



North American Road Light Kit

Groundsmaster® 3200 or 3300 Series Traction Unit

Model No. 31991

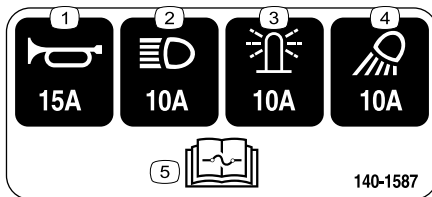
Installation Instructions

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 missing.



140-1587

decal140-1587

- | | |
|--------------------|--|
| 1. Horn—15 A | 4. Work lights—10 A |
| 2. Headlights—10 A | 5. Read the <i>Operator's Manual</i> for fuse information. |
| 3. Beacon—10 A | |

Installation

1

Preparing the Machine

No Parts Required

Procedure

1. Park the machine on a level surface.
2. Engage the parking brake.
3. Lower the cutting unit.
4. Shut off the engine and remove the key.
5. Disconnect the battery; refer to the electrical system maintenance section of your *Operator's Manual*.



2

Installing the Clips, Speed Nuts, and Fuse Block

Parts needed for this procedure:

1	Switch mount
6	Clip (1/4 inch)
2	Speed nut
1	Fuse mount plate
4	U-type speed nut
1	Fuse block
2	Screw (#10 x 3/4 inch)

Procedure

1. Install the 6 clips and 2 speed nuts to the switch mount (Figure 1).

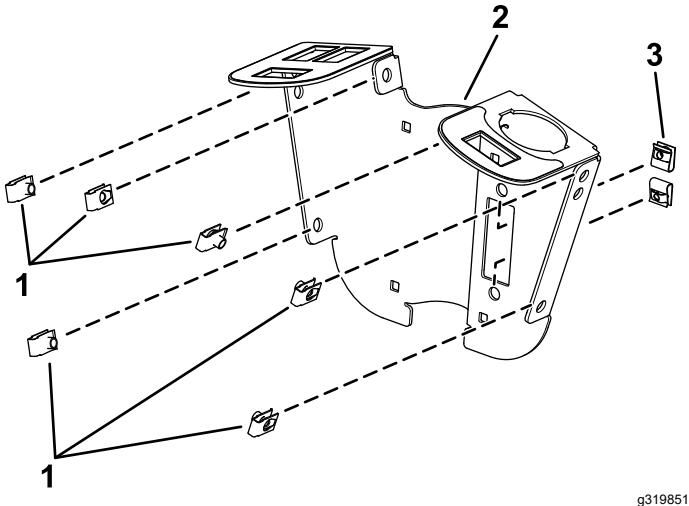


Figure 1

g319851

1. Clip
2. Switch mount
3. Speed nut

2. Install the U-type speed nuts to the fuse-mount plate (Figure 2).

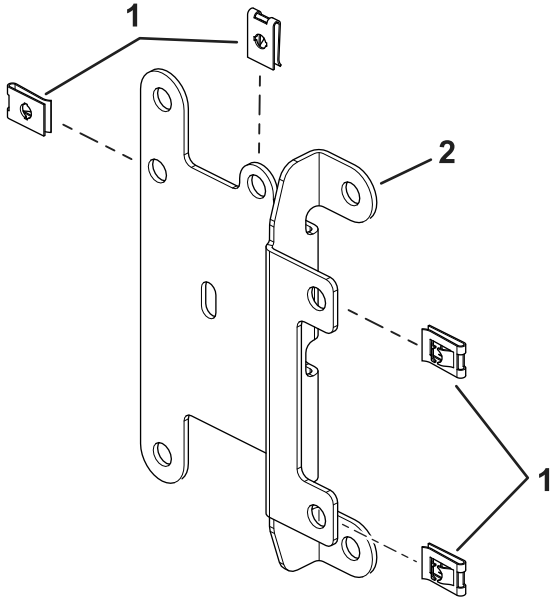


Figure 2

g304335

1. U-type speed nuts
2. Fuse-mount plate

3. Install the fuse block on the wire harness to the fuse-mount plate using 2 screws (#10 x 3/4 inch) as shown in Figure 3.

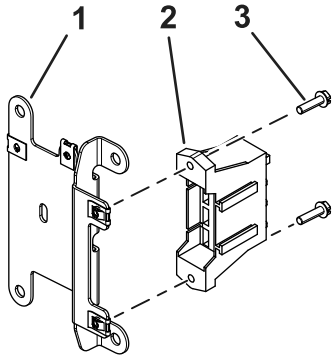


Figure 3

g304300

1. Fuse-mount plate
2. Fuse block
3. Screw (#10 x 3/4 inch)

3

Installing the Switch Mount

Parts needed for this procedure:

2	Mount bracket
4	Carriage bolt (1/4 x 2 inches)
2	Locknut (1/4 inch)
2	Hex-head screw (1/4 x 3/4 inch)
2	Flange nut (1/4 inch)
1	Flasher
1	Relay
1	Wire harness
2	Cable tie
1	Fuse cover
2	Thumb screw
2	Push nut
1	Decal
2	Screw (#10 x 3/8 inch)
1	Multi-function switch
3	Hole plug
1	Rocker switch
1	Control cover
6	Hex-head screw (1/4 x 3/4 inch)
2	Switch clip
2	Push rivet

Procedure

- Loosely install the switch mount around the steering column using 4 carriage bolts (1/4 x 2 inches), 2 mounting brackets, fuse-mount plate, and 4 locknuts (1/4 inch) as shown in [Figure 4](#).

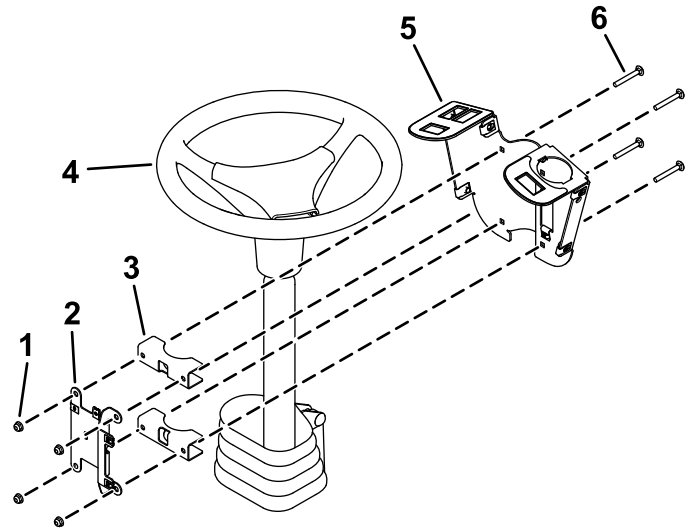


Figure 4

- Locknuts (1/4 inch)
- Fuse-mount plate
- Mounting brackets
- Steering column
- Switch mount
- Carriage bolt (1/4 x 2 inches)

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2. Install the multi-function switch to the switch mount and secure it using the switch clips under the hole for the switch ([Figure 5](#)).

