Form No. 3450-187 Rev A

TORO®

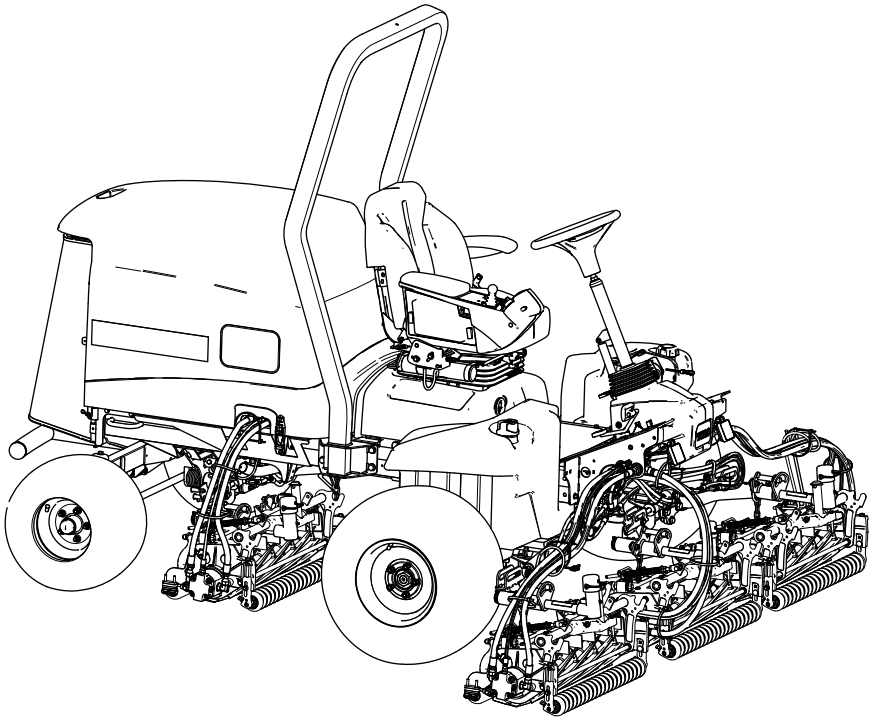
Count on it.

Operator's Manual

Reelmaster® 5610 Traction Unit

Model No. 03678—Serial No. 410500000 and Up

Model No. 03678TE—Serial No. 409900000 and Up



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

CE UK CA

3450-187

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

It is a violation of California Public Resource Code Section 4442 or 4443 to use or operate the engine on any forest-covered, brush-covered, or grass-covered land unless the engine is equipped with a spark arrester, as defined in Section 4442, maintained in effective working order or the engine is constructed, equipped, and maintained for the prevention of fire.

⚠ WARNING

CALIFORNIA
Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. Wash hands after handling.

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

Introduction

This machine is a ride-on, reel-blade lawn mower intended to be used by professional, hired operators in commercial applications. It is primarily designed for cutting grass on well-maintained turf. Using this product for purposes other than its intended use could prove dangerous to you and bystanders.

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.

Visit www.Toro.com for more information, including safety tips, training materials, 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 on the product. Write the numbers in the space provided.

Important: **With your mobile device, you can scan the QR code on the serial number plate (if equipped) to access warranty, parts, and other product information.**

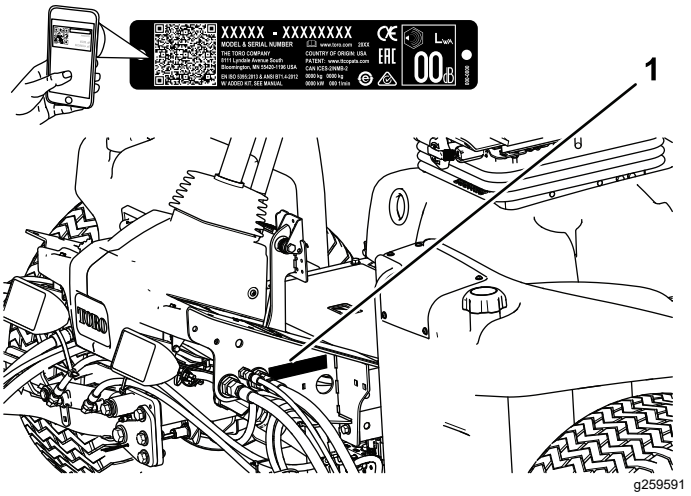


Figure 1

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.



g000502

Figure 2
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.

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Bloomington, MN 55420

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Safety

This machine has been designed in accordance with EN ISO 5395.

General Safety

This product is capable of amputating hands and feet and of throwing objects.

- Read and understand the contents of this *Operator's Manual* before starting the engine.
- 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 functioning properly on the machine.
- Keep bystanders and children out of the operating area. Never allow children to operate the machine.
- Shut off the engine, remove the key, and wait for all movement to stop before you leave the operator's position. Allow the machine to cool before adjusting, servicing, cleaning, or storing it.

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.

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.

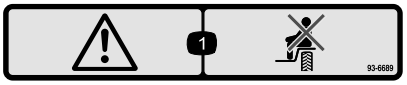


decalbatterysymbols

Battery Symbols

Some or all of these symbols are on your battery.

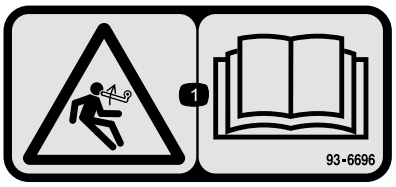
1. Explosion hazard
2. No fire, open flame, or smoking
3. Caustic liquid/chemical burn hazard
4. Wear eye protection.
5. Read the *Operator's Manual*.
6. Keep bystanders away from the battery.
7. Wear eye protection; explosive gases can cause blindness and other injuries.
8. Battery acid can cause blindness or severe burns.
9. Flush eyes immediately with water and get medical help fast.
10. Contains lead; do not discard



decal93-6689

93-6689

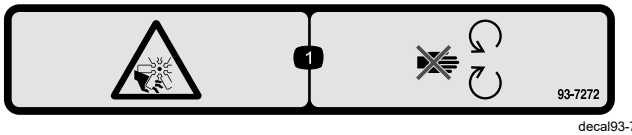
1. Warning—do not carry passengers.



decal93-6696

93-6696

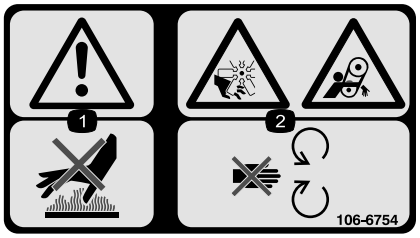
1. Stored energy hazard—read the *Operator's Manual*.



decal93-7272

93-7272

1. Cutting/dismemberment hazard; fan—stay away from moving parts.



decal106-6754

106-6754

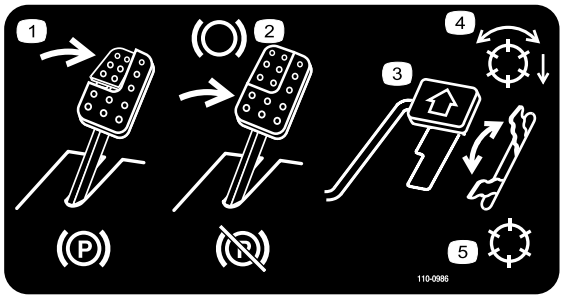
1. Warning—do not touch the hot surface.
2. Cutting/dismemberment hazard, fan; entanglement hazard, belt—stay away from moving parts.



decal106-6755

106-6755

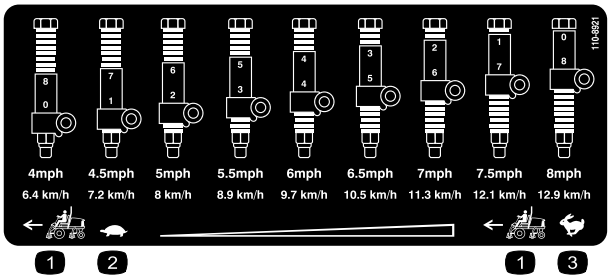
1. Engine coolant under pressure.
2. Explosion hazard—read the *Operator's Manual.*
3. Warning—do not touch the hot surface.
4. Warning—read the *Operator's Manual.*



decal110-0986

110-0986

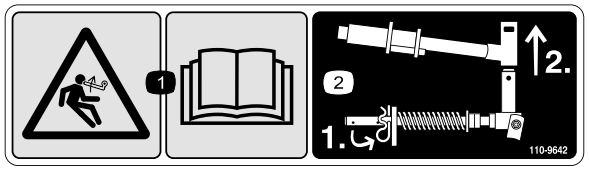
1. Press the brake pedal and parking brake pedal to set the parking brake.
2. Press the brake pedal to apply the brake.
3. Press the traction pedal to move the machine forward.
4. Reel enabled mode
5. Transport mode



decal110-8921

110-8921

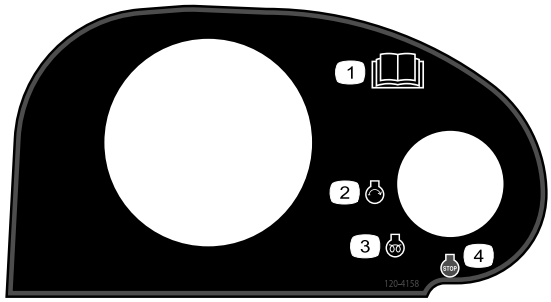
1. Traction unit speed
2. Slow
3. Fast



decal110-9642

110-9642

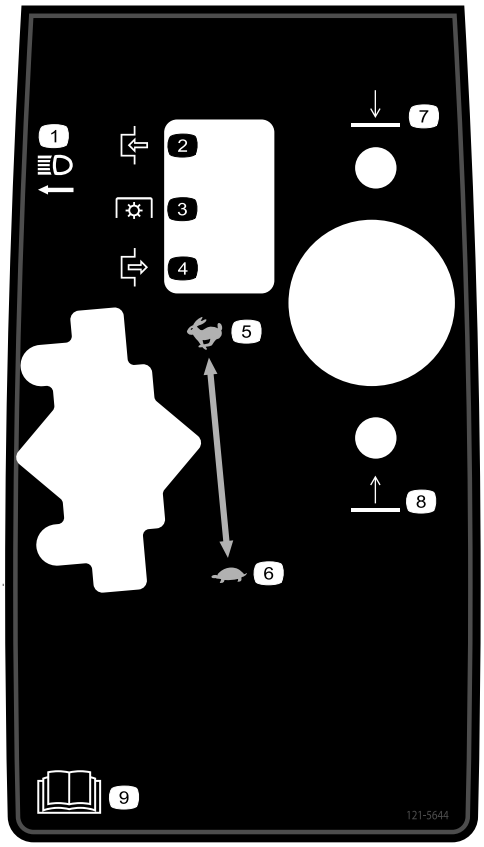
1. Stored energy hazard—read the *Operator's Manual.*
2. Move the cotter pin to the hole closest to the rod bracket and then remove the lift arm and pivot yoke.



decal120-4158

120-4158

1. Read the *Operator's Manual*.
2. Engine—start
3. Engine—preheat
4. Engine—stop



decal121-5644

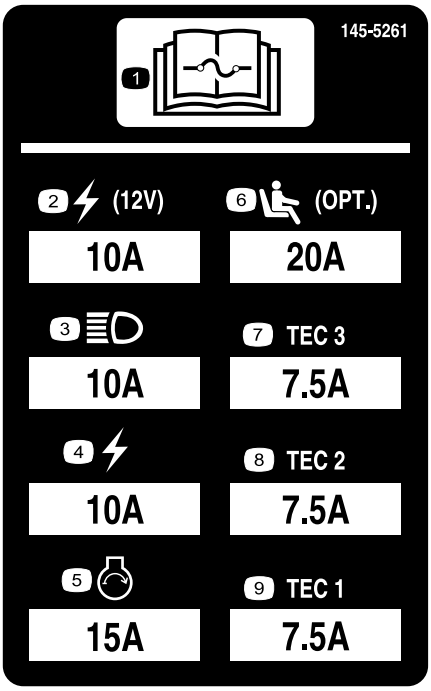
121-5644

1. Light switch
2. Engage
3. Power take-off
4. Disengage
5. Fast
6. Slow
7. Lower
8. Raise
9. Read the *Operator's Manual*.



decal133-8062

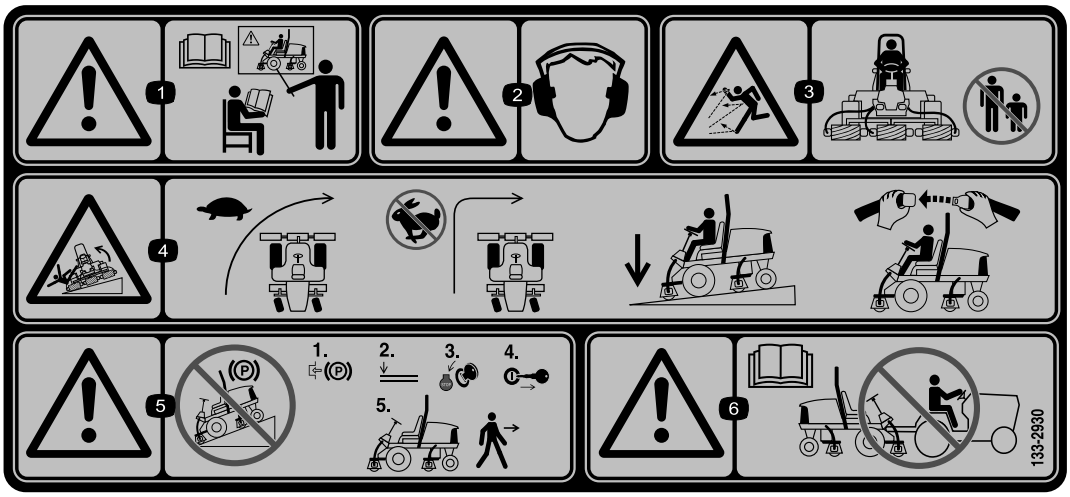
133-8062



decal145-5261

145-5261

1. Read the *Operator's Manual* for fuse information.
2. Power point (12 V)
3. Headlights
4. Electric
5. Engine start
6. Air ride seat suspension (optional)
7. TEC controller
8. TEC controller
9. TEC controller



decal133-2930

133-2930

1. Warning—do not operate this machine unless you are trained.
2. Warning—wear hearing protection.
3. Thrown object hazard—keep bystanders out of the operating area.
4. Tipping hazard—drive slowly when turning; do not turn sharply while traveling fast; only drive on slopes with the cutting units lowered; always wear a seatbelt.
5. Warning—do not park on slopes; engage the parking brake, lower the cutting units, shut off the engine, and remove the ignition key before leaving the machine.
6. Warning—read the *Operator's Manual*; do not tow the machine.

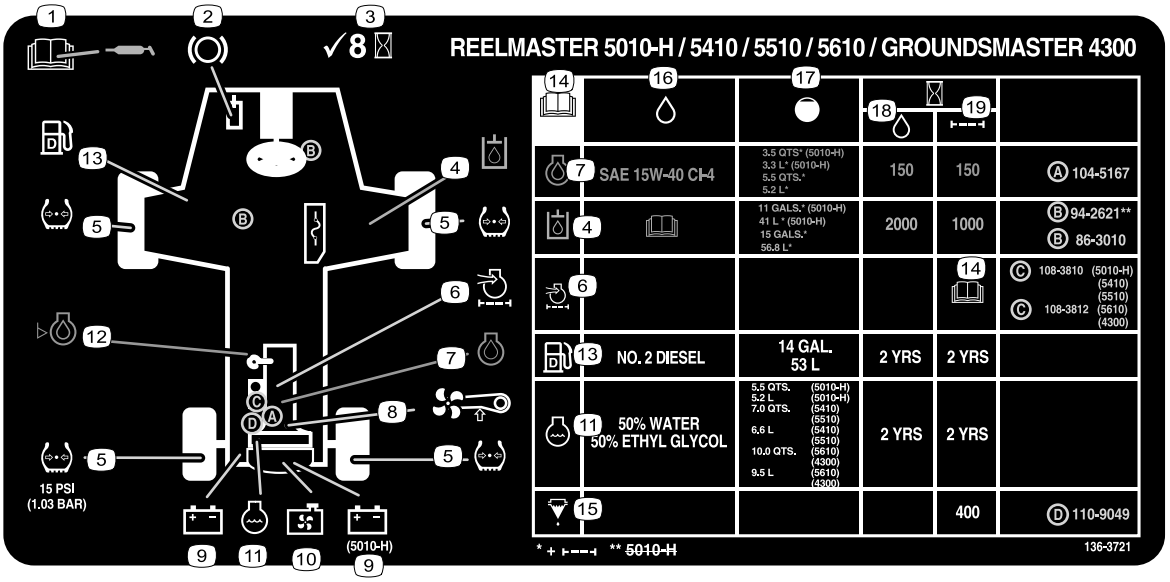


decal133-2931

133-2931

Note: This machine complies with the industry standard stability test in the static lateral and longitudinal tests with the maximum recommended slope indicated on the decal. Review the instructions for operating the machine on slopes in the *Operator's Manual* as well as the conditions in which you would operate the machine 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. If possible, keep the cutting units lowered to the ground while operating the machine on slopes. Raising the cutting units while operating on slopes can cause the machine to become unstable.

1. Warning—read the *Operator's Manual*; do not operate this machine unless you are trained.
2. Warning—wear hearing protection.
3. Thrown object hazard—keep bystanders away.
4. Tipping hazard—do not drive across or down slopes greater than 15°; only drive on slopes with the cutting units lowered; always wear a seatbelt.
5. Warning—do not park on slopes; engage the parking brake, lower the cutting units, shut off the engine, and remove the ignition key before leaving the machine.
6. Warning—read the *Operator's Manual*; do not tow the machine.



decal136-3721

136-3721

1. Read the *Operator's Manual* for lubrication information.
2. Brake functions
3. Check every 8 hours.
4. Hydraulic fluid
5. Tire pressure
6. Engine air filter
7. Engine oil
8. Fan belt
9. Battery
10. Radiator screen
11. Engine coolant
12. Engine oil level
13. Fuel
14. Read the *Operator's Manual*.
15. Fuel/Water separator
16. Fluids
17. Capacity
18. Fluid interval (hours)
19. Filter interval (hours)

Setup

Loose Parts

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

Procedure	Description	Qty.	Use
1	No parts required	–	Prepare the machine.
2	No parts required	–	Adjust the control-arm position.
3	Right front hose guide Left front hose guide	1 1	Install the cutting units.
4	Rear weights (size varies with configuration)	Varies	Install rear weights (order from your Toro Distributor).
5	Hood lock, seal, and jam nut Washer	1 1	Install the CE hood lock.
6	Cutting-unit kickstand	1	Install the cutting-unit kickstand.
7	CE decal Production year decal Warning decal	1 1 1	Apply the CE decals.

Media and Additional Parts

Description	Qty.	Use
Operator's Manual	1	Read the manual before operating the machine.
Engine owner’s manual	1	Read the manual before operating the engine.

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

1

Preparing the Machine

No Parts Required

Procedure

1. Park the machine on a level surface, lower the cutting units, and engage the parking brake.
2. Shut off the engine, remove the key, and wait for all moving parts to stop.
3. Check the tire air pressure before use; refer to Checking the Tire Air Pressure (page 52).

   Note: The tires are overinflated for shipping. Adjust the tire air pressure before operating the machine.
4. Check the hydraulic-fluid level; refer to Checking the Hydraulic-Fluid Level (page 58).
5. Grease the machine; refer to Greasing the Bearings and Bushings (page 42).

   Important: **Failure to properly grease the machine will result in premature failure of critical parts.**
6. Open the hood and check the coolant level; refer to Checking the Coolant Level (page 54).
7. Check the level of the engine-oil level, and close and latch the hood; refer to Checking the Engine-Oil Level (page 44).

   Note: The engine ships with oil in the crankcase; however, check the oil level before and after the engine is first started.

2

Adjusting the Control-Arm Position

No Parts Required

Procedure

The control-arm position can be adjusted for your comfort.

1. Loosen the 2 bolts securing the control arm to the retaining bracket (Figure 3).

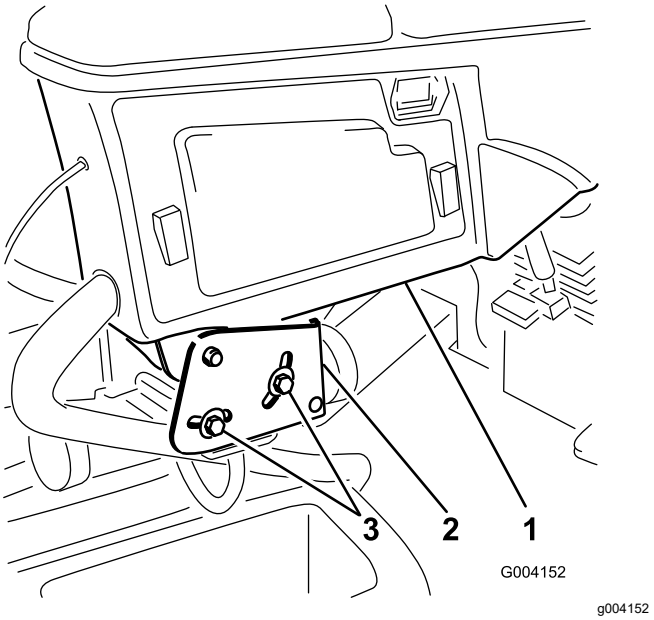


Figure 3

1. Control arm
2. Retaining brackets
3. Bolts (2)

2. Rotate the control arm to the desired position and tighten the 2 bolts.

3

Installing the Cutting Units

Parts needed for this procedure:

1	Right front hose guide
1	Left front hose guide

Preparing the Machine

1. Remove the reel motors from the shipping brackets.
2. Remove and discard the shipping brackets.
3. At each cutting unit lift arm, remove the lynch pin that secures the cap to the lift arm pivot yoke, and remove the cap (Figure 4).

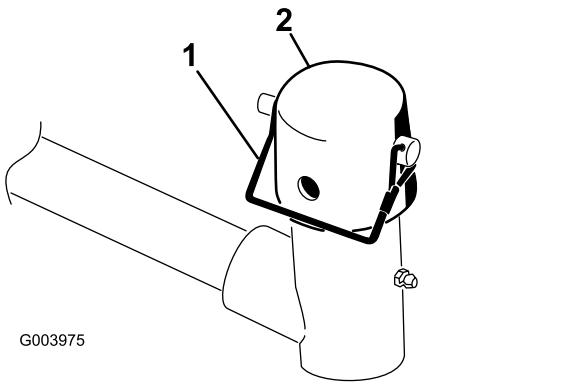
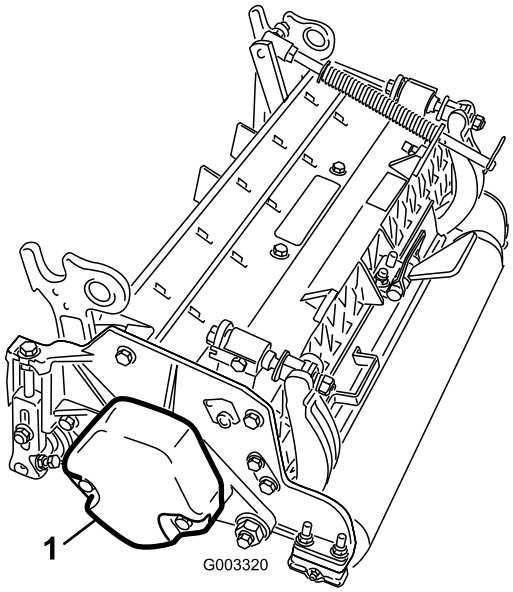


Figure 4

1. Lynch pin
2. Cap

Preparing the Cutting Units

1. Remove the cutting units from the cartons.
2. Assemble and adjust as described in the cutting unit *Operator's Manual*.
3. Make sure that the counterweight (Figure 5) is installed at the proper end of the cutting unit as described in the cutting unit *Operator's Manual*.



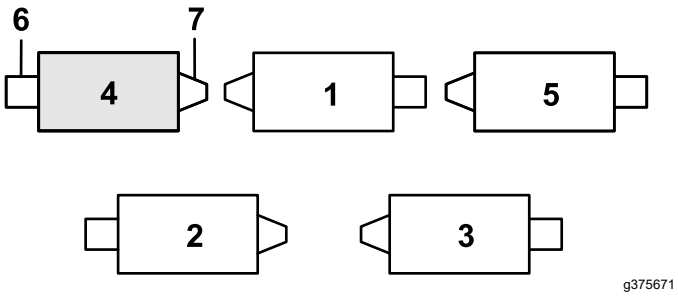
g003320

Figure 5

1. Counterweight

Positioning the Turf Compensating Spring and Installing the Hose Guide

Cutting Units 4

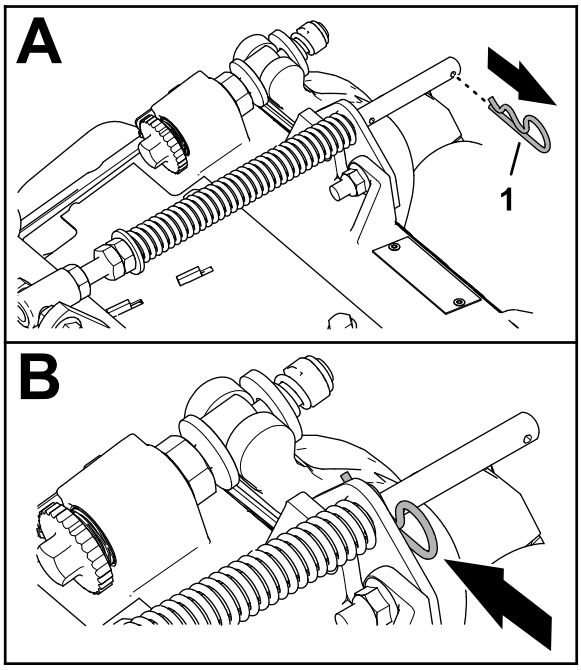


g375671

Figure 6

1. Cutting unit 1
2. Cutting unit 2
3. Cutting unit 3
4. Cutting unit 4
5. Cutting unit 5
6. Reel motor
7. Weight

1. If the hairpin is installed in the rear hole of the compensation-spring rod—remove the hairpin and insert it in the hole next to the bracket (Figure 7).

