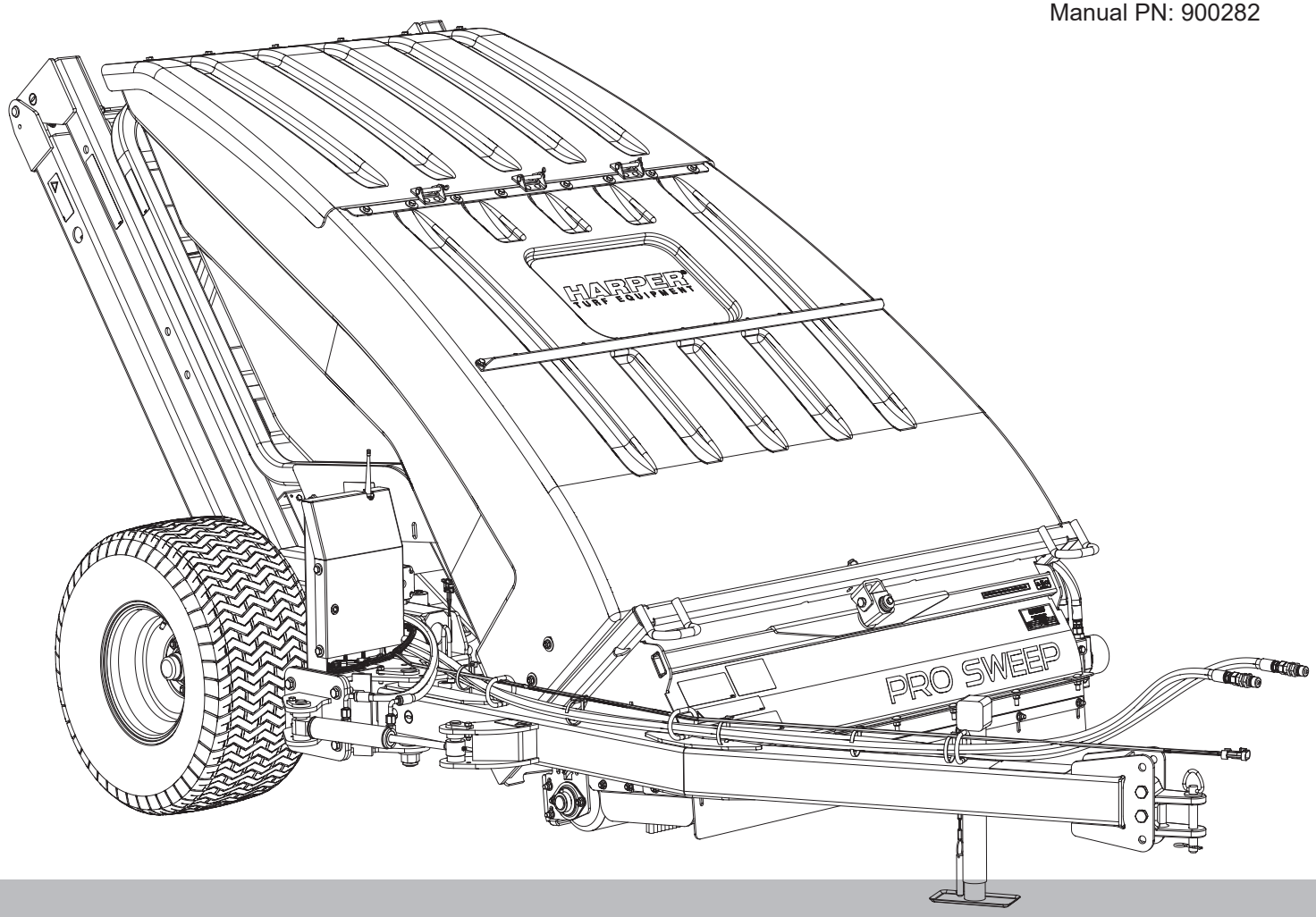
PRO SWEEP

Serial Number: 25A01
Model Number: 7068
Manual PN: 900282



OPERATOR'S MANUAL

10-2025

HARPER INDUSTRIES INC

Thank you for purchasing a Pro Sweep.

TO THE OWNER OR OPERATOR:

This manual gives assembly, operating, and service information for model Pro Sweep **7068**. Please read and understand all instructional material included with the Pro Sweep and its components before assembling and operating the equipment. This machine is intended to be used by professional, hired operators in commercial applications. The primary function of the machine is to remove debris from large turf areas. The movable tongue provides an offset position for sweeping.

A Pro Sweep can present hazards to an operator who follows unsafe procedures in either the operation or maintenance of the unit. Therefore, **SAFETY WARNINGS** are presented at certain locations in the text.

SYMBOL:  **SAFETY WARNING!** 

MEANING: Failure to understand and obey this warning may result in injury to you or others. Whenever this symbol is used, please pay very close attention to the information presented, and make sure you fully understand. If you do not, contact your dealer or Harper Industries for clarification.

 **SAFETY WARNING!** 

All shields and guards must be in place for proper and safe operation of this equipment. Where they are shown removed in this manual, it is for purposes of illustration and instruction only. Do not operate this equipment unless all shields and guards are in place.

Harper Industries, Inc. is continually striving to improve the design and performance of its products. We reserve the right to make changes in specifications and design without thereby incurring any obligation relative to previously manufactured products.

LIMITED WARRANTY

Harper Industries, Inc. (HII) warrants to each purchaser of a new Harper Pro Sweep from an authorized dealer or representative, that such equipment is free of manufacturer's defects in workmanship and materials which appear while in normal service for a period of ONE YEAR commencing with delivery to the original user.

The obligation of HII under this warranty is expressly limited, at our option, to replacement or repair at a service facility designated by Harper Industries or at the manufacturing plant in Harper, KS. A part will be replaced after inspection discloses it to have been defective. This warranty does not apply to defects caused by damage or unreasonable use (including failure to provide reasonable and necessary maintenance, or by performing functions without genuine Harper Pro Sweep accessories) while in the possession of the consumer.

Warranty is limited to parts, labor and ground freight delivery of replacement parts. HII shall not be liable for the consequential damages of any kind, including but not limited to consequential labor costs or transportation charges in connection with replacement or repair of defective parts.

This warranty does not apply to parts subjected to misuse, abuse, alteration, improper or inadequate maintenance, or normal wear (including belts, battery, chains, filters, knives, brush and broom).

Engines are not covered under this warranty. Refer to manufacturer's warranty for specific warranty information. Harper Industries, its agents or representatives, make or imply no other warranties.

Harper Industries makes no warranty with respect to trade accessories. They are subject to the warranties of their respective manufacturers.

ANY IMPLIED OR STATUTORY WARRANTIES, INCLUDING ANY WARRANTY OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE EXPRESSLY LIMITED TO THE DURATION OF THIS WRITTEN WARRANTY. HII makes no other express warranty, nor is anyone authorized to make any on behalf of HII.

For further information please contact your nearest Harper Pro Sweep dealer.

RECORDS

Date of Purchase _____ / _____ / _____

Dealer's Name _____

Dealer's Phone _____

Serial Number Machine _____

Serial Number Engine _____

HARPER® INDUSTRIES, INC.

EC Declaration of Conformity
according to the EC Machinery Directive 2006/42/EC, Annex II 1.A

Manufacturer:

Harper Industries Inc.
151 E US Highway 160
Harper, Kansas, USA, 67058
Phone: +1 (620) 896-7381

Person established in the Community, who is authorized to compile the technical file:

ProDoku
Hartmut Hartmann, Dipl.-Ing. (FH)
Wersener Holz 2a
D-49504 Lotte
Phone: +49 (0) 5404 / 5637
Mobil: +49 (0) 176 / 10590693
Email: Hartmut.Hartmann@prodoku.com

Description and identification of the machinery:

Machine Type:	**Turf Sweeper**
Model(s):	**Pro Sweep**
Serial Number:	**NNNNNNNN**
Measured Sound Pressure Level:	**83dBa**

It is expressly declared, that the machinery fulfills with all the relevant provisions of the following EC directives:

Directive 2006/42/EG	Directive on machinery Published in the Official Journal of the European Union, L 157/41 of 9.6.2006
Directive 2000/14/EC	Directive on noise emission in the environment by equipment for use outdoors Published in the Official Journal of the European Union, L 162 of 3.7.2000
Directive 2005/88/EC	Amending Directive 2000/14/EC Published in the Official Journal of the European Union, L 344/44 of 27.12.2005

Place of the declaration: Harper, Kansas, USA

Date of the declaration: 16 April 2025

Signature: Joe Biggerstaff

Title: Vice President, Engineering

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: **204-520022**

RF2CAN: **204-520297**

Mexico Electromagnetic Compatibility Certification

Handheld: **IFETEL : RCPMIMR15-2209**

RF2CAN: **IFETEL : RCPMIMR15-0142**

Korea Electromagnetic Compatibility Certification (Decal provided in separate kit)

Handheld: MSIP-CRM-TZQ-SMHH
해당 무선설비는 전파혼신 가능성이 있으므로 인명안전과 관련된 서비스는 할 수 없음

RF2CAN: MSIP-CRM-TZQ-MRF-E
MSIP-CRM-TZQ-RF2CAN
해당 무선설비는 전파혼신 가능성이 있으므로 인명안전과 관련된 서비스는 할 수 없음

Singapore Electromagnetic Compatibility Certification

Handheld: TWM240007_IDA_N4022-15

RF2CAN: TWM-240005_IDA_N4024–15

Morocco Electromagnetic Compatibility Certification

AGREE PAR L'ANRT MAROC

Numero d'agrement: MR 14093 ANRT 2017

Delivre d'agrement: 29/05/2017

⚠ WARNING

CALIFORNIA
Propostion 65 Warning

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

Contact us At
www.harperturfequipment.com
Printed in the USA

Table of Contents

Safety

This product is capable of causing personal injury. Always follow all safety instructions to avoid serious personal injury.

General Equipment Safety

- Read and understand the contents of both this Operator's Manual and the operator's manual of the tow vehicle before using this machine. Ensure that everyone using this product knows how to use this machine and the tow vehicle and understands the warnings.
- Use your full attention while operating the machine. Do not engage in any activity that causes distractions; otherwise, injury or property damage may occur.
- 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 the machine away from bystanders while it is moving.
- Keep children out of the operating area. Never allow children to operate the machine.
- Stop the machine, shut off the engine, engage the parking brake of the tow vehicle, remove the key, and wait for all moving parts to stop 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. Failure to comply with these instructions may result in personal injury or death.

Safety Decals

SAFETY WARNING!

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.

93-9899

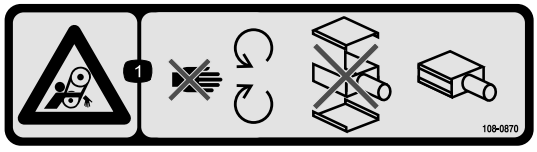
1. Crushing hazard—install the cylinder lock.

