to the underside of the deck (Figure 16).

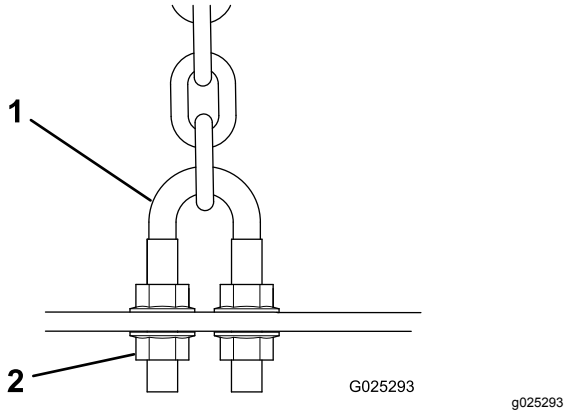

Figure 16

1. U-bolt
2. Nut

2. Remove 1 of the top nuts from the U-bolts, install a lift chain onto each U-bolt, and then install the top nuts.
3. Install the U-bolts to the deck with the nuts previously removed (Figure 16).
4. Slide the new deck under the carrier frame of the machine.

   Note: Use a jackstand to elevate the front of the machine to slide the new deck under the carrier frame of the machine.
5. Connect the end yoke of the PTO driveshaft to the deck gearbox as follows:
   A. Align the spline and the roll pin holes of the driveshaft yoke with the gearbox shaft.
   B. Slide the PTO driveshaft end yoke onto the gearbox shaft.
   C. Secure the end yoke of the PTO driveshaft to the gearbox shaft with the roll pin (Figure 3).
   D. Tighten the locknuts to secure the end yoke to the gearbox shaft (Figure 3), and torque the locknuts to 20 to 25 N·m (15 to 18 ft-lb).
6. Remove and install the rear deck-lift chains to the lift brackets as follows:

   Note: When installing the rear lift chains to the lift brackets, use the second link from the top. This provides the recommended rake for the deck.
   A. Secure the right, rear lift chain to the **inboard** side of the lift bracket with a bolt and 2 nuts (Figure 17).

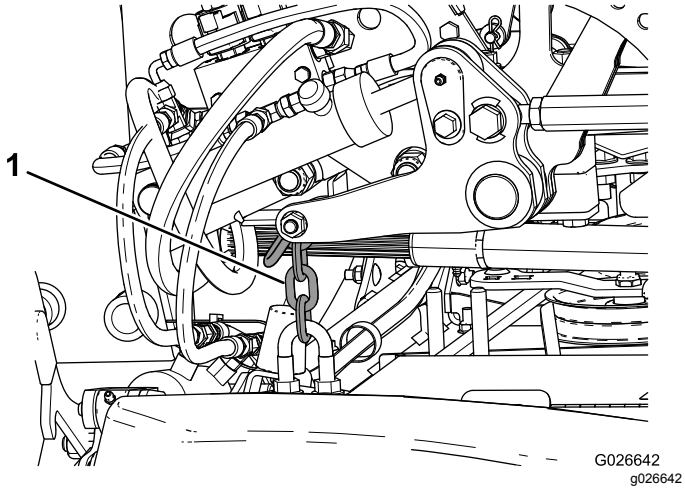

Figure 17

1. Right, rear lift chain

B. Secure the left, rear lift chain to the **outboard** side of the lift bracket with a bolt and 2 nuts (Figure 18).

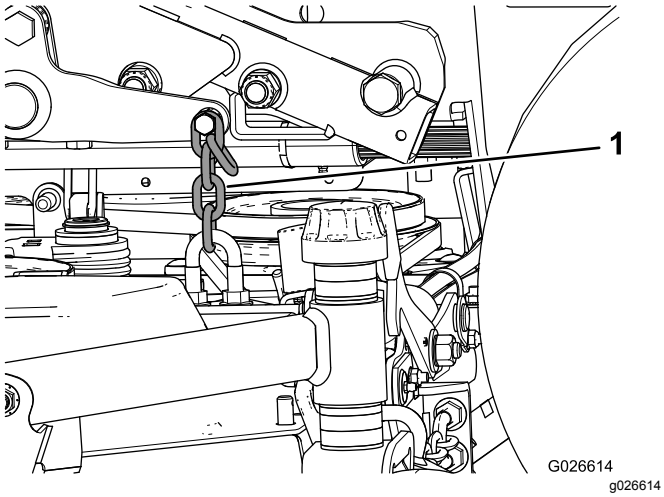

Figure 18

1. Left, rear lift chain

C. Using the top chain links, secure the front, lift chains to the **outboard** side of the lift brackets.

Connecting the Pull Links to the Machine

⚠ CAUTION

The pull-link torsion springs may cause some rotation of the pull links during installation, which could pinch you and result in injury.

Be careful when connecting the pull links to the machine.

1. Start the engine and fully raise the deck. Shut off the engine and remove the key from the ignition switch.

   Note: Place a wood block or similar shim under each link to hold it in the raised position (Figure 19).