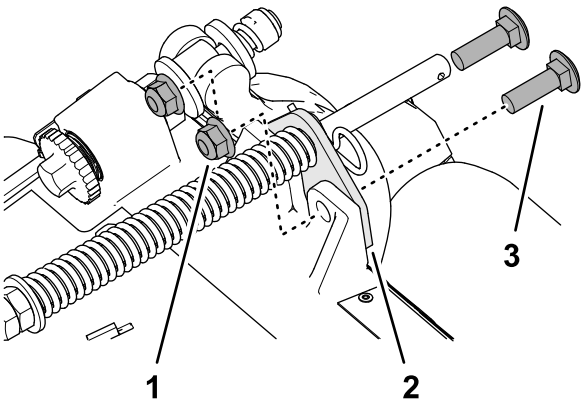


g375689

Figure 7

1. Hairpin

2. Remove the 2 flange locknuts (3/8 inch) and 2 carriage bolts (3/8 x 1-1/4 inches) that secure the turf-compensator bracket to the cutting-unit frame (Figure 8).



g375690

Figure 8

1. Carriage bolt (3/8 x 1-1/4 inches)
2. Turf-compensator bracket
3. Flange locknut (3/8 inch)

3. Remove the flange locknut (3/8 inch) that secures the capscrew of the turf compensation spring to the right tab of the carrier frame, and remove the compensation spring from the cutting unit (Figure 9).

   Note: Do not remove the flange serrated nut from the capscrew.

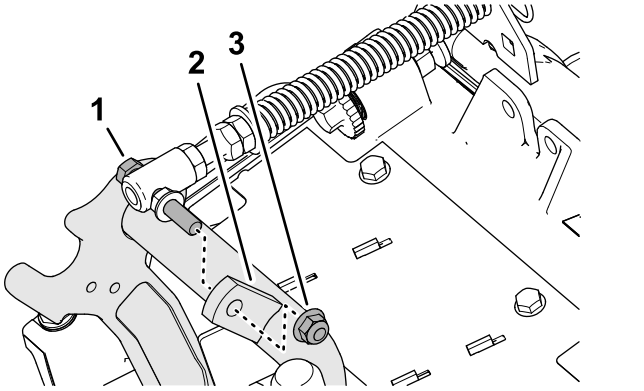


Figure 9

1. Capscrew
2. Right tab (Carrier frame)
3. Flange locknut (3/8 inch)

4. Assemble the capscrew of the turf compensation spring to the right tab of the carrier frame (Figure 10) with the flange locknut (3/8 inch).

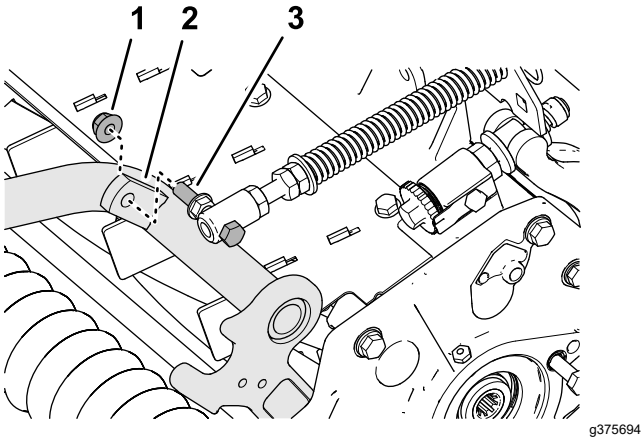


Figure 10

1. Flange locknut (3/8 inch)
2. Right tab (Carrier frame)
3. Capscrew

5. Align the studs of the left hose guide with the holes in the cutting-unit frame and the turf-compensator bracket (Figure 11).

   Note: The support loop of the hose guide aligns toward the centerline of the machine.

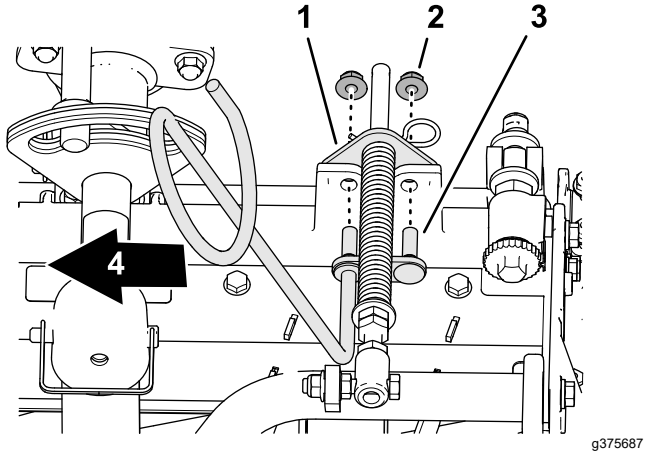


Figure 11

1. Turf-compensator bracket
2. Flange locknut (3/8 inch)
3. Stud (hose guide)
4. Inboard

6. Assemble the hose guide and turf-compensator bracket to the cutting-unit frame with the 2 flange locknuts (3/8 inch).
7. Torque the locknuts and bolts to 37 to 45 N·m (27 to 33 ft-lb).

Installing the Hose Guide

Cutting Units 5

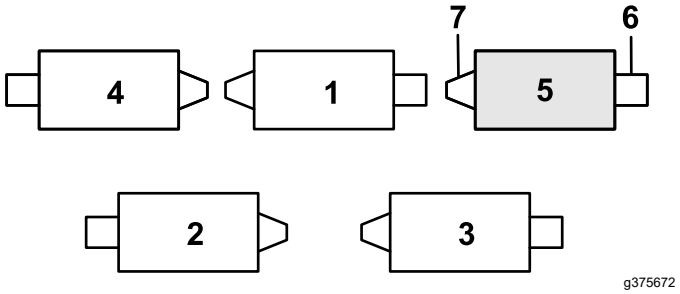
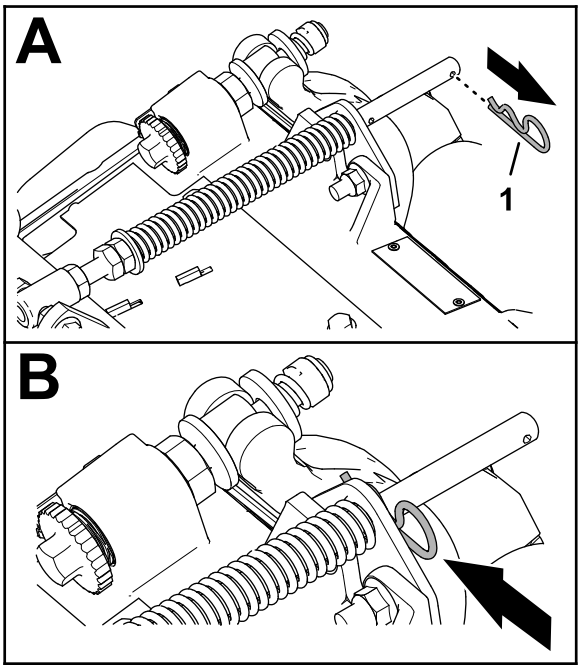


Figure 12

1. Cutting unit 1
2. Cutting unit 2
3. Cutting unit 3
4. Cutting unit 4
5. Cutting unit 5
6. Reel motor
7. Weight

1. If the hairpin is installed in the rear hole of the compensation-spring rod—remove the hairpin and insert it in the hole next to the bracket (Figure 12).

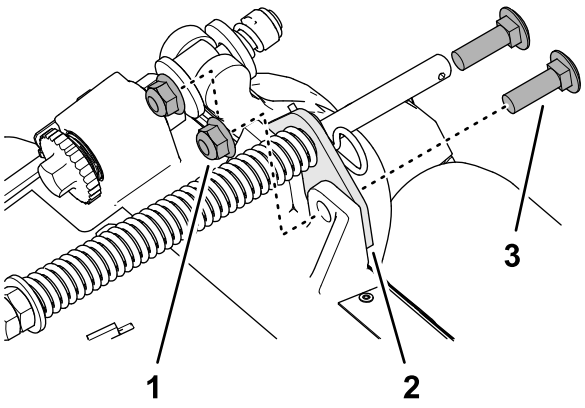


g375689

Figure 13

1. Hairpin

2. Remove the 2 flange locknuts (3/8 inch) and 2 carriage bolts (3/8 x 1-1/4 inches) that secure the turf-compensator bracket to the cutting-unit frame (Figure 14).



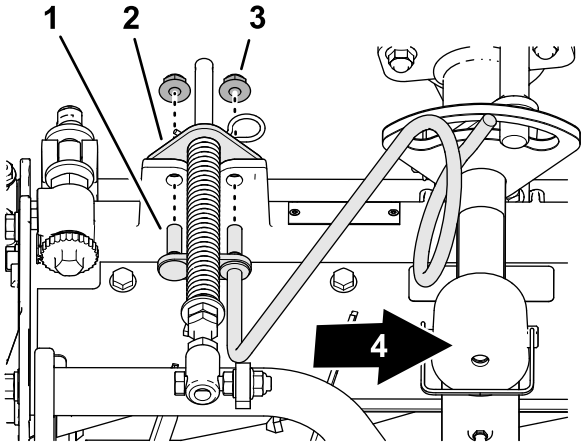
g375690

Figure 14

1. Carriage bolt (3/8 x 1-1/4 inches)
2. Turf-compensator bracket
3. Flange locknut (3/8 inch)

3. Align the studs of the right hose guide with the holes in the cutting-unit frame and the turf-compensator bracket (Figure 15).

   Note: Ensure that the support loop of the hose guide aligns toward the centerline of the machine.



g375688

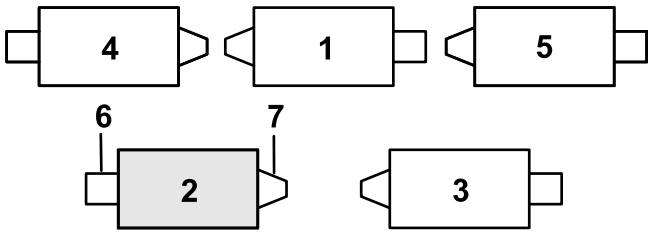
Figure 15

1. Stud (hose guide)
2. Turf-compensator bracket
3. Flange locknut (3/8 inch)
4. Inboard

4. Assemble the hose guide and turf-compensator bracket to the cutting-unit frame with the 2 flange locknuts (3/8 inch).
5. Torque the locknuts to 37 to 45 N·m (27 to 33 ft-lb).

Positioning the Turf Compensating Spring

Cutting Unit 2

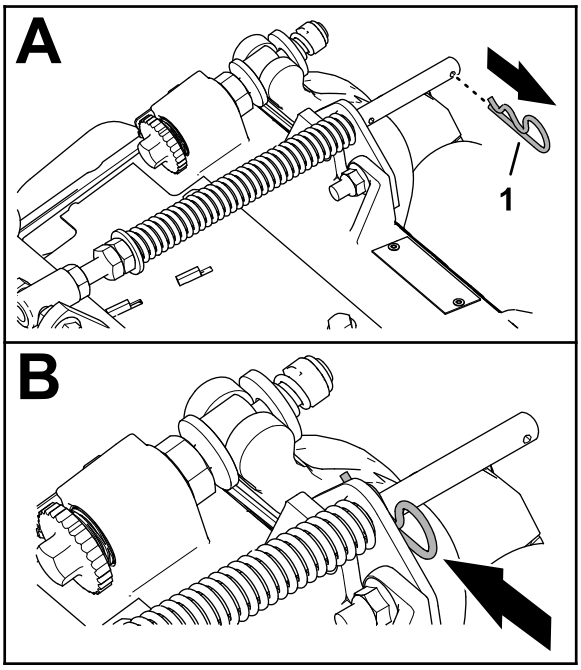


g379514

Figure 16

1. Cutting unit 1
2. Cutting unit 2
3. Cutting unit 3
4. Cutting unit 4
5. Cutting unit 5
6. Reel motor
7. Weight

1. If the hairpin is installed in the rear hole of the compensation-spring rod—remove the hairpin and insert it in the hole next to the bracket (Figure 17).

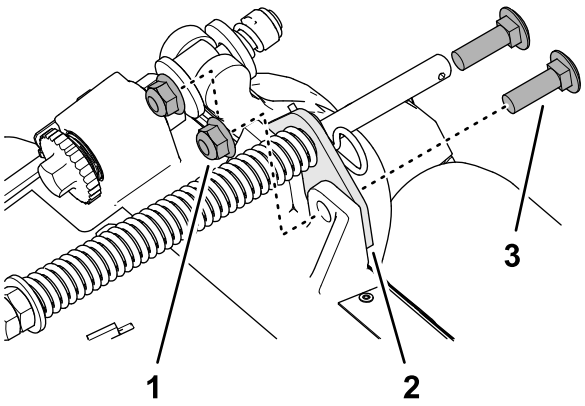


g375689

Figure 17

1. Hairpin

2. Remove the 2 flange locknuts (3/8 inch) and 2 carriage bolts (3/8 x 1-1/4 inches) that secure the turf-compensator bracket to the cutting-unit frame (Figure 18).



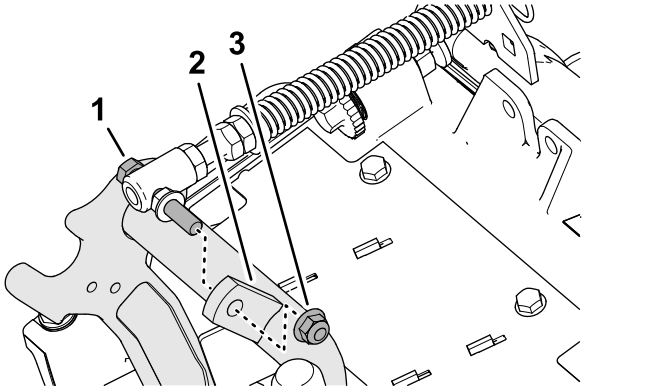
g375690

Figure 18

1. Carriage bolt (3/8 x 1-1/4 inches)
2. Turf-compensator bracket
3. Flange locknut (3/8 inch)

3. Remove the flange locknut (3/8 inch) that secures the capscrew of the turf compensation spring to the right tab of the carrier frame, and remove the compensation spring from the cutting unit (Figure 19).

   Note: Do not remove the flange serrated nut from the capscrew.

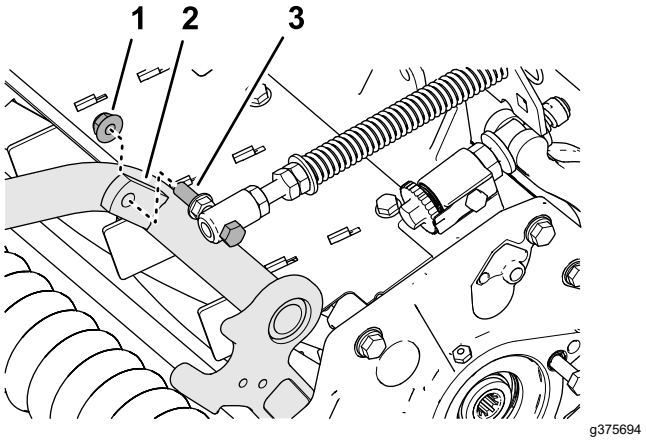


g375691

Figure 19

1. Capscrew
2. Right tab (Carrier frame)
3. Flange locknut (3/8 inch)

4. Assemble the capscrew of the turf compensation spring to the right tab of the carrier frame (Figure 20) with the flange locknut (3/8 inch).



g375694

Figure 20

1. Flange locknut (3/8 inch)
2. Right tab (Carrier frame)
3. Capscrew

5. Align the holes in the turf-compensator bracket with the holes in the cutting-unit frame (Figure 21).

   Note: The support loop of the hose guide aligns toward the centerline of the machine.

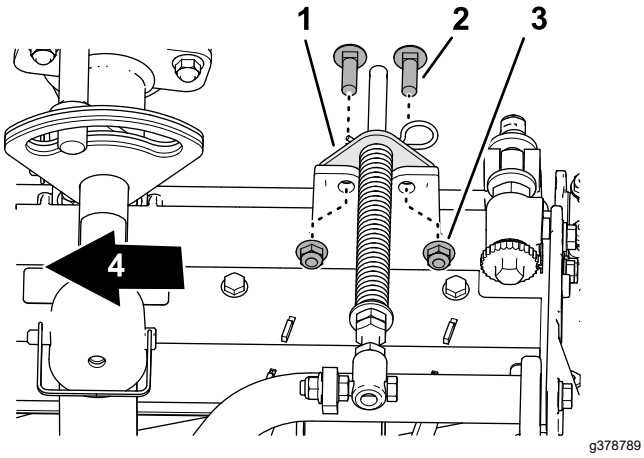


Figure 21

1. Turf-compensator bracket
2. Carriage bolt (3/8 x 1-1/4 inches)
3. Flange locknut (3/8 inch)
4. Inboard

6. Assemble the turf-compensator bracket to the cutting-unit frame with the 2 carriage bolts (3/8 x 1-1/4 inches) and 2 flange locknuts (3/8 inch).
7. Torque the locknuts and bolts to 37 to 45 N·m (27 to 33 ft-lb).

Installing the Kickstand

For each cutting unit, secure the kickstand to the chain bracket with the snapper pin (Figure 22).

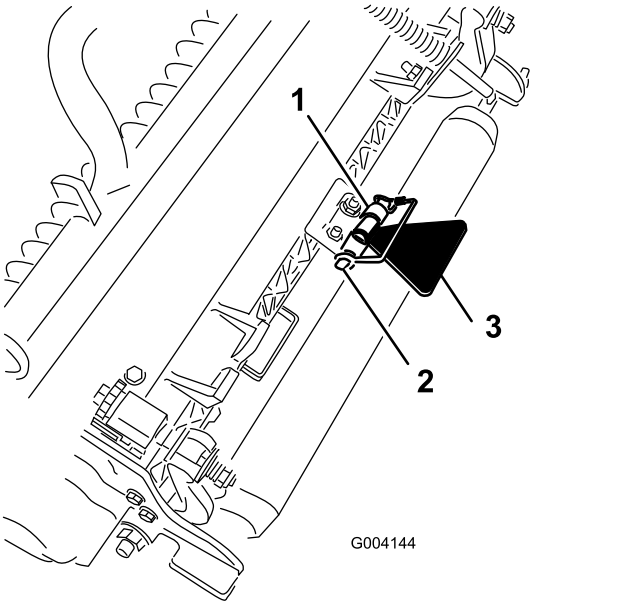


Figure 22

1. Chain bracket
2. Snapper pin
3. Cutting-unit kickstand

Installing the Front Cutting Units to the Lift Arms

1. Slide a cutting unit under the lift arm (Figure 23).

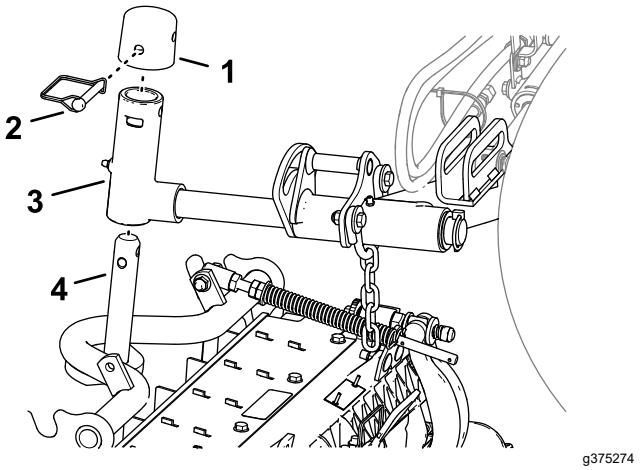


Figure 23

1. Cap
2. Snapper pin
3. Lift-arm yoke
4. Carrier frame shaft

2. Assemble the lift-arm yoke onto the carrier frame shaft.
3. Assemble the cap to the pivot-arm shaft, and align the holes in the carrier frame shaft, pivot arm shaft, and cap.
4. Secure the cap and the carrier-frame shaft to the lift-arm yoke with the snapper pin.

   Locking the Cutting-Unit Pivot for Cutting Grass on a Hill Side—Lock the cutting-unit pivots to prevent the cutting units from rotating downhill when cutting across the face of a hill. Use the hole in the lift-arm pivot shaft (Figure 24) to lock the cutting unit. Use the slot for a steering cutting unit.

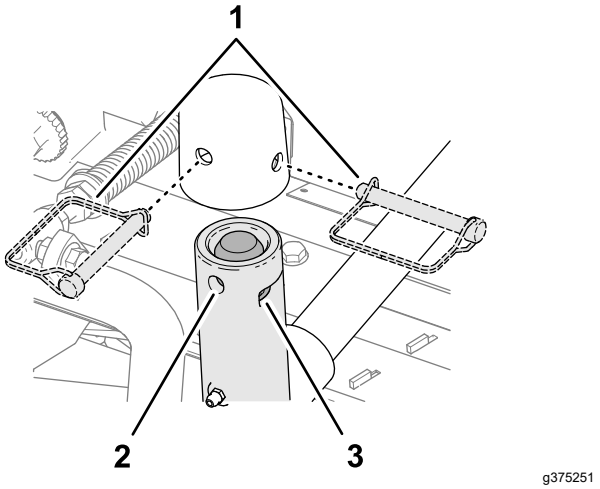


Figure 24

1. Snap-pin positions
2. Hole (lift-arm pivot shaft)
3. Slot (lift-arm pivot shaft)

Installing the Rear Cutting Units to the Lift Arms

Cutting Units adjusted for a 1.2 cm (3/4 inch) or Higher Height of Cut

1. Slide a cutting unit under the lift arm (Figure 25).

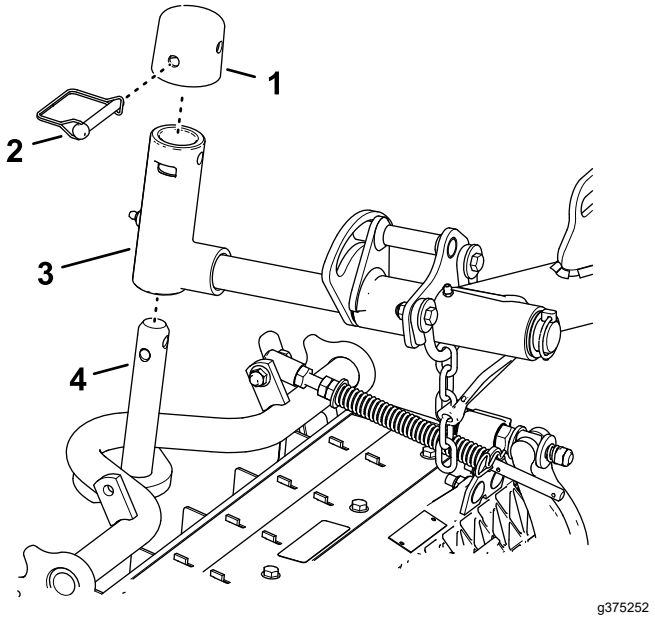


Figure 25

1. Cap
2. Snapper pin
3. Lift-arm yoke
4. Carrier frame shaft

2. Assemble the lift-arm yoke onto the carrier frame shaft.
3. Assemble the cap to the pivot-arm shaft, and align the holes in the carrier frame shaft, pivot arm shaft, and cap.
4. Secure the pivot arm shaft and cap to the carrier frame shaft with the snapper pin.

   Locking the Cutting-Unit Pivot for Cutting Grass on a Hill Side—Lock the cutting-unit pivots to prevent the cutting units from rotating downhill when cutting across the face of a hill. Use the hole in the lift-arm pivot shaft (Figure 25) to lock the cutting unit. Use the slot for a steering cutting unit.

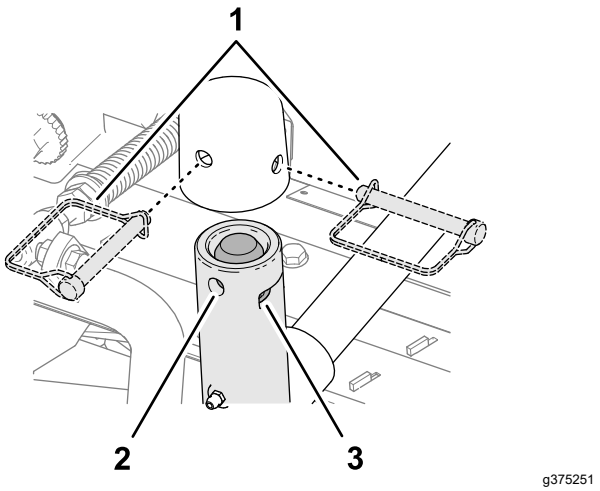


Figure 26

1. Snap-pin positions
2. Hole (lift-arm pivot shaft)
3. Slot (lift-arm pivot shaft)

5. Repeat steps 1 and 2 for the other rear cutting unit.

Installing the Rear Cutting Units to the Lift Arms

Cutting Units adjusted for a 1.2 cm (3/4 inch) or Lower Height of Cut

1. Remove the lynch pin and washer securing the to the lift-arm pivot shaft to the lift arm, and slide the pivot shaft out of the lift arm (Figure 27).

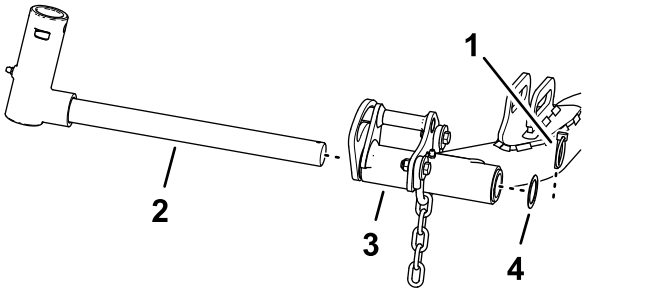


Figure 27

1. Lift-arm pivot shaft 4.
2. Lift-arm pivot shaft
3. Lift arm (rear cutting unit)
4. Washer

2. Assemble the lift-arm yoke onto the carrier frame shaft (Figure 28).

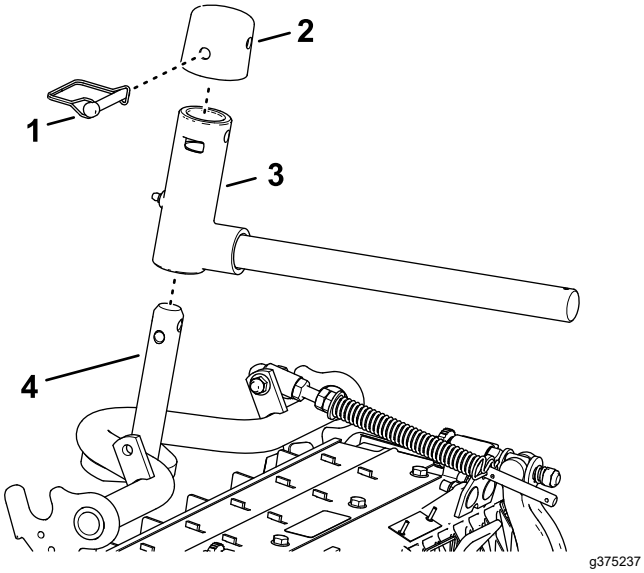


Figure 28

1. Cap
2. Snapper pin
3. Lift-arm yoke
4. Carrier frame shaft

3. Assemble the cap to the pivot-arm shaft, and align the holes in the carrier frame shaft, pivot arm shaft, and cap.
4. Secure the pivot arm shaft and cap to the carrier frame shaft with the snapper pin.