58-6520

1. Grease

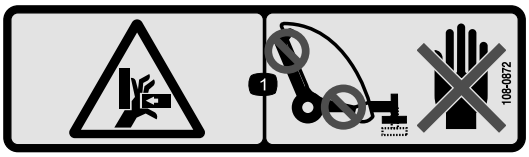
108-0868

1. Warning—keep hands & feet out of the machine brush
2. Tipping Hazard—do not operate with machine in the raised position on slopes greater than 5°.



108-0870

1. Entanglement hazard, belts—stay away from moving parts; do not operate with the covers removed.

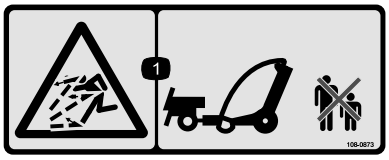


108–0872

1. Crushing hazard—keep hands away from pinch points.

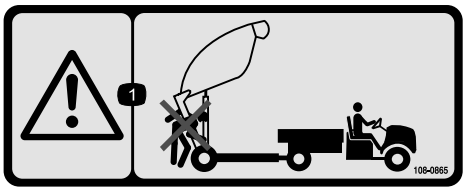
108-0863

1. Crushing hazard; falling object hazard—keep bystanders and vehicles away when the hopper is raised.



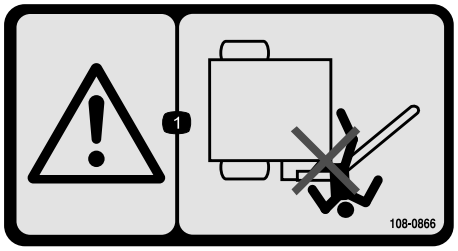
108-0873

1. Thrown object hazard—keep bystanders away.



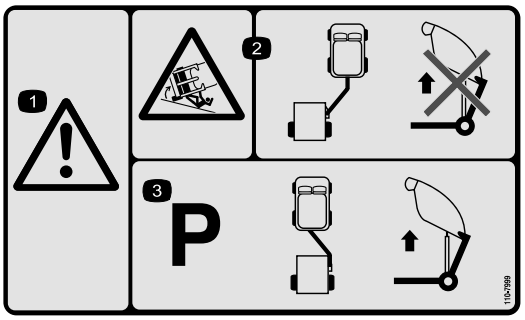
108-0865

1. Warning—keep bystanders away when dumping the hopper.



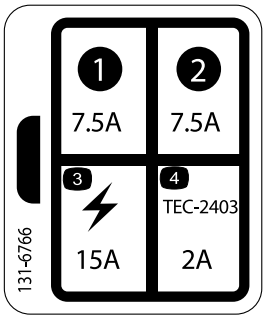
108-0866

1. Warning—stay away from the hitch tongue pivot point.



110-7999

1. Warning
3. Park the machine with the attachment in the tow position before raising the machine to dump.
2. Tipping hazard—when the attachment is in the sweep position do not raise the attachment to dump.



131-6766

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

93-9852

1. Warning—read the Operator's Manual.
2. Crushing hazard—install the cylinder lock.

108-0861

1. Warning—read the Operator's Manual; all operators should be trained before operating the machine.
2. Run Over Hazard—do not carry passengers.
3. Electrical Shock Hazard, overhead power lines—watch for overhead power lines.
4. Loss of control hazard—the maximum gross vehicle weight (GVW) is 1,590 kg (3,500 lb); the maximum hitch weight is 114 kg (250 lb); do not drive down slopes.
5. Warning—do not exceed 24 km/h (15 mph).
6. Stored energy hazard, trailer—lower the machine, place it on blocks or jack stands, disconnect the machine, disconnect the hydraulics and wire harness; do not drive the machine with the hopper in the raised position.

108-0862

1. Warning—read the Operator's Manual; all operators should be trained before operating the machine; keep bystanders away.
2. Entanglement Hazard, belts—stay away from moving parts; do not operate with covers removed.

⚠WARNING: Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

202134

Setup

Loose Parts

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

Procedure	Description	Qty.	Use
1	No parts required	—	Review the machine requirements before you use the machine.
2	No parts required	—	Remove the tongue and hydraulic cylinder from the shipping position.
3	Hitch tongue	1	Install the hitch tongue
	Hitch pin	1	
	Bolt (3/8 x 1-1/4 inch)	1	
	Nut (3/8-16)	1	
	Large washer	1	
	Large nut	1	
4	Rear actuator tab	1	Install the hydraulic cylinder.
	Bolt (1/2 x 2 inch)	4	
	Flat washer (0.531 x 0.063 inch)	8	
	Locknut (1/2 inch)	4	
	Bolt (3/8 x 1-1/4 inch)	2	
	Pin assembly	2	
	Flange nut (3/8 inch)	2	
5	Power wire harness	1	Install the power wire harness.
	Cable tie	2	
	Fuse	1	
6	Hitch pin	1	Mount the machine to the towing vehicle.
	Hairpin cotter	1	
7	Cable tie	8	Route and secure the hydraulic hoses and wire harness.
8	No parts required	—	Connect the hydraulic hoses.
9	No parts required	—	Connect the harness.
10	Blade-mounting assembly	1	Mount the windrow blades.
	Bolt (7/16 x 3-1/4 inches)	2	
	Small washer (1/2 inch)	4	
	Large washer	1	
	Spacer	1	
	Locknut (7/16 inch)	2	
	Chain	1	
	Bolt (3/8 x 1-1/4 inches)	1	
	Flange nut (3/8 inch)	1	
	Snap link	1	
11	Handheld remote	1	Assemble the handheld remote.
	Battery (AAA)	4	
	Small screws	6	

1

Reviewing the Machine Requirements

No Parts Required

Procedure

- The machine can be towed by most utility tractors equipped with hydraulics producing 26.5 to 30 L/min (7 to 8 gpm) at 13,790 kPa (2,000 psi) and flotation tires for operation over golf greens. Ensure that the tractor has adequate brakes and a drawbar hitch capacity to handle a 1587 kg (3,500 lb) trailer. Refer to the towing vehicle Operator's Manual for towing instructions and precautions.
- The utility vehicles may require the High-Flow Hydraulics Kit.
- Drawbar Kits/Hitch Frame & Draw Bar Kits may be needed depending on tow vehicle.
- ***Important:*** **Do not attempt towing a loaded machine with a light utility vehicle or run-about. These machines do not have adequate brakes, suspension, or frame strength to handle the weight of the machine.**
- Trailer brakes are recommended when using the machine in hilly terrain. When fully loaded, the machine may weigh as much as 1,588 kg (3,500 lb) (GVW). This weight is higher than the recommended towing and braking limit of most utility vehicles. A trailer brake kit is available for direct installation.

  Note: The trailer brake kit can be adapted to other vehicles with a 12 V brake light source.

2

Removing the Hitch Tongue from the Shipping Position

No Parts Required

Procedure

Note: Have 2 people remove the hitch assembly.

1. Chock the wheels of the machine.
2. Cut all cable ties securing the hydraulic cylinder and hoses to the hitch tongue. Remove the pin assembly, bolt and nut securing the cylinder. Carefully lower the cylinder and hoses from the tongue. Retain the pin assembly and fasteners for re-use.
3. Cut the cable ties holding the rear actuator tab on top of the tongue. Mount the rear actuator tab to the machine frame with 4 bolts (1/2 x 2 inch), 8 flat washers (0.531 x 0.063), and 4 locknuts (1/2 inch). Position the components as shown in Figure 5. (Move figure 5 up into step two.)
4. Remove the hydraulic hoses and wire harness from the hitch tongue. Lay these out of the way for future use.
5. Remove the hairpin cotter and hitch pin securing the hitch tongue to the upper shipping bracket. The hitch tongue is very heavy, use caution when removing the tongue from the shipping brackets.
6. Pivot at the lower shipping pin and pivot the tongue down.
7. Remove the pin assembly, bolt and nut securing the hitch tongue to the lower shipping bracket. **Note:** The machine will shift upward at the lower pin shipping bracket.
8. Remove the fasteners securing the shipping brackets to the machine. Remove and discard the shipping brackets.

3

Installing the Hydraulic Cylinder

Parts needed:

2	Bolt (3/8 x 1-1/4 inch)
2	Pin assembly
2	Flange nut (3/8 inch)

Procedure

1. Mount the rear actuator tab to the machine frame with 4 bolts (1/2 x 2 inch), 8 flat washers (0.531 x 0.063), and 4 locknuts (1/2 inch). Position the components as shown in Figure 3.

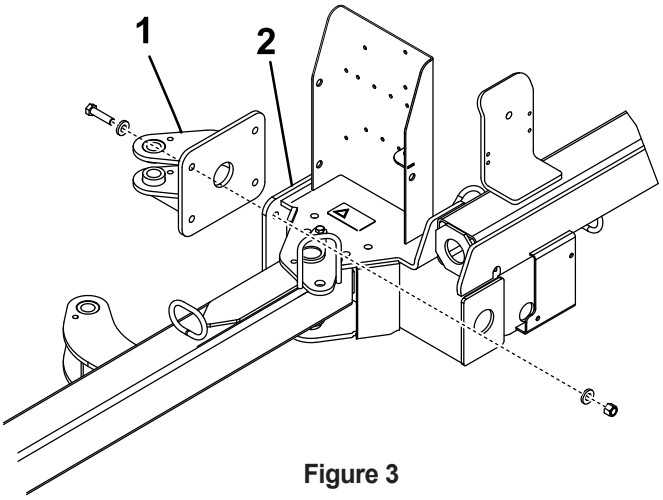


Figure 3

1. Rear Actuator Tab
2. Machine Frame

2. Secure each end of the hydraulic cylinder to an actuator tab with a pin assembly, a bolt (3/8 x 1-1/4 inch), and a flange nut (3/8 inch) Figure 4.

Note: Make sure that the rod end (working end) of the cylinder is attached to the front actuator tab.

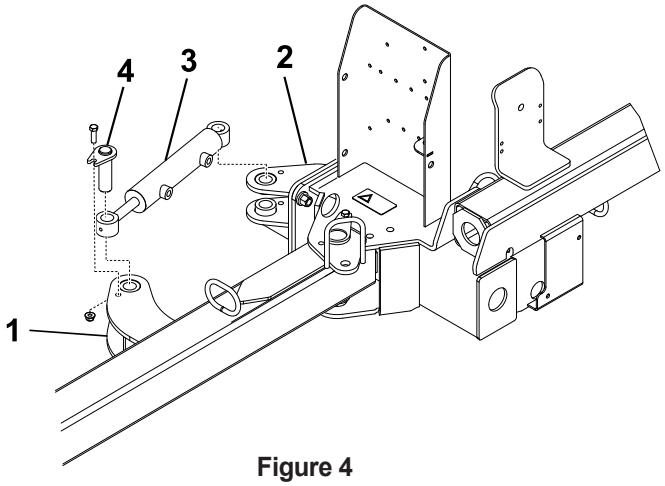


Figure 4

1. Front Actuator Tab
2. Rear Actuator Tab
3. Hydraulic Cylinder
4. Pin Assembly

4

Installing the Hitch Tongue

Parts needed:

1	Hitch tongue
1	Hitch pin
1	Bolt (3/8 x 1-1/4 inch)
1	Nut (3/8-16)
1	Large washer
1	Large nut

Procedure

Note: Procedure requires 2 people.

