Form No. 3416-670 Rev A

TORO®

Count on it.

Operator's Manual

ProPass 200 Top Dresser with Twin Spinner

Model No. 44701—Serial No. 316000001 and Up
Model No. 44751—Serial No. 316000001 and Up

Register at www.Toro.com.
Original Instructions (EN)

CE

3416-670 A

⚠ 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.

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

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: W7OMRF24J40MDME-Base, OA3MRF24J40MA-Hand Held

IC: 7693A-24J40MDME-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-LGHH
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: TWM240008_IDA_N4023-15

RF2CAN: TWM-240005_IDA_N4024-15

Morocco Electromagnetic Compatibility Certification

AGREE PAR L'ANRT MAROC

NUMERO d'agrement: MR 14078 ANRT 2017

Delivre d'agrement:: 29/05/2017

Introduction

This Top Dresser is intended to be used by professional, hired operators in commercial applications. It is primarily designed for metering and dispersing materials, under a range of moisture conditions, without clogging or drastically affecting the dispersion.

Read this information carefully to learn how to operate and maintain your product properly and to avoid injury and product damage. You are responsible for operating the product properly and safely.

You may contact Toro directly at www.Toro.com for product and accessory information, help finding a dealer, or to register your product.

Whenever you need service, genuine Toro parts, or additional information, contact an Authorized Service Dealer or Toro Customer Service and have the model and serial numbers of your product ready. Figure 1 identifies the location of the model and serial numbers

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Bloomington, MN 55420

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Printed in the USA
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on the product. Write the numbers in the space provided.

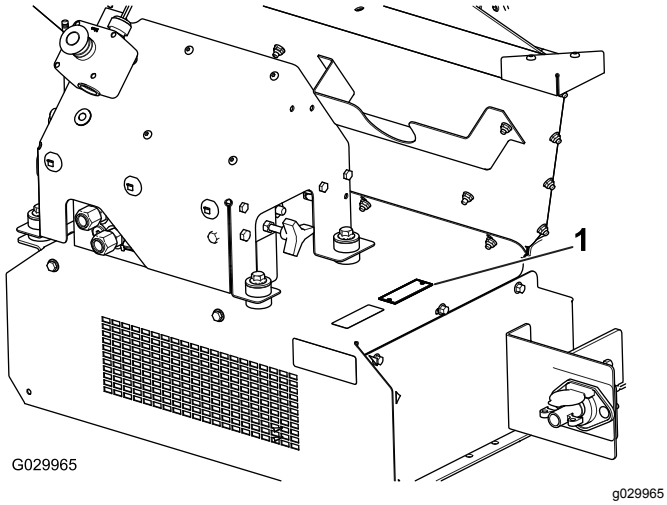


Figure 1

1. Model and serial number location

Model No. _____

Serial No. _____

This manual identifies potential hazards and has safety messages identified by the safety-alert symbol (Figure 2), which signals a hazard that may cause serious injury or death if you do not follow the recommended precautions.



Figure 2

1. Safety-alert symbol

This manual uses 2 words to highlight information. **Important** calls attention to special mechanical information and **Note** emphasizes general information worthy of special attention.

Contents

Safety 4
- General Safety 4
- Safe Operating Practices 4
- Safety and Instructional Decals 6

Setup 9
- 1 Setting Up the Machine Base Model 10
- 2 Installing the Power Harness 11
- 3 Installing the Hopper Extension Kit 12
- 4 Mounting the Hopper to the Tow Chassis 13
- 5 Connecting the Intermediate Wire Harness 13
- 6 Connecting the On/Off Pendant 14
- 7 Assembling the Handheld Remote 14
- 8 Mounting the Wireless Remote 15

Product Overview 16
- Controls 16
- Specifications 18
- Attachments/Accessories 18

Operation 19
- Operating Characteristics 19
- Connecting the Machine to a Tow Vehicle 19
- Turning the Machine Power On/Off 19
- Setting-up the Machine for Operation 20
- Operating the Machine 23
- Wireless Controller Safety (Model 44751 only) 23
- Disconnecting the Machine from a Tow Vehicle 23
- Operating the Hydraulic Controls and Options 24
- Operating the Floor and Option 29
- Setting the Preset 1, 2, and 3 Buttons 31
- Using a Preset Mode 32
- Choosing a Tow Vehicle 32
- Loading the Hopper 32
- Unloading the Hopper 32
- Traveling 33
- Using the Machine on Hills 33
- Parking the Machine 33
- Using the Storage Stand 34

Maintenance 36
- Lubrication 36
- Daily Checks 36
- Hydraulic System 37
- Maintaining the Conveyor Belt System 38
- Washing the Machine 39

Storage 40

Troubleshooting 41
- Checking Fault Codes (EH Models Only) 41
- Handheld Remote Messages (EH Models Only) 42

Safety

General Safety

This product is capable of amputating hands and feet and of throwing objects. Always follow all safety instructions to avoid serious personal injury.

Using this product for purposes other than its intended use could prove dangerous to you and bystanders.

- Read and understand the contents of this *Operator's Manual* before using the machine.
- Do not put your hands or feet near moving components of the machine.
- Do not operate the machine without all guards and other safety protective devices in place and working on the machine.
- Keep clear of any discharge opening. Keep bystanders and pets a safe distance away from the machine.
- Keep children out of the operating area. Never allow children to operate the machine.
- Stop the machine and shut off the engine before servicing, fueling, or unclogging the machine.

Improperly using or maintaining this machine can result in injury. To reduce the potential for injury, comply with these safety instructions and always pay attention to the safety-alert symbol, which means Caution, Warning, or Danger—personal safety instruction. Failure to comply with these instructions may result in personal injury or death.

You can find additional safety information where needed throughout this *Operator's Manual*.

Safe Operating Practices

Training

- Read the *Operator's Manual* and other training material carefully. Be familiar with the controls, safety signs, and the proper use of the equipment.
- Never allow children or people unfamiliar with these instructions to use the machine. Local regulations may restrict the age of the operator.
- Never operate the machine while people, especially children, or pets are nearby.
- The owner/operator can prevent and is responsible for accidents that may cause personal injury or property damage.
- Do not carry passengers.
- All drivers and mechanics should seek and obtain professional and practical instruction. The owner is responsible for training the users. Such instruction should emphasize:
  - the need for care and concentration when working with ride-on machines;
  - control of a ride-on machine sliding on a slope will not be regained by the application of the brake. The main reasons for loss of control are:
    - ◊ insufficient wheel grip;
    - ◊ being driven too fast;
    - ◊ inadequate braking;
    - ◊ the type of machine is unsuitable for its task;
    - ◊ lack of awareness of the effect of ground conditions, especially slopes;
    - ◊ incorrect hitching and load distribution.

Preparation

- Wear appropriate clothing, including eye protection; substantial, slip-resistant footwear; and hearing protection. Tie back long hair and do not wear jewelry.
- Evaluate the terrain to determine what accessories and attachments are needed to properly and safely perform the job. Contact your Authorized Service Dealer or Distributor or go to www.Toro.com for a list of all approved attachments and accessories.
- Check that operators presence controls, safety switches, and shields are attached and functioning properly. Do not operate unless they are functioning properly.

Operation

- Do not operate the engine in a confined space where dangerous carbon monoxide fumes can collect.
- Operate the machine only in daylight or in good artificial light.
- Remember that there is no such thing as a safe slope. Travel on grass slopes requires particular care. To guard against overturning:
  - Do not stop or start suddenly when going up or downhill.
  - The machine speed should be kept low on slopes and during tight turns.
  - Stay alert for humps and hollows and other hidden hazards.
  - Never operate the machine across the face of the slope, unless the machine is designed for that purpose.
- Stay alert for holes in the terrain and other hidden hazards.
- Use care when using heavy equipment.
  - Do not turn sharply. Use care when reversing.

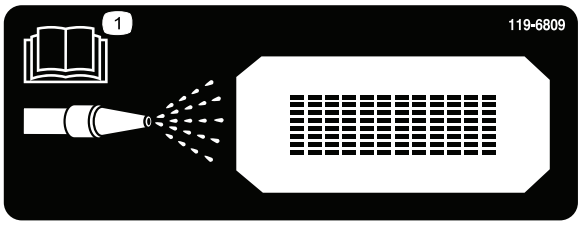
  - Do not go from reverse to forward or forward to reverse without coming to a complete stop.
  - Use counterweight(s) or wheel weights as required in the *Operator's Manual.*
- Watch out for traffic when crossing or near roadways.
- When using any attachments, never direct discharge of material toward bystanders nor allow anyone near the machine while in operation.
- Never operate the machine with damaged guards, shields, or without safety protective devices in place. Ensure that all interlocks are attached, adjusted properly, and functioning properly.
- When loading with sand, distribute load evenly. Operate the tow vehicle with extra caution when the hopper is full of sand. Keep load balanced to prevent it from shifting.
- Do not get water on the Wireless remote controller.
- Do not change the engine governor settings or overspeed the tow vehicle engine. Operating the engine at excessive speed may increase the hazard of personal injury.
- Before leaving the operator’s position:
  - Stop on level ground.
  - Disengage the power take-off and the attachments.
  - Change into neutral and engage the parking brake.
  - Shut off the engine and remove the key.
- Disengage drive to attachments, shut off the engine, and remove the ignition key:
  - before clearing blockages;
  - before checking, cleaning, or working on the machine;
  - if the machine starts to vibrate abnormally (check immediately).
- Disengage drive to attachments when transporting or not in use.
- Shut off the engine and disengage drive to attachment:
  - before refuelling;
  - before making an adjustment unless adjustment can be made from the operator's position.
- Reduce the throttle setting before shutting off the engine and close the fuel shut-off valve at the conclusion of operation.
- Keep hands and feet out of the hopper when the machine is operating or when the hydraulic power pack engine on the tow vehicle, is running.
- Keep hands from the hopper and spinner assembly when the machine is operating or when the hydraulic power pack engine, on the tow vehicle, is running.
- Look behind and down before backing up to be sure of a clear path.
- Slow down and use caution when making turns and crossing roads and sidewalks.
- Do not operate the machine while tired, ill, or under the influence of alcohol or drugs.
- Lightning can cause severe injury or death. If lightning is seen or thunder is heard in the area, do not operate the machine; seek shelter.
- The operator shall turn on flashing warning lights, if provided, whenever traveling on a public road, except where such use is prohibited by law.

Maintenance and Storage

- Tighten any loose nuts, bolts, and screws to ensure that the machine is in safe operating condition. Ensure that the Top Dresser mounting pins, pivot pins, and hydraulic cylinder pins are in place and secure.
- Replace worn or damaged parts for safety.
- Disengage drives, shift the transmission to neutral, engage the parking brake, shut off the engine and remove the key. Wait for all movement to stop before adjusting, cleaning, or repairing.
- Park the machine on level ground. Never allow untrained personnel to service machine.
- Use jack stands to support components when required.
- Carefully release pressure from components with stored energy.
- Keep hands and feet away from moving parts. If possible, do not make adjustments with the engine running.
- Ensure that all hydraulic line connectors are tight and all hydraulic hoses and lines are in good condition before applying pressure to the system.
- Keep your body and hands away from pin-hole leaks or nozzles that eject hydraulic fluid under high pressure. Use paper or cardboard, not your hands, to search for leaks. Hydraulic fluid escaping under pressure can have sufficient force to penetrate the skin and cause serious injury. If fluid is injected into the skin it must be surgically removed within a few hours by a doctor familiar with this form of injury or gangrene may result.

Safety and Instructional Decals

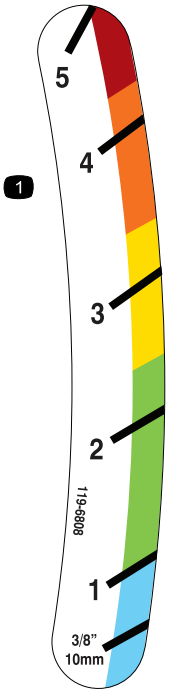
Safety decals and instructions are easily visible to the operator and are located near any area of potential danger. Replace any decal that is damaged or missing.



decal119-6809

119-6809

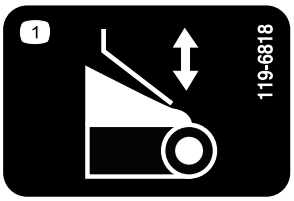
1. Read the *Operator's Manual* for instructions on cleaning the machine.



decal119-6808

119-6808

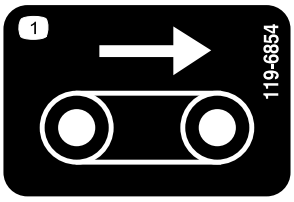
1. Tailgate height indicator



decal119-6818

119-6818

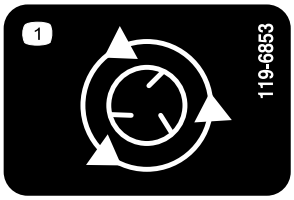
1. Tailgate adjustment



decal119-6854

119-6854

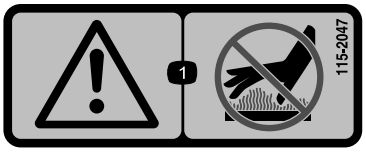
1. Floor speed



decal119-6853

119-6853

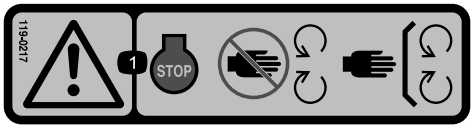
1. Spinner speed



decal115-2047

115-2047

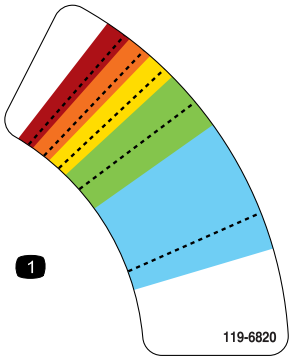
1. Warning—do not touch the hot surface.



decal119-0217

119-0217

1. Warning—shut off the engine; stay away from moving parts; keep all guards and shields in place.



decal119-6820

119-6820

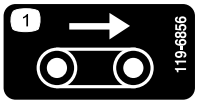
1. Spinner speed adjustment



decal119-6855

119-6855

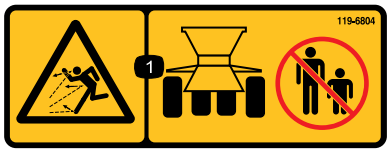
1. Spinner speed



decal119-6856

119-6856

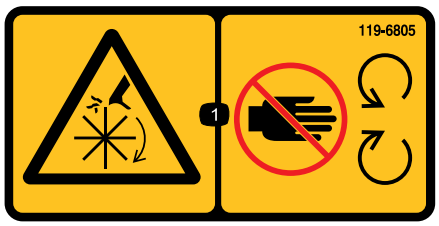
1. Floor speed



decal119-6804

119-6804

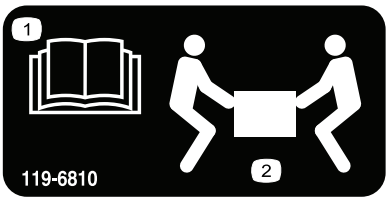
1. Thrown object hazard—keep bystanders a safe distance from the machine.



