Form No. 3385-426 Rev A

Ultra Sonic Boom™ Leveling Kit

2013 and After Multi-Pro 5800, 1750 and WM Turf Sprayers

Model No. 41219—Serial No. 314000001 and Up

Installation Instructions

This attachment maintains consistent distances from the boom nozzles to the ground when spraying over uneven surfaces and is intended to be used by professional, hired operators in commercial applications. It is primarily designed for spraying golf course applications, parks, sports fields, and on commercial grounds. It is designed to only be used in conjunction with machines designated by the manufacturer.

This product complies with all relevant European directives. For details, please see the separate product specific Declaration of Conformity (DOC) sheet.

⚠ 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.

Use of this product may cause exposure to chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

8111 Lyndale Avenue South
Bloomington, MN 55420

Register at www.Toro.com.

CE

Original Instructions (EN)
Printed in the USA

3385-426 A

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	Hinge Angled strap (for an uncovered boom) Angled strap (for a covered boom) Top or bottom strap Compression spring Bushing Hex-head bolt (5/16 x 3-1/4 inch) Flat washer Locknut (5/16 inch)	2 2 2 2 4 8 4 12 4	Assemble the sensor mounting hardware.
3	Hydraulic manifold block Hydraulic fitting	1 4	Prepare the booms.
4	Boom cradle arm Caps	2 2	Replace the boom cradle arms.
5	Sonic boom sensor Bracket Programming plug Sensor cover Lower sensor housing Cap tube Sensor guard bracket Sensor cable (4 m) Large nut U-bolt Locknut (1/4 inch) Bolt (5/16 x 3/4 inch) Bolt (5/16 x 1-1/4 inch) Locknut (5/16 inch) Cable tie	2 2 2 2 2 2 2 2 4 6 8 8 4 12 12	Install the sonic boom sensors.
6	Electronic controller Mounting bracket Bolt (1/4 x 1-1/8 inch) Locknut (1/4 inch)	1 1 4 4	Mount the electronic controls.
7	Wiring harness Rocker switch Indicator light Cable tie	1 1 1 12	Install the controls.
8	No parts required	–	Calibrate the sonic booms.

Important: **In order to complete the installation, you must purchase a separate finishing kit. For the Multi-Pro 5800, order finishing kit 130-8229. For the Multi-Pro 1750, order finishing kit 130-8227. For the Multi-Pro WM, order finishing kit 130-8228.**

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

1

Preparing the Machine

No Parts Required

Procedure

Position the machine on a level surface, stop the engine, remove the ignition key, and engage the parking brake.

⚠ CAUTION

If you leave the key in the ignition switch, someone could accidently start the engine and seriously injure you or other bystanders.

Remove the key from the ignition switch before you install the kit.

2

Assembling the Sensor Mounting Hardware

Parts needed for this procedure:

2	Hinge
2	Angled strap (for an uncovered boom)
2	Angled strap (for a covered boom)
2	Top or bottom strap
4	Compression spring
8	Bushing
4	Hex-head bolt (5/16 x 3-1/4 inch)
12	Flat washer
4	Locknut (5/16 inch)

Procedure

Note: How you assemble the sensor mounting hardware depends upon whether the Covered Boom Kit (model 41602) is installed.

1. Lay out the hinges and straps as shown in Figure 1 (for an uncovered boom) or Figure 2 (for a covered boom).

   Note: There are 2 sets of 2 angled straps in loose parts. One set is for an uncovered boom and the other set is for a covered boom. You will have one set of 2 angled straps (either for the covered boom or for the uncovered boom) that you will not use on the machine.

   Note: The top straps for the uncovered booms also serve as the bottom straps for the covered booms.

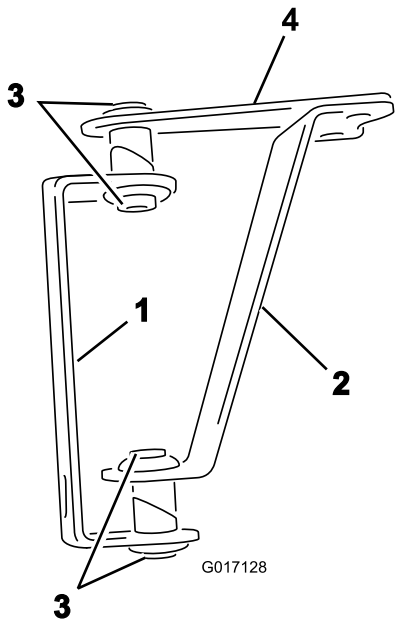

Figure 1

For uncovered booms only

1. Hinge (2)
2. Angled strap (2)
3. Bushings (8)
4. Top strap

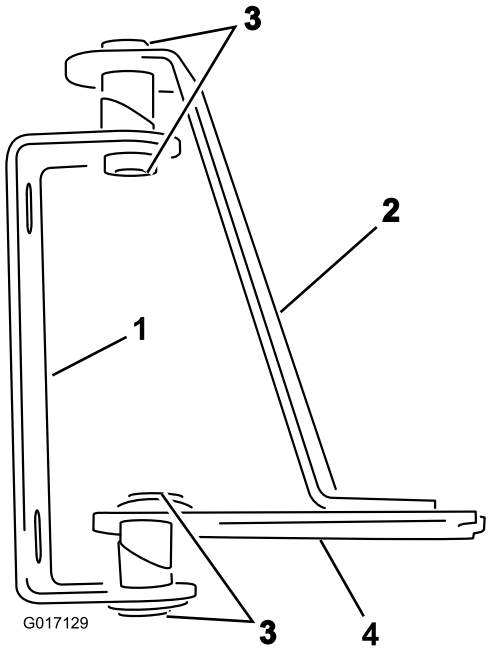

Figure 2

For covered booms only

1. Hinge (2)
2. Angled strap (2)
3. Bushing (8)
4. Bottom strap

2. Insert the bushings into the welded tube openings in the hinges and straps as shown in Figure 1 or Figure 2.

3. Install a flat washer on each of the 2 hex-head bolts (3-1/4 inch).
4. Insert the bolts through the hinged welded tube openings, hinges, and straps (Figure 3).

