Form No. 3404-347 Rev B

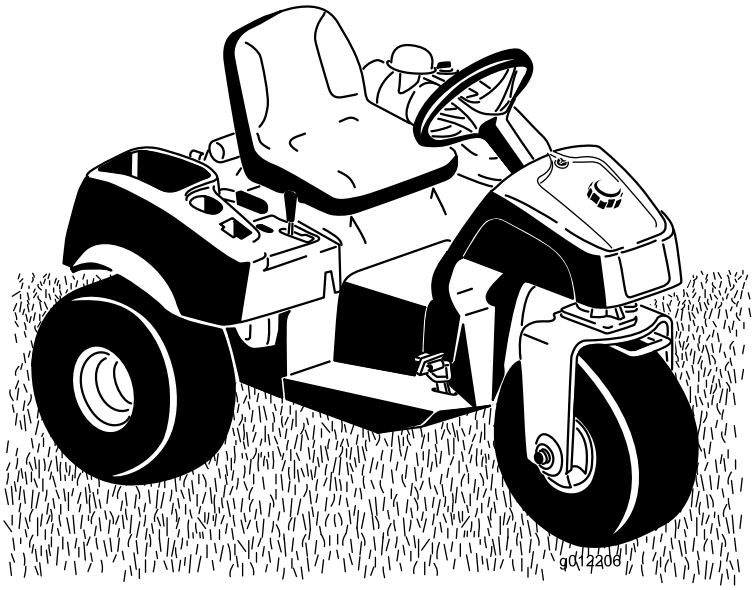
TORO®

Count on it.

Operator's Manual

Sand Pro® 3040 or 5040 Traction Unit

Model No. 08703—Serial No. 314000001 and Up
Model No. 08705—Serial No. 314000001 and Up



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

CE UK CA

3404-347

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.

This spark ignition system complies with Canadian ICES-002

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

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

Introduction

This machine is a ride-on piece of utility equipment intended to be used by professional, hired operators in commercial applications. It is primarily designed for conditioning sand traps on well-maintained golf courses and commercial grounds.

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 safety and operation training materials, accessory information, help finding a dealer, or to register your product.

Whenever you need service, genuine Toro parts, or additional information, contact an Authorized Service Dealer or Toro Customer Service and have the model and serial numbers of your product ready. These numbers are stamped into a plate located on the left frame rail. Write the numbers in the space provided.

Model No. _____

Serial No. _____

This manual identifies potential hazards and has safety messages identified by the safety alert symbol (Figure 1), which signals a hazard that may cause serious injury or death if you do not follow the recommended precautions.

g000502

Figure 1

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.

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Safety

For added traction performance, weight kit 100-6442 can be added to the front of the machine.

Note: If the machine is fitted with a front lift or plow attachment, the weight kit will not fit due to physical interference.

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

Safe Operating Practices

Training

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

Preparation

- Wear appropriate clothing, including eye protection; substantial, slip-resistant footwear; and hearing protection. Tie back long hair. Do not wear jewelry.
- Evaluate the terrain to determine what accessories and attachments are needed to properly and safely perform the job. Only use accessories and attachments approved by the manufacturer.
- Check that operator's presence controls, safety switches, and shields are attached and functioning properly. Do not operate unless they are functioning properly.

Safe Handling of Fuels

- To avoid personal injury or property damage, use extreme care in handling gasoline. Gasoline is extremely flammable and the vapors are explosive.
- Extinguish all cigarettes, cigars, pipes, and other sources of ignition.
- Use only an approved fuel container.
- Never remove 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.
- Never fill containers inside a vehicle or on a truck or trailer bed with a plastic liner. Always place containers on the ground away from your vehicle before filling.
- 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.
- Keep the nozzle in contact with the rim of the fuel tank or container opening at all times until fueling is complete. Do not use a nozzle lock-open device.
- If fuel is spilled on clothing, change clothing immediately.
- Never overfill the fuel tank.
- Replace the fuel cap and tighten it securely.