decal119-6805

119-6805

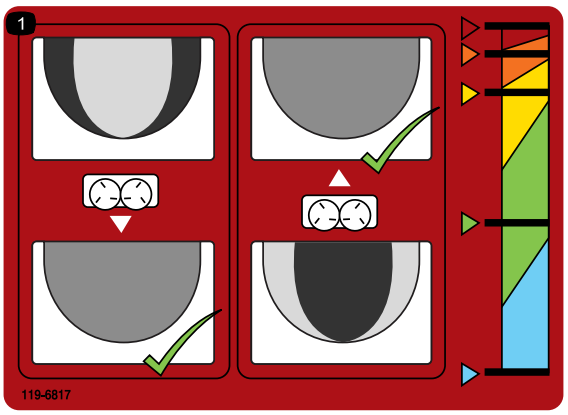
1. Cutting/dismemberment hazard, impeller—stay away from moving parts, keep all guards and shields in place.



decal119-6810

119-6810

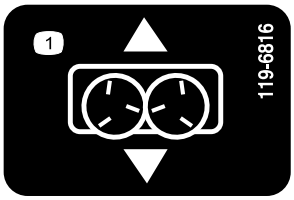
1. Read the *Operator's Manual*.
2. 2 people required to lift.



decal119-6817

119-6817

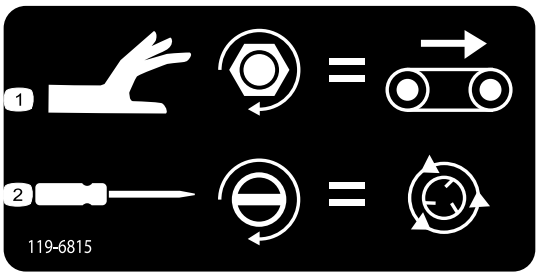
1. Fine tuning spinners



decal119-6816

119-6816

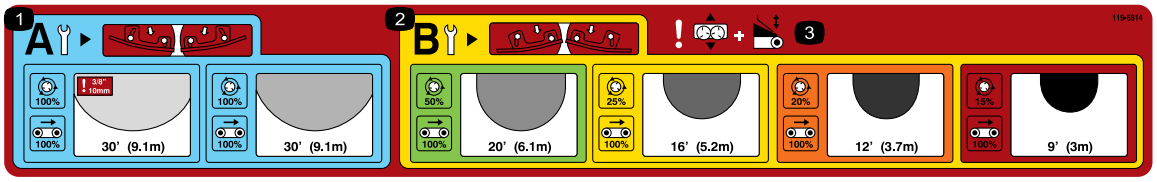
1. Slide adjustment



decal119-6815

119-6815

1. Floor speed adjustment
2. Spinner speed adjustment



decal119-6814

119-6814

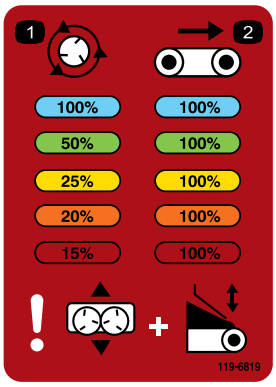
1. Light spread spinner adjustment settings (refer to the Operation section for more information).
2. Heavy spread spinner adjustment settings (refer to the Operation section for more information).
3. Warning—slide adjustment and tailgate adjustment.



decal119-6806

119-6806

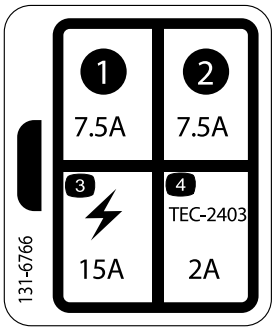
1. Warning—read the *Operator's Manual*.
2. Warning—do not operate the machine unless you are trained.
3. Thrown object hazard—keep bystanders a safe distance from the machine.
4. Warning—shut off the engine, remove the ignition key, and read the *Operator's Manual* before performing maintenance on the machine.
5. Warning—no riders on the machine
6. Warning—stay away from moving parts; keep all guards and shields in place.



decal119-6819

119-6819

1. Spinner speed percentage
2. Belt speed percentage



decal131-6766

131-6766

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

Setup

Loose Parts

Use the chart below to verify that all parts have been shipped.

Procedure	Description	Qty.	Use
1	Hopper guard Button head bolt (1/4 x 5/8 inch) Locknut	1 3 3	Set up the machine base model
2	Power harness Socket bracket Socket bracket, heavy Carriage screw Flange nut Screw Flange nut	1 1 1 2 2 2 2	Installing the power harness
3	Hopper extension-front Hopper extension-rear Bolt Flange nut	1 1 9 9	Install the hopper extension kit
4	Bolt Flange nut	6 6	Mount the hopper to the tow chassis
5	Intermediate wire harness	1	Connect the intermediate wire harness
6	On/Off Pendant	1	Connect the On/Off Pendant (Model 44701 only).
7	Handheld remote AA batteries Magnetic bracket Screws, small	1 4 1 6	Assemble the handheld remote (Model 44751 only).
8	Controller mount assembly Wireless remote assembly	1 1	Mount the wireless remote (Model 44751 only).

Media and Additional Parts

Description	Qty.	Use
Operator's Manual	1	Read before operating the machine.
Declaration of Conformity	1	Ensure regulatory compliance.

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

1

Setting Up the Machine Base Model

Parts needed for this procedure:

1	Hopper guard
3	Button head bolt (1/4 x 5/8 inch)
3	Locknut

Procedure

1. Remove the base model machine from the shipping crate.
2. At the rear of the twin spinner, remove the bolt and nut attaching the machine lifting device shipping bracket to the twin spinner (Figure 3).

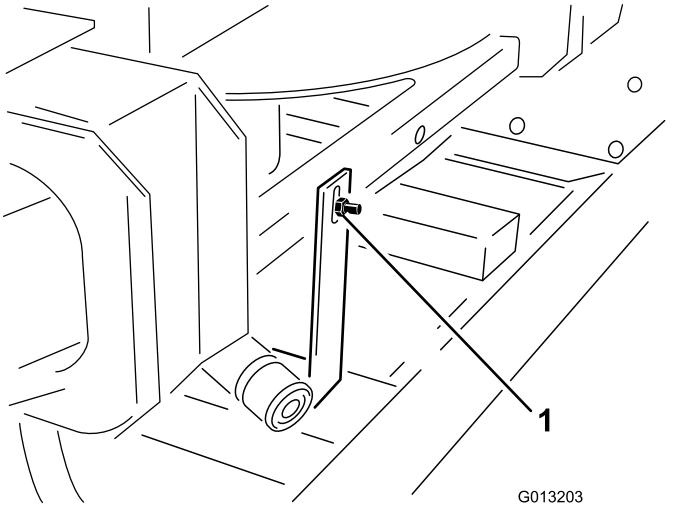


Figure 3

1. Shipping bracket

3. At the front of the twin spinner, remove the 2 bolts and nuts attaching the machine lifting device shipping bracket to the Twin Spinner (Figure 4).

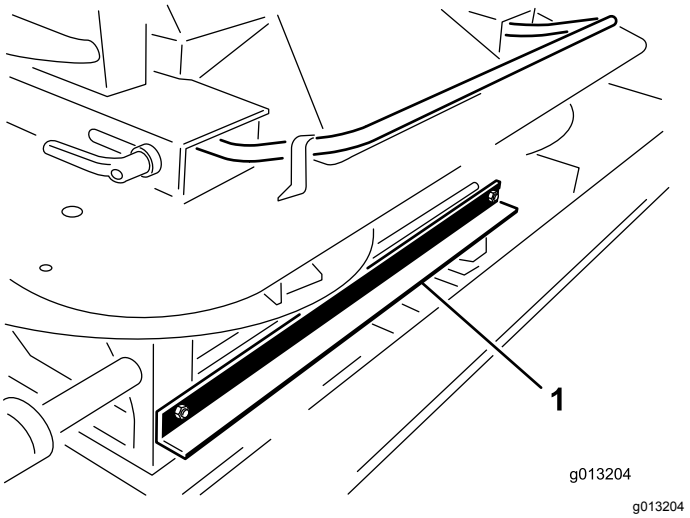


Figure 4

1. Shipping bracket

4. Lift the twin spinner out of the hopper using the twin spinner outer grab handles and place the twin spinner unit on the ground (Figure 5).

   Note: This step requires 2 people.

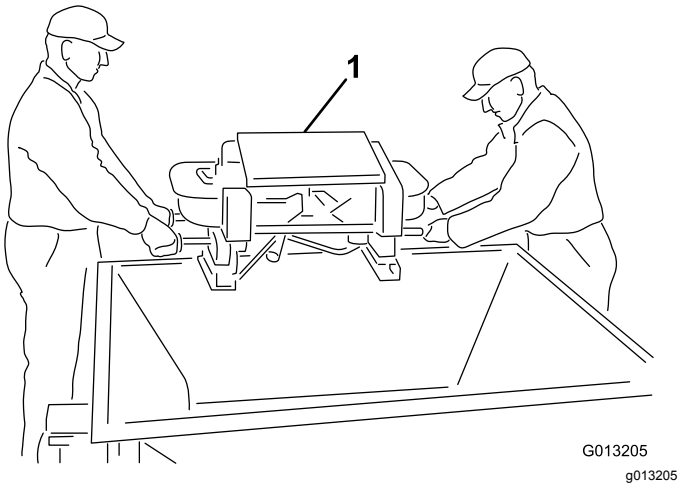


Figure 5

1. Twin spinner

5. Remove the 4 screws from the legs of the twin spinner. With the help of a partner, lift the twin spinner and remove the packing studs and packing foam (Figure 6).

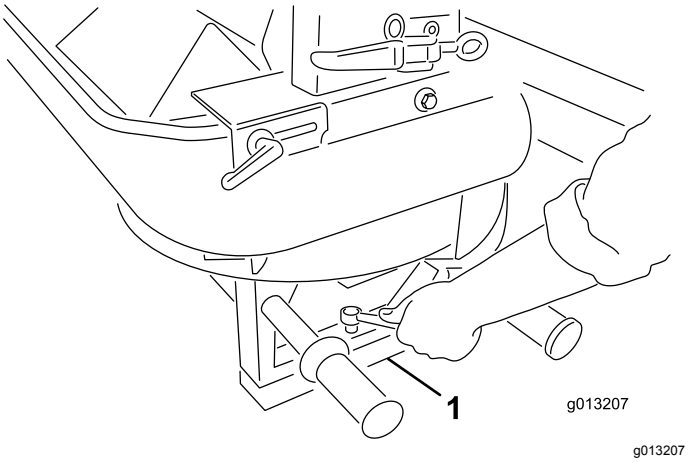


Figure 6

1. Packing studs and foam

6. Install the hopper guard using the supplied button-head bolts (1/4 x 5/8 inch) and nylon locknuts (Figure 7).

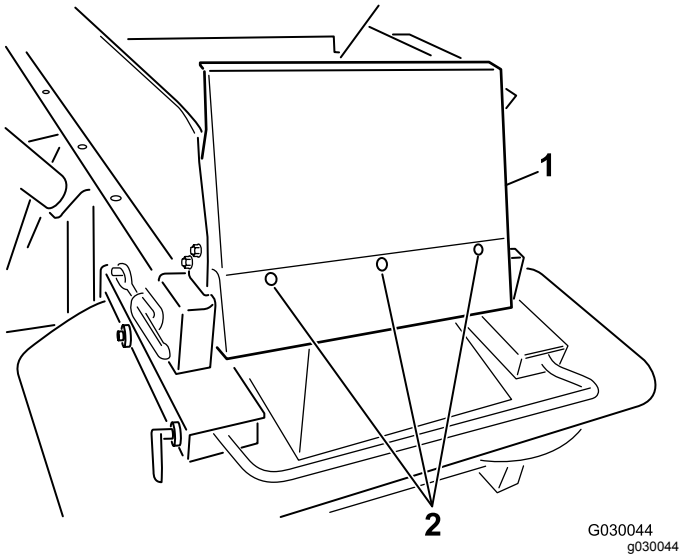


Figure 7

1. Hopper front guard
2. Bolts

2

Installing the Power Harness

Parts needed for this procedure:

1	Power harness
1	Socket bracket
1	Socket bracket, heavy
2	Carriage screw
2	Flange nut
2	Screw
2	Flange nut

Procedure

The tow vehicle power harness provides the electrical power required by the control systems of the machine. Install this harness on the vehicle you plan to use to operate the machine. If you will use more than 1 vehicle with the machine, purchase additional power harnesses from your Toro distributor.

1. Mount the socket bracket to a fixed point at the rear of the tow vehicle using 1 of the mounting brackets provided (Figure 8).

   Note: Ensure that the bracket will not come in contact with anything if the tow vehicle is equipped with a dump box.

   Important: **Ensure that none of the wiring is loose or in the way of any mechanical components.**

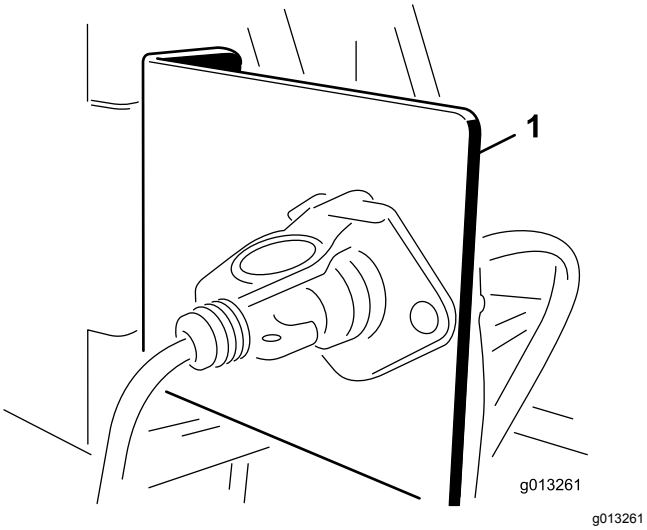


Figure 8

1. Socket bracket

2. Route and secure the electrical wiring from the battery to the electrical plug bracket (Figure 9).

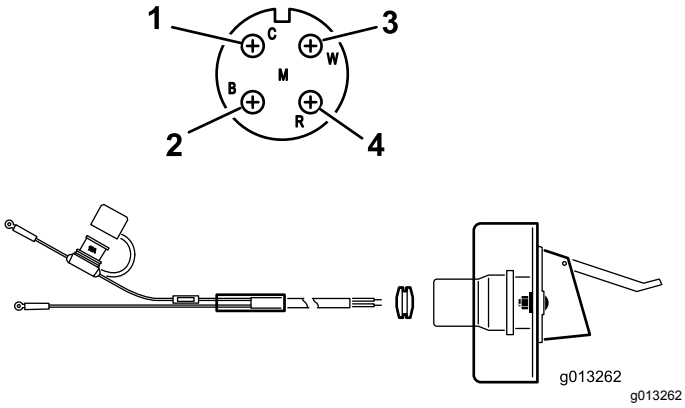


Figure 9

1. White wire (brass)
2. No wire silver (silver)
3. No wire (brass)
4. Black wire (brass)

3. Feed the wiring through the socket bracket and install the black rubber grommet over the wiring (Figure 9).
4. Bolt the socket to the socket bracket using the bolts (1/4 inch).
5. Connect the red wire (power) to the positive post on the battery, then connect the black wire (ground) to the negative post on the battery.