2. Align the pull link to the carrier frame and attach the link with the retainer pin (Figure 19).

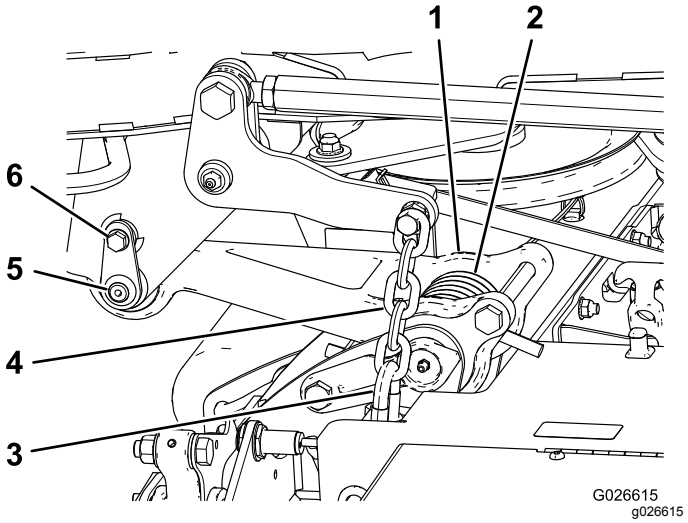

Figure 19

1. Pull link (deck raised)
2. Torsion spring
3. U-bolts
4. Deck-lift chain
5. Retainer pin
6. Shoulder screw

3. Secure the retainer pin to the frame with the shoulder screw (Figure 19).
4. Slightly raise the front of the machine to remove the wood block or similar shim from under each pull link.

Installing the Deck Wire Harness

1. Disconnect the battery cables from the battery posts.

   Important: **Disconnect the negative cable form the battery post before disconnecting the positive cable.**

2. Locate the fuse block (Figure 20).

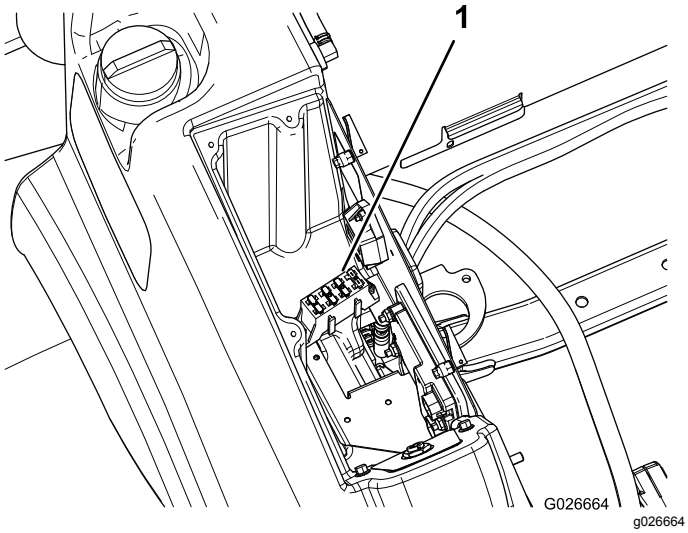

Figure 20

1. Fuse block

3. Install the new deck wire harness as follows:

   A. Attach the red wire to an available connector on the fuse block.

   Note: If there is not an available connector on the fuse block, install the additional fuse block (Figure 21). The extra fuse block, a fuse, and mounting nuts and bolts are included in the loose parts.

