Form No. 3413-843 Rev A

Controller Kit
for the Pro Sweep® 5200 Turf Sweeper
Model No. 131-4836

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

This product complies with all relevant European directives.
For details, please see the Declaration of Incorporation (DOI)
at the back of this publication.

Electromagnetic Compatibility

Domestic: This device complies with FCC Rules Part 15. Operation is subject to the following two conditions: (1) This device may not cause harmful interference and (2) this device must accept any interference that may be received, including interference that may cause undesirable operation.

This equipment generates and uses radio frequency energy and if not installed and used properly, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply within the limits of a FCC Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, as stated above. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
Reorient the receiving antenna, relocate the remote control receiver with respect to the radio/TV antenna or plug the controller into a different outlet so that the controller and radio/TV are on different branch circuits.
If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions.
The user may find the following booklet prepared by the Federal Communications Commission helpful: "How to Identify and Resolve Radio-TV Interference Problems". This booklet is available from the U.S. Government Printing Office, Washington, DC 20402. Stock No. 004-000-00345-4.

FCC ID: OA3MRF24J40MC-Base, OA3MRF24J40MA-Hand Held

IC: 7693A-24J40MC-Base, 7693A-24J40MA-Hand Held

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Japan Electromagnetic Compatibility Certification	
Handheld:	R 204-520022
RF2CAN:	R 204-520297

Mexico Electromagnetic Compatibility Certification	
Handheld:	IFETEL : RCPMIMR15-2209
RF2CAN:	IFETEL : RCPMIMR15-0142

Korea Electromagnetic Compatibility Certification (Decal provided in separate kit)	
Handheld:	MSIP-CRM-TZQ-SMHH 해당 무선설비는 전파혼신 가능성이 있으므로 인명안전과 관련된 서비스는 할 수 없음
RF2CAN:	MSIP-CRM-TZQ-MRF-E MSIP-CRM-TZQ-RF2CAN 해당 무선설비는 전파혼신 가능성이 있으므로 인명안전과 관련된 서비스는 할 수 없음

Singapore Electromagnetic Compatibility Certification	
Handheld:	TWM240007_IDA_N4022-15
RF2CAN:	TWM-240005_IDA_N4024–15

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CE

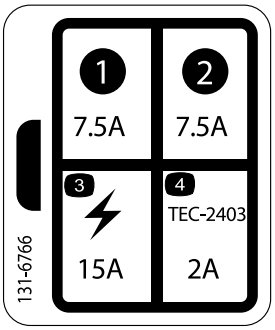
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3413-843 A

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.



decal131-6766

131-6766

1. 7.5 A
2. 7.5 A
3. Electrical accessory (15 A)
4. TEC-2403 (2 A)



decal136-7585

136-7585

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 components.
3	No parts required	–	Drill the holes.
4	Fuse decal Electrical update decal	1 1	Install the decals.

Procedure	Description	Qty.	Use
5	Radio transmitter Radio controller Indicator lamp Relay Bolt (1/4 x 1-1/8 inches) Bolt (1/4 x 3/4 inch) Bolt (#10 x 7/8 inch) Flange nut (1/4 inch) Locknut (#10)	1 1 1 1 8 3 1 11 1	Install the components.
6	Right sensor plate Left sensor plate Proximity sensor	1 1 1	Install the proximity sensors.
7	Wire harness Cable tie Cable-tie clip	1 10 2	Install the wire harness.
8	Compartment cover	1	Install the cover.
9	Handheld remote AA battery	1 4	Assembling the remote.

1

Preparing the Machine

No Parts Required

Procedure

1. Park the machine on a level surface.
2. Raise the hopper and secure it in place with the cylinder lock.
3. Disconnect the power connector from the traction unit.
4. Ensure that the machine is secure from movement before you begin the installation.

2

Removing the Components

Only When Upgrading

No Parts Required

Procedure

1. Remove the hardware securing the compartment cover and set it aside (Figure 1).

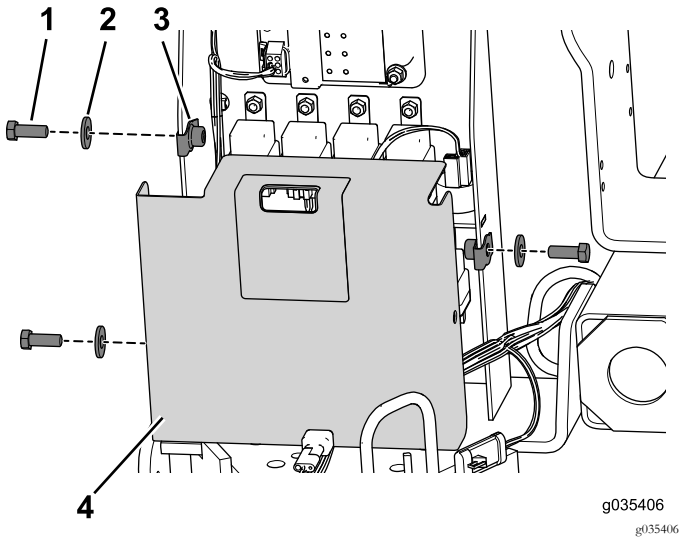


Figure 1

1. Bolt (5/16 x 1 inch)
2. Washer
3. Terminal nut (3/8 inch)
4. Compartment

2. Disconnect the wire harness from all the components except the relays (Figure 2).

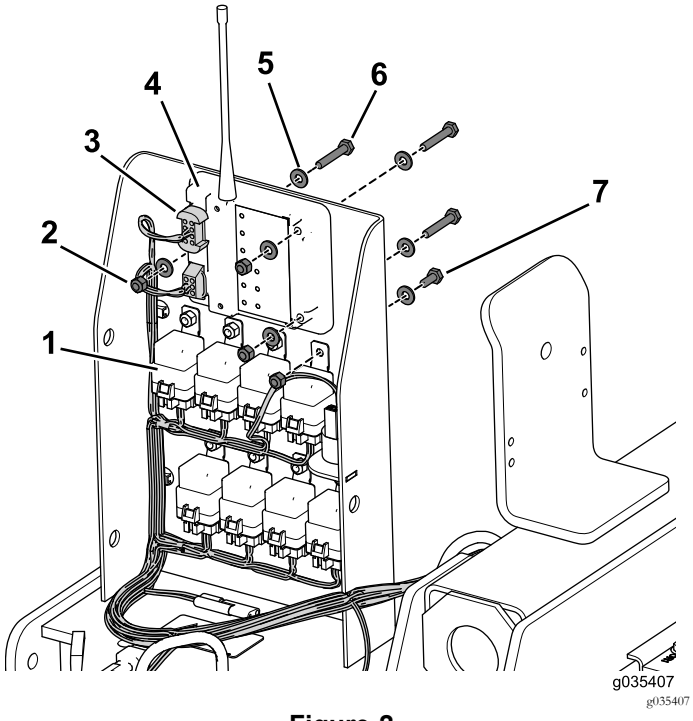


Figure 2

1. Relay
2. Nut (1/4 inch)
3. Wire harness
4. Transceiver
5. Washer
6. Bolt (1/4 x 1-1/2 inches)
7. Bolt (1/4 x 5/8 inch)

3. Remove all the hardware securing the components on the inside of the compartment (Figure 2).
4. Remove all the components except for the audio alarm from the compartment (Figure 2).
5. Remove the retaining nuts and washers from the front of the proximity sensors on the right side sensor plate and set them aside (Figure 3).

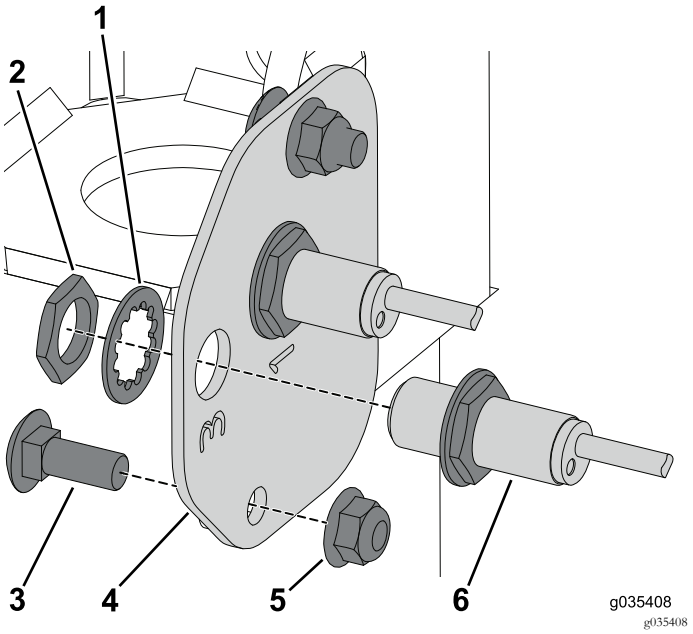


Figure 3

1. Retaining nut
2. Washer
3. Carriage bolt (3/8 x 1 inch)
4. Right sensor plate
5. Flange nut (3/8 inch)
6. Proximity sensor

6. Remove the proximity sensors from the right sensor plate and set them aside.
7. Remove the carriage bolts and flange nuts securing the right sensor plate to the frame (Figure 3).
8. Remove the carriage bolts and flange nuts securing the left sensor plate to the frame (Figure 4).