3

Installing the Hopper Extension Kit

Parts needed for this procedure:

1	Hopper extension-front
1	Hopper extension-rear
9	Bolt
9	Flange nut

Procedure

1. Remove the hopper extensions from the box and identify the front and the rear (Figure 10 and Figure 11).

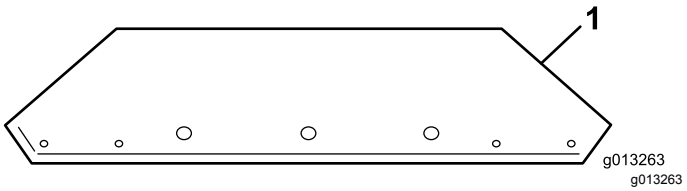


Figure 10

1. Front hopper extension (showing hole orientation)

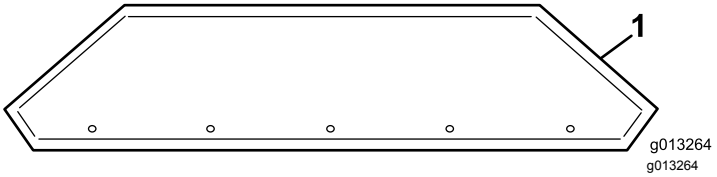


Figure 11

1. Rear hopper extension (showing hole orientation)

2. Using the hardware provided, attach the hopper extensions to the hopper. Place the nuts on the outside of the hopper.

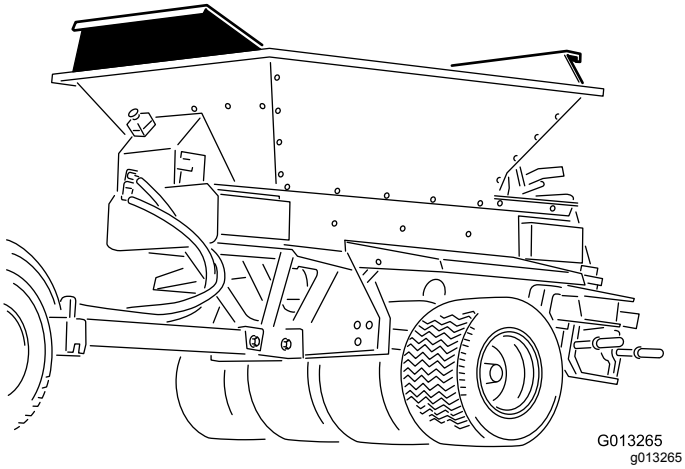


Figure 12
Hopper extension kit installed

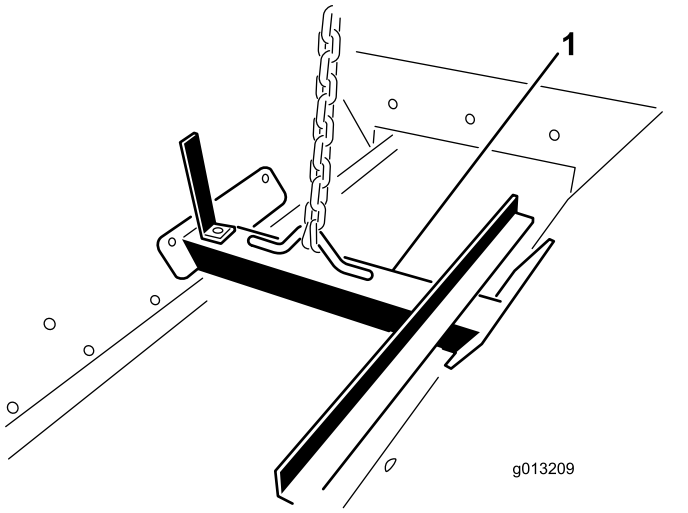


Figure 13

1. Lifting bracket

4

Mounting the Hopper to the Tow Chassis

Parts needed for this procedure:

6	Bolt
6	Flange nut

Procedure

Note: If mounting the machine hopper to other equipment, refer to the installation instructions for the equipment.

1. Attach a lifting device to the lifting bracket bolted inside the hopper assembly (Figure 13).

⚠ WARNING

Do not attempt to lift the bed and hopper with the Tow-Behind Chassis, ProGator, Workman, or TDC Chassis connected. The lifting bracket is not capable of lifting the entire machine.

2. Using a lifting mechanism, position the hopper over the tow chassis.
3. Line up the 6 mounting holes (3 per side) and install the 5/16 x 1 inch bolts and flange nuts.

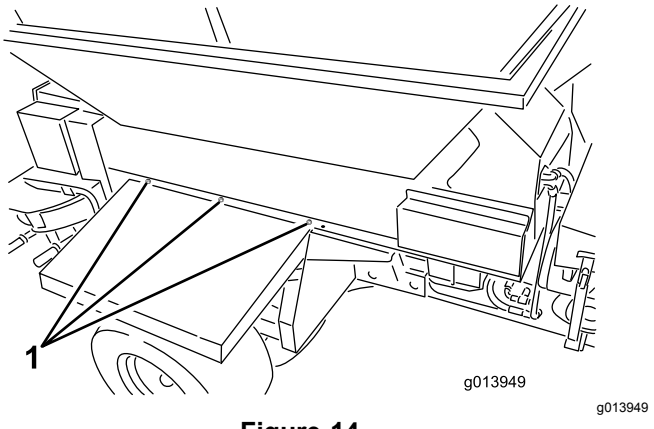


Figure 14

1. Mounting locations (3 each side)

4. Remove the lifting bracket from the hopper sides and install the bolts to the hopper sides.

   Note: Retain the lifting bracket for future use; **do not discard it**.

5

Connecting the Intermediate Wire Harness

Parts needed for this procedure:

1	Intermediate wire harness

Procedure

Plug the intermediate wire harness into the power harness connector on the machine (Figure 15 or Figure 16).

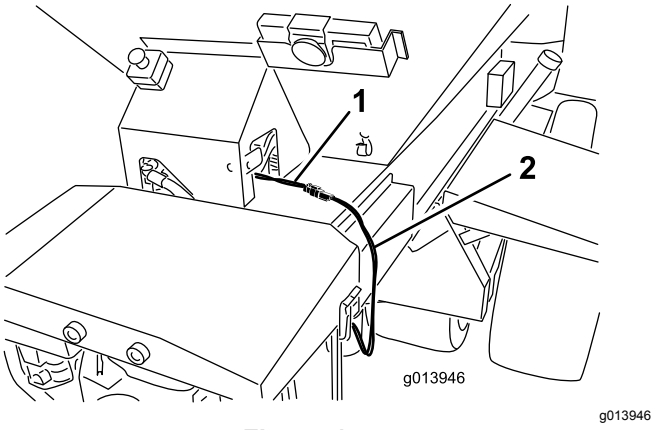


Figure 15
Model 44751

1. Power harness
2. Intermediate wire harness

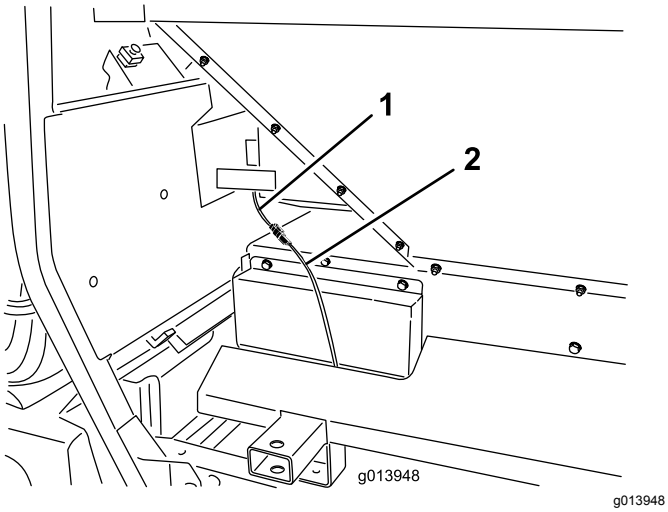


Figure 16
Model 44701

1. Power harness
2. Intermediate wire harness

6

Connecting the On/Off Pendant

Model 44701 Only

Parts needed for this procedure:

1	On/Off Pendant

Procedure

Plug the On/Off pendant connector into the connector on the machine (Figure 17).

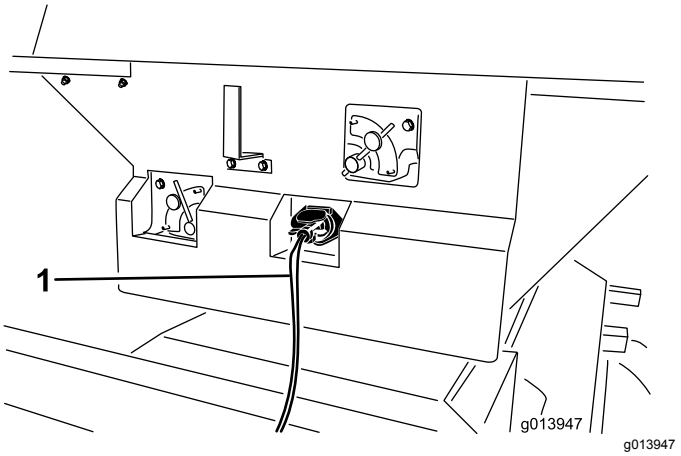


Figure 17

1. On/Off pendant

7

Assembling the Handheld Remote

Model 44751 Only

Parts needed for this procedure:

1	Handheld remote
4	AA batteries
1	Magnetic bracket
6	Screws, small

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. (If the batteries are improperly installed, the unit will not be damaged, but it will fail to operate.) The cradle is embossed with polarity markings for each terminal (Figure 18).

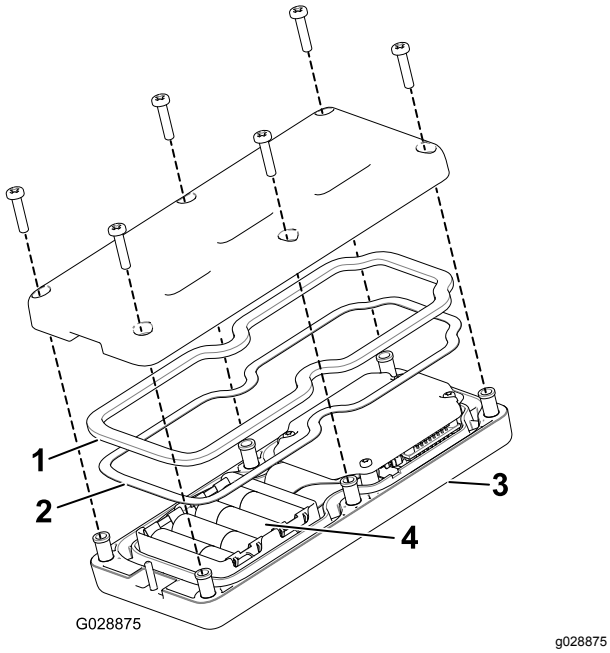


Figure 18

1. Rubber seal
2. Steel gasket
3. Handheld remote
4. 4 AA batteries

3. Ensure that the steel gasket and rubber seal are seated in the channel in the remote and set the back cover in place (Figure 18).
4. Secure the cover with 6 screws (Figure 18) and torque them to 1.5 to 1.7 N·m (13 to 15 in-lb).
5. Install the handheld remote into the magnetic remote bracket, slide the halves together to secure the remote, and tighten the bolt in the magnet (Figure 19).

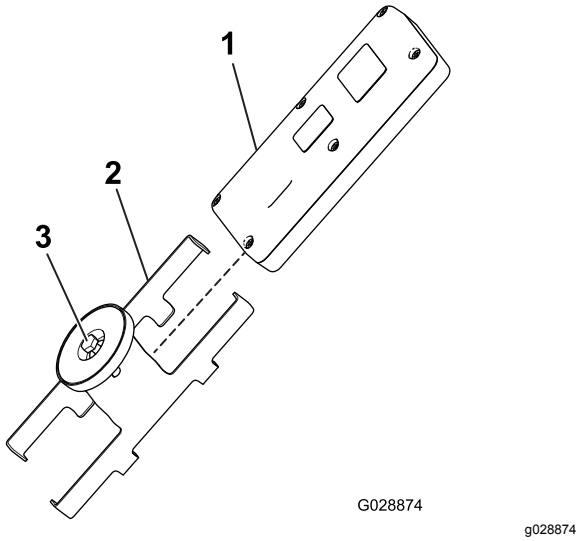


Figure 19

1. Handheld remote
2. Magnetic remote bracket
3. Bolt in the magnet

8

Mounting the Wireless Remote

Model 44751 Only

Parts needed for this procedure:

1	Controller mount assembly
1	Wireless remote assembly

Procedure

Insert the controller mount assembly into a cup holder or similar opening on the tow vehicle and use to store wireless remote. Also, the wireless remote magnet will stick to any metal component.

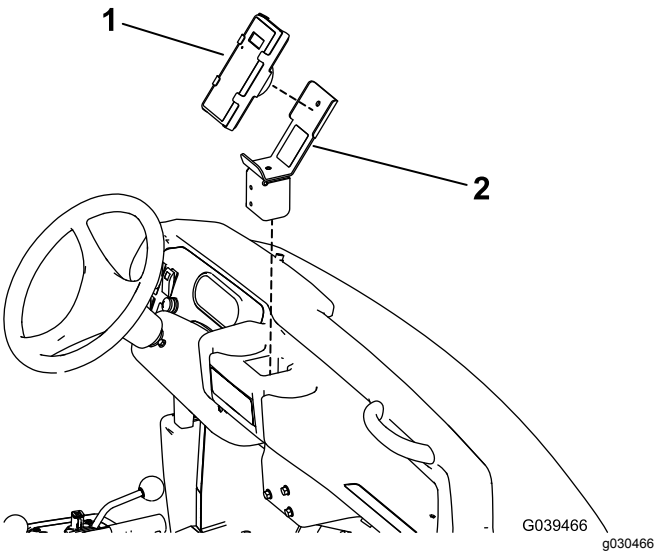


Figure 20

Workman Heavy Duty Vehicle Shown

1. Remote
2. Controller mount assembly

Product Overview

Controls

Flow Control Valve for Floor Model 44701 Only

A hydraulic flow control valve controls the speed of the conveyor belt.

The highest speed setting is 10 and is typical for most applications found on the Color-Coded Operation System decals. Use lower settings for very light applications.