1. Insert the rear end of the hitch tongue between the mounting plates on the machine while aligning the mounting holes (Figure 5).

Note: Position the hose guides on top of the hitch tongue.

2. Insert the hitch pin through the mounting plates and the hitch tongue (Figure 5).
3. Secure the top of the hitch pin to the mounting plate with a bolt (3/8 x 1-1/4 inch) and a locknut (3/8 inch) as shown in Figure 5.
4. Secure the bottom of the hitch pin with a large washer and a large nut (Figure 5).
5. Loosen the jam nuts securing the proximity switch to the frame and lower the switch until it is 2.6 to 4.0 mm (0.10 to 0.16 inch) from the sensing plate on the hitch tongue (Figure 6). Tighten the jam nuts to secure the adjustment.

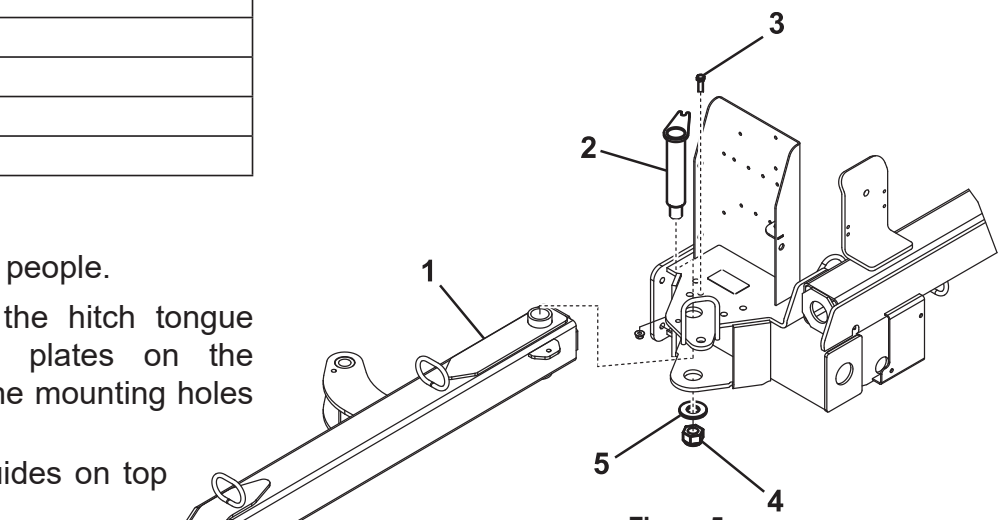


Figure 5

1. Hitch Tongue
2. Hitch Pin
3. Bolt (3/8 X 1-1/4 Inch) and Locknut (3/8 Inch)
4. Large Nut
5. Large Washer

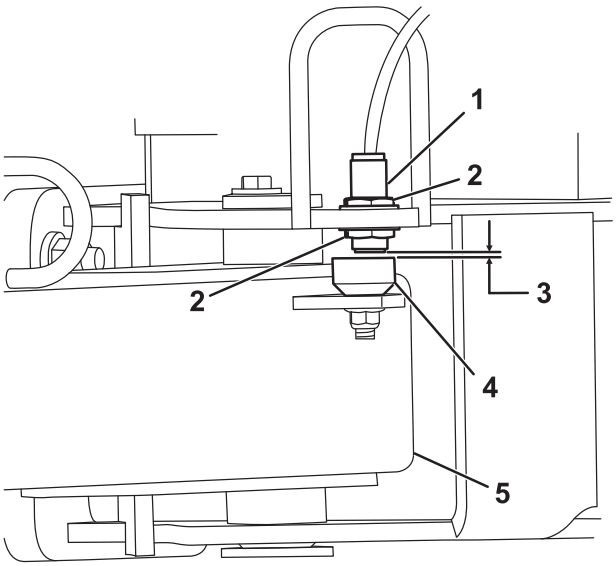


Figure 6

1. Proximity Switch
2. Jam Nut
3. 2.6 to 4.0 mm (0.10 to 0.16 inch)
4. Sensing Plate
5. Hitch Tongue

5

Removing the Hopper Door Latch

Procedure

1. Remove the nut securing the shipping bracket as shown in (Figure A).
2. Remove the Lid Strap and discard.
3. Reinstall the nut onto the bolt. Be sure to not overtighten and clamp down the Bar-Tilt.

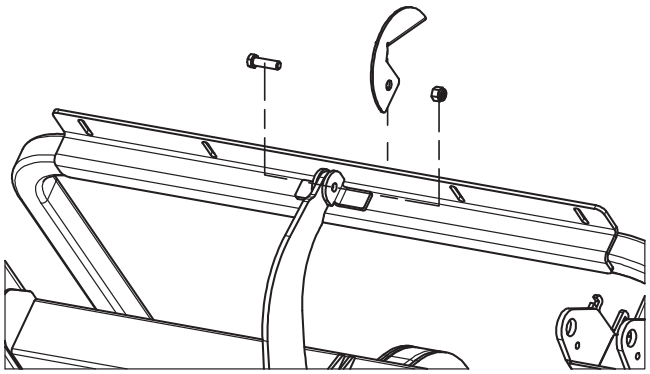


Figure A

6

Installing the Power Wire Harness

Parts Needed:

1	Power wire harness
2	Cable tie
1	Fuse

Procedure

1. Disconnect the battery from the vehicle.
2. Attach the power wire harness negative cable to a ground bolt near the vehicle fuse block.
3. Plug the harness wire into the red wire on the back of the fuse block.
4. Insert the 20 A fuse into the slot in the fuse block (Figure 7).

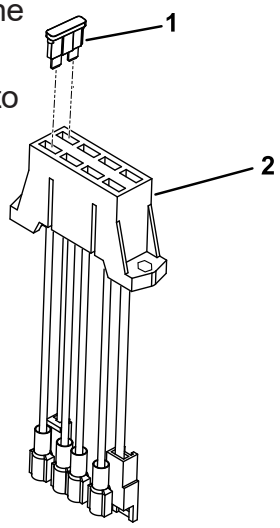


Figure 7

1. Fuse
2. Fuse Block

5. Route the wire harness to the rear of the vehicle (Figure 8).

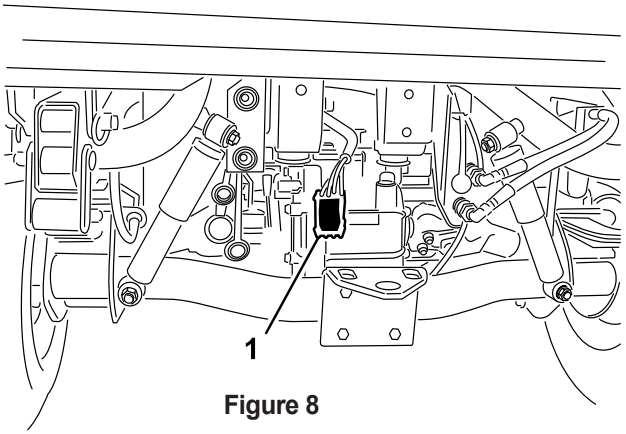


Figure 8

1. Power Wire Harness

6. Secure the wire harness to the vehicle in several places with cable ties. Keep the harness away from any hot or rotating components.

Note: The harness is equipped with a connector for the optional brake control kit.

7. Connect the vehicle battery; refer to the vehicle *Operator's Manual.*

7

Installing the Hydraulic Cylinder

Parts Needed:

1	Hitch Pin
1	Hairpin Cotter

Procedure

Note: For proper debris pickup, make sure that the machine frame is parallel with the ground.

1. Position the machine on a flat, level surface.
2. Back the towing vehicle up to the machine.
3. Remove the spring pin, rotate the jack down, and install the spring pin (Figure 9).
4. Jack up the hitch tongue until it is parallel to the ground.

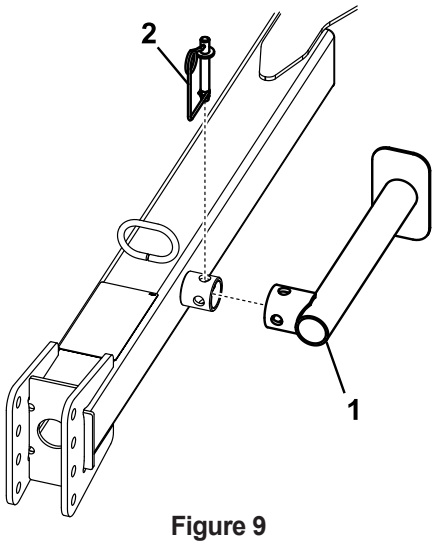


Figure 9

1. Jack
2. Spring Pin

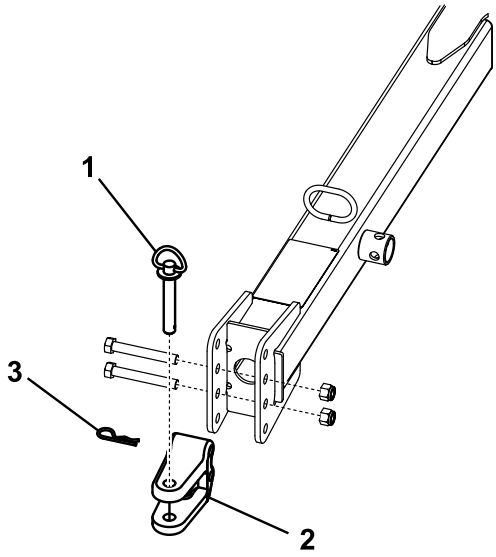


Figure 10

1. Hitch Pin
2. Clevis
3. Hairpin Cotter

5. Adjust the machine hitch clevis to the same level as towing-vehicle hitch as follows:
   - Remove the bolts and locknuts securing the hitch clevis (Figure 10) to the hitch tongue.
   - Raise or lower the hitch clevis to the position that is approximately level with the tow-vehicle hitch.
   - Secure the clevis to the hitch with the previously removed bolts and locknuts.

Note: Ensure that the machine is parallel with the ground.

6. Connect the machine clevis hitch to the towing-vehicle hitch with the hitch pin and hairpin cotter.
7. Remove the spring pin, rotate the jack up to the storage position, and install the spring pin.