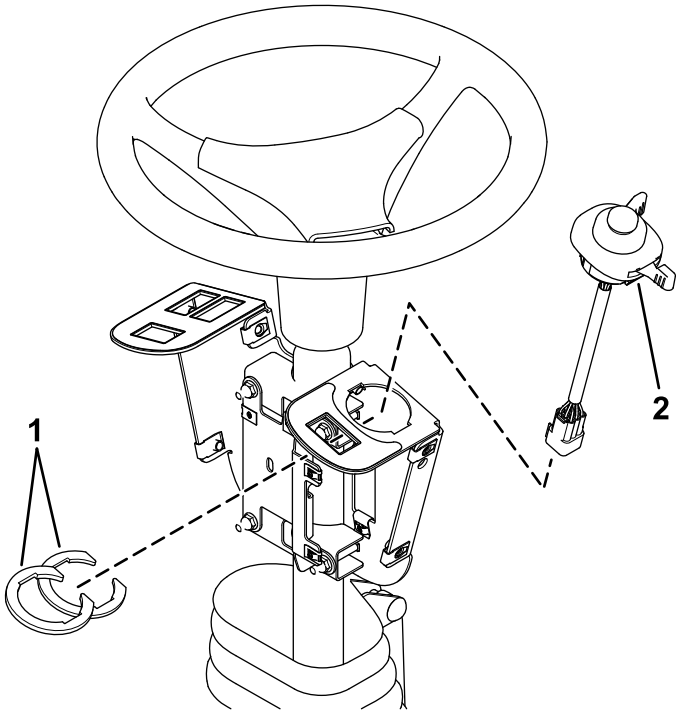


Figure 5

1. Switch clips
2. Multi-function switch

g319854

3. Install the rocker switch and hole plugs into the switch mount ([Figure 6](#)).

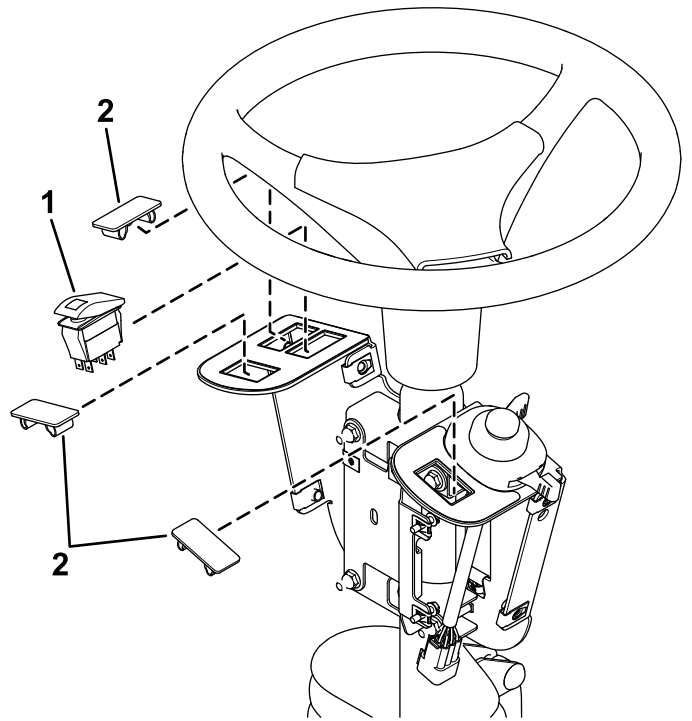


Figure 6

1. Rocker switch
2. Hole plug

g319855

4. Install the flasher and relay to the fuse-mount plate using 2 screws (#10 x 3/8 inch) as shown in [Figure 7](#).

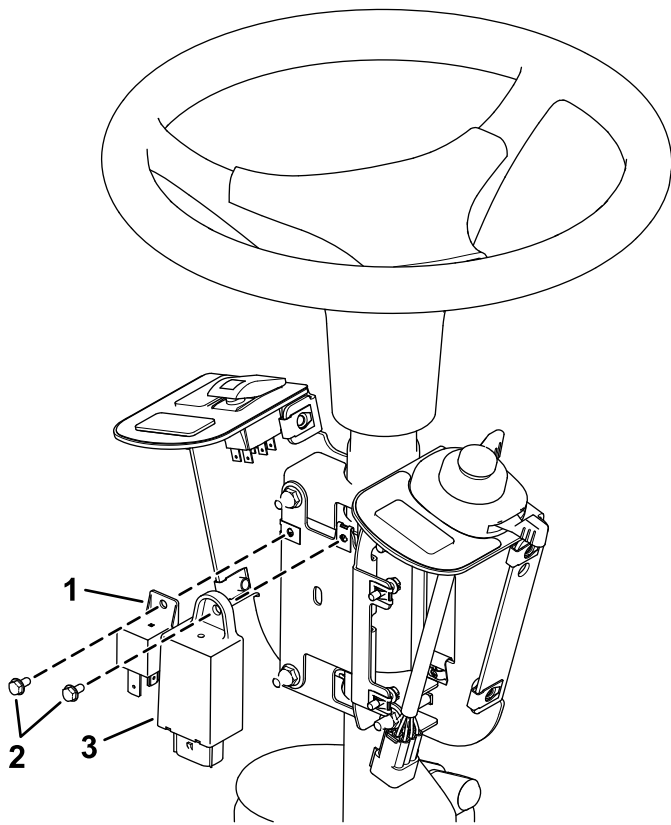


Figure 7

- 1. Relay
- 2. Screw (#10 x 3/8 inch)
- 3. Flasher

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- 5. Secure the flasher using a cable tie ([Figure 8](#)).
- 6. Plug the harness into the rocker switch and multi-function switch ([Figure 8](#)).

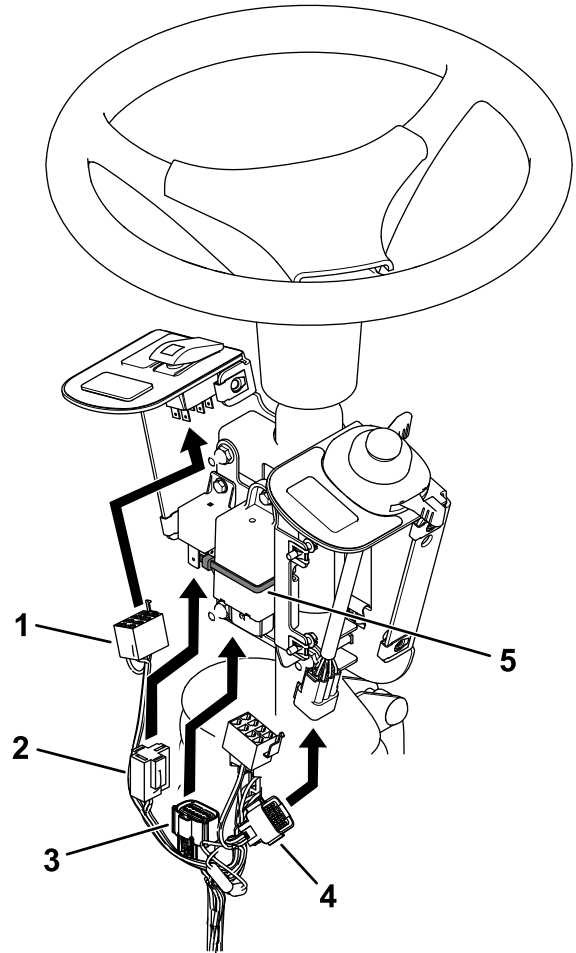


Figure 8

- 1. Rocker switch connector
- 2. Relay connector
- 3. Flasher connector
- 4. Switch connector
- 5. Cable tie

g319850

- 7. Plug the wire harness into the relay and flasher ([Figure 8](#)).
- 8. Loosen the bolts around the steering-column base ([Figure 9](#)).

- Raise the base up and drill a 22 mm (7/8 inch) hole as shown in [Figure 9](#).

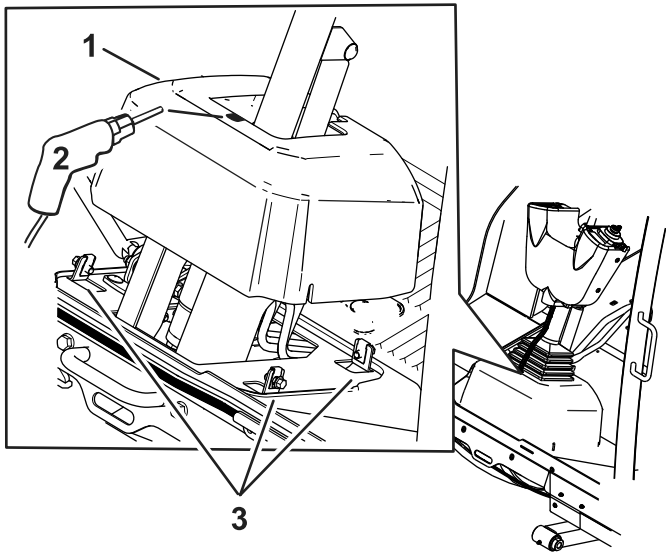


Figure 9

g304296

- Steering-column base

- Apply the decal to the fuse cover as shown in [Figure 11](#).

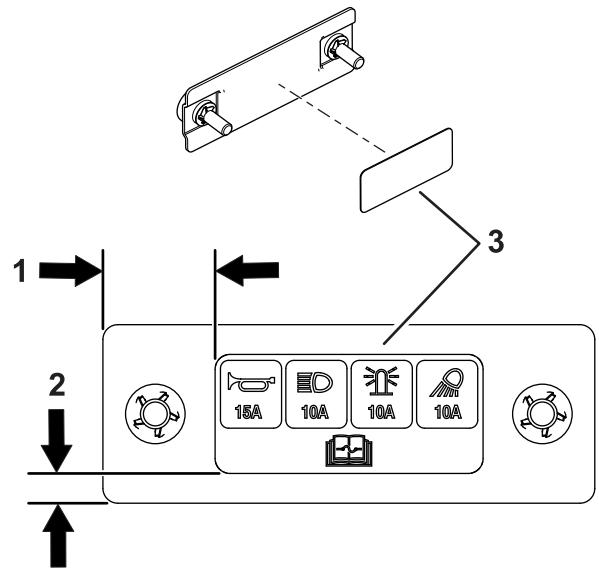


Figure 11

g304374

- 25 mm (1 inch)
- 6 mm (1/4 inch)
- Decal—inside of fuse cover

- Route the harness through the hole you drilled in the base.

- Connect the bullet connectors as shown in [Figure 10](#).

