



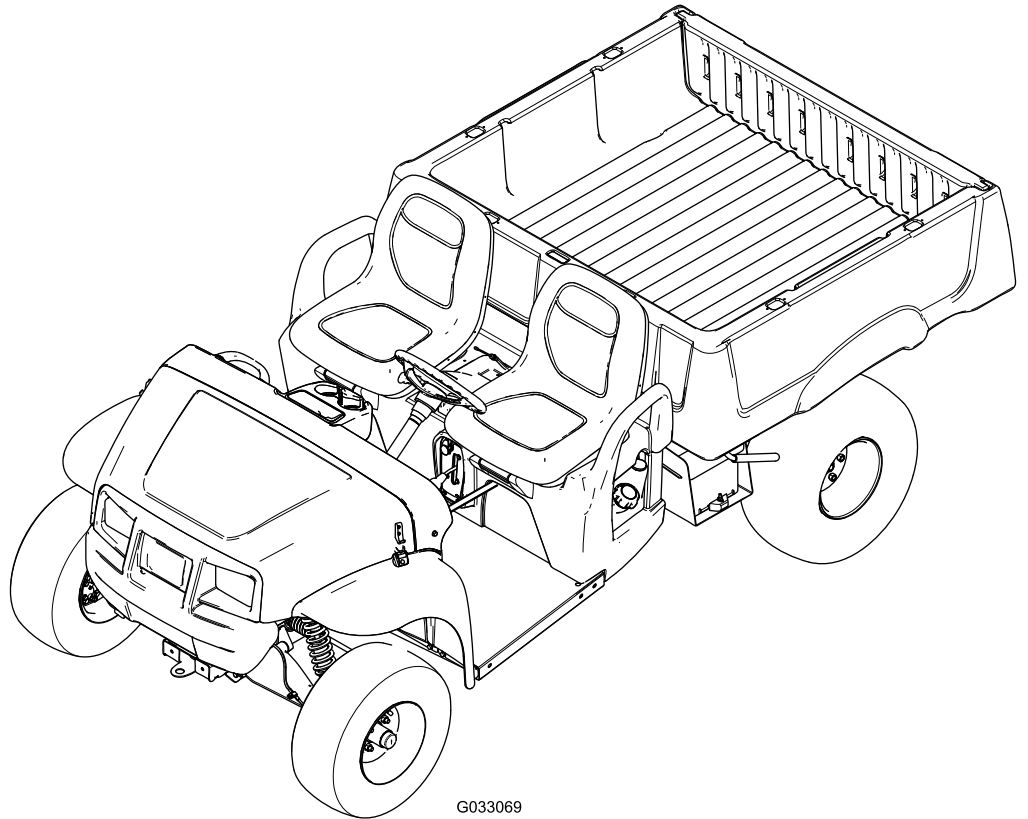
Count on it.

Operator's Manual

Workman® MDX-D Utility Vehicle

Model No. 07236—Serial No. 40000000 and Up

Model No. 07236TC—Serial No. 40000000 and Up



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.

The enclosed *Engine Owner's Manual* is supplied for information regarding the US Environmental Protection Agency (EPA) and the California Emission Control Regulation of emission systems, maintenance, and warranty. Replacements may be ordered through the engine manufacturer.

⚠ 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.

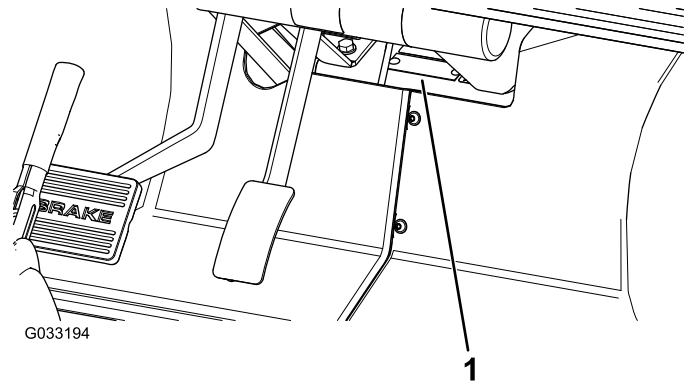


Figure 1

1. Model and serial-number location

Model No. _____

Serial No. _____

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



Figure 2

1. Safety-alert symbol

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

Introduction

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

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

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

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Safety

Improper use or maintenance by the operator or owner 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 the instruction may result in personal injury or death.

The machine meets the requirements of SAE J2258.

Important: For CE required regulatory data, refer to the Declaration of Conformity supplied with the machine.

Safe Operating Practices

Important: This machine is designed primarily as an off-road machine and is not intended for extensive use on public roads.

When using the machine on public roads, follow all traffic regulations and use any additional accessories that may be required by law, such as lights, turn signals, slow-moving vehicle (SMV) signs, and others as required.

This machine was designed and tested to offer safe service when operated and maintained properly. Although hazard control and accident prevention are dependent upon the design and configuration of the machine, these factors are also dependent upon the awareness, concern, and proper training of the operator, maintenance, and storage of the machine. Improper use or maintenance of the machine can result in injury or death.

This machine has a different feel than what drivers experience with passenger cars or trucks. So take time to become familiar with your machine.

Not all of the attachments that adapt to the machine are covered in this manual. See the specific *Operator's Manual* provided with each attachment for additional safety instructions.

To reduce the potential for injury or death, comply with the following safety instructions:

Supervisor's Responsibilities

- Make sure that the operators are thoroughly trained and familiar with the *Operator's Manual* and all labels on the .
- Be sure to establish your own special procedures and work rules for unusual operating conditions (e.g., slopes too steep for the safe operation of the machine).

Before Operating

- This machine is designed to carry **only you**, the operator, and **1 passenger** in the seat provided by the manufacturer. **Never** carry any other passengers on the machine.
- Become familiar with the controls and know how to shut off the engine quickly.
- **Never** operate the machine when tired, ill, or under the influence of drugs or alcohol.
- Always wear substantial, slip-resistant shoes. Do not wear loose-fitting clothing, tie back long hair, and do not wear jewelry.
- Wearing safety glasses, safety shoes, and long pants are required by some local regulations.
- **Never** allow children to operate the machine. **Never** allow adults to operate it without proper instructions. Only trained and authorized persons should operate this machine.
- Always be aware of where bystanders are.
- Keep all shields, safety devices and decals in place. If a shield, safety device or decal is malfunctioning, illegible, or damaged, repair or replace it before operating the machine.
- Avoid driving when it is dark, especially in unfamiliar areas. If you must drive when it is dark, be sure to drive cautiously, use the headlights.
- Before operating the machine, always check all parts of the machine and any attachments. If something is wrong, **stop using the machine**. Make sure that the problem is corrected before the machine or attachment is operated again.
- Operate the machine only outdoors or in a well-ventilated area.

Safe Handling of Fuels

- To avoid personal injury or property damage, use extreme care in handling fuel. Fuel is extremely flammable and the vapors are explosive.
- Do not smoke near the machine.
- Use only an approved nonmetal, portable fuel container.
- Static electric discharge can ignite fuel vapors in a fuel container that is not grounded. Never fill containers inside a machine or on a truck or trailer bed with a plastic liner. Remove the fuel container from the bed of the machine and place it on the ground and away from the machine before filling.
- Keep the nozzle in contact with the container while filling the fuel container. Remove equipment from the bed of the machine before fueling it. Do not use a nozzle-lock-open device.

- Never remove the fuel cap or add fuel with the engine running.
 - Allow engine to cool before refueling.
 - Never refuel the machine indoors.
 - Never 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.
 - Remove equipment from the truck or trailer and refuel it on the ground. If this is not possible, then refuel such equipment with a portable container rather than from a fuel-dispenser nozzle.
 - If fuel is spilled on clothing, change clothing immediately.
 - Never overfill the fuel tank. Replace the fuel cap and tighten it securely.
- Do not attempt sharp turns or abrupt maneuvers or other unsafe driving actions that may cause a loss of control of the machine.
 - When dumping, do not let anyone stand behind machine and do not dump the load on anyone's feet. Release the tailgate latches from the side of box, not from behind.
 - Keep all bystanders away. Before backing up, look to the rear and ensure that no one is behind the machine. Back up slowly.
 - Watch out for traffic when near or crossing roads. Always yield the right of way to pedestrians and other machines. Always signal your turns or stop early enough so other persons know what you plan to do. Obey all traffic rules and regulations.
 - Never operate the machine in or near an area where there is dust or fumes in the air which are explosive. The electrical and exhaust systems of the machine can produce sparks capable of igniting explosive materials.
 - Always watch out for and avoid low overhangs such as tree limbs, door jambs, over head walkways, etc. Make sure there is enough room over head to easily clear the machine and your head.
 - If you are ever unsure about the safe operation of the machine, **stop your work** and ask your supervisor.

Operation

- The operator and passenger should remain seated whenever the machine is in motion. The operator should keep both hands on the steering wheel, whenever possible, and the passenger should use the handholds provided. Keep arms and legs within the machine body at all times.
- Drive slower and turn less sharply when you are carrying a passenger. Remember your passenger may not be expecting you to brake or turn and may not be ready. Never carry passengers in the box or on attachments.
- Never overload your machine. The name plate (located under the middle of the dash) shows the load limits for the machine. Never overfill attachments or exceed the vehicle maximum gross vehicle weight (GVW).
- Failure to operate machine safely may result in an accident, tip over of the machine, and serious injury or death. Drive carefully. To prevent tipping or loss of control, take the following precautions:
 - Use extreme caution, reduce speed, and maintain a safe distance around sand traps, ditches, creeks, ramps, any unfamiliar areas, or other hazards.
 - Watch for holes or other hidden hazards.
 - Use caution when operating the machine on a slope. Normally, travel straight up and down slopes. Reduce speed when making sharp turns or when turning on hillsides. Avoid turning on hillsides whenever possible.
 - Use extra caution when operating the machine on wet surfaces, at higher speeds, or with a full load. Stopping time will increase with a full load.
 - Avoid sudden stops and starts. Do not go from reverse to forward or forward to reverse without first coming to a complete stop.
- Before getting off the seat:
 - Stop the machine.
 - Lower the bed.
 - Shut the engine off and wait for all movement to stop.
 - Engage the parking brake.
 - Remove the key from the key switch.
- Do not touch the engine, transmission, radiator, muffler or muffler manifold while the engine is running or soon after it has stopped because these areas may be hot enough to cause burns.
- If the machine ever vibrates abnormally, stop the machine immediately, shut off the machine, wait for all motion to stop and inspect for damage. Repair all damage before resuming operation.
- Lightning can cause severe injury or death. If lightning is seen in the area, do not operate the machine; seek shelter.

Braking

- Slow down the machine before you approach an obstacle. This gives you extra time to stop or turn away. Hitting an obstacle can injure you and your passenger. In addition, it can damage the machine and its contents.

- Gross Vehicle Weight (GVW) has a major impact on your ability to stop and/or turn. Heavy loads and attachments make the machine harder to stop or turn. The heavier the load, the longer it takes to stop.
- Decrease the speed of the machine if the cargo box has been removed and there is no attachment installed on the machine. The braking characteristics change and fast stops may cause the rear wheels to lock up, which will affect the control of the machine.
- Turf and pavement are much more slippery when they are wet. It can take 2 to 4 times longer to stop the machine on wet surfaces as on dry surfaces. If you drive through deep-standing water and get the brakes wet, they will not work well until they are dry. After driving through water, you should test the brakes to make sure that they work properly. If they do not, drive slowly on a level ground while putting light pressure on the brake pedal. This will dry out the brakes.
- Turning while traveling up or down hills can be dangerous. If you have to turn while on a hill, do it slowly and cautiously. Never make sharp or fast turns.
- Heavy loads affect stability. Reduce the weight of the load and your ground speed when operating on hills or if the load has a high center of gravity. Secure the load to the cargo box of the machine to prevent the load from shifting. Take extra care when hauling loads that shift easily (liquid, rock, sand, etc.).
- Avoid stopping on hills, especially with a load. Stopping while going down a hill will take longer than stopping on level ground. If you must stop the machine, avoid sudden speed changes, which may initiate tipping or rolling of the machine. Do not slam on the brakes when rolling backward, as this may cause the machine to overturn.
- We strongly recommend installing the optional ROPS kit before riding on hilly terrain.

Operating on Hills

⚠ WARNING

Operating the machine on a hill may cause tipping or rolling of the machine, or the engine may stall and you could lose headway on the hill. This could result in personal injury.

- **Do not operate the machine on excessively steep slopes.**
- **Do not accelerate quickly or slam the brakes when backing down a hill, especially with a load.**
- **If the engine stalls or you lose headway on a hill, slowly back straight down the hill. Never attempt to turn the machine around.**
- **Operate the machine slowly on a hill and use caution.**
- **Avoid turning on a hill.**
- **Reduce your load and the speed of the machine.**
- **Avoid stopping on hills, especially with a load.**

Take these precautions when operating the machine on a hill:

- Slow the machine down before starting up or down a hill.
- If the engine stalls or you begin to lose momentum while climbing a hill, gradually apply the brakes and slowly back the machine straight down the hill.

Operating on Rough Terrain

Reduce the ground speed of the machine and load carried in the machine when operating on rough terrain, uneven ground, and near curbs, holes, and other sudden changes in terrain. Loads may shift, causing the machine to become unstable.

▲ WARNING

Sudden changes in terrain may cause abrupt steering wheel movement, possibly resulting in hand and arm injuries.

- **Reduce your speed when operating on rough terrain and near curbs.**
- **Grip the steering wheel loosely around the perimeter keeping thumbs up and out of the way of the steering wheel spokes.**

Loading and Dumping

- Do not exceed the rated weight capacity of the machine when operating it with a load in the cargo box, when towing a trailer, or both; refer to [Specifications \(page 17\)](#).
- Use caution when operating the machine on a hillside or on rough terrain, particularly with a load in the cargo box or when towing a trailer or both.
- Be aware that the stability and control of the machine are reduced when the load in the cargo box is poorly distributed.
- Carrying oversized loads in the cargo box changes the stability of the machine.
- The steering, braking, and stability of the machine are affected when carrying a load where the weight of the material cannot be bound to the machine, such as the liquid in a large tank.

▲ WARNING

The weight of the box may be heavy. Hands or other body parts could be crushed.

- **Keep your hands and other body parts clear when lowering the box.**
- **Do not dump materials on bystanders.**
- Never dump a loaded cargo box while the machine is sideways on a hill. The change in weight distribution may cause the machine to overturn.
- When operating with a heavy load in the cargo box, reduce your speed and allow for sufficient braking distance. Do not suddenly apply the brakes. Use extra caution on slopes.
- Be aware that heavy loads increase your stopping distance and reduce your ability to turn quickly without tipping over.

- The rear cargo space is intended for load carrying purposes only, not for passengers.
- Never overload your machine. The name plate (located under the middle of the dash) shows the load limits for the machine. Never overfill attachments or exceed the machine maximum gross vehicle weight (GVW).

Maintenance

- Before servicing or making adjustments to the machine, shut off the engine, engage the parking brake, and remove the key from the key switch to prevent accidental starting of the engine.
- Never work under a raised bed without placing the bed safety support on the fully extended cylinder rod.
- Make sure that all hydraulic-line connectors are tight and that all hydraulic hoses and lines are in good condition before applying pressure to the system.
- Before disconnecting or performing any work on the hydraulic system, relieve all pressure in the system by shutting off the engine, cycling the dump valve from raise to lower, and/or lowering box and attachments. Place the remote hydraulics lever in the float position. If the box must be in raised position, secure it with the safety support.
- To make sure that the entire machine is in good condition, keep all nuts, bolts, and screws properly tightened.
- To reduce the potential fire hazard, keep the engine area free of excessive grease, grass, leaves, and accumulation of dirt.
- If the engine must be running to perform a maintenance adjustment, keep hands, feet, clothing, and any parts of the body away from the engine and any moving parts. Keep everyone away.
- Do not overspeed the engine by changing the governor settings. The maximum engine speed is 3,650 rpm. To ensure safety and accuracy, have an Authorized Toro Distributor check the maximum engine speed with a tachometer.
- If major repairs are ever needed or assistance is required, contact an Authorized Toro Distributor.
- To be sure of optimum performance and safety, always purchase genuine Toro replacement parts and accessories. Replacement parts and accessories made by other manufacturers could be dangerous. Altering this machine in any manner may affect the operation of the machine, performance, durability or its use may result in injury or death. Such use could void the product warranty of The Toro® Company.