Operation

- Do not operate the engine in a confined space where dangerous carbon monoxide and other exhaust gasses can collect.
- Operate only in daylight or in good artificial light.
- Before attempting to start the engine, disengage all attachments, shift into neutral, and engage the parking brake.

- Do not put hands or feet near or under rotating parts.
- Using the machine demands attention. To prevent tipping or loss of control:
  - Watch for holes or other hidden hazards.
  - Use caution when operating the machine on a steep slope. Reduce your speed when making sharp turns or when turning on hillsides.
  - Avoid sudden stops and starts. Do not go from reverse to full forward without first coming to a complete stop.
  - Before backing up, look to the rear and ensure that no one is behind the machine.
  - Watch out for traffic when near or crossing roads. Always yield the right of way.
- If the optional Hitch Tow Bar, Part 110-1375, is installed on the machine, refer to the attachment *Operator's Manual* for the maximum hitch load.
- Use care when pulling loads or using heavy equipment.
  - Use only approved hitch points.
  - Limit loads to those you can safely control.
  - Do not turn sharply. Use care when reversing.
- Watch out for traffic when crossing or near roadways.
- Never operate the machine with damaged guards, shields, or without safety protective devices in place. Be sure all interlocks are attached, adjusted properly, and functioning properly.
- Do not change the engine governor settings or overspeed the engine. Operating the engine at excessive speed may increase the hazard of personal injury.
- Before leaving the operator's position:
  - stop on level ground;
  - release the traction pedal and lower the attachments;
  - set the parking brake;
  - stop the engine and remove the key.
- Disengage drive to attachments when transporting or not in use.
- Stop the engine and disengage drive to attachment
  - before refuelling;
  - before checking, cleaning or working on the machine;
  - after striking a foreign object or if an abnormal vibration occurs. Inspect the machine for damage and make repairs before restarting and operating the equipment.
- Reduce the throttle setting during engine run-out and, if the engine is provided with a shut-off valve, turn off the fuel at the conclusion of operation.
- Look behind and down before backing up to be sure of a clear path.
- Slow down and use caution when making turns and crossing roads and sidewalks.
- Do not operate the machine while ill, tired, or under the influence of alcohol or drugs.
- Lightning can cause severe injury or death. If you see lightning or hear thunder in the area, do not operate the machine; seek shelter.
- Use care when loading or unloading the machine into a trailer or truck.
- Use care when approaching blind corners, shrubs, trees, or other objects that may obscure vision.

Maintenance and Storage

- Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition.
- Never store the equipment with fuel in the tank inside a building where fumes may reach an open flame or spark.
- Allow the engine to cool before storing in any enclosure.
- To reduce the fire hazard, keep the engine, muffler, battery compartment and fuel storage area free of grass, leaves, or excessive grease.
- Keep all parts in good working condition and all hardware and hydraulic fittings tightened. Replace all worn or damaged parts and decals.
- If the fuel tank has to be drained, do this outdoors.
- Be careful during adjustment of the machine to prevent entrapment of the fingers between moving parts and fixed parts of the machine.
- Disengage any drives, lower the attachment, set the parking brake, stop the engine, and remove the key. Wait for all movement to stop before adjusting, cleaning, or repairing.
- Use jack stands to support components when required.
- Carefully release pressure from components with stored energy.
- Disconnect the battery and remove the spark-plug wire before making any repairs. Disconnect the negative terminal first and the positive last. Reconnect the positive cable first and the negative last.
- Keep hands and feet away from moving parts. If possible, do not make adjustments with the engine running.
- Charge batteries in an open, well-ventilated area, away from sparks and flames. Unplug the charger before connecting or disconnecting it to or from the battery. Wear protective clothing and use insulated tools.