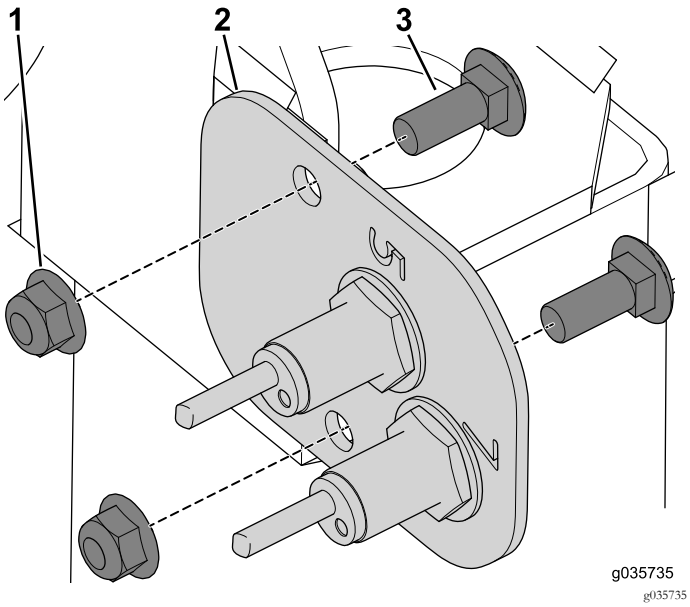


Figure 4

1. Flange nut (3/8 inch)
2. Left sensor plate
3. Carriage bolt (3/8 x 1 inch)

3

Drilling the Holes

No Parts Required

Procedure

1. Locate and drill the following hole for the plug cap (Figure 5).

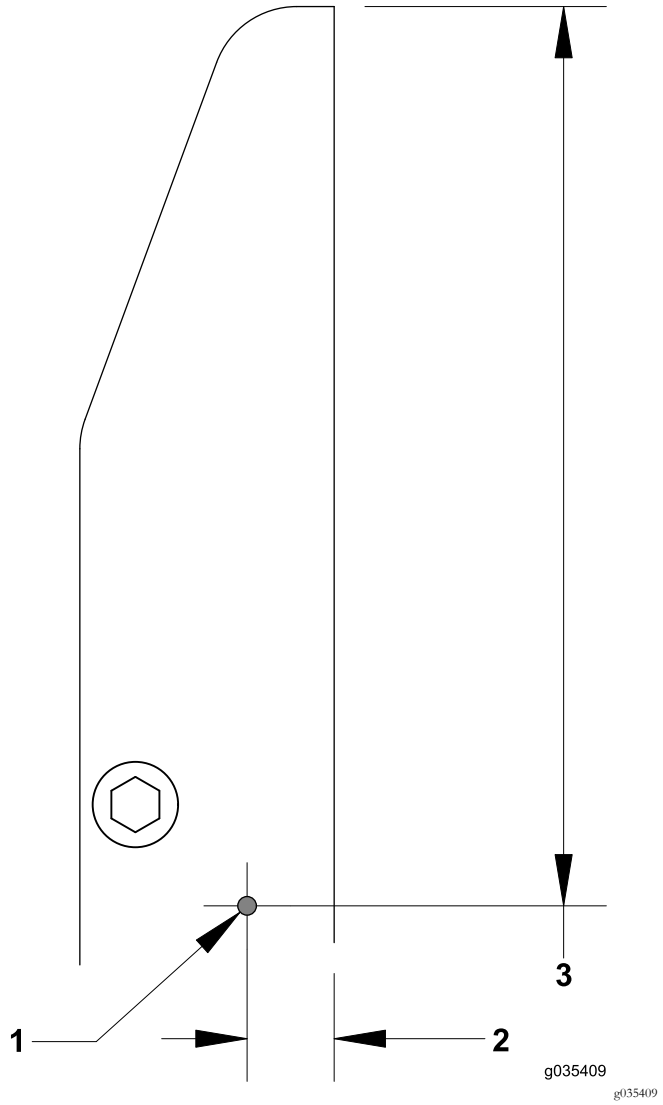


Figure 5

1. 7/32 inch diameter
2. 267 mm (10-1/2 inches)
3. 25 mm (1 inch)

2. Locate and drill the following holes for the fuse block and relay (Figure 6).

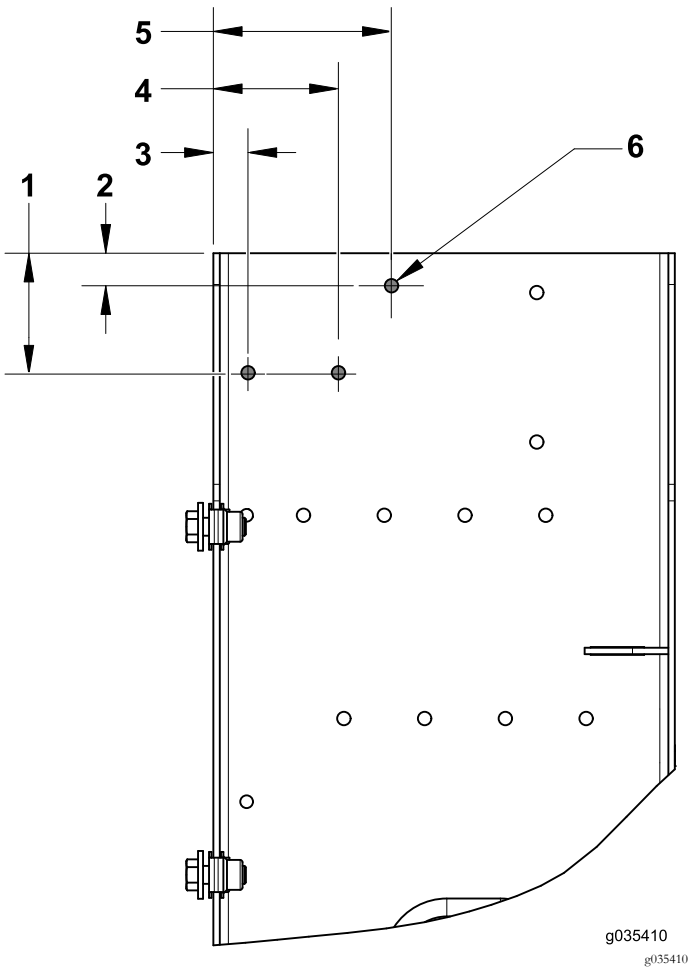


Figure 6

1. 64 mm (2-1/2 inches)
2. 17 mm (21/32 inch)
3. 15 mm (19/32 inch)
4. 63 mm (2-15/32 inches)
5. 91 mm (3-19/32 inches)
6. 9/32 inch diameter

3. Locate and drill the following holes for the transmitter (Figure 7).

Note: You can use the transmitter as a template.

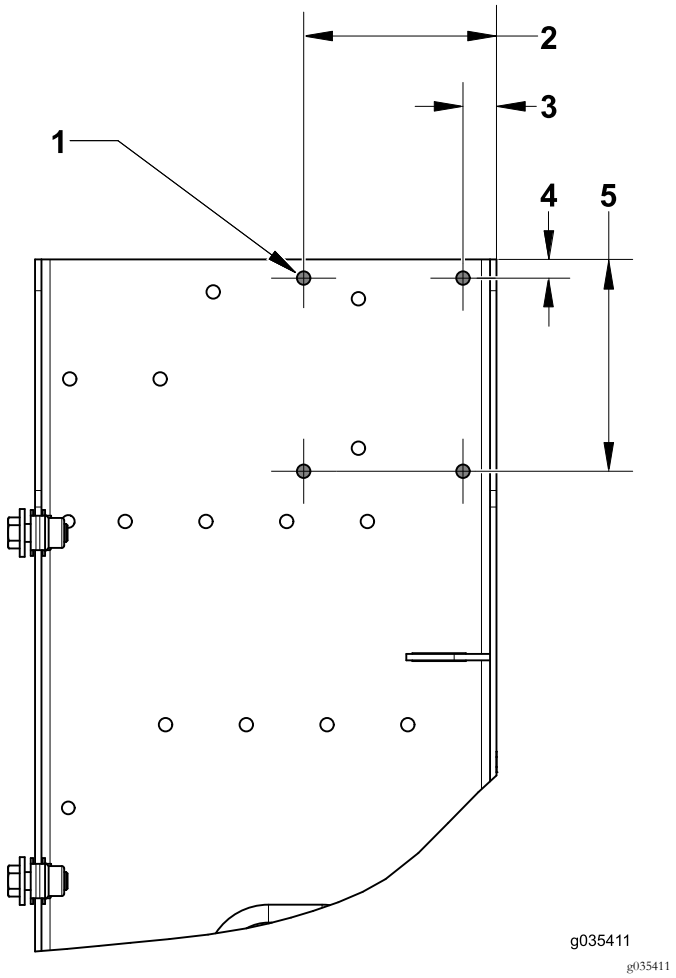


Figure 7

1. 9/32 inch diameter
2. 99 mm (3-29/32 inch)
3. 14 mm (9/16 inch)
4. 10 mm (3/8 inch)
5. 113 (4-7/16 inch)

4. Locate and drill the following holes for the controller (Figure 8).

Note: You can use the controller as a template.