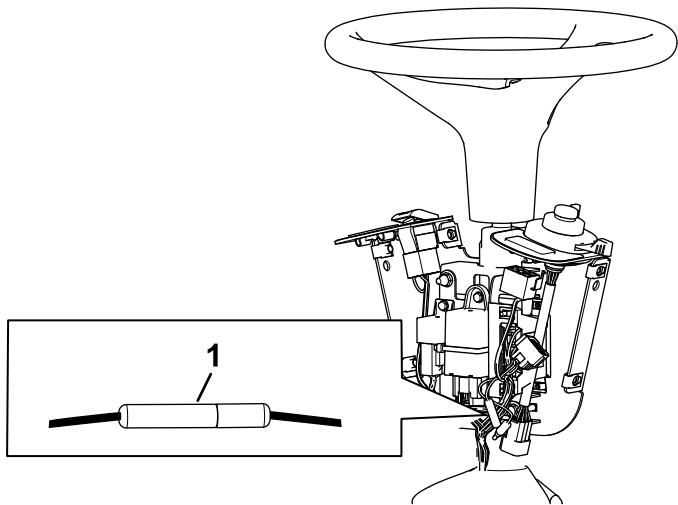


Figure 10

g334269

- Connected bullet connectors

- Install the fuse cover to the switch mount using 2 thumb screws and 2 push nuts ([Figure 12](#)).

Note: Ensure that the push nuts are installed on the inside of the fuse cover ([Figure 12](#)).

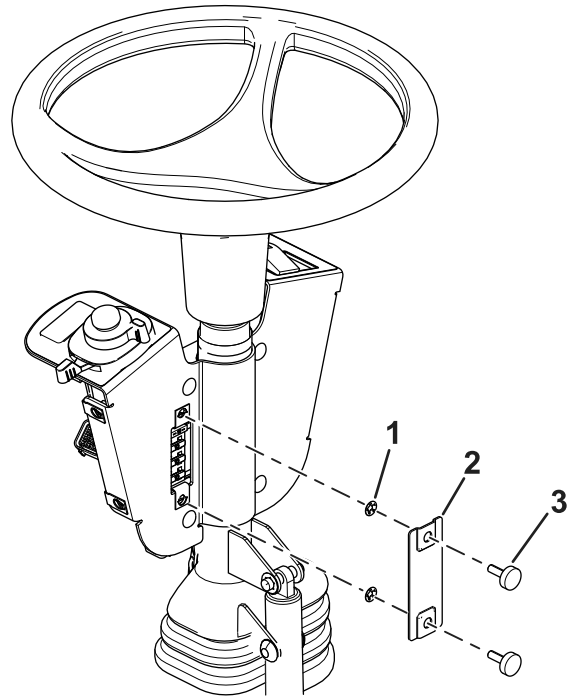


Figure 12

g304295

- Push nut
- Fuse cover
- Thumb screw

14. Adjust the control assembly so that the switches are accessible.
15. Tighten all the fasteners.
16. Install the control cover to the switch mount using 2 push rivets and 6 hex-head screws (1/4 x 3/4 inch) as shown in [Figure 13](#).

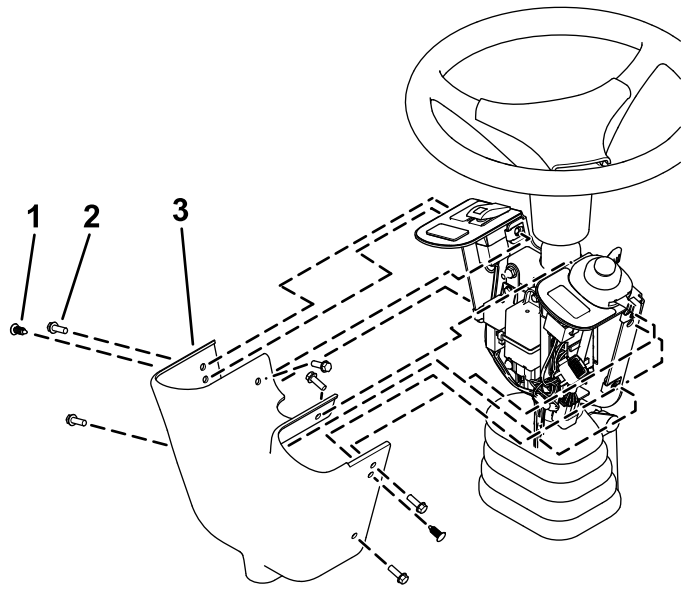


Figure 13

g319852

1. Push rivet
2. Hex-head screw
3. Control cover

4

Installing the Front Components

Parts needed for this procedure:

1	Left light base (for machines with a cab)
1	Right light base (for machines with a cab)
1	Left light mount (for machines with a cab)
1	Right light mount (for machines with a cab)
1	Left light assembly (for machines with a cab)
1	Right light assembly (for machines with a cab)
6	Button-head bolt (1/4 x 5/8 inch)—for machines with a cab
4	Carriage bolt (3/8 x 3/4 inch)—for machines with a cab
4	Locknut (3/8 inch)—for machines with a cab
1	Light cross mount (for machines without a cab)
2	Yellow reflective tape

For Machines with a Cab

1. Secure the left light base and right light base to the cab frame using 2 carriage bolts (3/8 x 3/4 inch) and 2 locknuts (3/8 inch) on each side ([Figure 14](#)).

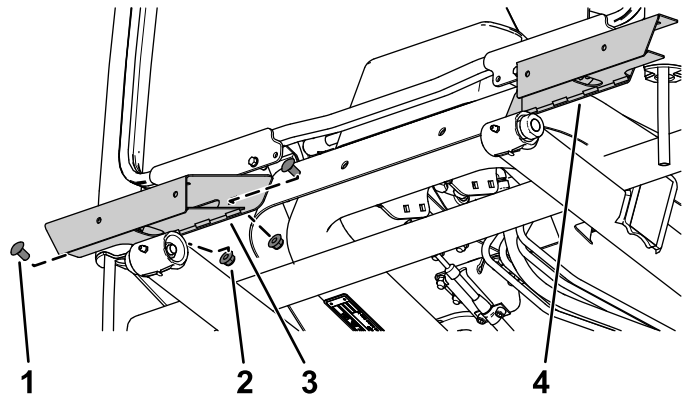


Figure 14

g303644

1. Carriage bolt (3/8 x 3/4 inch)
2. Locknut (3/8 inch)
3. Right light base
4. Left light base

- Secure the left light mount and right light mount to the light bases using 3 button-head bolts (1/4 x 5/8 inch) through the speed nuts on each side (Figure 15).

Note: Ensure that you install the left light mount and right light in the most narrow mounting position.

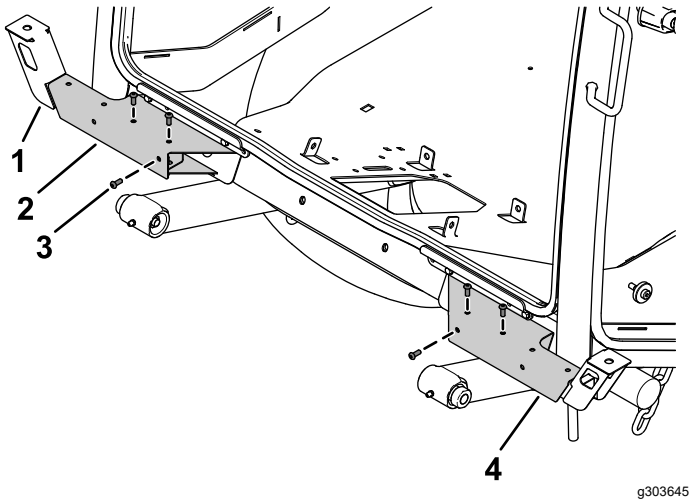


Figure 15

- | | |
|----------------------|--------------------------------------|
| 1. Light base | 3. Button-head bolt (1/4 x 5/8 inch) |
| 2. Right light mount | 4. Left light mount |

- Secure the left light assembly and right light assembly to the left light mount and right light mount using the hex nut on the light assemblies (Figure 16).

Note: Install the lights with the low beam toward the outer edge of the machine.

Look at the bottom of the lights for high beam and low beam orientation.

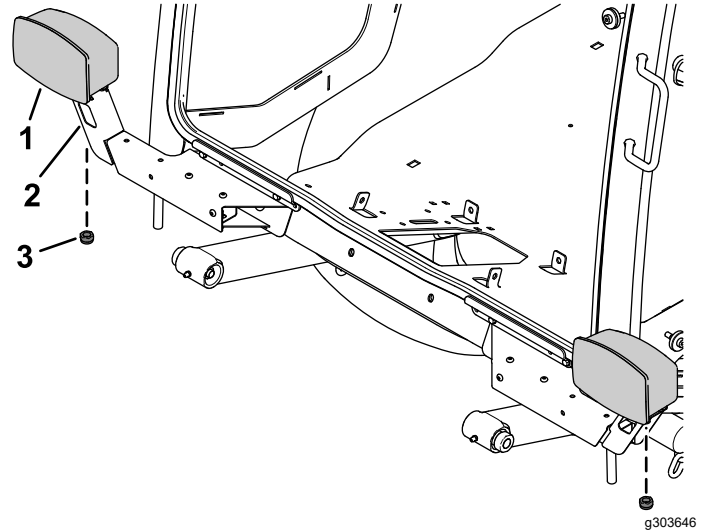


Figure 16

- | | |
|-------------------|------------|
| 1. Light assembly | 3. Hex nut |
| 2. Light mount | |

- Apply the yellow reflective tape to the left light base and right light base using the dimensions shown in Figure 17.