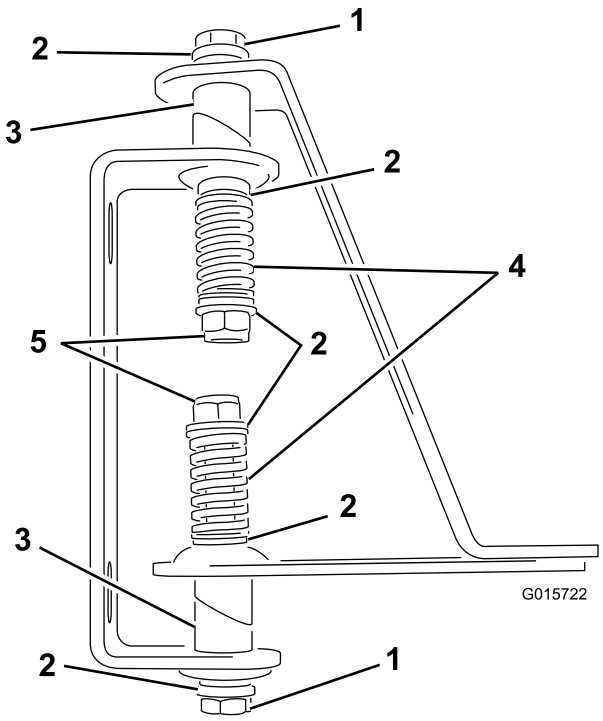

Figure 3

Hardware for a covered boom shown

1. Hex-head bolt
2. Flat washer
3. Welded tube opening
4. Springs
5. Locknuts (5/16 inch)

5. Install a flat washer on the exposed end of each of the bolts.
6. Install a spring on the end of each bolt (Figure 3).
7. Install a flat washer and a locknut on the end of each bolt, and tighten the locknuts until there is no slack in the spring.

   Note: Check to ensure that the hinges are not so tight that the mounted sensors do not freely pivot on the hinges.

3

Preparing the Booms

Parts needed for this procedure:

1	Hydraulic manifold block
4	Hydraulic fitting

Procedure

The booms are set at the factory to travel downward no farther than the horizontal position. To enable the ultrasonic boom kit to maintain a consistent distance between the nozzles and the ground when the ground slopes downward from the machine, you must adjust the boom support system to allow the booms to travel below the horizontal position in order to maintain a constant nozzle-to-ground distance.

1. Raise the booms and have them rest in the transport cradle.
2. For each boom, remove the hairpin cotter and pull out the pin from the rod to disconnect the rod from the boom pivot pin housing (Figure 4).

   Note: There should be no more than 16 mm (5/8 inch) of exposed thread on the eyelet to prevent the engaged threads from stripping and the rod from pulling away.

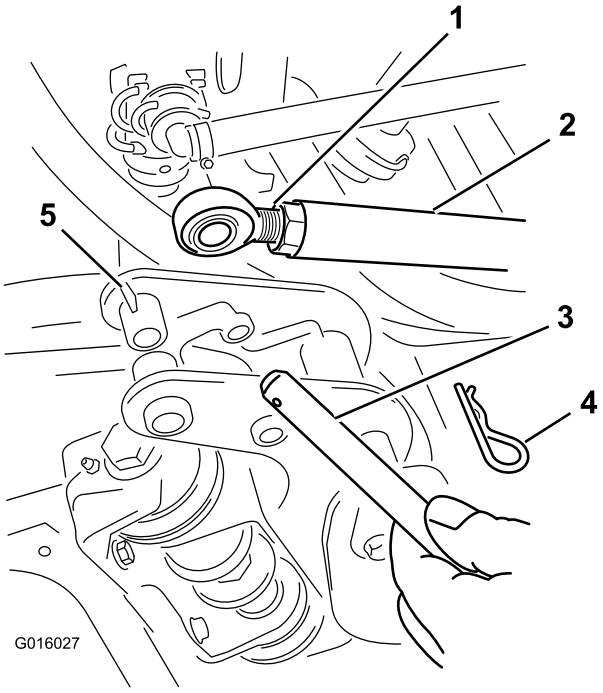

Figure 4

1. 16 mm (5/8 inch) or less of thread exposed
2. Rod
3. Pin
4. Hairpin cotter
5. Boom-pivot-pin housing

3. Carefully lower the booms onto wooden blocks about 10 cm (4 inches) high (Figure 5).

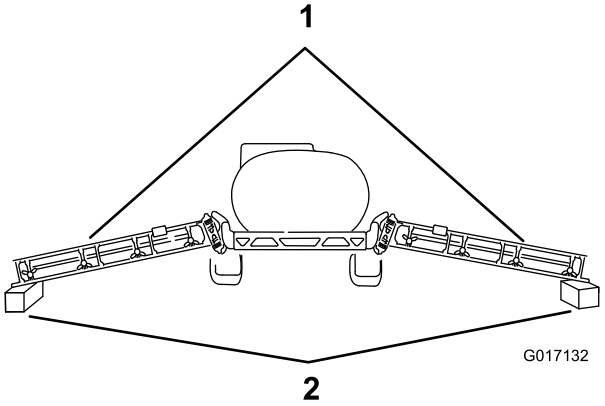

Figure 5

1. Booms
2. Wooden blocks

4. Start the machine and fully extend the actuators.
5. Loosen the jam nut on each rod.
6. Unscrew the eyelet on each rod end until the hole in the eyelet aligns with the holes in the boom pivot pin housing.
7. For each boom, install the pin that you removed in step 2 through the boom pivot pin housing and eyelet on the rod end.
8. Secure the pins with the hairpin cotters that you removed in step 2.
9. Tighten the jam nut on each rod until it is snug.
10. Remove the hydraulic block cover plate.
11. Label all the hoses connected to the hydraulic manifold block (ports C1 through C4), and disconnect them from the block.

Note: Loosen the 2 hydraulic connectors on the right side and the gauge port (Figure 6).