   Locking the Cutting-Unit Pivot for Cutting Grass on a Hill Side—Lock the cutting-unit pivots to prevent the cutting units from rotating downhill when cutting across the face of a hill. Use the hole in the lift-arm pivot shaft (Figure 29) to lock the cutting unit. Use the slot for a steering cutting unit.

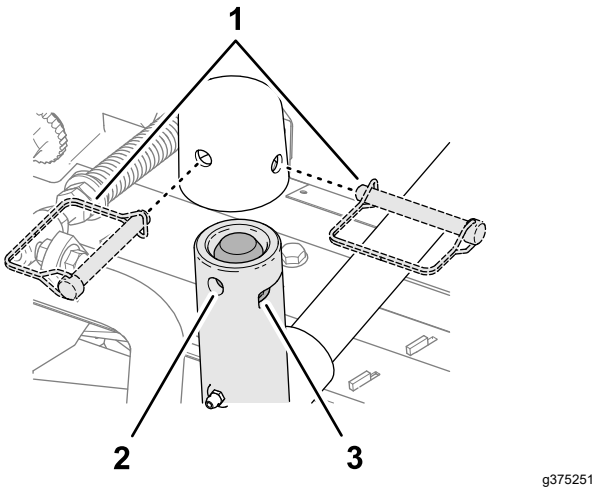


Figure 29

1. Snap-pin positions
2. Hole (lift-arm pivot shaft)
3. Slot (lift-arm pivot shaft)

5. Slide a cutting unit under the lift arm (Figure 30).

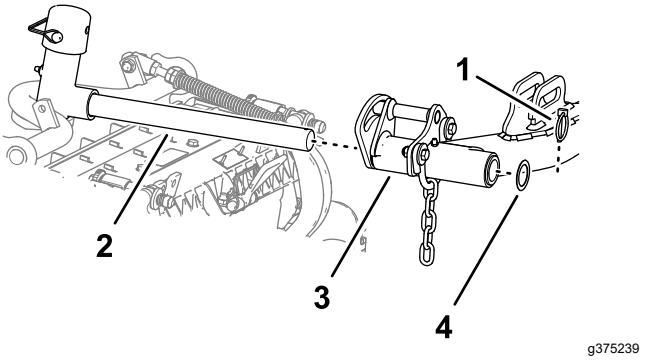


Figure 30

1. Lynch pin
2. Lift-arm shaft
3. Lift arm
4. Washer

6. Insert the lift-arm shaft into the lift arm, and secure shaft to the arm with the lynch pin and washer.
7. Repeat steps 1 through 6 for the other rear cutting unit.

Installing the Cutting Unit Lift-Arm Chains

Secure the lift-arm chain to the chain bracket with the snapper pin (Figure 31).

Note: Use the number of chain links described in the cutting unit *Operator's Manual*.

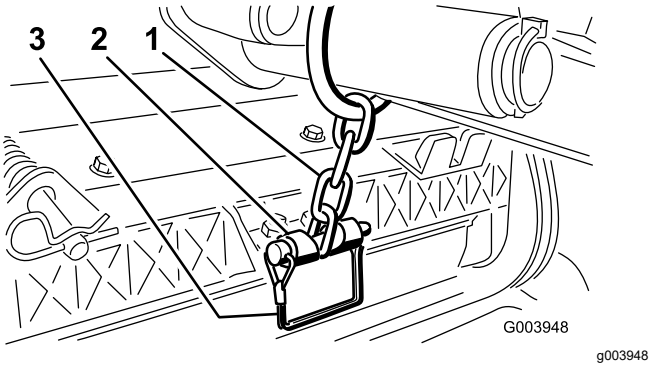
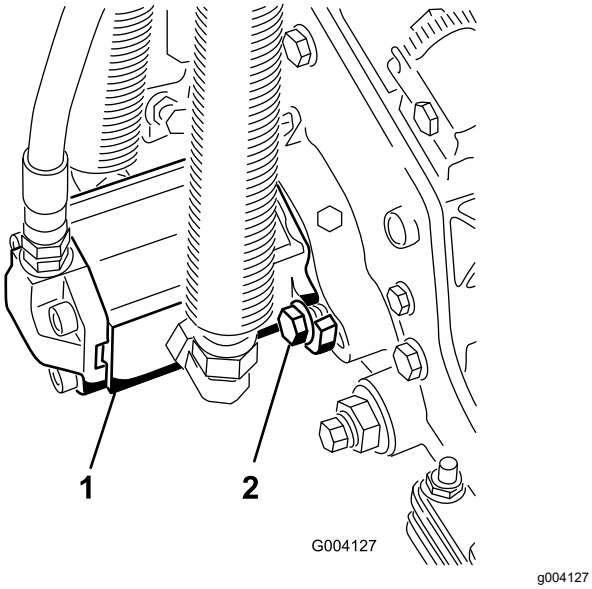


Figure 31

1. Lift-arm chain
2. Chain bracket
3. Snapper pin

Installing the Reel Motors

1. Coat the spline shaft of the reel motor with clean grease.
2. Oil the reel motor O-ring and install it onto the motor flange.
3. Install the motor by rotating it clockwise so that the motor flanges clear the bolts (Figure 32).



g004127

Figure 32

1. Reel-drive motor
2. Mounting bolts

4. Rotate the motor counterclockwise until the flanges encircle the bolts, and then tighten the bolts.

   Important: **Make sure that the reel motor hoses are not twisted, kinked, or at risk of being pinched.**

5. Torque the mounting bolts to (27 to 33 ft-lb).

4

Installing Rear Weights

Parts needed for this procedure:

Varies	Rear weights (size varies with configuration)

Procedure

This machine complies with EN ISO 5395 and ANSI B71.4-2017 when equipped with rear weights and/or 41 kg (90 lb) of calcium chloride ballast is added to rear wheels. Use the following charts to determine the combinations of weights required for your configuration. Order parts from your local authorized Toro distributor.

Weight P/N 110-8985-03				
Groomers, roller brushes, and/or baskets	**Number of weights to meet ANSI (US) standards**	**Number of weights to meet CE (European) standards**	**Fasteners (2 each required) for weights**	**Weight Location**
No	0	0	N/A	N/A
Yes	4	4	3231-7 Carriage Bolt, 104-8301 Nut	1 on top of bumper and 3 under bumper

Important: **Always install tubes inside the rear tires before calcium chloride is installed. If a puncture occurs in a tire with calcium chloride, remove the machine from the turf area as quickly as possible. To prevent possible damage to the turf, immediately soak the affected area with water.**

Use the following procedure to mount the appropriate amount of weight (see weight charts) to the top or bottom of the rear bumper as shown in Figure 33.

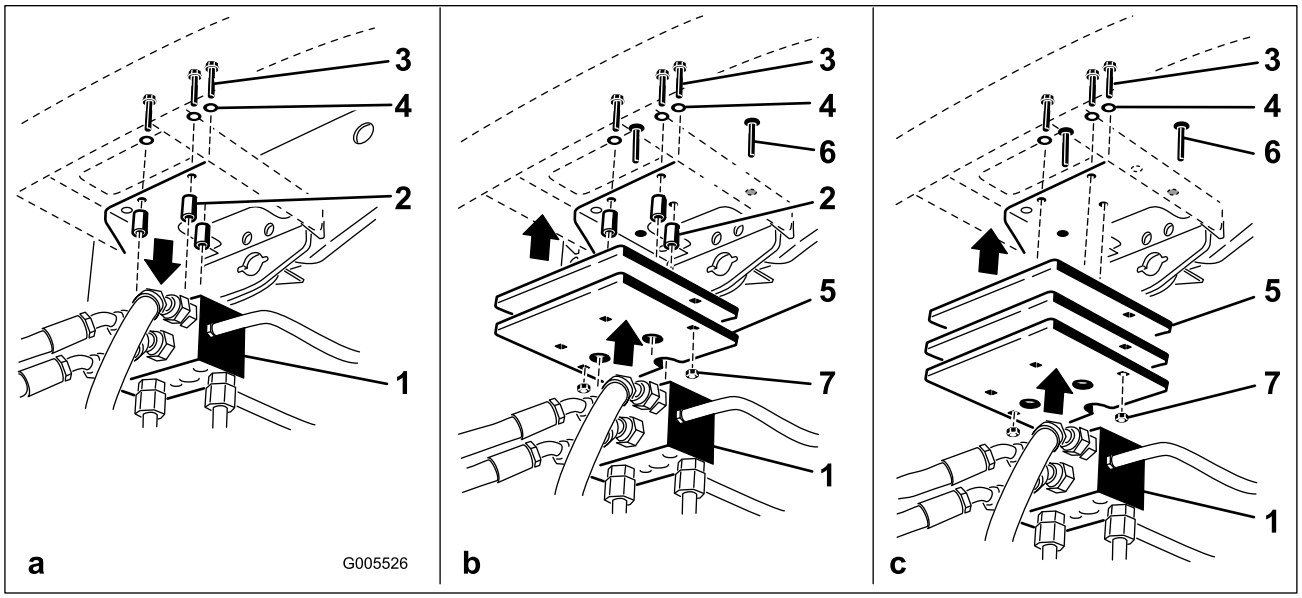


Figure 33

1. Traction manifold
2. Spacers
3. Bolts
4. Washers
5. Weight(s)
6. Carriage bolt
7. Nut

1. Remove the 3 bolts, washers, and spacers securing the traction manifold to the bottom of the rear bumper (Figure 33a).
2. Position the appropriate amount of weight on the top and/or bottom of the rear bumper.
3. Mount the weight(s) and the traction manifold to the bumper with the 3 bolts, washers and spacers previously removed (Figure 33b).

   Note: Do not use the spacers when installing more than two weights **under** the bumper (Figure 33c).
4. Secure the outer edges of the weight(s) to the bumper with 2 carriage bolts and nuts (Figure 33c).

5

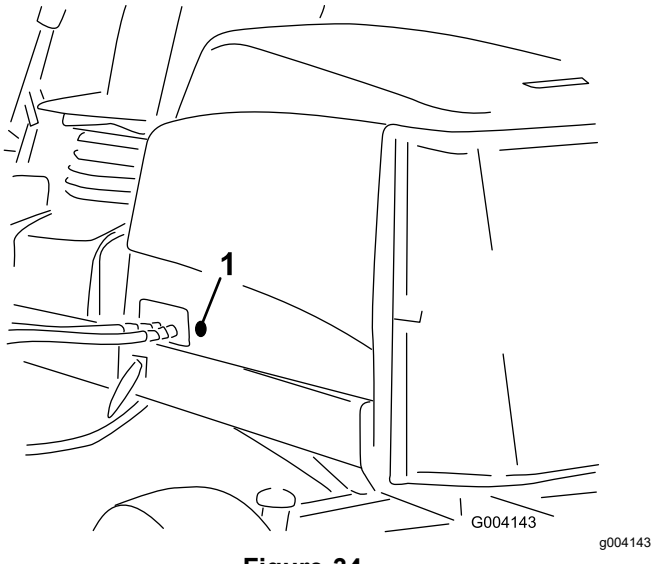
Installing the CE Hood Lock

Parts needed for this procedure:

1	Hood lock, seal, and jam nut
1	Washer

Procedure

1. Unlatch and raise the hood.
2. Remove the rubber grommet from the hole in the left side of the hood (Figure 34).

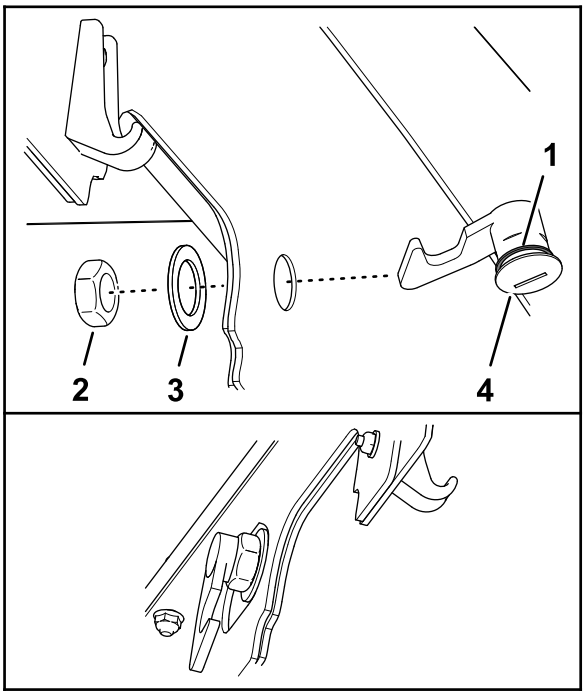


g004143

Figure 34

1. Rubber grommet

3. Ensure that the seal is assembled to the hood lock (Figure 35).



g375326

Figure 35

1. Hood latch
2. Nut
3. Seal
4. Washer

4. Remove the nut from the lock.
5. Outside the hood, insert the hook end of the latch through the hole in the hood.

   Note: The seal is aligned to the outside of the hood.
6. Inside the hood, Secure the lock to the hood with the washer and nut.
7. Close the hood, and use the enclosed hood-latch key to check that the hook of the lock engages the frame catch when locked.

6

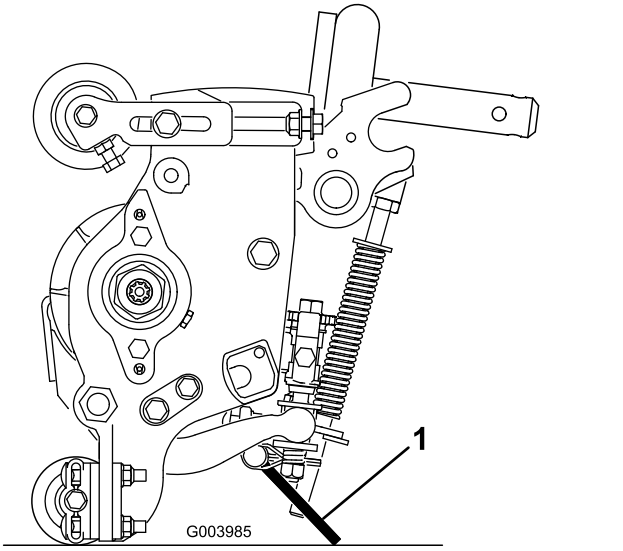
Using the Cutting-Unit Kickstand

Parts needed for this procedure:

1	Cutting-unit kickstand

Procedure

Whenever you must tip the cutting unit to expose the bedknife/reel, prop up the rear of the cutting unit with the kickstand to ensure that the nuts on the back end of the bedbar adjusting screws are not resting on the work surface (Figure 36).

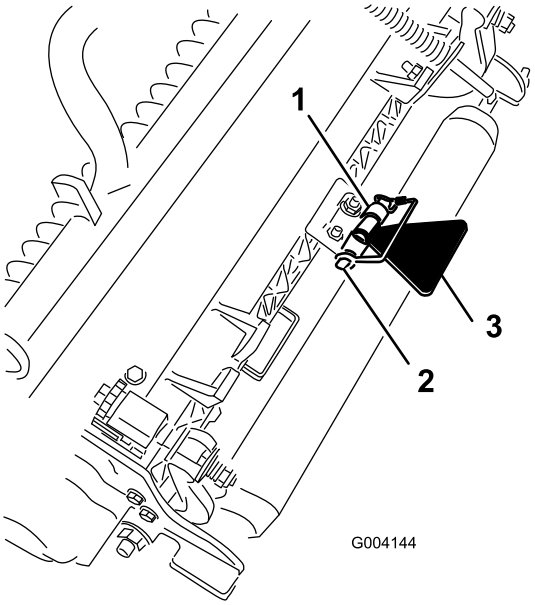


g003985

Figure 36

1. Cutting-unit kickstand

Secure the kickstand to the chain bracket with the snapper pin (Figure 37).



g004144

Figure 37

7

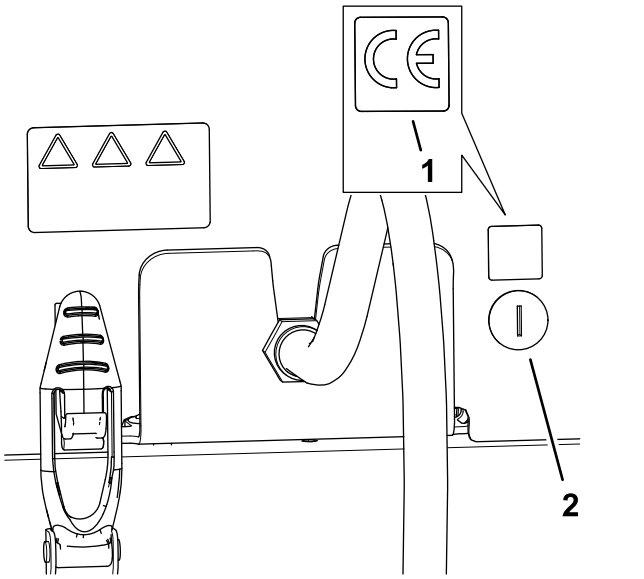
Applying the CE Decals

Parts needed for this procedure:

1	CE decal
1	Production year decal
1	Warning decal

Applying the CE Decal

1. Use rubbing alcohol and a clean rag to clean the area of the hood next to the hood lock, and allow the hood to dry. (Figure 38).



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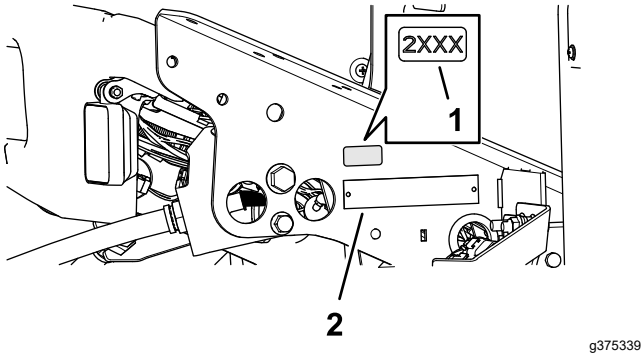
Figure 38

1. CE decal
2. Hood lock

2. Remove the backing from the CE decal.
3. Apply the decal to the hood.

Applying the Year of Production Decal

1. Use rubbing alcohol and a clean rag to clean the floor bracket area next to the serial plate, and allow the bracket to dry (Figure 39).



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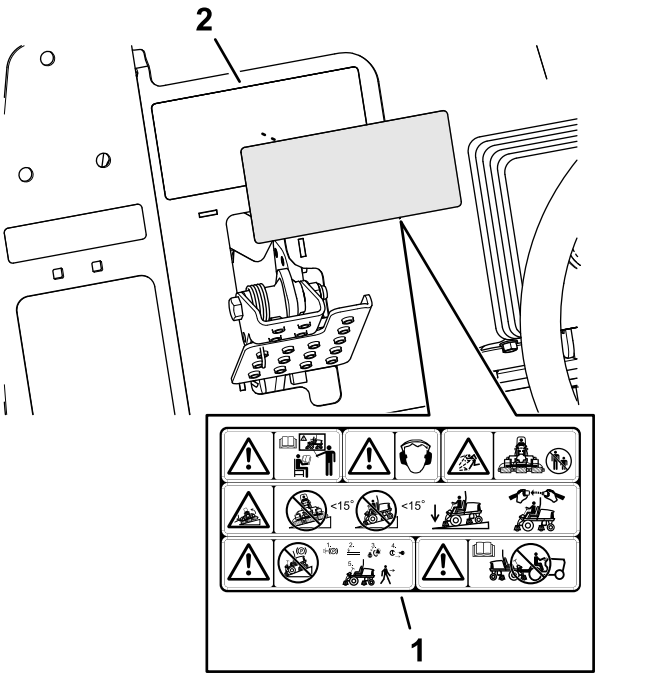
Figure 39

1. Year of production decal
2. Serial plate

2. Remove the backing from the year of production decal.
3. Apply the decal to the floor bracket.

Applying the CE Warning Decal

1. Use rubbing alcohol and a clean rag to clean the surface of warning decal 133-2930, and allow the decal to dry (Figure 40).



g375338

Figure 40

1. CE warning decal
2. Warning decal 133-2930

2. Remove the backing from the CE warning decal.
3. Apply the CE warning decal over decal 133-2930.

Product Overview

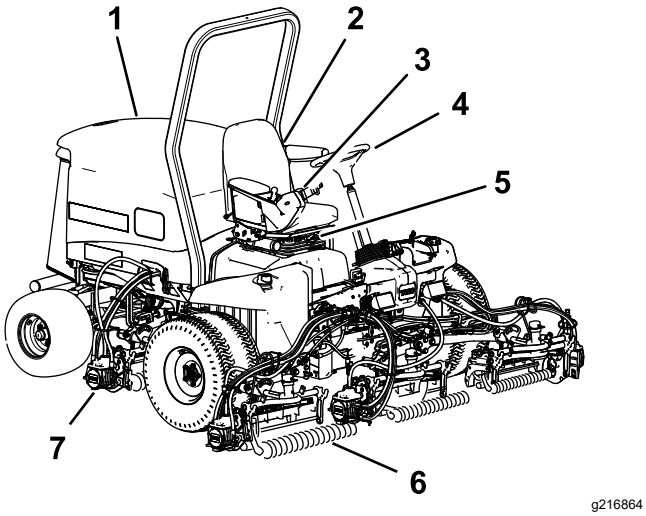


Figure 41

1. Engine hood
2. Seat
3. Control arm
4. Steering wheel
5. Seat adjustments
6. Front cutting units
7. Rear cutting units

Controls

Seat-Adjusting Knobs

The seat-adjusting lever (Figure 42) allows you to adjust the seat forward and rearward. The weight adjusting knob adjusts the seat for your weight. The weight gauge indicates when the seat is adjusted to your weight. The height-adjusting knob adjusts the seat for your height.

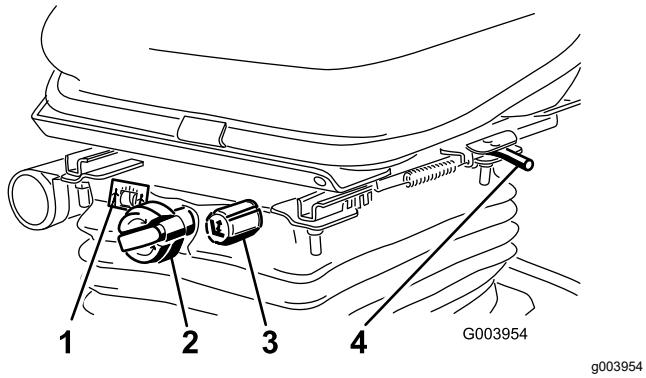


Figure 42

1. Weight gauge
2. Weight-adjusting knob
3. Height-adjusting knob
4. Adjusting lever (forward and rearward)

Traction Pedal

The traction pedal (Figure 43) controls the forward and reverse operation. Press the top of the pedal to move forward and the bottom to move rearward. Ground speed depends on how far you press the pedal. For no load, maximum ground speed, fully press the pedal while the throttle is in the FAST position.

To stop, reduce foot pressure on the traction pedal and allow it to return to the center position.

Mow-Speed Limiter

When the mow-speed limiter (Figure 43) is flipped up, it controls the mow speed and allows the cutting units to be engaged. Each spacer adjusts the mowing speed by ½ mile per hour. The more spacers you have on the top of the bolt, the slower you will go. For transport, flip back the mow-speed limiter and you will have maximum transport speed.

Brake Pedal

Press the brake pedal (Figure 43) to stop the machine.

Parking Brake

To engage the parking brake, (Figure 43) push down the brake pedal and press the top forward to latch. To release the parking brake, press the brake pedal until the parking brake latch retracts.

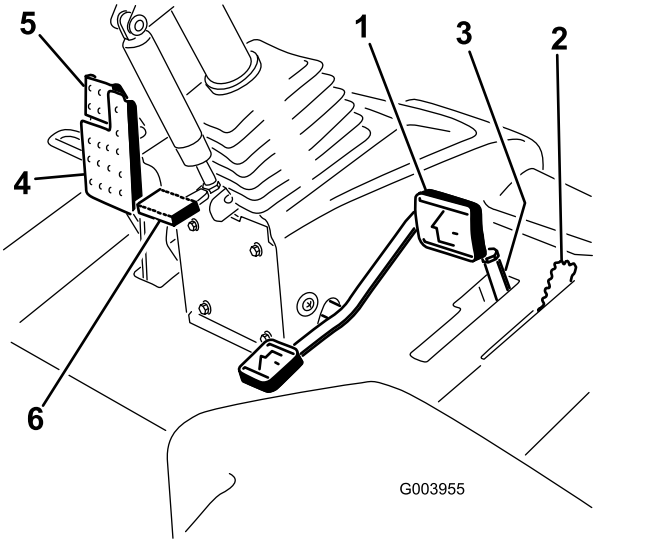


Figure 43

1. Traction pedal
2. Mow-speed limiter
3. Spacers
4. Brake pedal
5. Parking brake
6. Tilt-steering pedal

Tilt-Steering Pedal

To tilt the steering wheel toward you, press the foot pedal (Figure 43) down, and pull the steering tower toward you to the most comfortable position and then release the pedal.

Throttle Control

Move the throttle control (Figure 44) forward to increase the engine speed and rearward to decrease speed.

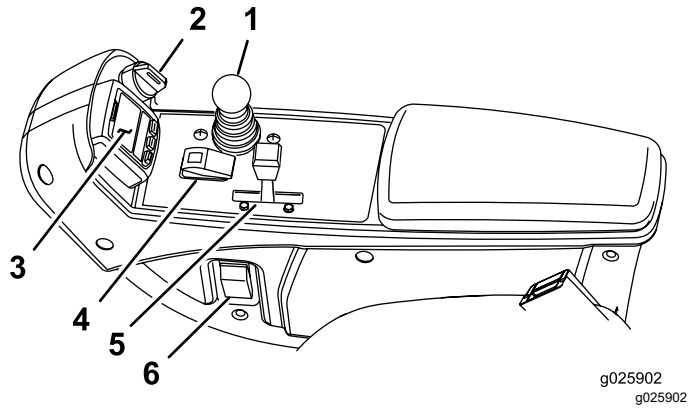


Figure 44

1. Lower mow/raise control lever
2. Key switch
3. InfoCenter
4. Enable/disable switch
5. Throttle control
6. Headlight switch

Key Switch

The key switch (Figure 44) has 3 positions: OFF, ON/PREHEAT, and START.

Lower Mow/Raise Control Lever

This lever (Figure 44) raises and lowers the cutting units and also starts and stops the cutterheads when the cutterheads are enabled in the mow mode.