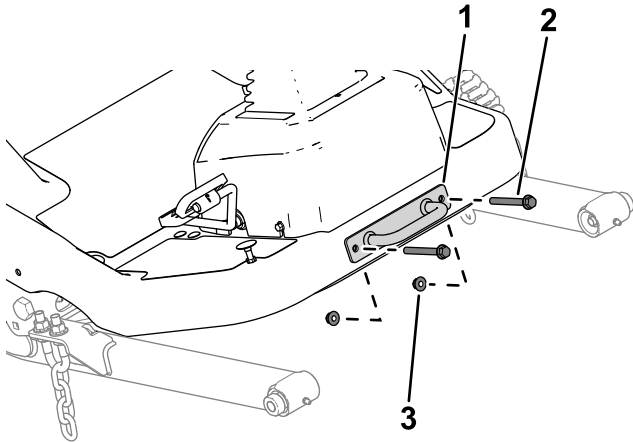
Figure 17

- 14.25 to 14.86 cm (5-5/8 to 5-7/8 inches)

For Machines without a Cab

1. Remove the tie-down bracket from the platform (Figure 18).

Retain the parts.

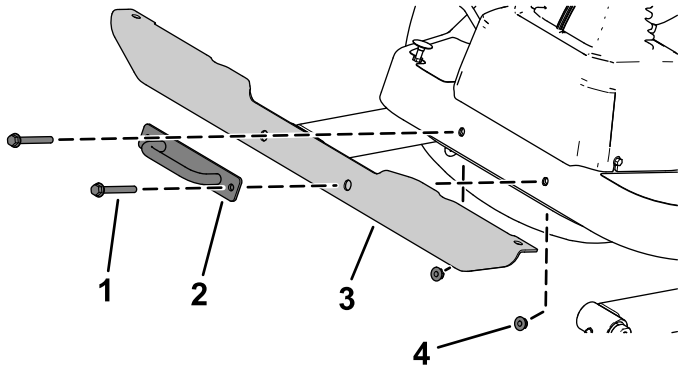


g299562

Figure 18

- | | |
|---------------------|--------|
| 1. Tie-down bracket | 3. Nut |
| 2. Bolt | |

2. Secure the light cross mount to the platform using the previously removed bolts, nuts, and tie-down bracket (Figure 19).



g303700

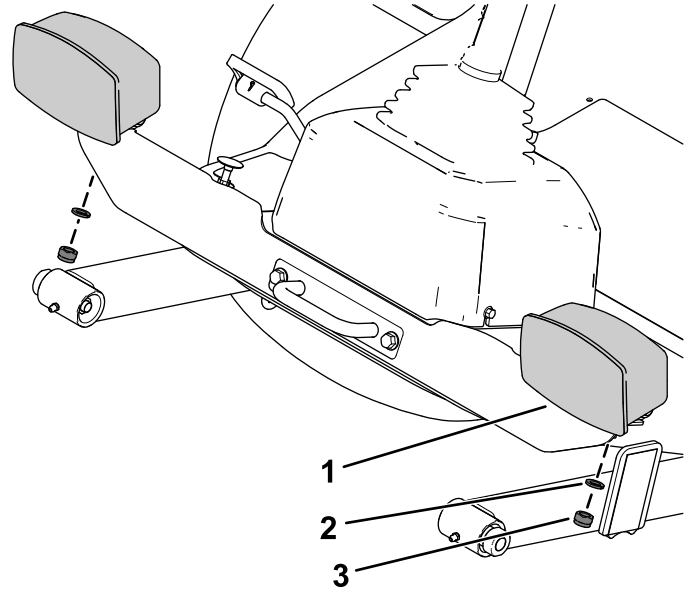
Figure 19

- | | |
|---------------------|----------------------|
| 1. Bolt | 3. Light cross mount |
| 2. Tie-down bracket | 4. Nut |

3. Secure the left light assembly and right light assembly to the light cross mount using the lock washer and hex nut on the light assemblies (Figure 20).

Note: Install the lights with the low beam toward the outer edge of the machine.

Look at the bottom of the lights for high beam and low beam orientation.

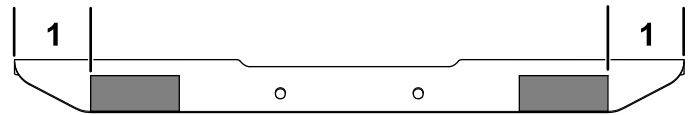


g303701

Figure 20

- | | |
|-------------------|------------|
| 1. Light assembly | 3. Hex nut |
| 2. Lock washer | |

4. Apply the yellow reflective tape to the light cross mount using the dimensions shown in Figure 21.



g303699

Figure 21

1. 9.5 to 10.1 cm (3-3/4 to 4 inches)

5

Installing the Rear Components

Parts needed for this procedure:

1	Left mount
1	Right mount
1	Left short mount
1	Right short mount
4	Carriage bolt (5/16 x 3/4 inch)
4	Flange nut (5/16 inch)
4	Carriage bolt (1/4 x 5/8 inch)
11	Locknut (1/4 inch)
4	Hex-head bolt (3/8 x 3 inches)
4	Locknut (3/8 inch)
4	Red reflective tape
1	Marker mount
2	Back mount
1	Slow-moving vehicle sign
3	Flat washer
7	Flange-head bolt (1/4 x 3/4 inch)
1	Left light housing
1	Right light housing

Procedure

1. Remove the flange-head bolt (3/8 x 2-3/4 inches) and flange nut (3/8 inch) securing the bumper to the rear tube frame on each side of the bumper (Figure 22).

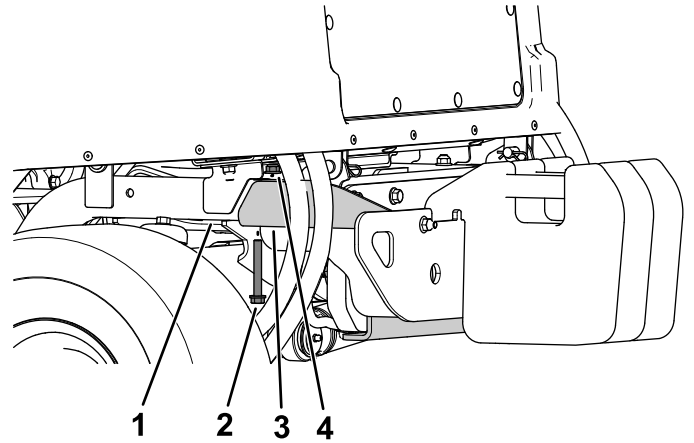


Figure 22

g303770

1. Rear tube frame
2. Flange-head bolt (3/8 x 2-3/4 inches)
3. Bumper
4. Flange nut (3/8 inch)

2. Secure the left mount and right mount to rear frame tubes using 2 hex-head bolts (3/8 x 3 inches) and 2 locknuts (3/8 inch) on each side (Figure 23).

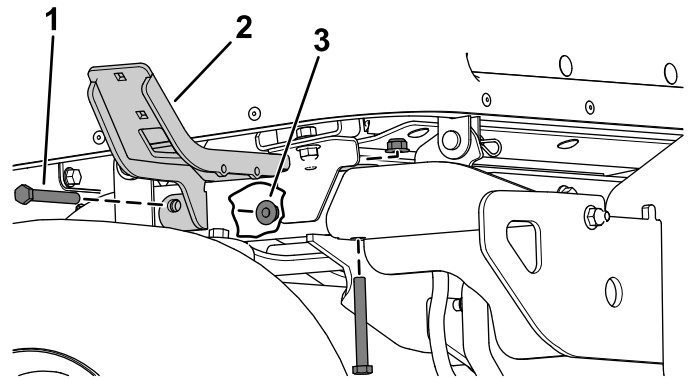


Figure 23

g304042

1. Hex-head bolt (3/8 x 3 inches)
2. Left mount
3. Locknut (3/8 inch)

- Secure the left short mount and right short mount to the left mount and right mount using 4 carriage bolts (5/16 x 3/4 inch) and 4 flange nuts (5/16 inch) as shown in [Figure 24](#).