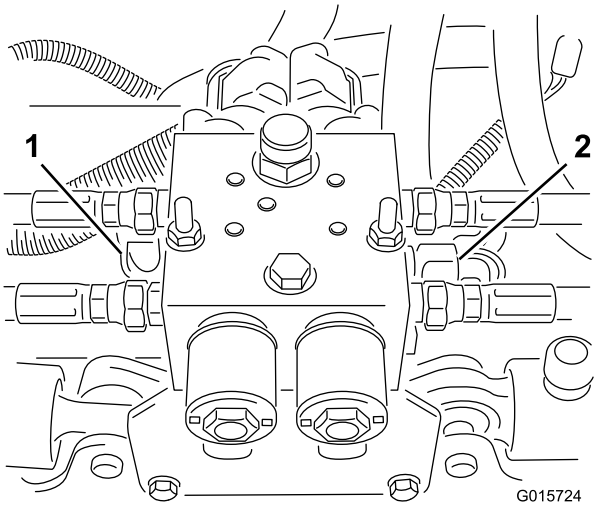

Figure 6

1. Gauge port
2. Hydraulic connectors

12. Disconnect the harness connections.
13. Remove the hydraulic block from the mounting bracket by removing 2 bolts and 2 locknuts (Figure 6).

Note: Save the hardware.

14. Install the 4 hydro fittings into the C1-C4 ports.
15. Remove the 2 hydraulic connectors from the ports and the gauge port from the old hydraulic manifold block, and install them on the new hydraulic manifold block.
16. Install the new hydraulic manifold block onto the mounting bracket with the 2 bolts and 2 locknuts that you previously removed.
17. Tighten the gauge port and the 2 hydraulic connectors.
18. Tighten all the fittings on the block.
19. Install all the hoses onto the fittings on the block.

Important: Ensure that you install the hoses correctly. The 3/8-inch hose from the return filter connects to the "T" port, and the other 3/8-inch hose connects to the "P" port. The C1 and C3 ports go to the base end of the cylinders, and the C2 And C4 ports go to the rod end of the cylinders.

20. Purge the hydraulic system. Refer to the *Operator's Manual*.

4

Replacing the Boom Cradle Arms

Parts needed for this procedure:

2	Boom cradle arm
2	Caps

Procedure

The new boom cradle arms allow the booms to fold up without contacting each other, preventing any possible damage to the sensors mounted on the booms.

1. Remove the each of the 2 existing boom cradle arms by removing the bolt and nut (Figure 7).

   Note: Save the bolts and nuts to install the new boom cradle arms.

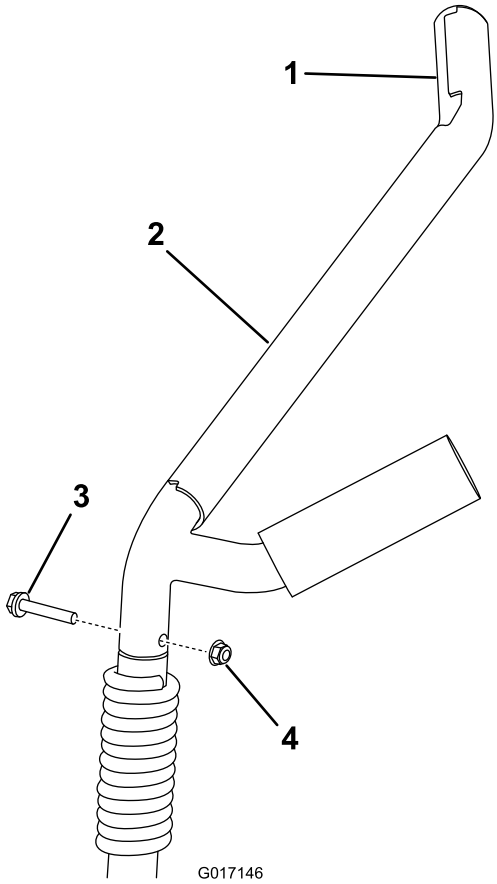

Figure 7

1. Cap (2)
2. Boom cradle arm (2)
3. Bolt (2)
4. Nut (2)

2. Install each new boom cradle arm and secure it with the bolt and nut that you previously removed.

5

Installing the Sonic Boom Sensors

Parts needed for this procedure:

2	Sonic boom sensor
2	Bracket
2	Programming plug
2	Sensor cover
2	Lower sensor housing
2	Cap tube
2	Sensor guard bracket
2	Sensor cable (4 m)
4	Large nut
6	U-bolt
8	Locknut (1/4 inch)
8	Bolt (5/16 x 3/4 inch)
4	Bolt (5/16 x 1-1/4 inch)
12	Locknut (5/16 inch)
12	Cable tie

Procedure

1. Install a mounting bracket on the front side of each boom near the outermost nozzle with 3 U-bolts and 6 locknuts (1/4 inch) (Figure 8 and Figure 9).

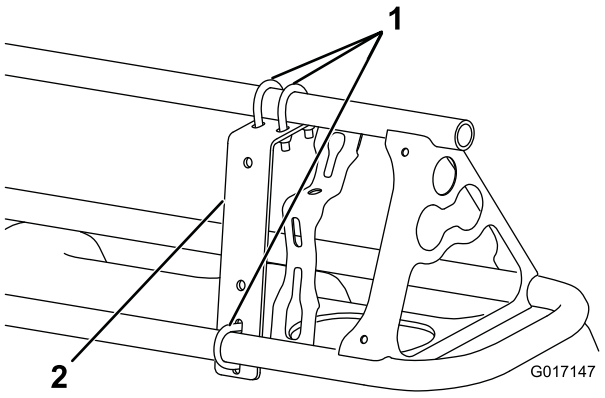

Figure 8
Front view

1. Mounting bracket (2)
2. U-bolt (6)

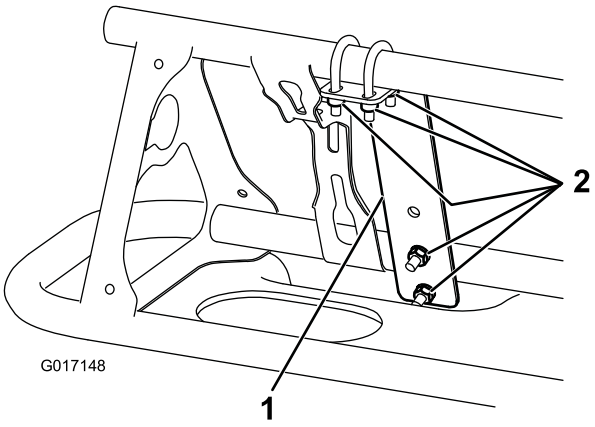

Figure 9
Rear view

1. Mounting bracket (2)
2. Locknuts (1/4 inch) (12)

2. Install the sensor guard bracket onto the mounting bracket with 2 bolts (5/16 x 3/4 inch) and 2 flange nuts (5/16 inch) as shown in Figure 10.