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.



decal121-9775

121-9775

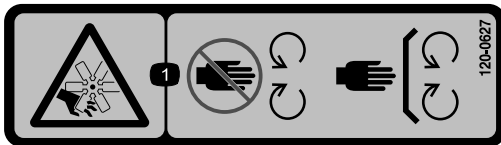
1. Warning—read the *Operator's Manual* and receive training before operating the machine.
2. Warning—wear hearing protection.
3. Fire hazard—shut off the engine before refueling.
4. Tipping hazard—drive slowly on or across inclines; take turns slowly; do not exceed speeds of 31 kph (19 mph); drive slowly when hauling a load or when driving on uneven terrain.
5. Falling hazard; severing hazard of hand or foot—do not carry passengers in the bed; do not carry a third passenger; do not put your hands or feet outside the machine while operating.



decal119-9727

119-9727

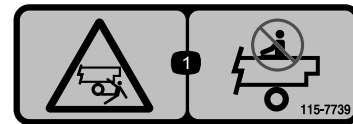
1. Horn
2. Hour meter
3. Headlights
4. Engine—shut off
5. Engine—on
6. Engine—start
7. Power point
8. Warning—read the *Operator's Manual*.
9. Collision hazard—do not operate the machine on public streets, roads, or highways.
10. Falling hazard—do not carry passengers in the cargo bed.
11. Falling hazard—do not allow children to operate the machine.



decal120-0627

120-0627

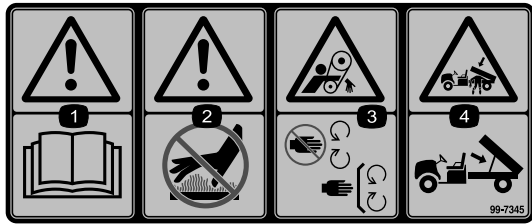
1. Cutting/dismemberment hazard, fan—stay away from moving parts, keep all guards and shields in place.



decal115-7739

115-7739

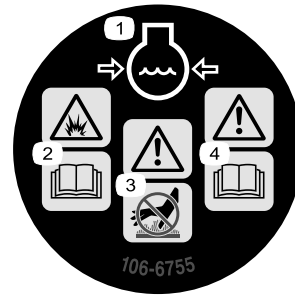
1. Falling, crushing hazard, bystanders—no riders on machine.



decal99-7345

99-7345

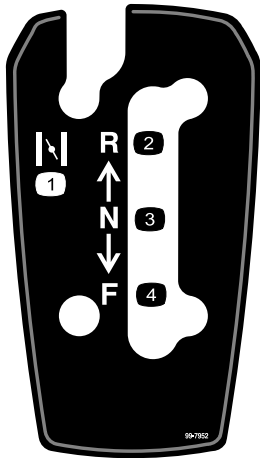
1. Warning—read the *Operator's Manual*.
2. Hot surface/burn hazard—stay a safe distance away from the hot surface.
3. Entanglement hazard, belt—stay away from moving parts; keep all guards in place.
4. Crushing hazard, cargo box—use the prop rod to support the cargo bed.



decal106-6755

106-6755

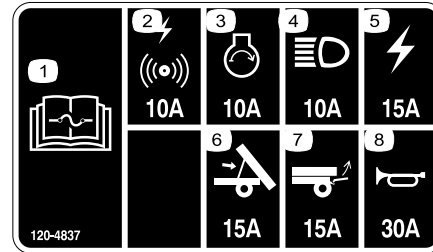
1. Engine coolant under pressure.
2. Explosion hazard—read the *Operator's Manual*.
3. Warning—do not touch the hot surface.
4. Warning—read the *Operator's Manual*.



decal99-7952

99-7952

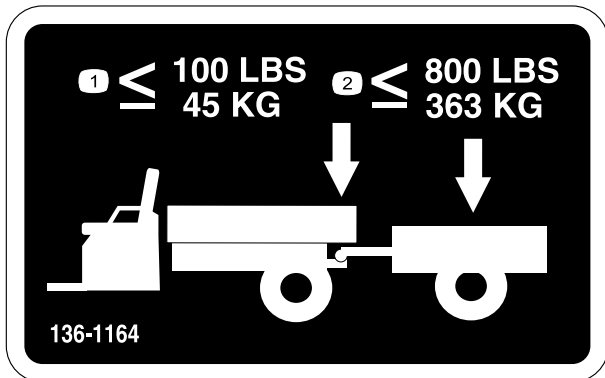
1. Choke
2. Reverse
3. Neutral
4. Forward



decal120-4837

120-4837

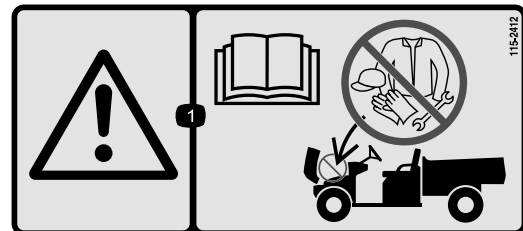
1. Read the *Operator's Manual* for information on fuses.
2. Alarm/power point (10 A)
3. Engine (10 A)
4. Headlights (10 A)
5. Machine fuse (15 A)
6. Lift (15 A)
7. Rear lift (15 A)
8. Horn (30 A)



decal136-1164

136-1164

1. Do not exceed a towing weight of 45 kg (100 lb).
2. Do not exceed a transport load of 363 kg (800 lb).



decal115-2412

115-2412

1. Warning—read the *Operator's Manual*; no storage.

Setup

Loose Parts

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

Procedure	Description	Qty.	Use
1	Steering wheel	1	Install the steering wheel (Model 07236TC only).
	Cover	1	
	Washer (1/2 inch)	1	
2	No parts required	–	Connect the battery (Model 07236TC only).
3	No parts required	–	Check the fluid levels and tire air pressure.
4	Operator's Manual	1	Read the Operator's Manual and view the training material before operating the machine.
	Engine owner's manual	1	
	Parts Catalog	1	
	Safety training material	1	
	Registration card	1	
	Predelivery Inspection Form	1	
	Certificate of Quality	1	
Key	2		
5	No parts required	–	Burnish (break-in) the brakes.

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

1

Installing the Steering Wheel (Model 07236TC Only)

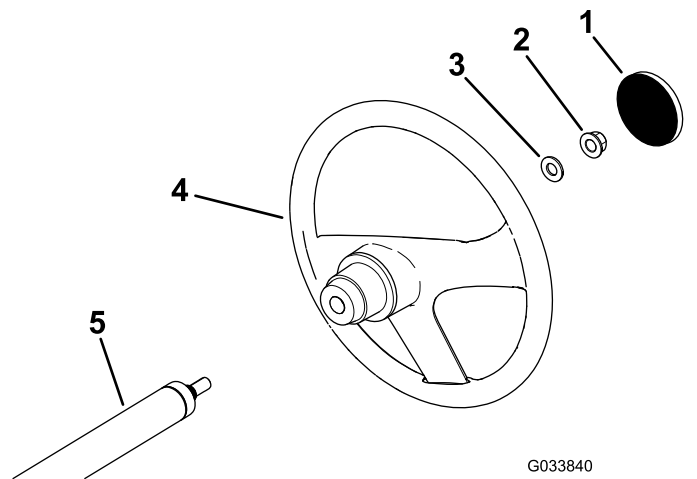
Parts needed for this procedure:

1	Steering wheel
1	Cover
1	Washer (1/2 inch)

Procedure

- If the cover is installed, remove it from the hub of the steering wheel (Figure 3).
- Remove the locknut (1/2 inch) from the steering shaft (Figure 3).
- Slide the steering wheel and washer (1/2 inch) onto the steering shaft (Figure 3).

- Secure the steering wheel to the shaft with the locknut (1/2 inch) and tighten it to 27 to 34 N·m (20 to 25 ft-lb).
- Install the cover on the steering wheel (Figure 3).



G033840

g033840

Figure 3

- | | |
|-----------------------|-------------------|
| 1. Cover | 4. Steering wheel |
| 2. Locknut (1/2 inch) | 5. Steering shaft |
| 3. Washer (1/2 inch) | |

2

Connecting the Battery (Model 07236TC Only)

No Parts Required

Procedure

⚠ WARNING

Incorrect battery-cable routing could damage the machine and cables, causing sparks. Sparks can cause the battery gasses to explode, resulting in personal injury.

- Always disconnect the negative (black) battery cable before disconnecting the positive (red) cable.
- Always connect the positive (red) battery cable first.

1. Squeeze the battery cover to release the tabs from the battery base (Figure 4).

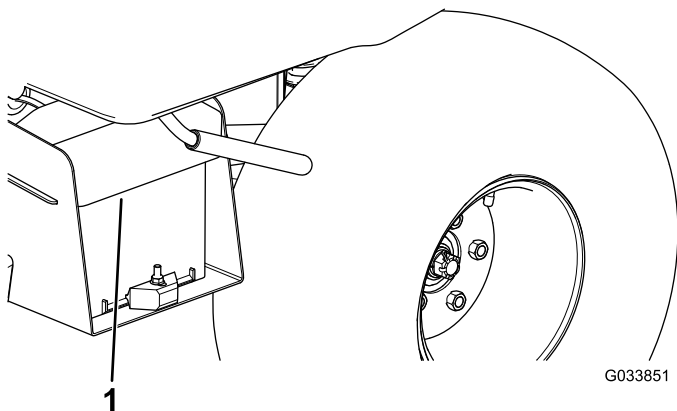


Figure 4

1. Battery cover

2. Remove the battery cover from the battery base (Figure 4).
3. Install the positive-battery cable (red) onto the positive (+) terminal of the battery and secure the cable with the bolts and nuts (Figure 5).

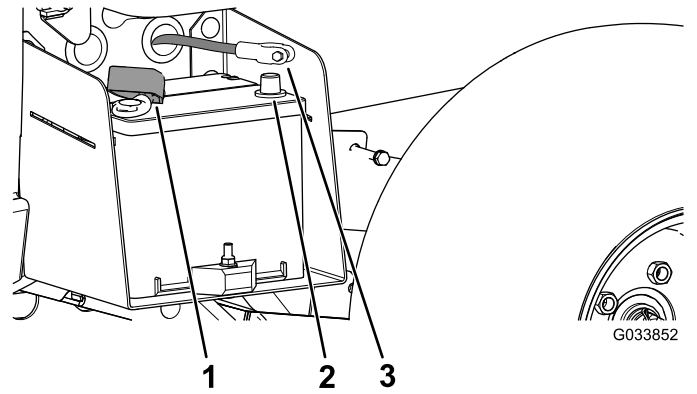


Figure 5

1. Insulator boot (positive-battery cable)
 2. Negative-battery post
 3. Negative-battery cable
-
4. Slide the insulator boot over the positive terminal.
Note: The insulator boot is used to prevent a possible short-to-ground from occurring.
 5. Install the negative-battery cable (black) onto the negative (-) terminal of the battery and secure the cable with bolts and nuts.
 6. Align the battery cover to the battery base (Figure 4).
 7. Squeeze the battery cover, align the tabs to the battery base, and release the battery cover (Figure 4).

3

Checking the Fluid Levels and Tire Pressure

No Parts Required

Procedure

1. Check the engine-oil level before and after you operate the engine for the first time; refer to [Checking the Engine-Oil Level \(page 21\)](#).
2. Check the brake-fluid level before you operate the engine for the first time; refer to [Checking the Brake-Fluid Level \(page 20\)](#).
3. Check the transaxle-fluid level before you operate the engine for the first time; refer to [Checking the Transaxle-Fluid Level \(page 42\)](#).
4. Check the air pressure in the tires; refer to [Checking the Tire Pressure \(page 22\)](#).

4

Reading the Manual and Viewing the Safety Training Material

Parts needed for this procedure:

1	<i>Operator's Manual</i>
1	Engine owner's manual
1	<i>Parts Catalog</i>
1	Safety training material
1	Registration card
1	<i>Predelivery Inspection Form</i>
1	Certificate of Quality
2	Key

Procedure

- Read the *Operator's Manual* and engine owner's manual.
- View the safety training material.
- Fill out the registration card.
- Complete the *Predelivery Inspection Form*.
- Review the *Certificate of Quality*.

5

Burnishing the Brakes

No Parts Required

Procedure

To ensure optimum performance of the brake system, burnish (break-in) the brakes before use.

1. Bring the machine up to full speed, apply the brakes to rapidly stop the machine without locking up the tires.
2. Repeat this procedure 10 times, waiting 1 minute between stops, to avoid overheating the brakes.

Important: This procedure is most effective if the machine is loaded with 227 kg (500 lb).

Product Overview

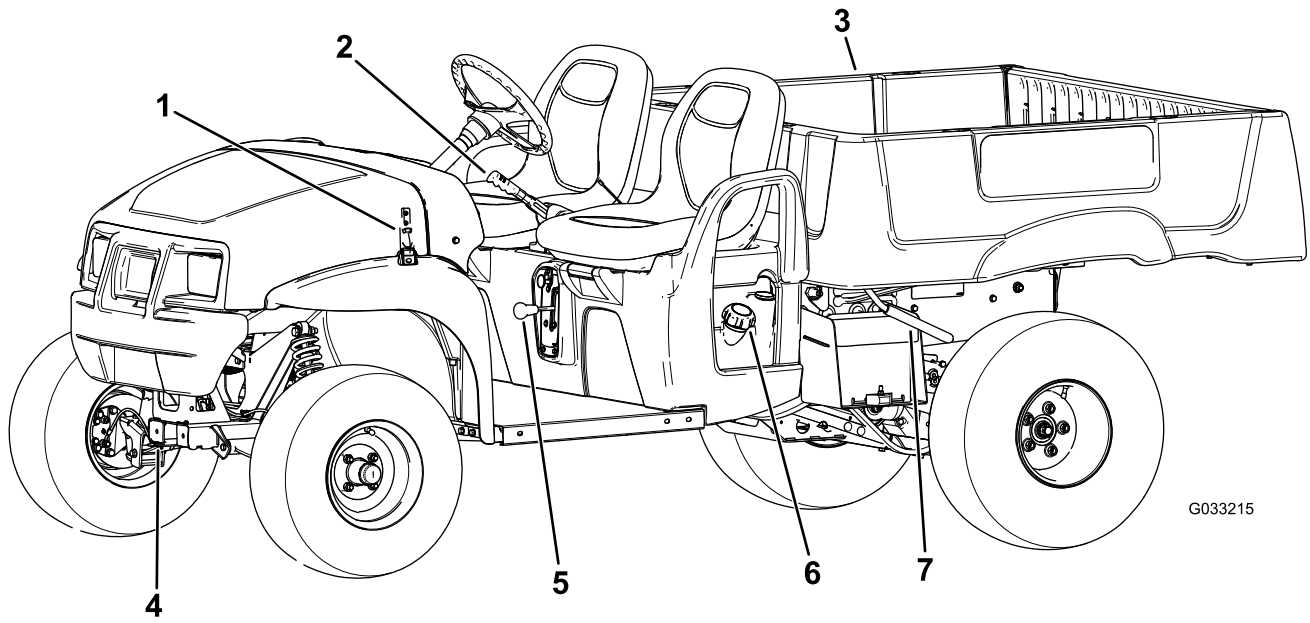
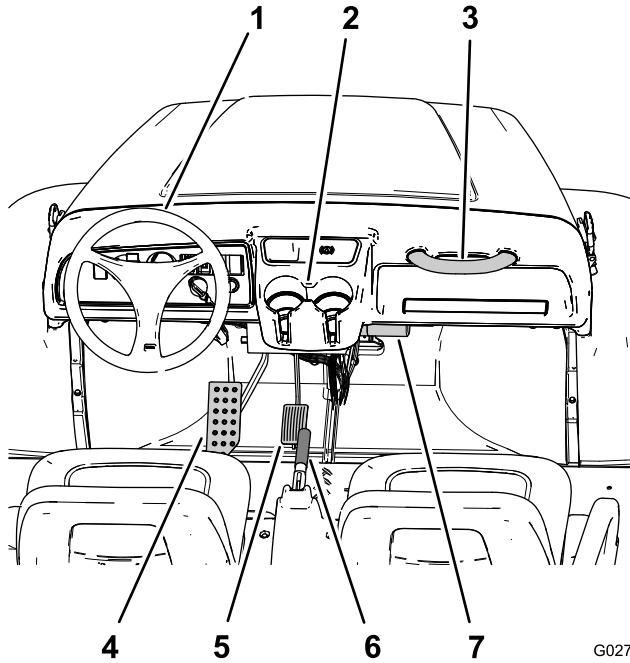


Figure 6

g033215

- | | | | |
|-------------------------|------------------|------------------------|--------------------|
| 1. Hood latch | 3. Cargo box | 5. Gear-shift selector | 7. Cargo-box lever |
| 2. Parking-brake handle | 4. Towing tongue | 6. Fuel cap | |

Controls



G027586
g027586

Figure 7

- | | |
|-----------------------|---|
| 1. Steering wheel | 5. Accelerator pedal |
| 2. Cup holder | 6. Parking-brake handle
(center console) |
| 3. Passenger handhold | 7. <i>Operator's Manual</i> storage
tube |
| 4. Brake pedal | |

Accelerator Pedal

Use the accelerator pedal (Figure 7) to vary ground speed of the machine. Pressing down the accelerator pedal starts the engine. Pressing the pedal farther increases ground speed. Releasing the pedal slows the machine, and the engine shuts off.

Note: The maximum forward speed is 26 km/h (16 mph).

Brake Pedal

Use the brake pedal to stop or slow the machine (Figure 7).

⚠ CAUTION

Operating a machine with worn or incorrectly adjusted brakes can may result in personal injury.

If brake pedal travels to within 25 mm (1 inch) of the machine floor board, adjust or repair the brakes.

Parking-Brake Lever

The parking-brake lever is located between the seats (Figure 6 and Figure 7). Whenever you shut off the engine, engage the parking brake to prevent the machine from accidentally moving. To engage the parking brake, pull up the parking-brake lever. To disengage the parking brake, push the lever down. If you park the machine on a steep grade, engage the parking brake.

Gear-Shift Selector

The gear-shift selector is located between the seats and below the parking-brake lever. The gear-shift selector has 3 positions: FORWARD, REVERSE, and NEUTRAL (Figure 6).

Note: The engine starts and runs in any of the 3 positions.

Important: Always stop the machine before changing gears.

Horn Button

Model 07236TC Only

The horn button is located at the lower, left corner of the dash panel (Figure 8). Press the horn button to sound the horn.

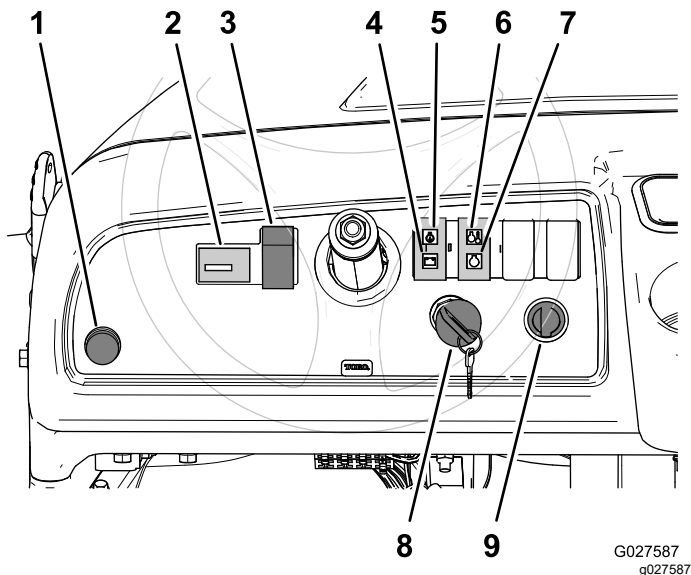


Figure 8

- | | |
|--------------------------------|-------------------------------------|
| 1. Horn button (Model 07236TC) | 6. Engine coolant-temperature light |
| 2. Hour meter | 7. Glow-plug-indicator light |
| 3. Light switch | 8. Key switch |
| 4. Battery light | 9. Power point |
| 5. Engine oil-pressure light | |

Light Switch

The light switch is located to the left of the steering column (Figure 8). Use the light switch to illuminate the headlights. Push up the light switch to turn on the headlights or push down the switch to turn off the lights.