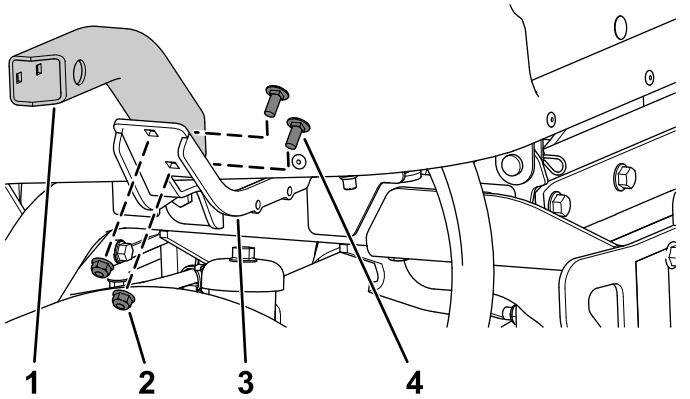


Figure 24

g304044

- | | |
|---------------------------|------------------------------------|
| 1. Left short mount | 3. Left mount |
| 2. Flange nut (5/16 inch) | 4. Carriage bolt (5/16 x 3/4 inch) |

- Secure the left light housing and right light housing to the left short mount and right short mount using 4 carriage bolts (1/4 x 5/8 inch) and 4 locknuts (1/4 inch) as shown in [Figure 25](#).

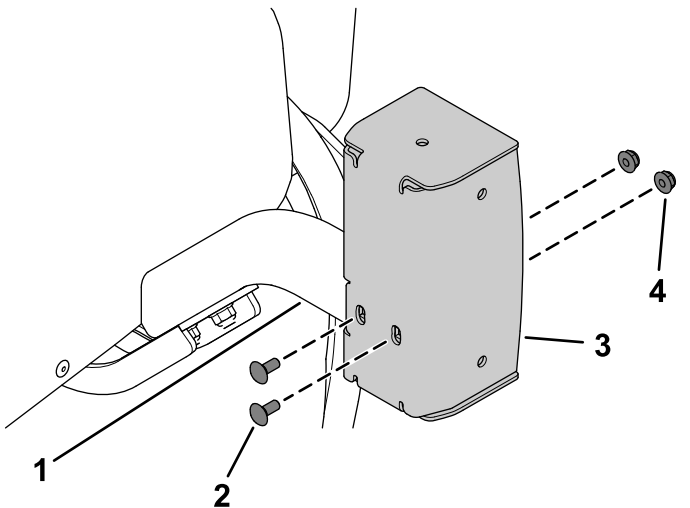


Figure 25

g319940

- | | |
|-----------------------------------|-----------------------|
| 1. Left short mount | 3. Left light housing |
| 2. Carriage bolt (1/4 x 5/8 inch) | 4. Locknut (1/4 inch) |

- Using the marker mount as the template, drill 3 holes (5/16 inch) into the slow-moving vehicle sign ([Figure 26](#)).

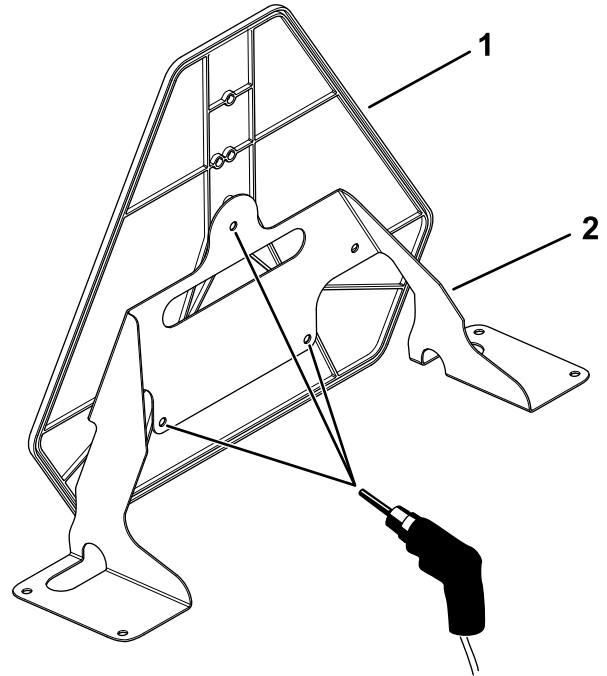


Figure 26

g304041

- | | |
|-----------------------------|-----------------|
| 1. Slow-moving vehicle sign | 2. Marker mount |
|-----------------------------|-----------------|

- Secure the slow-moving vehicle sign to the marker mount using 3 flange-head bolts (1/4 x 3/4 inch), 3 flat washers, and 3 locknuts (1/4 inch) as shown in [Figure 27](#).

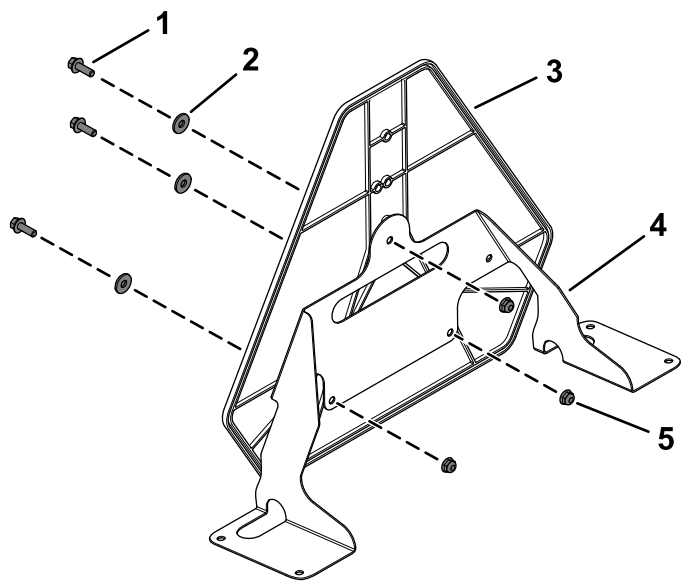


Figure 27

g304128

- | | |
|--------------------------------------|-----------------------|
| 1. Flange-head bolt (1/4 x 3/4 inch) | 4. Marker mount |
| 2. Flat washer | 5. Locknut (1/4 inch) |
| 3. Slow-moving vehicle sign | |

7. Remove the 4 plastic plugs shown in [Figure 28](#) from the hood.

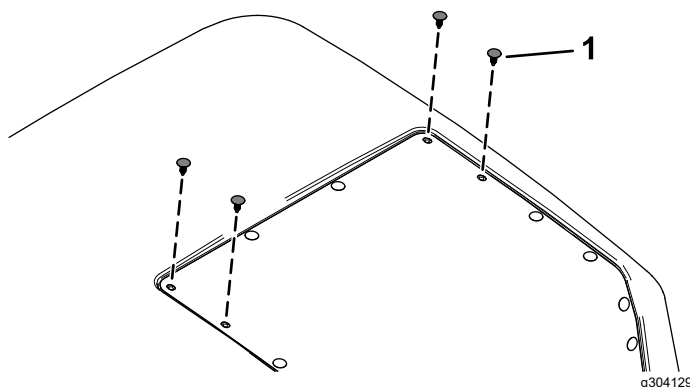


Figure 28

g304129

1. Plastic plug

8. Raise the hood ([Figure 29](#)).

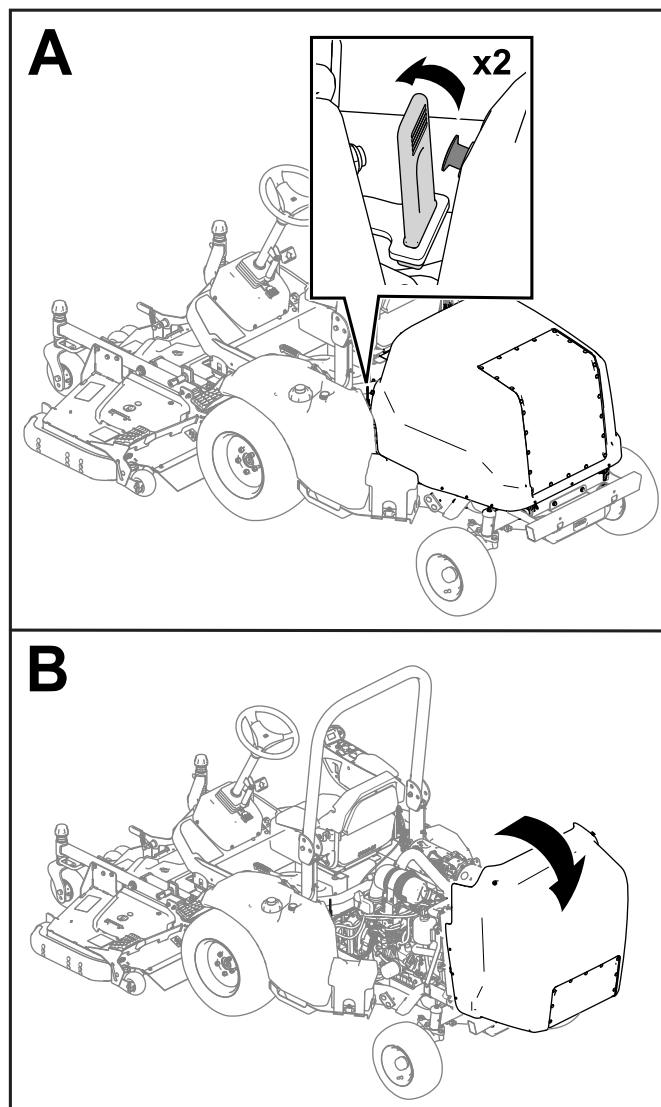


Figure 29

g285428

9. Secure the assembled slow-moving vehicle sign to the hood using 4 flange-head bolts (1/4 x 3/4 inch), 2 back mounts, and 4 locknuts (1/4 inch) as shown in Figure 30.