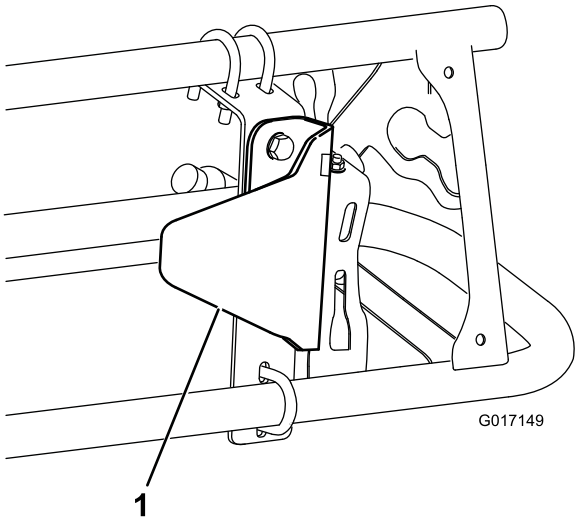

Figure 10

1. Sensor guard bracket

3. Install the sensor mounting hardware onto the sensor guard bracket with 2 bolts (5/16 x 3/4 inch) and 2 locknuts (5/16 inch) as shown in Figure 11 (for a covered boom) or Figure 12 (for an uncovered boom).

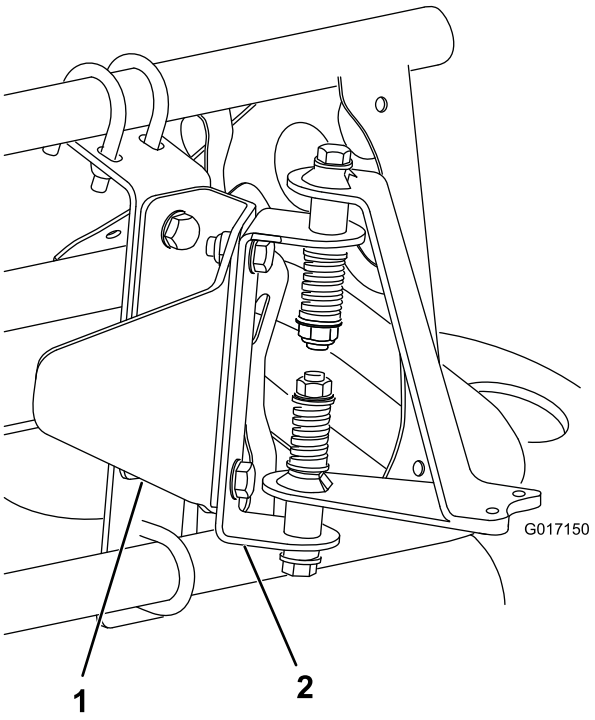

Figure 11
For a covered boom only

1. Sensor guard bracket
2. Hinge (of sensor mounting hardware)

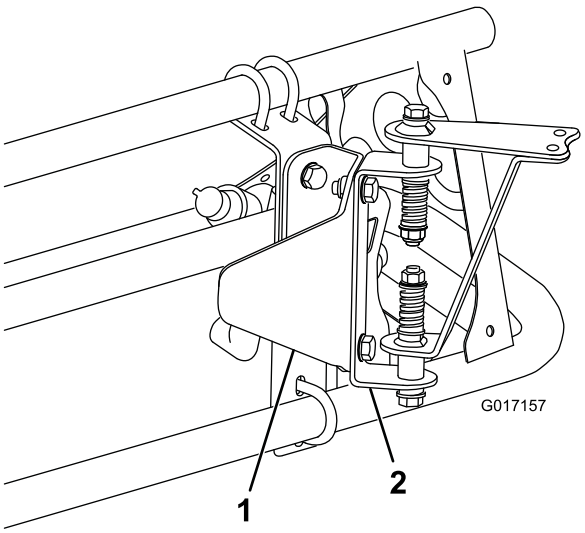

Figure 12
For an uncovered boom only

1. Sensor guard bracket
2. Hinge (of sensor mounting hardware)

4. Install the lower sensor housing onto the sensor mounting hardware with 2 bolts (5/16 x 1-1/4 inch) and 2 locknuts (5/16 inch) (Figure 13).