Hour Meter

The hour meter is located to the left of the light switch (Figure 8). Use the hour meter to find out the total number of hours the engine has run. The hour meter

starts to function whenever you turn the key switch to the ON position or if the engine is running.

Battery Light

The battery light is located to the right of the steering column and above the oil light (Figure 8). The battery light turns on for several seconds when you first start the engine, and then turns off once the engine is running. If the light remains on while the engine is running, the alternator, battery, or electrical system is damaged.

Engine Oil-Pressure Light

The engine oil-pressure light is located to the right of the steering column (Figure 8). The oil light warns the operator if the engine-oil pressure drops below a safe level to operate the engine. If the light comes on and remains lit, shut off the engine and check the engine-oil level. Add oil to the engine if necessary; refer to [Checking the Engine-Oil Level \(page 21\)](#).

Note: The oil light may flicker; this is normal and no action needs to be taken.

Engine Coolant-Temperature Light

The engine coolant-temperature light is located to the right of the battery and the engine oil-pressure lights, and above the glow-plug-indicator light (Figure 8). The engine coolant-temperature light warns the operator that the coolant temperature of the engine is too hot to continue operating the engine (the engine is overheating). Shut off the engine and allow the machine to cool down. Check the coolant level and the belts to the fan and water pump. Fill the coolant reservoir with coolant as needed and replace any worn, damaged, or slipping belts.

Important: If the engine overheating problem persists, contact your Authorized Toro Dealer for diagnostics and repair.

Glow-Plug-Indicator Light

The glow-plug-indicator light is located to the right of the battery and the engine oil-pressure lights, and below the engine coolant-temperature light (Figure 8). The glow-plug-indicator light illuminates red when you rotate the key switch to the ON position and the engine is cold. The light indicates that the glow plugs are operating.

Key Switch

The key switch (Figure 8), is used to run and shut off the engine, and has 3 positions: OFF, ON, and

START. Rotate the key clockwise to the ON position to activate the glow plugs. When the glow-plug-indicator light turns off, rotate the key clockwise to the START position. When the engine starts, turn the key counterclockwise to the RUN position.

To shut off the engine, rotate the key counterclockwise to the OFF position.

Power Point

The power point is located to the right of the key switch (Figure 8). Use the power point to power 12 V optional electrical accessories.

Fuel Gauge

The fuel gauge (Figure 9) is located on the fuel tank next to the filler cap, at the left side of the machine. The gauge displays the amount of fuel in the tank.

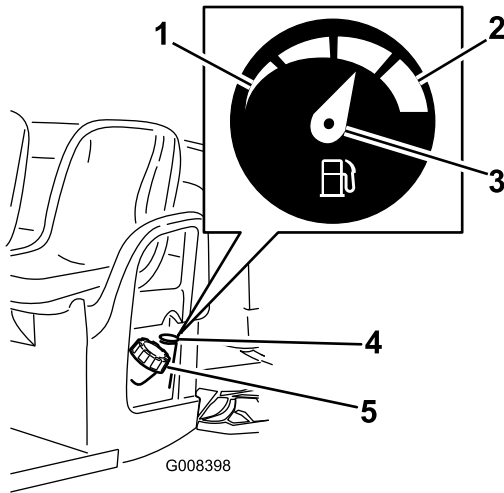


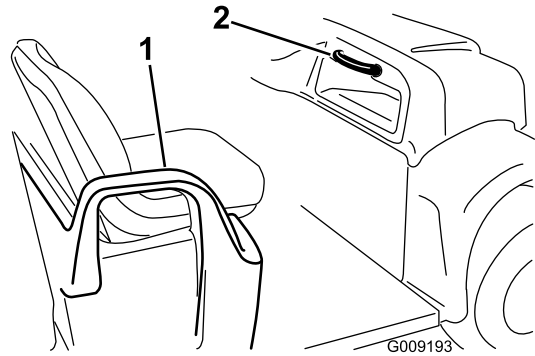
Figure 9

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1. Empty
2. Full
3. Needle
4. Fuel gauge
5. Fuel-tank cap

Passenger Handholds

The passenger handholds are located on the right side of the dash panel and at the outside of each seat (Figure 10).



g009193

Figure 10

1. Handhold—hip restraint
2. Passenger handhold

Specifications

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

Base weight	Dry 590 kg (1,300 lb)
Rated capacity (on level ground)	749 kg (1,650 lb) total, including 90.7 kg (200 lb) operator and 90.7 kg (200 lb) passenger, load, trailer tongue weight, gross trailer weight, accessories, and attachments
Maximum gross vehicle weight (GVW) (on level ground)	1341 kg (2,950 lb) total, including all of the weights listed above
Maximum cargo capacity (on level ground)	567 kg (1,250 lb) total, including trailer tongue weight and gross trailer weight
Tow capacity:	
Standard hitch	Tongue weight 45 kg (100 lb) Maximum trailer weight 363 kg (800 lb)
Heavy-duty hitch	Tongue weight 45 kg (100 lb) Maximum trailer weight 544 kg (1,200 lb)
Overall width	150 cm (59 inches)
Overall length	299 cm (117.75 inches)
Ground clearance	25.4 cm (10 inches) at the front with no load or operator, 18 cm (7 inches) at the rear with no load or operator
Wheel base	205.7 cm (81 inches)
Wheel tread (center line to center line)	124.5 cm (49 inches) in the front, 120 cm (47-1/4 inches) in the rear
Cargo box length	116.8 cm (46 inches) inside, 132.7 cm (52-1/4 inches) outside
Cargo box width	124.5 cm (49 inches) inside, 150 cm (59 inches) at outside of the molded fenders
Cargo box height	25.4 cm (10 inches) inside
Maximum speed	26 km/h (16 mph)
Engine speed (non-adjustable)	Low idle—1,200 to 1,300 rpm, High idle—3,420 to 3,520 rpm

Attachments/Accessories

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

Operation

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

Think Safety First

Carefully read all safety instructions and symbols in the safety section. Knowing this information could help you or bystanders avoid injury.

⚠ DANGER

Operating on wet grass or steep slopes can cause sliding and loss of control.

Wheels dropping over edges can cause rollovers, which may result in serious injury, death, or drowning.

To avoid loss of control and possibility of rollover:

- Do not operate near dropoffs or near water.
- Reduce speed and use extreme caution on slopes.
- Avoid sudden turns or rapid speed changes.

⚠ CAUTION

This machine produces sound levels that can cause hearing loss through extended periods of exposure.

Wear hearing protection when operating this machine.

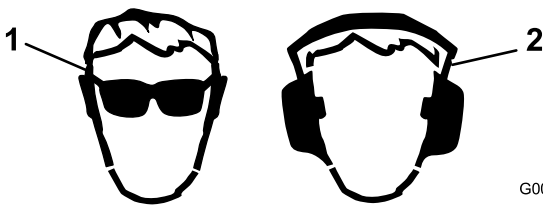


Figure 11

1. Wear eye protection.
2. Wear hearing protection.

Operating the Cargo Box

Raising the Cargo Box

⚠ WARNING

A raised box could fall and injure persons that are working beneath it.

- Always use the prop rod to hold the box up before working under the box.
- Remove any load material from the box before raising it.

⚠ WARNING

Driving the machine with the cargo box raised may cause the machine to tip or roll easier. The box structure may become damaged if you operate the machine with the box raised.

- Operate the machine when the cargo box is down.
- After emptying the cargo box, lower it.

⚠ CAUTION

If a load is concentrated near the back of the cargo box when you release the latches, the box may unexpectedly tip open, injuring you or bystanders.

- Center loads in the cargo box if possible.
- Hold the cargo box down and ensure that no one is leaning over the box or standing behind it when releasing the latches.
- Remove all cargo from the box before lifting the box up to service the machine.

1. Lift the lever on either side of the box and lift the box up (Figure 12).

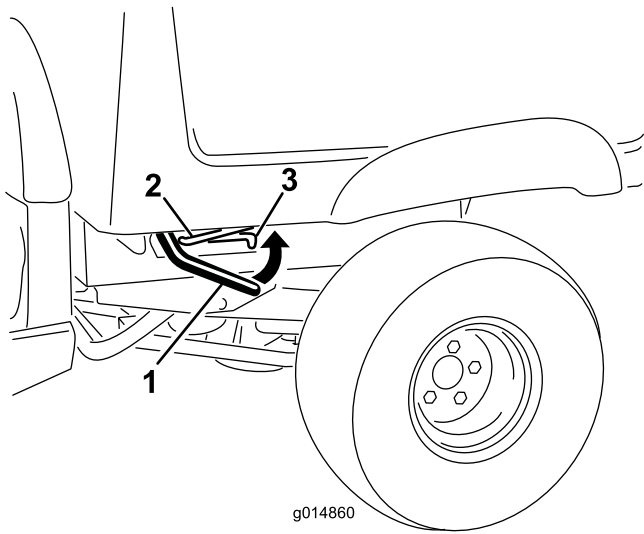


Figure 12

1. Lever
2. Prop rod
3. Detent slot

2. Pull the prop rod into the detent slot, securing the box (Figure 13).

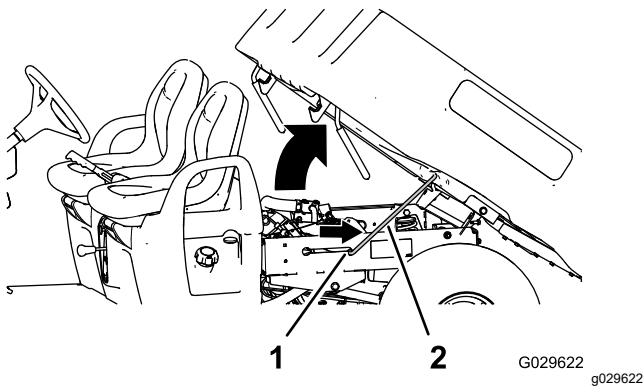


Figure 13

1. Detent slot
2. Prop rod

Lowering the Cargo Box

⚠ WARNING

The weight of the box may be heavy. Hands or other body parts could be crushed.

Keep your hands and other body parts clear when lowering the box.

1. Raise the cargo box slightly by lifting up on the latch lever (Figure 12).
2. Pull the prop rod out of the detent slot (Figure 13).
3. Lower the box until it latches securely into place (Figure 13).

Opening the Tailgate

1. Ensure that the cargo box is down and latched.
2. Lift up the finger pulls at the back panel of the tail gate (Figure 14).

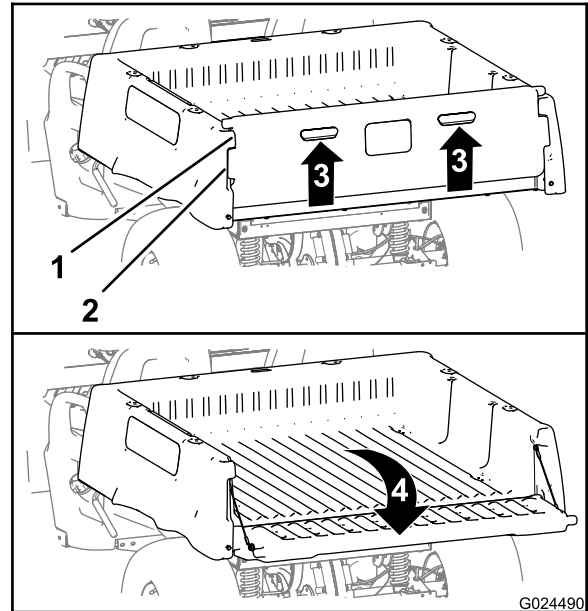


Figure 14

1. Tailgate flange (cargo box)
2. Lock flange (tailgate)
3. Lift up (finger pull)
4. Rotate rearward and down

3. Align the lock flanges of the tailgate with the openings between the tailgate flanges of the cargo box (Figure 14).
4. Rotate the tailgate rearward and down (Figure 14).

Closing the Tailgate

If you unloaded loose material such as sand, landscaping rock, or wood chips from the cargo box of the machine, some of the material that you unloaded may have lodged in the hinge area of the tailgate. Perform the following before closing the tailgate.

1. Use your hands to remove as much of the material from the hinge area as possible.
2. Rotate the tailgate to approximately the 45° position (Figure 15).

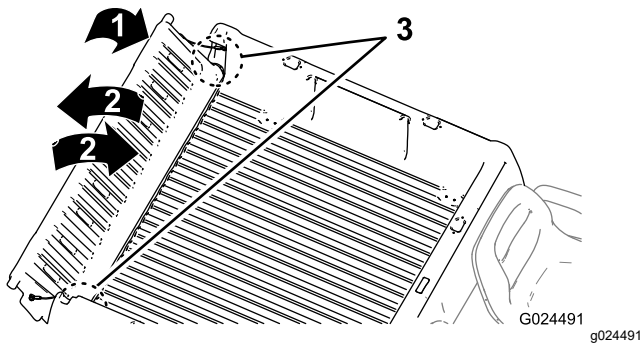


Figure 15

1. Rotate the tailgate to approximately the 45° position.
2. Rotate the tailgate back and forth several times.
3. Hinge area

3. Use a short, shaking motion to rotate the tailgate back and forth several times (Figure 15).

Note: This action helps move material away from the hinge area.

4. Lower the tailgate and check for material remaining in the hinge area.
5. Repeat steps 1 through 4 until the material is removed from the hinge area.
6. Rotate the tailgate up and forward until the lock flanges of the tailgate are flush with the tailgate pocket in the cargo box (Figure 14).

Note: Raise or lower the tailgate in order to align the lock flanges of the tailgate with the vertical openings between the tailgate flanges of the cargo box.

7. Lower the tailgate until it is seated in the back of the cargo box (Figure 14).

Note: The lock flanges of the tailgate are fully secured by the tailgate flanges of the cargo box.

Performing Pre-Starting Checks

Service Interval: Before each use or daily Check the following items each time you begin using the machine for the day:

- Check brake-fluid levels, and add the specified brake fluids as needed; refer to [Checking the Brake-Fluid Level \(page 20\)](#).
- Check engine oil, and add the specified oil as needed; refer to [Checking the Engine-Oil Level \(page 21\)](#).
- Check the air pressure in the tires; refer to [Checking the Tire Pressure \(page 22\)](#).

- Check the brake pedal operation.
- Check to see that the lights are working.
- Turn the steering wheel to the left and right to check steering response.
- Check for oil leaks, loose parts, and any other noticeable malfunctions.

Note: Shut off the engine and allow all moving parts to stop before checking for oil leaks, loose parts, and other wear and damage.

If any of the above items are not correct, notify your mechanic or check with your supervisor before taking the machine out for the day. Your supervisor may want you to check other items on a daily basis, so ask him or her about additional operator's responsibilities.

Checking the Brake-Fluid Level

Service Interval: Before each use or daily Check the brake-fluid level before the motor is first used.

Brake Fluid Type: DOT 3

1. Park the machine on a level surface, shut off the engine, engage the parking brake, and remove the key from the key switch.
2. Raise the hood to gain access to the master-brake cylinder and reservoir (Figure 16).

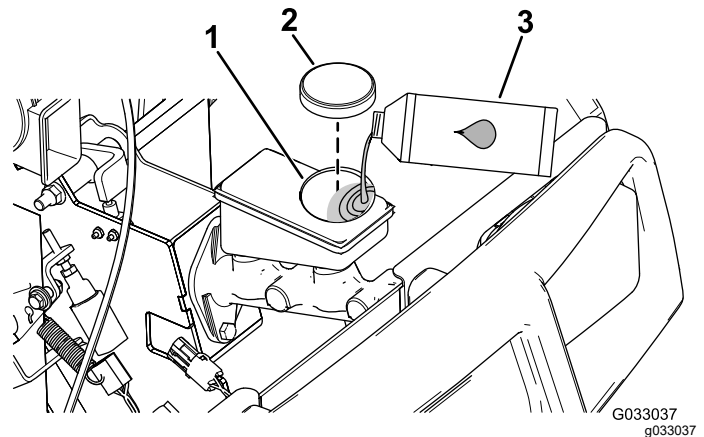


Figure 16

1. Filler neck (reservoir)
2. Reservoir cap
3. DOT 3 brake fluid

3. Look at the outline of the fluid level at the side of the reservoir (Figure 17).

Note: The level should be above the Minimum line.

Checking the Tire Pressure

Service Interval: Before each use or daily

Tire Air Pressure Range: 55 to 103 kPa (8 to 22 psi)

Important: Do not exceed the maximum air pressure indicated on the sidewall of the tire.

Note: The air pressure needed in the tires is determined by the payload that you intend to carry.

1. Check the air pressure in the tires.

Note: The air pressure range in the front and rear tires is 55 to 103 kPa (8 to 22 psi).

- Use lower air pressure in the tires for lighter payloads, for less the soil compaction, for a smoother the ride, and to minimize tire marks in the ground.
 - Use higher air pressure in the tires for carrying heavier payloads at higher speeds.
2. If needed, adjust the air pressure in the tires by adding or removing air in the tires.

Adding Fuel

Recommended Fuel

The engine runs on clean, fresh diesel fuel with a minimum cetane rating of 40. Purchase fuel in quantities that you can use within 30 days to ensure fuel freshness.

Use summer-grade diesel fuel (No. 2-D) at temperatures above -7°C (20°F) and winter grade diesel fuel (No. 1-D or No. 1-D/2-D blend) below -7°C (20°F). Use of winter-grade diesel fuel at lower temperatures provides lower flash point and pour point characteristics, allowing easier starts and lessening the chances of chemical separation of the fuel due to lower temperatures.

Using summer-grade diesel fuel above -7°C (20°F) contributes toward longer life of the fuel-pump components.