- Make sure that all hydraulic line connectors are tight and all hydraulic hoses and lines are in good condition before applying pressure to the system.
- Keep your body and hands away from pin-hole leaks or nozzles that eject hydraulic fluid under high pressure. Use paper or cardboard, not your hands, to search for leaks. Hydraulic fluid escaping under pressure can have sufficient force to penetrate the skin and cause serious injury. Seek immediate medical attention if any fluid is injected into skin.
- Before disconnecting or performing any work on the hydraulic system, all pressure in the system must be relieved by stopping the engine and lowering the attachments to the ground.
- Check all fuel lines for tightness and wear on a regular basis. Tighten or repair them as needed.
- If the engine must be running to perform a maintenance adjustment, keep hands, feet, clothing, and any parts of the body away from the attachments and any moving parts, especially the screen at the side of the engine. Keep everyone away.
- 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 if assistance is desired, contact an Authorized Toro Distributor.
- To ensure optimum performance and continued safety certification of the machine, use only genuine Toro replacement parts and accessories. Replacement parts and accessories made by other manufacturers could be dangerous, and such use could void the product warranty.

Hauling

- Use care when loading or unloading the machine into a trailer or truck.
- Use full width ramps for loading machine into trailer or truck.
- Tie the machine down securely using straps, chains, cable, or ropes. Both front and rear straps should be directed down and outward from the machine

Sound Power Level

This unit has a guaranteed sound power level of 97 dBA, which includes an Uncertainty Value (K) of 1 dBA.

Sound power level was determined according to the procedures outlined in ISO 11094.

Sound Pressure Level

This unit has a sound pressure level at the operator's ear of 83 dBA, which includes an Uncertainty Value (K) of 1 dBA.

Sound pressure level was determined according to the procedures outlined in EN ISO 11201.

Wear hearing protection.

Vibration Level

Hand-Arm

Measured vibration level for right hand = 0.27 m/s^2

Measured vibration level for left hand = 0.29 m/s^2

Uncertainty Value (K) = 0.5 m/s^2

Measured values were determined according to the procedures outlined in EN 1032.

Whole Body

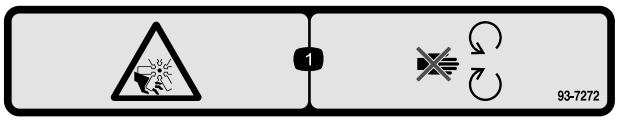
Measured vibration level = 0.5 m/s^2

Uncertainty Value (K) = 0.5 m/s^2

Measured values were determined according to the procedures outlined in EN 1032.

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 lost.



decal93-7272

93-7272

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

decal93-9051

93-9051

1. Read the *Operator's Manual.*

CALIFORNIA SPARK ARRESTER WARNING

Operation of this equipment may create sparks that can start fires around dry vegetation. A spark arrester may be required. The operator should contact local fire agencies for laws or regulations relating to fire prevention requirements. 117-2718