Headlight Switch

Pivot the switch downward to turn on the headlights (Figure 44).

Enable/Disable Switch

Use the enable/disable switch (Figure 44) in conjunction with the lower mow/raise control lever to operate the cutterheads. The cutterheads cannot be lowered when the mow/transport lever is in the TRANSPORT position.

Backlap Levers

Use the backlap levers in conjunction with the lower mow/raise control lever for backlapping the reels (Figure 45).

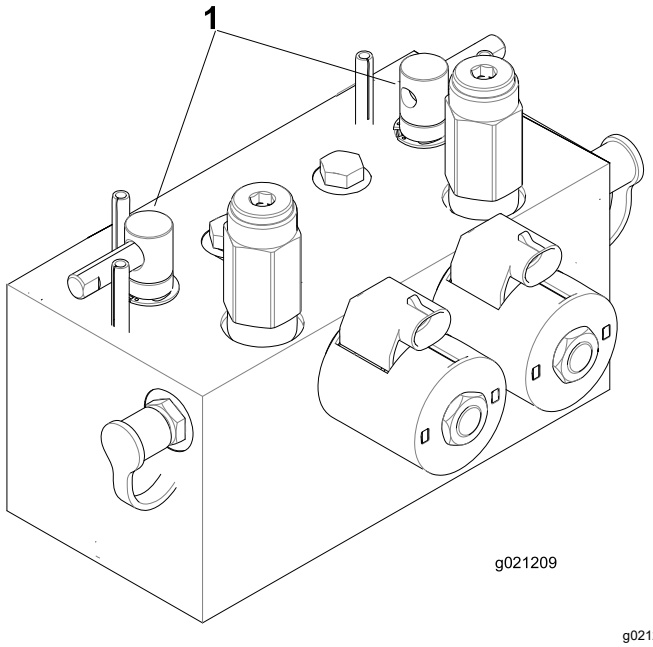


Figure 45

1. Backlap levers

Hydraulic Filter Restriction Indicator

With the engine running at normal operating temperature, view the indicator (Figure 46); it should be in the Green zone. When the indicator is in the Red zone, change the hydraulic filters.

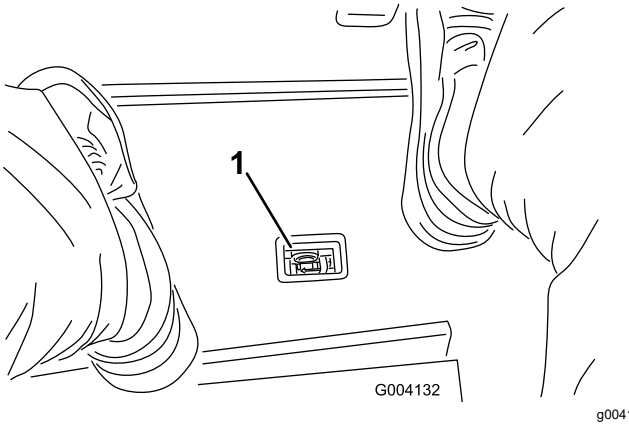


Figure 46

1. Hydraulic filter restriction indicator

Power Point

The power point is a 12 V power supply for electronic devices (Figure 47).

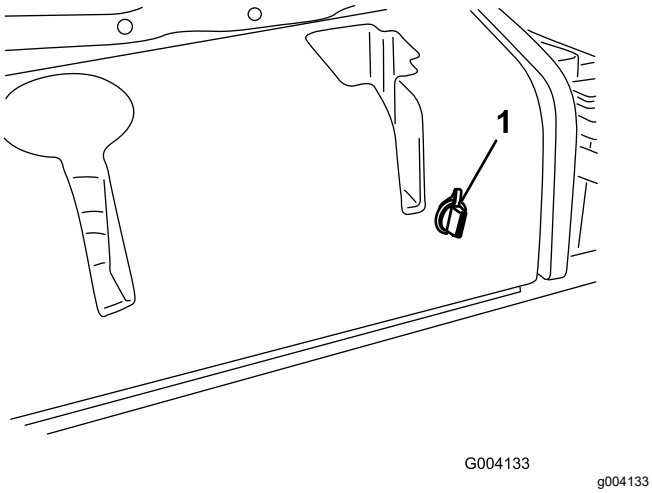


Figure 47

1. Power point

Using the InfoCenter LCD Display

The InfoCenter LCD display shows information about your machine, such as the operating status, various diagnostics and other information about the machine (Figure 48) There is a splash screen and main information screen of the InfoCenter. You can switch between the splash screen and main information screen, at any time, by pressing any of the InfoCenter buttons and then selecting the appropriate directional arrow.

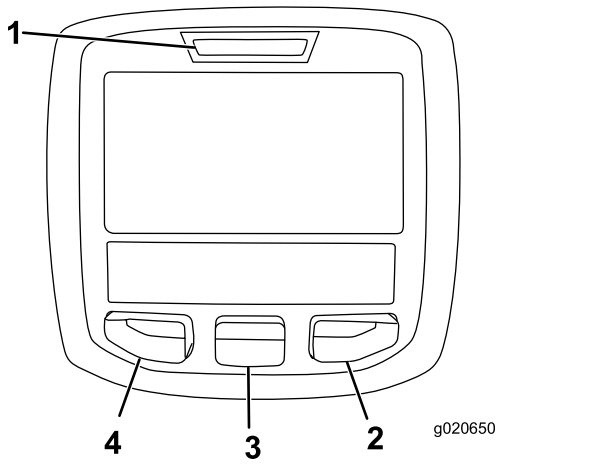


Figure 48

1. Indicator light
2. Right button
3. Middle button
4. Left button

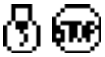
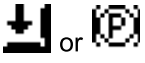
- Left Button, Menu Access/Back Button—press this button to access the InfoCenter menus. You can use it to back out of any menu you are currently using.
- Middle Button—use this button to scroll down menus.
- Right Button—use this button to open a menu where a right arrow indicates additional content.

Note: The purpose of each button may change depending on what is required at the time. Each button is labeled with an icon displaying its current function.

InfoCenter Icon Description

SERVICE DUE	Indicates when scheduled service should be performed
	Hour meter
	Info icon
	Fast
	Slow
	Fuel level
	Glow plugs are active
	Raise cutting units
	Lower cutting units
	Operator must sit in seat
	Parking Brake Indicator—indicates when the parking brake is On
H	Identifies the range as High (Transport)
N	Neutral
L	Identifies the range as Low (Mow)
	Coolant Temperature-indicates the engine coolant temperature in either °C or °F
	Temperature (hot)
	PTO is engaged

InfoCenter Icon Description (cont'd.)

	Denied or not allowed
	Engine Start
	Stop or shutdown
	Engine
	Key switch
	Indicates when the cutting units are being lowered
	Indicates when the cutting units are being raised
	PIN passcode
	CAN bus
	InfoCenter
	Bad or failed
	Bulb
	Output of TEC controller or control wire in harness
	Switch
	Operator must release switch
	Operator should change to indicated state
Symbols are often combined to form sentences. Some examples are shown below	
	Operator should put machine in neutral
	Engine start denied
	Engine shutdown
	Engine coolant too hot
 or	Sit down or set parking brake

Using the Menus

To access the InfoCenter menu system, press the menu access button while at the main screen. This brings you to the main menu. Refer to the following tables for a synopsis of the options available from the menus:

Main Menu	
Menu Item	**Description**
Faults	The Faults menu contains a list of the recent machine faults. Refer to the Service Manual or your Authorized Toro Distributor for more information on the Faults menu and the information contained there.
Service	The Service menu contains information on the machine such as hours of use, counters, and other similar numbers.
Diagnostics	The Diagnostics menu displays the state of each machine switch, sensor, and control output. You can use this to troubleshoot certain issues as it will quickly tell you which machine controls are on and which are off.
Settings	The Settings menu allows you to customize and modify configuration variables on the InfoCenter display.
About	The About menu lists the model number, serial number, and software version of your machine.

Service	
Menu Item	**Description**
Hours	Lists the total number of hours that the machine, engine and PTO have been on, as well as the number of hours the machine has been transported and service due.
Counts	Lists numerous counts the machine has experienced.

Diagnostics	
Menu Item	**Description**
Cutting Units	Indicates the inputs, qualifiers, and outputs for raising and lowering the cutting units.
Hi/Low Range	Indicates the inputs, qualifiers, and outputs for driving in transport mode.

PTO	Indicates the inputs, qualifiers, and outputs for enabling the PTO circuit.
Engine Run	Indicates the inputs, qualifiers, and outputs for starting the engine.
Backlap	Indicates the inputs, qualifiers and outputs for operating the backlap function.

Settings	
Menu Item	**Description**
Units	Controls the units used on the InfoCenter. The menu choices are English or Metric
Language	Controls the language used on the InfoCenter*.
LCD Backlight	Controls the brightness of the LCD display.
LCD Contrast	Controls the contrast of the LCD display.
Front Backlap Reel Speed	Controls the speed of the front reels in backlap mode.
Rear Backlap Reel Speed	Controls the speed of the rear reels in backlap mode.
Protected Menus	Allows the superintendant/mechanic to access protected menus by inputting a passcode.
Blade Count	Controls the number of blades on the reel for reel speed.
Mow Speed	Controls the ground speed for determining the reel speed.
Height of cut (HOC)	Controls the height of cut (HOC) for determining the reel speed.
F Reel RPM	Displays the calculated reel speed position for the front reels. The reels can also be manually adjusted.
R Reel RPM	Displays the calculated reel speed position for the rear reels. The reels can also be manually adjusted.

* Only "operator-faced" text is translated. Faults, Service, and Diagnostics screens are "service-faced". Titles are be in the selected language, but menu items are in English.

About	
Menu Item	**Description**
Model	Lists the model number of the machine.
SN	Lists the serial number of the machine.
Machine Controller Revision	Lists the software revision of the master controller.
InfoCenter Revision	Lists the software revision of the InfoCenter.
CAN Bus	Lists the machine communication bus status.

Protected Menus

There are 5 operating configuration settings that are adjustable within the Settings Menu of the InfoCenter: Blade Count, Mow Speed, Height of Cut (HOC), F Reel RPM and R Reel RPM. These settings can be locked by using the Protected Menu.

Note: At the time of delivery, the initial password code is programmed by your distributor.

Accessing the Protected Menu Settings

To access the Protected Menu Settings

- From the Main Menu, scroll down to the Settings Menu and press the right button.
- In the Settings Menu, scroll down to the Protected Menu and press the right button.
- To enter the passcode, use the center button to set the first digit then press the right button to move on to the next digit.
- Use the center button to set the second digit then press the right button to move on to the next digit.
- Use the center button to set the third digit then press the right button to move on to the next digit.
- Use the center button to set the fourth digit then press the right button.
- Press the middle button to enter the code.
- If the code has been accepted and the protected menu has been “Unlocked,” “PIN” will be displayed in the upper right corner of the display screen.

The ability to view and change the settings in the Protected Menu can be changed. Once you have accessed the Protected Menu, scroll down to Protect Settings. Using the right button, changing Protect Settings to Off allows you to view and change the settings in the Protected Menu without entering the passcode. Changing Protect Settings to On hides the protected options and requires entering a passcode to change the setting in the Protected Menu. After the pass code has been set, the key switch must be turned off and back on to enable and save this feature.

Note: If the passcode has been forgotten or misplaced, please contact your distributor for assistance.

Setting the Service Due Timer

The service due timer resets the service due hours after a scheduled maintenance procedure is performed.

1. In the Settings Menu, use the center button to scroll down to the PROTECTED MENU and press the right button.
2. Enter PIN; refer to Accessing Protected Menus on the *Operator's Manual* for your machine.
3. In the Service Menu, navigate to the HOURS MENU.
4. Scroll down to the service symbol .

   Note: If service is currently due, the first icon shows NOW.
5. Below the first icon is the service interval item (time interval, e.g. 250, 500, etc.)

   Note: Service interval is a protected menu item.
6. Highlight the service interval and press the right button.
7. When the new screen appears, confirm RESET SERVICE HOURS—ARE YOU SURE?
8. Select YES(center button) or NO (left button).
9. After you select YES the interval screen clears, and reverts back to the Service Hours selections.

Setting the Blade Count

1. In the Settings Menu, scroll down to Blade Count.
2. Press the right button to change the blade count between 5, 8, or 11 blade reels.

Setting the Mow Speed

1. In the Settings Menu, scroll down to Mow Speed.
2. Press the right button to select mow speed.
3. Use the middle and right buttons to select the appropriate mow speed set on the mechanical mow-speed limiter on the traction pedal.
4. Press the left button to exit mow speed and save the setting.

Setting the Height of Cut (HOC)

1. In the Settings Menu, scroll down to HOC.
2. Press the right button to select HOC.
3. Use the middle and right buttons to select the appropriate HOC setting. (If the exact setting is not displayed, select the nearest HOC setting from the list displayed).
4. Press the left button to exit HOC and save the setting.

Setting the Front and Rear Reel Speeds

Although the front and rear reel speeds are calculated by inputting the number of blades, mow speed and HOC into the InfoCenter, the setting can be manually changed to accommodate for different mowing conditions.

1. To change the Reel Speed Settings, scroll down to the F Reel RPM, R Reel RPM, or both.
2. Press the right button to change the reel speed value. As you change the speed setting, the display continues to show the calculated reel speed based on blade count, mow speed and HOC, which was previously entered, but the new value is also displayed.

Specifications

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

Transport width	233 cm (92 inches)
Width of cut	254 cm (100 inches)
Length	282 cm (111 inches)
Height	160 cm (63 inches)
Weight	1276 kg (2,813 lb)
Engine	Kubota 44.2 hp (Turbo)
Transport speed	0 to 16 km/h (0 to 10 mph)
Mowing speed	0 to 13 km/h (0 to 8 mph)

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 authorized Toro distributor or go to www.Toro.com for a list of all approved attachments and accessories.

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

Operation

Before Operation

Before Operation Safety

General Safety

- 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.
- Become familiar with the safe operation of the equipment, operator controls, and safety signs.
- Before you leave the operator's position, do the following:
  - Park the machine on a level surface.
  - Disengage and lower the cutting units.
  - Engage the parking brake.
  - Shut off the engine and remove the key.
  - Wait for all movement to stop.
  - Allow the machine to cool before adjusting, servicing, cleaning, or storing it.
- Know how to stop the machine and shut off the engine quickly.
- Do not operate the machine without all guards and other safety protective devices in place and functioning properly on the machine.
- Before mowing, always inspect the machine to ensure that the cutting units are in good working condition.
- Inspect the area where you will use the machine and remove all objects that the machine could throw.

Fuel Safety

- Use extreme care in handling fuel. It is flammable and its vapors are explosive.
- Extinguish all cigarettes, cigars, pipes, and other sources of ignition.
- Use only an approved fuel container.
- Do not remove the fuel cap or fill the fuel tank while the engine is running or hot.
- Do not add or drain fuel in an enclosed space.
- Do not store the machine or fuel container where there is an open flame, spark, or pilot light, such as on a water heater or other appliance.
- If you spill fuel, do not attempt to start the engine; avoid creating any source of ignition until the fuel vapors have dissipated.

Fuel Specification

Use only clean, fresh diesel fuel or biodiesel fuels with low (<500 ppm) or ultra low (<15 ppm) sulfur content. The minimum cetane rating should be 40. Purchase fuel in quantities that can be used within 180 days to ensure fuel freshness.

Use summer grade diesel fuel (No. 2-D) at temperatures above -7°C (20°F) and winter grade (No. 1-D or No. 1-D/2-D blend) below that temperature. Use of winter grade fuel at lower temperatures provides lower flash point and cold flow characteristics which eases starting and reduces fuel filter plugging.

Use of summer grade fuel above -7°C (20°F) contributes toward longer fuel pump life and increased power compared to winter grade fuel.

Important: **Do not use kerosene or gasoline instead of diesel fuel. Failure to observe this caution damages the engine.**

Biodiesel Ready

This machine can also use a biodiesel blended fuel of up to B20 (20% biodiesel, 80% petrodiesel). The petrodiesel portion should be low or ultra low sulfur. Observe the following precautions:

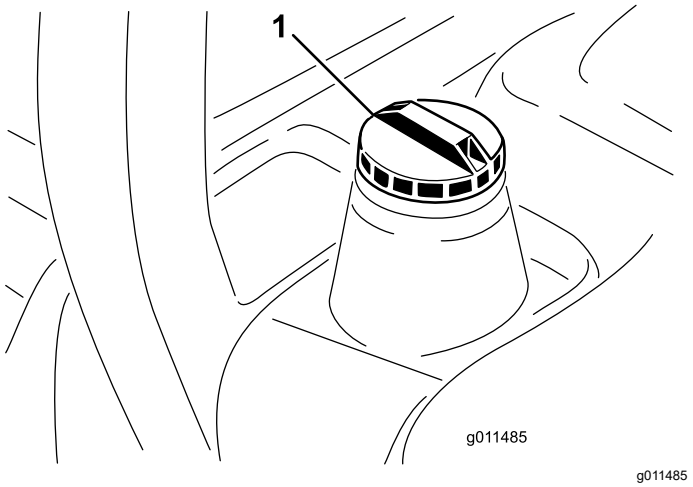
- The biodiesel portion of the fuel must meet specification ASTM D6751 or EN14214.
- The blended fuel composition should meet ASTM D975 or EN590.
- Painted surfaces may be damaged by biodiesel blends.
- Use B5 (biodiesel content of 5%) or lesser blends in cold weather.
- Monitor seals, hoses, gaskets in contact with fuel as they may be degraded over time.
- Fuel filter plugging may be expected for a time after converting to biodiesel blended.
- Contact your distributor if you wish for more information on biodiesel.

Fuel Tank Capacity

53 L (14 US gallons)

Adding Fuel

1. Park the machine on a level surface, lower the cutting units, engage the parking brake, shut off the engine, and remove the key.
2. Using a clean rag, clean area around fuel-tank cap.
3. Remove the cap from the fuel tank (Figure 49).



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Figure 49

1. Fuel-tank cap

4. Fill the tank until the level is 6 to 13 mm (1/4 to 1/2 inch) below the bottom of the filler neck.
5. Install the fuel-tank cap tightly after filling the tank.

   Note: If possible, fill the fuel tank after each use. This minimizes possible buildup of condensation inside the fuel tank.

Performing Daily Maintenance

Service Interval: Before each use or daily

Before starting the machine each day, perform the Each Use/Daily procedures listed in Maintenance (page 37).

Checking the Interlock Switches

Service Interval: Before each use or daily

⚠ CAUTION

If safety interlock switches are disconnected or damaged, the machine could operate unexpectedly, causing personal injury.

- **Do not tamper with the interlock switches.**
- **Check the operation of the interlock switches daily and replace any damaged switches before operating the machine.**

Important: **If your machine fails any of the interlock switch checks, contact your authorized Toro distributor.**

Preparing the Machine

1. Drive the machine slowly to an open area.
2. Lower the cutting units, shut off the engine, and engage the parking brake.

Checking the Traction Pedal Start-Interlock

1. Sit in the operator's seat.
2. Engage the parking brake.
3. Press the PTO switch to the DISENGAGE position.
4. Press the traction pedal.
5. Rotate the key to the START position.

   Note: The starter should not crank the engine with the traction pedal pressed.

Checking the PTO-Start Interlock

1. Sit in the operator's seat.
2. Press the PTO switch to the ENGAGE position.
3. Start the engine.

   Note: The engine should not start with the PTO switch in the ENGAGE position.

Checking the PTO-Run Interlock

1. Sit in the operator's seat.
2. Press the PTO switch to the DISENGAGE position.
3. Start the engine.
4. Rise from the seat.
5. Press the PTO switch to the ENGAGE position.

   Note: The PTO should not run when you are out of the operator's seat.

Checking the Parking Brake and Traction Pedal Run-Interlock

1. Sit in the operator's seat.
2. Engage the parking brake.
3. Press the PTO switch to the DISENGAGE position.
4. Keep your foot off the traction pedal.
5. Start the engine.
6. Press the traction pedal.

   Note: The engine should shut off when the parking brake is engaged and the traction pedal is pressed.

During Operation

Breaking in the Machine

To ensure optimum performance of the parking-brake system, burnish (break in) the brakes before use. Set the forward traction speed to 4 mph to match the reverse traction speed. (All 8 spacers moved to the top of the mow-speed control.) With the engine at high idle, proceed forward with the mow-speed-control stop engaged and ride the brake for 15 seconds. Proceed backward at full reverse speed and ride the brake for 15 seconds. Repeat this 5 times, waiting 1 minute between each forward and reverse cycle to avoid overheating the brakes. An adjustment to the brakes may be required after break-in; refer to Adjusting the Parking Brakes (page 56).

Starting the Engine

Important: **You must bleed the fuel system before starting the engine if you are starting the engine for the first time, the engine has stopped due to lack of fuel, or you have performed maintenance on the fuel system; refer to Bleeding the Fuel System (page 47).**

1. Sit on the seat, keep your foot off the traction pedal so that it is in NEUTRAL, engage the parking brake, set the throttle to the FAST position, and ensure that the Enable/Disable switch is in the DISABLE position.
2. Turn the key to the ON/PREHEAT position.

   An automatic timer controls the glow plug preheat for 6 seconds.
3. After preheating the glow plugs, turn the key to the START position.

   Crank the engine for no longer than 15 seconds. Release the key when the engine starts. If additional preheating is required, turn the key to the OFF position and then to the ON/PREHEAT position. Repeat this process as required.
4. Run the engine at low idle speed until it warms up.

Shutting Off the Engine

1. Move all controls to NEUTRAL, engage the parking brake, move the throttle to the low idle position and allow the engine to reach low idle speed.

   Important: **Allow the engine to idle for 5 minutes before shutting it off after a full**

load operation. Failure to do so may lead to trouble on a turbocharged engine.

2. Turn the key to the OFF position and remove it from the switch.

Setting the Reel Speed

To achieve a consistent, high quality of cut and a uniform after-cut appearance, it is important that you set the reel speed to the proper setting. Adjust the reel speed as follows:

1. In the InfoCenter, under the settings menu, enter the blade count, mow speed and HOC to calculate the proper reel speed.
2. If further adjustments are required, in the settings menu, scroll down to the F Reel RPM, R Reel RPM or both.
3. Press the right button to change the reel speed value. As the speed setting is changed, the display will continue to show the calculated reel speed based on blade count, mow speed and HOC, but the new value will also be displayed.

   Note: You may need to increase or decrease the reel speed to compensate for varying turf conditions.

Adjusting the Lift-Arm Counterbalance

Rear Cutting Units

⚠ CAUTION

The springs are under tension and could cause personal injury.

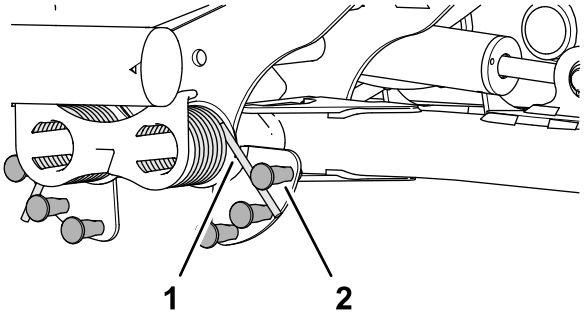
Use caution when adjusting the springs.

You can adjust the amount of counterbalance force applied to the rear cutting-units to help compensate for different turf conditions, and to maintain a uniform height of cut in rough conditions or in areas of thatch buildup.

You adjust counterbalance force of each torsion spring to 1 of 4 settings. Each increment increases or decreases the counterbalance force on the cutting unit by 2.3 kg (5 lb). You can position the springs at the back side of the first spring actuator to remove all counterbalance (fourth position).

Note: To remove all counterbalance force, position the long leg of the torsion spring above the shouldered stud.

1. Park the machine on a level surface, lower the cutting units, shut off the engine, engage the parking brake, and remove the key.
2. Insert the long end of the counterbalance spring into a tube or similar object, and pivot the spring around the shouldered stud to the desired position (Figure 50).



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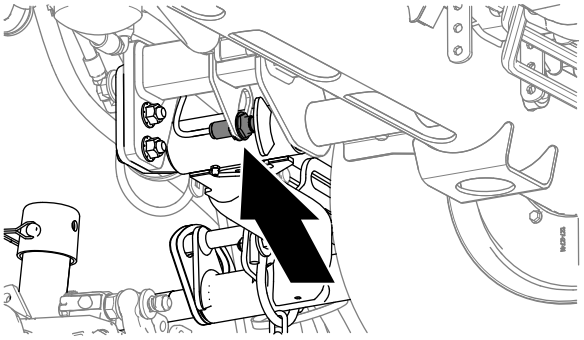
Figure 50

1. Spring
2. Shouldered stud

3. Repeat steps 1 and 2 at the other counterbalance spring.

Adjusting the Lift-Arm Turnaround Position

1. Park the machine on a level surface, lower the cutting units, shut off the engine, engage the parking brake, and remove the key.
2. The lift-arm switch is located underneath the hydraulic tank and inboard of the cutting unit #5 lift arm (Figure 51).



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Figure 51

3. Loosen the jam nut that secures lift-arm switch to the switch plate (Figure 52).

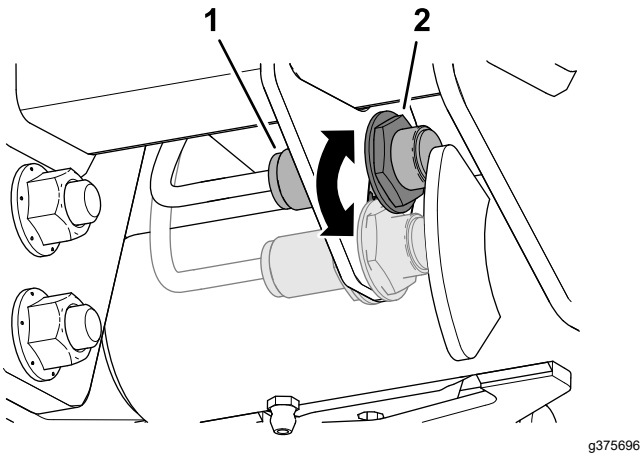


Figure 52

1. Switch
2. Lift-arm sensing device

4. Adjust the lift-arm switch as follows:
   - To increase the lift-arm turnaround height, move the switch down.
   - To decrease the lift-arm turnaround height, move the switch up.
5. Tighten the jam nut.

Adjusting the Turf-Compensation Spring

The turf-compensation spring (Figure 53) transfers the weight from the front roller to the rear roller. This helps to reduce a wave pattern in the turf, also known as marcelling or bobbing.

Important: **Make spring adjustments with the cutting unit mounted to the traction unit, pointing straight ahead, and lowered to the shop floor.**

1. Make sure that the hairpin is installed in the rear hole in the spring rod (Figure 53).

   Note: When servicing the cutting unit, move the hairpin to the spring-rod hole next to the turf-compensation spring.