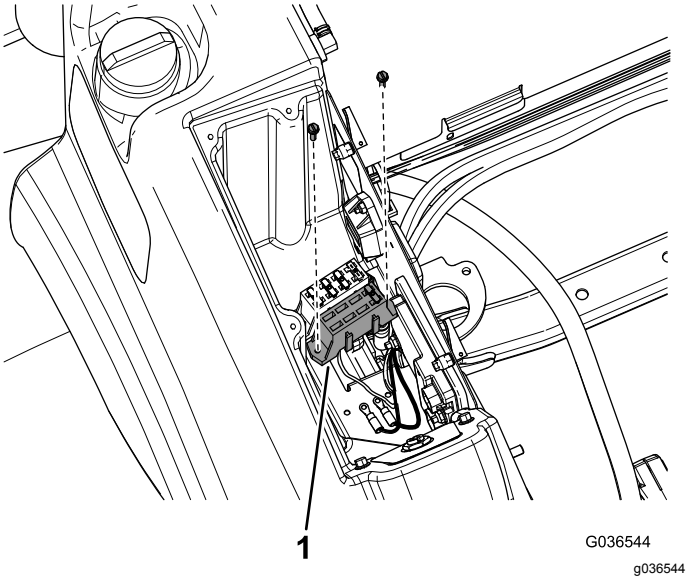

Figure 21

1. New fuse block

   B. Install the ground block in the location shown in Figure 22.

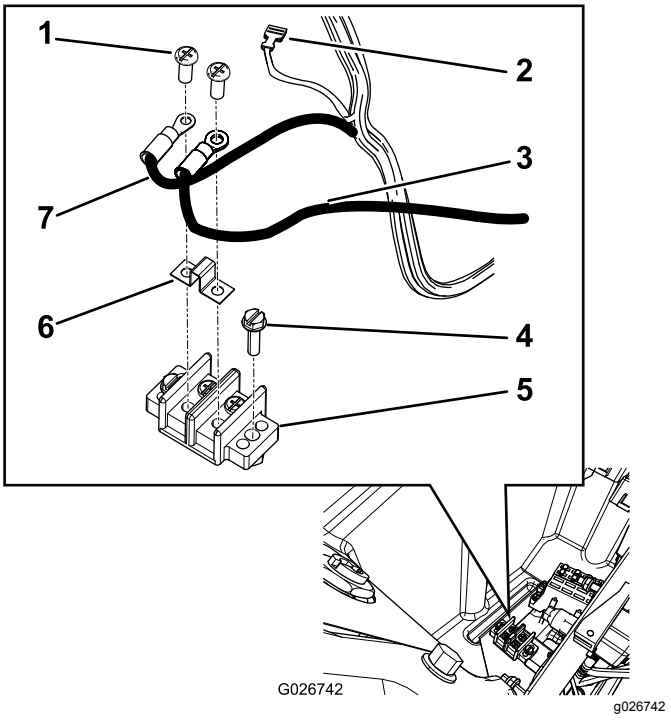

Figure 22

1. Terminal screw
2. Red wire
3. Black wire (main harness)
4. Mounting screw
5. Ground block
6. Jumper strip
7. Black wire (kit harness)

   C. Remove the terminal screws and install the jumper strip to the ground block as shown in Figure 22.

D. Locate the black wire in the main deck harness and attach it to 1 side of the jumper strip on the ground block (Figure 22).

E. Attach the black wire in the deck harness to the other side of the jumper strip (Figure 22).

Note: Leave the deck wire harness connectors unplugged. Perform this after you connect the relays to the relay bracket in 5 Installing the Timer (page 13).

4. Unplug the connectors at the front of the transmission near the oil filter (Figure 23).

5. Route the deck wire harness to the transmission (Figure 24) and plug the deck harness and lift-delay harness into the transmission connectors; refer to B of Figure 23.

Note: Wait to route the remaining lift-delay harness until you install the timer.

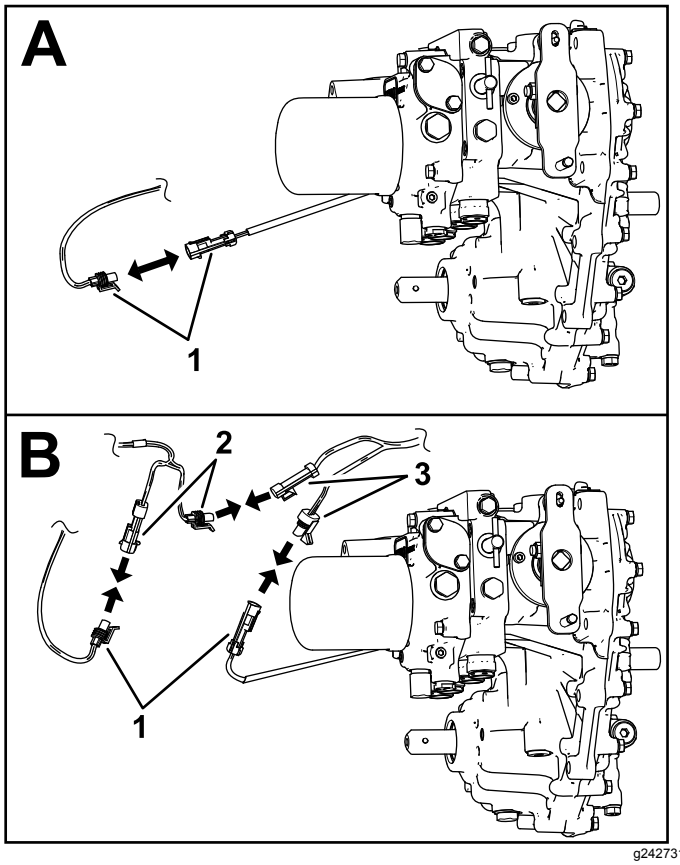

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Figure 23

1. Transmission connectors
2. Deck harness connectors
3. Lift-delay harness connectors

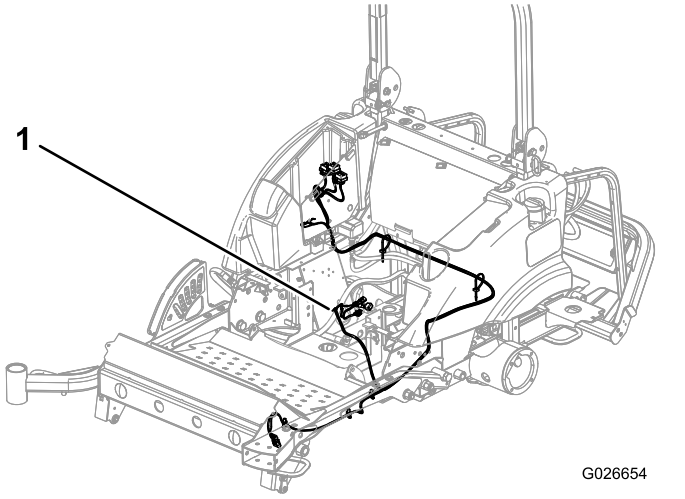

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Figure 24

1. Deck wire harness

6. Route the remaining length of the deck wire harness to the left side of the machine, under the floor and toward the front of the machine.

7. Plug the deck wire harness connector into the harness on the front of the center deck.

8. Secure the deck wire harness to the existing harness with cable ties.

Important: **Secure the excess deck wire harness away from any hot, sharp, or moving parts.**

9. Plug the shunt wire harness into the deck wire harness as shown in Figure 25.

Note: Use the shunt wire harness only when the decks are removed from the machine.