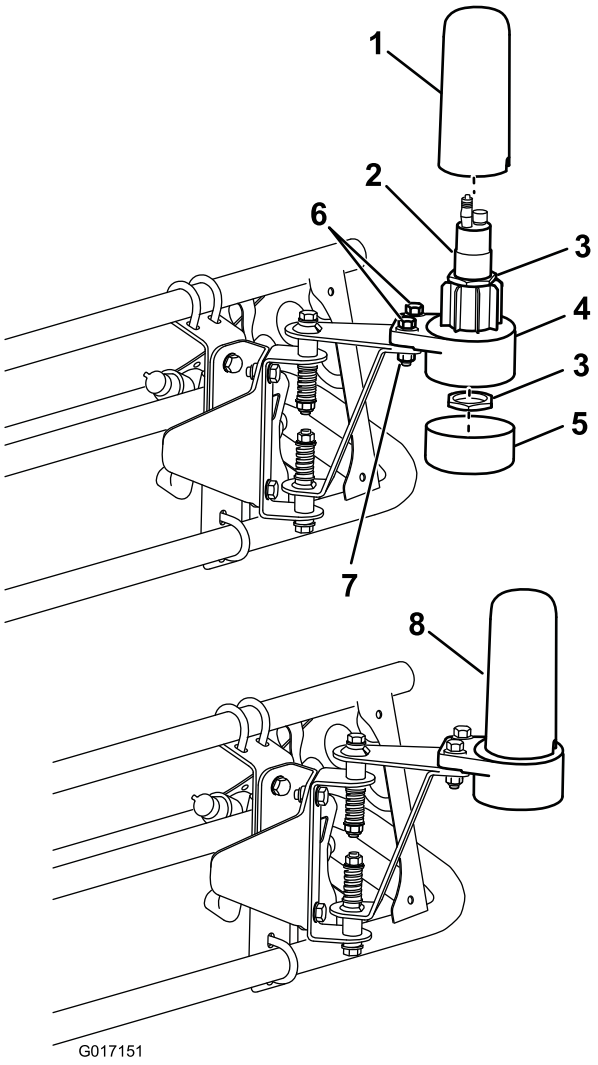

Figure 13

Uncovered boom configuration shown

1. Cover
2. Sensor
3. Large nut
4. Lower sensor housing
5. Cap tube
6. Bolts (5/16 x 1-1/4 inch)
7. Locknuts (5/16 inch)
8. Finished sensor assembly

5. Install the programming plug on the sensor (Figure 14).

   Important: Ensure that you align the arrow below the sideways "T" with the notch on the top edge of the sensor (Figure 14).

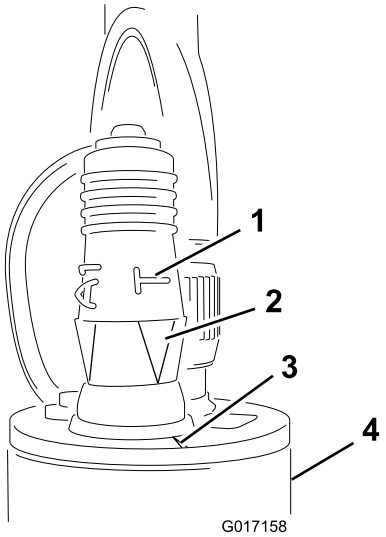

Figure 14

1. Sideways "T"
2. Arrows aligned
3. Notch
4. Sensor

6. Insert the sensor into the lower sensor housing, and secure it with 2 large nuts provided with the sensor (Figure 13).

   Note: Discard the lock washers that come with the sensors.

7. Install the cap tube and the cover (Figure 13).

   Note: Ensure that the sensor wire is routed through the small opening in the cover before installing the sensor cover.

8. Secure the wire coming from the sensor to the boom with cable ties.

   Important: Ensure that you allow enough slack in the wire around the sensor so that the sensor can freely pivot on the hinge without pulling on the wire.

9. Repeat the steps above for the other boom.

Note: For covered booms only: The sensors should not detect the boom cover as this may interfere with the signal. If you experience any difficulties during the calibration process, check the sensors to ensure that their signals do not detect the boom cover.

6

Mounting the Electronic Control

Parts needed for this procedure:

1	Electronic controller
1	Mounting bracket
4	Bolt (1/4 x 1-1/8 inch)
4	Locknut (1/4 inch)

Procedure

Important: In order to complete the installation, a separate finishing kit must be purchased. For the Multi-Pro 5800, order finishing kit 130-8229. For the Multi-Pro 1750, order finishing kit 130-8227. For the Multi-Pro WM, order finishing kit 130-8228.

1. **For model 5800**, remove the knockout plug (Figure 15).

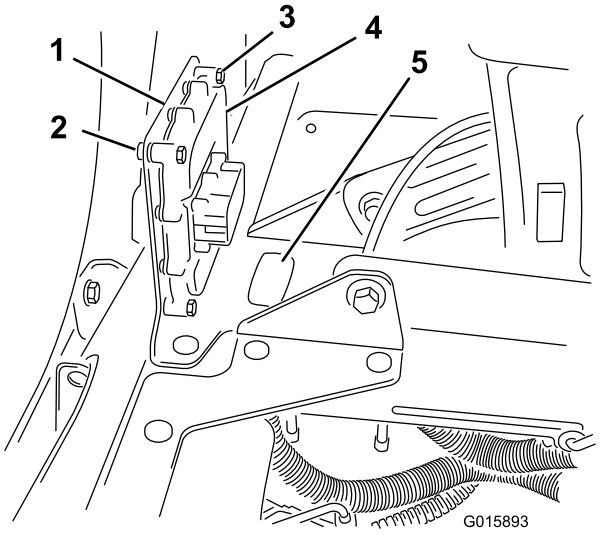

Figure 15

1. Mounting bracket
2. Locknut (1/4 inch) (4)
3. Bolt (1/4 x 1-1/8 inch)
4. Electronic controller
5. Knockout plug

2. **For model 1750**, install the electronic controller, bracket and cover to the machine (Figure 16).

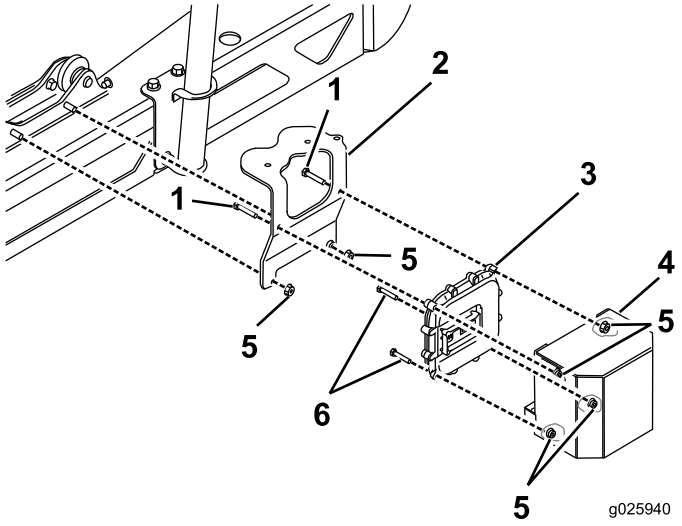

Figure 16

1. Bolt
2. Bracket
3. electronic controller
4. Cover
5. Nut
6. Bolt

3. **For model 1750**, install the hydraulic manifold block under the bracket with 2 nuts.