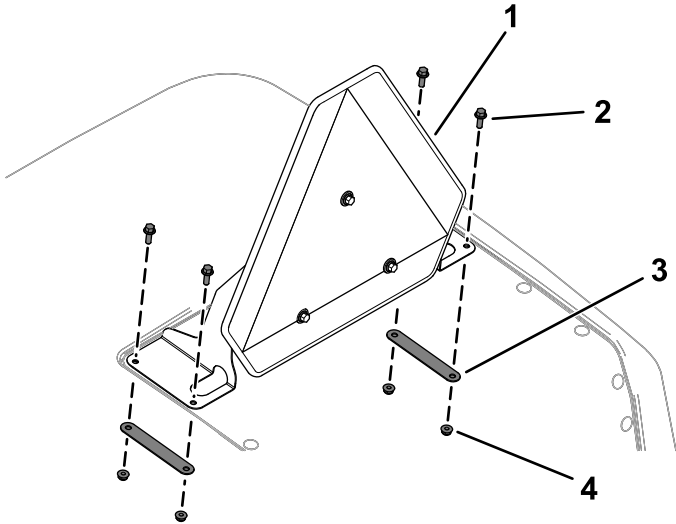


Figure 30

g304127

1. Assembled slow-moving vehicle sign
 2. Flange-head bolt (1/4 x 3/4 inch)
 3. Back mount
 4. Locknut (1/4 inch)

10. Apply 2 red reflective tape to the rear bumper and 1 reflective tape to each light housing using the dimensions shown in Figure 31 and Figure 32.

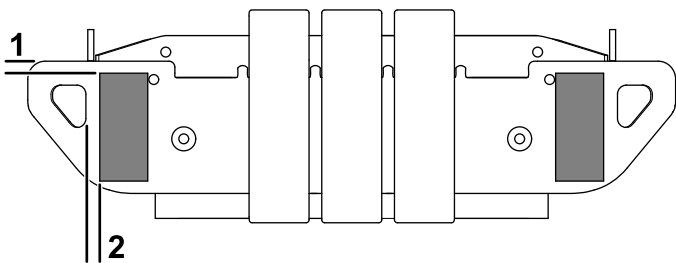


Figure 31

g304126

1. 9.7 to 15.7 mm (3/8 to 5/8 inch)
 2. 11.7 to 17.8 mm (7/16 to 11/16 inch)

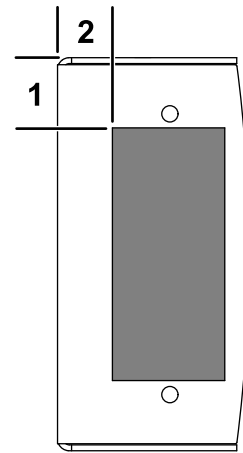


Figure 32

g304125

1. 28.7 to 34.8 mm (1-1/8 to 1-3/8 inches)
 2. 22.4 to 28.4 mm (7/8 to 1-1/8 inches)

6

Routing the Light Wire Harness

Parts needed for this procedure:

1	Light wire harness
2	Cable tie
2	Inner mount assembly
2	Taillight
4	Pan-head screw (#10 x 1-1/4 inches)
4	Flange nut (#10)
8	Button-head bolt (1/4 x 3/4 inch)

Procedure

Refer to the following figures and instructions for routing the light wire harness.

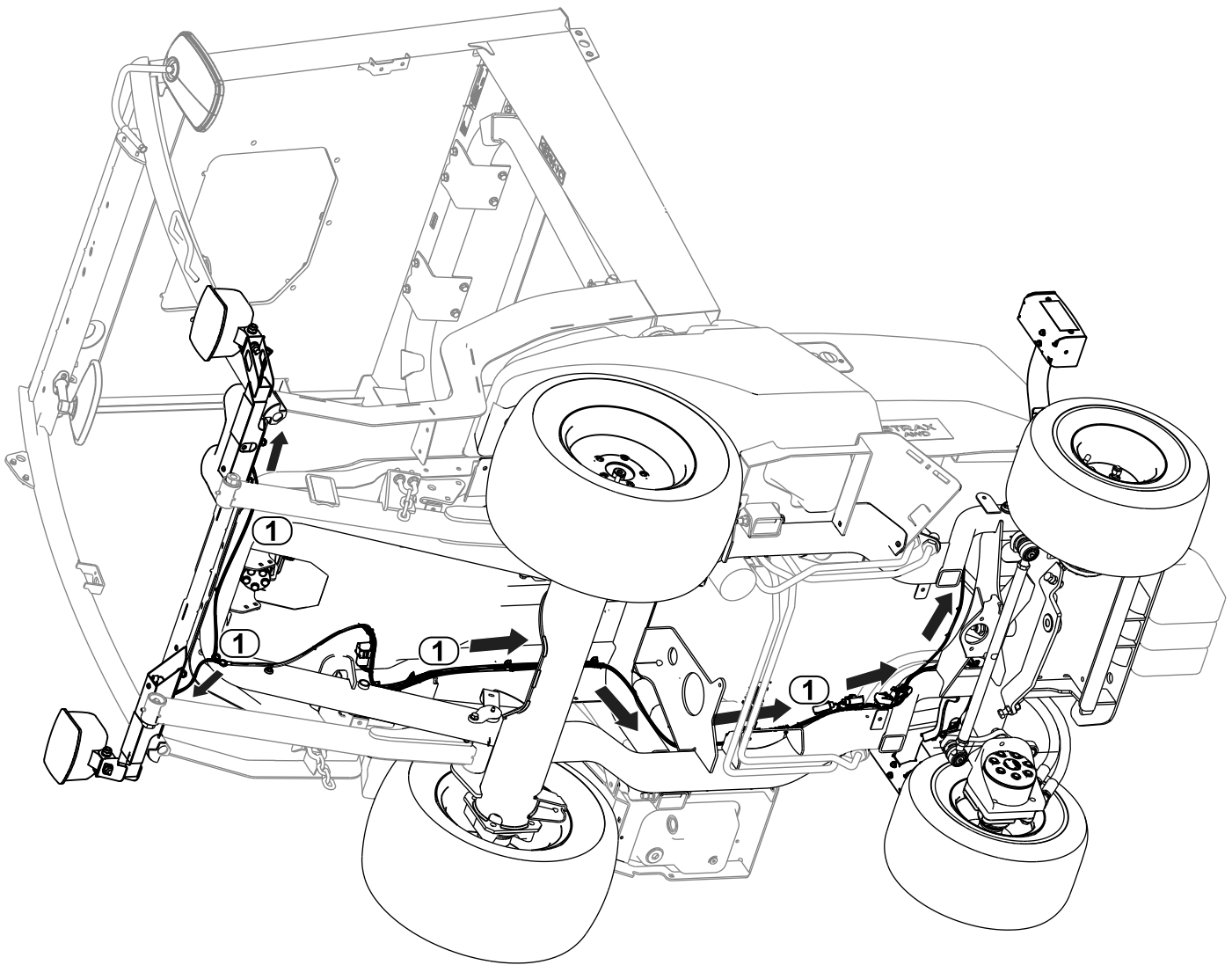


Figure 33

g304235

1. Wire-harness routing

1. Route the wire-harness connector labeled FRONT LIGHT LH (P04) to the left side of unit. Connect harness to light (Figure 33).
2. Route the wire-harness connector labeled FRONT LIGHT RH (P05) to the right side of unit. Connect harness to light (Figure 33).
3. Route the wire-harness connector labeled REAR LIGHT LH (P01) to the rear left side of unit (Figure 33).
4. Route the wire-harness connector labeled REAR LIGHT RH (P02) to the rear right side of unit (Figure 33).

- Secure the taillights to the inner mount assemblies using 4 pan-head screws (#10 x 1-1/4 inches) and 4 flange nuts (#10) as shown in [Figure 34](#).