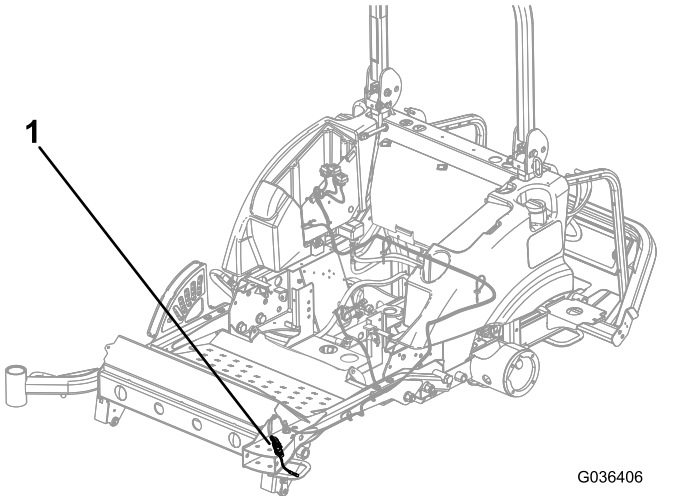

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Figure 25

1. Shunt wire harness

5

Installing the Timer

Parts needed for this procedure:

1	Relay bracket (with timer installed)
5	Relay
2	Bolt (10-24 x 0.56 inch)
2	Locknut
1	Lift-delay wire harness

Procedure

Note: This timer sets a 3 to 4 second delay which disables the user from raising the deck before the blades stop.

Important: **Ensure that the battery is disconnected before starting this procedure.**

1. Install the 5 relays onto the relay bracket with 2 bolts (10-24 x 0.56 inch) and 2 locknuts (Figure 26).

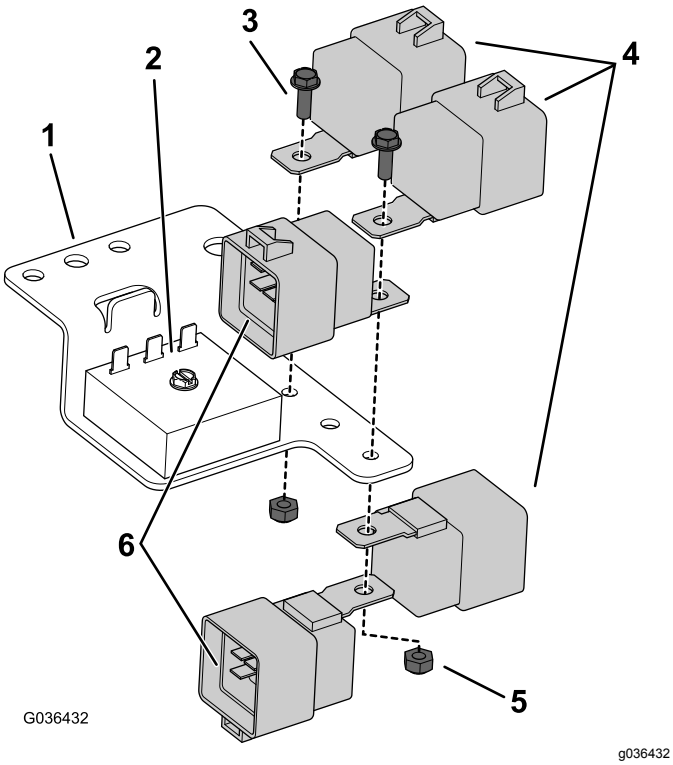

Figure 26

1. Relay bracket
2. Timer
3. Bolt (10-24 x 0.56 inch) (2)
4. Relay (for the 3 deck harness connectors)
5. Locknut (2)
6. Relay (for the 2 lift-delay harness connectors)

2. Install the relay bracket on the underside of the tank support and bracket with the existing bolt and nut (Figure 27).

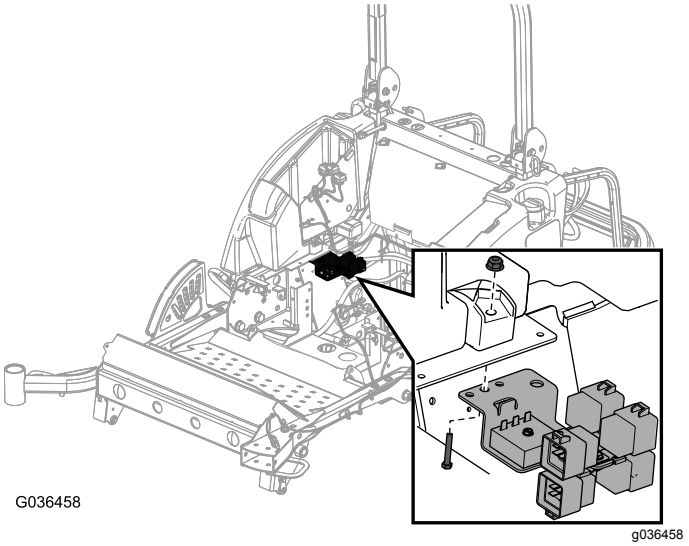

Figure 27

3. Install the lift-delay wire harness as follows:
   A. Attach the red wire to an available connector on the fuse block.

      Note: If there is not an available connector on the fuse block, install the additional fuse block (Figure 28). The extra fuse block, a fuse, and mounting nuts and bolts are included in the loose parts.