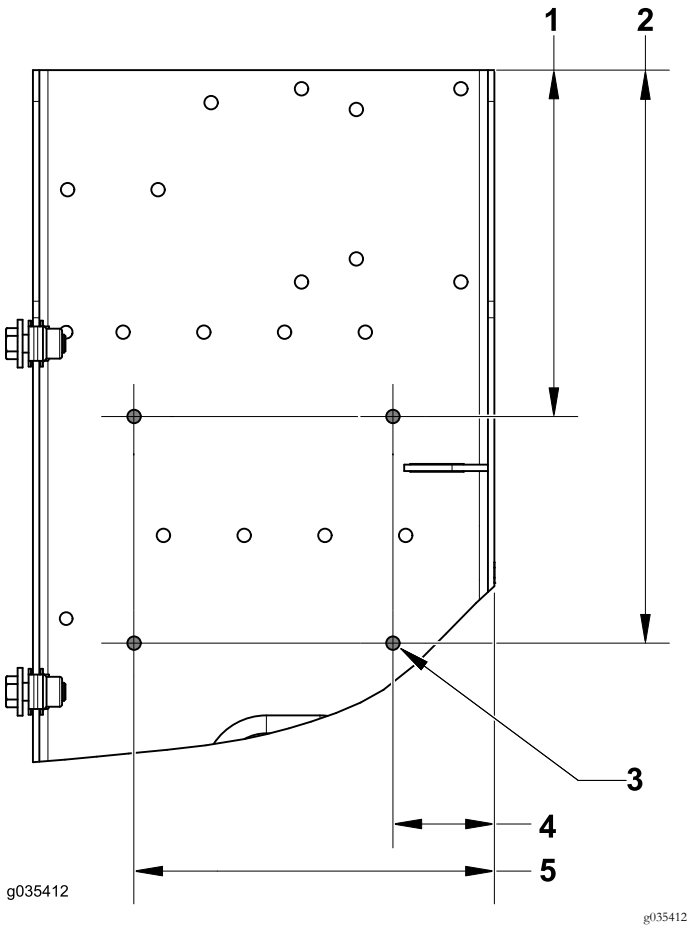


Figure 8

1. 184 mm (7-1/4 inches)
2. 304 mm (11-31/32 inches)
3. 9/32 inch diameter
4. 50 mm (1-31/32 inches)
5. 188 mm (7-31/32 inches)

5. Locate and drill the following hole for the controller (Figure 9).

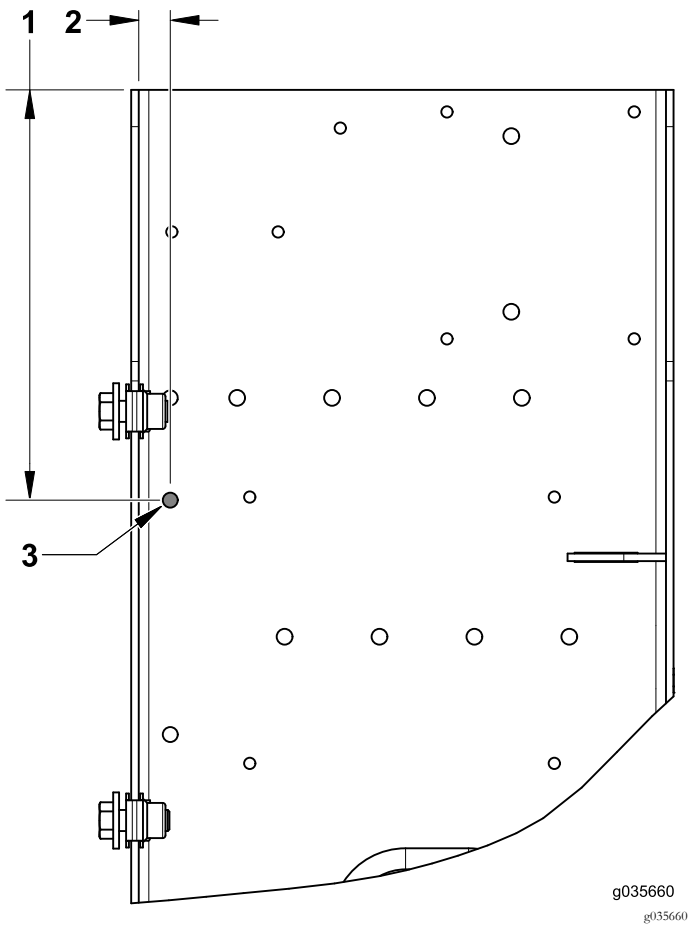


Figure 9

1. 185 mm (7-9/32 inches)
2. 14 mm (9/16 inch)
3. 6.8 mm (9/32 inch)

Note: Ensure that you do not oversize the hole.

4

Installing the Decals

Parts needed for this procedure:

1	Fuse decal
1	Electrical update decal

Procedure

1. Ensure that the application surface is clean.
2. Locate and apply the fuse decal at the location shown (Figure 10).

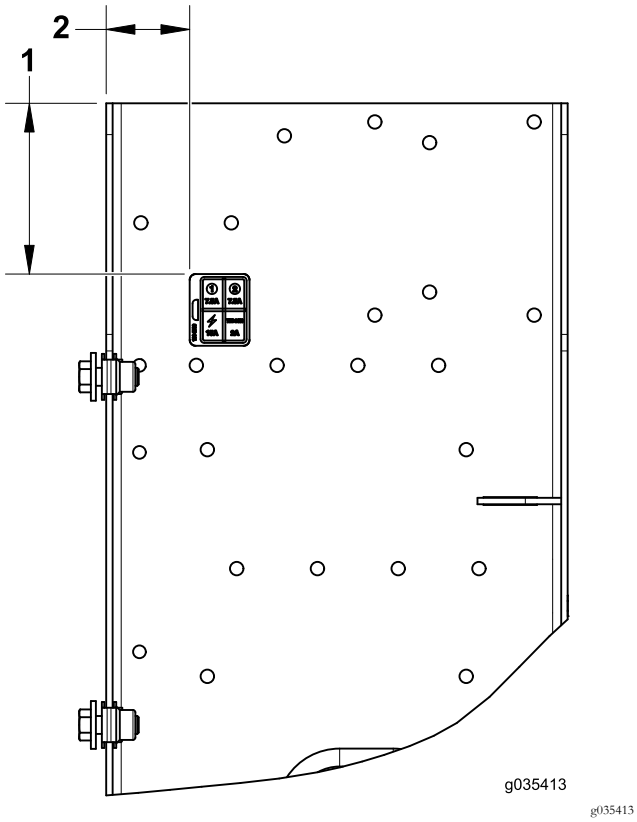


Figure 10

1. 89 mm (3-1/2 inch)
2. 44 mm (1-3/4 inch)

3. Apply the electrical update decal next to the serial tag on the machine.

5

Installing the Components

Parts needed for this procedure:

1	Radio transmitter
1	Radio controller
1	Indicator lamp
1	Relay
8	Bolt (1/4 x 1-1/8 inches)
3	Bolt (1/4 x 3/4 inch)
1	Bolt (#10 x 7/8 inch)
11	Flange nut (1/4 inch)
1	Locknut (#10)