decal117-2718

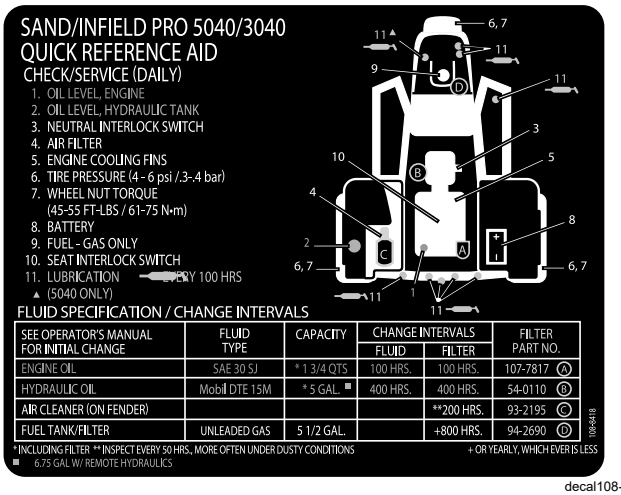
117–2718

decalbatterysymbols

Battery Symbols

Some or all of these symbols are on your battery

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



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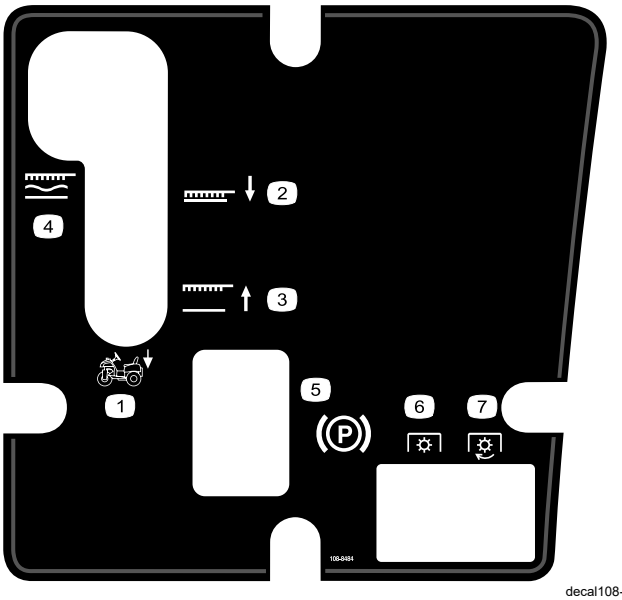
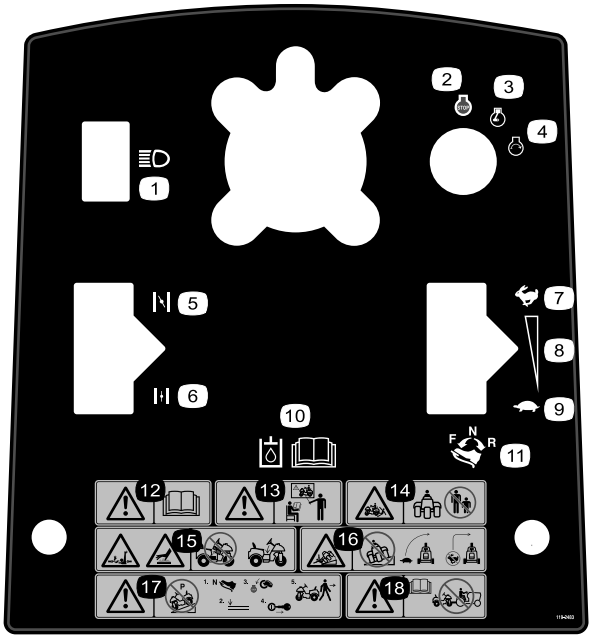
108-8418



decal108-8484

108-8484

1. Attachment control
2. Attachment lower position
3. Attachment raise position
4. Attachment , locked in float position
5. Parking brake
6. PTO—disengaged
7. PTO—engaged



decal119-2483

119–2483

1. Headlights
2. Engine—stop
3. Engine—run
4. Engine—start
5. Choke—closed
6. Choke—open
7. Fast
8. Continuous variable setting
9. Slow
10. Read the *Operator's Manual* for hydraulic oil information.
11. To drive forward, press the top of the traction control pedal forward and down; to drive in reverse, press the bottom of the traction control pedal rearward and down.
12. Warning—read the *Operator's Manual*.
13. Warning—read the *Operator's Manual*, do not operate this machine unless you are trained.
14. Crushing hazard, bystanders—keep bystanders away from the machine.
15. Entanglement hazard, arm and body; hot surface hazard—do not operate without center shroud in place.
16. Tipping hazard—slow machine before turning, do not turn at high speeds.
17. Warning—do not park the machine on a slope; before leaving the machine, put the traction control pedal in neutral, lower the implement, turn the engine off, and remove the ignition key.
18. Warning—read the *Operator's Manual*; do not tow the machine.