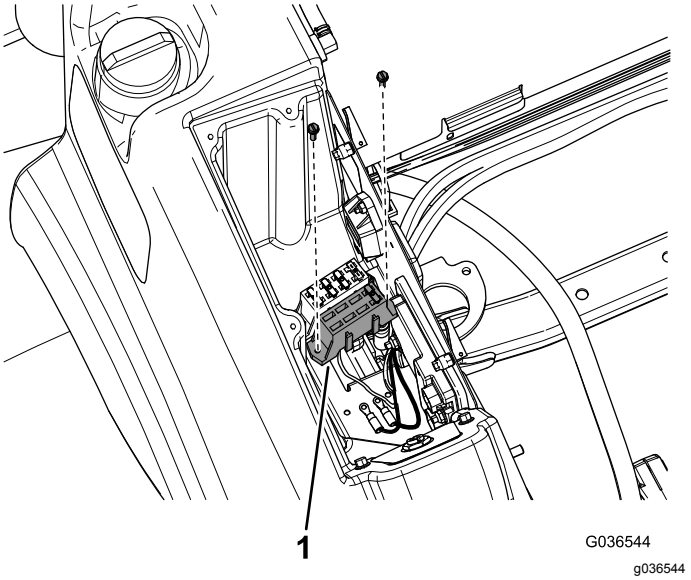

Figure 28

1. New fuse block

   B. Attach the black wire to the nearby ground block (Figure 29).

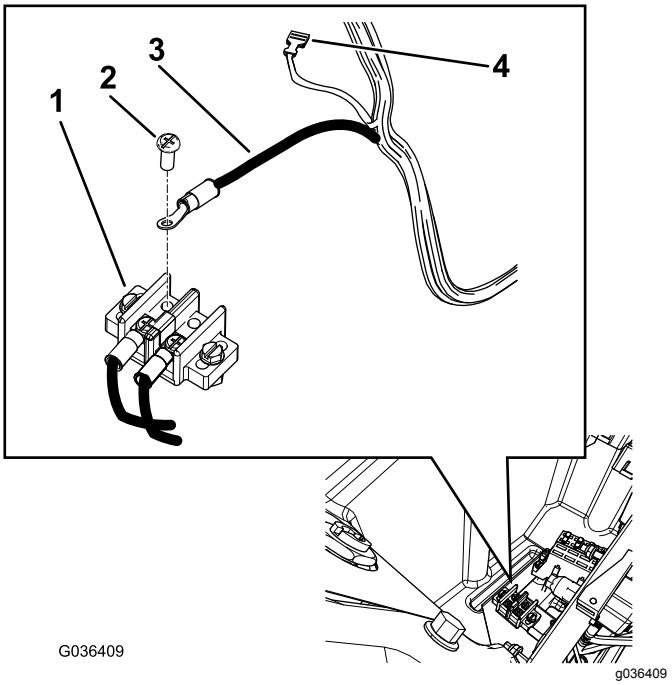

Figure 29

1. Ground block
2. Terminal screw
3. Black wire
4. Red wire

C. Route the lift-delay harness toward the previously installed relay bracket and plug the 3 timer connectors into the timer (Figure 30).

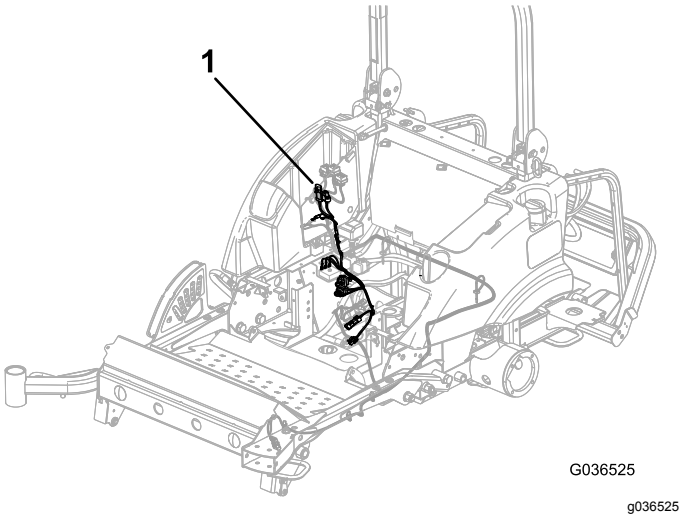

Figure 30

1. Lift-delay wire harness

D. Plug the 3 deck wire harness connectors and 2 lift-delay wire harness connectors into the 5 relays previously mounted on the relay bracket. Refer to Figure 26 for the correct orientation.

E. Plug the remaining lift-delay wire harness connectors into the deck-lift switch harness and the PTO valve.

Important: **Secure the excess harness away from any hot, sharp, or moving parts.**

6

Installing the Right Fender

Parts needed for this procedure:

1	Fender mount
1	Right fender
2	Thread-forming screw (5/16 x 5/8 inch)
2	Bolt (1/4 x 5/8 inch)
2	Nut (1/4 inch)

Procedure

1. Position a suitable floor jack under the rear bumper tube and raise the rear tires off the ground (Figure 31).

   Note: Position the jack stands under the rear bumper.