8

Routing and Securing the Hydraulic Hoses and Wire Harness

Parts Needed

1	Cable Tie

Procedure

1. Route the hydraulic hoses and wire harness through the hose guides to the front of the hitch tongue (Figure 11).

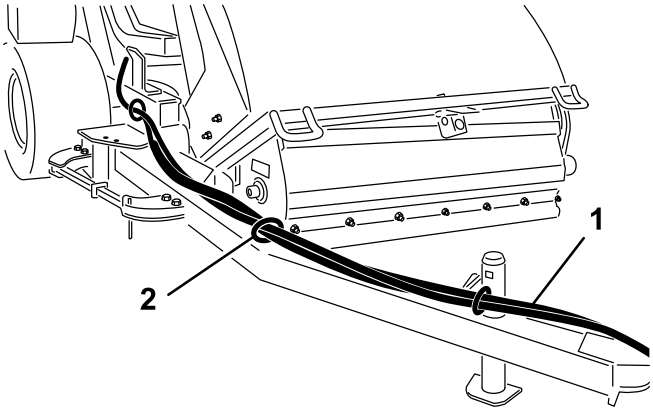


Figure 11

1. Hydraulic Hoses and Wire Harness
2. Hose Guide

2. Secure the hydraulic hoses and wire harness as shown in Figure 12 and Figure 13.

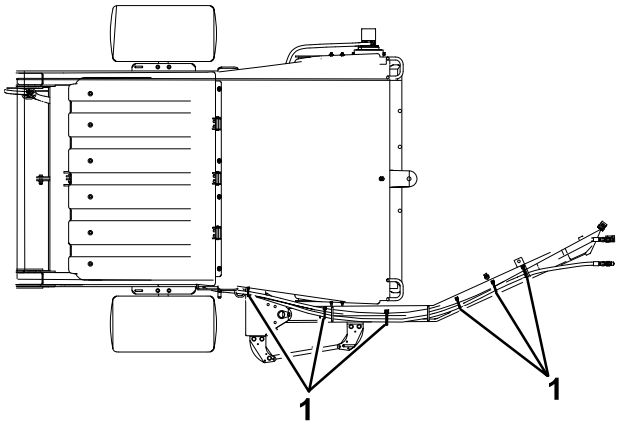


Figure 12
Front View

1. Cable Tie (6)

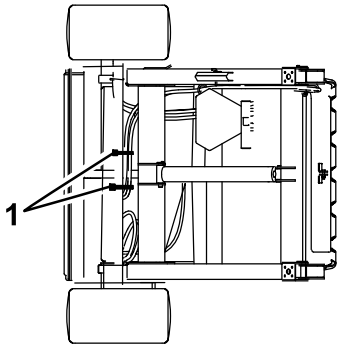


Figure 13
Rear View

1. Cable Tie (2)

9

Connecting the Hydraulic Hoses

Procedure

1. Connect the hydraulic hoses from the machine to the quick couplers on the towing vehicle (Figure 14).

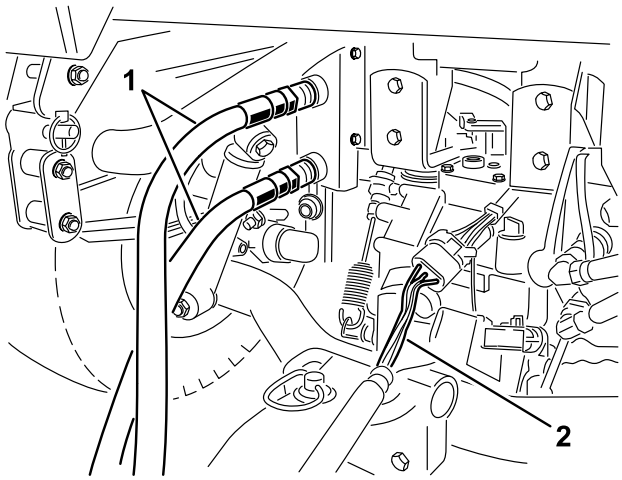


Figure 14

1. Rear Actuator Tab 2. Machine Frame

Important: **Make sure that the brush rotates in the proper direction (when viewed from the motor end, the brush should rotate clockwise). If the brush is rotating counterclockwise, reverse the hydraulic hose connections.**

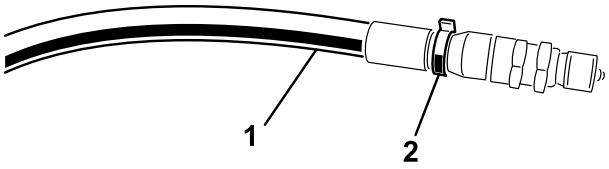


Figure 15

1. Rear Actuator Tab 2. Machine Frame

Note: Mark the high-pressure hose with a cable tie to identify the correct hose installation (Figure 15).

10

Connecting the Harness

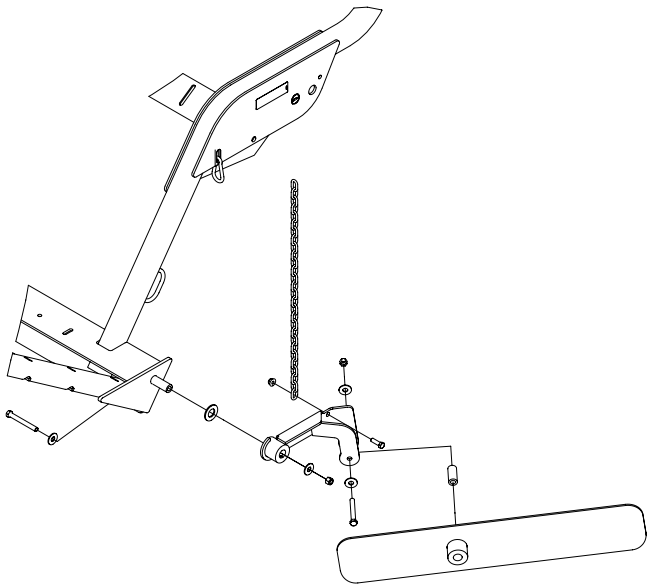
Procedure

1. Connect the harness from the machine to the power harness on the towing vehicle (Figure 14).

Note: Ensure that the harness cannot get pinched in the hitch and that it is not on top of or around the hitch pin.

11

Windrow Blades



1. Cut the two cable ties holding the windrow blade in the shipping position.

Note: When the windrow is not required, unhook the chain from the snap link, pivot the windrow assembly upward, and hook the chain at the raised level.

Controls

Hopper Dump Button

To dump the hopper, press the hopper dump button 2 times (Figure 18).

Important: The machine must be directly behind the towing vehicle and in transport height before you can activate the dump sequence.

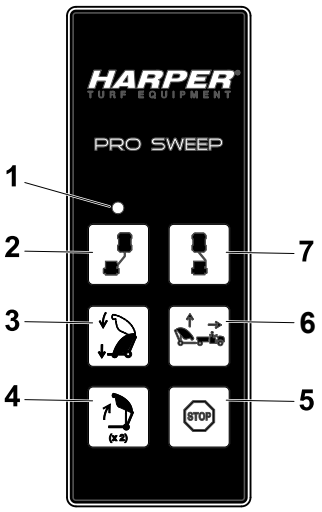


Figure 18

1. Led Light
2. Offset Left
3. Sweeper Down
4. Hopper Dump
5. Stop
6. Sweeper Up
7. Offset Right

Sweeper Down Button

To lower the hopper, press the sweeper down button (Figure 18). You can lower the hopper when it is at any of the following positions:

- Hopper dump height
- Transport height
- Turn around height

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

Note: With the machine in the transport or turn-around positions, you can stop the lower hopper function by pressing the sweeper up button.

Sweeper Up Button—Standard Mode

To raise the machine in standard mode, press the sweeper-up button. The hopper stops at the pre-defined height (Figure 18).

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

Sweeper Up Button—Optional Mode

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

Note: Refer to *Switching the Sweeper-Up Mode* (**page 27**) to switch to the optional mode.

To raise the machine in optional mode, press and hold the sweeper-up button until the hopper reaches the desired height or stops at the pre-defined height (Figure 18).

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

Offset Left Button

To offset the machine to the left, press and hold the offset left button (Figure 18). Releasing the button stops the movement to the left.

Offset Right Button

To offset the machine to the right, press and hold the offset right button (Figure 18). Releasing the button stops the movement to the right.

Stop Button

Pressing the stop button disables any active function.

Note: There is approximately a 3-second delay.

Diagnostic Light

The diagnostic light (Figure 19) is located on the front cover and indicates machine fault codes. After you turn the key to the RUN position, the diagnostic light illuminates for 5 seconds, turns off for 5 seconds, and then begins flashing 3 times a second until you push a button on the handheld remote. If the light turns on for 5 seconds and then starts blinking 10 times a second (with or without a 5 second pause), there is a fault with the machine; refer to *Checking Fault Codes* (**page 34**).

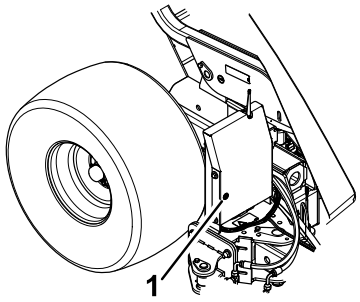


Figure 19

1. Diagnostic Light

Note: The diagnostic light illuminates when a button is pushed on the handheld remote.

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

Specifications

Note: Specifications and design are subject to change without notice.

Dimensions and Weights

Width	221 cm (87 inches)
Length	376 cm (148 inches)
Dump height clearance	173 cm (68 inches)
Height	Hopper lowered: 173 cm (68 inches)
	Hopper raised: 447 cm (176 inches)
Empty weight	771 kg (1,700 lb)
Gross vehicle weight (GVW)	1588 kg (3,500 lb)

Radio Specifications

Frequency	2.4 GHz
Max output power	19.59 dBm

Attachments/Accessories

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

To ensure optimum performance and continued safety certification of the machine, use only genuine replacement parts and accessories. Replacement parts and accessories made by other manufacturers could be dangerous, and such use could void the product warranty.

Operation

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

Before Operation

Pre-Operational Safety

To dump the hopper, press the hopper dump button 2 times (Figure 18).

- Never allow children or untrained people to operate or service the machine. Local regulations may restrict the age of the operator. The owner is responsible for training all operators and mechanics.
- Know how to stop the machine and shut off the engine of the tow vehicle quickly.
- Check that operator-presence controls, safety switches, and shields are attached and functioning properly. Do not operate the machine unless they are functioning properly.
- Inspect the area where you will use the machine and remove all objects that the machine could strike.
- It may be necessary to add as much as 227 kg (500 lb) of weight into the tow vehicle bed when operating on any slopes.
- Ensure that your tow vehicle is suitable for use with an implement of this weight by checking with your tow vehicle supplier or manufacturer.
- Shut off the machine, shut off the engine and remove the key of the tow vehicle, and wait for all moving parts to stop before making any adjustments to the machine.