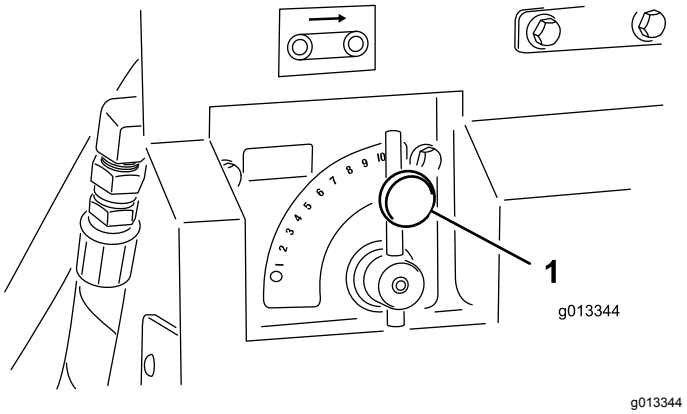


Figure 21

1. Floor control valve

Flow Control Valve for Options Model 44701 Only

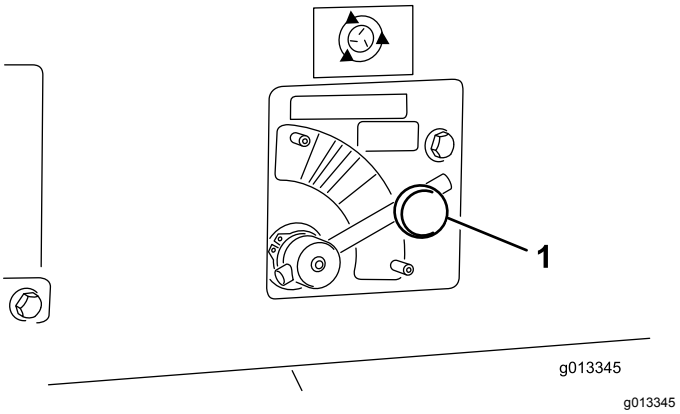


Figure 22

1. Option control valve

A hydraulic flow control valve controls the speed of the option (Twin Spinner). The spinner icon indicates the speed percentage for the wireless controller only—for standard hydraulics, place the control in the appropriate color area, starting at the dotted line and adjust speeds within the color zone as required.

On/Off Pendant

Model 44701 Only

Use the 2 switches on the On/Off pendant to run the conveyor belt or the option (Figure 23). Keep the On/Off pendant within reach of the operator.

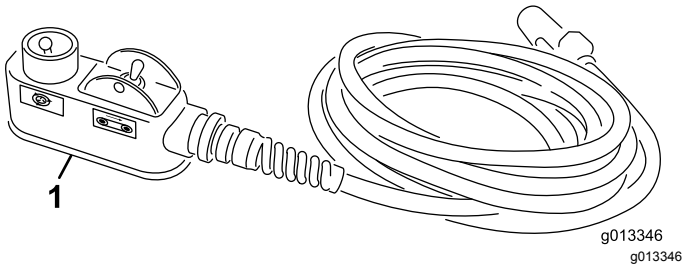


Figure 23

1. On/off pendant

E-Stop Button

Model 44751 Only

When finished working with the machine, always press the E-STOP button (Figure 24) to disable the electrical system. When beginning work with the machine you must pull the E-STOP button back out before turning on the handheld remote.

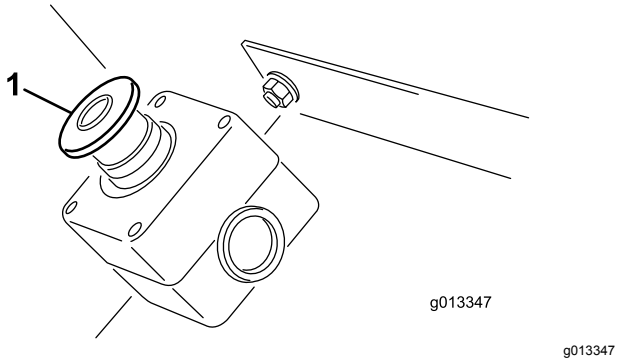


Figure 24

1. E-STOP Button

Diagnostic LED Function

After pulling up the E-STOP button, the diagnostic LED (Figure 25) will illuminate and remain on for 5 seconds, turn off for 5 seconds, and then will begin flashing at 3 Hz (3 flashes a second) until you turn the handheld remote on. If the light turns on for 5 seconds and then starts blinking at 10 Hz (with or without a 5 second pause), there is a fault with the machine; refer to Checking Fault Codes (EH Models Only) (page 41).

Note: If you had the handheld remote on when you pulled up the E-STOP button, the light will not flash at 3 Hz (3 flashes per second) after turning off for 5 seconds.

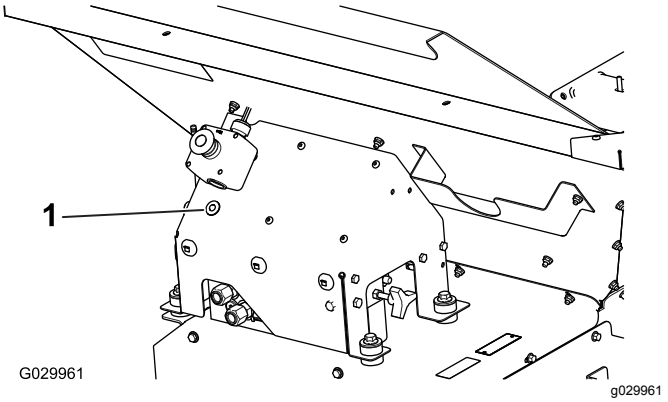
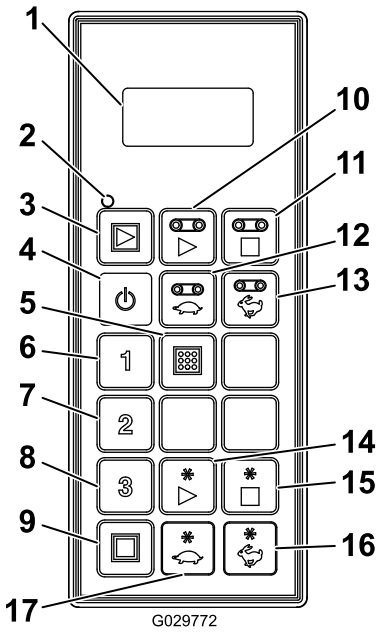


Figure 25

1. Diagnostic LED

Handheld Remote

Model 44751 Only



g029772

Figure 26

1. LCD display
2. Remote status LED
3. All Start: Starts Floor and Option
4. On/Off
5. Store: Saves Preset Settings
6. Preset 1
7. Preset 2
8. Preset 3
9. All Stop: Stops all functions
10. Floor Start
11. Floor Stop
12. Decrease Floor Speed
13. Increase Floor Speed
14. Option Start
15. Option Stop
16. Increase Option Speed
17. Decrease Option Speed

Specifications

Weights	
Base Model	248 kg (546 lb)
Twin Spinner	68 kg (150 lb)

Radio	
Frequency	2.4 GHz
Max Output Power	19.59 dBm

Attachments/Accessories

A selection of Toro approved attachments and accessories is available for use with the machine to enhance and expand its capabilities. Contact your Authorized Service Dealer or Distributor or go to www.Toro.com for a list of all approved attachments and accessories.

To best protect your investment and maintain optimal performance of your Toro equipment, count on Toro genuine parts. When it comes to reliability, Toro delivers replacement parts designed to the exact engineering specification of our equipment. For peace of mind, insist on Toro genuine parts.

Operation

Operating Characteristics

The machine has balance, weight, and handling characteristics that may be different from other types of pulled equipment. Read this *Operator's Manual* carefully.

With an option mounted, be aware of the ground clearance when traveling on hills. For a machine mounted on a tow-behind chassis, the ground clearance is 13 inches (33 cm) unloaded. For a machine mounted on a Truckster direct connect chassis, the ground clearance is 17 inches (43 cm) unloaded.

Important: **Before loading the machine on or off of a trailer, remove the option to avoid damaging it.**

Connecting the Machine to a Tow Vehicle

⚠ WARNING

Standing between the machine and the tow vehicle during coupling could result in serious injury.

Do not stand between the machine and the tow vehicle during coupling.

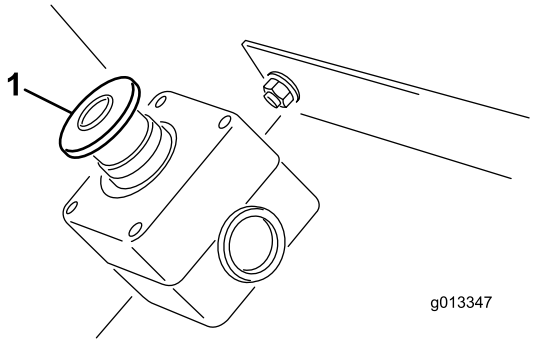
1. Adjust the hitch height by turning the jack stand handle(s) to keep the machine level.

   Important: **The hitch pin must be high-strength and approved for tow vehicles.**
2. Connect the clevis-style hitch of the machine to the tow vehicle using a 3/4 in (18 mm) diameter hitch pin and safety clip. Install the hitch pin through the machine hitch and the tow-vehicle draw bar on the tow-behind chassis or through the supplied hitch mount on Truckster direct connect.
3. Lower the hitch using the jack stand(s).
4. When the full weight of the machine has been transferred to the tow-vehicle draw bar from the jack stand(s), pull the pin holding the jack stand(s) in place.
5. Store the jack stand(s) as follows:
   - On tow-behind chassis turn the jack stand 90 degrees counter-clockwise until the bottom of the jack stand points to the rear of the machine. This is the traveling position.
   - On Truckster direct connect chassis move the jack stands to the rear of the machine and turn them 90 degrees until the bottom of both jack stands points to the center of the machine. This is the traveling position
6. Attach the pressure hose and the return hose to the correct hydraulic outputs on the tow vehicle. The return hose has an inline check valve. If you reverse the hoses, some machine functions may run backwards or not work at all. Test the hydraulics before operating the machine for the first time.

   Important: **Do not allow the hydraulic lines, the power cable, and the pendant cables to drag on the ground. Avoid locations where they could become pinched or cut.**
7. Plug the intermediate wire harness into the tow vehicle power connector.
8. Check the level of the hydraulic fluid in the tank and add more to fill it, if necessary; refer to the tow vehicle's owner's manual.

Turning the Machine Power On/Off

When finished working with the machine, always press the E-STOP button (Figure 27) to disable the electrical system. When beginning work with the machine, you must pull the E-STOP button back out before turning on the handheld remote.



g013347

Figure 27

1. E-STOP Button

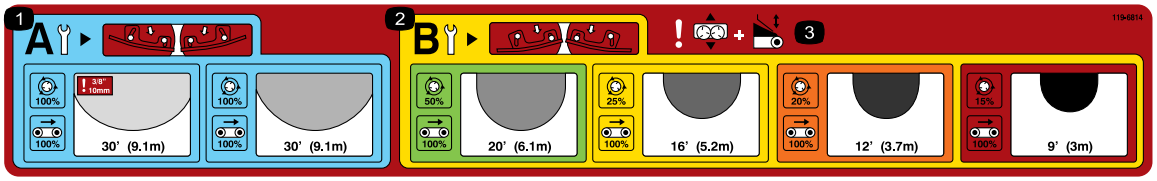
Important: **When done operating the machine, press the E-STOP button to prevent the tow vehicle battery from being discharged.**

Setting-up the Machine for Operation

The machine features a unique color-coded operation system that takes the guess-work out of setting up your machine. Simply choose the spread, identify the color, and then adjust each setting to match that color to get a perfect spread every time.

Choosing the Spread

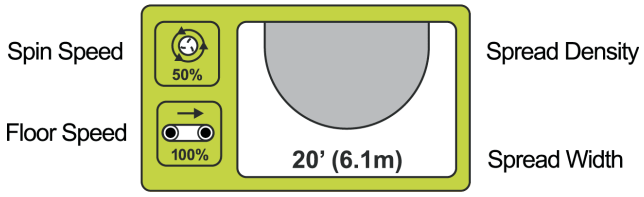
Choose the spread by reading the main operation decal found on the tailgate of the machine (Figure 28).



decal119-6814

Figure 28

1. Light spread spinner adjustment settings
2. Heavy spread spinner adjustment settings
3. Warning—slide adjustment and tailgate adjustment



g013715

Figure 29

This decal shows the range of spreads available and classifies them by color (Figure 29). Each color represents a different rate of application from Ultra-Light through Ultra-Heavy. The spread density is indicated by the shaded ovals (light through heavy). The approximate width is also indicated

Checking the Blades

Note: The machine is shipped with the spinner blades in POSITION B.

The lighter spreads (blue panel) remind you to ensure that the spinner blades are in POSITION A (Figure 30).



g013716

Figure 30

When the blades are in POSITION A, the inside bolts (closest to the center of the disc) are tight to the blade wall and the outside bolts (closest to the edge of the disc) are away from the blade wall.

This is critical as this position is engineered to give the optimum spread and distribution at high speeds and low sand volume.

For heavier settings (gold panel) the blades should be in POSITION B to provide the best distribution at higher volumes and slower disc speeds (Figure 31).



g013717

Figure 31

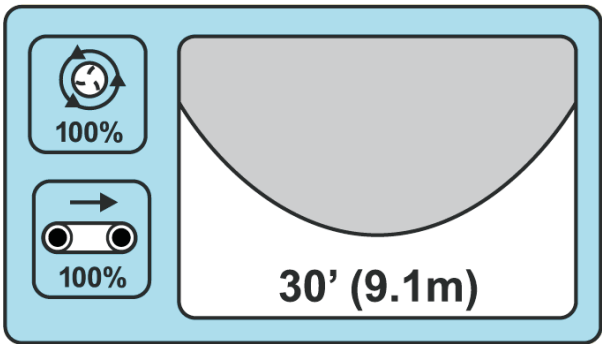
When the blades are in POSITION B, the inside bolts (closest to the center of the disc) are away from the blade wall and the outside bolts (closest to the edge of the disc) are tight to the blade wall.

Important: **Incorrect blade position is a common reason that spread patterns fail.**

Setting the Tailgate, Spinner Speed, Slide, and Floor Speed

Once you have selected the desired spread and ensured that the blades are properly adjusted, set the rest of the machine adjustments.

Each setting is indicated on the machine by corresponding color decals (Figure 32).



g013718

Figure 32

If you want a light dusting, the blue area indicates that your tailgate, floor speed, spinner speed and base slide adjustment should all be in their blue positions (Figure 32).

LIGHT

Approximate Width: 30 feet

Blade Position: A

Floor Speed: 100%

Spinner Speed: Blue/100%
Tailgate: Blue

Slide Adjustment: Blue

To fill aerification holes, adjust all settings to RED.

ULTRA HEAVY

Approximate Width: 9 feet

Blade Position: B

Floor Speed: 100%

Spinner Speed: Red/15%
Tailgate: Red

Slide Adjustment: Red

Adjusting the Tailgate

The tailgate controls the volume of material that flows from the ProPass (Figure 33).



g013699

Figure 33
Tailgate Decal Symbol

The 5 inch tailgate is divided into colors with a target starting line in each color section (Figure 34). You can increase or decrease the amount of material with the tailgate as long as you stay within the corresponding color section.



g013705

Figure 34

Note: The colors on the decal shown in Figure 34 correspond to the colors in the main operation decal (Figure 28).