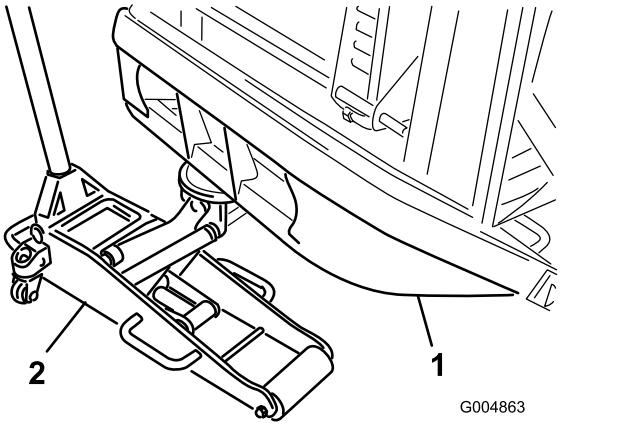

Figure 31

1. Rear bumper tube
2. Floor jack

2. Remove the rear wheels.
3. Remove all debris from the wheel-well area, including any debris caught in the brake assembly.
4. Remove the bolt securing the hose clamp to the frame channel on the right side of the machine (Figure 32).

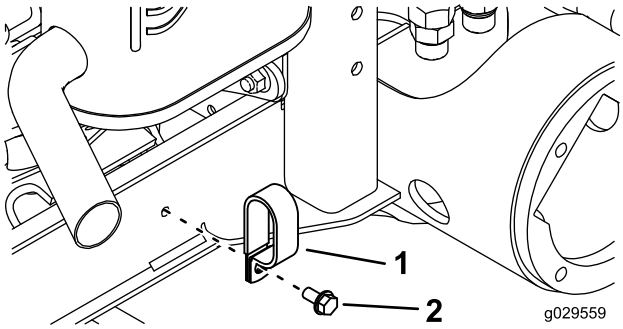

Figure 32

1. Hose clamp
2. Bolt

5. Insert the bottom of the hose clamp through the slot in the top of the fender mount (Figure 33).

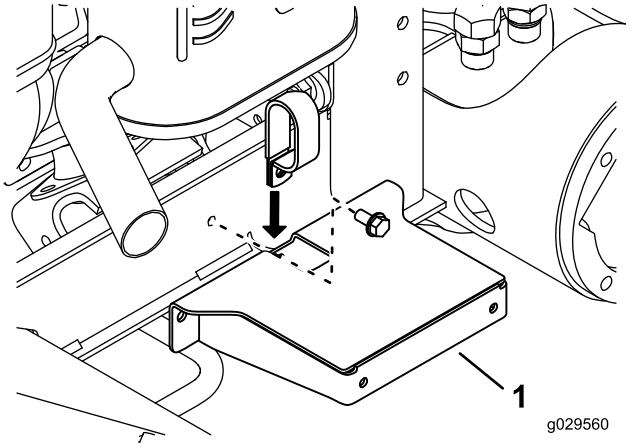

Figure 33

1. Fender mount

6. Loosely mount the hose clamp and fender mount to the frame channel with the bolt previously removed.
7. Position the frame mount horizontally on the frame channel.
8. Use the frame mount as a template to locate and mark the other 2 fender mounting holes in the frame channel (Figure 34).

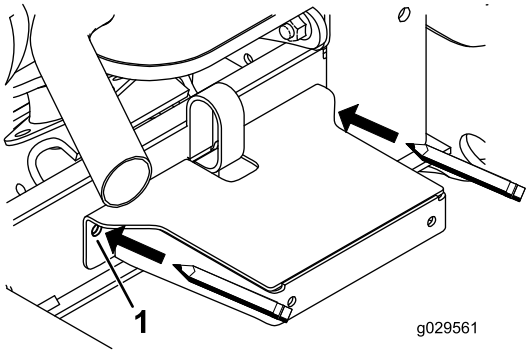

Figure 34

1. Mark here

9. Remove the bolt and nut securing the clamp and fender mount to the frame.

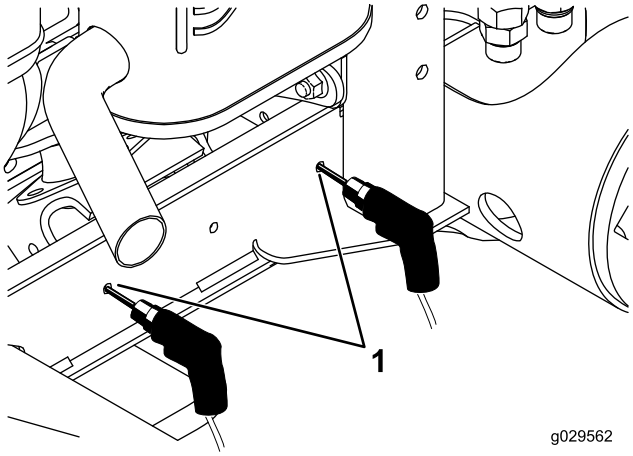

Figure 35

1. Drill here

10. At the locations that you marked in step 8, drill 2 holes (0.281-inch diameter) through the frame channel (Figure 35).
11. Loosely mount the hose clamp and fender mount to the frame channel with the hose clamp, bolt, and nut (see Figure 33).
12. Using the newly drilled holes, secure the fender mount to the frame channel with 2 thread-forming screws (5/16 x 5/8 inch) as shown in Figure 36.