Procedure

1. Use the 4 bolts (1/4 x 3/4 inch) and flange nuts to secure the transceiver (Figure 11).

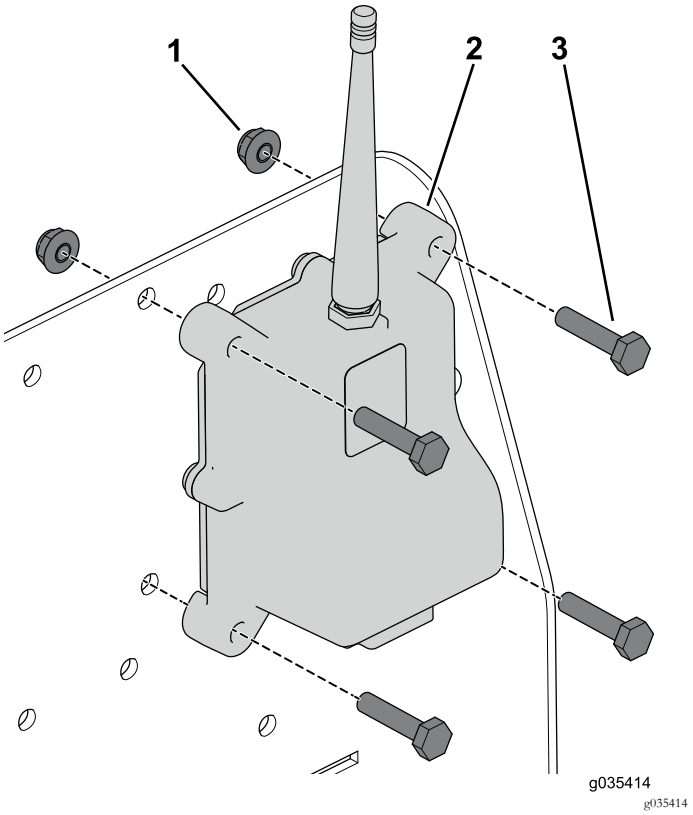


Figure 11

1. Transceiver
2. Flange nut (1/4 inch)
3. Bolt (1/4 x 3/4 inch)

2. Use the 4 bolts (1/4 x 3/4 inch) and flange nuts to secure the controller (Figure 12).

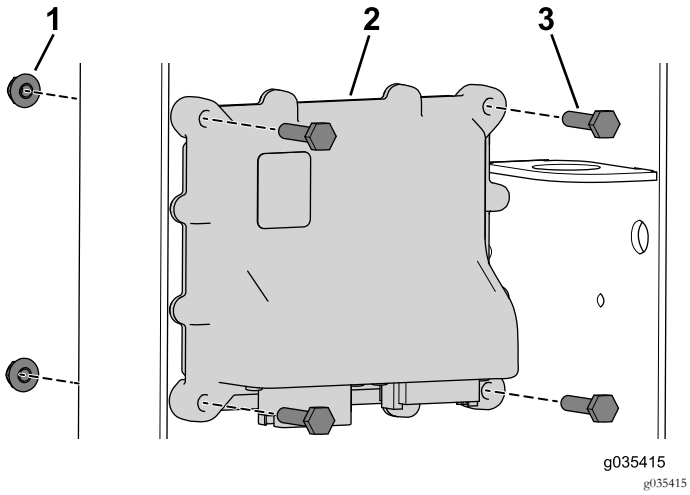


Figure 12

1. Controller
2. Flange nut (1/4 inch)
3. Bolt (1/4 x 3/4 inch)

3. Use the bolt (1/4 x 3/4 inch) and flange nut to secure the relay (Figure 13).

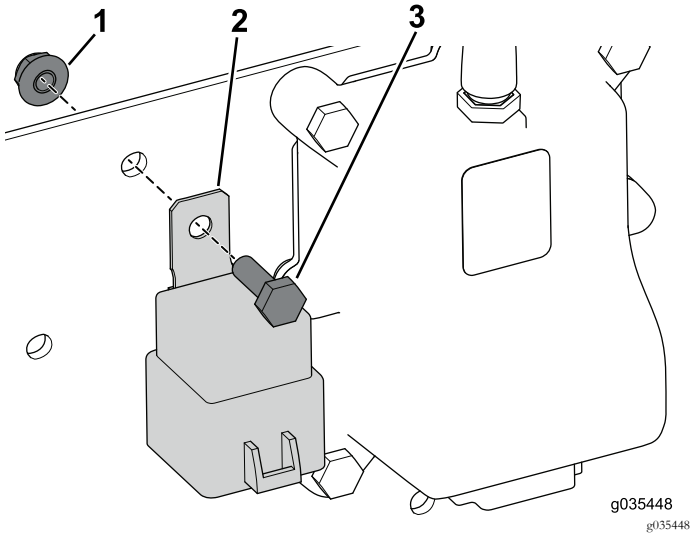


Figure 13

1. Flange nut (1/4 inch)
2. Relay
3. Bolt (1/4 x 3/4 inch)

4. Remove the fuse cap from the wire harness.

5. Use the 2 bolts (1/4 x 3/4 inch) and flange nuts to secure the fuse cap (Figure 14).

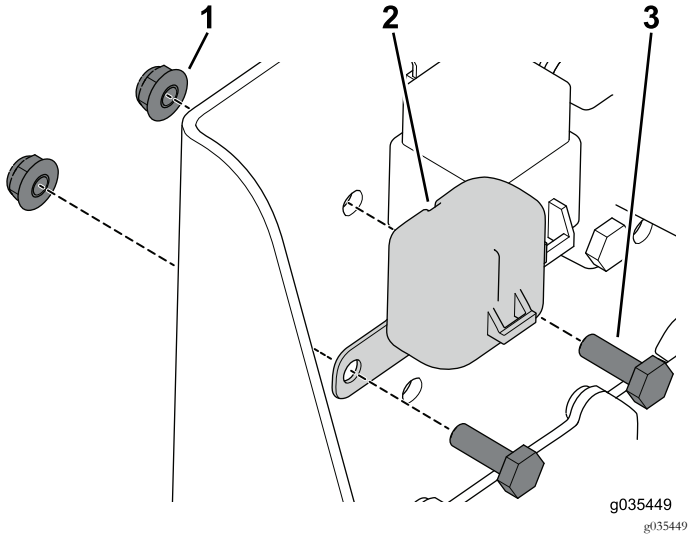


Figure 14

1. Flange nut (1/4 inch)
2. Fuse block
3. Bolt (1/4 x 3/4 inch)

6. Insert the connector through the mount hole in the cover panel (Figure 15).

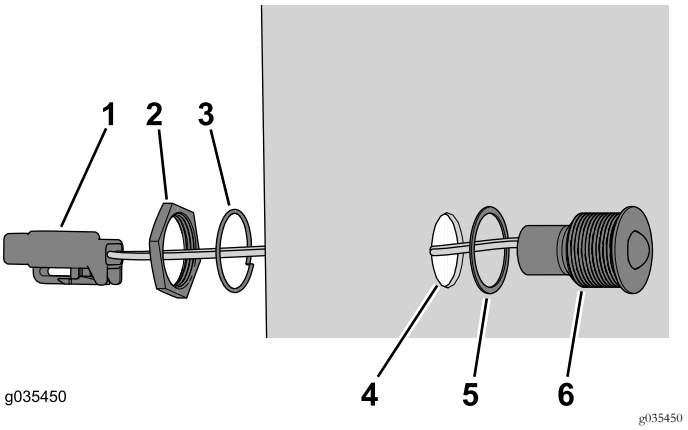


Figure 15

1. Connector
2. Retaining nut
3. Lock washer
4. Mounting hole
5. Gasket
6. Indicator light

Note: Ensure that the gasket is installed between the cover and indicator light (Figure 15).

7. Use the retaining nut and lock washer to secure the indicator light to the mount hole in the cover panel (Figure 15).

8. Remove the plug cap from the wire harness.

9. Use the bolt (#10 x 7/8 inch) and locknut to secure the plug cap to the controller box (Figure 16).

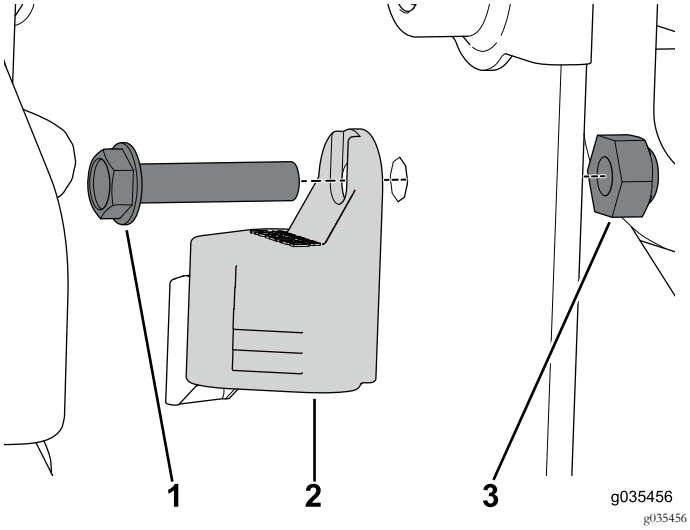


Figure 16

1. Bolt (#10 x 7/8 inch)
2. Plug cap
3. Locknut (#10)

6

Installing the Proximity Sensors

Parts needed for this procedure:

1	Right sensor plate
1	Left sensor plate
1	Proximity sensor

Procedure

1. Use the 2 carriage bolts (3/8 x 1 inch) and flange nuts to secure the right sensor plate to the machine (Figure 17).

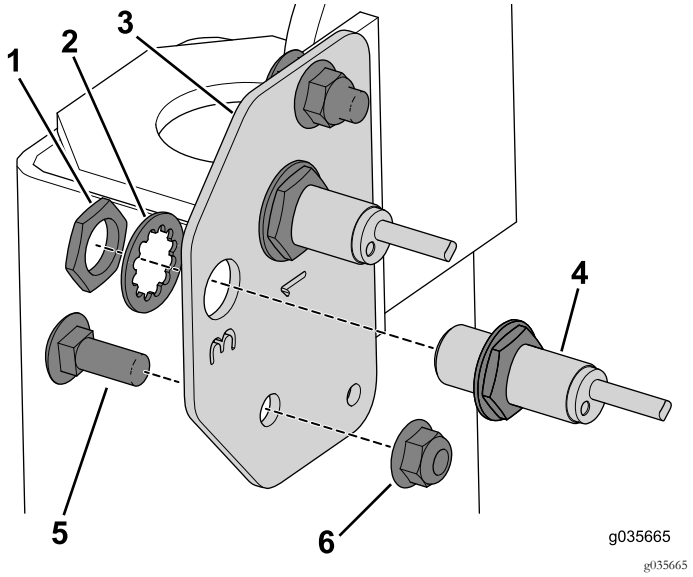


Figure 17

1. Retaining nut
2. Washer
3. Right sensor plate
4. Proximity sensor
5. Carriage bolt (3/8 x 1 inch)
6. Flange nut (3/8 inch)

2. Use the retaining nuts and washers to secure the proximity sensors that you removed earlier to the right sensor plate (Figure 17).

Important: **Ensure that you do not damage the front of the sensor when it is installed.**

3. Use the carriage bolt (3/8 x 1 inch) and flange nut to secure the left sensor plate to the machine (Figure 18).

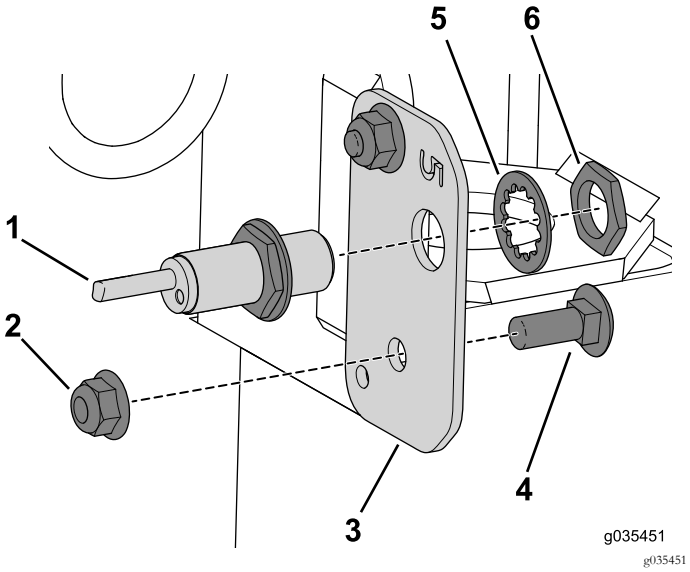


Figure 18

1. Proximity sensor
2. Flange nut (3/8 inch)
3. Left sensor plate
4. Carriage bolt (3/8 x 1 inch)
5. Washer
6. Retaining nut

4. Use the retaining nut and washer to secure the proximity sensor included in the kit to the left sensor plate (Figure 18).

Important: **Ensure that you do not damage the front of the sensor when it is installed.**

5. Set a 3.6 mm (0.14 inch) sensor gap to each sensor that you installed (Figure 19).

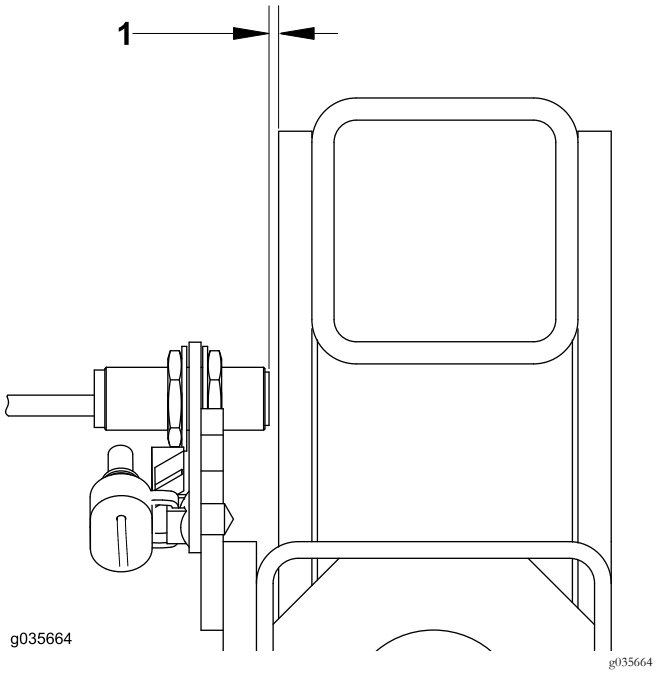


Figure 19

1. 3.6 mm (0.14 inch)

Important: **Ensure that you do not damage the front of the sensor when you set the sensor gap.**

7

Installing the Wire Harness

Parts needed for this procedure:

1	Wire harness
10	Cable tie
2	Cable-tie clip

Procedure

1. Route the wire harness onto the frame of the tow-behind vehicle (Figure 20).

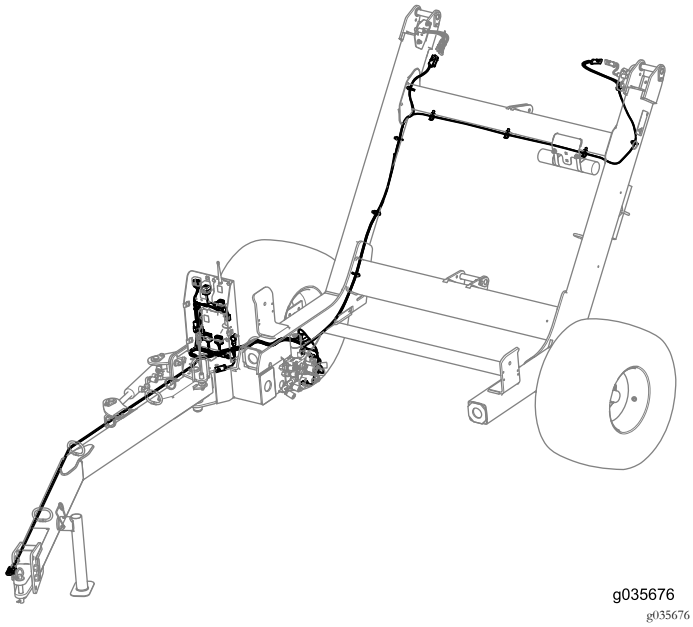


Figure 20

Note: Ensure that you route the wire harness through the hose rings at the front of the tow-behind vehicle.

2. Use the cable-tie clips that are on the wire harness to secure it to the frame.

3. Follow the color code and connector keying to ensure that you are installing the appropriate connector to the component plug (Figure 21).