SAFETY WARNING!

Rotating parts can cause serious injury.

- **Keep your hands, feet, hair, and clothing away from all moving parts to prevent injury.**
- **Do not operate the machine with covers, shrouds, or guards removed.**

Machine Operation

The primary function of the machine is to sweep up debris from large turf areas.

The machine is operated by using the remote control. Refer to *Controls* (**page 17**) for the proper use of the control buttons.

When transporting and turning, position the machine in the following heights:

- Transport height (home position) is 33.7 to 38.7 cm (13-1/4 to 15-1/4 inches).
- Turn around height (offset position) is 21.6 to 26.7 cm (8-1/2 to 10-1/2 inches).

Adjusting Brush Height

Note: Adjust machine so that the brush slightly touches the surface but does not penetrate the turf.

Condition	Roller/Brush Adjustment	Front Flap Adjustment	Notes
Greens/Tee Boxes	2 to 4 notches from bottom	6 to 13 mm (1/4 to 1/2 inch) from ground	Brush should be slightly engaged in the turf
Fairways	3 to 5 notches from bottom	13 to 25 mm (1/2 to 1 inch) from ground	Brush should be engaged into the top 1/3 of the grass height
Sports fields	5 to 7 notches from bottom	25 to 76 mm (1 to 3 inches) from ground	Brush should be engaged into the top 1/3 of the grass height
Leaves	5 to 9 notches from bottom	Remove front panel	Brush should be engaged into the top 1/3 of the grass height

Open Notches	Brush Length	Center Brush	Center Brush Shaft Height
—	Key Tab Up	Key Tab Down	—
0	13.970 cm (5.500 inches)		15.240 cm (6.000 inches)
		14.288 cm (5.625 inches)	15.558 cm (6.125 inches)
1	14.605 cm (5.750 inches)		15.875 cm (6.250 inches)
		14.923 cm (5.875 inches)	16.193 cm (6.375 inches)
2	15.240 cm (6.000 inches)		16.500 cm (6.500 inches)
		15.558 cm (6.125 inches)	16.828 cm (6.625 inches)
3	15.875 cm (6.250 inches)		17.145 cm (6.750 inches)
		16.193 cm (6.375 inches)	17.463 cm (6.875 inches)
4	16.510 cm (6.500 inches)		17.780 cm (7.000 inches)
		16.828 cm (6.625 inches)	18.098 cm (7.125 inches)
5	17.145 cm (6.750 inches)		18.415 cm (7.250 inches)
		17.463 cm (6.875 inches)	18.733 cm (7.375 inches)
6	17.780 cm (7.000 inches)		19.050 cm (7.500 inches)
		18.098 cm (7.125 inches)	19.368 cm (7.625 inches)
7	18.415 cm (7.250 inches)		19.685 cm (7.750 inches)
		18.733 cm (7.375 inches)	20.003 cm (7.875 inches)
8	19.050 cm (7.500 inches)		20.320 cm (8.000 inches)
		19.368 cm (7.625 inches)	20.638 cm (8.125 inches)
9	19.685 cm (7.750 inches)		20.955 cm (8.250 inches)
		20.003 cm (7.875 inches)	21.273 cm (8.375 inches)
10	20.320 cm (8.000 inches)		21.590 cm (8.500 inches)
		20.638 cm (8.125 inches)	21.908 cm (8.625 inches)
11	20.955 cm (8.250 inches)		22.225 cm (8.750 inches)
		21.273 cm (8.375 inches)	22.543 cm (8.875 inches)
12	21.590 cm (8.500 inches)		22.860 cm (9.000 inches)
		21.908 cm (8.625 inches)	23.178 cm (9.125 inches)
13	22.225 cm (8.750 inches)		23.495 cm (9.250 inches)
		22.543 cm (8.875 inches)	23.813 cm (9.375 inches)

Refer to Figure 20 and Figure 21 for further explanation of recommended machine settings.

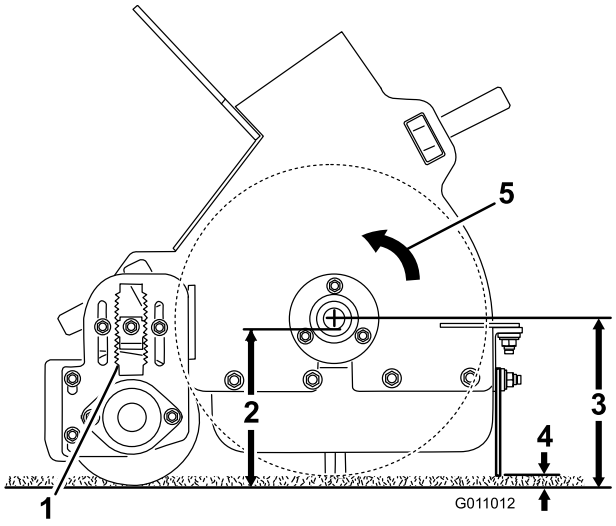


Figure 20

1. Open Notches
2. Brush Length
3. Center Brush Shaft Height
4. 6 to 13 mm (1/4 to 1/2 inch)
5. Brush Direction

---

1. Move the machine to a level surface.
2. Raise the hopper and install the hopper safety support. Refer to *Hopper Safety Support* (**page 23**).
3. Loosen the locknut on the height adjustment key (Figure 21) so that you can pull it out approximately13 mm (1/2 inch).

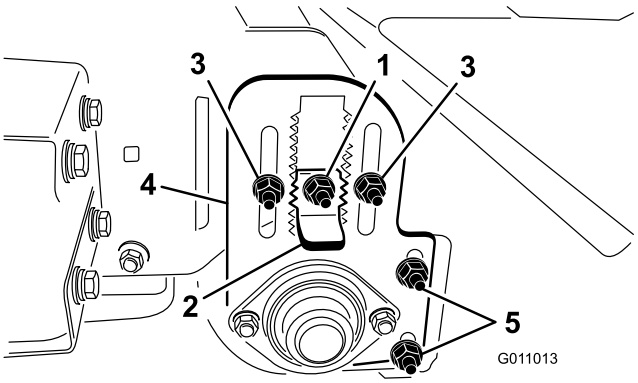


Figure 21

1. Locknut
2. Height-Adjusting Key Tab
3. Roller-Height Adjusting Nuts
4. Roller-Height Adjusting Plate
5. Roller-Scraper Adjusting Nuts

---

4. Loosen the roller-height adjustment locknuts (Figure 21).
5. Pull out the height-adjusting key and move the rear roller up or down by sliding the roller-height adjusting plate to the desired height (Figure 21).
6. Tighten the locknuts to secure the adjustment.
7. Repeat the procedure on the opposite end of the brush; ensure that the adjustments are the same.

Adjusting the Roller Scraper

Ensure that the roller scraper (Figure 21) is adjusted with a 2 mm (1/16 inch) clearance between the scraper and the roller. Loosen the roller scraper adjusting nuts, position the roller as desired, and tighten the nuts.

Adjusting the Front Flap Height

For best debris pickup results, adjust the front flap (Figure 22) with a 6 mm to 13 mm (1/4 inch to 1/2 inch) clearance between the bottom of the flap and surface.

Note: You may need to raise the front flap all the way or remove the front flap when picking up larger debris or picking up debris in long grass.

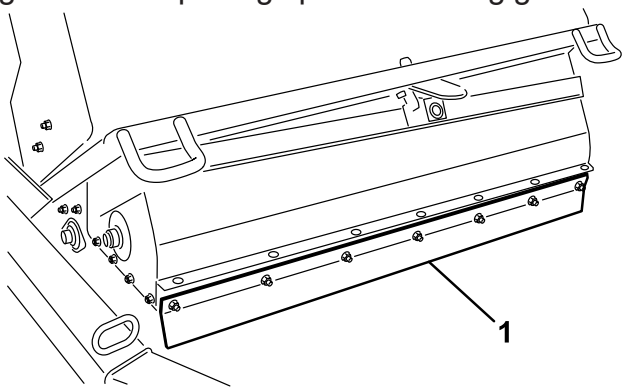


Figure 22

1. Front Flap

1. Loosen the nuts securing the metal strap and the front flap to the brush housing (Figure 23).

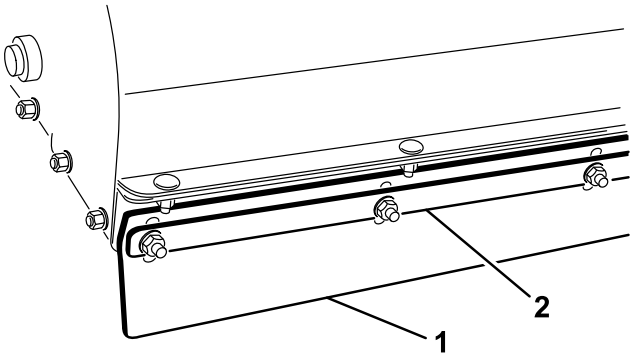


Figure 23

1. Front Flap
2. Metal Strap

2. Adjust the front flap to the desired operating height and tighten the nuts.

Checking the Tire Pressure

Check the tire pressure daily to ensure that they are inflated properly.

Correct tire air pressure: 86.2 kPa (12.5 psi)

Maximum tire air presssure: 124 kPa (18 psi)

Checking the Wheel Lug Nut Torque

SAFETY WARNING!

Failure to maintain proper torque could result in failure or loss of wheel and could result in personal injury.

Ensure that the wheel lug nuts are tightened to the appropriate torque.

Torque wheel lug nuts:

95 to 122 N·m (70 to 90 ft-lb).

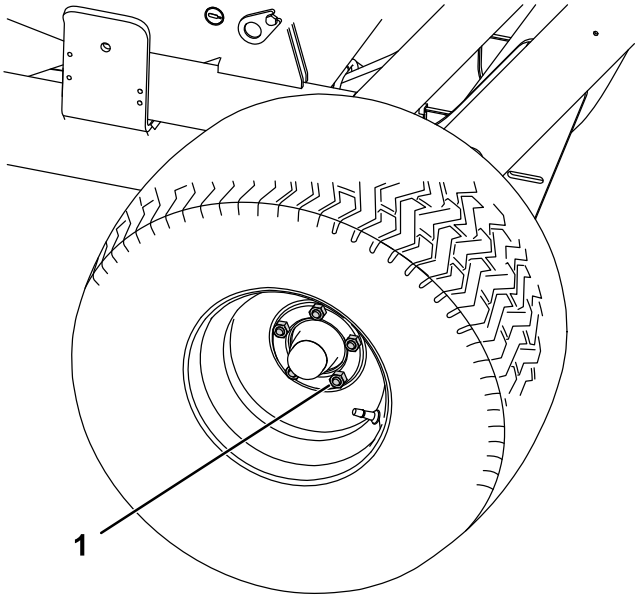


Figure 24

1. Lug Nut

Activating the Controller

The controller (Figure 25) is activated as soon as you plug the machine harness into the tow vehicle power harness.