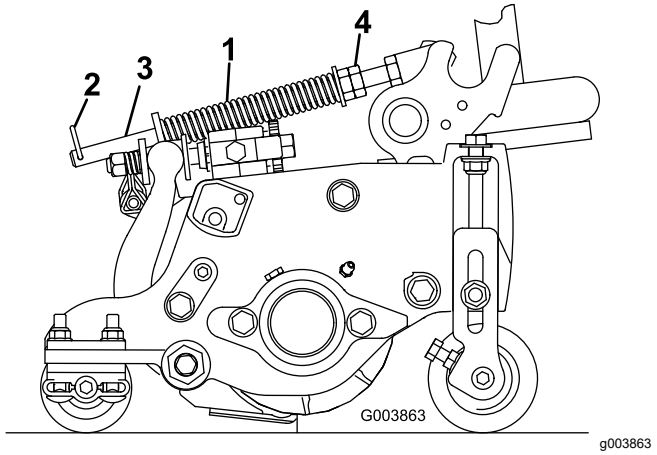


Figure 53

1. Turf-compensation spring
2. Hairpin
3. Spring rod
4. Hex nuts

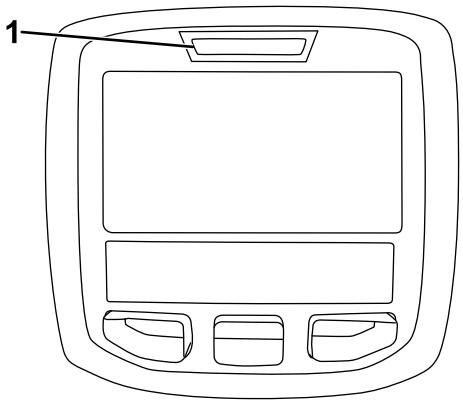
2. Tighten the hex nuts on the front end of the spring rod until the compressed length of the spring is 15.9 cm (6.25 inches); refer to Figure 53.

   Note: When operating on rough terrain decrease the spring length by 13 mm (1/2 inch). Ground following will be slightly decreased.

   Note: The turf compensation setting will need to be reset if the HOC setting or the Aggressiveness of Cut setting is changed.

Understanding the Diagnostic Light

The machine is equipped with a diagnostic light which indicates if the electronic controller senses an electronic malfunction. The diagnostic light is located on the control arm (Figure 54). When the machine is functioning properly and the key switch is moved to the ON/RUN position, the diagnostic light turns on briefly to indicate the light is working properly. When a machine advisory message is displayed, the light illuminates when the message is present. When a fault message is displayed, the light blinks until the fault is resolved.



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Figure 54

1. Diagnostic light

Operating Tips

Becoming Familiarized with the Machine

Before mowing grass, practice operating the machine in an open area. Start and shut off the engine. Operate in forward and reverse. Lower and raise the cutting units and engage and disengage the reels. When you feel familiar with the machine, practice operating up and down slopes at different speeds.

Understanding the Warning System

If a warning light comes on during operation, stop the machine immediately and correct the problem before continuing operation. Serious damage could occur if you operate the machine with a malfunction.

Mowing

Start the engine and move the engine-speed switch to the FAST position. Move the Enable/Disable switch to the ENABLE position and use the Lower Mow/Raise lever to control the cutting units (the front cutting units are timed to lower before the rear cutting units). To move forward and cut grass, press the traction pedal forward.

Transporting the Machine

Move the Enable/Disable switch to the DISABLE position and raise the cutting units to the TRANSPORT position. Move the Mow/Transport lever to the TRANSPORT position. Be careful when driving between objects so you do not accidentally damage the machine or cutting units. Use extra care when operating the machine on slopes. Drive slowly and avoid sharp turns on slopes to prevent rollovers. Lower the cutting units when going downhill for steering control.

After Operation

After Operation Safety

General Safety

- Park the machine on a level surface.
- Disengage and lower the cutting units.
- Engage the parking brake.
- Shut off the engine and remove the key.
- Wait for all movement to stop.
- Allow the machine to cool before adjusting, servicing, cleaning, or storing it.
- Clean grass and debris from the cutting units, drives, mufflers, cooling screens, and engine compartment to help prevent fires. Clean up oil or fuel spills.
- Disengage the drive to the attachment whenever you are hauling or not using the machine.
- Maintain and clean the seat belt(s) as necessary.
- Do not store the machine or fuel container where there is an open flame, spark, or pilot light, such as on a water heater or on other appliances.

Hauling the Machine

- Use full-width ramps for loading the machine onto a trailer or truck.
- Tie the machine down securely.

Identifying the Tie-Down Points

- Front—the hole in the rectangular pad, under the axle tube, inside each front tire (Figure 55)

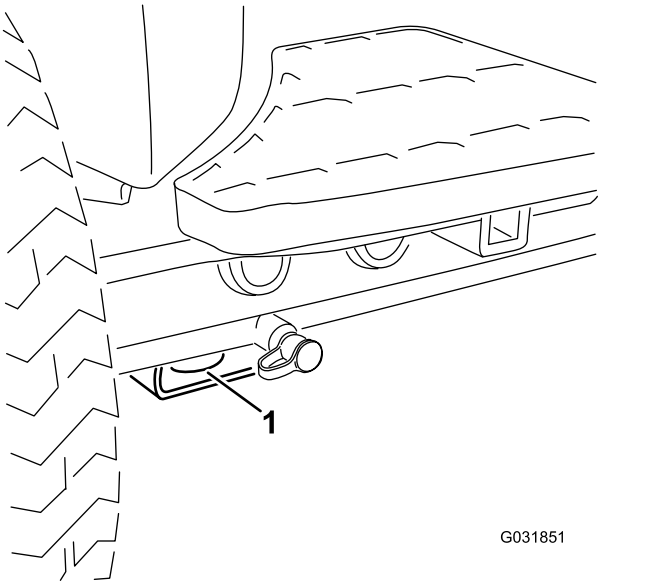


Figure 55

1. Front tie-down

- Rear—each side of the machine on the rear frame (Figure 56)

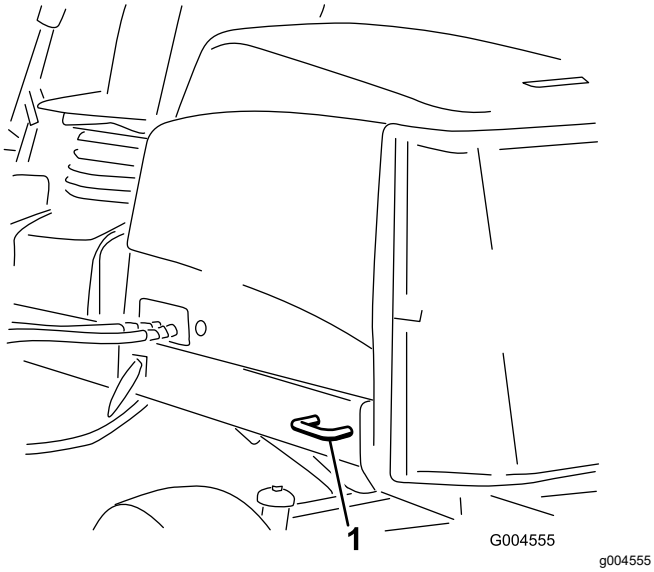


Figure 56

1. Rear tie-down

Pushing or Towing the Machine

In an emergency, the machine can be moved by actuating the bypass valve in the variable displacement hydraulic pump and pushing or towing the machine.

Important: **Do not push or tow the machine faster than 3 to 4.8 km/h (2 to 3 mph) because internal transmission damage may occur. The bypass valve must be open whenever you push or tow the machine.**

1. The bypass valve is located on the left side of the hydrostat (Figure 57). Rotate the bolt 1-1/2 turns to open and allow fluid to bypass internally.

   Note: You can now move the machine slowly without damaging the transmission.

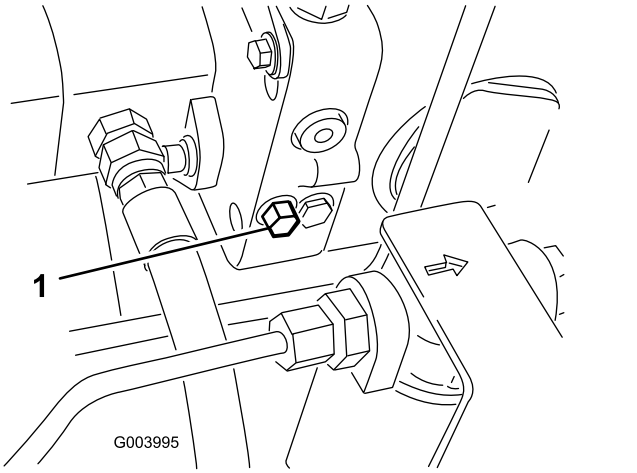


Figure 57

1. Bypass valve

2. Close the bypass valve before starting the engine. However, do not exceed 7 to 11 N·m. (5 to 8 ft-lb) torque to close the valve.

   Important: **Running the engine with the bypass valve open causes the transmission to overheat.**

Maintenance

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

Note: Download a free copy of the electrical or hydraulic schematic by visiting www.Toro.com and searching for your machine from the Manuals link on the home page.

Maintenance Safety

- Before you leave the operator's position, do the following:
  - Park the machine on a level surface.
  - Disengage and lower the cutting units.
  - Engage the parking brake.
  - Shut off the engine and remove the key.
  - Wait for all movement to stop.
  - Allow the machine to cool before adjusting, servicing, cleaning, or storing it.
- Allow machine components to cool before performing maintenance.
- If possible, do not perform maintenance while the engine is running. Keep away from moving parts.
- Support the machine with jack stands whenever you work under the machine.
- Carefully release pressure from components with stored energy.
- Keep all parts of the machine in good working condition and all hardware tightened.
- Replace all worn or damaged decals.
- To ensure safe, optimal performance of the machine, use only genuine Toro replacement parts. Replacement parts made by other manufacturers could be dangerous, and such use could void the product warranty.

Recommended Maintenance Schedule(s)

Maintenance Service Interval	Maintenance Procedure
After the first hour	• Torque the wheel lug nuts to 94 to 122 N·m (70 to 90 ft-lb).
After the first 10 hours	• Torque the wheel lug nuts to 94 to 122 N·m (70 to 90 ft-lb).
After the first 50 hours	• Change the engine oil and filter. • Check the engine speed (idle and full throttle).
Before each use or daily	• Inspect the seat belt(s) for wear, cuts, and other damage. Replace the seat belt(s) if any component does not operate properly. • Check the interlock switches. • Check the engine-oil level. • Drain water or other contaminants from the water separator. • Check the tire air pressure. • Check the coolant level. • Remove debris from the screen, oil coolers, and radiator. (More frequently in dirty operating conditions). • Check the hydraulic-fluid level. • Check the hydraulic lines and hoses. • Check the reel-to-bedknife contact. • Inspect the seat belt.
Every 50 hours	• Grease the bearings and bushings (and immediately after every washing). • Service the battery.
Every 100 hours	• Inspect the cooling system hoses. • Check the condition and tension of the alternator belt.
Every 150 hours	• Change the engine oil and filter.
Every 200 hours	• Drain moisture from the fuel and hydraulic fluid tanks.
Every 250 hours	• Torque the wheel lug nuts to 94 to 122 N·m (70 to 90 ft-lb).

Maintenance Service Interval	Maintenance Procedure
Every 400 hours	• Service the air cleaner. (Service the air cleaner earlier if the air-cleaner indicator shows red. Service it more frequently in extremely dirty or dusty conditions.) • Check the fuel lines and connections for deterioration, damage, or loose connections. • Change the fuel-water separator filter. • Check the engine speed (idle and full throttle).
Every 800 hours	• Drain and clean the fuel tank. • Check the rear wheel toe-in. • If you are not using the recommended hydraulic fluid or have ever filled the reservoir with an alternative fluid, replace the return-hydraulic filter and charge-hydraulic filter. • If you are not using the recommended hydraulic fluid or have ever filled the reservoir with an alternative fluid, change the hydraulic fluid. • Pack the rear wheel bearings (2 wheel drive machines only). • Adjust the engine valves (refer to the engine owner's manual).
Every 1,000 hours	• If you are using the recommended hydraulic fluid, replace the return-hydraulic filter and charge-hydraulic filter.
Every 2,000 hours	• If you are using the recommended hydraulic fluid, change the hydraulic fluid.
Before storage	• Drain and clean the fuel tank.
Every 2 years	• Flush and replace the cooling system fluid. • Replace the hydraulic hoses. • Replace the coolant hoses. • Flush and replace the coolant. • Replace all moving hoses.

Daily Maintenance Checklist

Duplicate this page for routine use.

Maintenance Check Item	For the week of: Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
Check the safety interlock operation.							
Check the brake operation.							
Check the engine oil and fuel level.							
Drain the water/fuel separator.							
Check the air filter restriction indicator.							
Check the radiator and screen for debris.							
Check unusual engine noises.[1]							
Check unusual operating noises.							
Check the hydraulic system fluid level.							
Check the hydraulic filter indicator. [2]							
Check hydraulic hoses for damage.							
Check for fluid leaks.							
Check the tire pressure.							
Check the instrument operation.							
Check the reel-to-bedknife adjustment.							
Check the height-of-cut adjustment.							
Check all grease fittings for lubrication.[3]							
Touch-up damaged paint.							
Wash the machine.							

1. Check the glow plug and injector nozzles if hard starting, excess smoke, or rough running is noted.
2. Check with the engine running and the oil at operating temperature
3. Immediately after every washing, regardless of the interval listed

Notation for Areas of Concern

Inspection performed by:

Item	Date	Information
1		
2		
3		
4		
5		
6		
7		
8		

Important: **Refer to your engine owner's manual and cutting unit *Operator's Manual* for additional maintenance procedures.**

Note: Download a free copy of the electrical or hydraulic schematic by visiting www.Toro.com and searching for your machine from the Manuals link on the home page.

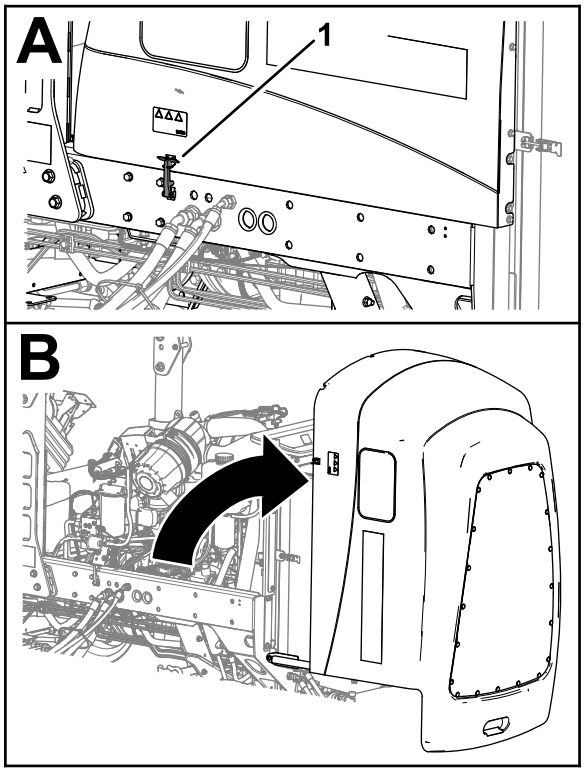
Pre-Maintenance Procedures

Preparing for Maintenance

1. Park the machine on a level surface, press the enable/disable switch to the DISENGAGE and position, lower the cutting units, and engage the parking brake.
2. Shut off the engine, remove the key, and wait for all moving parts to stop.
3. Wait for the engine to cool.

Opening the Hood

1. Release the 2 hood latches (Figure 58).



g369009

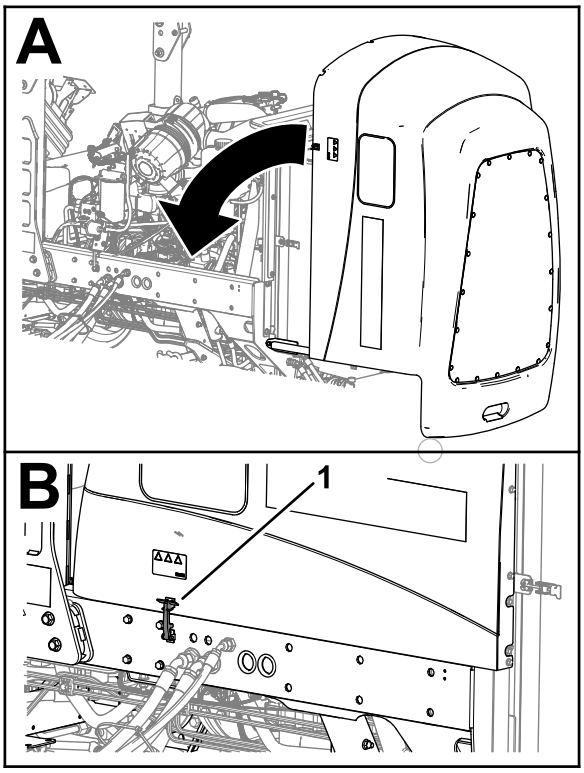
Figure 58

1. Hood latch (2)

2. Rotate open the hood.

Closing the Hood

1. Carefully rotate the hood closed (Figure 59).



g369219

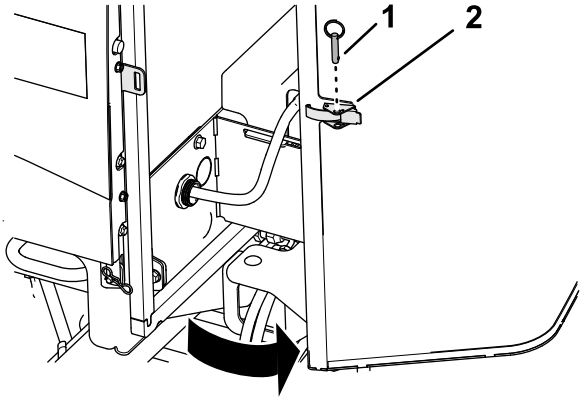
Figure 59

1. Hood latch (2)

2. Secure the hood with the 2 hood latches.

Opening the Screen

1. Remove the ball pin from the screen latch (Figure 60).



g378175

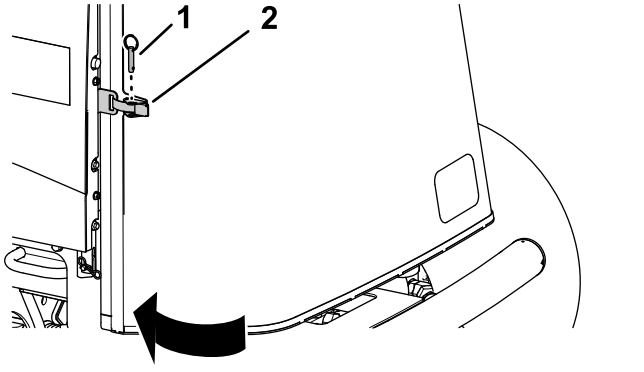
Figure 60

1. Ball pin
2. Screen latch

2. Unlatch and open the screen.

Closing the Screen

1. Close and latch the screen (Figure 61).



g378174

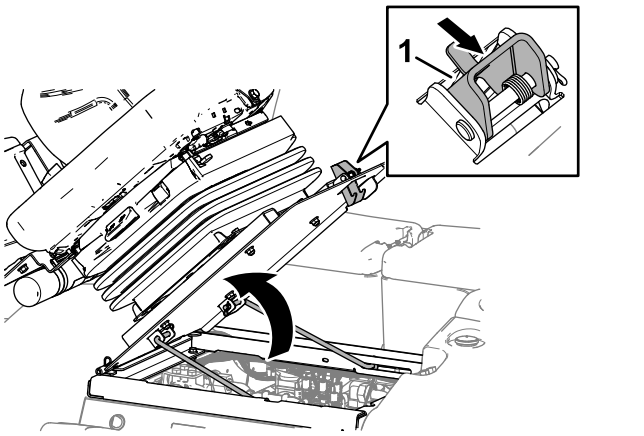
Figure 61

1. Ball pin
2. Screen latch

2. Insert the ball pin through the screen latch.

Tilting the Seat

1. Move the seat latch outward (Figure 62).

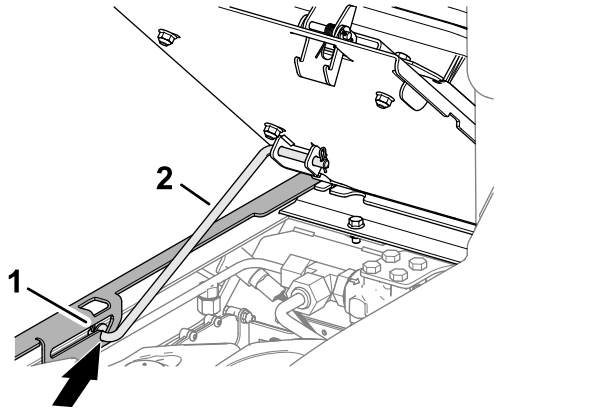


g369007

Figure 62

1. Seat latch

2. Carefully rotate the seat up.
3. Ensure that the forward prop rod seats in the slot detent of the rod-guide plate (Figure 63).



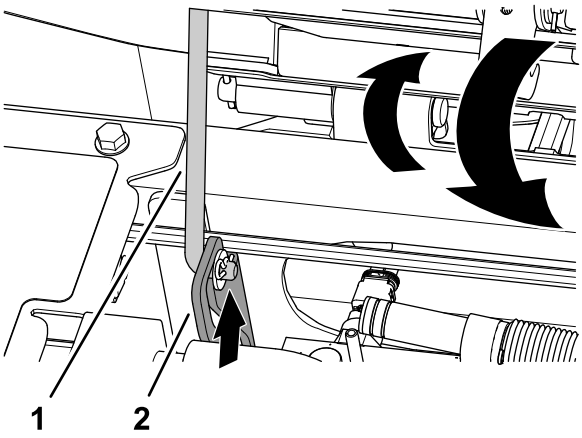
g369008

Figure 63

1. Prop rod
2. Rod-guide plate

Lowering the Seat

1. Rotate the seat slightly, and lift the prop rod out of the dent of the seat support slot (Figure 64).



g375779

Figure 64

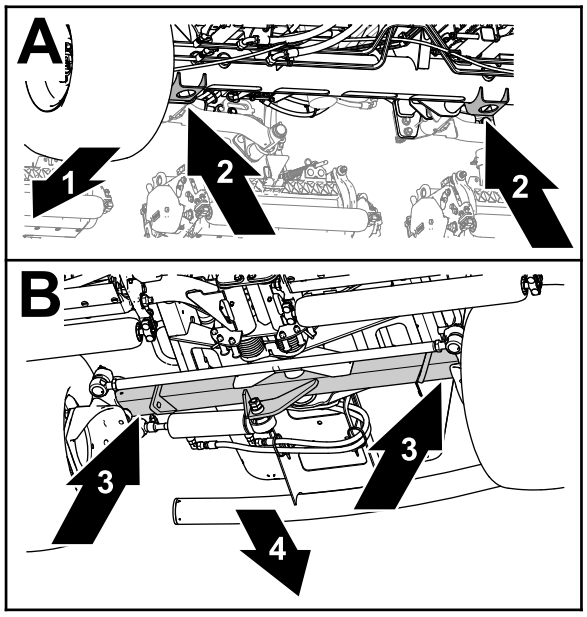
1. Prop rod
2. Rod-guide plate

2. Carefully lower the seat until it latches securely.

Jacking Point Locations

Note: Support the machine with jack stands whenever you work under the machine; refer to Jacking Point Locations (page 41).

Use the following as machine-lift points:



g375763

Figure 65

1. Front of the machine
2. Jack brackets (front-axle tube)
3. Rear-axle tube
4. Back of the machine

- Front—the jack brackets of the front-axle tube (Figure 65).
- Rear—the rear-axle tube.

Lubrication

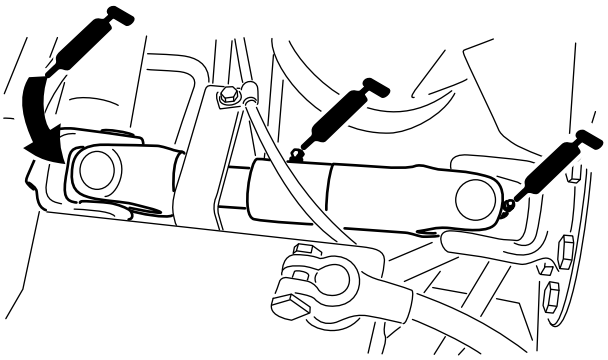
Greasing the Bearings and Bushings

Service Interval: Every 50 hours (and immediately after every washing).