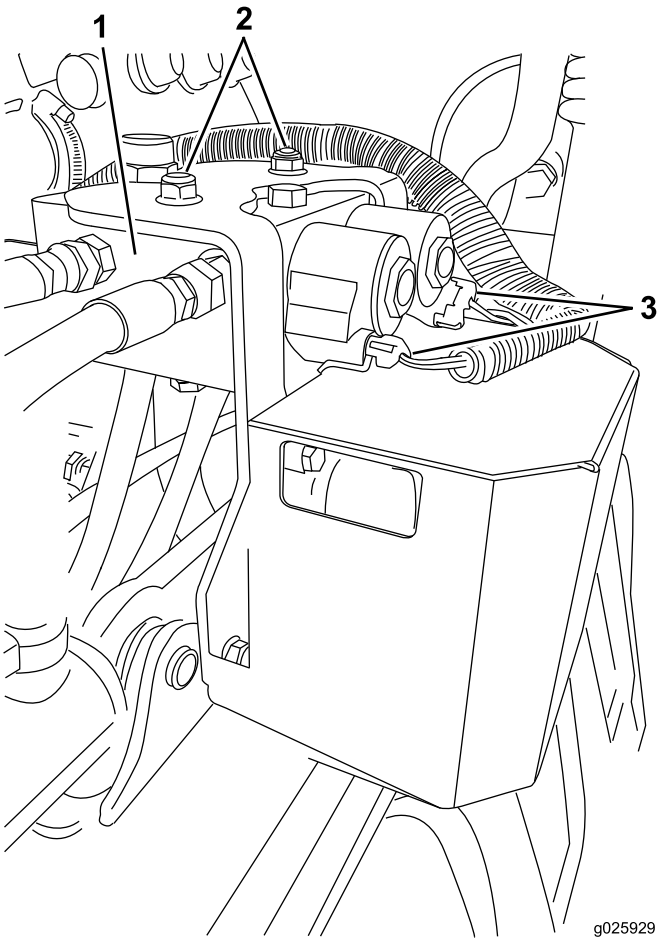

Figure 17

1. Hydraulic manifold
2. Nuts
3. Wiring harness

4. Route the wiring harness to the hydraulic manifold (Figure 17).
5. Route the electronic control terminal on the wiring harness through the knockout hole, but do not connect the terminal to the controller.
6. Install the mounting bracket to the machine seat frame, between and behind the seats with existing hardware (Figure 15).
7. Secure the controller to the mounting bracket with 4 hex head bolts (1/4 x 1-1/8 inch) and 4 locknuts.

7

Installing the Wiring Harness, Indicator Light, and the Switches

Parts needed for this procedure:

1	Wiring harness
1	Rocker switch
1	Indicator light
12	Cable tie

Connecting the Wiring Harness to the Electronic Controller, Ground Block, Main Power Source, and Battery

1. **For model 5800**, connect the terminal on the wiring harness into the electronic controller and secure it with an Allen wrench (Figure 18).

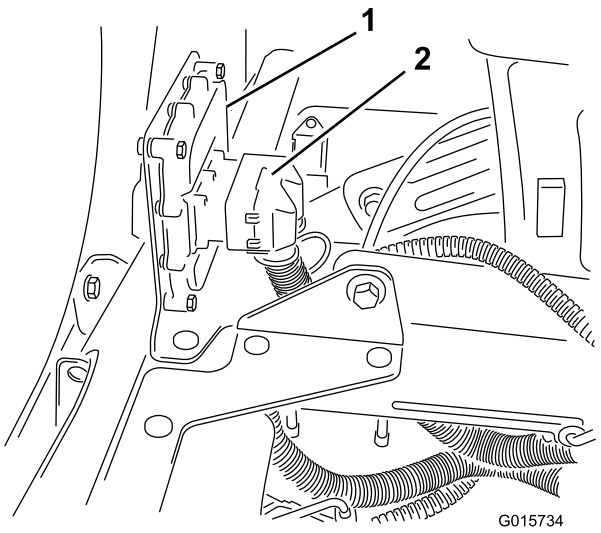

Figure 18

1. Electronic controller
2. Terminal

Note: The controller connection is keyed and can be connected in only one way.

2. **For model 1750**, connect the wiring harness to the electronic controller by routing the wiring harness under the cover (Figure 19).

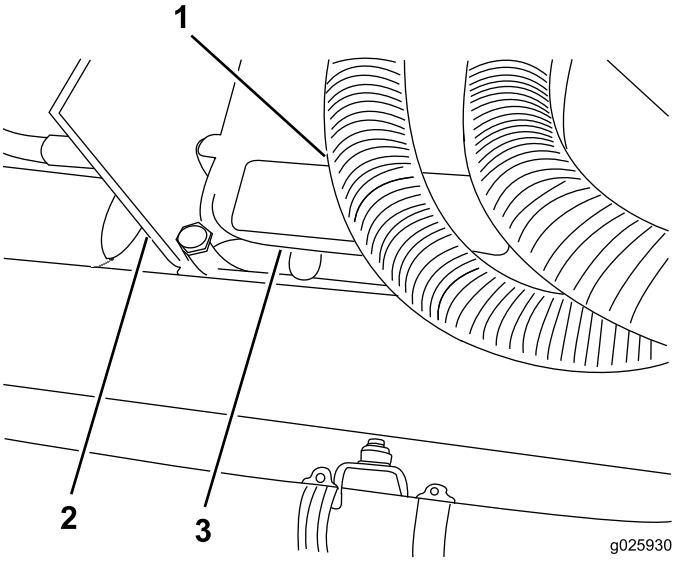

Figure 19

1. Wiring harness
2. Cover
3. Electronic controller

3. Lift the seat to access the fuse block area.
4. Locate the existing fuse blocks on the machine, and install the fuse block connected to the wiring harness by securing it to the bottom of the fuse block above it (Figure 20).