Setup

Loose Parts

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

Procedure	Description	Qty.	Use
1	Steering wheel Foam collar Washer Locknut Steering-wheel cover	1 1 1 1 1	Install the steering wheel.
2	No parts required	–	Remove the battery.
3	Bulk electrolyte, 1.260 specific gravity (not included)	–	Activate and charge the battery.
4	Bolt (1/4 x 5/8 inch) Locknut (1/4 inch)	2 2	Install the battery
5	Front weight kit(s) as needed	–	Install front weights if needed.

Media and Additional Parts

Description	Qty.	Use
Operator's Manual Engine operator's manual Operator training materials	1 1 1	Read/view these materials before operating.
Parts Catalog	1	Use the catalog to reference parts.
Certificate of Compliance	1	CE certification
Key	2	Start the engine.

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

Note: Remove and discard all the shipping brackets and fasteners.

1

Installing the Steering Wheel

Parts needed for this procedure:

1	Steering wheel
1	Foam collar
1	Washer
1	Locknut
1	Steering-wheel cover

Procedure

1. Move the front wheel so that it points straight ahead.
2. Slide the foam collar, small end first, onto the steering shaft (Figure 2).

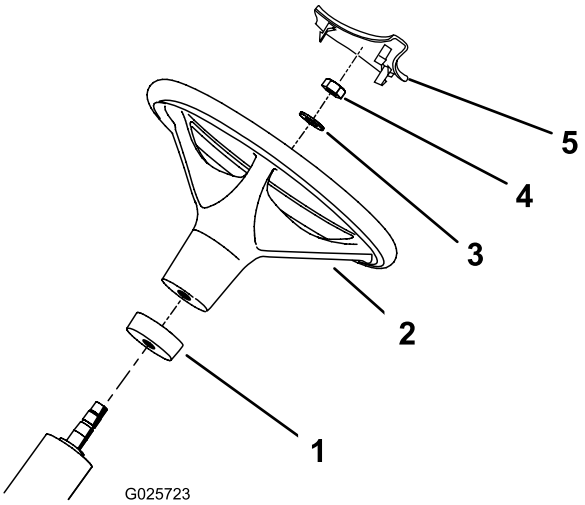


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Figure 2

1. Foam collar
2. Steering wheel
3. Washer
4. Nut
5. Steering-wheel cover

3. Slide the steering wheel onto the steering shaft (Figure 2).
4. Secure the steering wheel to the steering shaft with a washer and a locknut (Figure 2).
5. Torque the locknut to 27–35 N-m (20–26 ft-lb).
6. Press the steering-wheel cover into position on the steering wheel (Figure 2).

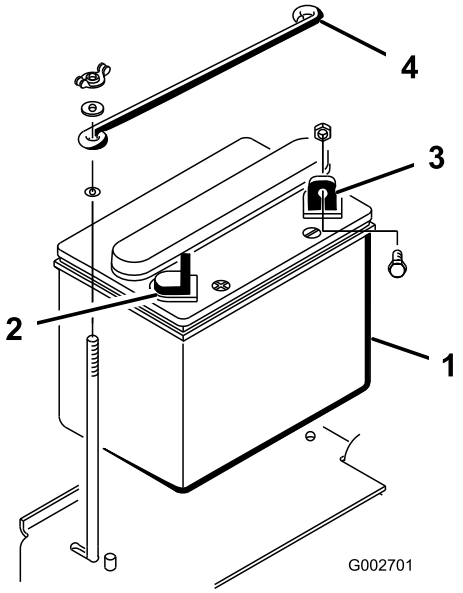
2

Removing the Battery

No Parts Required

Procedure

Remove the 2 wing nuts and washers securing the top battery hold-down to the side battery hold-downs (Figure 3). Remove the top battery hold-down and remove the battery.



g002701

Figure 3

1. Battery
2. Positive (+) battery terminal
3. Negative (-) battery terminal
4. Top battery hold-down

3

Activating and Charging the Battery

Parts needed for this procedure:

–	Bulk electrolyte, 1.260 specific gravity (not included)

Procedure

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.