Grease Specification: No. 2 lithium grease

1. Prepare the machine for maintenance; refer to Preparing for Maintenance (page 40).
2. Open the hood; refer to Opening the Hood (page 40).
3. The lubricate the machine at the fittings at the locations as follows:
   - Pump-driveshaft U-joint (3) (Figure 66)

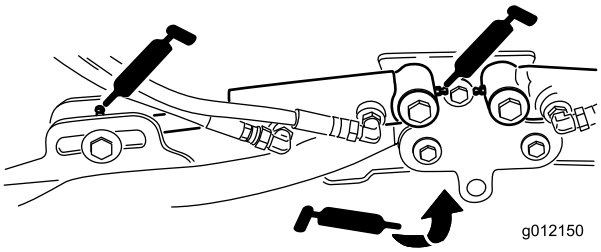
     Note: The pump-driveshaft is located Under the hood.



g003962

Figure 66

   - Cutting-unit lift-arm cylinders (2 each) (Figure 67)



g012150

g012150

Figure 67

- Lift-arm pivots (1 each) (Figure 67)
- Cutting-unit carrier-frame and pivot (2 each) (Figure 68)

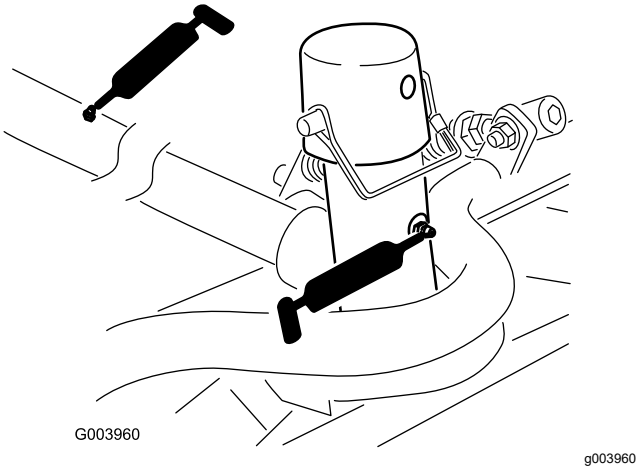


Figure 68

- Lift-arm pivot shaft (1 each) (Figure 69)

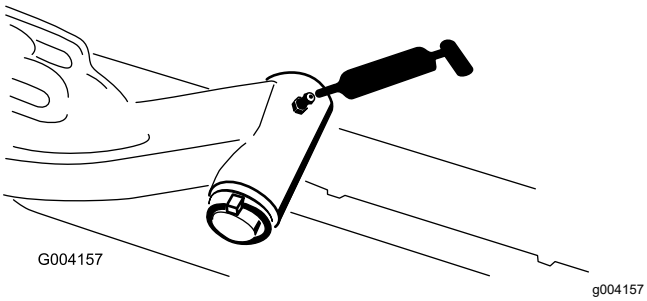


Figure 69

- Rear axle tie rod (2) (Figure 70)

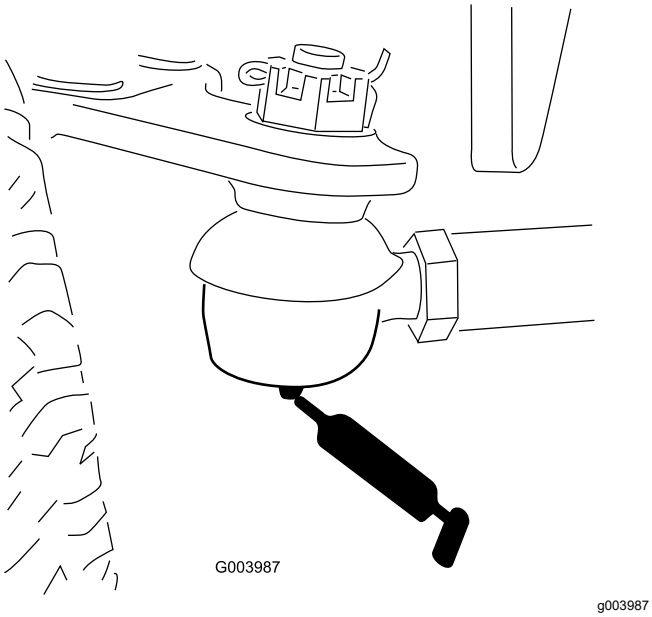


Figure 70

- Axle-steering pivot (1) (Figure 71)

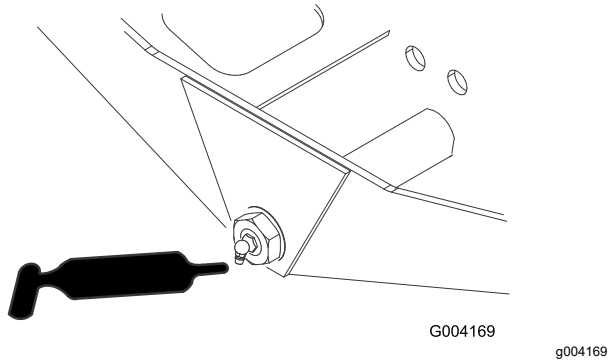


Figure 71

- Steering-cylinder ball joints (2) (Figure 72)

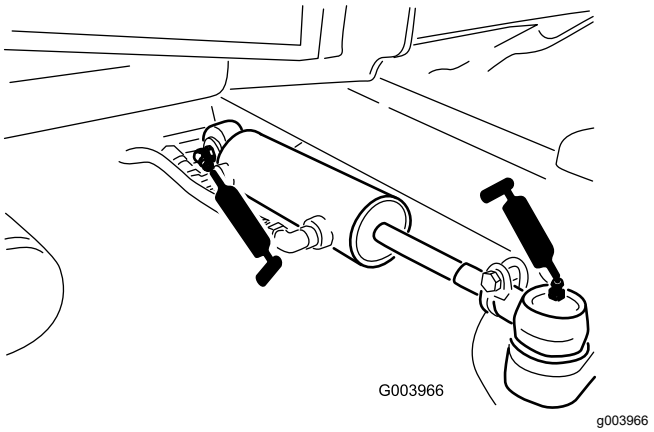


Figure 72

- Brake pedal (1) (Figure 73)

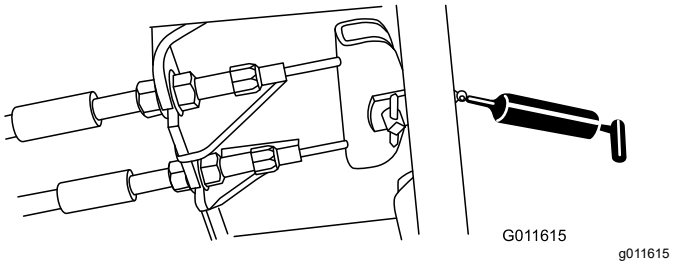


Figure 73

4. Close and latch the hood; refer to Closing the Hood (page 40).

Engine Maintenance

Engine Safety

- Shut off the engine before checking the oil or adding oil to the crankcase.
- Do not change the governor speed or overspeed the engine.

Servicing the Air Cleaner

Check the air-cleaner body for damage that could cause an air leak. Replace it if it is damaged. Check the whole intake system for leaks, damage, or loose hose clamps.

Service the air cleaner filter only when the service indicator (Figure 74) requires it. Changing the air filter before it is necessary only increases the chance of dirt entering the engine when the filter is removed.

Important: **Be sure that the cover is seated correctly and that it seals with the air-cleaner body.**

1. Release the latches securing the air-cleaner cover to the air-cleaner body (Figure 74).

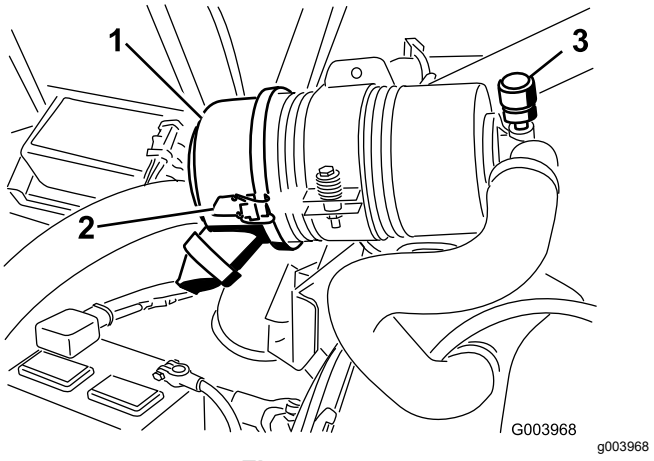


Figure 74

1. Air-cleaner cover
2. Air-cleaner-cover latch
3. Air-cleaner service indicator

2. Remove the cover from the air cleaner body. Before removing the filter, use low pressure air (40 psi, clean and dry) to help remove large accumulations of debris packed between outside of the filter and the canister. **Avoid using high pressure air which could force dirt through the filter into the intake tract.**

   This cleaning process prevents debris from migrating into the intake when the filter is removed.
3. Remove and replace the filter (Figure 75).

   Cleaning of the used element is not recommended due to the possibility of damage to the filter media. Inspect the new filter for shipping damage, checking the sealing end of the filter and the body. **Do not use a damaged element.** Insert the new filter by applying pressure to the outer rim of the element to seat it in the canister. **Do not apply pressure to the flexible center of the filter.**

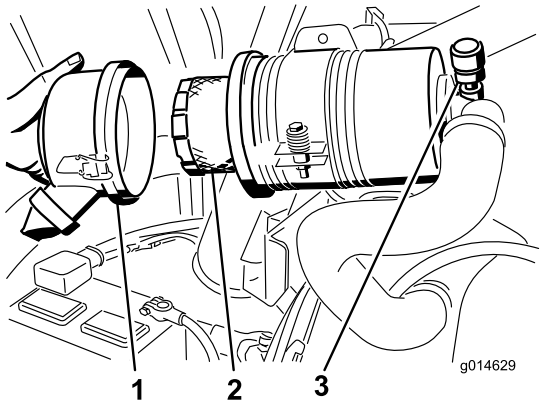


Figure 75

1. Air-cleaner cover
2. Air-cleaner filter
3. Air-cleaner indicator

4. Clean the dirt-ejection port located in the removable cover. Remove the rubber outlet valve from the cover, clean the cavity and replace the outlet valve.
5. Install the cover orienting the rubber outlet valve in a downward position—between approximately 5 o'clock to 7 o'clock when viewed from the end.
6. Secure the latches.

Checking the Engine-Oil Level

The engine is shipped with oil in the crankcase; however, check the oil level before and after you first start the engine.

Crankcase capacity is approximately 5.2 L (5.5 US qt) with the filter.

Use high-quality engine oil that meets the following specifications:

- API Classification Level Required: CH-4, CI-4 or higher
- Preferred oil: SAE 15W-40 (above 0 degrees F)
- Alternate oil: SAE 10W-30 or 5W-30 (all temperatures)

Toro Premium Engine oil is available from your distributor in either 15W-40 or 10W-30 viscosity.

1. Park the machine on a level surface, shut off the engine, set the parking brake, and remove the key from the ignition switch.
2. Open the hood.
3. Remove the dipstick, wipe it clean, and install it (Figure 76).

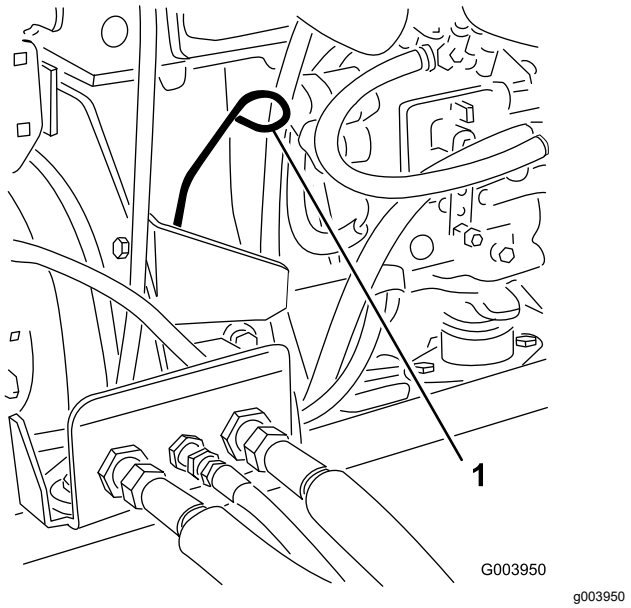


Figure 76

1. Dipstick

4. Remove the dipstick and check the oil level on the dipstick.

   Note: The oil level should be up to the Full mark.
5. If the oil level is below the Full mark, remove the fill cap (Figure 77), and add oil until the level reaches the Full mark on dipstick.

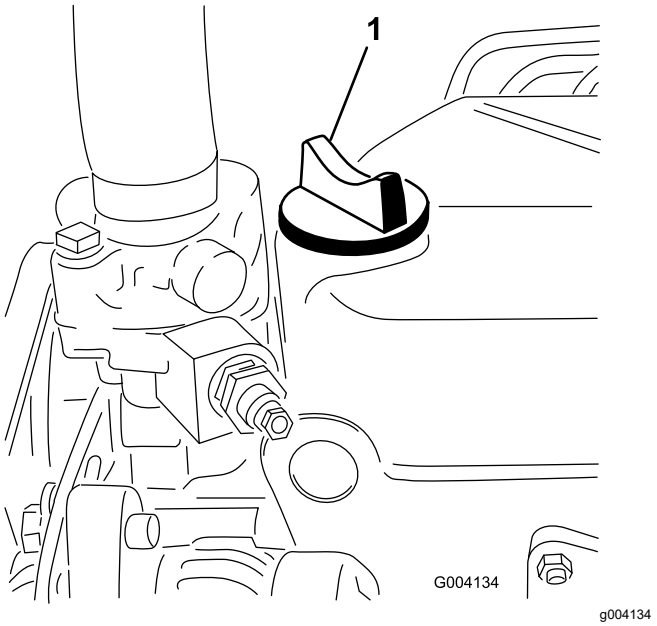


Figure 77

1. Oil-fill cap

Important: **Do not overfill. Be sure to keep the engine-oil level between the upper and lower limits on the oil gauge. Engine failure may occur as a result of over filling or under filling the engine oil.**

6. Install the oil-fill cap and close the hood.

Servicing the Engine Oil and Filter

Change the engine oil and filter initially after the first 50 hours of operation and every 150 hours thereafter.

1. Remove the drain plug (Figure 78) and let the oil flow into a drain pan.

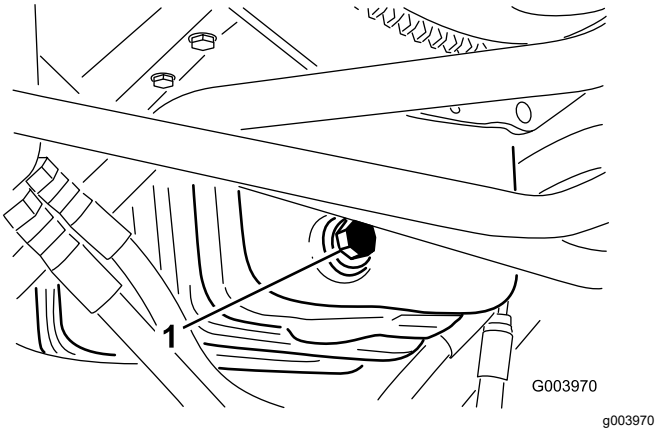


Figure 78

1. Oil drain plug

2. When the oil stops, install the drain plug.

3. Remove the oil filter (Figure 79).

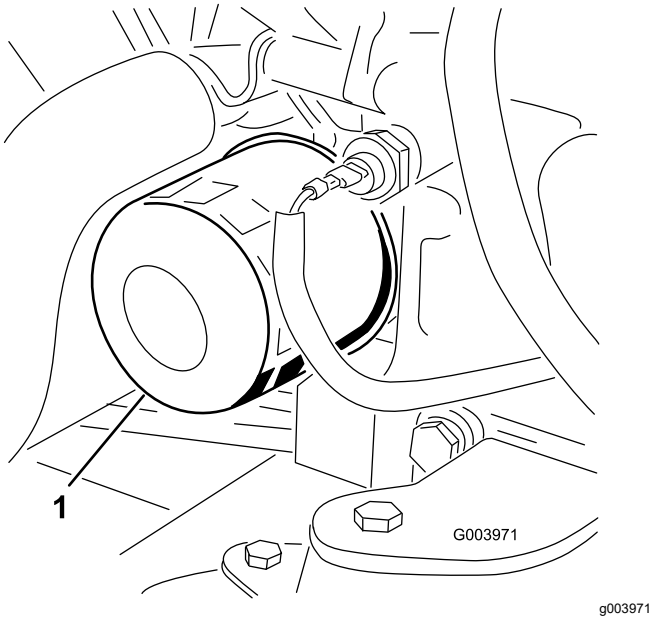


Figure 79

1. Oil filter

4. Apply a light coat of clean oil to the new filter seal.
5. Install the replacement oil filter to the filter adapter. Turn the oil filter clockwise until the rubber gasket contacts the filter adapter, then tighten the filter an additional 1/2 turn.

   Important: **Do not over-tighten the filter.**
6. Add oil to the crankcase; refer to Checking the Engine-Oil Level (page 44).

Fuel System Maintenance

⚠ DANGER

Under certain conditions, diesel fuel and fuel vapors are highly flammable and explosive. A fire or explosion from fuel can burn you and others and can cause property damage.

- **Use a funnel and fill the fuel tank outdoors, in an open area, when the engine is off and is cold. Wipe up any fuel that spills.**
- **Do not fill the fuel tank completely full. Add fuel to the fuel tank until the level is 6 to 13 mm (1/4 to 1/2 inch) below the bottom of the filler neck. This empty space in the tank allows the fuel to expand.**
- **Never smoke when handling fuel, and stay away from an open flame or where fuel fumes may be ignited by a spark.**
- **Store fuel in a clean, safety-approved container and keep the cap in place.**

Draining the Fuel-Water Separator

Service Interval: Before each use or daily—Drain water or other contaminants from the water separator.

1. Prepare the machine for maintenance; refer to Preparing for Maintenance (page 40).
2. Open the hood; refer to Opening the Hood (page 40).
3. Place a drain pan under the fuel-water separator filter (Figure 80).

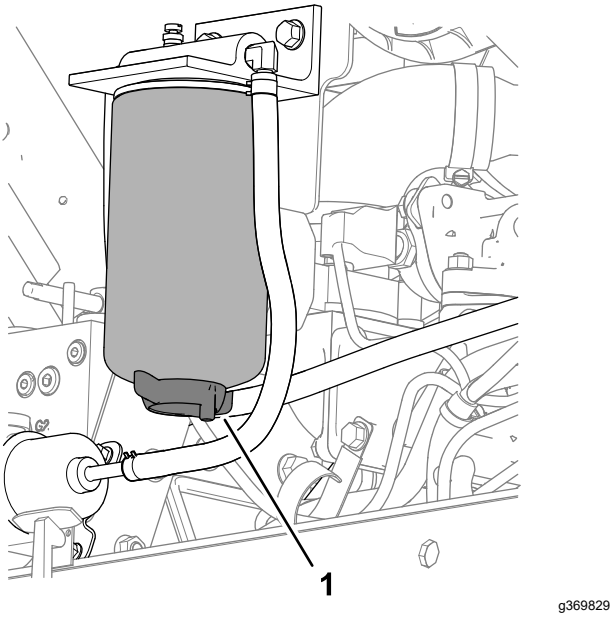


Figure 80

1. Drain valve (fuel-water separator filter)

4. Loosen the drain valve at the bottom of the fuel-water separator filter, and allow the fuel and water to drain.
5. Close the drain valve at the bottom of the fuel-water separator filter.
6. Close and latch the hood; refer to Closing the Hood (page 40).

Bleeding the Fuel System

1. Prepare the machine for maintenance; refer to Preparing for Maintenance (page 40).
2. Ensure that the fuel tank is at least half full.
3. Open the hood; refer to Opening the Hood (page 40).
4. Open the air-bleed screw on the fuel-injection pump (Figure 81).

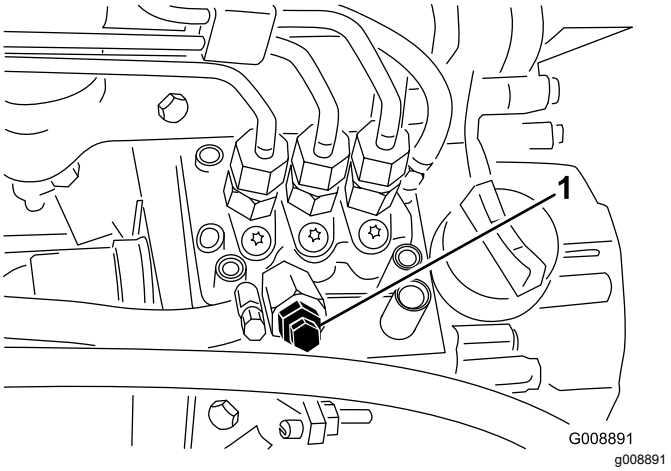


Figure 81

1. Fuel-injection pump bleed screw

5. Turn the key in the ignition switch to the ON position.

   The electric fuel pump runs, forcing air out around the air-bleed screw.

   Note: Leave the key in the ON position until a solid stream of fuel flows out around the screw.
6. Tighten the screw and turn the ignition key to OFF.
7. Close and latch the hood; refer to Closing the Hood (page 40).

Checking the Fuel Lines and Connections

Service Interval: Every 400 hours/Yearly (whichever comes first)

Park the machine on a level surface, lower the cutting units, engage the parking brake, shut off the engine, and remove the key.

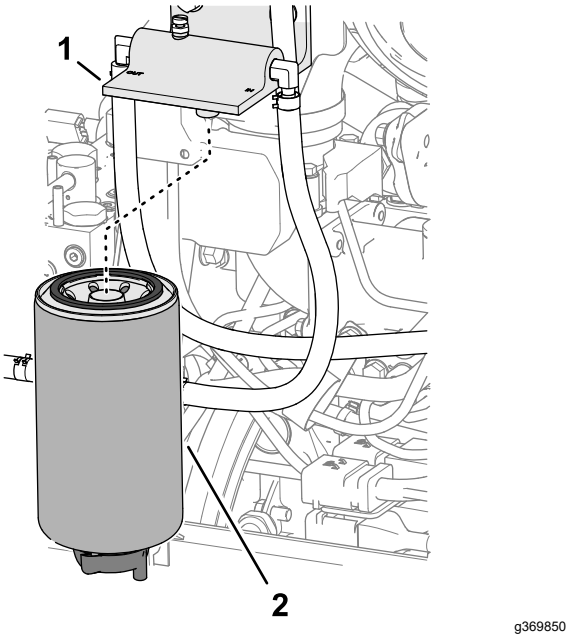
1. Prepare the machine for maintenance; refer to Preparing for Maintenance (page 40).
2. Open the hood; refer to Opening the Hood (page 40).
3. Inspect the fuel lines for wear, deterioration, damage, or loose fittings.

   Note: Repair or replace any worn or damaged fuel lines; tighten any loose fittings.
4. Close and latch the hood; refer to Closing the Hood (page 40).

Changing the Fuel-Water Separator Filter

Service Interval: Every 400 hours

1. Drain the fuel-water separator; refer to steps 1 through 4 in Draining the Fuel-Water Separator (page 47).
2. Clean the fuel-water separator filter and filter head (Figure 82).



g369850

Figure 82

1. Filter head
2. Fuel-water separator filter

3. Remove the separator filter from the filter head.
4. Clean the filter-mounting surface of the filter head.
5. Apply a coat of clean fuel to the gasket of the new separator filter.
6. Thread the separator filter into the filter head until the gasket contacts mounting surface, then rotate the filter an additional 1/2 turn.
7. Check that the drain valve at the bottom of the fuel-water separator filter is closed.
8. Start the engine and check for fuel leaks around the separator filter and filter head.
9. Shutoff the engine, remove the key, close and latch the hood; refer to Closing the Hood (page 40).

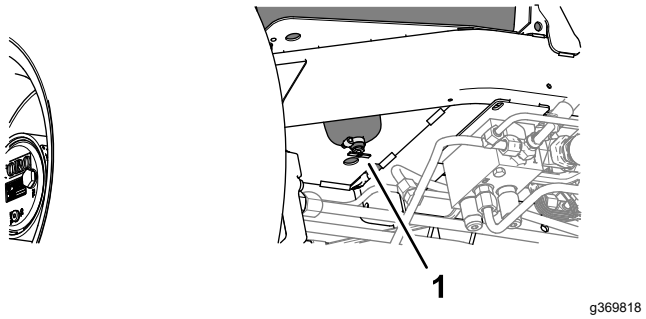
Draining and Cleaning the Fuel Tank

Service Interval: Every 800 hours

Before storage

Drain and clean the fuel tank if the fuel system becomes contaminated or if the machine is to be stored for an extended period. Use clean fuel to flush out the tank.

1. Prepare the machine for maintenance; refer to Preparing for Maintenance (page 40).
2. Align a drain container under the drain valve at the bottom of the fuel tank (Figure 83).



g369818

Figure 83

1. Drain valve (bottom of the fuel tank)

3. Open the drain valve and allow the fuel to drain.
4. If needed, add clean fuel to the fuel tank to flush it out.
5. Close the drain valve.

   Note: When you add fuel to the tank, check the drain valve for leaks.

Cleaning the Fuel-Intake Screen

Park the machine on a level surface, lower the cutting units, engage the parking brake, shut off the engine, and remove the key.

The fuel-intake tube, located inside the fuel tank, is equipped with a screen to help prevent debris from entering the fuel system. Remove the fuel-intake tube and clean the screen as required.

1. Prepare the machine for maintenance; refer to Preparing for Maintenance (page 40).
2. Tilt the seat; refer to Tilting the Seat (page 41).
3. Remove the clamp that secures the hose to the fuel pick-up tube (Figure 84).

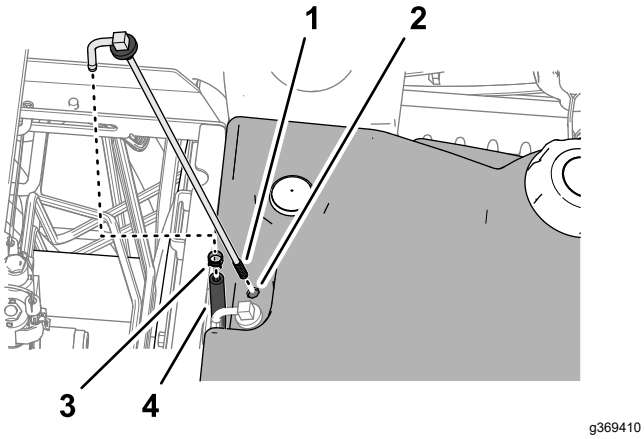


Figure 84

1. Screen (fuel pick-up tube)
2. Fuel tank
3. Hose clamp
4. Hose

4. Remove the fuel pick-up tube and rubber bushing from the tank.
5. Clean the screen at the end of the fuel pick-up tube (Figure 84).
6. Insert the fuel pick-up tube and rubber bushing into the tank until the bushing is seated into the tank.
7. Assemble the hose onto the fuel pick-up tube and secure it with the clamp.
8. Lower and latch the seat; refer to Lowering the Seat (page 41).

Electrical System Maintenance

Electrical System Safety

- Disconnect the battery before repairing the machine. Disconnect the negative terminal first and the positive last. Connect the positive terminal first and the negative last.
- Charge the battery in an open, well-ventilated area, away from sparks and flames. Unplug the charger before connecting or disconnecting the battery. Wear protective clothing and use insulated tools.

Disconnecting the Battery

⚠ DANGER

Battery electrolyte contains sulfuric acid, which is fatal if consumed and causes severe burns.

- **Do not drink electrolyte and avoid contact with skin, eyes, or clothing. Wear safety glasses to shield your eyes and rubber gloves to protect your hands.**
- **Fill the battery where clean water is always available for flushing the skin.**

1. Prepare the machine for maintenance; refer to Preparing for Maintenance (page 40).
2. Open the screen; refer to Opening the Screen (page 40).
3. Press the sides of the battery cover, and remove the cover from the battery tray (Figure 85).