Important: Never use kerosene or gasoline in place of diesel fuel. Failure to observe this caution will damage the engine.

Filling the Fuel Tank

Fuel-tank capacity: 26.5 L (7 US gallons)

1. Clean the area around the fuel-tank cap.
2. Remove the fuel-tank cap (Figure 20).

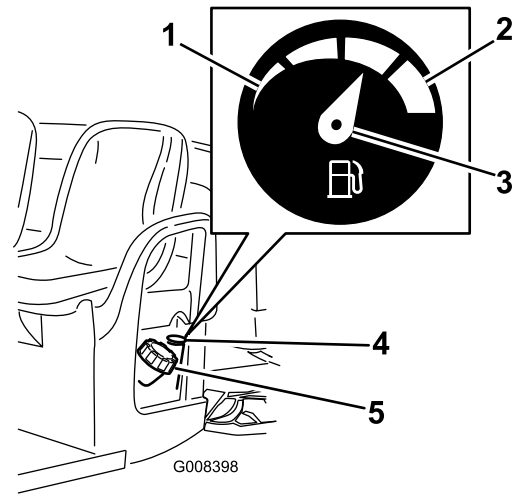


Figure 20

1. Empty
2. Full
3. Needle
4. Fuel gauge
5. Fuel-tank cap

3. Fill the tank to approximately 25 mm (1 inch) below the bottom of the filler neck and install the cap.

Note: Do not overfill the fuel tank.

4. Install the fuel-tank cap securely.
5. Wipe up any spilled fuel.

Starting the Engine

Important: Do not attempt to push or tow the machine to get it started.

1. Sit in the operator's seat, insert the key into the key switch, press down on the brake, and rotate the key clockwise to the ON position.

Note: If the backup alarm is installed and the gear-shift selector is in the REVERSE position, the buzzer sounds to warn the operator.

2. When the glow-plug-indicator light turns off, rotate the key clockwise to the START position.
3. When the engine starts, turn the key counterclockwise to the RUN position.
4. Disengage the parking brake.

Stopping the Machine

Important: When stopping the machine on an incline, use the service brakes to stop the machine and engage the parking brake to hold the machine in place. Using the accelerator to stall the machine on the hill can damage the machine.

1. Remove your foot from the accelerator pedal.
2. Slowly press the brake pedal to apply the service brakes until the machine comes to a complete stop.

Note: The stopping distance may vary depending on the machine load and speed.

Parking the Machine

1. Stop the machine on a level surface using the service brakes by pressing the brake pedal.
2. Engage the parking brake by pulling up the parking-brake lever.
3. Rotate the key for the key switch counterclockwise to the OFF position.
4. Remove the key from the key switch.

Breaking in a New Machine

Service Interval: After the first 100 hours—Perform the breaking in a new machine guidelines.

Perform the breaking in a new machine guidelines to provide proper performance and long life for the machine.

- Ensure that the brakes are burnished; refer to [5 Burnishing the Brakes \(page 12\)](#).
- Check the fluid and engine-oil levels regularly. Remain alert for signs that the machine or its components are overheating.
- After starting a cold engine, let it warm up for about 15 seconds before using the machine.
- Vary the machine speed during operation. Avoid fast starts and quick stops.
- A break-in oil for engine is not required. Original engine oil is the same type specified for regular oil changes.
- Refer to [Maintenance \(page 26\)](#) for any special low hour checks.
- Check the front suspension positioning and adjust it if necessary; refer to [Adjusting the Front Wheel Toe-in and Camber \(page 41\)](#).

Loading the Cargo Box

Use the following guidelines when loading the cargo box and operating the machine:

- Observe the weight capacity of the machine and limit the weight of the load that you carry in the cargo box as described in [Specifications \(page 17\)](#) and on the gross vehicle weight tag of the machine.
- **Note:** The load rating is specified for machine operation on a level surface only.
- Reduce the weight of the load that you carry in the cargo box when operating the machine on hills and rough terrain.
- Reduce the weight of the load that you carry when the materials are tall (and have a high center of gravity) such as a stack of bricks, landscaping timbers, or fertilizer bags. Distribute the load as low as possible, making sure that the load does not reduce your ability to see behind the machine when operating it.
- Keep loads centered by loading the cargo box as follows:

- Evenly position the weight in the cargo box from side to side.

Important: Tipping over is more likely to occur if the cargo box is loaded to 1 side.

- Evenly position the weight in the cargo box from front to back.

Important: Loss of steering control or the machine may tip over if you position the load behind the rear axle and the traction on the front tires is reduced.

- Use extra caution when transporting oversized loads in the cargo box, particularly when you cannot center the weight of the oversize load to the cargo box.
- Whenever possible, secure the load by binding it to the cargo box so it does not shift.
- When transporting liquid in a large tank (such as a sprayer tank), use caution when driving the machine uphill or downhill, when suddenly changing speed or stopping, or when driving over tough surfaces.

The capacity of the cargo box is 0.37 m³ (13 ft³). The amount (volume) of material that can be placed in the box without exceeding the load ratings of the machine can vary greatly depending on the density of the material. For example, a level box of wet sand weighs approximately 680 kg (1,500 lb), which exceeds the load rating by 113 kg (250 lb). But a level box of wood weighs 295 kg (650 lb), which is under the load rating.

See the table below for load volume limits with various materials:

Material	Density	Maximum Cargo Box Capacity (on level ground)
Gravel, dry	1,522 kg/m ³ (95 lb/ft ³)	Full
Gravel, wet	1,922 kg/m ³ (120 lb/ft ³)	3/4 Full
Sand, dry	1,442 kg/m ³ (90 lb/ft ³)	Full
Sand, wet	1,922 kg/m ³ (120 lb/ft ³)	3/4 Full
Wood	721 kg/m ³ (45 lb/ft ³)	Full
Bark	<721 kg/m ³ (<45 lb/ft ³)	Full
Earth, packed	1,602 kg/m ³ (100 lb/ft ³)	3/4 Full (approx.)

Transporting the Machine

Use a trailer with full-width ramps to move the machine a long distance. Make sure that the machine is securely bound to the trailer. Refer to [Figure 21](#) and [Figure 22](#) for the location of the tie-down points on the machine.

⚠ CAUTION

Loose seats may fall off the machine and trailer when transporting and land on another machine or become an obstruction on the road.

Remove the seats or make sure that the seats are securely fastened in the detents.

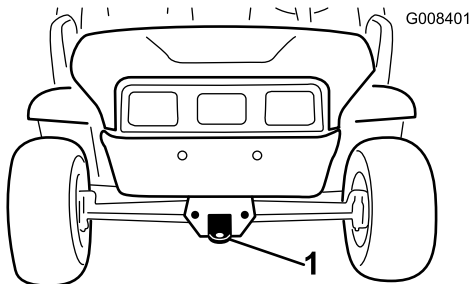


Figure 21

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1. Towing tongue and tie-down point (front of the machine)

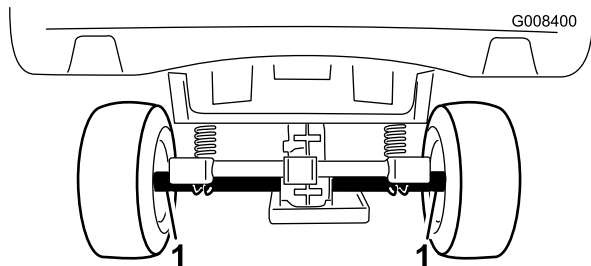


Figure 22

g008400

1. Rear axle tie-down points (back of the machine)

Towing the Machine

In case of an emergency, you can tow the machine for a short distance. However, this should not be a standard operating procedure.

⚠ WARNING

Towing at excessive speeds could cause a loss of steering control, resulting in personal injury.

Never tow the machine faster than 8 km/h (5 mph).

Towing the machine is a 2-person job. If the machine must be moved a considerable distance, transport it on a truck or trailer; refer to [Towing a Trailer \(page 25\)](#)

1. Remove the drive belt from the machine; refer to [Replacing the Drive Belt \(page 48\)](#).
2. Affix a tow line to the tongue at the front of the machine's frame ([Figure 21](#)).
3. Put the transmission of the machine in NEUTRAL and disengage the parking brake.

Towing a Trailer

The machine is capable of pulling trailers. Two types of tow hitches are available for the machine, depending on your application. Contact your Authorized Toro Distributor for details.

When hauling cargo or towing a trailer, do not overload your machine or trailer. Overloading can cause poor performance or damage to the brakes, axle, engine, transaxle, steering, suspension, body structure, or tires. Always load a trailer with 60% of the cargo weight in the front of the trailer. This places approximately 10% of the Gross Trailer Weight (GTW) on the tow hitch of the machine.

The maximum cargo load shall not exceed 567 kg (1,250 lb), including the GTW. For example, if the GTW = 182 kg (400 lb) then the maximum cargo load = 386 kg (850 lb)

To provide adequate braking and traction, always load the cargo box when trailering. Do not exceed the GTW or GVW limits.

Avoid parking a machine with a trailer on a hill. If you must park on a hill, engage the parking brake and block the trailer tires.

Maintenance

Note: Download a copy of the electrical schematic by visiting www.Toro.com and search your machine from the Manuals link.

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

Important: Refer to your engine owner's manual for additional maintenance procedures.

Recommended Maintenance Schedule(s)

Maintenance Service Interval	Maintenance Procedure
After the first 8 hours	<ul style="list-style-type: none"> • Check the condition of the drive belt.
After the first 50 hours	<ul style="list-style-type: none"> • Change the engine oil. • Change the engine-oil filter.
After the first 100 hours	<ul style="list-style-type: none"> • Perform the breaking in a new machine guidelines.
Before each use or daily	<ul style="list-style-type: none"> • Perform the pre-starting checks. Check the following items each time you begin using the machine for the day: • Check the brake-fluid level. • Check the engine oil. Check the oil level in the engine before the engine is first started. • Check the tire pressure. • Check gear-shift operation. • Inspect the primary-drive clutch. • Check the radiator-coolant level.
Every 100 hours	<ul style="list-style-type: none"> • Grease the bearings and bushings. • Replace the air filter. Replace the air-filter element sooner if it dirty or damaged. • Check the condition of the tires and rims. • Torque the wheel-lug nuts. • Inspect the steering and suspension for loose or damaged components. • Check the front wheel toe-in and camber. • Check the transaxle-fluid level. • Check the operation of the Neutral gear-shift position. • Clean the engine-cooling areas. • Inspect the brakes.
Every 150 hours	<ul style="list-style-type: none"> • Change the engine oil (twice as often in special operating conditions; refer to . • Change the engine-oil filter. Change the oil twice as often during special operating conditions.
Every 200 hours	<ul style="list-style-type: none"> • Clean the primary-drive clutch (more often in dusty or dirty conditions). • Adjust the parking brake, if needed. • Check the condition and tension of the drive belt.
Every 300 hours	<ul style="list-style-type: none"> • Grease the front wheel bearings.
Every 400 hours	<ul style="list-style-type: none"> • Inspect the fuel lines and connections.
Every 800 hours	<ul style="list-style-type: none"> • Replace the fuel filter. • Change the transaxle fluid.
Every 1,000 hours	<ul style="list-style-type: none"> • Change the radiator coolant. • Change the brake fluid.
Yearly	<ul style="list-style-type: none"> • Complete all yearly maintenance procedures specified in the engine owner's manual.

Daily Maintenance Checklist

Duplicate this page for routine use.

Maintenance Check Item	For the week of:						
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Check the brake and parking brake operation.							
Check the gear shift/neutral operation.							
Check the fuel level.							
Check the engine-oil level.							
Check the transaxle-fluid level.							
Inspect the air filter.							
Inspect the engine-cooling fins.							
Check unusual engine noises.							
Check unusual operating noises.							
Check the clutch operation.							
Check the tire pressure.							
Check for fluid leaks.							
Check the instrument operation.							
Check the accelerator operation.							
Lubricate all the grease fittings.							
Touch up any damaged paint.							

⚠ WARNING

The cargo box must be raised to perform some routine maintenance.

A raised cargo box can fall and injure persons that are underneath it.

- Always use the prop rod to hold the cargo box up before working under it.
- Remove any load material from the cargo box before working under it.

⚠ CAUTION

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

Remove the key from the key switch and disconnect the wire from the spark plug before you do any maintenance. Set the wire aside so that it does not accidentally contact the spark plug.

Pre-Maintenance Procedures

Maintaining the Machine under Special Operating Conditions

If the machine is subjected to any of the conditions listed below, maintenance should be performed twice as frequently.

- Desert operation
- Cold climate operation—below 10°C (50°F)
- Trailer towing
- Driving time typically less than 5 minutes
- Frequent operation in dusty conditions
- Construction work
- After extended operation in mud, sand, water, or similar dirty conditions, have your brakes inspected and cleaned as soon as possible. This prevents any abrasive material from causing excessive wear.
- Under frequent heavy duty operating conditions, lubricate all grease fittings and inspect the air filter daily to prevent excessive wear.

Preparing to Maintain the Machine

1. Park the machine on a level surface.
2. Engage the parking brake, shut off the engine, and remove the key from the key switch.
3. Allow the engine and exhaust system to cool.

Lifting the Machine

▲ DANGER

The machine may be unstable when using a jack. It could slip off the jack, injuring anyone beneath it.

- Do not start the engine while the machine is on a jack.
- Always remove the key from the key switch before getting off the machine.
- Block the tires when the machine is supported by lifting equipment.
- Use jack stands to support the machine once you have lifted the it.

Important: Whenever the engine is run for routine maintenance and/or engine diagnostics, the rear wheels of the machine should be 25 mm (1 inch) off the ground, with the rear axle supported on jack stands.

- The lifting point at the front of the machine is at the front of the frame behind the towing tongue (Figure 23).

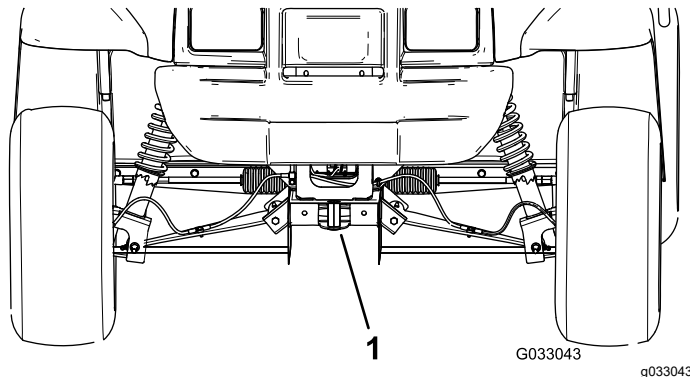


Figure 23

1. Front lifting point

- The lifting point at the rear of the machine is under the axle tubes (Figure 24).

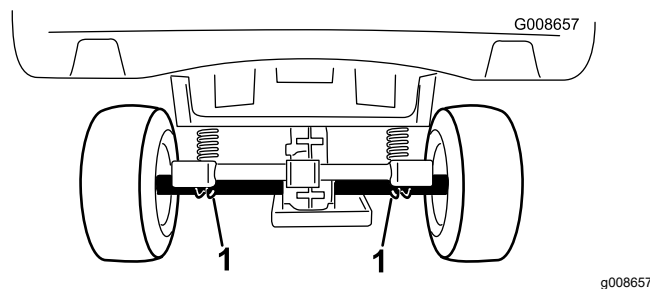


Figure 24

1. Rear lifting points

Accessing the Hood

Raising the Hood

1. Lift up the handle of the rubber latches at each side of the hood (Figure 25).

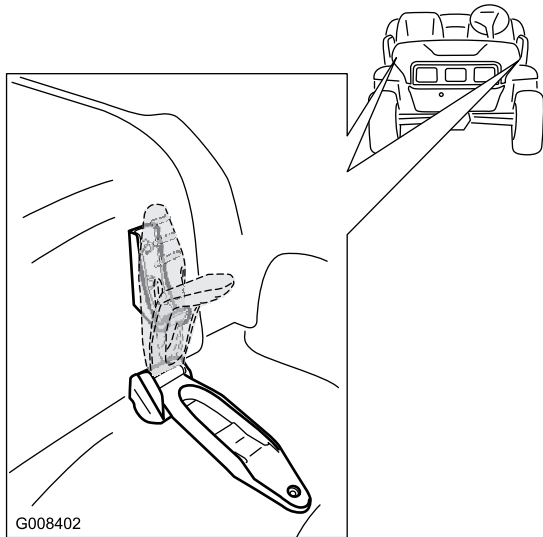


Figure 25

g008402

2. Raise the hood.

Closing the Hood

1. Gently lower the hood onto the chassis.
2. Secure the hood by aligning the rubber latches onto the latch anchors at each side of the hood (Figure 25).

Lubrication

Greasing the Machine

Service Interval: Every 100 hours/Yearly (whichever comes first)—Grease the bearings and bushings. Grease the machine more frequently when using it for heavy-duty operations.

Grease Type: No. 2 lithium grease

1. Use a rag to wipe the grease fitting clean so that foreign matter cannot be forced into the bearing or bushing.
2. With a grease gun, apply 1 or 2 pumps of grease into the grease fittings on the machine.
3. Wipe the excess grease off the machine.

The grease fittings are located at the inner end of the control arms (Figure 26), the tie-rod ball joint, and the outer end of the control arms (Figure 27).