Adjusting the Spinner Speed

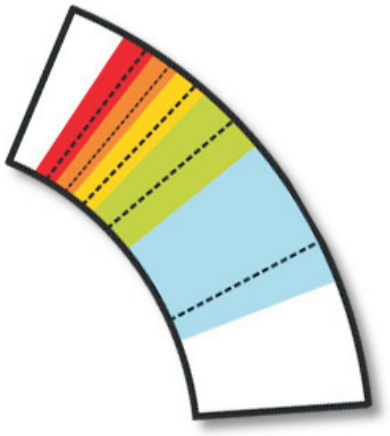
Note: The colors on the decals shown in Figure 36 and Figure 37 correspond to the colors in the main operation decal (Figure 28).



g013706

Figure 35
Spinner Decal Symbol

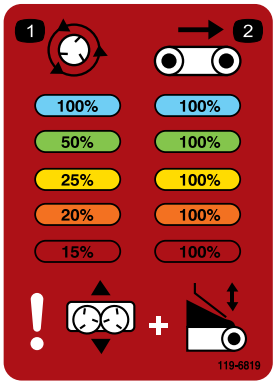
Standard Hydraulics (Model 44701): Set the hydraulic control to the dotted start line in the corresponding color area (Figure 36). You can vary the speeds if required within the corresponding color section.



g013707

Figure 36

Wireless Control (Model 44751): Set according to the percentage indicated in the colored section of the decal and on the chart on the back of the wireless controller (Figure 37).



decal119-6819

Figure 37

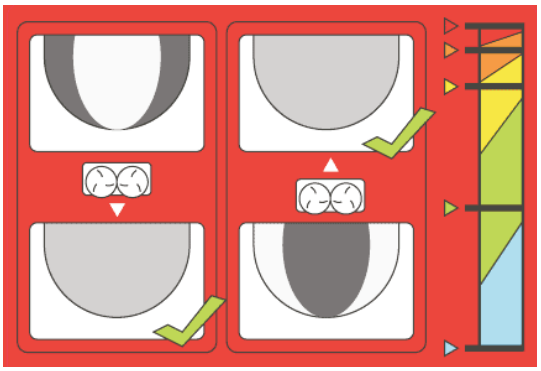
Adjusting the Slide

The slide adjustment positions the sand as it falls onto the discs. The decal not only indicates the color coded start position for each application, it illustrates the adjustment required to fine tune your spread; refer to Fine Tuning the Adjustments (page 22).



g013709

Figure 38
Slide Decal Symbol



g013710

Figure 39

Note: The colors on the decal shown in Figure 39 correspond to the colors in the main operation decal (Figure 28).

Adjusting the Floor Speed

The floor speed for every setting is usually 100%; this was developed and tested in order to have 1 less factor to adjust in the Color-Coded Operating System. Typically, you should use the tailgate to reduce material volume, not the floor speed; however, if the minimum tailgate height is insufficient to reduce material flow, then decrease the floor speed.



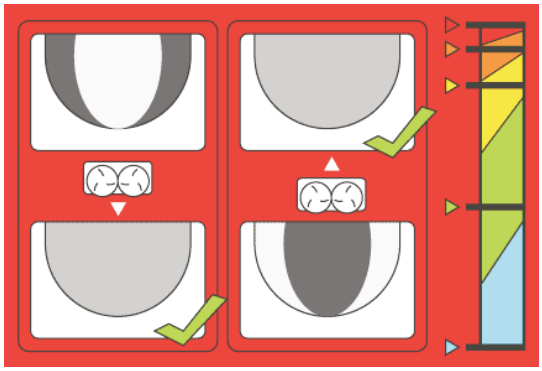
g013711

Figure 40
Floor Speed Decal Symbol

Fine Tuning the Adjustments

The color-coded operation system was developed to take the guess work out of getting a perfect spread. However, with so many variables such as sand weight, granule size, moisture content, etc, your spread may still be uneven.

To correct this, the **base setting adjustment** has an illustration indicating the correct re-positioning of the base (Figure 41).



g013710

Figure 41

When the spread pattern is heavy on the inside of the spread simply slide the base in—towards the hopper. If your spread is heavy on the outside, slide the base out—away from the hopper.

Note: The colors on the decal shown in Figure 41 correspond to the colors in the main operation decal (Figure 28).

Operating the Machine

1. Fill the machine hopper with the material to be spread.
2. Ensure option is installed (Twin Spinner).
3. Adjust the gate height to the preferred setting.
4. Adjust both flow control valves to the preferred setting. Set the belt and option speeds to the preferred setting (typically, the belt speed should be: Wireless—100%, Standard Hydraulics—#10).
5. Park the tow vehicle 3 m (10 ft) in front of the area required for top dressing.
6. Ensure that the on/off pendant switches are both off. On wireless models, ensure that the handheld remote functions are stopped.
7. Engage the hydraulics (either on the tow vehicle or on the auxiliary hydraulic power pack).
8. Increase rpm of the tow vehicle. Turn the option on, using the on/off pendant or the handheld remote on wireless models.
9. Drive forward to the area that requires top dressing, raising the rpm of the tow vehicle to the optimal operating range.
10. When the machine option is directly over the beginning of the top dressing area, use the on/off pendant or the control pendant on wireless models to turn on the conveyer belt.

    Note: For wireless models the ALL START function can be used in place of the OPTION START and FLOOR START functions as a single operation start feature. The option will start followed by the belt.
11. Travel in a straight line and spread the material at a constant speed until the spread reaches the edge of the top dressing area.
12. Turn off the conveyor belt, turn the machine around, and position it for the next pass.
13. Before making the next pass, check the spread pattern on the ground. Adjust the machine settings if necessary.
14. Continue steps 10 to 13 until the entire area requiring top dressing has been completed, or the hopper is empty
15. Turn off the conveyor belt and the option, lower the tow vehicle rpm, and disengage the hydraulics.

    Note: Always shut the conveyor off first.

Wireless Controller Safety (Model 44751 only)

The wireless controller activates rapidly rotating parts and pinch hazards. Be sure to always be in line of sight of the ProPass when operating, adjusting or programming the wireless controller.

To ensure that the activation of the spinners and the floor is intentional, you must press the start buttons twice: once to select and once to engage. This helps prevent accidental start when making manual adjustments on the machine

If no buttons are pressed for 10 seconds when programming or preparing to operate the wireless controller , it will enter into an idle mode and resort back to the last saved program or setting.

⚠ CAUTION

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

Power off your wireless controller and work vehicle (to ensure no hydraulic flow) before making any physical adjustments to the blades or floor.

Disconnecting the Machine from a Tow Vehicle

1. Park the tow vehicle and the machine on dry, level ground.

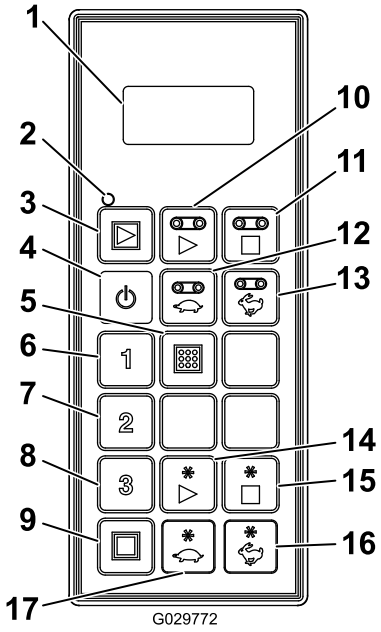
2. Engage the parking brake on the tow vehicle, shut off the engine, and remove the key.
3. Place blocks under 2 wheels of the machine (front and back).
4. Relieve the pressure from the hydraulic system.
5. Disconnect the hydraulic hoses, coil and store them on the front of the machine.
6. Disconnect the intermediate power cord from the tow vehicle.
7. Lower the jack stand(s) as follows:
   - On tow-behind chassis, turn the jack stand 90 degrees (clockwise) to the down position to support the machine
   - On Truckster direct connect chassis, move the jack stands to the front of the machine and turn them 90 degrees until the bottom of both jack stands points to the ground.
8. Lift the machine with the jack stand(s) until the weight is off the tow-vehicle draw bar.
9. Pull out the hitch pin.
10. Ensure that there is no further connection between the machine and the tow vehicle.

Operating the Hydraulic Controls and Options

Remote Control System

The remote control system consists of a handheld remote, a +12 to +14.4 VDC Base Unit, and a wiring harness.

Handheld Remote



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Figure 42

1. LCD display
2. Remote status LED
3. All Start: starts floor and option
4. On/Off
5. Store: saves preset settings
6. Preset 1
7. Preset 2
8. Preset 3
9. All Stop: stops all functions
10. Floor Start
11. Floor Stop
12. Decrease floor speed
13. Increase floor speed
14. Option start
15. Option stop
16. Increase option speed
17. Decrease option speed

Button Functions

Button	Name	Primary Function
	ON/OFF	Power the remote on and off.
	ALL START	Provides functional control on both the floor and option including on/off and displaying the speed.
	FLOOR START	Provides functional control of the hopper conveyor floor belt including on/off and displaying the floor speed.
	FLOOR STOP	Stops the floor.
	FLOOR DEC	Decreases the floor speed.

Button	Name	Primary Function
	FLOOR INC	Increases the floor speed.
	PRESET 1 PRESET 2 PRESET 3	Three separate preset values may be stored for both floor and option speeds.
	STORE	Used in conjunction with the PRESET button to store or establish a preset memory.
	OPTION START	Provides functional control of the rear option including on/off and displaying the option speed.
	OPTION STOP	Stops the option.
	OPTION DEC	Decreases the option speed.
	OPTION INC	Increases the option speed.
	ALL STOP	Stops both floor and option.

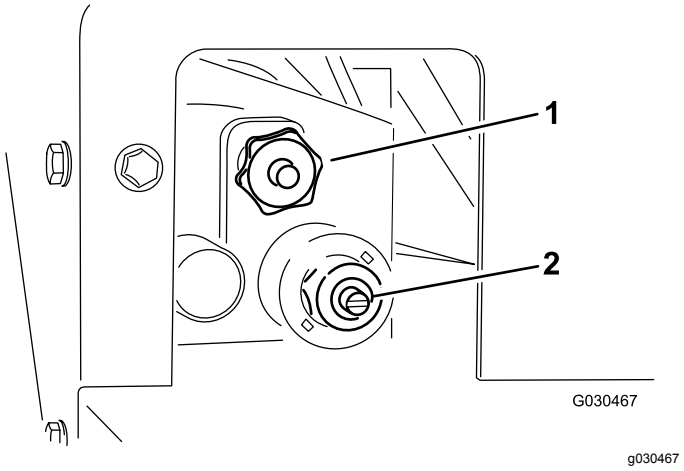
Turning On the Handheld Remote

Press the ON/OFF button on the remote and wait for the it to find the base. Ensure that there are no buttons being pressed on the handheld remote while it is performing the startup routine.

Manual Override

Should the remote ever be lost, damaged or fail, the machine functions and operation are still possible in order to complete tasks or continue work.

The override access is on the driver side of the hydraulic system (Figure 43).

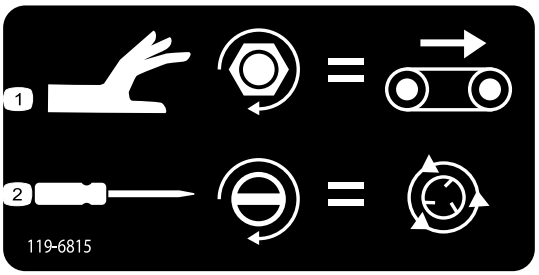


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Figure 43

1. Floor speed
2. Spinner speed

- To adjust the floor speed (Figure 44), turn the knob clockwise. Maximum floor speed is used in the Color-Coded Operating System so this adjustment can be made while no hydraulic flow is present. This is most relevant when you have a hopper full of sand.



decal119-6815

Figure 44
Manual Override Decal

1. Floor speed adjustment
2. Spinner speed adjustment

- To adjust the spinner speed (Figure 44), use a flat-head screwdriver to increase by turning clockwise or decrease by turning counter clockwise.

Note: If adjusting with the hydraulic flow active, ensure that the floor is turned off if you do not wish to have sand being spread as you adjust.

Once your settings are acceptable, use the hydraulic flow control on your tow vehicle to turn the system on and off for operation.

Key Functionality Elements

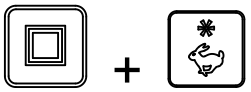
- When you turn the handheld remote on, the display should read **FLR OFF** and **OPT OFF** in approximately 5 seconds. If the words “waiting for base” are in the display, check to ensure there is electrical power to the base unit and ensure the E-STOP button on the base unit is out.
- There is always a **current working memory**. This is not the same as a preset. The last saved work settings will be in the current working memory when you turn the handheld remote on.
- Operational sequence of the handheld remote start buttons:
  - Pressing a start button once (ALL START, FLOOR START, or OPTION START) calls up the current working memory setting stored in the handheld remote.
  - By pressing the same start button a second time, the component turns on if the hydraulics are engaged (it shows numbers ramping up in the display).
  - Pressing the same start button a third time will store the new setting established in the remote’s working memory.
- After pressing a start button once to view the current working memory setting in a non-working mode, there is approximately 10 seconds to begin adjusting the setting or the element will revert back to off. In a working mode, the 10 second rule does not apply.
- To program a preset, you must have the elements **activated or engaged** first.
- To operate from a preset, the you must have element speed percentages in the display to activate or engage them. If the word **OFF** is in the display, you must recall the preset.

Using the Liquid Crystal Display (LCD)

The 2 line, 8 character-per-line LCD (Liquid Crystal Display) shows status and activity as the remote buttons are pressed. It features user adjustable backlighting and contrast. Changes are saved in the remote current working memory. When the unit is turned on after being powered down, the last settings for contrast and backlighting are used for the display.

To Increase the Contrast:

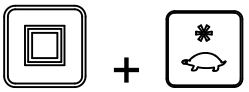
Hold the ALL STOP and the OPTION INCREASE buttons simultaneously while observing the display until the contrast is as desired.



Note: There are 3 settings: OFF, LOW, and HIGH.

To Decrease the Contrast:

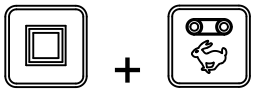
Hold the ALL STOP and the OPTION DECREASE buttons simultaneously while observing the display until the contrast is as desired.



Note: There are 3 settings: OFF, LOW, and HIGH.

To Increase the Backlighting:

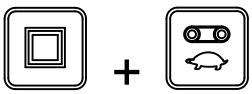
Hold the ALL STOP and the FLOOR INCREASE buttons simultaneously while observing the display until the backlighting is as desired.



Note: There are 3 settings: OFF, LOW, and HIGH.

To Decrease the Backlighting:

Hold the ALL STOP and the FLOOR DECREASE buttons simultaneously while observing the display until the backlighting is as desired.



Note: There are 3 settings: OFF, LOW, and HIGH.

Backlighting consumes the most energy of all Handheld Remote functions. Increasing the backlighting increases power consumption and will shorten the life span of the batteries; the lower the backlighting, the longer the battery life span.

Understanding the Remote Status LED

The remote status LED blinks slowly at 2 Hz (twice per second) when the handheld remote is transmitting but no buttons are being pressed, when the floor and option buttons active. When you press a button, the light will blink at 10 Hz.

Replacing the Remote Batteries

The handheld remote is powered by 4 batteries (size AA alkaline, 1.5 V each) and operates between 2.4 to 3.2 V. Battery life is approximately 300 hours (continuous operation with the backlight off), but battery life longevity is affected by usage factors, particularly backlight intensity setting—the higher the backlight setting, the more power consumed resulting in shorter battery life.