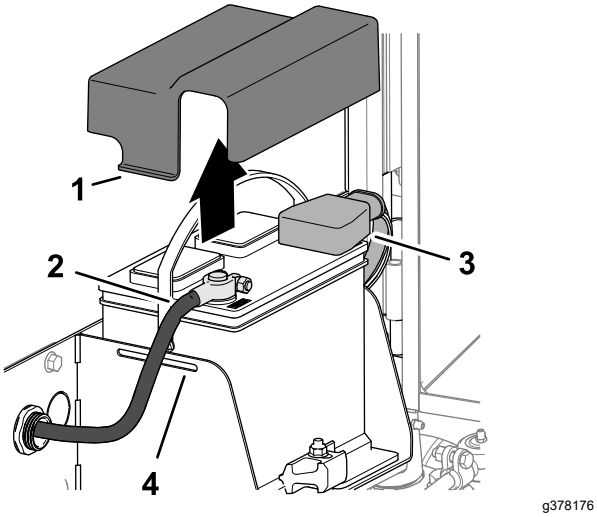


Figure 85

1. Tab (battery cover)
2. Negative battery cable
3. Insulator cover (positive battery cable)
4. Slot (battery tray)

4. Disconnect the negative battery cable.
5. Slide the insulator cover off the positive battery-cable clamp, and disconnect the positive battery cable.

Connecting the Battery

1. Install the positive battery cable (red) to the positive (+) battery post (Figure 86).

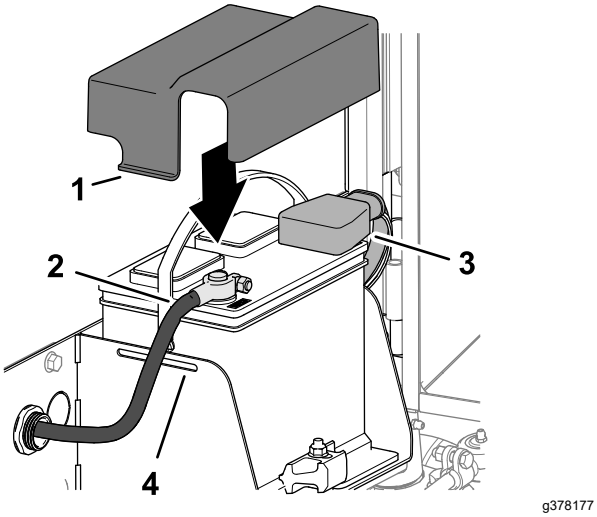


Figure 86

1. Tab (battery cover)
2. Negative battery cable
3. Insulator cover (positive battery cable)
4. Slot (battery tray)

2. Install the negative battery cable (black) to the negative (-) battery post.
3. Apply a coat of Grafo 112X (skin-over) grease, Toro Part No. 505-47 to the battery posts and battery-cable clamps.
4. Slide the rubber boot over the positive battery-cable clamp.
5. Assemble the cover over the battery, inserting the tabs of the cover into the slots in the battery tray.
6. Close and latch the screen; refer to Closing the Screen (page 40).

Charging the Battery

1. Disconnect the battery; refer to Disconnecting the Battery (page 49).
2. Connect a 3 to 4 A battery charger to the battery posts.
3. Charge the battery at a rate of 3 to 4 A for 4 to 8 hours.
4. When the battery is charged, disconnect the charger from the electrical outlet and battery posts.
5. Connect the battery; refer to Connecting the Battery (page 50).

Servicing the Battery

Service Interval: Every 50 hours

Note: Keep the terminals and the entire battery case clean because a dirty battery will discharge slowly.

1. Prepare the machine for maintenance; refer to Preparing for Maintenance (page 40).
2. Open the screen; refer to Opening the Screen (page 40).
3. Check the condition of the battery.

   Note: Replace a worn or damaged battery.
4. Disconnect the battery cables, and remove the battery from the machine; refer to Disconnecting the Battery (page 49).
5. Clean the entire battery case with a solution of sodium bicarbonate (baking soda) and water.
6. Rinse the case with clean water.
7. Assemble the battery to the machine and connect the battery cables; refer to Connecting the Battery (page 50).
8. Close and latch the screen; refer to Closing the Screen (page 40).

Replacing a Fuse-Block Fuse

The fuse block is in the control arm.

1. Prepare the machine for maintenance; refer to Preparing for Maintenance (page 40).
2. Open the 2 latches that secure control-arm cove to the control arm, and remove the cover (Figure 87).

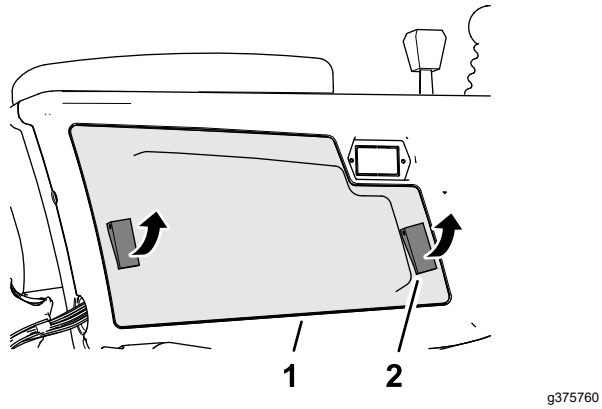


Figure 87

1. Control-arm cover
2. Latch

3. Replace the open fuse (Figure 88) with the same fuse type and amperage rating.

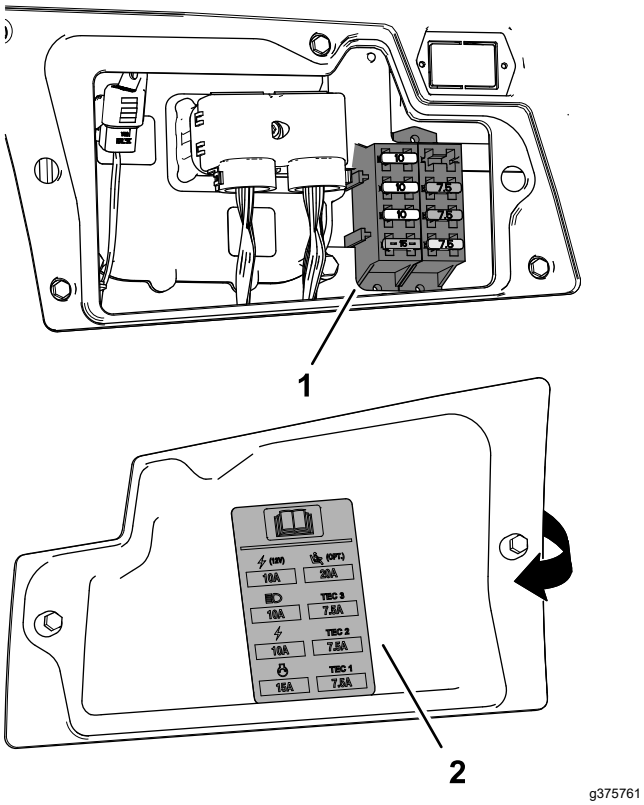


Figure 88

1. Fuse block
2. Fuse decal (inside the control-arm cover)

4. Assemble the control-arm cover to the control arm, and secure the cover with the 2 latches.

Replacing the Telematic Fuse

1. Prepare the machine for maintenance; refer to Preparing for Maintenance (page 40).
2. Unlatch and tilt seat; refer to Tilting the Seat (page 41).
3. Remove the cap from the in-line fuse holder labeled 10 A FUSE TELEMATIC PWR (Figure 89).

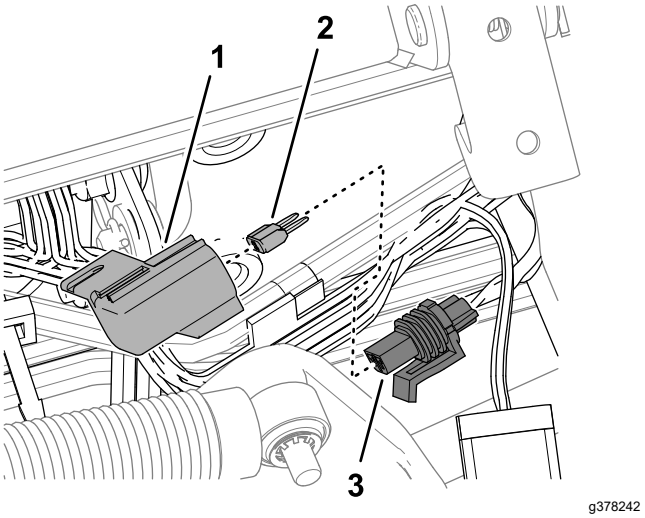


Figure 89

1. Cap
2. Fuse
3. Fuse holder (labeled 10 A FUSE TELEMATIC PWR)

4. Remove the fuse from the fuse holder.
5. Insert a fuse of the same type and amperage.
6. Assemble the cap onto the in-line fuse holder.
7. Lower and latch the seat; refer to Lowering the Seat (page 41).

Drive System Maintenance

Checking the Tire Air Pressure

Service Interval: Before each use or daily

Important: **Maintain the recommended pressure in all tires to ensure a good quality of cut and proper machine performance. Do not underinflate the tires.**

1. Prepare the machine for maintenance; refer to Preparing for Maintenance (page 40).
2. Measure the tire air pressure.

   Note: The correct air pressure in the tires is 83 to 103 kPa (12 to 15 psi).
3. If needed add air to or remove air from the tire.
4. Repeat steps 2 and 3 at the other tires.

Checking the Torque of the Wheel Nuts

Service Interval: After the first hour

After the first 10 hours

Every 250 hours

⚠ WARNING

Failure to maintain proper torque of the wheel nuts could result in personal injury.

Maintain the proper torque on the wheel nuts.

1. Prepare the machine for maintenance; refer to Preparing for Maintenance (page 40).
2. Torque the wheel nuts to 94 to 122 N·m (70 to 90 ft-lb).

Adjusting the Traction Drive for Neutral

Important: **The machine must not move when the traction pedal is released (in the NEUTRAL position). If the machine moves, adjust traction pump as follows:**

1. Prepare the machine for maintenance; refer to Preparing for Maintenance (page 40).
2. Jack up the front of the machine until the both front tires are off the ground, and support the machine with jack stands, refer to Jacking Point Locations (page 41) and Specifications (page 30).
3. From the bottom of the machine and at the right side of the traction pump, loosen the locknut that secures the neutral return-adjustment screw (Figure 90).

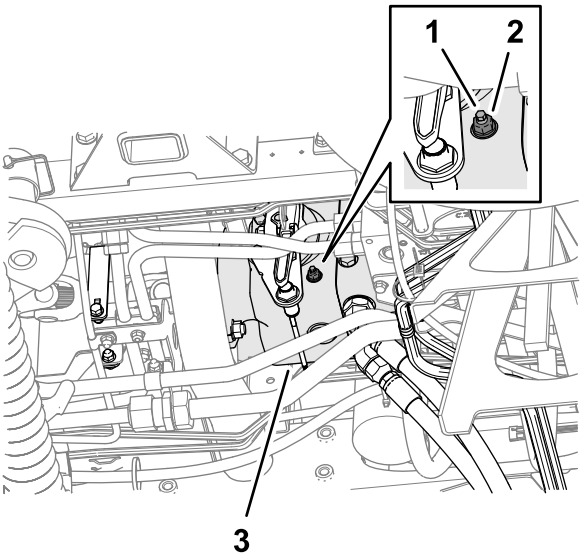


Figure 90

1. Neutral return-adjustment screw
2. Locknut
3. Traction pump

⚠ WARNING

The engine must be running so the final adjustment of the traction adjustment cam can be performed. This could cause personal injury.

Keep hands, feet, face, and other body parts away from the muffler, other hot parts of the engine, and any rotating parts.

4. Start the engine and release the parking brake.
5. Rotate the neutral return-adjustment screw in either direction until the wheels stop rotating.
6. Torque the locknut to 22 N·m (16 ft-lb).
7. Shut off the engine and remove the key.
8. Remove the jack stands, and lower the machine to the ground.
9. Test drive the machine to ensure that it does not move when the traction pedal is in the NEUTRAL position.

Checking the Rear-Wheel Alignment

Service Interval: Every 800 hours—Check the rear wheel toe-in.

1. Rotate the steering wheel to position the rear wheels straight ahead.
2. Prepare the machine for maintenance; refer to Preparing for Maintenance (page 40).
3. At axle height, measure the center-to-center distance at the front and rear of the steering tires.

   Note: The rear wheel toe-in adjustment is correct if the difference between the front wheel measurement and the rear wheel measurement is 6 mm (1/4 inch) or less. (Figure 91).

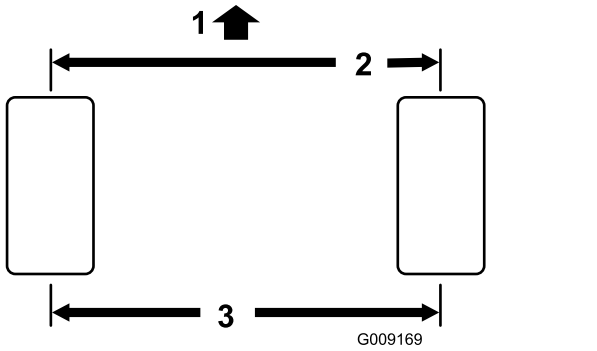


Figure 91

1. Front of the traction unit
2. 6 mm (1/4 inch) or less than the rear of the tire
3. Center-to-center distance

4. If the measurement is greater than 6 mm (1/4 inch), adjust the rear wheel toe-in; refer to Adjusting the Rear Wheel Toe-in (page 53).

Adjusting the Rear Wheel Toe-in

1. Loosen the jam nut on each end of the tie rod (Figure 92).

   Note: The end of the tie rod with the external groove is a left-hand thread.

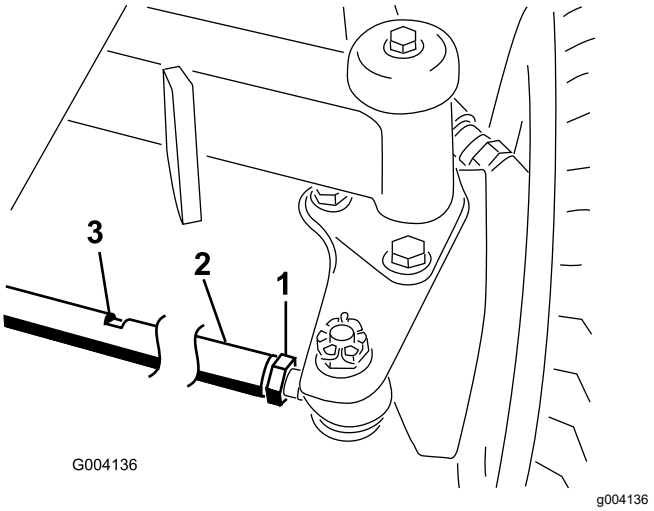


Figure 92

1. Jam nut
2. Tie rod
3. Wrench flat

2. Using the wrench flat to rotate the tie rod.
3. At axle height, measure the center-to-center distance at the front and rear of the steering tires.

   Note: The rear wheel toe-in adjustment is correct if the difference between the front wheel measurement and the rear wheel measurement is 6 mm (1/4 inch) or less.

4. Repeat steps 2 and 3 as required.
5. Tighten the jam nuts.

Cooling System Maintenance

Cooling System Safety

- Swallowing engine coolant can cause poisoning; keep out of reach from children and pets.
- Discharge of hot, pressurized coolant or touching a hot radiator and surrounding parts can cause severe burns.
  - Always allow the engine to cool at least 15 minutes before removing the radiator cap.
  - Use a rag when opening the radiator cap, and open the cap slowly to allow steam to escape.

Coolant Specification

The coolant reservoir is filled at the factory with a 50/50 solution of water and ethylene glycol base extended-life coolant.

Important: **Use only commercially available coolants that meet the specifications listed in the Extended Life Coolant Standards Table.**

Do not use conventional (green) inorganic-acid technology (IAT) coolant in your machine. Do not mix conventional coolant with extended-life coolant.

Coolant Type Table

Ethylene-Glycol Coolant Type	Corrosion Inhibitor Type
Extended-life antifreeze	Organic-acid technology (OAT)
Important: **Do not rely on the color of the coolant to identify the difference between conventional (green) inorganic-acid technology (IAT) coolant and extended-life coolant.** **Coolant manufacturers may dye extended-life coolant in one of the following colors: red, pink, orange, yellow, blue, teal, violet, and green. Use coolant that meets the specifications in the Extended Life Coolant Standards Table.**	

Extended Life Coolant Standards

ATSM International	SAE International
D3306 and D4985	J1034, J814, and 1941

Important: **Coolant concentration should be a 50/50 mixture of coolant to water.**

- **Preferred:** When mixing coolant from a concentrate, mix it with distilled water.
- **Preferred option:** If distilled water is not available, use a pre-mix coolant instead of a concentrate.
- **Minimum requirement:** If distilled water and pre-mix coolant are not available, mix concentrated coolant with clean drinkable water.

Checking the Coolant Level

⚠ CAUTION

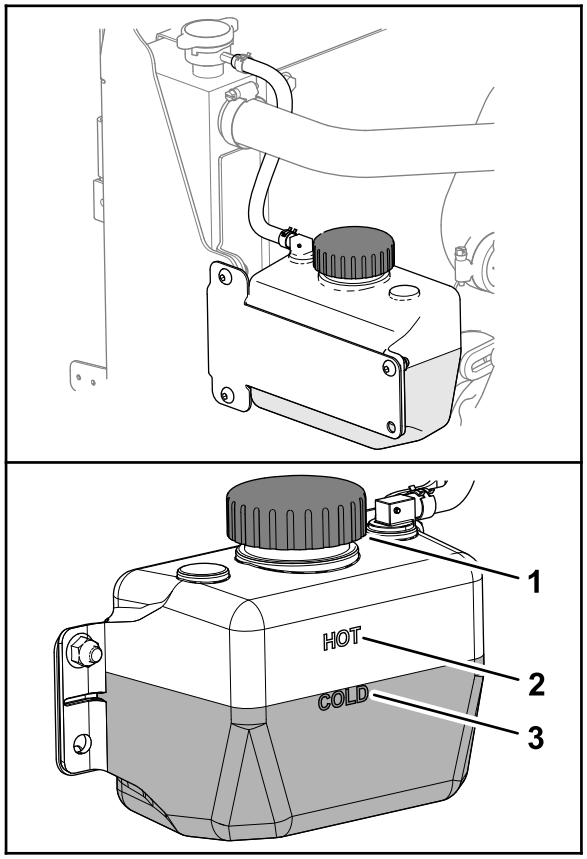
If the engine has been running, the pressurized, hot coolant can escape and cause burns.

- **Do not open the radiator cap when the engine is running.**
- **Use a rag when opening the radiator cap, and open the cap slowly to allow steam to escape.**

Coolant Capacity: 9.5 L (10.0 US qt)

1. Prepare the machine for maintenance; refer to Preparing for Maintenance (page 40).
2. Open the hood; refer to Opening the Hood (page 40).
3. Check the level of coolant in the reservoir (Figure 93).

   Note: The coolant level is correct if it is cold mark on the side of the tank when the engine is cold, and the hot mark when the engine is hot.



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Figure 93

1. Cap (coolant reservoir)
2. Hot engine-coolant mark
3. Cold engine-coolant mark

4. If the coolant level is low, remove the coolant-reservoir cap and add the specified coolant until the level it is at the cold mark (for a cold engine) or hot mark (for a hot engine).

   Note: Do not overfill the expansion tank with coolant.
5. Install the coolant-reservoir cap.
6. Close and latch the hood; refer to Closing the Hood (page 40).

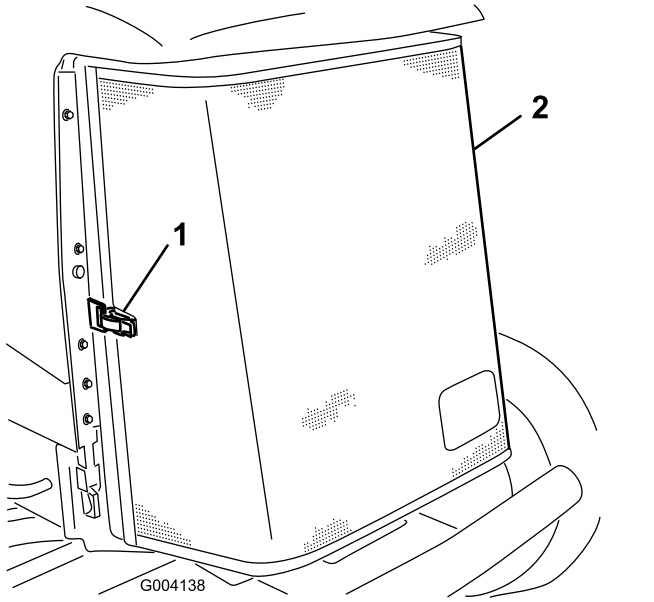
Removing Debris from the Cooling System

Service Interval: Before each use or daily (More frequently in dirty operating conditions).

Every 100 hours—Inspect the cooling system hoses.

Every 2 years—Flush and replace the cooling system fluid.

1. Prepare the machine for maintenance; refer to Preparing for Maintenance (page 40).
2. Open the hood; refer to Opening the Hood (page 40).
3. Thoroughly clean all debris out of the engine area.
4. Close and latch the hood; refer to Closing the Hood (page 40).
5. Unlatch the rear screen and pivot it open (Figure 94).



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Figure 94

1. Latch
2. Rear screen

6. Thoroughly clean the screen with compressed air.
7. Rotate the 2 oil-cooler latches inward, and tilt oil cooler (Figure 95).

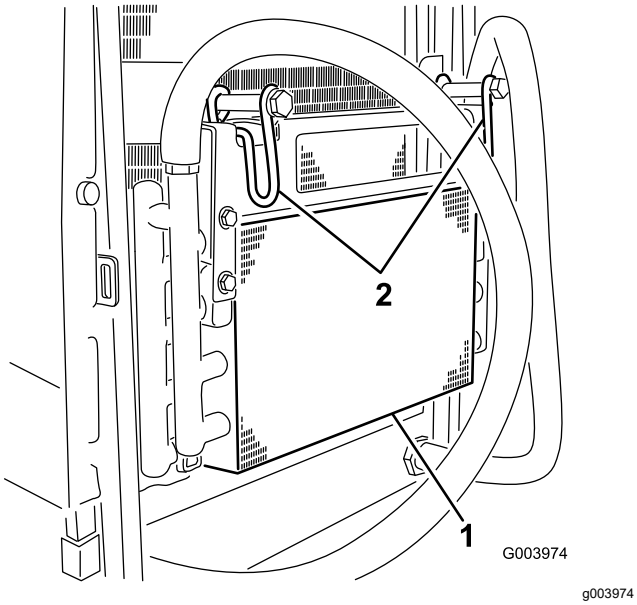


Figure 95

1. Oil cooler
2. Oil-cooler latches

8. Thoroughly clean both sides of the oil cooler and the radiator (Figure 96) with compressed air.

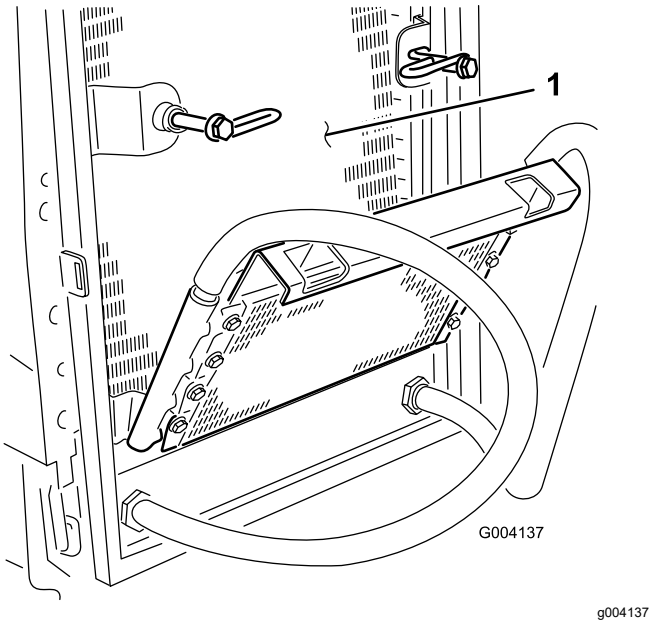


Figure 96

1. Radiator

9. Raise the oil cooler and secure it with the 2 latches.
10. Close and latch the screen.

Brake Maintenance

Adjusting the Parking Brakes

Adjust the brakes when there is more than 2.5 cm (1 inch) of free travel (Figure 97) of the brake pedal, or when more holding force is required. Free travel is the distance the brake pedal moves before you feel braking resistance.

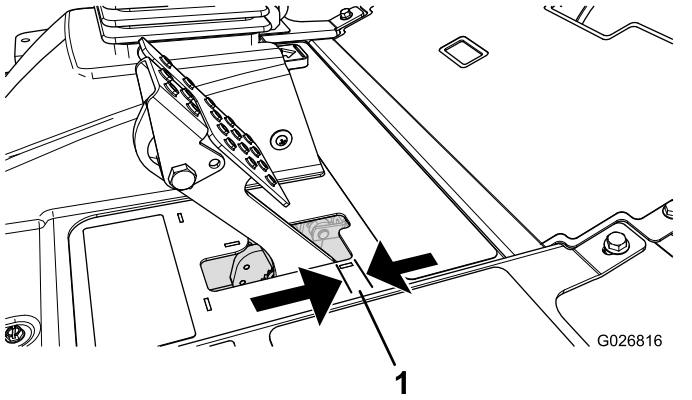


Figure 97

1. Free travel

Note: Use the wheel motor backlash to rock the drums back and forth to ensure that the drums are free prior to and after adjustment.

1. To reduce free travel of the brake pedals, tighten the brakes by loosening the front nut on the threaded end of the brake cable (Figure 98).

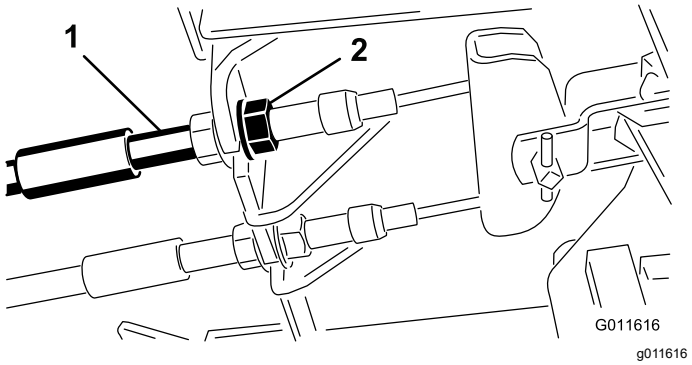


Figure 98

1. Brake cables
2. Front nuts

2. Tighten the rear nut to move the cable backward until brake pedals have 0.63 to 1.27 cm (1/4 to 1/2 inch) of free travel (Figure 97), before the wheels lock up.
3. Tighten the front nuts, ensuring that both cables actuate the brakes simultaneously.

Note: Ensure that the cable conduit does not rotate during the tightening procedure.

Adjusting the Parking-Brake Latch

If the parking brake fails to engage and latch, an adjustment to the brake pawl is required.