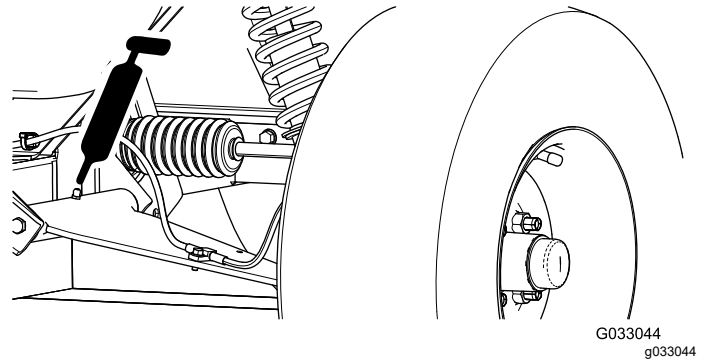


Figure 26
Left Side Shown

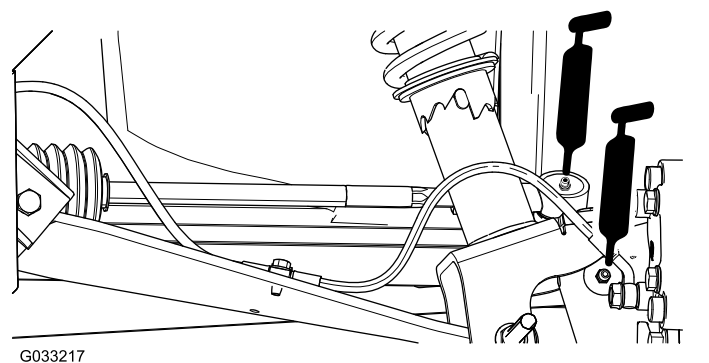


Figure 27
Left Side Shown

Greasing the Front Wheel Bearings

Service Interval: Every 300 hours

Grease specification: Mobilgrease XHP™-222

Removing the Hub and Rotor

1. Lift the front of the machine and support it with jack stands.
2. Remove the 4 lug nuts that secure the wheel to the hub (Figure 28).

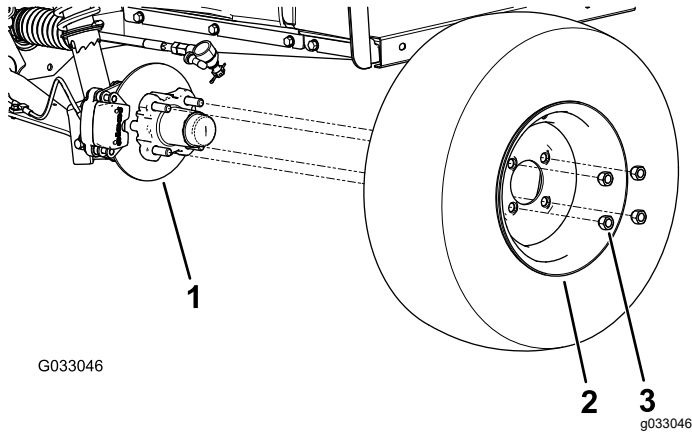


Figure 28

1. Hub
2. Wheel
3. Lug nut

3. Remove the flange-head bolts (3/8 x 3/4 inch) that secure the bracket for the brake assembly to the spindle and separate the brake from the spindle (Figure 29).

Note: Support the brake assembly before proceeding to the next step.

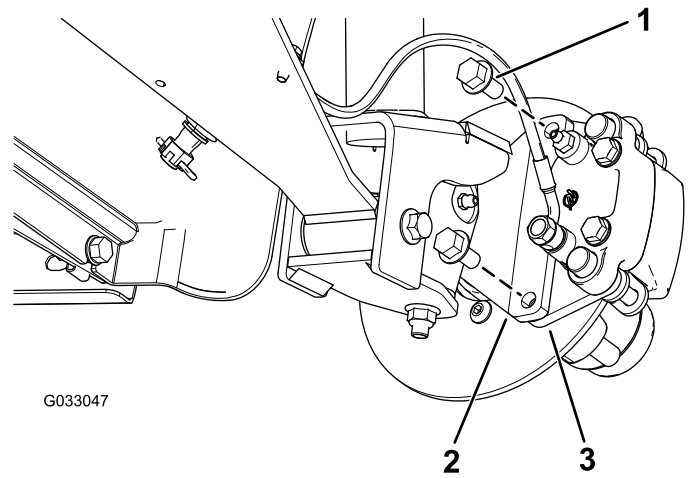


Figure 29

1. Flange-head bolts (3/8 x 3/4 inch)
2. Spindle
3. Caliper bracket (brake assembly)

4. Remove the dust cap from the hub (Figure 30).

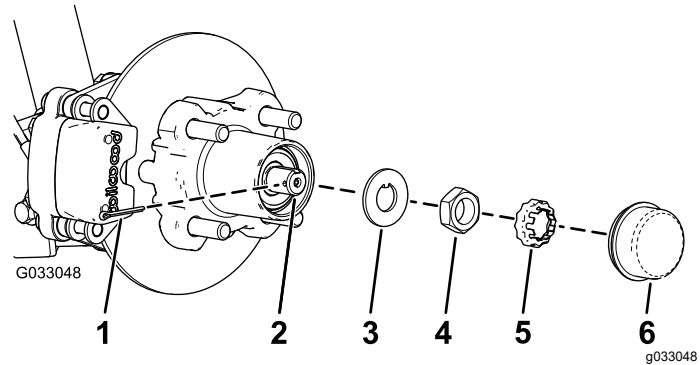


Figure 30

1. Cotter pin
2. Spindle
3. Tab washer
4. Spindle nut
5. Nut retainer
6. Dust cap

5. Remove the cotter pin and nut retainer from the spindle and spindle nut (Figure 30).
6. Remove the spindle nut from the spindle, and separate the hub and rotor assembly from the spindle (Figure 30 and Figure 31).

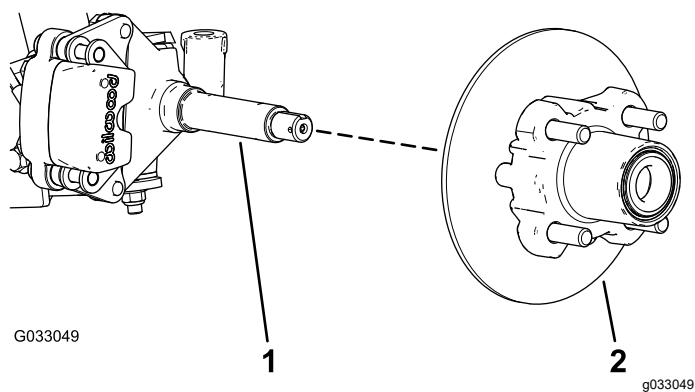


Figure 31

1. Spindle
2. Hub and rotor assembly

7. Wipe clean the spindle with a rag.
8. Repeat steps 1 through 7 to the hub and rotor at the other side of the machine.

Greasing the Wheel Bearings

1. Remove the outboard bearing and bearing race from the hub (Figure 32).

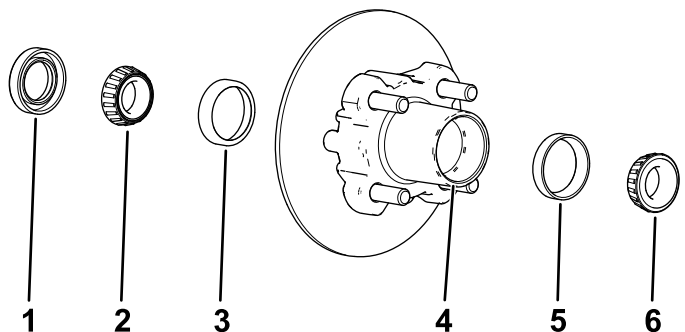


Figure 32

1. Seal
2. Inboard bearing
3. Inboard-bearing race
4. Bearing cavity (hub)
5. Outboard-bearing race
6. Outboard bearing

2. Remove the seal, inboard bearing from the hub (Figure 32).

3. Wipe clean the seal and check for wear and damage.

Note: Do not use cleaning solvent to clean the seal. Replace the seal if it is worn or damaged.

4. Clean the bearings and races, and check these parts for wear and damage.

Note: Replace all worn or damaged parts. Ensure that the bearings and races are clean and dry.

5. Clean the cavity of the hub of all grease, dirt, and debris (Figure 32).

6. Pack the bearings with the specified grease.

7. Fill the cavity of hub 50 to 80% full of the specified grease (Figure 32).

8. Assemble the inboard bearing onto the race at the inboard side of the hub and install the seal (Figure 32).

9. Repeat steps 1 through 8 to the bearings for the other hub.

Installing the Hub and Rotor

1. Apply a light coat of the specified grease to the spindle (Figure 33).

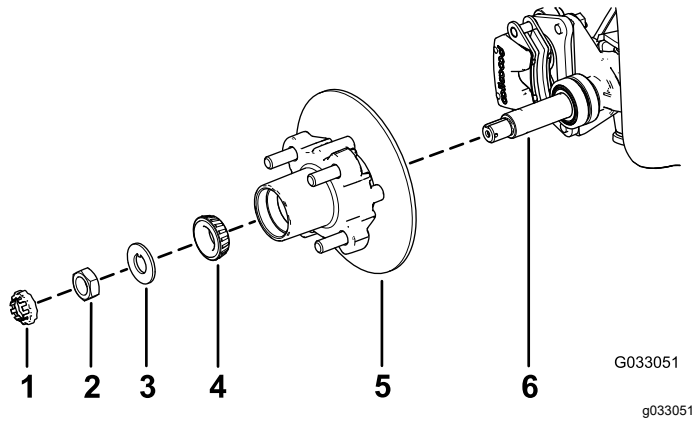


Figure 33

- | | |
|-----------------|--|
| 1. Nut retainer | 4. Outer bearing |
| 2. Spindle nut | 5. Hub, rotor, inner bearing, race, and seal |
| 3. Tab washer | 6. Spindle |

2. Assemble the hub and rotor onto the spindle with the rotor inboard (Figure 33).
3. Assemble the outboard bearing onto the spindle and seat the bearing to the outboard race (Figure 33).
4. Assemble the tab washer onto the spindle (Figure 33).
5. Thread the spindle nut onto the spindle and tighten the nut to 15 N·m (11 ft-lb), while rotating the hub to seat the bearing (Figure 33).
6. Loosen the spindle nut until the hub rotates freely.
7. Torque the spindle nut to 170 to 225 N·cm (15 to 20 in-lb).
8. Install the retainer over the nut and check the alignment of the slot in the retainer and the hole in the spindle for the cotter pin (Figure 34).

Note: If the slot in the retainer and the hole in the spindle are not aligned, tighten the spindle nut to align the slot and hole to a maximum torque of 226 N·cm (20 in-lb) on the nut.

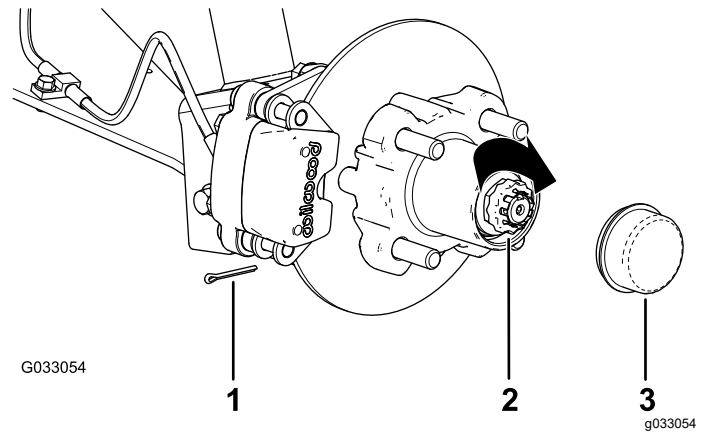


Figure 34

- | | |
|-----------------|-------------|
| 1. Cotter pin | 3. Dust cap |
| 2. Nut retainer | |

9. Install the cotter pin and bend each leg around the retainer (Figure 34).
10. Install the dust cap onto the hub (Figure 34).
11. Repeat steps 1 through 10 for the hub and rotor at the other side of the machine.

Installing the Brakes and Wheels

1. Clean the 2 flange-head bolts (3/8 x 3/4 inch) and apply a coat of medium-strength thread-locking compound to the threads of the bolts.
2. Align the brake pads to either side of the rotor (Figure 29) and the holes in the caliper bracket with the holes in the brake mount of the spindle frame (Figure 33).
3. Secure the caliper bracket to the spindle frame (Figure 29) using the 2 flange-head bolts (3/8 x 3/4 inch).

Torque the 2 flange-head bolts to 47 to 54 N·m (35 to 40 ft-lb).

4. Align the holes in the wheel to the studs of the hub and assemble the wheel to the hub with the valve stem outward (Figure 28).

Note: Ensure that the mounting surface of the wheel is flush with the hub.

5. Secure the wheel to the hub using the lug nuts (Figure 28).
Torque the lug nuts to 108 to 122 N·m (80 to 90 ft-lb).
6. Repeat steps 1 through 5 for the brake and wheel on the other side of the machine.

Engine Maintenance

Servicing the Air Filter

Service Interval: Every 100 hours Replace the air-filter element sooner if it dirty or damaged.

Note: Service the air filter more frequently (every few hours) if operating conditions are extremely dusty or sandy.

Checking the Air Filter

1. Raise the cargo box and secure it with the prop rod; refer to [Raising the Cargo Box \(page 18\)](#).
2. Check the air-filter body for damage which could possibly cause an air leak ([Figure 35](#)).

Note: Ensure that the air-filter cover is sealing around the air-filter housing.

Note: Replace a damaged air-filter cover or housing.

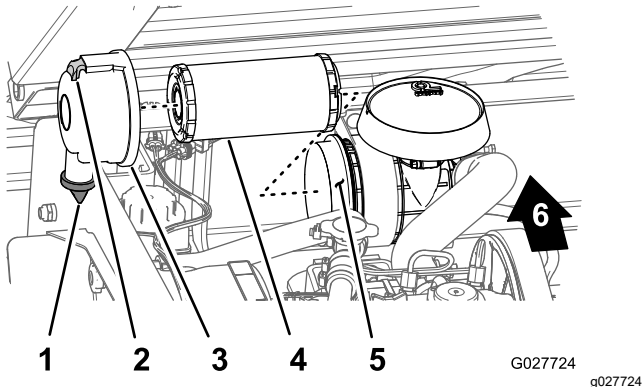


Figure 35

- | | |
|-----------------------|------------------------|
| 1. Dirt-ejection port | 4. Air-filter element |
| 2. Latch | 5. Air-filter housing |
| 3. Air-filter cover | 6. Back of the machine |

3. Pull the latch outward and rotate the air-filter cover counterclockwise ([Figure 35](#)).
4. Remove the cover from the air-filter body.
5. Gently slide the air-filter element out of the air-filter housing ([Figure 35](#)) to reduce the amount of dust dislodged.

Note: Avoid knocking the filter against the air-filter housing.

6. Inspect the air-filter element.

- If the air-filter element is clean, install the filter element, refer to [Installing the Air Filter \(page 34\)](#).
- If the air-filter element is damaged, replace the filter element; refer to [Replacing the Air Filter \(page 34\)](#).

Replacing the Air Filter

1. Remove the air-filter element; refer to steps 1 through 5 in [Checking the Air Filter \(page 33\)](#).

2. Inspect the new filter for shipping damage.

Note: Check the sealing end of the filter.

Important: Do not install a damaged filter.

3. Install the new air filter; refer to [Installing the Air Filter \(page 34\)](#).

Installing the Air Filter

Important: To prevent engine damage, always operate the engine with the complete air-filter assembly installed.

Note: Do not use a damaged element.

Note: Cleaning of the used air-filter element is not recommended due to the possibility of damage to the filter media.

1. Clean the dirt-ejection port located on the air-filter cover ([Figure 35](#)).
2. Remove the rubber outlet valve from the cover, clean the cavity, and replace the outlet valve ([Figure 35](#)).
3. Insert the air-filter element into air-filter housing by applying pressure to the outer rim of the element to seat it into the air-filter housing ([Figure 35](#)).

Note: Ensure that the filter is sealed properly by applying pressure to the outer rim of the filter when installing it. Do not press on the flexible center of the filter.

4. Align the air-filter cover with the air-filter housing with the rubber outlet valve in a downward position—approximately between the 5 o'clock and 7 o'clock positions when viewed from the end ([Figure 35](#)).
5. Secure the cover to the housing with the latches ([Figure 35](#)).
6. Lower the cargo box; refer to [Lowering the Cargo Box \(page 19\)](#).

Servicing the Engine Oil

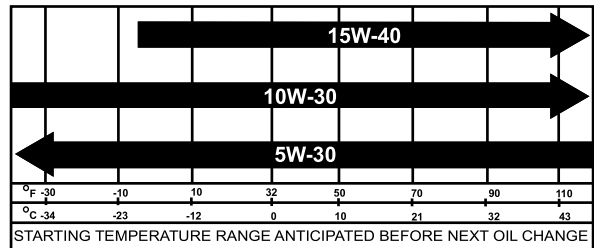
Note: Change the oil and oil filter more frequently when operating conditions are extremely dusty or sandy.

Oil Type: Detergent oil (API service CH-4, CI-4, CJ-4, or higher)

Viscosity: See the table below

Crankcase Capacity: 1.4 L (1.5 US qt) when the filter is changed

USE THESE SAE VISCOSITY OILS



* A synthetic 5W-30 oil may be used.

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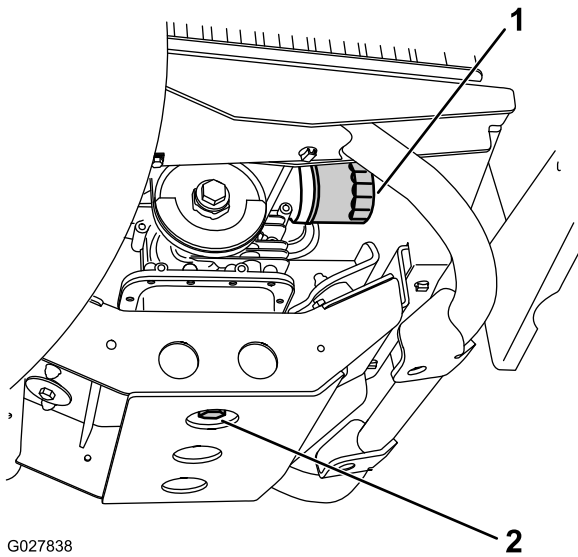
Figure 36

Changing the Engine Oil

Service Interval: After the first 50 hours

Every 150 hours (twice as often in special operating conditions; refer to [Maintaining the Machine under Special Operating Conditions \(page 28\)](#)).