If the battery is not filled with electrolyte or activated, bulk electrolyte with 1.260 specific gravity must be purchased from a local battery supply outlet and added to the battery.

⚠ DANGER

Battery electrolyte contains sulfuric acid, which is a deadly poison and causes severe burns.

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

1. Remove the filler caps from the battery and slowly fill each cell until electrolyte is up to the fill line.
2. Replace the filler caps and 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.

⚠ WARNING

Charging the battery produces gasses that can explode.

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

3. When the battery is charged, disconnect the charger from the electrical outlet and battery posts. Allow the battery to sit for 5 to 10 minutes.
4. Remove the filler caps.
5. Slowly add electrolyte to each cell until the level is up to the fill line.

   Important: **Do not overfill the battery. Electrolyte will overflow onto other parts of the machine and severe corrosion and deterioration will result.**
6. Install the filler caps.

4

Installing the Battery

Parts needed for this procedure:

2	Bolt (1/4 x 5/8 inch)
2	Locknut (1/4 inch)

Procedure

1. Set the battery in place, with the negative terminal positioned to the rear of the machine (Figure 4).

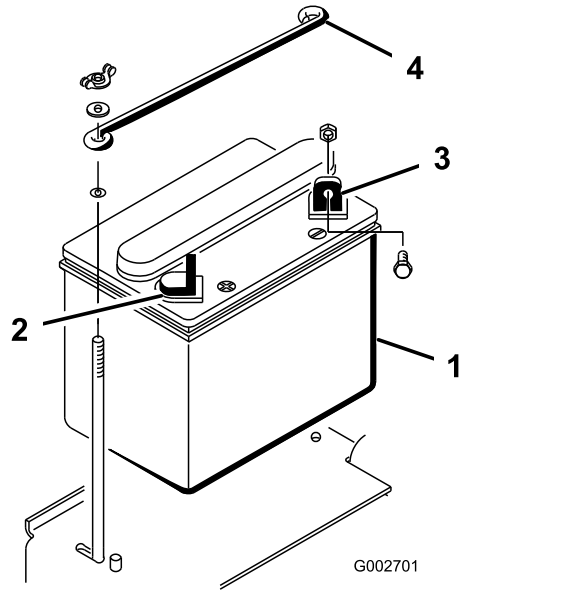


Figure 4

1. Battery
2. Positive (+) battery terminal
3. Negative (-) battery terminal
4. Top battery hold-down

⚠ WARNING

Incorrect battery cable routing could damage the machine and cables and cause 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.**

⚠ 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.**

2. Secure the positive cable (red) to the positive (+) terminal with a bolt (1/4 x 5/8 inch) and a locknut (Figure 5).

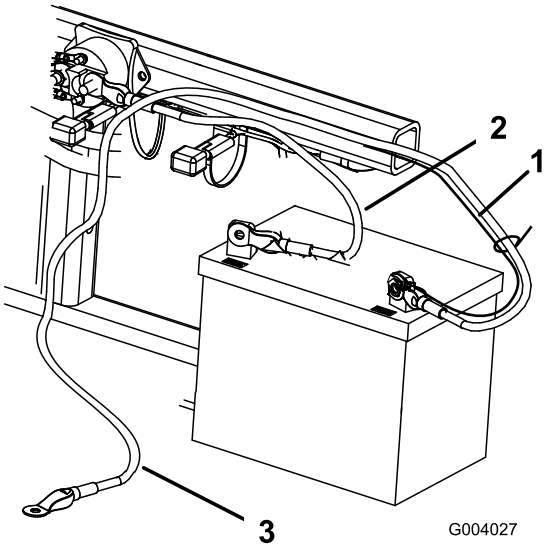


Figure 5

1. Small black cable
2. Positive (+) battery cable
3. Negative (-) battery cable

3. Secure the small black wire and the negative cable (black) to the negative (-) terminal of the battery with a bolt (1/4 x 5/8 inch) and locknut (1/4 inch) (Figure 5).
4. Coat the terminals and mounting fasteners with petroleum jelly to prevent corrosion.
5. Slide the rubber boot over the positive (+) terminal to prevent a possible short from occurring.
6. Install the top battery hold-down to the side battery hold-downs and secure it with the washers and wing nuts.