- If the towing vehicle provides continuous power, the harness has power.
- If the towing vehicle provides power by ignition, turn the ignition key to the RUN position to power the harness.

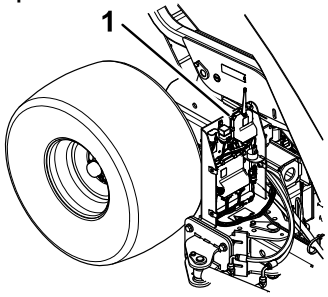


Figure 25

1. Controller

Using the Controller Timeout Feature

The machine is equipped with a timeout feature for the control module. The timeout feature is activated after 2-1/2 hours of continuous remote transmitter inactivity.

- When in the timeout mode the remote transmitter does not control any function.
- To wake the controller in timeout mode:
  - If the towing vehicle provides continuous power, unplug and plug the machine harness into the vehicle power harness.
  - If the towing vehicle provides power by ignition, turn the ignition key to the OFF position and back to the ON position.
- To avoid controller timeout during operation, use the remote transmitter to offset the machine at least every 2-1/2 hours.

Hopper Safety Support

Whenever you work under the raised hopper, ensure that the hopper safety support is installed onto the extended lift cylinder.

1. Raise the hopper until the lift cylinder is extended.
2. Remove the hairpin cotter and pin securing the safety support to the storage bracket on the machine frame (Figure 26). Remove the safety support.

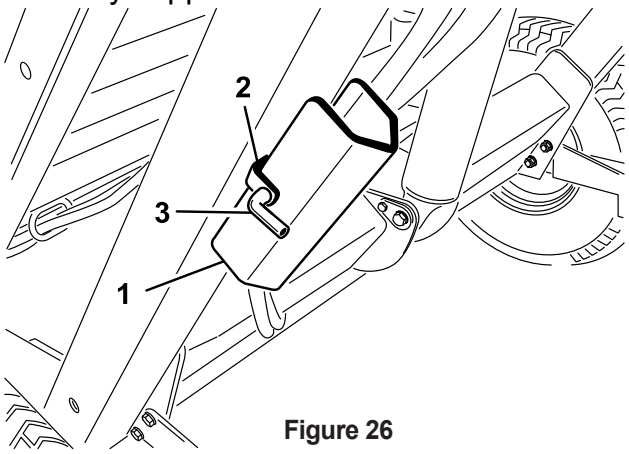


Figure 26

1. Hopper Safety Support
2. Storage Bracket
3. Pin

3. Insert the hopper-safety support onto the cylinder rod, making sure the support end rests against the cylinder barrel and the cylinder-rod end (Figure 27).

Note: Secure the hopper safety support to the cylinder rod with the hairpin cotter and pin.

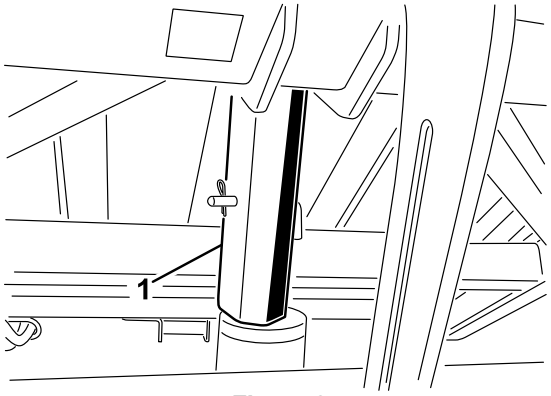


Figure 27

1. Hopper Safety Support

4. To store the safety support, remove it from the cylinder and secure it to the storage bracket on the machine frame.
5. Always install or remove the safety support from behind the hopper.

Important: **Do not try to lower the hopper with the safety support on the cylinder.**

During Operation

Operational Safety

- The owner/operator can prevent and is responsible for accidents that may cause personal injury or property damage.
- Wear appropriate clothing, including eye protection; long pants; substantial, slip-resistant footwear; and hearing protection. Tie back long hair and do not wear loose clothing or loose jewelry.
- Use your full attention while operating the machine. Do not engage in any activity that causes distractions; otherwise, injury or property damage may occur.
- Do not operate the machine when tired, ill, or under the influence of alcohol or drugs.
- Never carry passengers on the machine and keep bystanders and pets away from the machine during operation.
- Operate the machine only in good visibility to avoid holes or hidden hazards.
- Keep your hands and feet away from moving parts.
- Look behind and down before backing up to be sure of a clear path.
- Stop the machine, shut off the engine, remove the key, wait for all moving parts to stop, and inspect the machine after striking an object or if there is an abnormal vibration in the machine. Make all necessary repairs before resuming operation.
- Always maintain proper tire pressure.
- Reduce speed on rough surfaces
- The machine must be in the transport position (directly behind the tow vehicle) before activating the dump cycle.
- Dumping debris can cause serious injury. Stay clear of hopper while the machine is backing up or dumping.
- Under rare circumstances, wet, compressed grass clippings may generate heat. Always empty the hopper before storing the machine.
- Raising and lowering the hopper door could cause injury to bystanders or pets. While operating the hopper, keep bystanders and pets away from the machine.
- To avoid the risk of electrical shock, dump the hopper only in an area clear of overhead wires and other obstructions.
- Never dump the hopper on a slope. Always dump the hopper on a level surface.
- Park the machine on a level surface, empty the hopper, lower the hopper until the roller is on the ground, and chock the wheels before removing the machine from the tow vehicle.

Slope Safety

- Review the tow vehicle specifications to ensure that you do not exceed its slope capabilities.
- Slopes are a major factor related to loss of control and rollover accidents, which can result in severe injury or death. You are responsible for safe slope operation. Operating the machine on any slope requires extra caution.
- Evaluate the site conditions to determine if the slope is safe for machine operation including surveying the site. Always use common sense and good judgment when performing this survey.
- Review the slope instructions listed below for operating the machine on slopes and review the conditions to determine whether you can operate the machine in the conditions on that day and at that site. Changes in the terrain can result in a change in slope operation for the machine.
- Avoid starting, stopping, or turning the machine on slopes. Avoid making sudden changes in speed or direction. Make turns slowly and gradually.
- Do not operate a machine under any conditions where traction, steering, or stability is in question.

- Remove or mark obstructions such as ditches, holes, ruts, bumps, rocks, or other hidden hazards. Tall grass can hide obstructions. Uneven terrain could overturn the machine.
- Be aware that operating the machine on wet grass, across slopes, or downhill may cause the machine to lose traction. Loss of traction to the drive wheels may result in sliding and a loss of braking and steering.
- Use extreme caution when operating the machine near drop offs, ditches, embankments, water hazards, or other hazards. The machine could suddenly roll over if a wheel goes over the edge or the edge caves in. Establish a safety area between the machine and any hazard.

Checking the Interlock System

CAUTION!

Safety Interlock switches are for your protection. Disconnected or malfunctioning safety interlock switches could allow the machine to operate in an unsafe manner and may cause personal injury.

- **Do not disconnect the safety interlock switches.**
- **Check the operation of the switches daily to ensure that the interlock system is operating correctly.**
- **If a switch is malfunctioning, replace it before you operate the machine.**

The safety interlock system has the following functions:

- It prevents the brush from rotating when the hopper is in the raised position.
- It prevents the hopper from being dumped when the machine is in the offset position.
- An audible alarm sounds when dumping the hopper. Do not move the towing vehicle when dumping the hopper.

Operating Tips

- Before starting to sweep, survey the area to determine the best direction to sweep.

Note: To maintain a straight line when sweeping, sight an object in front of you in the distance.

- Always try to make a long, continuous run with a slight overlap on the return run.
- On turf areas, the brush picks up turf cores, twigs, clippings, leaves, pine needles and cones, and small debris.
- The machine also grooms the turf. The brush combs through and lifts the grass for a uniform cut when mowed. As it cleans, the light scarifying action increases water and pesticide penetration, thus reducing the need for renovation.

Important: **Do not make sharp turns when using the machine as damage to the turf may occur.**

- When the hopper is full, the machine no longer picks up debris as efficiently, leaving or throwing material back onto the ground.

Dumping the Hopper

DANGER!

Tip over or electrical shock could cause serious injury or death.

- **Never dump the hopper on a slope. Always dump the hopper on level ground.**
- **Dump only in an area clear of overhead wires and other obstructions.**

CAUTION!

Dumping the hopper can injure bystanders or pets. While dumping, keep bystanders and pets away from the hopper.

***Important:* Make sure that the machine is secured to the towing vehicle hitch with the hitch pin and the clevis pin during the dumping operation.**

***Important:* Ensure that the machine is directly behind the towing vehicle and in transport height before the dump sequence can be activated.**

1. Place the machine on a level surface and make sure that the hopper is in the transport position before dumping.
2. With the hopper at transport height, press the hopper dump button, release the button, and then press and hold the hopper dump button again (Figure 28).

Note: The machine does not respond if you do not quickly press and hold the hopper dump button again after releasing it (within a second).

Note: Release the hopper dump button at any time during the dump sequence and the hopper will stop the dump process.

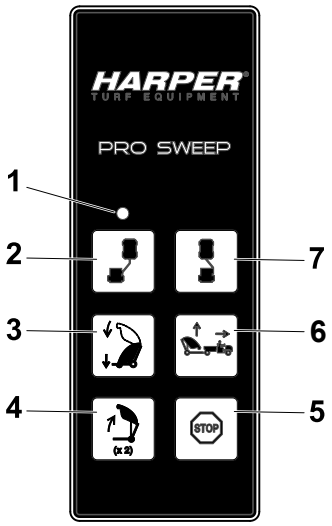


Figure 28

1. Led Light
2. Offset Left
3. Sweeper Down
4. Hopper Dump
5. Stop
6. Sweeper Up
7. Offset Right

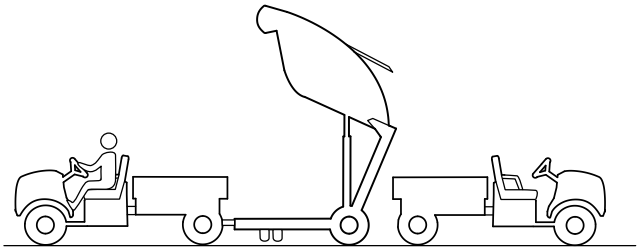


Figure 29

3. After 3 seconds dumping stops automatically; to resume, release the button, and press and hold the hopper dump button again.

Lowering the Hopper

To lower the hopper, press the sweeper down button.

Note: Ensure that the hopper is in the down position before you start to tow the machine.