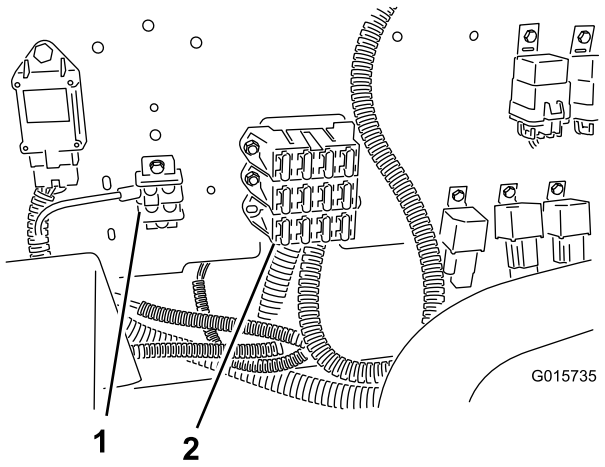

Figure 20

1. Ground terminal block
2. Fuse block

5. Secure the ground terminal on the wiring harness to the ground terminal block (Figure 20).
6. Connect the wiring harness connector labeled "Main Power" to the main power source connector by the fuse block.

7. Install the battery terminal on the wiring harness to the positive (+) terminal of the battery.
8. Lower the driver's seat.

Installing the Sonic Boom Switch

1. Route the end of the wiring harness with the sonic boom switch connector under the dashboard.
2. Remove the switch plug on the dashboard in the location shown in Figure 21.

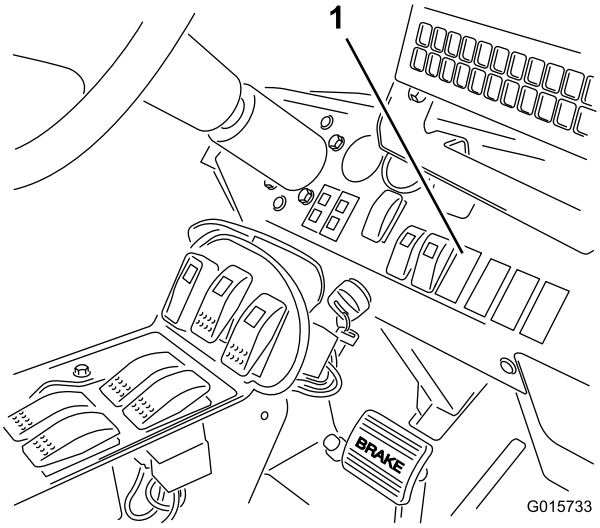

Figure 21

1. Plug on the dashboard

3. Insert the rocker switch in the dashboard opening.
4. Connect the switch connector on the wiring harness to the switch.

Installing the Indicator Light and Connecting the Switches

1. Remove the right-hand side cover on the center console by removing 5 bolts and a long screw.
2. Disconnect the connections from the 2 existing boom lift switches that control the left-hand and right-hand booms.

   Note: Tuck the connectors from the old wiring harness away.
3. Remove the plug and insert the indicator light into the hole in the console.
4. Connect the indicator light to the connector on the wiring harness.
5. Connect the 2 boom lift (rocker) switches to the connectors on the wiring harness.

   Note: The 2 connectors on the wiring harness are labelled *Left Boom Raise/Lower* and *Right Boom Raise/Lower*.
6. Install the right-hand side cover on the center console using the fasteners that you removed in step 1.
7. Route the wiring harness to the back of the vehicle along the path of the other wires and hoses.

   Note: Use cable ties to secure the wiring harness to the other wiring harnesses away from the exhaust system and any moving parts.
8. Connect the Left Boom/Up; Left Boom/Down connectors on the wiring harness to the solenoid valves on the hydraulic block (Figure 22).

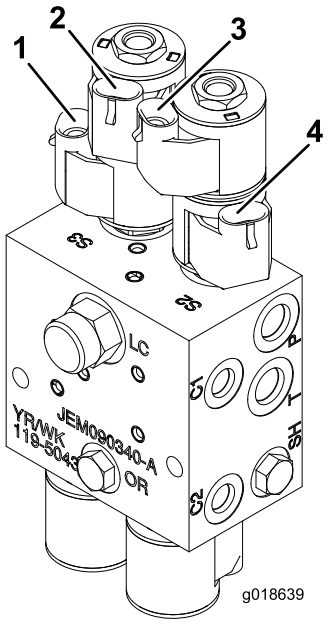

Figure 22

1. Left Boom/Down
2. Left Boom/Up
3. Right Boom/Up
4. Right Boom/Down

   Note: The connectors on the wiring harness are labeled Left Boom/Up; Left Boom/Down; Right Boom/Up; and Right Boom/Down.

   Note: There should be 2 open connectors that remain; they are for connecting the sensors.
9. Secure the *Right Enable* and *Left Enable* wires with cable ties.
10. Install the mounting plate over the hydraulic block.

Connecting the Sensors

1. Route the wire from each sensor along the boom toward the rear center of the machine.
2. Secure the sensor wires to the boom with cable ties.

   Note: Ensure that you allow enough slack in the wire near the sensors so that the sensors can freely pivot on the hinges.
3. Connect the left and right sensor end connectors to the wiring harness connectors labeled *Left Sonic Sensor* and *Right Sonic Sensor*, respectively.

8

Calibrating the Sonic Booms

No Parts Required

Procedure

In this procedure, you will have 20 seconds to calibrate the sensors on the booms. The distance you set between the sensor on each boom and the ground after the 20-second calibration period is the boom height setting in automatic mode until the next time you calibrate the sensor.

Note: **For uncovered booms:** The default height setting is 51 cm (20 inches) from the nozzle to the ground. If, after setting a boom to a height different from that of the factory default setting, you wish to restore the calibration to the factory-default setting, calibrate the boom with the boom in the cradle. **For covered booms:** The default height setting of 51 cm (20 inches) is for uncovered booms only. You must calibrate the sensors on covered booms.

1. Ensure that the turf sprayer is parked and away from any trees, buildings, vehicles, debris, and underground utilities and plumbing.
2. Lower the booms to the horizontal position.
3. Turn off the ignition key.
4. Press the sonic boom switch on the dashboard to the Auto position (Figure 23).