1. Start the machine and let it run for a few minutes to warm the oil.
2. Park the machine on a level surface, shut off the engine, engage the parking brake, and remove the key from the key switch.
3. Raise the cargo box and secure it with the prop rod; refer to [Raising the Cargo Box \(page 18\)](#).
4. Disconnect the negative battery cable; refer to [Disconnecting the Battery \(page 37\)](#).
5. Align a drain pan with a 1.6 L (1.7 US qt) capacity under the drain plug ([Figure 37](#)).



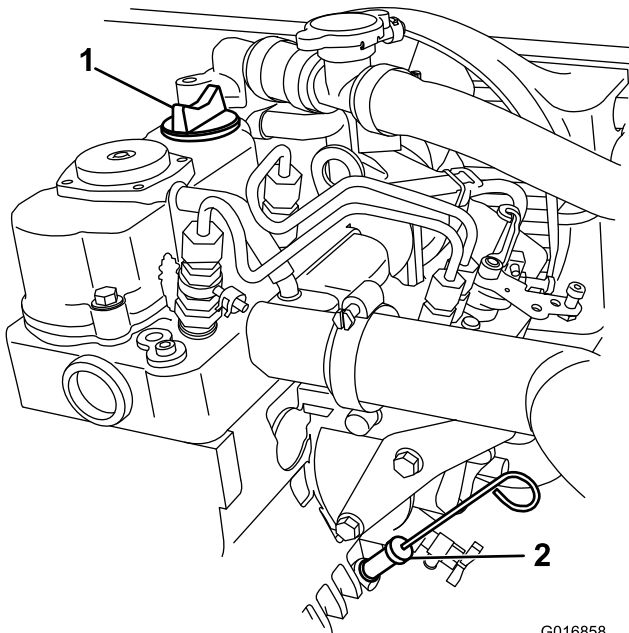
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Figure 37

1. Engine-oil filter 2. Engine-oil-drain plug

6. Remove the drain plug (Figure 37).
 - Note:** Allow the oil to completely drain from the engine.
 - Note:** Dispose of the used oil at a certified recycling center.
7. Install the drain plug and seal (Figure 37) and torque the plug to 45 to 53 N·m (33 to 39 ft-lb).
8. Clean around the oil dipstick and fill cap, and remove the dipstick (Figure 38).



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Figure 38

1. Fill cap 2. Dipstick

9. Pour oil into the fill opening until the oil level is up to the Full mark on the dipstick.
10. Add the oil slowly and check the level often during this process.
 - Note:** Do not overfill the engine with oil.
11. Install the oil-fill cap and dipstick firmly in place.

Changing the Engine-Oil Filter

Service Interval: After the first 50 hours

Every 150 hours/Yearly (whichever comes first)
Change the oil twice as often during special operating conditions.

1. Drain the oil from the engine; refer to steps 1 through 7 in [Checking the Engine-Oil Level \(page 21\)](#).
2. Remove the existing oil filter (Figure 37).
3. Apply a light coat of clean oil to the new filter gasket.
4. Thread the new filter onto the filter adapter until the gasket contacts the mounting plate, then tighten the filter an additional 1/2 to 3/4 turn further (Figure 37).
 - Note:** Do not overtighten the oil filter.
5. Fill the crankcase with the specified oil (Figure 36).
6. Start and run the engine to check for leaks.
7. Shut off the engine and check the oil level.

Note: If necessary, add the specified oil into the engine until the oil level is at the Full mark on the dipstick.

Fuel System Maintenance

Inspecting Fuel Lines and Connections

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

Inspect the fuel lines, fittings, and clamps for signs of leaking, deterioration, damage, or loose connections.

Note: Repair any damaged or leaking fuel system component before using the machine.

Replacing the Fuel Filter

Service Interval: Every 800 hours/Yearly (whichever comes first)

1. Raise the box and support it with the prop rod.
2. Place a clean container under the fuel filter.
3. Unscrew the fuel filter from the bracket (Figure 39).

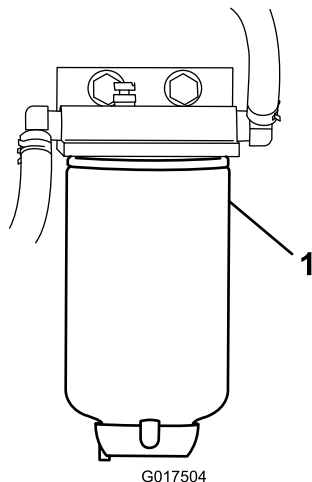


Figure 39

1. Fuel filter

4. Install the replacement filter by turning it until the filter contacts the top of the bracket, then tighten it an additional 3/4 of a turn.

Electrical System Maintenance

Servicing the Battery

Battery voltage: 12 V with 300 A (cold cranking) at -18°C (0°F).

WARNING

CALIFORNIA

Proposition 65 Warning

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.

⚠ DANGER

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

- Do not drink electrolyte or allow it to contact your 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.
- Always keep the battery clean and fully charged.
- Always keep the battery clean and fully charged.
- If the battery terminals are corroded, clean them with a solution of 4 parts water and 1 part baking soda.
- Apply a light coating of grease to the battery terminals to prevent corrosion.

Disconnecting the Battery

⚠ WARNING

Incorrect battery cable routing could damage the machine and cables, causing sparks. Sparks can cause the battery gasses to explode, resulting in personal injury.

- Always disconnect the negative (black) battery cable before disconnecting the positive (red) cable.
- Always connect the positive (red) battery cable before connecting the negative (black) cable.
- Always keep the battery strap in place to protect and secure the battery.

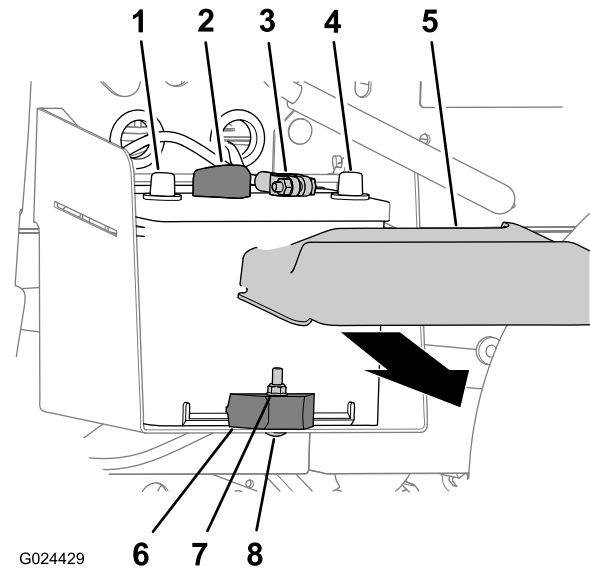


Figure 40

- | | |
|------------------------------|------------------|
| 1. Positive battery terminal | 5. Battery cover |
| 2. Positive battery cable | 6. Battery clamp |
| 3. Negative battery cable | 7. Locknut |
| 4. Negative battery terminal | 8. Carriage bolt |

⚠ WARNING

Battery terminals or metal tools could short against metal machine components, causing sparks. Sparks can cause the battery gasses to explode, resulting in personal injury.

- When removing or installing the battery, do not allow the battery terminals to touch any metal parts of the machine.
 - Do not allow metal tools to short between the battery terminals and metal parts of the machine.
1. Squeeze the sides of the battery cover and remove the cover from the top of the battery ([Figure 40](#)).

2. Disconnect the negative battery cable from the terminal of the battery ([Figure 40](#)).
3. Disconnect the positive battery cable from the terminal of the battery ([Figure 40](#)).

Removing the Battery

1. Disconnect the battery cables; refer to [Disconnecting the Battery \(page 37\)](#).
2. Remove the locknut, carriage bolt, and battery clamp that secures the battery to the battery tray ([Figure 40](#)).
3. Remove the battery from the battery tray ([Figure 40](#)).

Installing the Battery

1. Align the battery to the battery tray of the machine (Figure 40).
Note: Ensure that the positive and negative posts of the battery are aligned as shown in Figure 40.
2. Secure the battery to the battery tray with the battery clamp, carriage bolt, and locknut (Figure 40).
3. Connect the battery cables; refer to [Connecting the Battery](#) (page 38).

Connecting the Battery

1. Connect the positive battery cable to the terminal of the battery (Figure 40).
2. Connect the negative battery cable to the terminal of the battery (Figure 40).
3. Install the battery cover onto the top of the battery (Figure 40).

Charging the Battery

⚠ WARNING

Charging the battery produces gasses that can explode.

Never smoke near the battery and keep sparks and flames away from battery.

Important: Always keep the battery fully charged (1.260 specific gravity). This is especially important to prevent battery damage when the temperature is below 0°C (32°F).

1. Remove the battery from the machine; refer to [Disconnecting the Battery](#) (page 37).
2. Connect a 3 to 4 A battery charger to the battery posts. Charge the battery at a rate of 3 to 4 A for 4 to 8 hours (12 V).

Note: Do not overcharge the battery.

3. Install the battery in the chassis; refer to [Installing the Battery](#) (page 38).

Storing the Battery

If you are storing the machine for more than 30 days, remove the battery and charge it fully. Either store it on the shelf or on the machine. Leave the cables disconnected if it is 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, make sure that it is fully charged.

Replacing the Fuses

There are 7 fuses in the electrical system. They are located beneath the hood (Figure 41).

Alarm/Power Point	10 A
Engine	10 A
Headlights	10 A
Machine fuse	15 A
Lift	15 A
Rear lift	15 A
Horn	30 A

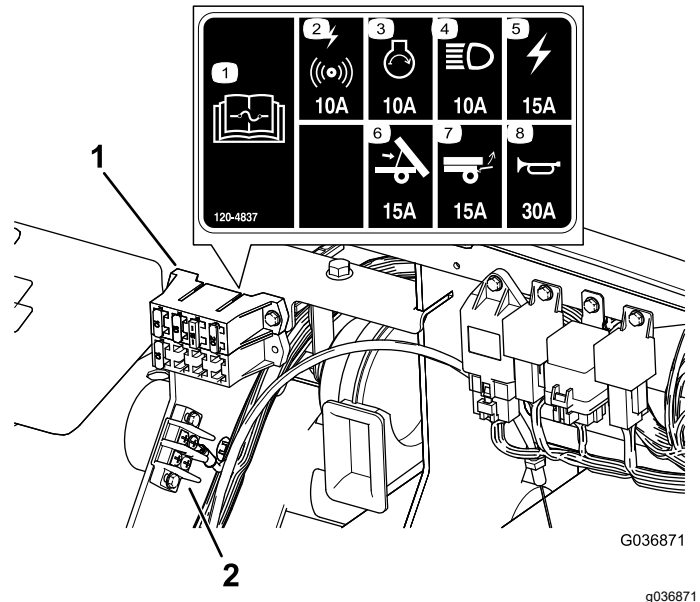


Figure 41

1. Fuse block

2. Ground block

Maintaining the Headlights

Replacing the Bulbs

⚠ CAUTION

If you install a higher wattage bulb than the system is designed for, you may damage the 12 V power supply, or at a minimum, blow the fuse.

Always use the specified Toro LED bulb to prevent this issue.

⚠ CAUTION

The bulbs become extremely hot when in operation. Handling a hot bulb can cause severe burns and personal injury.

Always allow enough time to for the bulbs to cool before replacing them. Use care whenever handling the bulbs.

Specification: See your *Parts Catalog*.

1. Disconnect the battery; refer to [Disconnecting the Battery \(page 37\)](#).
2. Open the hood.
3. Disconnect the electrical connector for the harness from the connector of the lamp assembly at the back of the headlight housing ([Figure 42](#)).

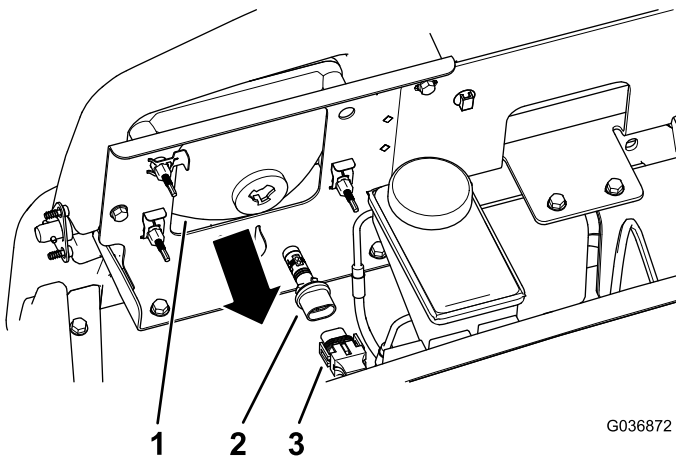


Figure 42

1. Headlight housing
 2. Lamp assembly
 3. Harness-electrical connector
-
4. Rotate the lamp assembly 1/4 turn counterclockwise and moving it rearward, out of the headlight housing ([Figure 42](#)).
 5. Insert the new lamp assembly and headlight housing and align the tabs in the lamp assembly with the slots in the headlight housing ([Figure 42](#)).
 6. Secure lamp assembly by turning it 1/4 turn clockwise ([Figure 42](#)).
 7. Connect the electrical connector for the harness to the connector of the new lamp assembly ([Figure 42](#)).
 8. Connect the battery and close the hood; refer to [Connecting the Battery \(page 38\)](#).

Replacing the Headlight

1. Disconnect the battery; refer to [Disconnecting the Battery \(page 37\)](#).
2. Open the hood; refer to [Closing the Hood \(page 29\)](#).
3. Disconnect the electrical connector for the harness from the connector of the lamp assembly ([Figure 43](#)).

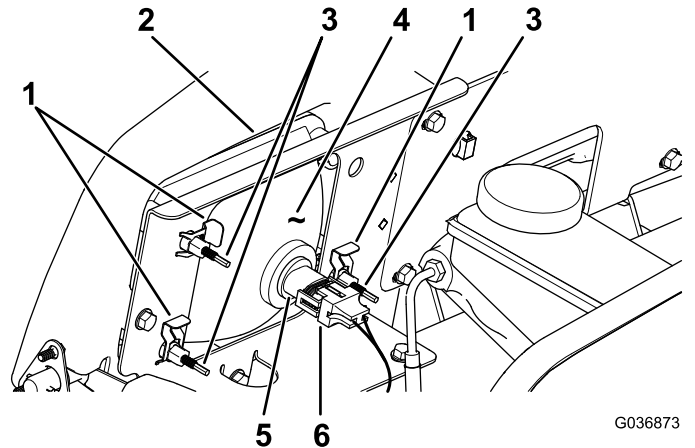


Figure 43

1. Speed clip
 2. Opening in the bumper
 3. Adjustment screw
 4. Headlight
 5. Lamp assembly
 6. Harness-electrical connector
-
4. Remove the speed clips that secure the headlight to the headlight bracket ([Figure 43](#)).
- Note:** Retain all parts for installation of the new headlight.
5. Remove the headlight assembly by moving it forward through the opening in the front bumper ([Figure 43](#)).
 6. Install the new headlight through the opening in the bumper ([Figure 43](#)).
- Note:** Ensure the adjustment posts are lined up with the holes in the mounting bracket behind the bumper.
7. Secure the headlight assembly with the speed clips that you removed in step 4.
 8. Connect the electrical connector for the harness to the connector of the lamp assembly ([Figure 43](#)).
 9. Adjust the headlights to direct the beams to the desired position, refer to [Adjusting the Headlights \(page 40\)](#).

Adjusting the Headlights

Use the following procedure to adjust the headlight beam position whenever a headlight assembly is replaced or removed.

1. Turn the key switch to the ON position, and turn on the headlights.
2. At the back of the headlight assembly, rotate adjustment screws (Figure 43) to pivot the headlight assembly and align the position of the cast beam.

Drive System Maintenance

Maintaining the Tires

Service Interval: Every 100 hours—Check the condition of the tires and rims.

Every 100 hours—Torque the wheel-lug nuts.

1. Inspect the tires and rims for signs of wear and damage.

Note: Operating accidents, such as hitting curbs, can damage a tire or rim and also disrupt wheel alignment, so inspect tire condition after an accident.

2. Torque the wheel-lug nuts to 108 to 122 N·m (80 to 90 ft-lb).

Inspecting the Steering and Suspension Components

Service Interval: Every 100 hours—Inspect the steering and suspension for loose or damaged components.

With the steering wheel at the centered position (Figure 44), turn the steering wheel to the left or right. If you turn the steering wheel more than 13 mm (1/2 inch) to the left or right, and the tires do not turn, check the following steering and suspension components to ensure that they are not loose or damaged:

- Steering shaft to the steering-rack assembly joint
- **Important:** Inspect the condition and security of the pinion-shaft seal (Figure 45).
- Steering-rack assembly tie rods

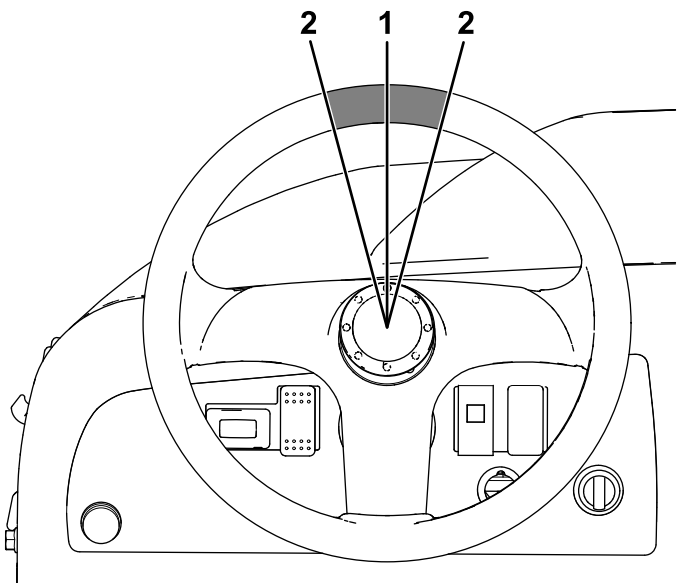


Figure 44

1. Steering wheel at the centered position
2. 13 mm (1/2 inch) from the center of the steering wheel

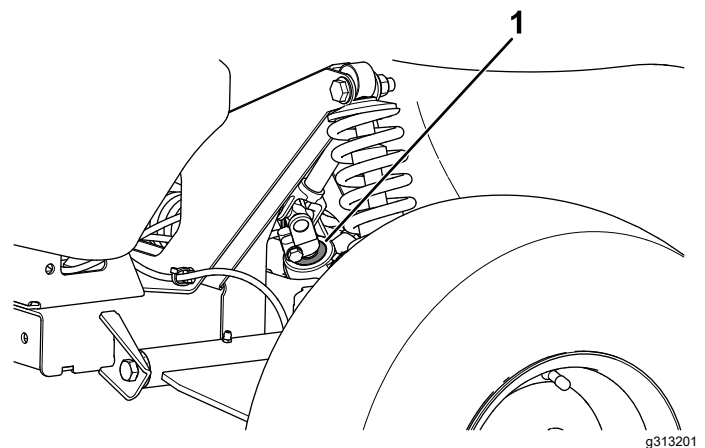


Figure 45

1. Pinion-shaft seal

Adjusting the Front Wheel Toe-in and Camber

Service Interval: Every 100 hours/Yearly (whichever comes first)—Check the front wheel toe-in and camber.