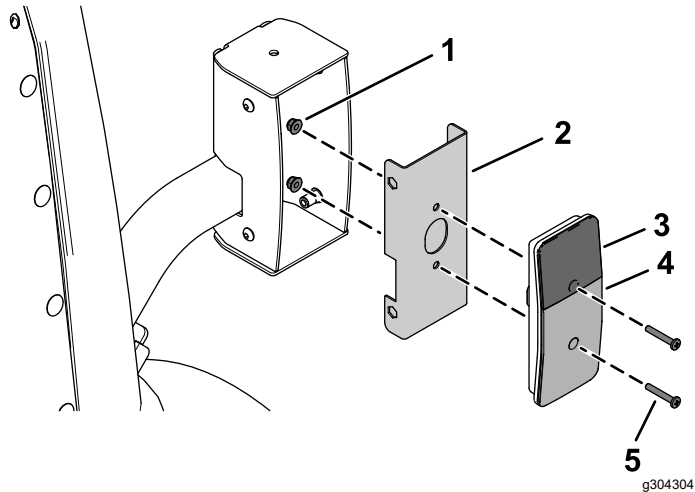


Figure 34

- | | |
|-------------------------|--|
| 1. Flange nut (#10) | 4. Red lens |
| 2. Inner mount assembly | 5. Pan-head screw (#10 x 1-1/4 inches) |
| 3. Amber lens | |

- Connect the wire-harness connector labeled REAR LIGHT LH (P01) to rear light ([Figure 33](#)).
- Connect the wire-harness connector labeled REAR LIGHT RH (P02) to rear light ([Figure 33](#)).

- Secure the assembled taillights to the taillight housings using 8 button-head bolts (1/4 x 3/4 inch) as shown in [Figure 35](#).

Ensure that you install the taillights with the yellow lens on top ([Figure 34](#) and [Figure 35](#)).

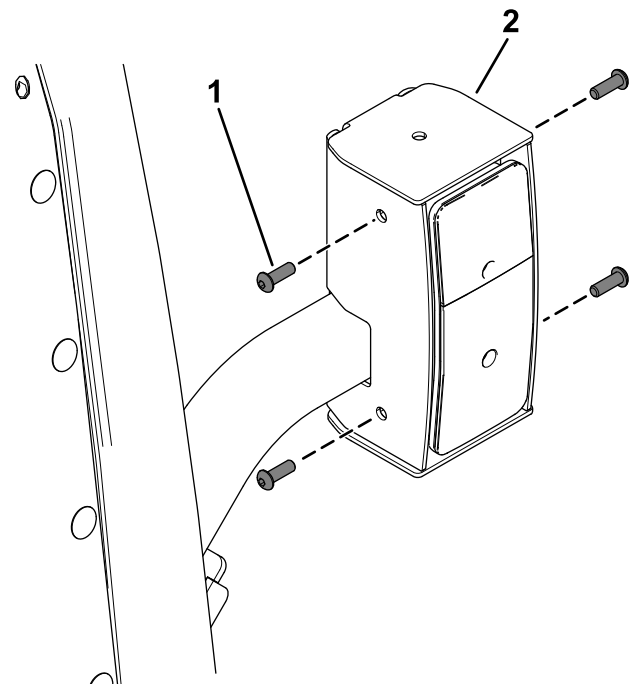


Figure 35

- | | |
|--------------------------------------|-----------------------|
| 1. Button-head bolt (1/4 x 3/4 inch) | 2. Taillight assembly |
|--------------------------------------|-----------------------|

- Use a cable tie coil the remaining connectors (J01 and J02) together ([Figure 36](#)).

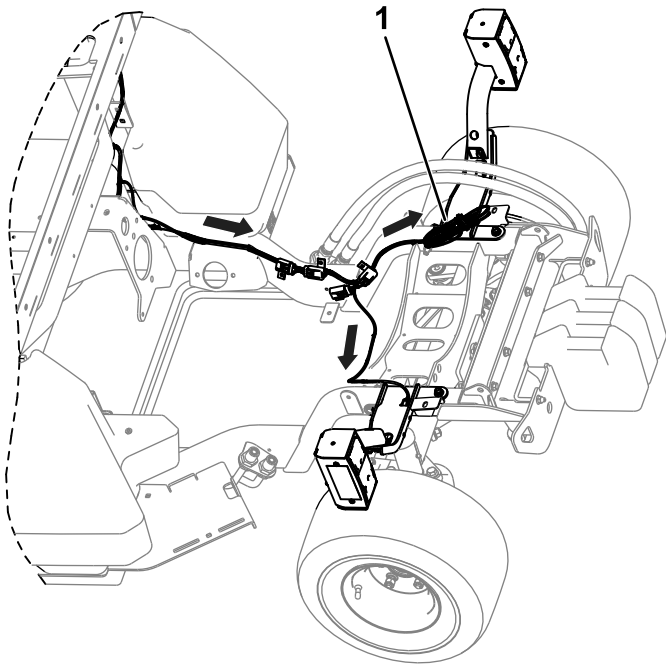


Figure 36

g304233

1. Coil the remaining connectors here.
-

7

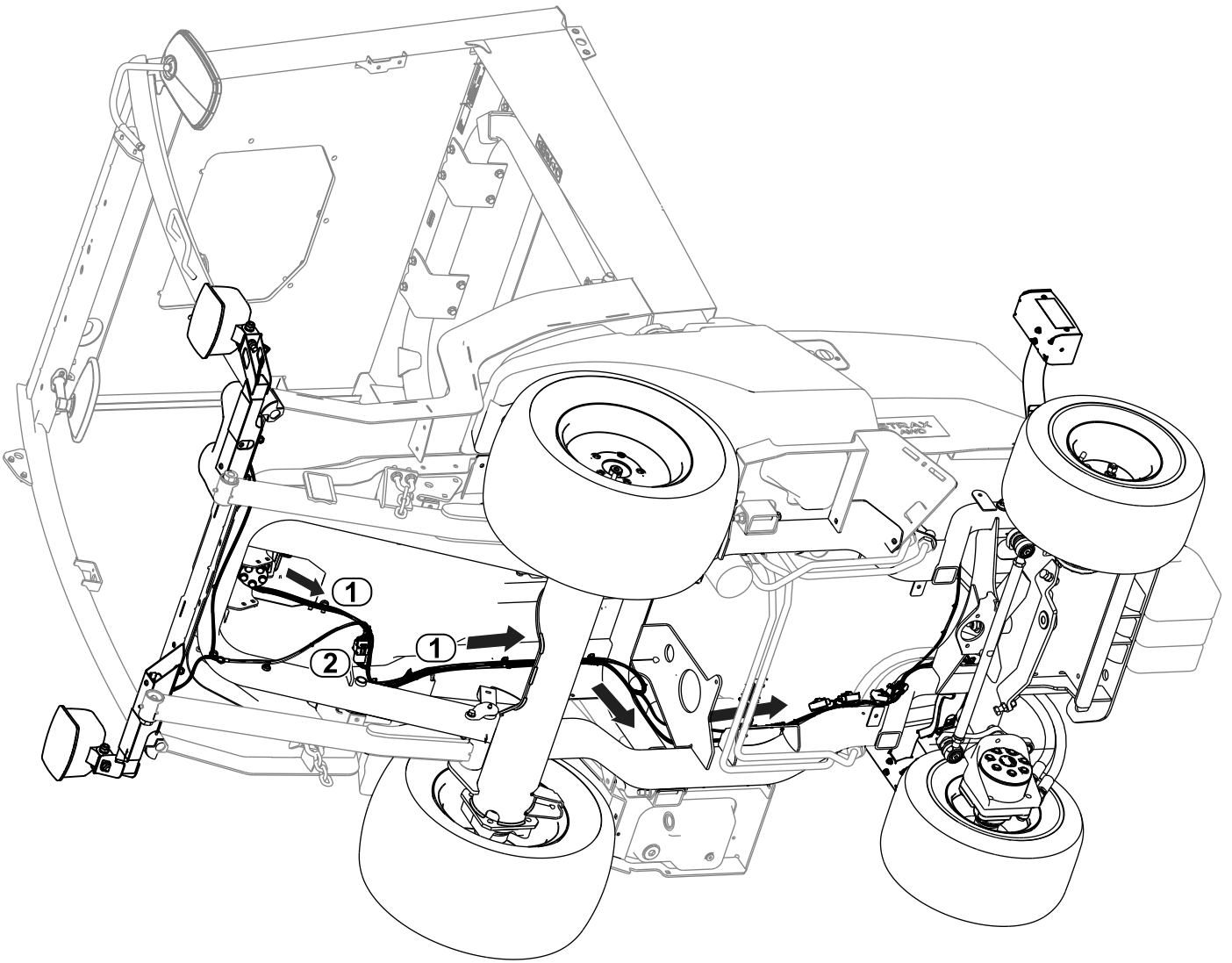
Routing the Control Wire Harness

Parts needed for this procedure:

1	Control wire harness
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Procedure

Refer to the following figures and instructions for routing the control wire harness.



g304234

Figure 37

1. Wire-harness routing

2. Control wire harness and light wire harness connection

1. Connect the control wire-harness connector labeled TO ROAD LTS HARNESS (P06) to light wire-harness connector labeled TO MAIN HARNESS (P03).
2. Connect the control wire-harness connector labeled TO POWER HARNESS (P05) to power wire-harness connector labeled POD CONTROL HARNESS (P04).