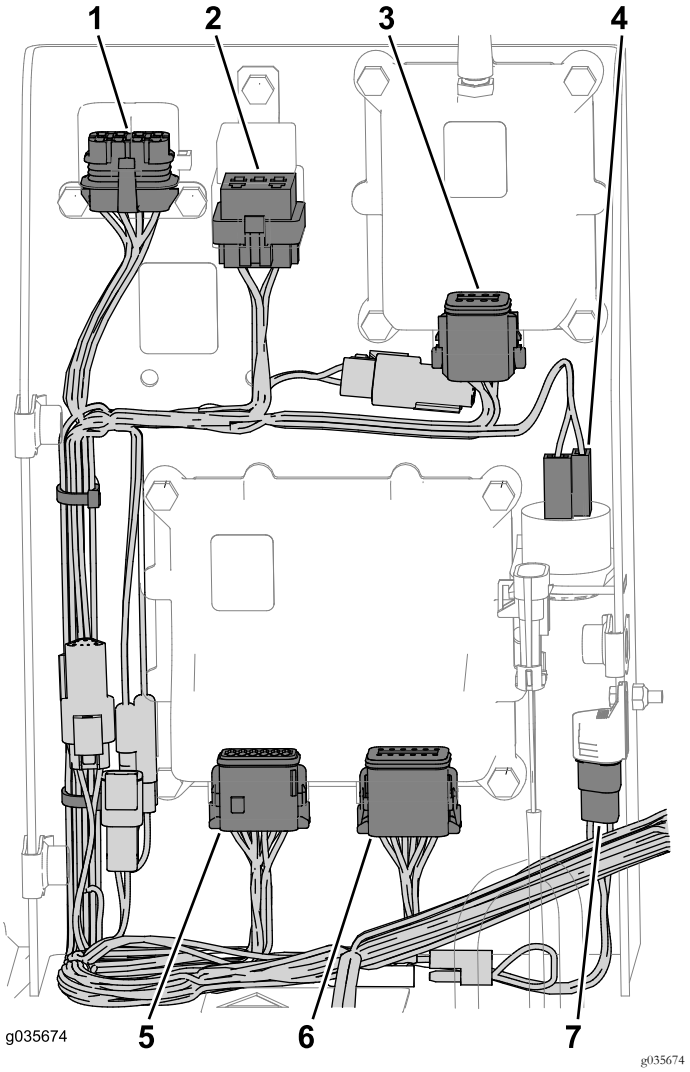


Figure 21

1. Fuse block
2. Relay
3. Transceiver (keyed)
4. Audio alarm
5. Controller (color coded and keyed)
6. Controller (color coded and keyed)
7. Plug cap

4. Connect the wire harness to the hydraulic manifold (Figure 22).

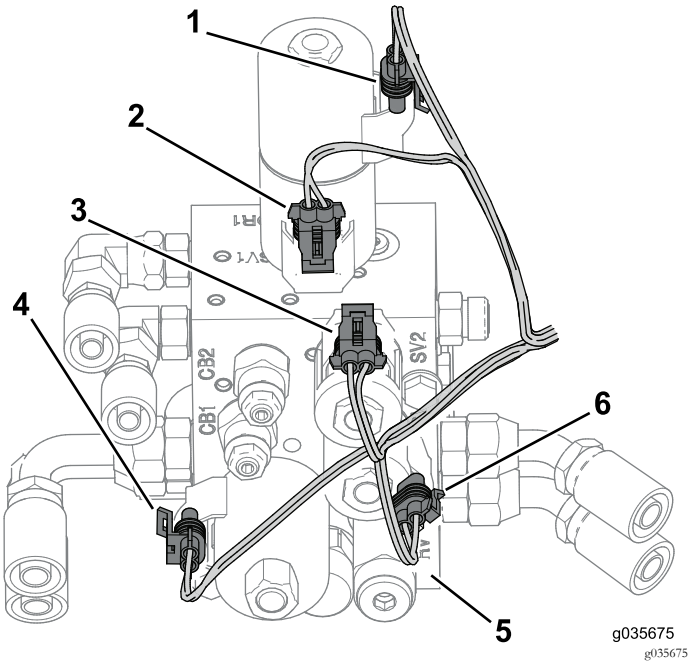


Figure 22

1. Hitch left (P21)
2. Hitch right (P20)
3. Hopper down (P18)
4. Brush solenoid (P17)
5. Hydraulic manifold
6. Hopper up (P19)

5. Connect the wire harness to the appropriate proximity sensor (Figure 23 and Figure 24).

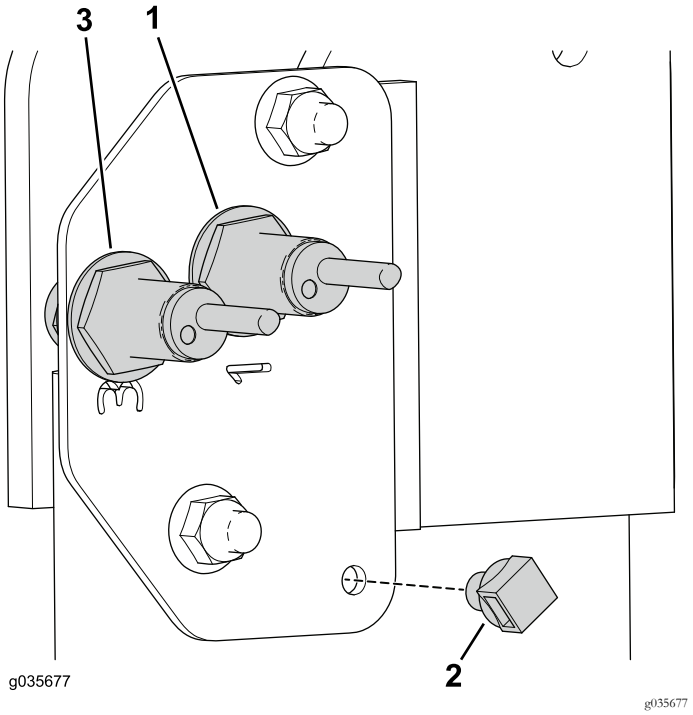


Figure 23

1. Proximity sensor
2. Cable-tie clip
3. Proximity sensor

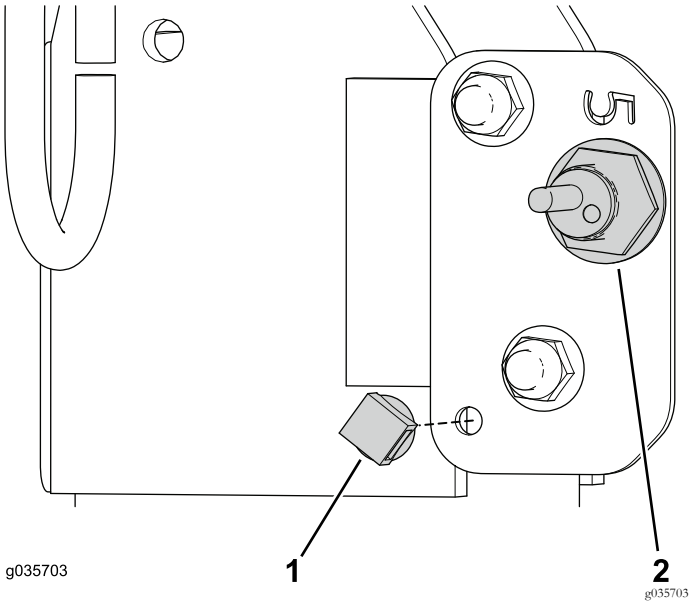


Figure 24

1. Cable-tie clip
2. Proximity sensor

6. Install the cable-tie clips to the left and right sensor plate (Figure 23 and Figure 24).
7. Insert the cable ties through the clip and around the wire harness connectors to secure it to the sensor plate (Figure 23) and Figure 24).
8. Use cable ties to secure the wire harness to the hydraulic hoses (Figure 25).

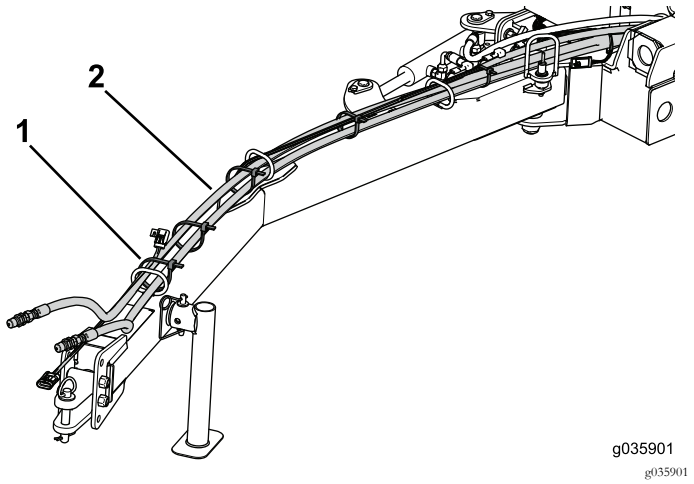


Figure 25

1. Cable tie
2. Hydraulic hose

8

Installing the Cover

Parts needed for this procedure:

1	Compartment cover

Procedure

1. Connect the indicator light to the wire harness (Figure 26).

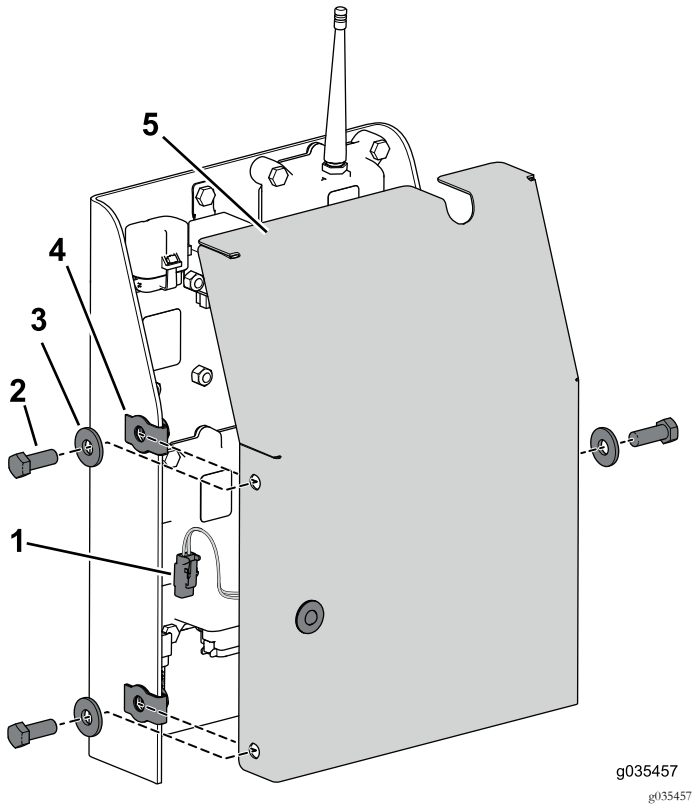


Figure 26

1. Connector
2. Bolt (3/8 x 1 inch)
3. Washer
4. Terminal nut (3/8 inch)
5. Compartment cover

2. Use the bolt (3/8 x 1 inch) and nut that you removed earlier to secure cover to the compartment (Figure 26).

9

Assembling the Handheld Remote

Parts needed for this procedure:

1	Handheld remote
4	AA battery

Procedure

1. Remove the rubber bands securing the remote halves together, and remove the back cover.
2. Install the batteries into the terminal cradle observing proper polarity (Figure 27).

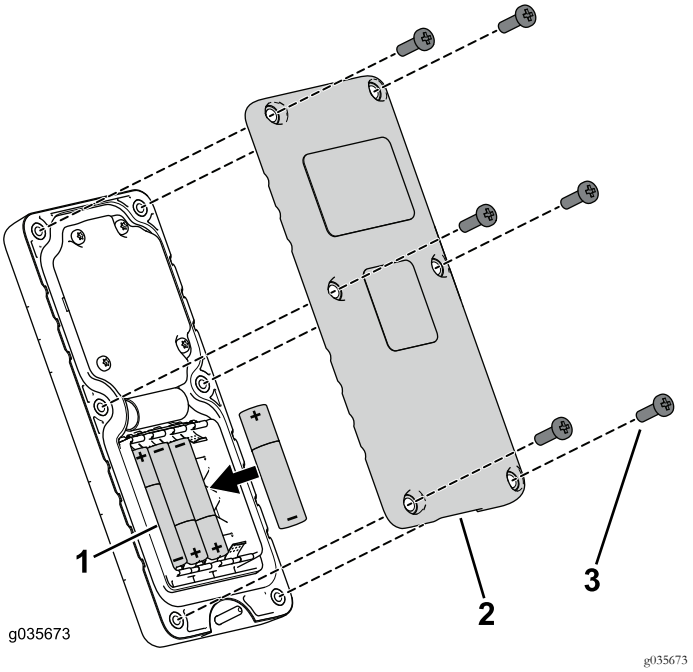


Figure 27

1. Batteries
2. Cover
3. Screw

Note: The controller cannot function when the batteries are installed improperly.

3. Replace the cover and secure it with the 6 screws removed previously (Figure 27) and torque them to 1.5 to 1.7 N·m (13 to 15 in-lb).

Note: Do not overtighten the screws.

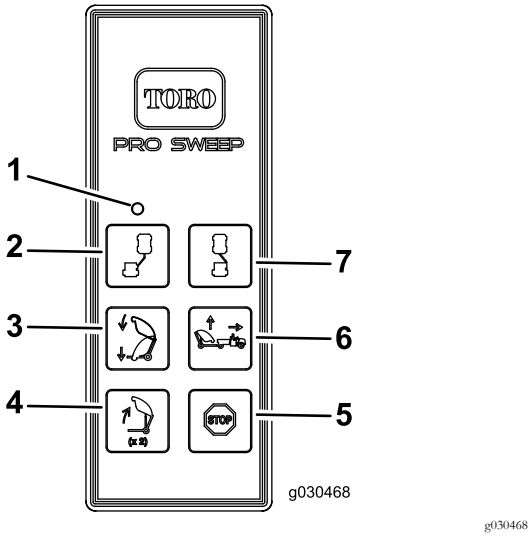
Product Overview

Controls

Hopper Dump Button

To dump the hopper, press the hopper dump button 2 times (Figure 28).

Important: The sweeper must be directly behind the traction unit and in transport height before you can activate the dump sequence.



g030468

Figure 28

1. LED light
2. Offset left
3. Sweeper down
4. Hopper dump
5. Stop
6. Sweeper up
7. Offset right

Sweeper Down Button

To lower the hopper, press the sweeper down button (Figure 28). You can lower the hopper at any of the following positions:

- Hopper dump height
- Transport height
- Turn around height

Note: When lowering the hopper from the dump position, you can stop the lower hopper function at any time by releasing the sweeper down button.

Note: With the sweeper in the transport or turn around positions, the lower hopper function can be stopped at any time by pressing the sweeper up button.

Sweeper Up Button

Standard Mode

To raise the sweeper in standard mode, press the sweeper up button. The hopper stops at the pre-defined height (Figure 28).

- Transport height (home position) is 13-1/4 to 15-1/4 inches.
- Turn around height (offset position) is 8-1/2 to 10-1/2 inches.

Sweeper Up Button

Optional Mode

This mode allows the operator to adjust the sweeper to any desired height and it stops at the pre-defined heights.

Note: Refer to Switching the Sweeper-Up Mode (page 17) to switch to the optional mode.

To raise the sweeper in optional mode, press and hold the sweeper up button until the hopper reaches the desired height or stops at the pre-defined height (Figure 28).

- Transport height (home position) is 13-1/4 to 15-1/4 inches.
- Turn around height (offset position) is 8-1/2 to 10-1/2 inches.

Offset Left Button

To offset the sweeper to the left, press and hold the offset left button (Figure 28). Releasing the button stops the movement to the left.

Offset Right Button

To offset the sweeper to the right, press and hold the offset right button (Figure 28). Releasing the button stops the movement to the right.

Stop Button

Pressing the stop button disables any active function.

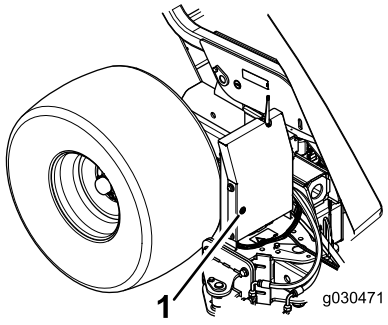
Note: There is approximately a 3 second delay.

Diagnostic Light

The diagnostic light (Figure 29) is located on the compartment cover and indicates machine fault codes. After you turn the key to the RUN position, the diagnostic light illuminates for 5 seconds, turns off for 5 seconds, and then begins flashing 3 times a second until you push a button on the handheld remote. If the light turns on for 5 seconds and then starts blinking 10 times a second (with or without a 5 second pause) there is a fault with the machine; refer to Checking Fault Codes (page 19).

Note: The diagnostic light illuminates when you push a button on the handheld remote.

Note: If you press the button on the handheld remote when you start the machine, the light does not flash 3 times a second after it turns off for 5 seconds.



g030471

Figure 29

1. Diagnostic light

Operation

Associating the Remote Control and the Base Unit

Important: Read the entire procedure before attempting the association process.

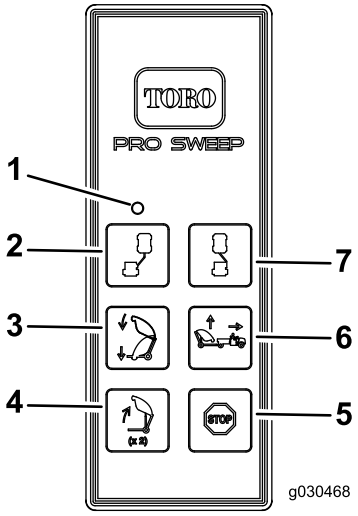
The remote control must establish communications with the base unit before you can use the system. The remote control is associated to the system base unit before leaving the factory using the associate procedure. In situations where it is necessary to re-establish remote control-to-base unit communications (example: introducing a new or spare remote control to an existing base unit), you must perform the following procedure:

Note: Associating the remote control to a different base unit disassociates the remote control from the original base unit.

1. Remove power from the base unit.
2. Stand near the base unit in clear line-of-sight with the remote control in hand.
3. Simultaneously press and hold the OFFSET LEFT and OFFSET RIGHT buttons. The LED begins blinking about once per second.
4. Continue to hold both buttons until the LED begins blinking about twice per second.
5. Release the buttons.
6. Press and hold the OFFSET LEFT button. The LED begins blinking about twice per second.
7. Continue holding the OFFSET LEFT button and turn the key start to the RUN position. The LED turns solid if the procedure is successful.