Important: You will need to obtain Toro Part No. 132-5069 from your Toro Distributor to perform this procedure.

The toe-in should be 0 to 6 mm (0 to 1/4 inch).

- Check the tire pressure to ensure that the front tires are inflated to 82 kPa (12 psi).
 - Either, add weight to the driver's seat equal to the average operator who will run the machine, or have an operator sit on the seat. The weight or operator must remain on the seat for the duration of the procedure.
 - On a level surface, roll the machine straight back 2 to 3 m (6 to 10 ft) and then straight forward to the original starting position. This allows the suspension to settle into the operating position.
 - Measure the toe-in with the wheels facing straight ahead.
1. Using tool Toro Part No. 132-5069, rotate the collar on the shock absorber to change the length of the spring (Figure 46).

Note: Make the camber adjustments only if you are using a front attachment or if there is uneven tire wear.

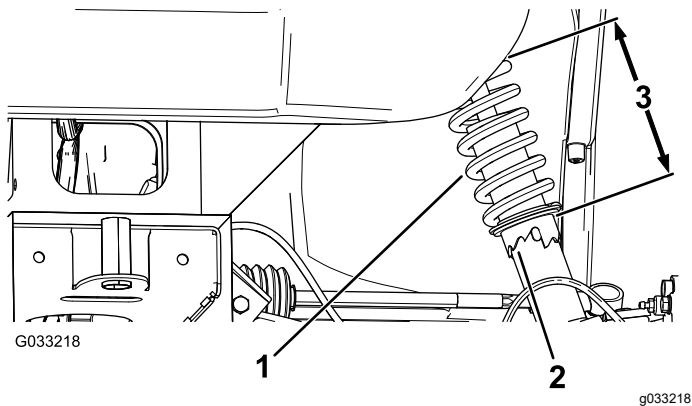


Figure 46

1. Shock-absorber spring
2. Collar
3. Spring length

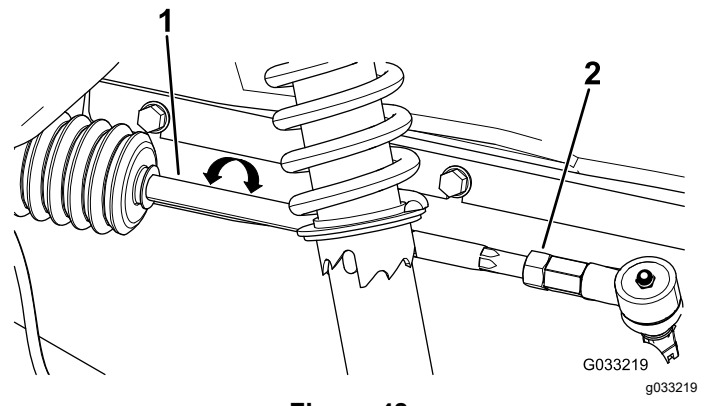


Figure 48

1. Tie rod
2. Jam nut

2. On a level surface, roll the machine straight back 2 to 3 m (6 to 10 ft) and then straight forward to the original starting position.
3. Measure the distance between both of the front tires at the axle height at both the front and rear of the front tires (Figure 47).

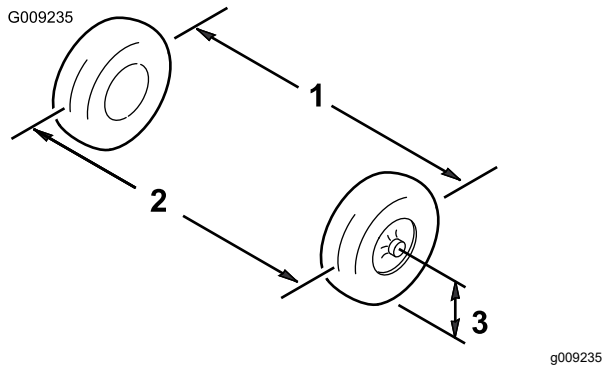


Figure 47

1. Tire center line—back
2. Tire center line—front
3. Axle center line

4. If the measurement does not fall within 0 to 6 mm (0 to 1/4 inch), loosen the jam nuts at the outer end of the tie rods (Figure 48).

5. Rotate both tie rods to move the front of the tire inward or outward.
6. Tighten the tie rod jam nuts when the adjustment is correct.
7. Ensure that there is full travel of the steering wheel in both directions.

Checking the Transaxle-Fluid Level

Service Interval: Every 100 hours

Fluid Type: SAE 10W30 (API service SJ or higher)

1. Park the machine on a level surface, shut off the engine, engage the parking brake, and remove the key from the key switch.
2. Remove the bolt from the level indicating hole (Figure 49).

Note: The transaxle-fluid level should be at the bottom of the level indicator hole.

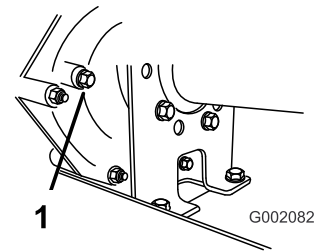


Figure 49

1. Level-indicator hole

3. If the transaxle fluid is not level with the bottom of the level indicating hole, fill the reservoir with the specified fluid; refer to [Changing the Transaxle Fluid](#) (page 43).

Changing the Transaxle Fluid

Service Interval: Every 800 hours/Yearly (whichever comes first)

Fluid Type: SAE 10W-30 (API service SJ or higher)

Fluid Capacity: 1.4 L (1.5 US qt)

1. Park the machine on a level surface, shut off the engine, engage the parking brake, and remove the key from the key switch.
2. Wipe the area around the fill and drain plugs clean with a rag (Figure 50).

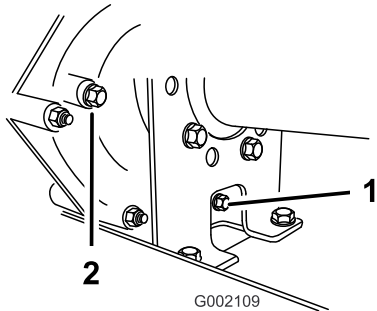


Figure 50

1. Drain plug

2. Fill plug

3. Align a drain pan with a capacity of 2 L (2.1 qt) or more under the drain plug.
4. Remove the fill plug by rotating it counterclockwise (Figure 50).

Note: Retain the fill plug and gasket for installation in step 8.

5. Remove the drain plug by rotating it counterclockwise (Figure 50).

Note: Retain the drain plug and gasket for installation in step 6.

Note: Allow the oil to drain from the transaxle completely.

6. Install and tighten the drain plug and gasket into the drain-plug hole of the transmission (Figure 50).

Note: Dispose of the used fluid at a certified recycling center.

7. Fill the reservoir (Figure 51) through the fill-plug hole with approximately 1.4 L (1.5 US qt) of the specified fluid or until the fluid level in the transmission is even with the bottom of the threads. (Figure 50).

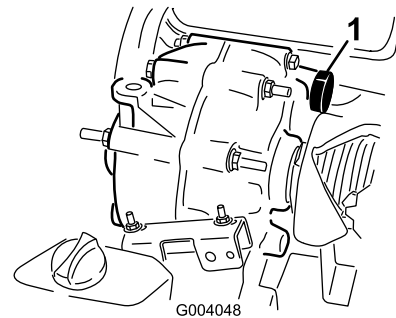


Figure 51

1. Fluid fill

8. Install and tighten the fill plug and gasket into the fill-plug hole of the transmission (Figure 50).
9. Start the engine and operate the machine.
10. Check the fluid level and add more fluid if the level is below the threads of the fill-plug hole (Figure 50).

Checking and Adjusting Neutral

Service Interval: Every 100 hours

When performing routine maintenance and/or engine diagnostics, you must shift into NEUTRAL (Figure 52). The machine has a NEUTRAL position on the shift lever, which controls the neutral in the transaxle. The following steps should be taken to make sure that the neutral shift lever operates the transaxle neutral correctly:

1. Set the shift lever into the NEUTRAL position.
2. Ensure that the neutral bracket is in the NEUTRAL position (level to the cable mounting bracket located below the shift bracket) by turning the driven clutch (Figure 52).

Note: The machine should not roll back and forth. If it does, manually move the neutral bracket to the NEUTRAL position.

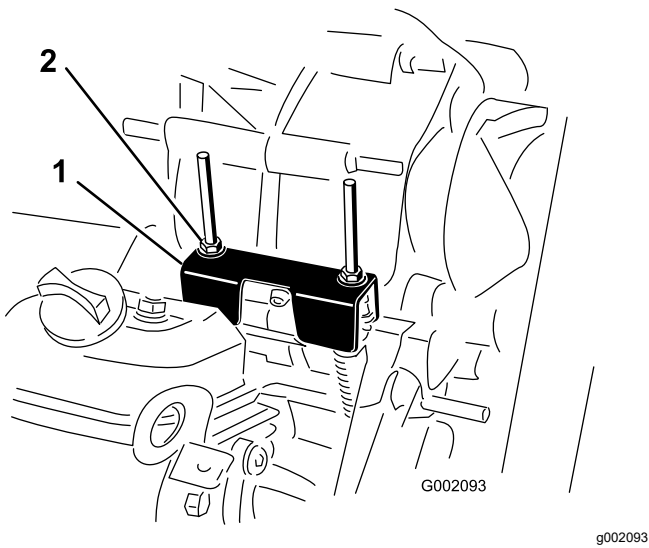


Figure 52

1. Neutral bracket
2. Locknuts

3. Rotate one of the locknuts (Figure 52) to achieve a 0.762 to 1.524 mm (0.030 to 0.060 inch) gap between the bottom of the nut/washer and the neutral bracket.

Note: You must hold the threaded shaft below the bracket when adjusting the locknut position on top.

4. Rotate the other locknut to achieve a 0.76 to 1.52 mm (0.03 to 0.06 inch) gap between the bottom of the nut/washer and the neutral bracket.
5. Pull up on each shift cable and ensure that there is a 0.76 to 1.52 mm (0.03 to 0.06 inch) between the nut/washer and the neutral bracket (Figure 53).

Note: If there is not a gap, adjust the nuts to achieve the specified gap.

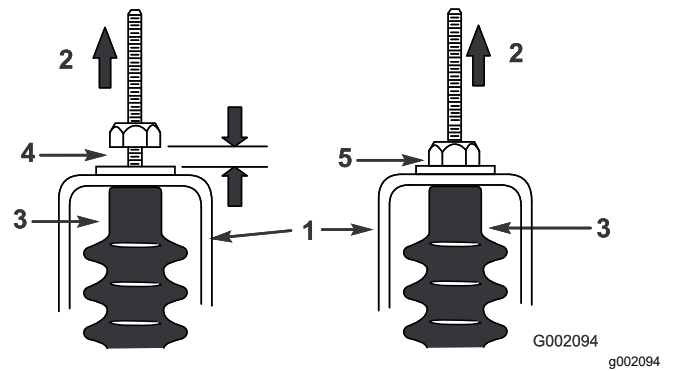


Figure 53

1. Neutral bracket
2. Pull up
3. Cable boot
4. 0.76 to 1.52 mm (0.03 to 0.06 inch) gap
5. **Wrong**—adjust the to achieve a gap of 0.76 to 1.52 mm (0.03 to 0.06 inch)

6. Start the engine and shift into FORWARD, REVERSE, and NEUTRAL several times to ensure that the neutral bracket is operating properly.

Inspecting the Primary-Drive Clutch

Service Interval: Before each use or daily

Clutch operation should be monitored daily for proper shifting. If shifting is sticky or sluggish, or the clutch does not return completely to neutral when idling, the clutch requires a simple cleaning.

Note: Focus debris removal in and around moving parts.

1. Engage the parking brake, shut off the engine, and remove the key from the key switch.
2. Raise and latch the cargo box.
3. Remove dirt and mud buildup on the clutch with water and dry the clutch immediately with compressed air to remove excess water and debris.

Note: Remaining debris may be removed using a fast-drying-contact cleaner.

Maintaining the Primary-Drive Clutch

Service Interval: Every 200 hours—Clean the primary-drive clutch (more often in dusty or dirty conditions).

Note: Operating the machine with a dirty clutch can increase wear to internal components.

1. Shut off the engine, engage the parking brake, and remove the key from the key switch.
2. Raise and latch the cargo box.
3. Remove the 6 flange-head bolts securing the clutch cover.
4. Set aside the cover, spacer, and spring (Figure 54).

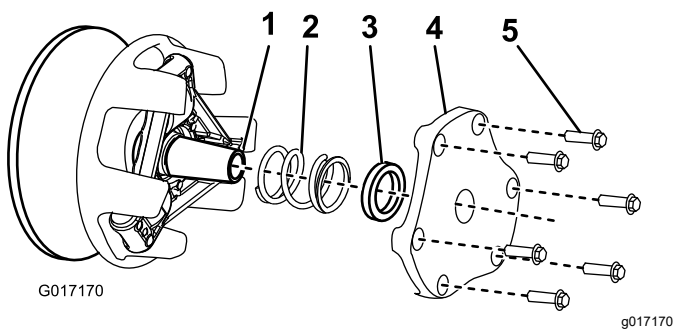


Figure 54

- | | |
|-----------------|---------------------|
| 1. Clutch shaft | 4. Clutch cover |
| 2. Spring | 5. Flange-head bolt |
| 3. Spacer | |

5. Remove dirt and mud buildup with water and dry immediately with compressed air to remove excess water and debris.
6. Remove any remaining debris using a fast-drying-contact cleaner or brake cleaner.

Note: Remove the debris in and around moving parts.

7. If debris or buildup exists around the belt or along the clutch shaft, use a fine abrasive pad or a similar product to remove it.
8. Install the spring, clutch cover, and flange-head bolts.
9. Torque the bolts to 12 to 13.5 N·m (105 to 120 in-lb).

Cooling System Maintenance

Cleaning the Engine-Cooling Areas

Service Interval: Every 100 hours Clean the cooling system twice as often during special operating conditions; refer to [Maintaining the Machine under Special Operating Conditions \(page 28\)](#).

Important: Operating the engine with a blocked rotating screen, dirty or plugged cooling fins, or cooling shrouds removed will cause engine damage due to overheating.

Important: Never clean the engine with a pressure washer because water could contaminate the fuel system.

Clean the external surfaces of the engine.

Note: Clean the engine cooling components more often under extremely dusty and dirty conditions.

Servicing the Radiator

Checking the Radiator-Coolant Level

Service Interval: Before each use or daily

Note: Use a 50/50 mix of ethylene glycol and water for coolant.

1. Park the machine on a level surface, shut off the engine, engage the parking brake, and remove the key from the key switch.
2. Remove the radiator-overflow-tank cap (Figure 55).
3. If the coolant level is low, fill the tank with coolant to the bottom of the filler neck.

Note: Do not overfill.

4. Replace the radiator-overflow-tank cap and clean any spills.

Changing the Radiator Coolant

Service Interval: Every 1,000 hours/Every 2 years
(whichever comes first)

⚠ 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.
- Allow engine to cool at least 15 minutes or until the radiator cap is cool enough to touch without burning your hand.
- Use a rag when opening the radiator cap, and open the cap slowly to allow steam to escape.

Note: Use a 50/50 mix of ethylene glycol and water for coolant.

1. Park the machine on a level surface, shut off the engine, engage the parking brake, and remove the key from the key switch.
2. Remove the fill cap (Figure 55) and fill with coolant.

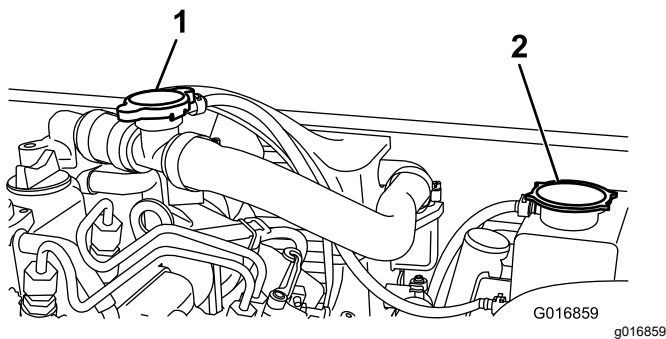


Figure 55

1. Fill cap
2. Radiator-overflow-tank cap

3. Replace the fill cap and remove the radiator-overflow-tank cap (Figure 55).

Note: Never leave both caps off at the same time. This will adversely affect the filling of the tank.

4. Fill with coolant to the bottom of the filler neck.
5. Replace the radiator-overflow-tank cap and clean any spills.

Brake Maintenance

Inspecting the Brakes

Service Interval: Every 100 hours

Important: Brakes are a critical safety component of the machine. Closely inspect them at the recommended service interval to ensure optimum performance and safety.

- Inspect the brake lining for wear or damage. If the lining (brake pad) thickness is less than 1.6 mm (1/16 inch), replace the brake lining.
- Inspect the backing plate and other components for signs of excessive wear or deformation. Replace any deformed components.
- Check the brake-fluid level; refer to [Checking the Brake-Fluid Level \(page 20\)](#).