5

Installing Front Weights

Parts needed for this procedure:

–	Front weight kit(s) as needed

Procedure

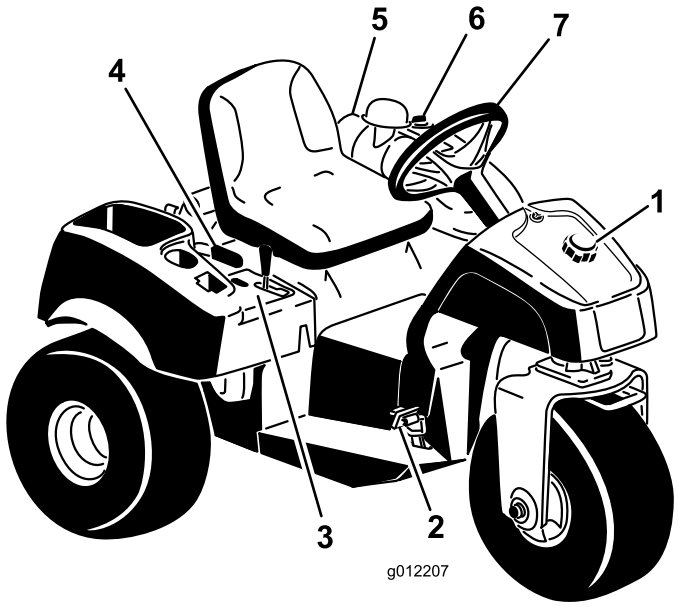
This machine has been designed in accordance with ANSI B71.4-2012. However, when attachments are installed on the machine additional weight is required to comply to the standards.

Use the chart below to determine the combinations of additional weight required. Order parts from your local Authorized Toro Distributor.

Attachment	Additional Front Weight Required	Weight Kit Part Number	Weight Description	Qty.
Spiker kit (08755)	23 kg (50 lb)	100-6442	8 x 6.5 lb plate weight	1
Rahn Groomer	23 kg (50 lb)	100-6442	8 x 6.5 lb plate weight	1
QAS Utility Box	23 kg (50 lb)	100-6442	8 x 6.5 lb plate weight	1

Note: Additional weight is not required if the machine is equipped with the Front Hydraulic Lift Kit, Model 08712.

Product Overview



g012207

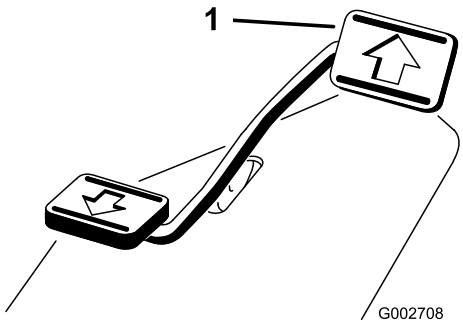
Figure 6

1. Fuel-tank cap
2. Traction and stopping pedal
3. Control panel
4. Parking lever
5. Air cleaner
6. Hydraulic-tank cap
7. Steering wheel

Controls

Traction and Stopping Pedal

The traction pedal (Figure 7) has 3 functions: to make the machine move forward, to move it backward, and to stop the machine. Using the heel and toe of your right foot, press the top of the pedal to move forward and the bottom of the pedal to move backward or to assist in stopping when moving forward (Figure 8). Allow the pedal to move or move it to the NEUTRAL position to stop the machine. For operator comfort, **do not rest your heel on the reverse pad when driving the machine forward**.



g002708

Figure 7

1. Traction and stopping pedal

g002709

Figure 8

The ground speed is proportionate to how far you press the traction pedal. For maximum ground speed, press the pedal fully while the throttle is in the Fast position. To get maximum power or when ascending a hill, have the throttle in the Fast position while pressing the pedal slightly to keep the engine speed high. When the engine speed begins to decrease, release the pedal slightly to allow the speed to increase.