Important: **Keep fresh spare batteries at hand at all times that the system is in use.**

1. Loosen the bolt in the magnet on the magnetic remote bracket (Figure 45).

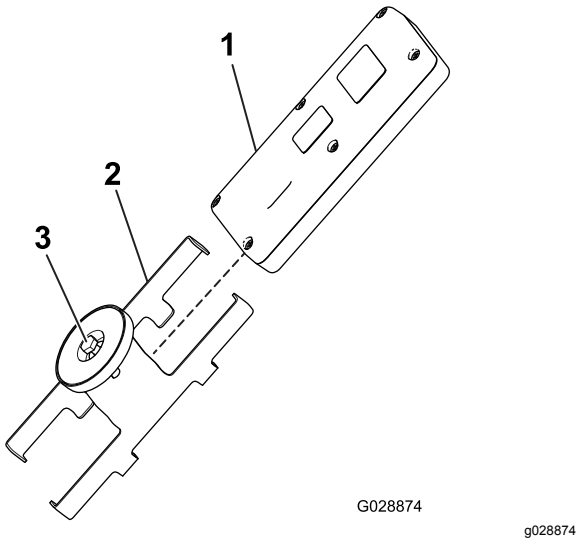


Figure 45

1. Handheld remote
2. Magnetic remote bracket
3. Bolt in the magnet

2. Slide the bracket sides apart and remove the remote (Figure 45).
3. Remove the 6 screws from the back of the remote and remove the cover (Figure 46).

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

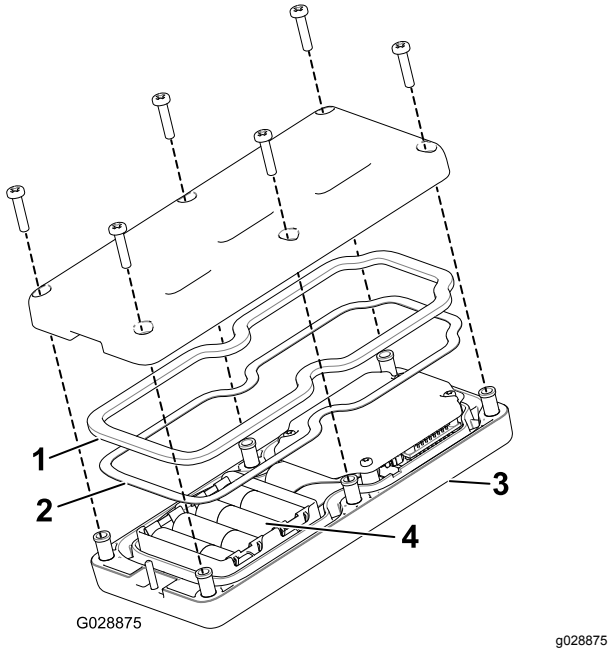


Figure 46

1. Rubber seal
2. Steel gasket
3. Handheld remote
4. 4 AA batteries

4. Remove the discharged batteries and properly dispose in accordance with local regulations.
5. Plug each fresh battery into a terminal cradle observing proper polarity. (If the batteries are improperly installed, the unit will not be damaged, but it will fail to operate.) The cradle is embossed with polarity markings for each terminal (Figure 46).
6. If you accidentally removed the rubber seal and the steel gasket, replace them carefully into the channel in the handheld remote (Figure 46).
7. Replace the cover and secure it with the 6 screws removed previously (Figure 46) and torque them to 1.5 to 1.7 N·m (13 to 15 in-lb).
8. Install the handheld remote into the magnetic remote bracket, slide the halves together to secure the remote, and tighten the bolt in the magnet (Figure 45).

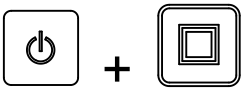
Caring for the Handheld Remote

Though the handheld remote is rugged, care should be taken not to drop the unit onto hard surfaces. To clean it, use a soft cloth moistened with water or a mild cleaning solution to wipe it paying particular attention to avoid scratching the LCD screen.

Associating the Handheld Remote with the Base

The factory initially associates the remote to the base allowing them to communicate; however, there may be instances in the field when you must reassociate a remote and a base unit, as follows:

1. Press the E-Stop button to remove power from the base unit and ensure that the handheld is off.
2. Stand near the base unit in clear line of sight.
3. Simultaneously press and continue to hold the ON/OFF and the ALL STOP buttons.



   The handheld remote goes through its initialization screens and settles on **ASSOC PENDING**.

4. Continue to hold both buttons and then quickly release them when **ASSOC ACTIVE** is displayed (approximately 4 seconds).

   The display will show **PRESS STORE**.

5. Press and hold the STORE button.



   The remote displays **POW UP BASE**.

6. While continuing to hold the STORE button, pull out on the E-STOP button to power up the base unit.

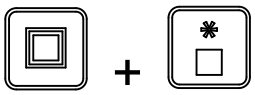
   The handheld remote will associate (link) with the base unit. Upon success, the display will show **ASSOC PASS.**

7. Release the STORE button.

Important: **If the display shows *ASSOC EXIT*, the association failed.**

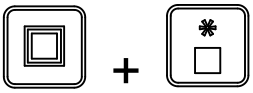
Note: The Handheld Remote and Base Unit link can be viewed by holding down the ALL STOP and OPTION STOP buttons at the same time.

The display will cycle and indicate the selected channel and the ID of the Base Unit.



Battery Life, Operating Frequency, Base and Remote ID Display

Hold down the ALL STOP and OPTION STOP buttons simultaneously to display multiple points of information.



As you hold the buttons down, the display cycles approximately every 2 seconds displaying first the battery life expectancy in percent remaining or current battery voltage, the operating frequency (channel) on which the units communicate, then the handheld remote ID number, and finally the associated BASE Unit ID.

Operating the Floor and Option

Use the following procedures to set and operate the machine floor and option (such as the twin spinner or other attachment) as follows:

- Setting and operating the floor alone
- Setting and operating the option alone
- Setting and operating both floor and option together

Setting and Operating the Floor Alone

Upon initially pressing the FLOOR START button  (when the floor is not running), the remote display shows the stored setting and an S is displayed after FLR (i.e. **FLRS**), indicating that the remote is in a set-only mode. In this set-only mode, you can adjust the setting up or down, but the floor does not activate, remaining off. This allows you to set a desired floor speed or use the stored setting without causing unwanted movement. After setting the speed, press the FLOOR START button to activate the floor at the chosen setting (if the hydraulics are engaged, the floor will start). Press FLOOR START a third time to store the current value in memory.

Note: Changes to the foor settings while the floor is running are immediately effective, but they are temporary unless you store the new setting by pressing FLOOR START again after changing the setting. For instance, you make an adjustment while the display shows **FLRS**, press Floor Start starting the floor at the adjusted setting, and then turn the remote off without pressing FLOOR START again, storing the

change. The next time you use the remote, the setting will revert to the previously stored value.

Note: A 10 second timer starts when you press FLOOR START and FLRS (set-only mode) displays. If you do not press a button during the 10 second interval, the display reverts to FLR and the previous state/value displays and is enforced. The timer resets to ten seconds if any button is pressed while the remote is in the set-only.

1. Press the FLOOR START button.



The preview value and FLRS displays.

2. Adjust the speed setting using the INCREASE FLOOR SPEED button or the DECREASE FLOOR SPEED button.

 or 

3. Press the FLOOR START button to start the floor.



4. Press the FLOOR START button to store the floor value.



The display shows **FLOOR STORE**. The set value will be used whenever the floor is started in the future until you change the setting again.

Setting and Operating the Option Alone

Upon initially pressing the OPTION START button  (when the option is not running), the remote display shows the stored setting and an S is displayed after OPT (i.e. **OPTS**), indicating that the remote is in a set-only mode. In this set-only mode, you can adjust the setting up or down, but the option does not activate, remaining off. This allows you to set a desired option speed or use the stored setting without causing unwanted movement. After setting the speed, press the OPTION START button to activate the option at the chosen setting (if the hydraulics are engaged, the option will start). Press OPTION START a third time to store the current value in memory.

Note: Changes to the option settings while the option is running are immediately effective, but they are temporary unless you store the new setting by pressing OPTION START again after changing the setting. For instance, you make an adjustment while the display shows **OPTS**, press OPTION START starting the option at the adjusted setting, and then turn the remote off without pressing OPTION START again, storing the change. The next time you use the remote, the setting will revert to the previously stored value.

Note: A 10 second timer starts when you press OPTION START and FLRS (set-only mode) displays. If you do not press a button during the 10 second interval, the display reverts to FLR and the previous state/value displays and is enforced. The timer resets to ten seconds if any button is pressed while the remote is in the set-only.

1. Press the OPTION START button.



The preview value and FLRS displays.

2. Adjust the speed setting using the INCREASE OPTION SPEED button or the DECREASE OPTION SPEED button.

 or 

3. Press the OPTION START button to start the option.



4. Press the OPTION START button to store the option value.



The display shows **OPTION STORE**. The set value will be used whenever the option is started in the future until you change the setting again.

Setting and Operating the Floor and Option Together

Upon initially pressing the ALL START button  (when the option is not running), the remote display shows the floor and option stored settings and an S is displayed after FLR and OPT (i.e. **FLRS** and **OPTS**),

indicating that the remote is in a set-only mode. In this set-only mode, you can adjust either setting up or down, but the floor and option do not activate, remaining off. This allows you to set the desired speeds or use the stored settings without causing unwanted movement. After setting the speeds, press the ALL START button to activate the floor and option at the chosen setting (if the hydraulics are engaged, the floor and option will start). Press ALL START a third time to store the current value in memory.

Note: Changes to the settings while the floor and option are running are immediately effective, but they are temporary unless you store the new setting by pressing ALL START again after changing the setting. For instance, you make an adjustment while the display shows **FLRS** and **OPTS**, press ALL START starting the floor and option at the adjusted setting, and then turn the remote off without pressing ALL START again, storing the change. The next time you use the remote, the settings will revert to the previously stored values.

Note: A 10 second timer starts when you press ALL START and set-only mode displays. If you do not press a button during the 10 second interval, the display reverts to FLR and OPT and the previous state/value displays and is enforced. The timer resets to ten seconds if any button is pressed while the remote is in the set-only.

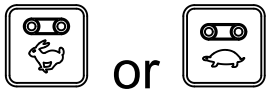
1. Press the ALL START button.

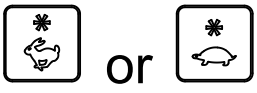
   The preview values and FLRS and OPTS display.

2. Adjust the speed settings as follows:

   - Adjust the floor speed setting using the using the INCREASE FLOOR SPEED button or the DECREASE FLOOR SPEED button.

   - Adjust the option speed setting using the using the INCREASE OPTION SPEED button or the DECREASE OPTION SPEED button.

3. Press the ALL START button to run the floor and option.

4. Press the ALL START button to store the values.

   The display shows **ALL STORE**. The set value will be used whenever the option is started in the future until you change the setting again.

   Note: Both the floor and option must be running to store the settings using the ALL START button. If only 1 or neither is running, pressing the ALL START button will either start them both or start the one that was not running. Nothing is stored and the commands previewed are the previously stored floor and the option settings.

   It is important to realize that the stored command for the floor and option are used twice, once in the event of an individual command using the FLOOR START or OPTION START buttons, and once in the event of a combined action using ALL START; in either case, it is the same number.

Setting the Preset 1, 2, and 3 Buttons

The remote has 3 PRESET buttons which you can program with floor and option speed settings. Each PRESET button acts like a preview mode for the ALL START button, except that they use different, user defined quick reference speed values.

If the floor and/or the option happen to be running at the time you press a PRESET button, a preview value of both floor and option settings is displayed; if you then press the ALL START button, the current operating values are replaced by the preset values. If you do not press the ALL-START button within 10 seconds, the system will revert back to the previously stored values.

Use the following procedure to set the values of a PRESET button:

1. Start both the floor and option either individually or by using the ALL START button .

2. Set the desired speeds of both floor and option by using the appropriate INCREASE and DECREASE speed buttons for each output.
3. Press and hold the STORE button and then press the desired PRESET button (1, 2, or 3).

 then 1, 2, or 3

The screen will display PRESET SAVED.

Note: If you hold the STORE button and press a PRESET button while either the floor or option are off, no new value is stored for either floor or option; the preset holds the values previously stored.

Using a Preset Mode

1. Press the desired PRESET button (1, 2 or 3) to display the floor and option settings.
2. Press the ALL START button to start the floor and option (if the hydraulics are turned on).
3. Use the START and STOP buttons to control the floor and option as desired

Choosing a Tow Vehicle

⚠ WARNING

Always use a suitable tow vehicle to move the machine, even for short distances. An unsuitable tow vehicle can damage the machine, or cause injury or death.

The override access is on the driver side of the hydraulic system. (see Figure 15)

A suitable tow vehicle must have a minimum towing capacity of 1,405 kg (3,400 lb).

On tow-behind chassis the maximum carrying load for the machine is 907 kg (2,000 lb), with a resulting tongue weight of 113 kg (250 lb). The tare weight (no load) is 499 kg (1,100 lb), with a resulting tongue weight of 23 kg (50 lb).

The resulting tongue weight of the machine fitted with the 11 hp Hydraulic Power Pack when operating with a full load is 145 kg (320 lb). The resulting no load tongue weight is 48 kg (105 lb). The tare weight (no load) is 599 kg (1,320 lb).

On Truckster direct connect chassis the maximum carrying load for the machine is 2,000 lb (907 kg), with a resulting weight transfer of 272 kg (600 lb) to the tow vehicle. The tare weight (no load) is 544 kg (1,200 lb), with a resulting weight transfer of 52 kg (115 lb) to the tow vehicle.

Loading the Hopper

⚠ WARNING

Ensure that the machine is connected to the tow vehicle before loading.

Do not carry loads that exceed the load limits of the machine, or the tow vehicle; refer to Specifications (page 18).

The stability of loads can vary—for example, high loads will have a higher center of gravity. Reduce the maximum load limits to ensure better stability, if necessary.

To avoid causing the machine to tip over (see safety decals in this manual):

- Carefully monitor the height and weight of the load. Higher and heavier loads can increase the risk of tipping.
- Distribute the load evenly, front to back and side to side.
- Be careful when turning and avoid unsafe manoeuvres.

Important: **Do not put large or heavy objects into the hopper. Material that is larger than the rear gate opening may damage the belt and rear gate assembly. Also ensure that the load has a uniform texture. Small rocks in sand can become projectiles.**

⚠ WARNING

Do not carry passengers in the hopper.

Unloading the Hopper

⚠ WARNING

The machine is capable of amputating hands and feet.

Keep hands and feet away from the hopper guard on the spinner guard and the spinner assembly when the machine is operating or when the hydraulic power pack engine, on the tow vehicle, is running.

Do not stand behind the machine when unloading or spreading. The Twin Spinner ejects particles and dust at a high speed.

Do not unload the machine while it is on a slope.

⚠ WARNING

Unloading the machine when it is not connected to the tow vehicle may cause the load to shift and the machine to tip over.

Ensure that the machine is connected to the tow vehicle before unloading.

Traveling

The machine is designed only for off-road use. The maximum recommended speed without a load is 24 km/h (15 mph).

Maintain safe control of the machine. Do not attempt sharp turns, abrupt manoeuvres, or other unsafe driving actions.

Slow down before turning, especially on wet, sandy, and slippery surfaces. Turning clearances are limited if you have an option mounted on the machine.