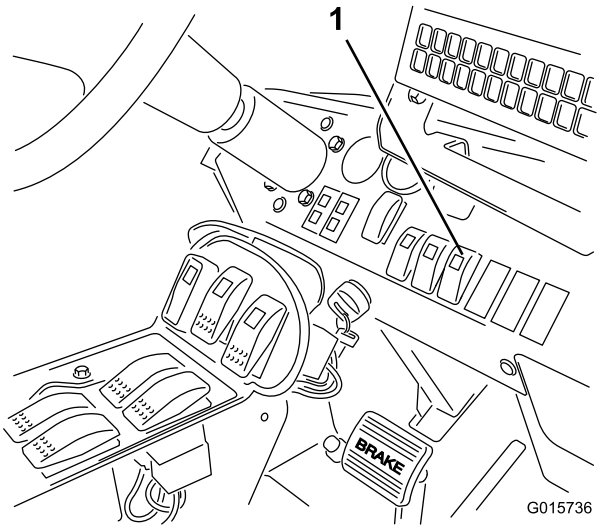

Figure 23

1. Sonic boom switch

5. While pressing and holding both the Left Lower switch and the Right Raise switch, turn the ignition key and start the machine.
6. Release the boom switches.

Note: The green light on the sonic boom switch will flash rapidly, indicating that the sonic boom system is in calibration mode. You now have 20 seconds to use the Raise and Lower boom switches to set the desired distance from the booms to the ground. After the 20 seconds, the green light will flash slowly.

7. Use the Raise and Lower switches to adjust the height of each boom until you achieve the desired distance from the sensor on the boom to the ground.

Operation

Using the Controls

The **Sonic boom switch** is located on the dashboard and has 2 settings: Automatic and Manual.

- **Automatic mode:** This mode enables the automatic movement of the booms, enabling the boom tips to continually remain the desired distance from the ground. To activate the automatic mode, press the Auto mode on the dashboard and tap on the lower boom switch to move the boom to the desired distance from the ground.

  Note: You can temporarily override the automatic operation of the booms using the boom switches to raise or lower one or both booms. To lower the boom manually while the system is in automatic mode, hold the lower boom switch until you reach the desired boom height. To raise the boom manually while the system is in automatic mode, simply hold the raise boom switch until you reach the desired boom height. If you adjust only 1 boom, the other boom will continue to function automatically. To resume the automatic mode, tap the lower boom switch to move the boom to the desired distance from the ground.

- **Manual mode:** This mode turns off the automatic adjustment of the booms, and allows you to control the booms manually.

The **Sonic boom light** is on the sonic boom switch displays the status of the sonic boom system as follows:

- **On continuously:** The sonic boom system is on and operating normally.
- **Flashing quickly:** The system is in calibration mode, which lasts for 20 seconds.
- **Flashing slowly:** There is an error in the system or you have overridden the automatic mode by operating one or both of the booms manually while the system is in automatic mode.

  Note: In the event that there is a fault in the sonic boom system (e.g., there is no signal coming from a sensor), the boom will raise for a few seconds and then stop, and the light on the boom switch (located on the dashboard) will flash slowly, indicating that one of the booms has stopped. Also, the indicator light on the armrest will flash, indicating a fault.

The **indicator light** is the small red light located on the arm console and displays the status of the sonic boom system as follows:

- **On momentarily:** The light comes on when you activate the sonic boom system. The light will turn off after a few seconds and remain off as long as the system is operating properly.
- **Flashing:** There is an active fault in the sonic boom system.

Operating the Sprayer

Important: When operating the machine over especially uneven terrain, reduce the ground speed to prevent the booms from striking the ground.

Maintenance

Cleaning

Clean the sensors periodically with a damp cloth. If a sensor is damaged or excessively dirty, replace it.

Important: Do not spray water at or on the sensors. Water sprayed under even household pressure can damage the sensor. Always cover the sensors completely before washing the sprayer.

Note: When the booms are in the cradle for extended periods of time, the seal around each sensor (which is oriented upward) may become exposed to ultraviolet light and gradually deteriorate. Prevent the bottom of the sensors from being exposed to direct sunlight whenever possible.

Storage

Whenever you are not using the sensors for an extended period of time, put the safety caps on the sensors to protect them from the outdoor elements.

Troubleshooting

Note: Refer to the service manual for additional diagnostic information. Product electrical schematics may be found at www.Toro.com.

Problem	Possible Cause	Corrective Action
One or both booms malfunction; the sonic boom light is Off.	1. A fuse is blown. 2. The light is burned out. 3. The electronic controller or wiring is damaged.	1. Replace the fuse. 2. Replace the light. 3. Contact an Authorized Toro Distributor.
One or both booms malfunction; the sonic boom light flashes slowly.	1. There is a minor system error. 2. There is a system error that repeats after clearing the error. 3. There is a hydraulic or mechanical failure.	1. Lower the affected boom(s) using the boom switch(es) to clear the error. 2. If the error repeats, contact an Authorized Toro Distributor. 3. Repair the hydraulic or mechnical problem.
One or both booms are malfunctioning; the sonic boom light is on.	1. The sensor covers are blocking or swinging into the sensor path	1. Install cover to the top side of the sensor.

Notes:

The Toro Total Coverage Guarantee

A 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 two years or 1500 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*. Failure to perform required maintenance and adjustments can be grounds for disallowing a warranty claim.

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. A separate warranty may be provided by the manufacturer of these items.
- Product failures which result from failure to perform recommended maintenance and/or adjustments. Failure to properly maintain your Toro product per the Recommended Maintenance listed in the *Operator’s Manual* can result in claims for warranty being denied.
- Product failures which result from operating the Product in an abusive, negligent, or reckless manner.
- Parts subject to consumption through use unless found to be 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, and check valves, etc.
- Failures caused by outside influence. Conditions considered to be outside influence include, but are not limited to, weather, storage practices, contamination, use of unapproved fuels, coolants, lubricants, additives, fertilizers, water, or chemicals, etc.
- 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, etc.

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. Battery replacement may be required during the normal product warranty period at owner’s expense. Note: (Lithium-Ion battery only): A Lithium-Ion battery has a part only prorated warranty beginning year 3 through year 5 based on the time in service and kilowatt hours used. Refer to the *Operator's Manual* for additional information.

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 engine 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 for details

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 the Toro importer.