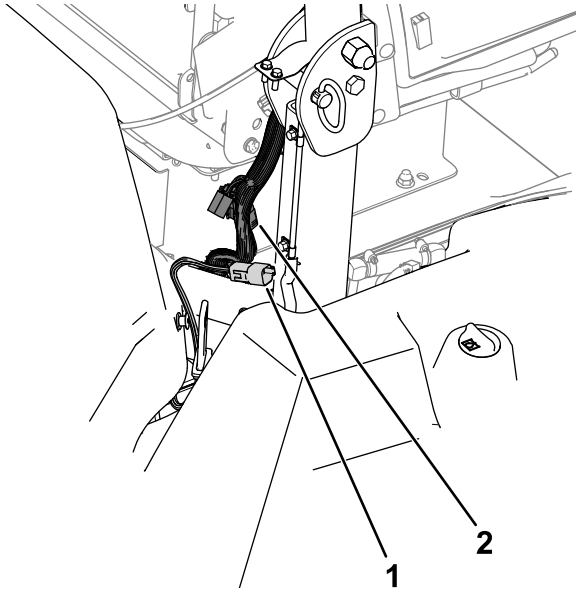


Figure 38

g304373

- | | |
|---|---|
| 1. P05 (Control-wire-harness connector) | 2. P04 (Machine-wire-harness connector) |
|---|---|

3. Use a cable tie to coil the remaining connectors (J01 and J02) together ([Figure 39](#)).

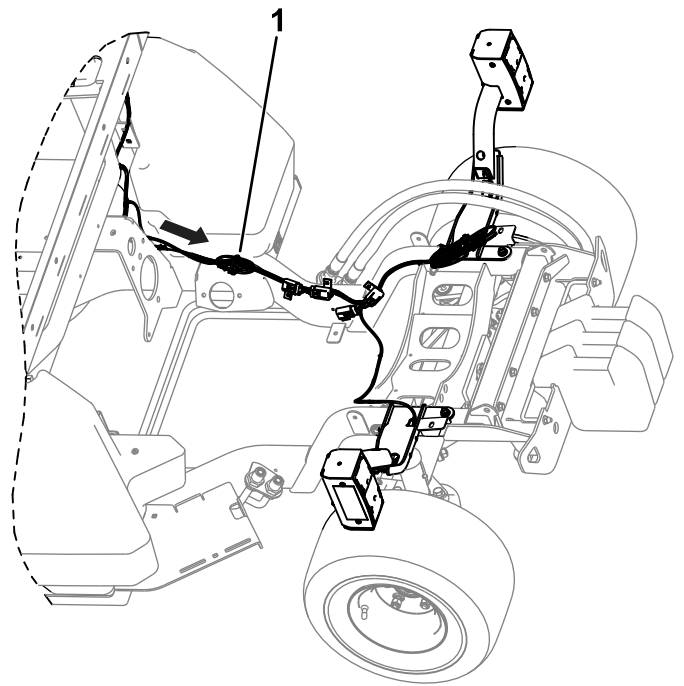


Figure 39

g304232

1. Coil the remaining connectors here.

8

Connecting the Battery

No Parts Required

Procedure

Connect the battery; refer to the electrical system maintenance section of your *Operator's Manual*.



The Toro Warranty

Two-Year or 1,500 Hours Limited Warranty

Conditions and Products Covered

The Toro Company and its affiliate, Toro Warranty Company, pursuant to an agreement between them, jointly warrant your Toro Commercial product ("Product") to be free from defects in materials or workmanship for 2 years or 1,500 operational hours*, whichever occurs first. This warranty is applicable to all products with the exception of Aerators (refer to separate warranty statements for these products). Where a warrantable condition exists, we will repair the Product at no cost to you including diagnostics, labor, parts, and transportation. This warranty begins on the date the Product is delivered to the original retail purchaser.

* Product equipped with an hour meter.

Instructions for Obtaining Warranty Service

You are responsible for notifying the Commercial Products Distributor or Authorized Commercial Products Dealer from whom you purchased the Product as soon as you believe a warrantable condition exists. If you need help locating a Commercial Products Distributor or Authorized Dealer, or if you have questions regarding your warranty rights or responsibilities, you may contact us at:

Toro Commercial Products Service Department
Toro Warranty Company
8111 Lyndale Avenue South
Bloomington, MN 55420-1196
952-888-8801 or 800-952-2740
E-mail: commercial.warranty@toro.com

Owner Responsibilities

As the product owner, you are responsible for required maintenance and adjustments stated in your *Operator's Manual*. Repairs for product issues caused by failure to perform required maintenance and adjustments are not covered under this warranty.

Items and Conditions Not Covered

Not all product failures or malfunctions that occur during the warranty period are defects in materials or workmanship. This warranty does not cover the following:

- Product failures which result from the use of non-Toro replacement parts, or from installation and use of add-on, or modified non-Toro branded accessories and products.
- Product failures which result from failure to perform recommended maintenance and/or adjustments.
- Product failures which result from operating the Product in an abusive, negligent, or reckless manner.
- Parts consumed through use that are not defective. Examples of parts which are consumed, or used up, during normal Product operation include, but are not limited to, brake pads and linings, clutch linings, blades, reels, rollers and bearings (sealed or greasable), bed knives, spark plugs, castor wheels and bearings, tires, filters, belts, and certain sprayer components such as diaphragms, nozzles, flow meters, and check valves.
- Failures caused by outside influence, including, but not limited to, weather, storage practices, contamination, use of unapproved fuels, coolants, lubricants, additives, fertilizers, water, or chemicals.
- Failure or performance issues due to the use of fuels (e.g. gasoline, diesel, or biodiesel) that do not conform to their respective industry standards.
- Normal noise, vibration, wear and tear, and deterioration. Normal "wear and tear" includes, but is not limited to, damage to seats due to wear or abrasion, worn painted surfaces, scratched decals or windows.

Countries Other than the United States or Canada

Customers who have purchased Toro products exported from the United States or Canada should contact their Toro Distributor (Dealer) to obtain guarantee policies for your country, province, or state. If for any reason you are dissatisfied with your Distributor's service or have difficulty obtaining guarantee information, contact your Authorized Toro Service Center.

Parts

Parts scheduled for replacement as required maintenance are warranted for the period of time up to the scheduled replacement time for that part. Parts replaced under this warranty are covered for the duration of the original product warranty and become the property of Toro. Toro will make the final decision whether to repair any existing part or assembly or replace it. Toro may use remanufactured parts for warranty repairs.

Deep Cycle and Lithium-Ion Battery Warranty

Deep cycle and Lithium-Ion batteries have a specified total number of kilowatt-hours they can deliver during their lifetime. Operating, recharging, and maintenance techniques can extend or reduce total battery life. As the batteries in this product are consumed, the amount of useful work between charging intervals will slowly decrease until the battery is completely worn out. Replacement of worn out batteries, due to normal consumption, is the responsibility of the product owner. Note: (Lithium-Ion battery only): Refer to the battery warranty for additional information.

Lifetime Crankshaft Warranty (ProStripe 02657 Model Only)

The ProStripe which is fitted with a genuine Toro Friction Disc and Crank-Safe Blade Brake Clutch (integrated Blade Brake Clutch (BBC) + Friction Disc assembly) as original equipment and used by the original purchaser in accordance with recommended operating and maintenance procedures, are covered by a Lifetime Warranty against engine crankshaft bending. Machines fitted with friction washers, Blade Brake Clutch (BBC) units and other such devices are not covered by the Lifetime Crankshaft Warranty.

Maintenance is at Owner's Expense

Engine tune-up, lubrication, cleaning and polishing, replacement of filters, coolant, and completing recommended maintenance are some of the normal services Toro products require that are at the owner's expense.

General Conditions

Repair by an Authorized Toro Distributor or Dealer is your sole remedy under this warranty.

Neither The Toro Company nor Toro Warranty Company is liable for indirect, incidental or consequential damages in connection with the use of the Toro Products covered by this warranty, including any cost or expense of providing substitute equipment or service during reasonable periods of malfunction or non-use pending completion of repairs under this warranty. Except for the Emissions warranty referenced below, if applicable, there is no other express warranty. All implied warranties of merchantability and fitness for use are limited to the duration of this express warranty.

Some states do not allow exclusions of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the above exclusions and limitations may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Note Regarding Emissions Warranty

The Emissions Control System on your Product may be covered by a separate warranty meeting requirements established by the U.S. Environmental Protection Agency (EPA) and/or the California Air Resources Board (CARB). The hour limitations set forth above do not apply to the Emissions Control System Warranty. Refer to the Engine Emission Control Warranty Statement supplied with your product or contained in the engine manufacturer's documentation.



Count on it.