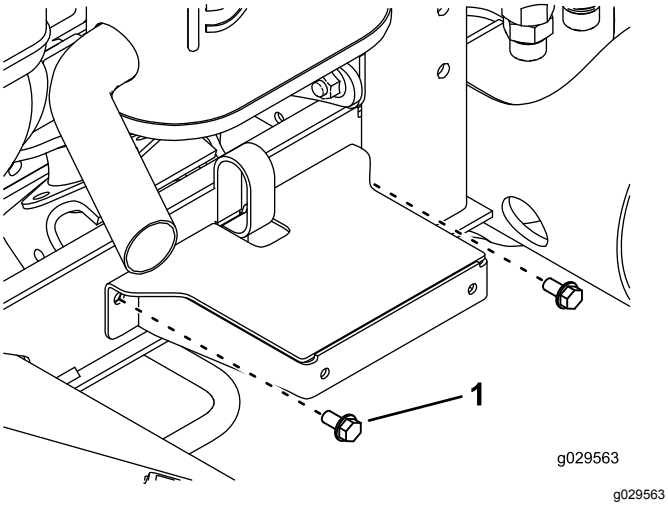

Figure 36

1. Thread-forming screw (5/16 x 5/8 inch)

13. Tighten all the fasteners.
14. Loosely mount the side of the right fender to the fender mount with 2 bolts (1/4 x 5/8 inch) and 2 nuts (1/4 inch) as shown in Figure 37.

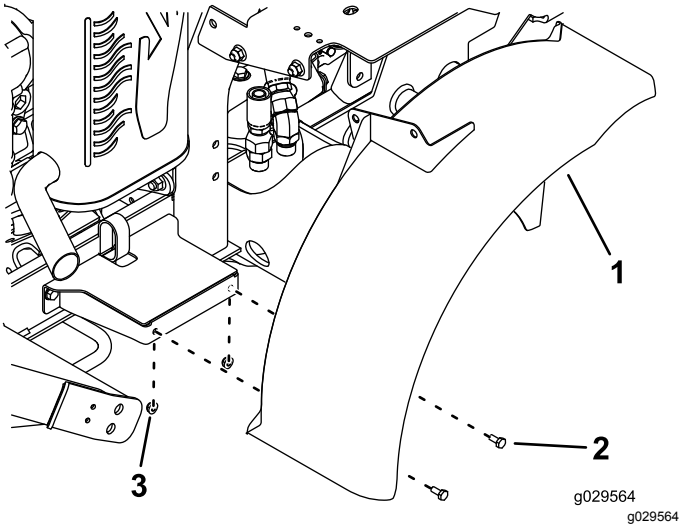

Figure 37

1. Right fender
2. Bolt (1/4 x 5/8 inch)
3. Nut (1/4 inch)

15. Loosely mount the bracket, on the top of the fender, to the fuel-tank bracket with 2 bolts (3/8 x 3/4 inch) and 2 nuts (3/8 inch) as shown in Figure 37.

Note: Make sure that the fender is not rubbing on the brake rotor and tighten the fasteners.

7

Installing the Left Fender

Parts needed for this procedure:

1	Left fender
2	Nut (3/8 inch)
2	Bolt (3/8 x 3/4 inch)

Procedure

1. Disconnect the cable from the negative terminal of the battery.
2. Disconnect the cable from the positive terminal of the battery.
3. Remove the carriage bolt, washer, battery hold-down, and nut securing the battery (Figure 38).

Note: Retain the hold-down and the fasteners.

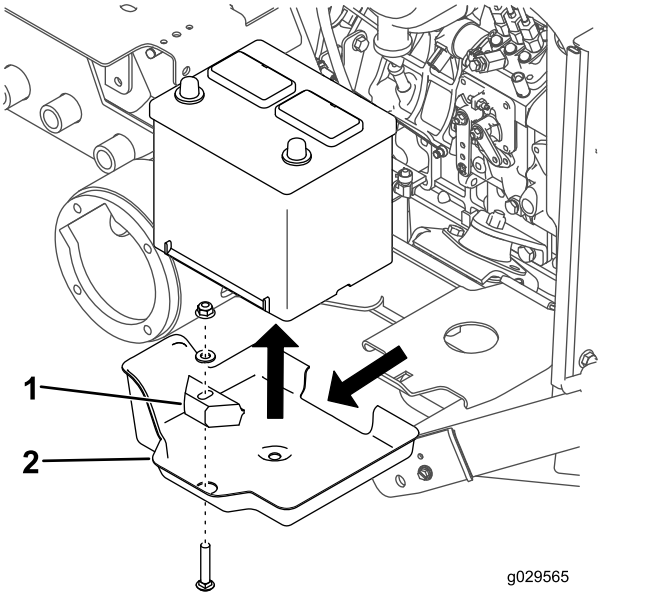

Figure 38

1. Battery hold-down
2. Battery tray

4. Remove the battery from the battery tray (Figure 38).
5. Remove the battery tray from the battery platform (Figure 38).

Note: Discard the battery tray.

6. Loosely mount the bracket on the top of the left fender to the fuel-tank bracket with 2 bolts (3/8 x 3/4 inch) and 2 nuts (3/8 inch) as shown in Figure 39.