1. Loosen the 2 screws securing the parking-brake pawl to the frame (Figure 99).

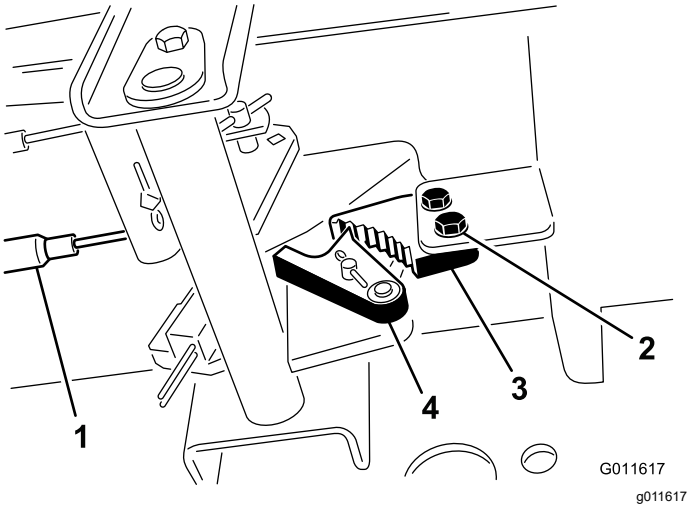


Figure 99

1. Brake cables
2. Screws (2)
3. Parking brake pawl
4. Brake detent

2. Press the parking-brake pedal forward until the brake detent completely engages on the brake pawl (Figure 99).
3. Tighten the 2 screws locking the adjustment.
4. Press the brake pedal to release the parking brake.
5. Check the adjustment and adjust as required.

Belt Maintenance

Servicing the Alternator Belt

Service Interval: Every 100 hours

Check the condition and tension of the belts (Figure 100) after every 100 operating hours.

1. Park the machine on a level surface, lower the cutting units, engage the parking brake, shut off the engine, and remove the key.
2. Open the hood; refer to Opening the Hood (page 40).
3. Check the condition of the alternator belt.

   Note: Replace a worn or damaged belt.
4. Check the belt tension.

   Note: Belt tension is correct when the belt deflects 10 mm (3/8 inch) when a force of 45 N (10 lb) is applied on the belt midway between the pulleys.
5. If belt deflection is more than or less than 10 mm (3/8 inch), loosen the alternator mounting bolts (Figure 100).

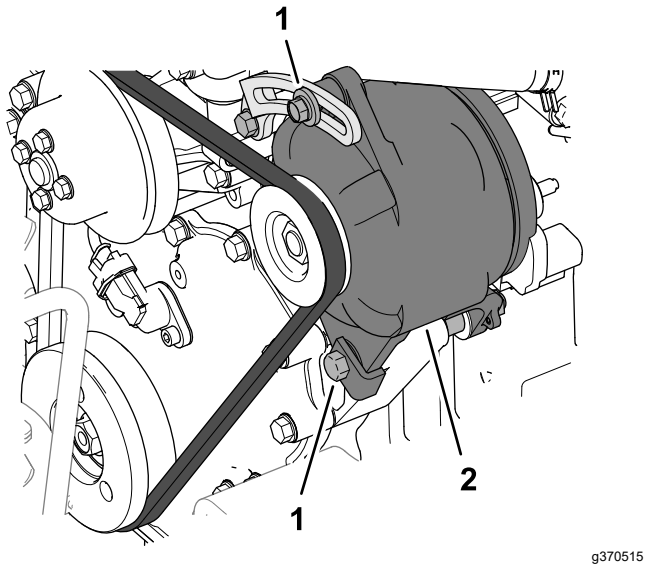


Figure 100

1. Mounting bolt
2. Alternator

6. Increase or decrease the alternator-belt tension, and tighten the mounting bolts.
7. Check the deflection of the belt again to ensure that the tension is correct.
8. Close and latch the hood; refer to Closing the Hood (page 40).

Hydraulic System Maintenance

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 any work on the hydraulic system.

Hydraulic Fluid Specifications

The reservoir is filled at the factory with high-quality hydraulic fluid. Check the level of the hydraulic fluid before you first start the engine and daily thereafter; refer to Checking the Hydraulic-Fluid Level (page 58).

Recommended hydraulic fluid: Toro PX Extended Life Hydraulic Fluid; available in 19 L (5 US gallon) pails or 208 L (55 US gallon) drums.

Note: A machine using the recommended replacement fluid requires less frequent fluid and filter changes.

Alternative hydraulic fluids: If Toro PX Extended Life Hydraulic Fluid is not available, you may use another conventional, petroleum-based hydraulic fluid having specifications that fall within the listed range for all the following material properties and that it meets industry standards. Do not use synthetic fluid. Consult with your lubricant distributor to identify a satisfactory product.

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

High Viscosity Index/Low Pour Point Anti-wear Hydraulic Fluid, ISO VG 46

Material Properties:	
Viscosity, ASTM D445	cSt @ 40°C (104°F) 44 to 48
Viscosity Index ASTM D2270	140 or higher
Pour Point, ASTM D97	-37°C to -45°C (-34°F to -49°F)
Industry Specifications:	Eaton Vickers 694 (I-286-S, M-2950-S/35VQ25 or M-2952-S)

High Viscosity Index/Low Pour Point Anti-wear Hydraulic Fluid, ISO VG 46 (cont'd.)

Note: Many hydraulic fluids are almost colorless, making it difficult to spot leaks. A red dye additive for the hydraulic fluid is available in 20 ml (0.67 fl oz) bottles. A 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.

Important: **Toro Premium Synthetic Biodegradable Hydraulic Fluid is the only synthetic biodegradable fluid approved by Toro. This fluid is compatible with the elastomers used in Toro hydraulic systems and is suitable for a wide-range of temperature conditions. This fluid is compatible with conventional mineral oils, but for maximum biodegradability and performance, the hydraulic system should be thoroughly flushed of conventional fluid. The oil is available in 19 L (5 US gallon) pails or 208 L (55 US gallon) drums from your authorized Toro distributor.**

Checking the Hydraulic-Fluid Level

Service Interval: Before each use or daily

The reservoir is filled at the factory with high-quality hydraulic fluid. The best time to check the hydraulic oil is when the fluid is cold. The machine should be in its transport configuration.

1. Prepare the machine for maintenance; refer to Preparing for Maintenance (page 40).
2. Clean the area around the filler neck and the cap of the hydraulic tank (Figure 101).

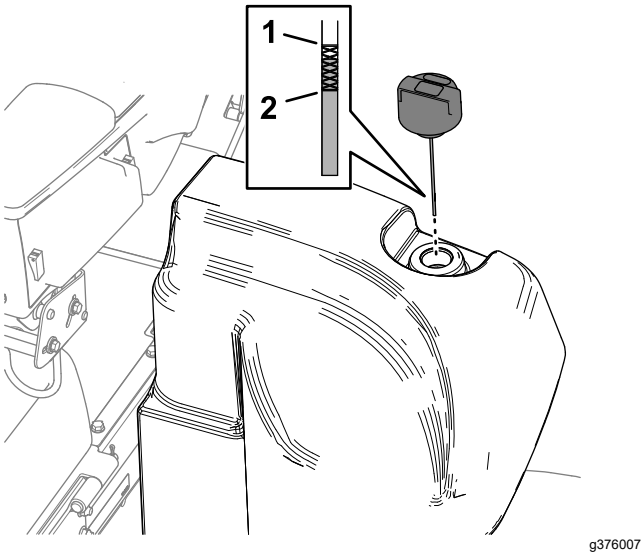


Figure 101

1. Full mark (dipstick)
2. Add mark (dipstick)

3. Remove the cap/dipstick from the filler neck and wipe it with a clean rag.
4. Insert the dipstick into the filler neck; then remove it and check the level of fluid.

   Note: The fluid level should be within operating range on the dipstick.

   Important: **Do not overfill the tank.**
5. If the level is low, add the appropriate amount of fluid to raise the level to the full mark.
6. Install the cap/dipstick onto the filler neck.

Checking the Hydraulic Lines and Hoses

Service Interval: Before each use or daily

Check the hydraulic lines and hoses for leaks, kinked lines, loose mounting supports, wear, loose fittings, weather deterioration, and chemical deterioration. Make all necessary repairs before operating.

Replacing the Hydraulic Filters

Service Interval: Every 1,000 hours—**If you are using the recommended hydraulic fluid,** replace the return-hydraulic filter and charge-hydraulic filter.

Every 800 hours—**If you are not using the recommended hydraulic fluid or have ever filled the reservoir with an alternative fluid,** replace the return-hydraulic filter and charge-hydraulic filter.

Important: **Use of any other filters may void the warranty on some components.**

Changing the Return Filter

The hydraulic system is equipped with a return filter-service indicator (Figure 102). You view the filter-service indicator through the hole in the floor plate. With the engine running at operating temperature, check the color of the indicator as follows:

- Green indicates normal hydraulic-fluid flow through the filter.
- Ref indicates a restricted filter. Change the return filter.

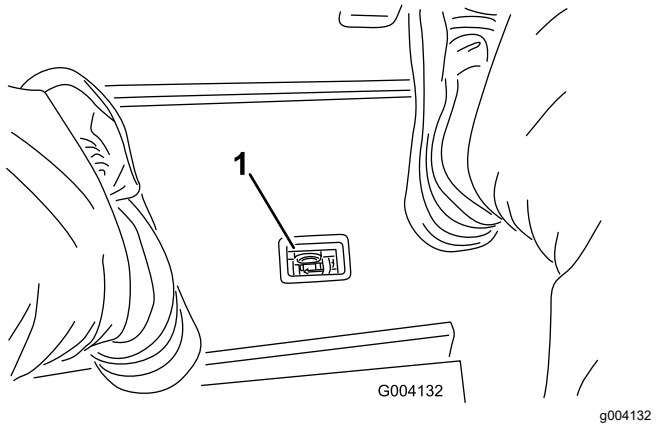
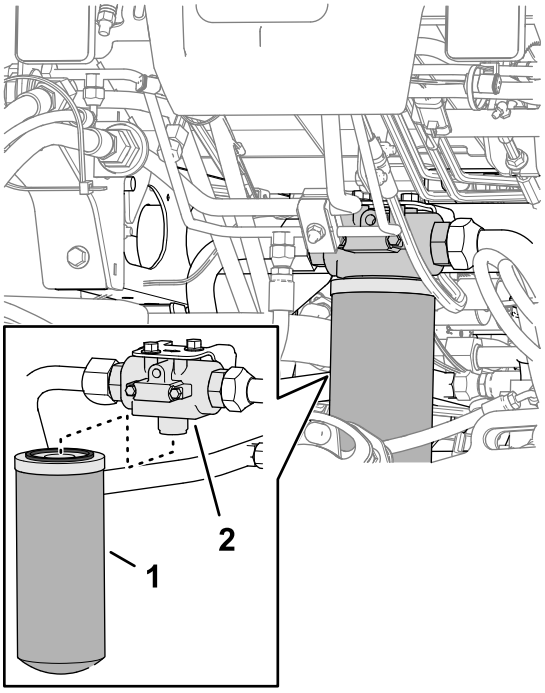


Figure 102

1. Hydraulic-filter-restriction indicator

1. Prepare the machine for maintenance; refer to Preparing for Maintenance (page 40).
2. At the front of the machine, align a drain pan under the return filter (Figure 103).



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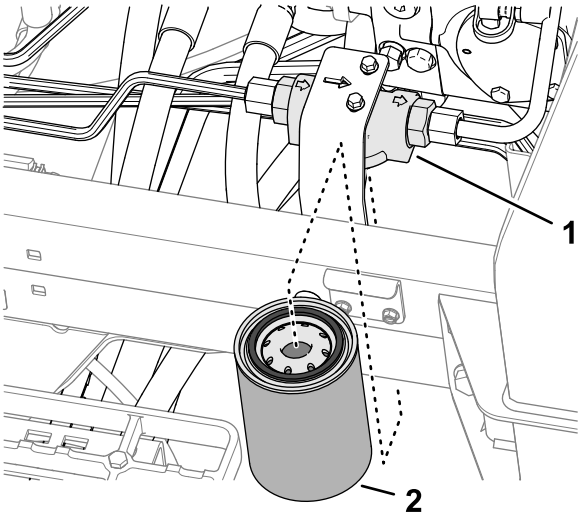
Figure 103

1. Return filter
2. Filter head

3. Remove the filter.
4. Wipe clean the filter mounting area of the filter head.
5. Apply a thin coat of the specified hydraulic fluid to the gasket of the new return filter.
6. Thread the filter onto the filter head by hand until the gasket contacts the mounting surface, then rotate the filter an additional 1/2 turn.

Changing the Charge Filter

1. Prepare the machine for maintenance; refer to Preparing for Maintenance (page 40).
2. Tilt the seat; refer to Tilting the Seat (page 41).
3. At the left side of the machine, align a drain pan under the charge filter (Figure 104).



g376339

Figure 104

1. Filter head
2. Charge filter

4. Remove the filter.
5. Wipe clean the filter mounting area of the filter head.
6. Apply a thin coat of the specified hydraulic fluid to the gasket of the new charge filter.
7. Thread the filter onto the filter head by hand until the gasket contacts the mounting surface, then rotate the filter an additional 1/2 turn.
8. Lower and latch the seat; refer to Lowering the Seat (page 41).

Checking for Leaks

1. Start the engine and run it for 2 minutes to purge air from the hydraulic system.
2. Shut off the engine, remove the key, and check for leaks at the return and charge filters.

   Note: Repair all hydraulic leaks.

Hydraulic Fluid Capacity

34 L (9 US gallons); refer to Hydraulic Fluid Specifications (page 58)

Changing the Hydraulic Fluid

Service Interval: Every 2,000 hours—**If you are using the recommended hydraulic fluid,** change the hydraulic fluid.

Every 800 hours—**If you are not using the recommended hydraulic fluid or have ever**

filled the reservoir with an alternative fluid, change the hydraulic fluid.

If the fluid becomes contaminated, contact your Toro Distributor because the system must be flushed. Contaminated fluid looks milky or black when compared to clean fluid.

1. Prepare the machine for maintenance; refer to Preparing for Maintenance (page 40).
2. Place a large drain pan under the straight fitting (Figure 105) of the hydraulic tank.

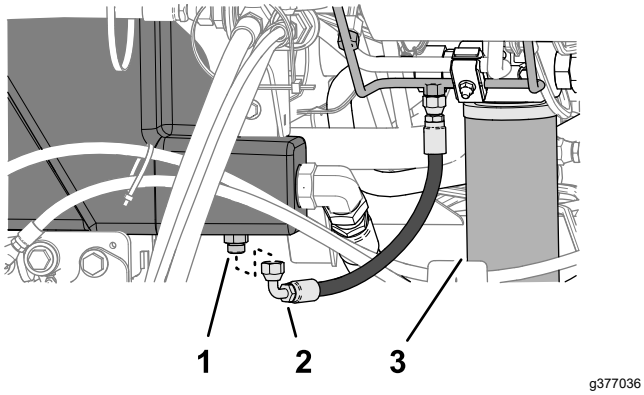


Figure 105

1. Straight fitting (hydraulic tank)
2. Hose (case drain)
3. Return filter

3. Disconnect the case-drain hose from the straight fitting, and allow the tank to drain.
4. When hydraulic fluid stops draining from the tank, install the drain hose.
5. Fill the tank with the specified hydraulic fluid; refer to Hydraulic Fluid Specifications (page 58) and Hydraulic Fluid Capacity (page 60).

   Important: **Use only the hydraulic fluids specified. Other fluids could cause system damage.**
6. Install the tank cap.
7. Start the engine, and use all the hydraulic controls to distribute hydraulic fluid throughout the system.
8. Check for hydraulic-fluid leaks; refer to Checking for Leaks (page 60).
9. Check the level; refer to Checking the Hydraulic-Fluid Level (page 58)

Cutting Unit System Maintenance

Blade Safety

A worn or damaged blade or bedknife can break, and a piece could be thrown toward you or bystanders, resulting in serious personal injury or death.

- Inspect the blades and bedknives periodically for excessive wear or damage.
- Use care when checking the blades. Wear gloves and use caution when servicing them. Only replace or backlap the blades and bedknives; never straighten or weld them.
- On machines with multiple cutting units, take care when rotating a cutting unit; it can cause the reels in the other cutting units to rotate.

Checking the Reel-to-Bedknife Contact

Service Interval: Before each use or daily

Check the reel-to-bedknife contact, regardless of whether the quality of cut had previously been acceptable. There must be light contact across the full length of the reel and the bedknife (refer to Adjusting the Reel to Bedknife in the cutting unit *Operator's Manual*).

Backlapping the Cutting Units

⚠ WARNING

Contact with the cutting units or other moving parts can result in personal injury.

- **Keep your fingers, hands, and clothing away from the cutting units and other moving parts.**
- **Never attempt to turn the cutting units by hand or foot while the engine is running.**

Note: Additional instructions and procedures on backlapping are available in the Toro Reel Mower Basics (with sharpening guidelines), Form 09168SL.

Preparing the Machine

1. Prepare the machine for maintenance; refer to Preparing for Maintenance (page 40).
2. Press the Enable/Disable switch to DISABLE position.

3. Make initial reel-to-bedknife adjustments appropriate for backlapping on all cutting units which are to be backlapped; refer to the cutting unit *Operator's Manual*.
4. Unlock and raise the seat to expose the mower manifold (Figure 106).

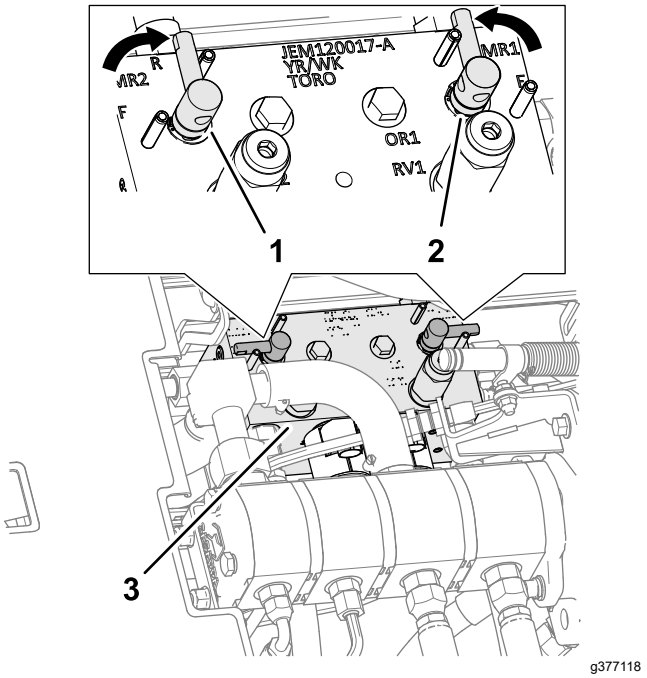


Figure 106

1. Backlap lever (backlap position—front cutting units)
2. Backlap lever (backlap position—rear cutting units)
3. Mower manifold

5. Move the backlap levers to the R (backlap) position (Figure 106).

   Note: Select either the front, rear, or both backlap levers to control which cutting units to backlap. When backlapping, the front cutting units all operate together, and the rear cutting units operate together.

Lapping the Reels and Bedknife

⚠ DANGER

Changing the engine speed while backlapping may cause the reels to stall.

- **Never change the engine speed while backlapping.**
- **Only backlap at idle engine speed.**

1. Start the engine and run at low idle speed.
2. With the Mow/Transport lever in the MOW position, move the Enable/Disable switch to the ENABLE position. Move the Lower Mow/Lift control forward to start the backlapping operation on the designated reels.
3. Apply lapping compound with a long-handled brush.

⚠ DANGER

Contacting the cutting units when they are moving could cause personal injury.

To avoid personal injury, be certain that you are clear of the cutting units before proceeding.

Important: **Never use a short-handled brush.**

4. If the reels stall or become erratic while backlapping, select a higher reel-speed setting until the speed stabilizes, then return the reel speed to your desired speed.
5. If you need to make an adjustment to the cutting units while backlapping, perform the following steps:
   A. Moving the Lower Mow/Raise lever rearward and press the Enable/Disable switch to DISABLE position.
   B. Shut off the engine and remove the key.
   C. Adjust to the cutting units.
   D. Repeat steps 1 through 3.
6. Repeat steps 3 for the other cutting units that you want to backlap.

Finishing Backlapping

1. Moving the Lower Mow/Raise lever rearward and press the Enable/Disable switch to DISABLE position.
2. Shut off the engine and remove the key.
3. Move the backlap levers to the F (mow) position (Figure 107).

   Important: **If you do not change backlap lever to the F (mow) position after backlapping, the cutting units will not function properly.**

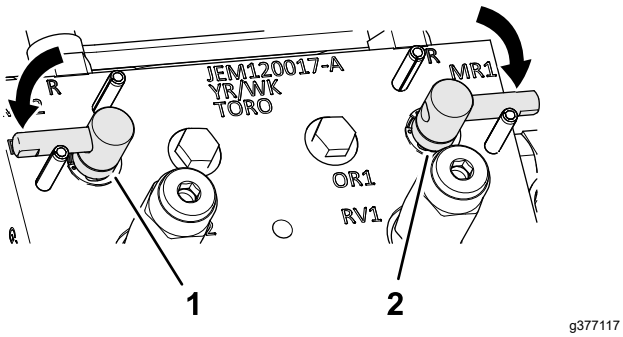


Figure 107

4. Lower and latch the operator's seat; refer to Lowering the Seat (page 41).
5. Wash all lapping compound off from the cutting units.
6. For a better cutting edge, run a file across the front face of the bedknife after lapping.

   Note: This removes any burrs or rough edges that may have built up on the cutting edge.

Chassis Maintenance

Inspecting the Seat Belt

Service Interval: Before each use or daily

1. Inspect the seat belt for wear, cuts, and other damage. Replace the seat belt(s) if any component does not operate properly.
2. Clean the seat belt as necessary.

Extended Maintenance

Chassis and Engine

Service Interval: Every 2 years—Replace the hydraulic hoses.

Every 2 years—Replace the coolant hoses.

Every 2 years—Flush and replace the coolant.

Cleaning

Washing the Machine

Wash the machine as needed using water alone or with a mild detergent. You may use a rag when washing the machine.

Important: **Do not use brackish or reclaimed water to clean the machine.**

Important: **Do not use power-washing equipment to wash the machine. Power-washing equipment may damage the electrical system, loosen important decals, or wash away necessary grease at friction points. Avoid excessive use of water near the control panel, engine, and battery.**

Important: **Do not wash the machine with the engine running. Doing so may result in internal engine damage.**

Storage

Storage Safety

- Before you leave the operator's position, do the following:
  - Park the machine on a level surface.
  - Disengage and lower the cutting units.
  - Engage the parking brake.
  - Shut off the engine and remove the key.
  - Wait for all movement to stop.
  - Allow the machine to cool before adjusting, servicing, cleaning, or storing it.
- Do not store the machine or fuel container where there is an open flame, spark, or pilot light, such as on a water heater or other appliance.

Preparing the Traction Unit

1. Park the machine on a level surface, lower the cutting units, engage the parking brake, shut off the engine, and remove the key.
2. Thoroughly clean the traction unit, cutting units, and the engine.
3. Check the tire pressure; refer to Checking the Tire Air Pressure (page 52).
4. Check all fasteners for looseness; tighten them as necessary.
5. Grease or oil all grease fittings and pivot points. Wipe up any excess lubricant.
6. Lightly sand and use touch-up paint on painted areas that are scratched, chipped, or rusted. Repair any dents in the metal body.
7. Service the battery and cables as follows; refer to Electrical System Safety (page 49):
   A. Remove the battery terminals from the battery posts.
   B. Clean the battery, terminals, and posts with a wire brush and baking-soda solution.
   C. Coat the cable terminals and battery posts with Grafo 112X skin-over grease (Toro Part No. 505-47) or petroleum jelly to prevent corrosion.
   D. Slowly charge the battery every 60 days for 24 hours to prevent lead sulfation of the battery.

Preparing the Engine

1. Drain the engine oil from the oil pan and install the drain plug.
2. Remove and discard the oil filter. Install a new oil filter.
3. Fill the engine with specified motor oil.
4. Start the engine and run it at idle speed for approximately 2 minutes.
5. Shut off the engine and remove the key.
6. Flush the fuel tank with fresh, clean fuel.
7. Secure all of the fuel-system fittings.
8. Thoroughly clean and service the air-cleaner assembly.
9. Seal the air-cleaner inlet and the exhaust outlet with weatherproof tape.
10. Check the antifreeze protection and add a 50/50 solution of water and ethylene glycol antifreeze as needed for the expected minimum temperature in your area.

Storing the Battery

If you are storing the machine for more than 30 days, remove the battery and charge it fully. Store it either on the shelf or on the machine. Leave the cables disconnected if they are stored on the machine. Store the battery in a cool atmosphere to avoid quick deterioration of the charge in the battery. To prevent the battery from freezing, ensure that it is fully charged. The specific gravity of a fully charged battery is 1.265 to 1.299.

EEA/UK Privacy Notice

Toro's Use of Your Personal Information

The Toro Company ("Toro") respects your privacy. When you purchase our products, we may collect certain personal information about you, either directly from you or through your local Toro company or dealer. Toro uses this information to fulfil contractual obligations - such as to register your warranty, process your warranty claim or to contact you in the event of a product recall - and for legitimate business purposes - such as to gauge customer satisfaction, improve our products or provide you with product information which may be of interest. Toro may share your information with our subsidiaries, affiliates, dealers or other business partners in connection these activities. We may also disclose personal information when required by law or in connection with the sale, purchase or merger of a business. We will never sell your personal information to any other company for marketing purposes.

Retention of your Personal Information

Toro will keep your personal information as long as it is relevant for the above purposes and in accordance with legal requirements. For more information about applicable retention periods please contact legal@toro.com.

Toro's Commitment to Security

Your personal information may be processed in the US or another country which may have less strict data protection laws than your country of residence. Whenever we transfer your information outside of your country of residence, we will take legally required steps to ensure that appropriate safeguards are in place to protect your information and to make sure it is treated securely.

Access and Correction

You may have the right to correct or review your personal data, or object to or restrict the processing of your data. To do so, please contact us by email at legal@toro.com. If you have concerns about the way in which Toro has handled your information, we encourage you to raise this directly with us. Please note that European residents have the right to complain to your Data Protection Authority.

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.

Does this law apply everywhere?

Prop 65 warnings are required under California law only. These warnings are seen throughout California in a wide range of settings, including but not limited to restaurants, grocery stores, hotels, schools, and hospitals, and on a wide variety of products. Additionally, some online and mail order retailers provide Prop 65 warnings on their websites or in catalogs.

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 Toro include this warning?

Toro 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. Toro 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 Toro products may be negligible or well within the "no significant risk" range, out of an abundance of caution, Toro has elected to provide the Prop 65 warnings. Moreover, if Toro 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.



Count on it.