Cold Weather Operation

The hydraulic fluid in the machine must reach an operating temperature of 82°C (180°F) for proper operation of the floating machine head.

Switching the Sweeper-Up Mode

The Sweeper-Up button has 2 possible modes: standard and optional.

Standard allows you to raise the machine to the pre-defined heights. Refer to *Sweeper Up Button—Standard Mode* **(page 17**)

The optional mode allows you to adjust the machine to any desired height and it stops at the pre-defined heights. Refer to *Sweeper Up Button—Optional Mode* (**page 17**).

1. Remove the cover off the control module.
2. Unplug the 2 wire connections from the pigtail connector shown in Figure 30.
3. Plug the 2 wire connections into the existing pigtail connector tethered to the wire harness.
4. Install the cover onto the control module.

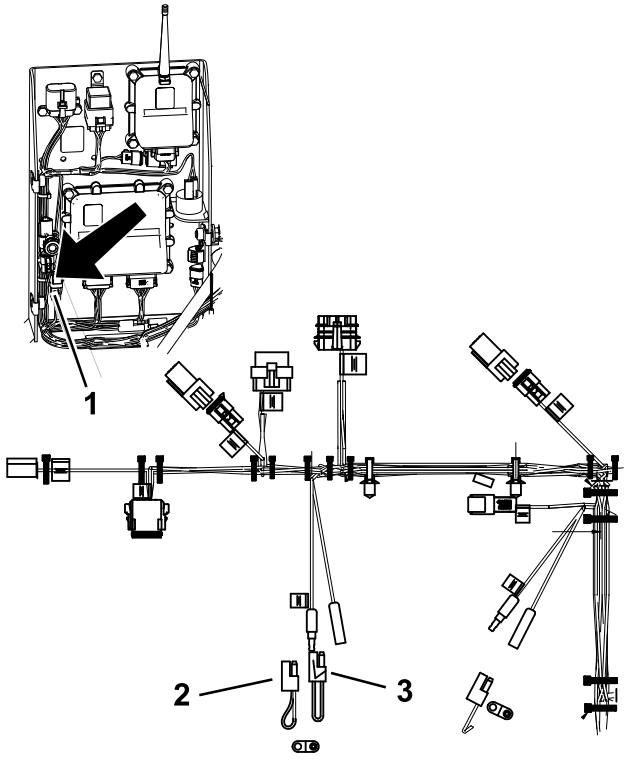


Figure 30

1. Location of Pigtails
2. Optional-mode Pigtail (tethered to wire harness)
3. Standard-mode Pigtail

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

After Operation

Operational Safety

- Park the tow vehicle on a level surface; engage the parking brake of the tow vehicle; shut off the engine; remove the key; and wait for all movement to stop before leaving the operator's position.
- Allow the machine to cool before storing the machine in any enclosure.
- Keep all parts of the machine in good working condition and all hardware tightened.
- Replace all worn, damaged, or missing decals.

Inspecting and Cleaning the Machine

When sweeping has been completed, thoroughly clean the machine. Air dry the hopper. After cleaning, inspect the machine for possible damage to the mechanical components. Performing these procedures ensures that the machine performs satisfactorily during the next sweeping operation.

Hauling the Machine

Operational Safety

- Use care when loading or unloading the machine into a trailer or a truck.
- Use full-width ramps for loading the machine into a trailer or a truck.
- Never transport the machine when the transport alarm and the light are activated.
- When transporting the machine, use the tie-downs to secure the front of the machine (Figure 31) and the axle (Figure 32) to secure the rear of the machine to the trailer.

Note: Transporting the machine without using the tie-downs could damage the machine.

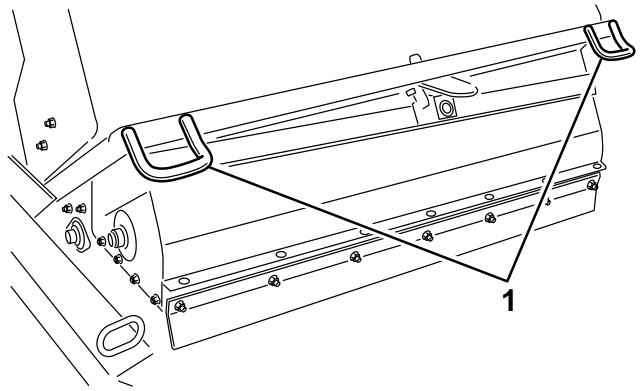


Figure 31

1. Front Tie-downs

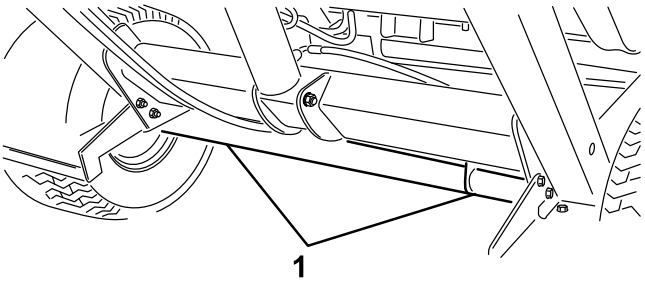


Figure 32

1. Rear Tie-downs

Recommended Maintenance Schedule

Maintenance Service Interval	Maintenance Procedure
After the first 10 hours	• Torque the wheel lug nuts.
Every 25 hours	• Clean the brush area.
Every 50 hours	• Grease the machine. If the machine is operated under normal conditions, lubricate all bearings and bushings immediately after every washing. Lubricate the bearings and bushings daily when operating conditions are dusty and dirty.
Every 100 hours	• Inspect the condition of the tires. • Replace the brush.
Every 200 hours	• Torque the wheel lug nuts. • Replace the front flap.
Every 600 hours	• Inspect the hopper for damage.

Daily Maintenance Checklist

Duplicate this page for routine use.

Maintenance Check Item	For the Week:						
	Mon.	**Tues.**	**Wed.**	**Thurs.**	**Fri.**	**Sat.**	**Sun.**
Check the safety interlock operation.							
Check for unusual operating noises.							
Check the tire pressure.							
Check the hydraulic hoses for damage.							
Check for fluid leaks.							
Check the control operation.							
Check the hopper.							
Clean any wrapped material from the brush.							
Check for brush wear.1							
Lubricate all the grease fittings.2							
Touch-up any damaged paint.							

1 Replace if missing or broken

2 Immediately after every washing, regardless of the interval listed

Maintenance Safety

- Before servicing or making adjustments to the machine, shut off the machine, stop the tow vehicle, engage the parking brake of the tow vehicle, shut off the engine, remove the key, and wait for all moving parts to stop.
- Chock the wheels of the machine whenever it is disconnected from a tow vehicle.
- Perform only those maintenance instructions described in this manual. If major repairs are ever needed or assistance is desired, contact an authorized Harper Turf Equipment distributor.
- Ensure that the machine is in safe operating condition by keeping nuts, bolts, and screws tight.
- If possible, do not perform maintenance while the engine is running. Keep away from moving parts.
- Carefully release pressure from components with stored energy.
- Support the machine with blocks or storage stands when working beneath it. Never rely on the hydraulic system to support the machine.
- Check the tine mounting bolts daily to be sure that they are tightened to specification.
- Ensure that all guards are installed and secured shut after maintaining or adjusting the machine.

Hydraulic System Safety

- Seek immediate medical attention if fluid is injected into skin. Injected fluid must be surgically removed within a few hours by a doctor.
- Ensure 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 pinhole leaks or nozzles that eject high-pressure hydraulic fluid.
- Use cardboard or paper to find hydraulic leaks.
- Safely relieve all pressure in the hydraulic system before performing

Lubricating the Machine

Service Interval:

Every 50 hours If the machine is operated under normal conditions, lubricate all bearings and bushings immediately after every washing. Lubricate the bearings and bushings daily when operating conditions are dusty and dirty.

1. The machine has 11 grease fittings
    - Hopper pivot (upper) (2) (Figure 33)
    - Brush pivot (2) (Figure 34)
    - Lift cylinder (2) (Figure 35)
    - Hopper pivot (lower) (2) (Figure 36)
    - Hitch tongue pivot (1) (Figure 37)
    - Windrow blade mount (Figure 38)
    - Windrow blade hub (Figure 38)
2. Wipe the grease fittings clean to prevent foreign matter from entering into the bearing or bushing.
3. Pump grease into the bearing or bushing.
4. Wipe up any excess grease.