⚠ CAUTION

Using the machine in an unsafe manner could result in serious injury or death.

Be aware of your surroundings when turning or backing up. Ensure that the area is clear and keep all bystanders at a safe distance. Proceed slowly.

Turn off the option when approaching people, vehicles, vehicle crossings, or pedestrian crossings.

Note: Heavy loads and wet or rough surfaces increase the time it takes to stop, and reduce the ability to turn quickly and safely.

Using the Machine on Hills

⚠ WARNING

Operating the machine in an unsafe manner on hills could result in serious injury or death.

Use extreme caution when traveling on hills, especially when turning.

Always travel straight up and down hills—do not travel sideways or on a diagonal. Stopping distance increases when traveling down a hill.

Reduce the weight of the load when traveling on hills. Avoid piling the load high—a higher center of gravity increases the risk of the machine tipping over on hills.

If you have an option on the machine, be aware of the ground clearance when traveling on hills. When the machine begins to travel up a slope the ground clearance decreases.

Parking the Machine

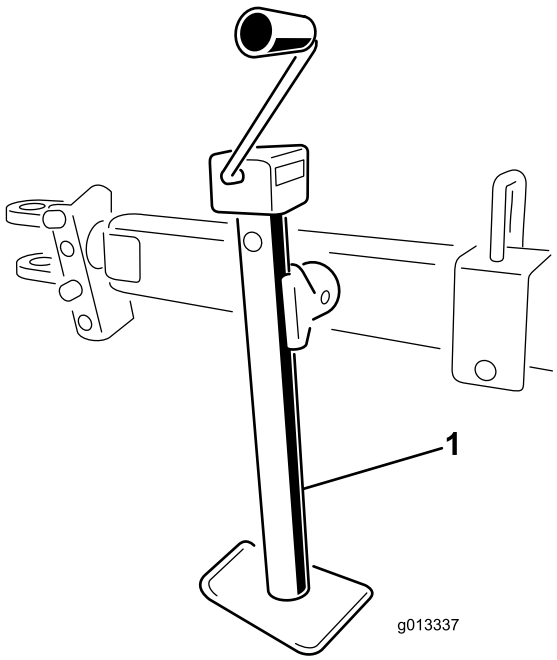
Always park the machine on a level surface. Place blocks under 2 wheels of the machine (front and back if it is in the vehicle-mounted configuration).

⚠ WARNING

Disconnecting the machine from the tow vehicle on a slope could cause the machine to move unexpectedly.

Do not disconnect the machine from the tow vehicle on a slope. Ensure that the front jack is in the support position.

To rotate the jack stand from a down support position to a traveling horizontal position, pull out the jack stand support pin and swivel the jack. Ensure that the jack stand is attached to the machine and in the correct position during operation. On Toro tow-behind chassis the jack stand is located on the hitch tube (Figure 47). On Truckster direct connect chassis 2 jack stands are used (Figure 48). Use the jack storage mounts on the rear of the chassis during operation.



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Figure 47

1. Jack stand on tow-behind

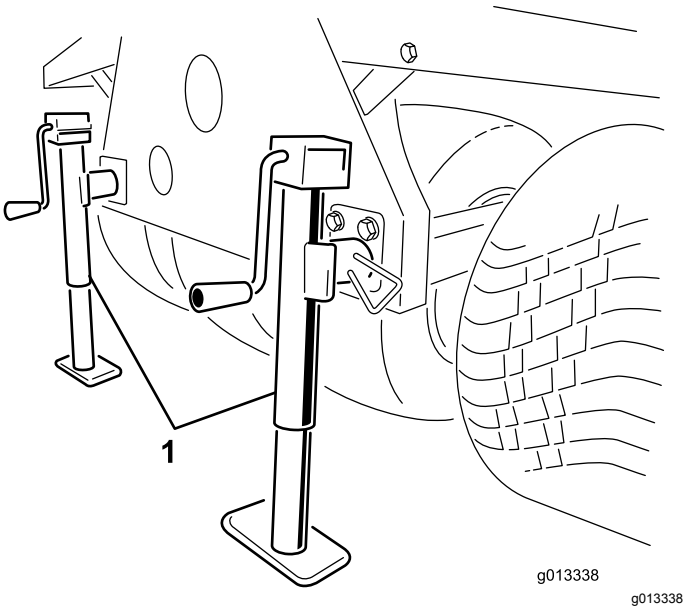


Figure 48

1. Jack stands on Truckster Direct Connect

Using the Storage Stand

1. Park the work vehicle in the storage spot for the machine.

   Note: The storage spot must be a hard and level surface.
2. Disconnect the electrical connection from the work vehicle.
3. Disconnect the machine hydraulic lines from the work vehicle.
4. With the work vehicle in neutral gear, engage the parking brake and start the engine.
5. Using the vehicle lift cylinder, raise the front of the machine high enough to install the front storage stand legs.
6. Shut off the engine.

   ⚠ WARNING

   Working on the machine while it is on the storage stand could result in serious injury or death.

   Do not climb under or perform work on the machine while it is on the storage stand.
7. Insert the front storage legs and the rear jack stands into the machine tubes and secure them with the locking pins (Figure 49).

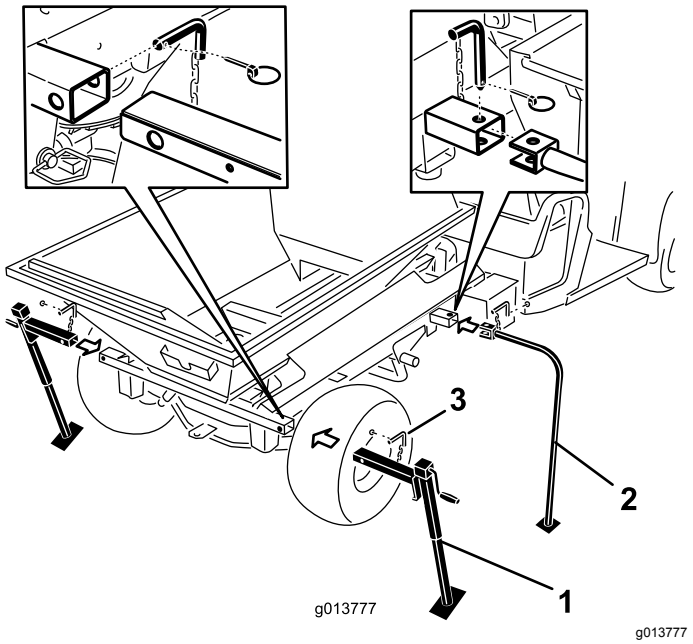


Figure 49

1. Rear jack stands
2. Front storage legs
3. Locking pin

8. Using the vehicle lift cylinder, lower the front of the machine until the front storage stand legs begin to touch the ground.
9. Raise the 2 rear storage jack stands until the pressure is off the mounting pins that secure the machine cross tube to the Workman frame.
10. Remove the rear lynch pins, hitch pins, and washers (Figure 50).

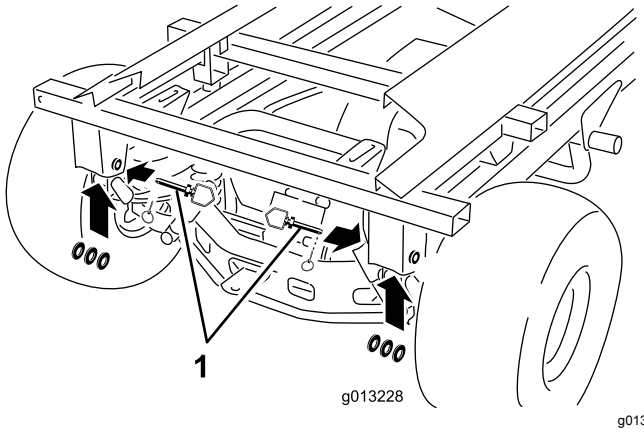


Figure 50

1. Hitch pin, washers, and lynch pin

11. With 1 hand, hold the lift cylinder. With the other hand, remove the lift cylinder's locking pin (Figure 51).

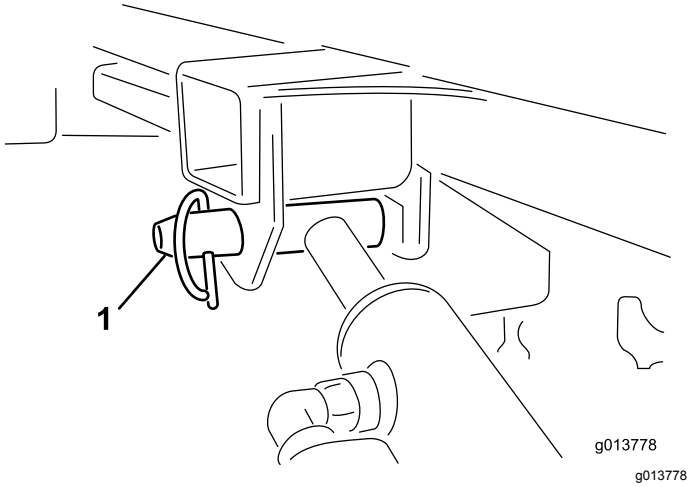


Figure 51

1. Lift cylinder locking pin

12. Store the cylinders in the storage clips. Engage the hydraulic lift lock lever on the vehicle to prevent accidental extension of the lift cylinders.
13. Raise the rear jack stands until enough clearance is attained to drive the vehicle away from the machine.
14. Walk around the machine. Ensure that it is clear of the work vehicle's frame and secured within each of the 4 storage stand legs.
15. With the work vehicle in neutral gear, engage the parking brake and start the engine.
16. Disengage the parking brake and slowly drive the work vehicle forward, away from the machine truck-mount on the storage stand.

Maintenance

⚠ WARNING

Working on the machine before disconnecting all power sources could result in serious personal injury or death.

Disconnect all power sources to the machine before doing maintenance work.

Note: To obtain an electrical schematic or a hydraulic schematic for your machine, visit www.Toro.com.

Lubrication

Lubricating the Machine

- Use an all-purpose automotive grease.
- Lubricate regularly, after 25 hours of normal operation.
- Lubricate daily when operating in extremely dusty and dirty conditions.
- Lubricate all bearings, bushings, and chains.

Several grease fittings are located on the machine and the tow-behind chassis (Figure 52, Figure 53 and Figure 54).

1. Clean the grease fittings.
2. Pump the grease into the bearings and the bushings.
3. Clean off the excess grease.
4. Clean and pack the wheel bearings every year or every 300 hours of operation

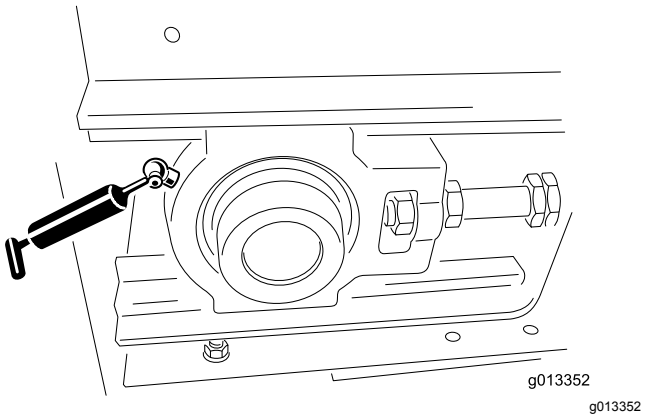


Figure 52

1. Grease fitting on Base Model (1 at left front, 1 at right front)

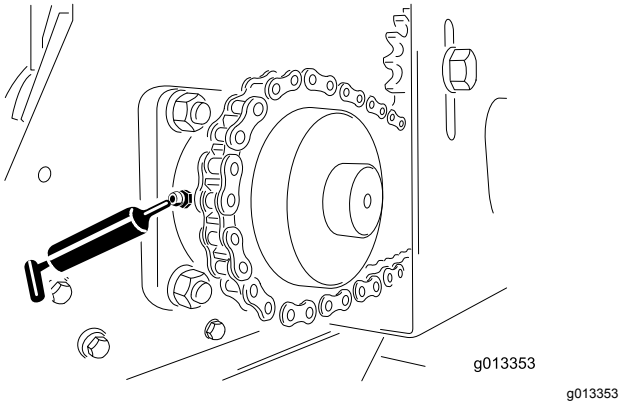


Figure 53

1. Grease fitting on Base Model (1 at left rear, 1 at right rear)

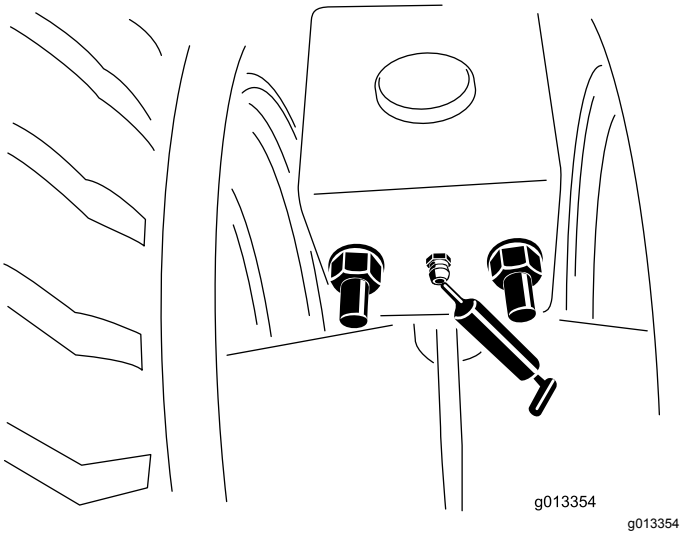


Figure 54

1. Grease fitting on tow-behind chassis (front and rear, left and right). Grease once per year.

Daily Checks

At the start of each day, complete these safety checks before operating the machine. Report any safety problems to your supervisor. See the Safety Instructions in this manual for details.

Checking the Tires and Wheels

- The recommended tire pressure for the tow chassis is 69 kPa (10 psi), or as recommended by the tire manufacturer. Refer to the tow vehicle operator's manual for the tow vehicle tire specifications.
- Check for excessive wear or visible damage.
- Check that the wheel bolts are tight and none are missing.

Checking the Rear Gate

Check that the adjustable section of the rear gate opens and closes without sticking.

Stowing and Checking the Jack Stands

- Safely stow the jack stand(s) in the up position before traveling. On Truckster direct connect chassis stow the jack stands on the rear of the machine.
- Check that the hitch pin and jack stand are not damaged, and the safety pin is in place. (Replace safety pins if missing or damaged).
- Check that the hitch connections are not loose.

Checking the Hydraulic System

⚠ WARNING

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

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

- Check the hydraulic system for fluid leaks. If you find a leak, tighten the fitting, or replace or repair the damaged part.
- Check the hydraulic hoses for wear or visible damage.
- Check the hydraulic fluid level. Fill up if necessary.

Checking the Belt and Rear Gate Seals

- Check all rubber seals for wear or damage. Replace or repair the seals if any leakage occurs.
- Check and adjust the conveyor belt cleaning scraper. Ensure that the scraper is in full contact with the belt across its length.

Checking Other Components

- Check the blades on the Twin Spinner discs for wear. Replace when they wear thin.
- Check the Twin Spinner housing for signs of cracking or corrosion. Replace wear plates as required
- Check that the safety decals are undamaged and legible, otherwise, replace them.