   Note: This could take up to 20 seconds.
8. Release the OFFSET LEFT button.

   The system is ready for use with that remote control.



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Figure 30

1. LED light
2. Offset left
3. Sweeper down
4. Hopper dump
5. Stop
6. Sweeper up
7. Offset right

Switching the Sweeper-Up Mode

The sweeper-up button has 2 possible modes; standard and optional.

The standard mode allows the operator to raise the sweeper to the pre-defined heights with a single button push. Refer to Switching the Sweeper-Up Mode (page 17)

The optional mode allows the operator to adjust the sweeper to any desired height and it stops at the pre-defined heights. Refer to Switching the Sweeper-Up Mode (page 17).

1. Remove the cover off the control module.
2. Unplug the 2 wire connections from the pigtail connector show in Figure 31.
3. Plug the 2 wire connections into the existing pigtail connector tethered to the wire harness.
4. Install the cover onto the control module.

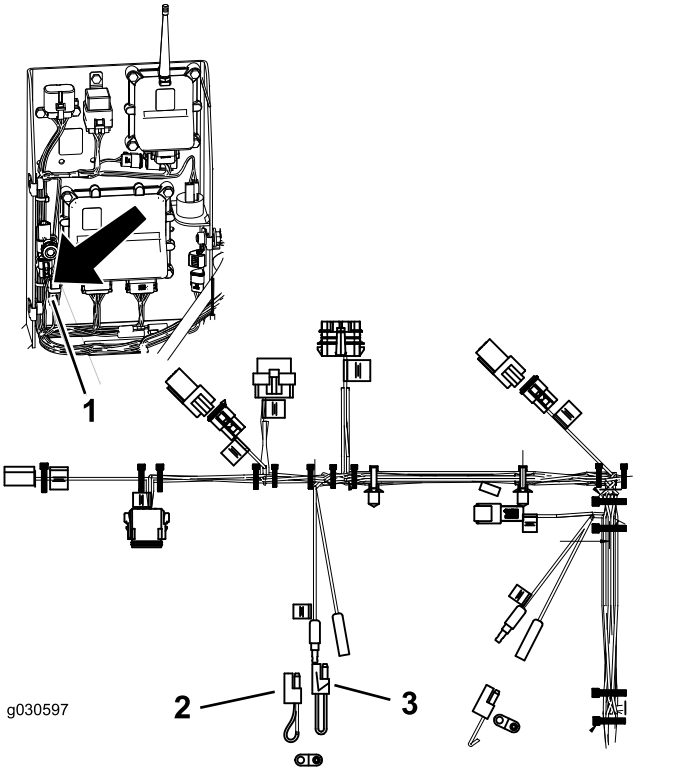


Figure 31

1. Location of pigtails
2. Optional-mode pigtail (tethered to the wire harness)
3. Standard-mode pigtail

Note: To return to standard mode, install the original pigtail connector.

Maintenance

Replacing the Batteries

1. Remove the 6 screws from the back of the remote and remove the cover (Figure 32).

   Note: If possible, leave the rubber seal and steel gasket in the channel when removing the cover and batteries.

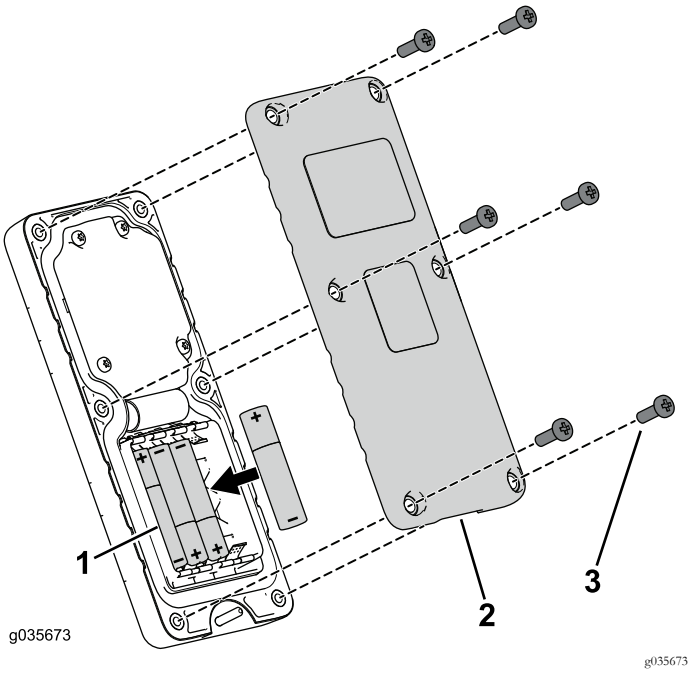


Figure 32

1. Batteries
2. Cover
3. Screw

2. Remove the discharged batteries and dispose of them in accordance with local regulations.
3. Install each new battery into a terminal cradle observing proper polarity.

   Note: The controller cannot function when the batteries are installed improperly.

4. If you accidentally removed the rubber seal and the steel gasket, replace them carefully into the channel in the handheld remote.
5. Install the cover and secure it with the 6 screws removed previously (Figure 32) and torque them to 1.5 to 1.7 N·m (13 to 15 in-lb).

   Note: Do not overtighten the screws.

Troubleshooting

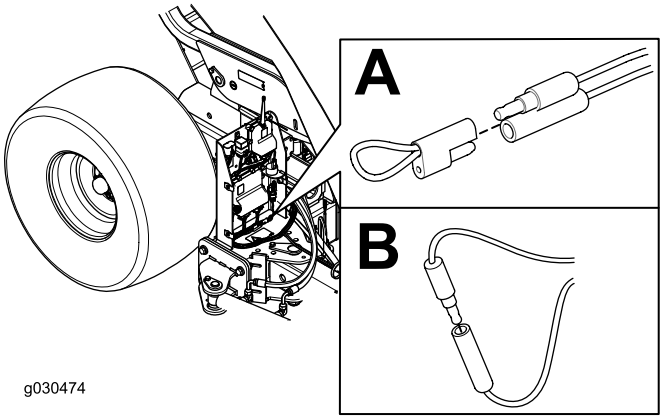
Condition	Possible Causes	Corrective Action
The diagnostic light on the sweeper does not illuminate when pressing a remote button.	There is frequency interference.	Associate the remote control to the base unit. Refer to Associating the Remote Control and the Base Unit (page 16)

Checking Fault Codes

If the diagnostic light indicates that there is a system fault, check the fault codes to determine what is wrong with the machine. Refer to Entering Diagnostic Mode (page 19).

Entering Diagnostic Mode

1. Turn the key to the RUN position.
2. Disconnect the wire harness from the traction unit to the sweeper to disable power to the sweeper.
3. Remove the compartment cover.
4. Pull the tethered cap off the 2 diagnostic, shunt connectors (Figure 33A).
5. Connect the diagnostic, shunt connectors together (Figure 33B).



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Figure 33

6. Connect the wire harness from the traction unit to the sweeper to enable power to the sweeper.
7. Count the number of flashes to determine the fault code, then consult the following table:

   Note: If there are multiple faults, both faults flash, then a long pause, then the flash sequences repeat.

Decoding the Fault Codes

Code	LED Flash Pattern	Behavior	Details
Machine Specific Faults			
11	Blink once, pause, blink once, long pause, then repeat	Lost communication with BASE.	Connector not plugged in; locate the loose or disconnected wire harness connector and connect it.
			Something wrong in the wiring; contact your Toro Distributor.
			BASE is bad; contact your Toro Distributor.
12	Blink once, pause, blink twice, long pause, then repeat	Version incompatibility of the BASE and/or HH.	Wrong software (install the correct software from TORODIAG); contact your Toro Distributor.
13	Blink once, pause, blink 3 times, long pause, then repeat	Wrong HH (not implemented on RevA).	Wrong product association (i.e. trying to update software on a MH-400 with a ProPass handheld)

Resetting the Fault Codes

After solving the problem, disconnect and reconnect the diagnostic connectors. The diagnostic light flashes continuously once per second.

Exiting Diagnostic Mode

1. Turn the key to the RUN position.
2. Disconnect the wire harness from the traction unit to the sweeper to disable power to the sweeper.
3. Disconnect the diagnostic, shunt connectors.
4. Push the tethered cap onto the 2 diagnostic, shunt connectors.
5. Connect the wire harness from the sweeper to the traction unit to enable power to the sweeper.
6. Install the compartment cover.

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
131-4836	—	Controller Kit, Pro Sweep 5200 Turf Sweeper	CONTROLLER KIT, PROSWEEP	Controller Kit	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:



David Klis
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Count on it.