Adjusting the Parking-Brake Handle

Service Interval: Every 200 hours

1. Remove the handgrip from the parking-brake lever (Figure 56).

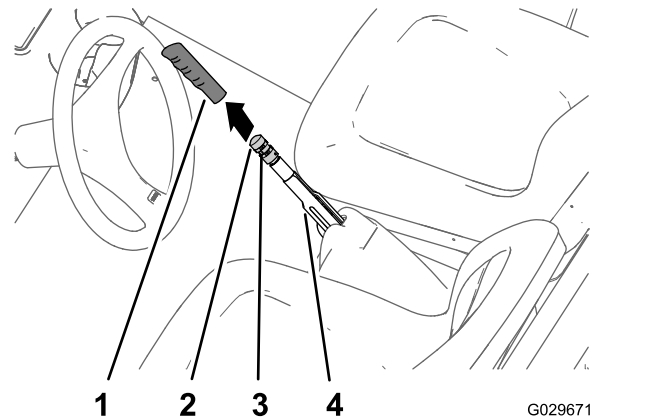


Figure 56

1. Handgrip
2. Brake-adjustment knob
3. Set screw
4. Parking-brake lever

2. Loosen the set screw securing the brake-adjustment knob to the parking-brake lever (Figure 56).

3. Rotate the brake-adjustment knob until you reach a force of 133 to 156 N (30 to 35 lbf) to engage the parking-brake lever (Figure 56).

Note: If you rotated the brake-adjustment knob the full travel of the adjuster, and cannot attain the force of 133 to 156 N (30 to 35 lbf) required to engage the parking-brake lever, perform the

procedure for adjusting the brake cables; refer to [Adjusting the Brake Cables](#) (page 47).

4. Tighten the set screw and install the hand grip ([Figure 56](#)).

Adjusting the Brake Cables

1. Remove the handgrip from the parking-brake lever ([Figure 56](#)).
2. Loosen the set screw ([Figure 56](#)) securing the brake-adjustment knob to the parking-brake lever, disengage the parking brake, and loosen the brake-adjustment knob.
3. At the bottom of the machine, loosen the rear jam nut for the threaded adjuster of the parking-brake cable 4 turns ([Figure 57](#)).

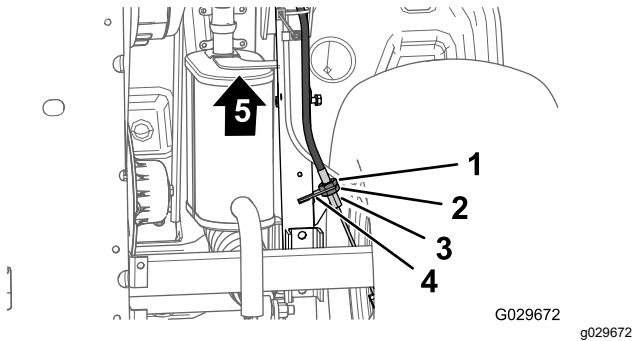


Figure 57

- | | |
|------------------------|---|
| 1. Forward jam nut | 4. Threaded adjuster
(parking-brake cable) |
| 2. Rear jam nut | 5. Front of the machine |
| 3. Brake-cable bracket | |

4. Tighten the forward jam nut ([Figure 57](#)).
5. Rotate the brake-adjustment knob ([Figure 56](#)) until a force of 133 to 156 N (30 to 35 lbf) is required to engage the parking-brake lever.
 - If you cannot adjust the brake-adjustment knob by **loosening** it and engage the parking-brake lever with a force of 133 to 156 N (30 to 35 lbf), perform the following:
 - A. Loosen the forward jam nut ([Figure 57](#)) for the threaded adjuster of the parking-brake cable 1 turn.
 - B. Tighten the rear jam nut ([Figure 57](#)).
 - C. Rotate the brake-adjustment knob ([Figure 56](#)) until a force of 133 to 156 N (30 to 35 lbf) is required to engage the parking-brake lever.
 - D. Repeat steps **A** through **C** up to 2 more times to attain the parking brake force between 133 to 156 N (30 to 35 lbf).
 - If you cannot adjust the brake-adjustment knob by **tightening** it and engage the

parking-brake lever with a force of 133 to 156 N (30 to 35 lbf), perform the following:

- A. Loosen the rear jam nut ([Figure 57](#)) for the threaded adjuster of the parking-brake cable 1 turn.
- B. Tighten the forward jam nut ([Figure 57](#)).
- C. Rotate the brake-adjustment knob ([Figure 56](#)) until a force of 133 to 156 N (30 to 35 lbf) is required to engage the parking-brake lever.
- D. Repeat steps **A** through **C** up to 3 more times to attain the parking brake force between 133 to 156 N (30 to 35 lbf).

Note: If you cannot adjust the parking-brake cable enough to get the brake-adjustment knob within its adjustment range, check the brake pads for excessive wear.

- Tighten the set screw and install the handgrip ([Figure 56](#)).

Changing the Brake Fluid

Service Interval: Every 1,000 hours

Contact your authorized Toro distributor.

Belt Maintenance

Servicing the Drive Belt

New belts must be broken in before they shift properly. A belt breaks in within the first 2 hours of normal operation.

Checking the Drive Belt

Service Interval: After the first 8 hours

Every 200 hours

Note: If the unit continues to move when the engine is at low idle, the clutches may be dirty and require washing.

1. Park the machine on a level surface, shut off the engine, engage the parking brake, and remove the key from the key switch.
2. Raise the cargo box and secure it with the prop rod; refer to [Raising the Cargo Box \(page 18\)](#).
3. Rotate and inspect the belt for excessive wear or damage ([Figure 58](#)).

Note: Replace the belt if necessary.

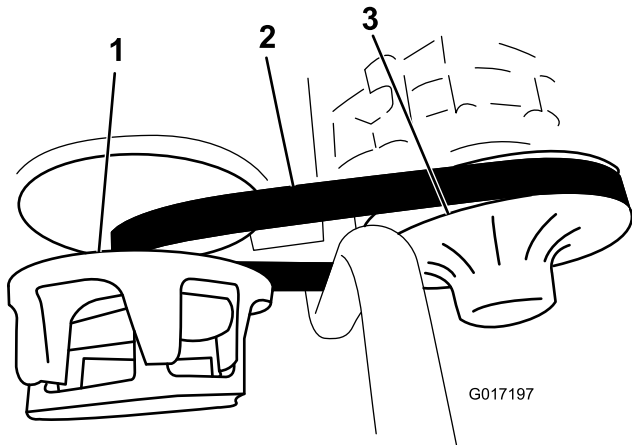


Figure 58

G017197

1. Primary clutch
2. Drive belt
3. Secondary clutch

4. Lower the cargo box; refer to [Lowering the Cargo Box \(page 19\)](#).

Replacing the Drive Belt

1. Raise the cargo box; refer to [Raising the Cargo Box \(page 18\)](#).
2. Shift the transmission to the NEUTRAL position, shut off the engine, engage the parking brake, and remove the key from the key switch..
3. Rotate and route the belt over the secondary clutch ([Figure 58](#)).
4. Remove the belt from the primary clutch ([Figure 58](#)).

Note: Discard the old belt.

5. Align the new belt over the primary clutch ([Figure 58](#)).
6. Rotate and route the belt over the secondary clutch ([Figure 58](#)).
7. Lower the cargo box; refer to [Lowering the Cargo Box \(page 19\)](#).

Checking the Belt-Pull Bumper

Note: Check the belt-pull bumper only when troubleshooting vibration, performing a rebuild, or experiencing an engine-mount failure.

The belt-pull bumper ([Figure 59](#)) should maintain a gap of 2.2 mm (0.09 inches).

If the bumper is too close to the engine bracket, the belt will cause excessive vibration.

If the bumper is too far from the engine bracket, the belt will cause harmful engine stress.

To adjust the gap, loosen the 3 flange-head bolts securing the bracket to the frame and slide the bracket the appropriate distance.

Once the gap is correct, tighten the 3 flange-head bolts.

Chassis Maintenance

Adjusting the Cargo-Box Latches

If the cargo-box latch is out of adjustment, the cargo box vibrates up and down as you drive the machine. You can adjust the latch posts to make the latches hold the cargo box snugly to the chassis.

1. Loosen the locknut on the end of the latch post (Figure 60).

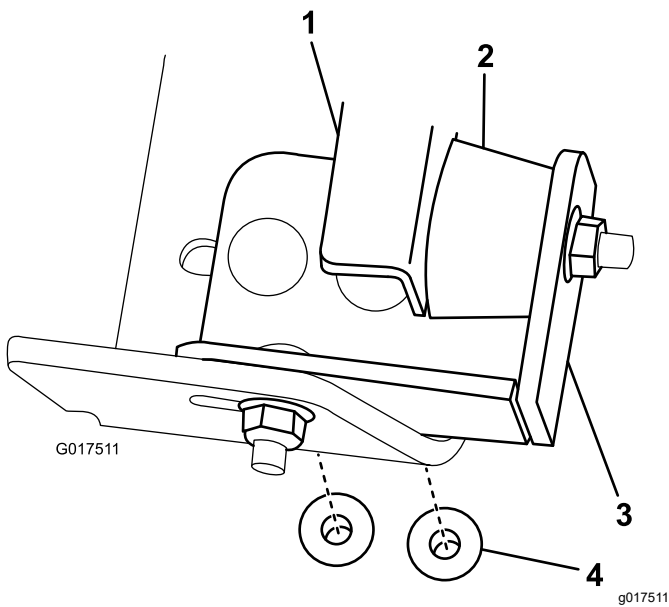


Figure 59

- | | |
|-------------------|---------------------|
| 1. Engine bracket | 3. Bracket |
| 2. Bumper | 4. Flange-head bolt |

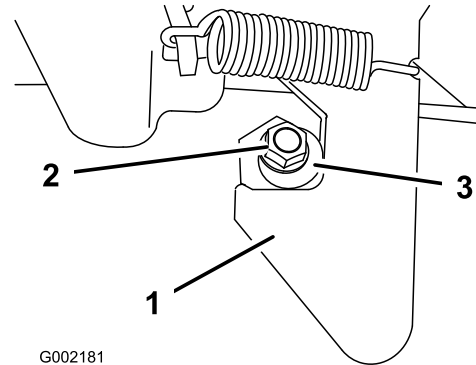


Figure 60

- | | |
|------------|---------------|
| 1. Latch | 3. Latch post |
| 2. Locknut | |

2. Rotate the latch post clockwise until it is snug against the hook portion of the latch (Figure 60).
3. Torque the locknut to 19.7 to 25.4 N·m (175 to 225 in-lb).
4. Repeat this steps 1 through 3 for the latch on the other side of the machine.

Cleaning

Washing the Machine

Wash the machine as needed. Use water alone or with a mild detergent. You can use a rag.

Important: Pressurized water is not recommended when washing the machine. It may damage the electrical system, loosen important decals, or wash away necessary grease at friction points. Avoid excessive use of water, especially near the control panel, engine, and battery.

Storage

1. Park the machine on a level surface, shut off the engine, engage the parking brake, and remove the key from the key switch.
2. Clean dirt and grime from the entire machine, including the outside of the engine cylinder-head fins and blower housing.

Important: You can wash the machine with mild detergent and water. Do not use high-pressure water to wash the machine. Pressure-washing may damage the electrical system or wash away necessary grease at friction points. Avoid excessive use of water, especially near the control panel, lights, engine, and the battery.

3. Inspect the brakes; refer to [Inspecting the Brakes \(page 46\)](#).
4. Service the air filter; refer to [Servicing the Air Filter \(page 33\)](#).
5. Grease the machine; refer to [Lubrication \(page 29\)](#).
6. Change the engine oil and filter ; refer to [Changing the Engine Oil \(page 34\)](#) and [Changing the Engine-Oil Filter \(page 35\)](#).
7. Check the tire pressure; refer to [Checking the Tire Pressure \(page 22\)](#).
8. Flush the fuel tank with fresh, clean diesel fuel.
9. Remove the battery from the chassis.

Note: Do not connect the battery cables to the battery posts during storage.

Important: The battery must be fully charged to prevent it from freezing and being damaged at temperatures below 0°C (32°F). A fully charged battery maintains its charge for about 50 days at temperatures lower than 4°C (40°F). If the temperatures will be above 4°C (40°F), check the water level in the battery and charge it every 30 days.

10. Check and tighten all bolts, nuts, and screws. Repair or replace any part that is damaged.
11. Paint all scratched or bare metal surfaces.
Paint is available from your Authorized Service Dealer.
12. Store the machine in a clean, dry garage or storage area.
13. Remove the ignition key and put it in a safe place out of the reach of children.
14. Cover the machine to protect it and keep it clean.

European Privacy Notice

The Information Toro Collects

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

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

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

The Way Toro Uses Information

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

Retention of your Personal Information

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

Toro's Commitment to Security of Your Personal Information

We take reasonable precautions in order to protect the security of your personal information. We also take steps to maintain the accuracy and current status of personal information.

Access and Correction of your Personal Information

If you would like to review or correct your personal information, please contact us by email at legal@toro.com.

Australian Consumer Law

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



The Toro Warranty

A Two-Year Limited Warranty

Conditions and Products Covered

The Toro Company and its affiliate, Toro Warranty Company, pursuant to an agreement between them, jointly warrant your Toro Commercial product ("Product") to be free from defects in materials or workmanship for two years or 1500 operational hours*, whichever occurs first. This warranty is applicable to all products with the exception of Aerators (refer to separate warranty statements for these products). Where a warrantable condition exists, we will repair the Product at no cost to you including diagnostics, labor, parts, and transportation. This warranty begins on the date the Product is delivered to the original retail purchaser.

* Product equipped with an hour meter.

Instructions for Obtaining Warranty Service

You are responsible for notifying the Commercial Products Distributor or Authorized Commercial Products Dealer from whom you purchased the Product as soon as you believe a warrantable condition exists. If you need help locating a Commercial Products Distributor or Authorized Dealer, or if you have questions regarding your warranty rights or responsibilities, you may contact us at:

Toro Commercial Products Service Department
Toro Warranty Company
8111 Lyndale Avenue South
Bloomington, MN 55420-1196
952-888-8801 or 800-952-2740
E-mail: commercial.warranty@toro.com

Owner Responsibilities

As the Product owner, you are responsible for required maintenance and adjustments stated in your *Operator's Manual*. Failure to perform required maintenance and adjustments can be grounds for disallowing a warranty claim.

Items and Conditions Not Covered

Not all product failures or malfunctions that occur during the warranty period are defects in materials or workmanship. This warranty does not cover the following:

- Product failures which result from the use of non-Toro replacement parts, or from installation and use of add-on, or modified non-Toro branded accessories and products. A separate warranty may be provided by the manufacturer of these items.
- Product failures which result from failure to perform recommended maintenance and/or adjustments. Failure to properly maintain your Toro product per the Recommended Maintenance listed in the *Operator's Manual* can result in claims for warranty being denied.
- Product failures which result from operating the Product in an abusive, negligent, or reckless manner.
- Parts subject to consumption through use unless found to be defective. Examples of parts which are consumed, or used up, during normal Product operation include, but are not limited to, brake pads and linings, clutch linings, blades, reels, rollers and bearings (sealed or greasable), bed knives, spark plugs, castor wheels and bearings, tires, filters, belts, and certain sprayer components such as diaphragms, nozzles, and check valves, etc.
- Failures caused by outside influence. Conditions considered to be outside influence include, but are not limited to, weather, storage practices, contamination, use of unapproved fuels, coolants, lubricants, additives, fertilizers, water, or chemicals, etc.
- Failure or performance issues due to the use of fuels (e.g. gasoline, diesel, or biodiesel) that do not conform to their respective industry standards.

Countries Other than the United States or Canada

Customers who have purchased Toro products exported from the United States or Canada should contact their Toro Distributor (Dealer) to obtain guarantee policies for your country, province, or state. If for any reason you are dissatisfied with your Distributor's service or have difficulty obtaining guarantee information, contact the Toro importer.

- Normal noise, vibration, wear and tear, and deterioration.
- Normal "wear and tear" includes, but is not limited to, damage to seats due to wear or abrasion, worn painted surfaces, scratched decals or windows, etc.

Parts

Parts scheduled for replacement as required maintenance are warranted for the period of time up to the scheduled replacement time for that part. Parts replaced under this warranty are covered for the duration of the original product warranty and become the property of Toro. Toro will make the final decision whether to repair any existing part or assembly or replace it. Toro may use remanufactured parts for warranty repairs.

Deep Cycle and Lithium-Ion Battery Warranty:

Deep cycle and Lithium-Ion batteries have a specified total number of kilowatt-hours they can deliver during their lifetime. Operating, recharging, and maintenance techniques can extend or reduce total battery life. As the batteries in this product are consumed, the amount of useful work between charging intervals will slowly decrease until the battery is completely worn out. Replacement of worn out batteries, due to normal consumption, is the responsibility of the product owner. Battery replacement may be required during the normal product warranty period at owner's expense. Note: (Lithium-Ion battery only): A Lithium-Ion battery has a part only prorated warranty beginning year 3 through year 5 based on the time in service and kilowatt hours used. Refer to the *Operator's Manual* for additional information.

Maintenance is at Owner's Expense

Engine tune-up, lubrication, cleaning and polishing, replacement of filters, coolant, and completing recommended maintenance are some of the normal services Toro products require that are at the owner's expense.

General Conditions

Repair by an Authorized Toro Distributor or Dealer is your sole remedy under this warranty.

Neither The Toro Company nor Toro Warranty Company is liable for indirect, incidental or consequential damages in connection with the use of the Toro Products covered by this warranty, including any cost or expense of providing substitute equipment or service during reasonable periods of malfunction or non-use pending completion of repairs under this warranty. Except for the Emissions warranty referenced below, if applicable, there is no other express warranty. All implied warranties of merchantability and fitness for use are limited to the duration of this express warranty.

Some states do not allow exclusions of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the above exclusions and limitations may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Note regarding engine warranty:

The Emissions Control System on your Product may be covered by a separate warranty meeting requirements established by the U.S. Environmental Protection Agency (EPA) and/or the California Air Resources Board (CARB). The hour limitations set forth above do not apply to the Emissions Control System Warranty. Refer to the Engine Emission Control Warranty Statement supplied with your product or contained in the engine manufacturer's documentation for details.