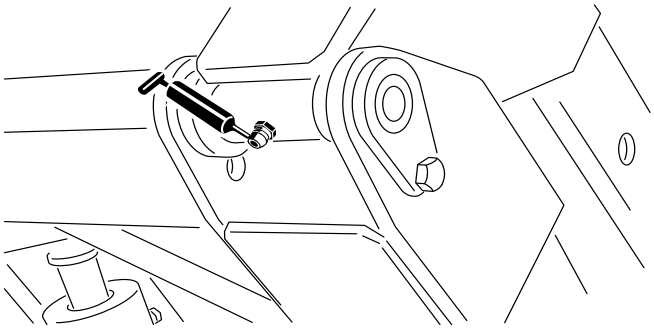


Figure 33

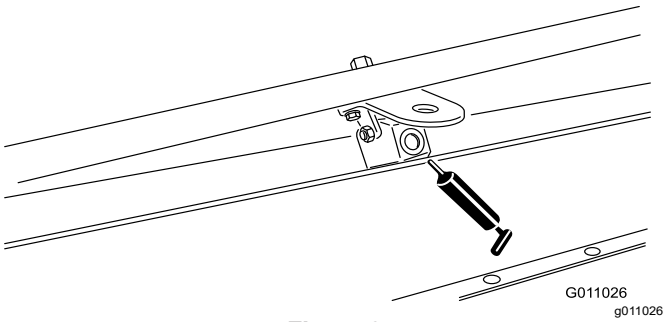


Figure 34

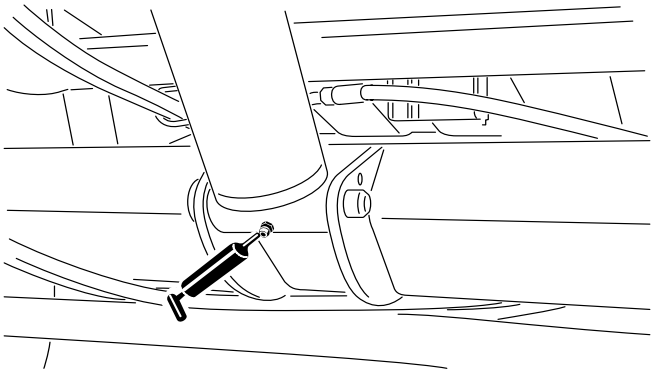


Figure 35

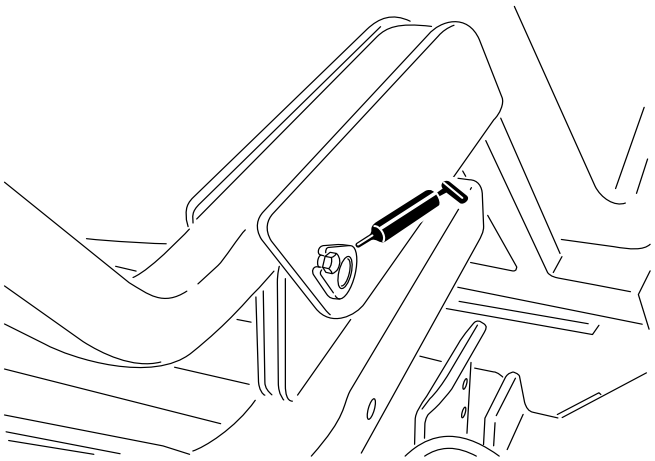


Figure 36

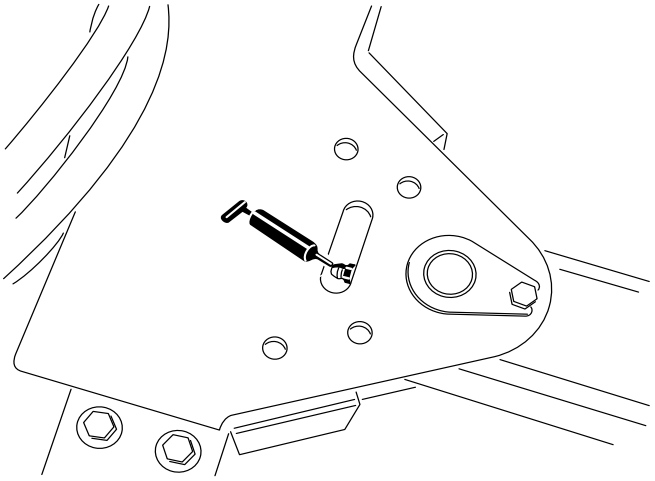


Figure 37

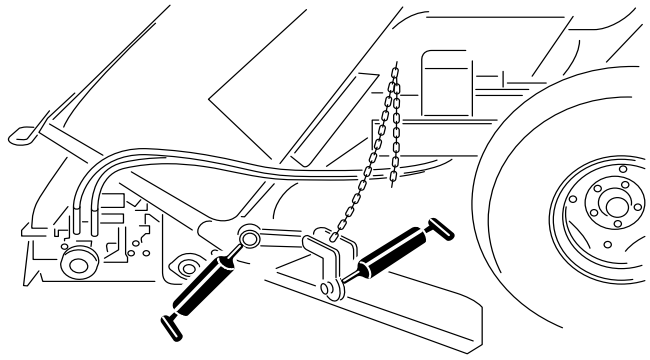


Figure 38

Associating the Remote Control and Base Unit

Important: Read the entire procedure before performing the procedure.

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

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

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

Note: This could take up to 20 seconds.

8. Release the OFFSET LEFT button. The system is ready for use with that particular remote control.

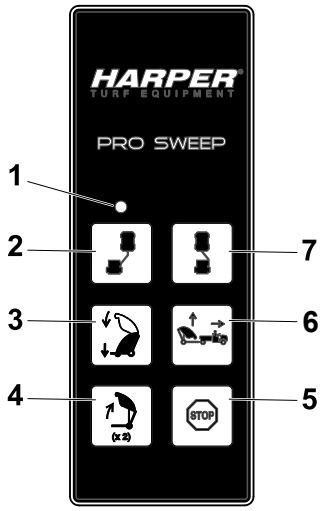


Figure 39

1. Led Light
2. Offset Left
3. Sweeper Down
4. Hopper Dump
5. Stop
6. Sweeper Up
7. Offset Right

Remote Battery Replacement

The handheld remote is powered by 4 AAA batteries. When installing batteries, observe proper polarity as marked on the inside of the compartment to avoid damaging the unit.

1. Remove the 6 screws from the back of the remote and remove the cover (Figure 40).

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

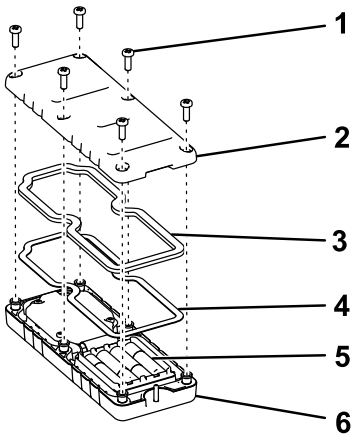


Figure 40

1. Screw
2. Cover
3. Seal
4. Steal Gasket
5. Batteries
6. Handheld Remote

2. Remove the discharged batteries and properly dispose in accordance with local regulations.
3. Plug each fresh battery into a terminal cradle observing proper polarity.

Note: If the batteries are improperly installed, the unit will not be damaged, but it will fail to operate.

4. f you accidentally removed the rubber seal and the steel gasket, replace them carefully into the channel in the handheld remote.
5. Replace the cover and secure it with the 6 screws removed previously (Figure 40) and torque them to 1.5 to 1.7 N·m (13 to 15 in-lb).

Note: Do not overtighten the screws.

Storage

1. Thoroughly clean the machine so that it is free of dirt, leaves, and debris.
2. Check the tire pressure. Refer to *Checking the Tire Pressure* (**page 22**).
3. Check all fasteners and tighten them as necessary.
4. Grease all the grease fittings. Wipe off any excess lubricant.
5. Check the condition of the brush and replace it if necessary.

Condition	Possible Causes	Corrective Action
The machine is not picking up debris.	The brush is damaged. The brush height is too high. The front flap height is too low or too high.	Replace the brush. Adjust the brush height; refer to *Adjusting the Brush Height* (**page 20**). Adjust the front flap height; refer to *Adjusting the Front Flap Height* (**page 22**).
The machine has excessive vibration.	Check the bearings on the brush shaft. If they are excessively hot, check the bearings for damage. Foreign materials are wrapped around brush.	Replace any damaged bearings. Clean off any foreign objects.
The diagnostic light on the machine does not illuminate when pressing a remote button.	There is frequency interference.	Associate the remote control to the base unit; refer to *Associating the Remote Control and Base Unit* (**page 32**).

Checking Fault Codes

If the diagnostic light indicates that there is a system fault, check the fault codes to determine what is wrong with the machine. Refer to *Diagnostic Light* (**page 18**).

Entering Diagnostic Mode and Checking Fault Codes

1. Turn the key to the RUN position.
2. Disconnect the power by separating the vehicle harness from the machine harness.
3. Remove the front cover.
4. Pull the tethered cap off the 2 diagnostic shunt connectors (Figure 41A).
5. Connect the diagnostic shunt connectors together (Figure 41B).

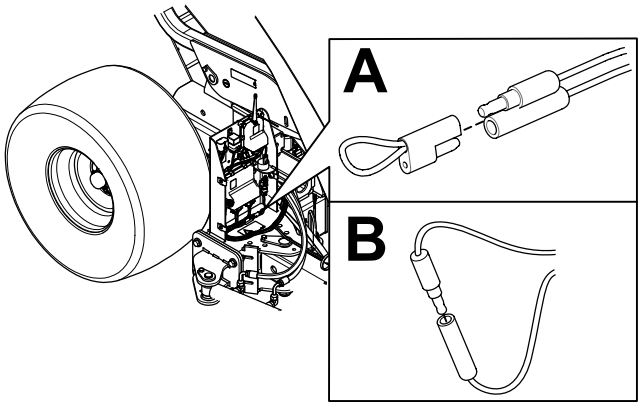


Figure 41

6. Connect the vehicle and machine wire harness together to power the machine.
7. Count the number of flashes to determine the fault code, then consult the following table:

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

Codes	LED Flash Pattern	Behavior	Defaults
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 authorized distributor. BASE is bad; contact your authorized 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 your authorized distributor.
13	Blink once, pause, blink 3 times, long pause, then repeat	Wrong HH—not implemented on Rev A	There is an incorrect product association (e.g., trying to update software on a MH-400 with a ProPass handheld)

8. Install the front cover.

Resetting Fault Codes

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

California Proposition 65 Warning Information

What is this warning?

You may see a product for sale that has a warning label like the following:

> ⚠ **WARNING:** Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

What is Prop 65?

Prop 65 applies to any company operating in California, selling products in California, or manufacturing products that may be sold in or brought into California. It mandates that the Governor of California maintain and publish a list of chemicals known to cause cancer, birth defects, and/or other reproductive harm. The list, which is updated annually, includes hundreds of chemicals found in many everyday items. The purpose of Prop 65 is to inform the public about exposure to these chemicals.

Prop 65 does not ban the sale of products containing these chemicals but instead requires warnings on any product, product packaging, or literature with the product. Moreover, a Prop 65 warning does not mean that a product is in violation of any product safety standards or requirements. In fact, the California government has clarified that a Prop 65 warning "is not the same as a regulatory decision that a product is 'safe' or 'unsafe.'" Many of these chemicals have been used in everyday products for years without documented harm. For more information, go to:

https://oag.ca.gov/prop65/faqs-view-all.

A Prop 65 warning means that a company has either (1) evaluated the exposure and has concluded that it exceeds the "no significant risk level"; or (2) has chosen to provide a warning based on its understanding about the presence of a listed chemical without attempting to evaluate the exposure.

How do the California warnings compare to federal limits?

Prop 65 standards are often more stringent than federal and international standards. There are various substances that require a Prop 65 warning at levels that are far lower than federal action limits. For example, the Prop 65 standard for warnings for lead is 0.5 µg/day, which is well below the federal and international standards.

Why don't all similar products carry the warning?

- Products sold in California require Prop 65 labelling while similar products sold elsewhere do not.
- A company involved in a Prop 65 lawsuit reaching a settlement may be required to use Prop 65 warnings for its products, but other companies making similar products may have no such requirement.
- The enforcement of Prop 65 is inconsistent.
- Companies may elect not to provide warnings because they conclude that they are not required to do so under Prop 65; a lack of warnings for a product does not mean that the product is free of listed chemicals at similar levels.

Why does Harper Turf Equipment include this warning?

Harper Turf Equipment has chosen to provide consumers with as much information as possible so that they can make informed decisions about the products they buy and use. Harper Turf Equipment provides warnings in certain cases based on its knowledge of the presence of one or more listed chemicals without evaluating the level of exposure, as not all the listed chemicals provide exposure limit requirements. While the exposure from Harper Turf Equipment products may be negligible or well within the "no significant risk" range, out of an abundance of caution, Harper Turf Equipment has elected to provide the Prop 65 warnings. Moreover, if Harper Turf Equipment does not provide these warnings, it could be sued by the State of California or by private parties seeking to enforce Prop 65 and subject to substantial penalties.

NOTES

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