Hydraulic System

The machine is shipped from the factory filled with high-quality hydraulic fluid. Check the level of hydraulic fluid before the machine is first started and daily thereafter. The recommended replacement fluid is as follows:

Toro PremiumTransmission/Hydraulic Tractor Fluid
(Available in 5 gallon pails or 55 gallon drums. See parts catalog or Toro distributor for part numbers.)

Alternative fluids: If the specified fluid is not available, other universal tractor hydraulic fluids (UTHF) may be used, but they must be only **conventional, petroleum-based** products, not synthetics or biodegradable fluids. The specifications must fall within the listed range for all of the following material properties and the fluid should meet listed industry standards. Check with your fluid supplier to see if the fluid meets these specifications.

Note: Toro will not assume responsibility for damage caused by improper substitutions, so use only products from reputable manufacturers who will stand behind their recommendation.

Material Properties:	
Viscosity, ASTM D445	cSt @ 40°C (104°F) 55 to 62
Viscosity Index ASTM D2270	140 to 152
Pour Point, ASTM D97	-37°C to -43°C (-35°F to -46°F)
Industry Specifications: API GL-4, AGCO Powerfluid 821 XL, Ford New Holland FNHA-2-C-201.00, Kubota UDT, John Deere J20C, Vickers 35VQ25, and Volvo WB-101/BM	

Note: Many hydraulic fluids are almost colorless, making it difficult to spot leaks. A red dye additive for the hydraulic system oil is available in 20 ml (2/3 fl oz) bottles. 1 bottle is sufficient for 15 to 22 L (4 to 6 US gallons) of hydraulic fluid. Order Part No. 44-2500 from your authorized Toro distributor.

Maintaining the Conveyor Belt System

Checking the Conveyor Belt and Rollers

- Check that the conveyor belt is tracking straight on the rollers and does not slip. Make adjustments if necessary. Refer to Adjusting the Tracking of the Conveyor Belt (page 38).
- Check the front and rear roller bearings every 2 months for wear or visible damage.
- Check the condition and tension of the drive chain and the sprockets.

  Important: **Check for trapped spreading material between conveyor bed, belt, and rollers. Refer to Washing the Machine (page 39).**

Adjusting the Conveyor Belt Tension

Perform the tensioning procedure only if the belt is slipping, if it has been replaced, or if it has been loosened to replace other parts.

1. Place the belt's V-guide in the guides of the front and rear rollers.
2. Tighten the 2 belt adjustment nuts evenly until the belt is snug.

   Note: If necessary, remove the front idler roller cover and the rear chute cover.
3. Fully load the machine with the heaviest material you expect to use.
4. With 2 wrenches, hold the end of the tensioner rod stationary and then loosen the locking nut, which is the nut closest to the end of the rod (Figure 55).

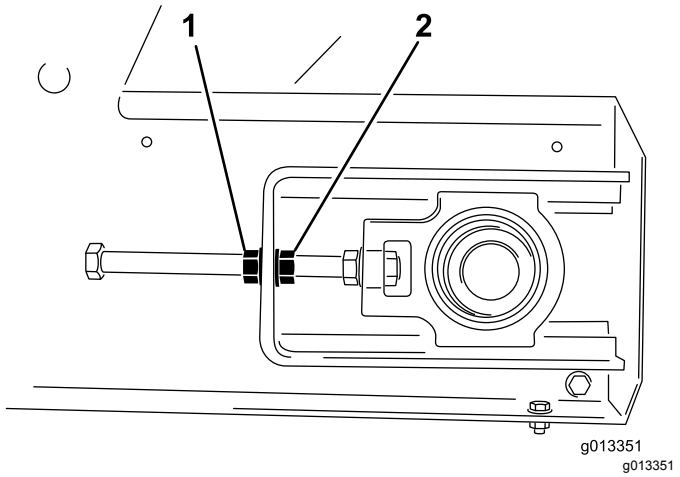


Figure 55

1. Locking nut
2. Adjuster nut

5. Turn the conveyor belt on and check if the belt is slipping.
6. If so, stop the belt and tighten both adjuster nuts half a turn. Do not over-tension.
7. Repeat steps 5 and 6 until the conveyor belt stops slipping.
8. Tighten the locking nuts and install the yellow safety covers

Adjusting the Tracking of the Conveyor Belt

The conveyor belt system is self-tracking. Both the front and rear rollers have a groove in the middle for the belt's V-guide to run in. Sometimes, the belt may track outside the grooves. To track the belt, do the following:

1. Determine which side the belt is tracking towards.
2. Remove the safety covers from both front corners.
3. On the side the belt is tracking towards, hold the end of the tensioner rod stationary, then loosen the locking nut and tighten the adjuster nut by 2 flats of the nut (Figure 55).
4. Tighten both locking nuts and turn on the conveyor belt.
5. Check the tracking movement. Repeat the above steps until the belt tracks back to the correct position.

   Important: **Be patient! Do not over-tension the belt.**
6. Install both of the safety covers.

Washing the Machine

Salts, road tar, tree sap, fertilizers, or chemicals may damage the painted finish of the machine. Wash off these deposits as soon as possible with detergent and water. Additional cleaners or solvents may be needed, but ensure that they are safe for painted surfaces.

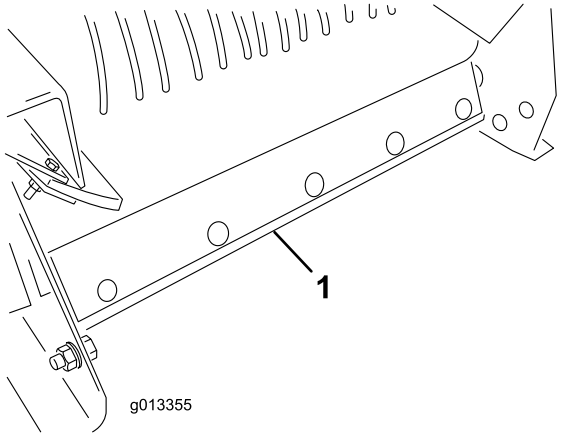
⚠ WARNING

Flammable fluids and cleaners with toxic vapors are hazardous to your health.

Do not use flammable fluids or cleaners with toxic vapors. Follow the manufacturer's recommendations.

Important: **Do not use a high-pressure washer. This can remove paint, safety decals, and grease, and can also damage components.**

1. Remove the option before cleaning and wash it separately.
2. Remove the handheld remote.
3. Wash the body of the machine with warm water and a mild detergent
4. Completely rinse off the detergent residue with clean water before it dries.
5. Remove the belt cleaning scraper assembly from the rear of the machine (Figure 56).



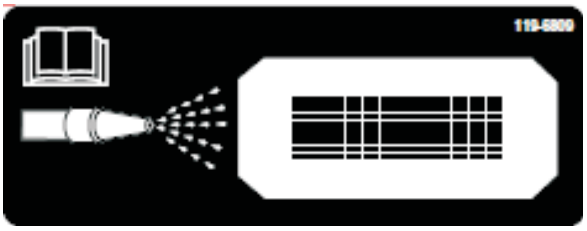
g013355

Figure 56

1. Belt cleaning scraper assembly

6. Raise the front of the machine as high as necessary.
7. If you have a truck-mounted machine, use the lift cylinder on the tow vehicle. (See the tow vehicle's owner's manual.)
8. If you have a tow-behind or Truckster direct connect chassis, use the jack stand on the chassis.
9. Fully open the rear gate and spray water inside the hopper assembly and the rear gate area. Inspect the side seals and replace if necessary.
10. Locate the clean-out decal on the front of the machine (Figure 57), using a garden hose, spray through the front guard mesh until the belly pan is completely clear of material (Figure 58).

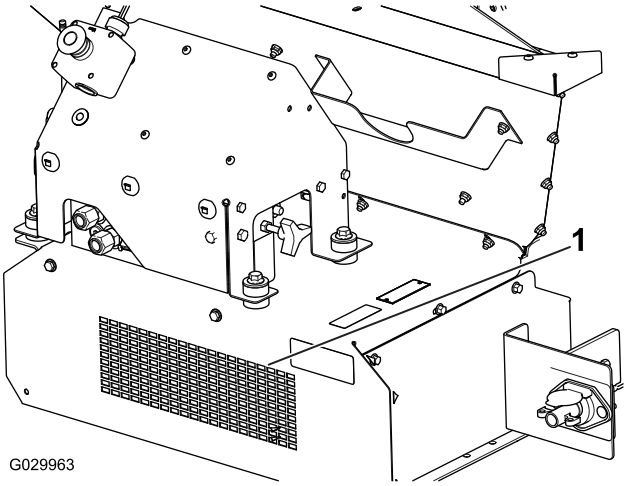
    Note: When the covers are removed for greasing, take the opportunity to wash out any trapped spreading material.



g013714

Figure 57

1. Clean-out decal



g029963

Figure 58

1. Front clean-out

11. Inspect the hopper, bottom guard, conveyor belt, bed, and rollers to ensure that all trapped material is gone.
12. Lower the machine back into the normal operating position
13. Install the belt cleaning scraper assembly. Push the scraper mount bar onto the belt. Ensure that the scraper is as vertical as possible, but still in contact with the belt.

Storage

Before storing the machine for the season, do the following:

1. Thoroughly clean the machine. Remove parts if necessary.
2. Remove the handheld remote.
3. Ensure that the emergency stop button is pushed.
4. Check all fasteners and tighten, if necessary.
5. Grease all fittings and pivot points. Wipe off any excess lubricant.
6. Lightly sand any painted areas that are scratched, chipped, or rusted, and apply touch-up paint.
7. Store the machine indoors, if possible.

Troubleshooting

Checking Fault Codes (EH Models Only)

If the Diagnostic LED indicates that there is a system fault (refer to Diagnostic LED Function (page 17)), check the fault codes to determine what is wrong with the machine.

Entering Diagnostic Mode and Checking the Codes

1. Push the E-STOP button down to turn off the power.
2. Pull the tethered cap off of the 2 diagnostic shunt connectors (Figure 59, A).
3. Connect the diagnostic shunt connectors together (Figure 59, B).

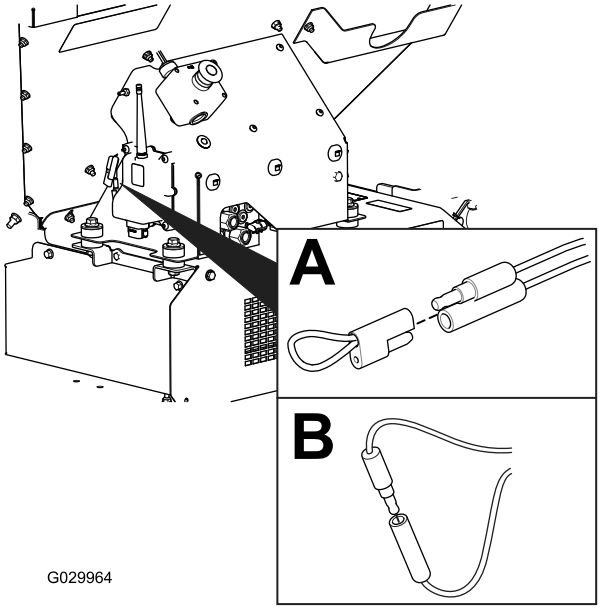


Figure 59

4. Pull the E-STOP up to turn on the power.
5. Count the number of flashes to determine the fault code, then consult the following table:

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

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 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 operate ProPass unit with a MH-400 handheld)

Reseting the Fault Code

After solving the problem, reset the fault codes by disconnecting and reconnecting diagnostic connectors. The diagnostic light will flash continuously at 1 Hz (1 flash per second).

Exiting Diagnostic Mode

1. Push the E-STOP button down to turn off the power; refer to E-Stop Button (page 17).
2. Disconnect the diagnostic shunt connectors (Figure 59, B).
3. Push the tethered cap onto the 2 diagnostic shunt connectors (Figure 59, A).
4. Pull the E-STOP up to turn on the power.

Handheld Remote Messages (EH Models Only)

Displayed Message	Description
ASSOC PENDING	Association yet to be made.
ASSOC ACTIVE	Association attempt in progress.
POWER UP BASE	Power up the Base Unit.
ASSOC PASS	Association attempt was successful.
ASSOC EXIT	Exiting Association mode
ASSOC FAIL	Association attempt failed.
PRESS STORE	Press the STORE button.
ALL STORE	Store all current set values in current working memory.
OPTION STORE	Store the current Option settings in current working memory.
BELT STORE	Store the current Floor settings in current working memory.
PRESET 1 STORE	Store the current Preset 1 setting in current working memory.
PRESET 2 STORE	Store the current Preset 2 setting in current working memory.
PRESET 3 STORE	Store the current Preset 3 setting in current working memory.
WAITING FOR BASE	Remote is waiting for a Base Unit response.
HOPPER UP	Remote is sending Hopper Raise command.
HOPPER DOWN	Remote is sending Hopper Lower command.
PROPASS REV XX	Product to which the system is set to control.
MH400 REV XX	Product to which the system is set to control.
BAT XX% Battery X.X V	Remaining battery life in percentage. Remaining battery life in voltage.
CHANNEL X	Channel currently being used by the system.
HH ID XXXXXX	Identity of the Handheld Remote
BASE ID XXXXXX	Identity of the Base Unit
FLR XX% OPT XX%	The current Floor speed in percent. The current Option speed in percent.
FLRS XX% OPTS XX%	Display of the stored regular Floor speed and Option speed with 0% command to the output allowing the operator to decide to use the current setting or change it.
FLR OFF OPT OFF	Displays the status of the floor and option when they are off.
SERVICE ACTIVE	The service tool is active.
SERVICE NO APP	Service has no valid application to run.

European Privacy Notice

The Information Toro Collects
Toro Warranty Company (Toro) respects your privacy. In order to process your warranty claim and contact you in the event of a product recall, we ask you to share certain personal information with us, either directly or through your local Toro company or dealer.

The Toro warranty system is hosted on servers located within the United States where privacy law may not provide the same protection as applies in your country.

BY SHARING YOUR PERSONAL INFORMATION WITH US, YOU ARE CONSENTING TO THE PROCESSING OF YOUR PERSONAL INFORMATION AS DESCRIBED IN THIS PRIVACY NOTICE.

The Way Toro Uses Information
Toro may use your personal information to process warranty claims, to contact you in the event of a product recall and for any other purpose which we tell you about. Toro may share your information with Toro's affiliates, dealers or other business partners in connection with any of these activities. We will not sell your personal information to any other company. We reserve the right to disclose personal information in order to comply with applicable laws and with requests by the appropriate authorities, to operate our systems properly or for our own protection or that of other users.

Retention of your Personal Information
We will keep your personal information as long as we need it for the purposes for which it was originally collected or for other legitimate purposes (such as regulatory compliance), or as required by applicable law.

Toro's Commitment to Security of Your Personal Information
We take reasonable precautions in order to protect the security of your personal information. We also take steps to maintain the accuracy and current status of personal information.

Access and Correction of your Personal Information
If you would like to review or correct your personal information, please contact us by email at legal@toro.com.

Australian Consumer Law

Australian customers will find details relating to the Australian Consumer Law either inside the box or at your local Toro Dealer.

The Toro Warranty

A Two-Year 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.

374-0253 Rev D