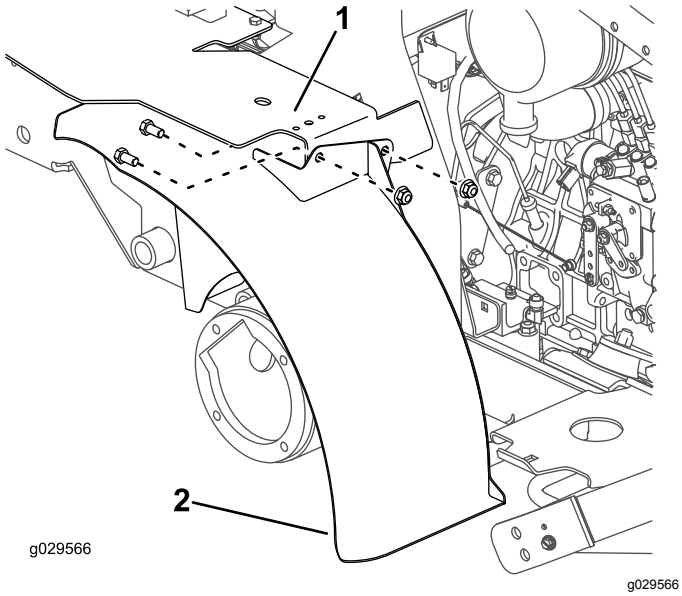

Figure 39

1. Fuel-tank bracket
2. Left fender

7. Position the battery onto the battery platform.
8. Loosely mount the battery to the battery platform with the carriage bolt, hold-down, washer, and nut that you previously removed (Figure 40).

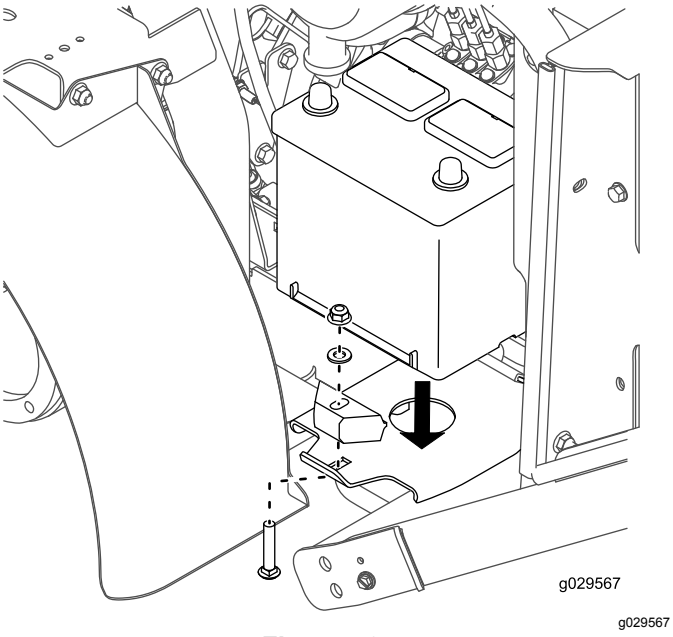

Figure 40

9. Tighten the fasteners.
10. Connect the positive battery cable to the battery, and then connect the negative battery cable to the battery.
11. Install the drive wheels.
12. Tighten the lug nuts to 102 to 115 N·m (75 to 85 ft-lb).
13. Remove the jack stands and lower the machine.

Note: Verify that the tires do not rub on the fenders when you drive the machine.

8

Completing the Installation

No Parts Required

Procedure

1. Install the height-of-cut pin into the height-of-cut bracket at the desired height of cut (Figure 41).

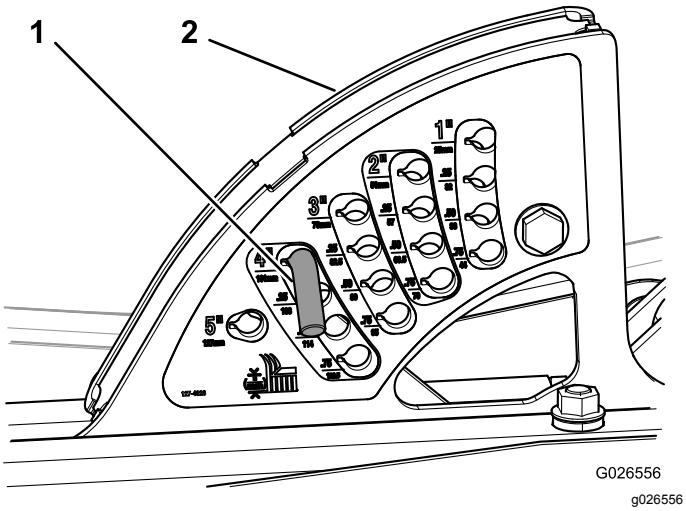

Figure 41

1. Height-of-cut pin
2. Height-of-cut bracket

2. Check the hydraulic-fluid level and replenish the fluid as required; refer to the machine *Operator's Manual*.
3. Level the cutting unit; refer to the cutting unit *Operator's Manual*.
4. Lubricate the cutting unit and the PTO driveshaft grease fittings; refer to the cutting unit *Operator's Manual* for the lubrication specifications.
5. Connect the battery cables.

   Important: **Connect the positive cable before connecting the negative cable.**

⚠ WARNING

CALIFORNIA
Proposition 65 Warning

Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. Wash hands after handling.

Count on it.