Important: **For maximum pulling power, the throttle should be in the Fast position and the traction pedal just barely pressed.**

⚠ CAUTION

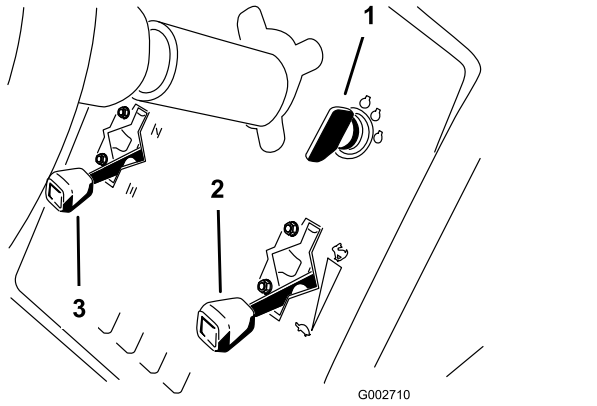
Use the maximum ground speed only when driving from 1 area to another.

Maximum speed is not recommended when using a mounted or towed attachment.

Important: **Do not operate in reverse with the attachment in the down (operating) position or the attachment could be severely damaged.**

Ignition Switch

The ignition switch (Figure 9), used to start and stop the engine, has 3 positions: Off, Run, and Start. Rotate the key clockwise to the Start position to engage the starter motor. Release the key when the engine starts. The key will move automatically to the On position. To shut the engine off, rotate the key counterclockwise to the Off position.



g002710

Figure 9

1. Ignition key
2. Throttle control
3. Choke control

Choke Control

To start a cold engine, close the carburetor choke by moving the choke control (Figure 9) up to the Closed position. After the engine starts, regulate the choke to keep the engine running smoothly. As soon as possible, open the choke by moving it down to the Open position. A warm engine requires little or no choking.

Throttle Control

The throttle control lever (Figure 9) connects to and operates the throttle linkage to the carburetor. The control has 2 positions: Slow and Fast. The engine speed can be varied between the 2 settings.

Note: The engine cannot be stopped by the throttle control.

Lift Lever

To raise the attachment, pull the lift lever (Figure 10) back; to lower the attachment, push the lever forward. For the FLOAT position, move the lever into the detent position. When the desired position is attained, release the lever and it will return to neutral.

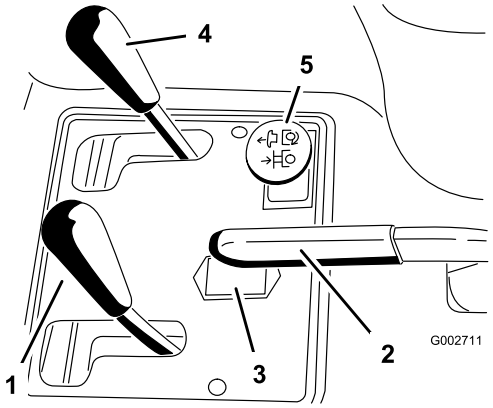


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Figure 10

1. Lift lever
2. Parking brake
3. Hour meter
4. Front lift control (optional)
5. Rear remote hydraulics control (optional)

Note: The machine has a double-acting lift cylinder. You can apply down pressure to the attachment for certain operating conditions.

Parking Brake

To engage the parking brake (Figure 10), pull back on the parking-brake lever. To disengage it, push the lever forward.

Note: You may have to rotate the traction pedal slowly forward and backward to release the parking brake.

Hour Meter

The hour meter (Figure 10) indicates the total hours of machine operation. The hour meter starts to function whenever you rotate the key switch to the ON position.

Seat-Adjustment Lever

Move the lever on the left side of the seat (Figure 11) forward, slide the seat to the desired position, and release the lever to lock the seat into position.

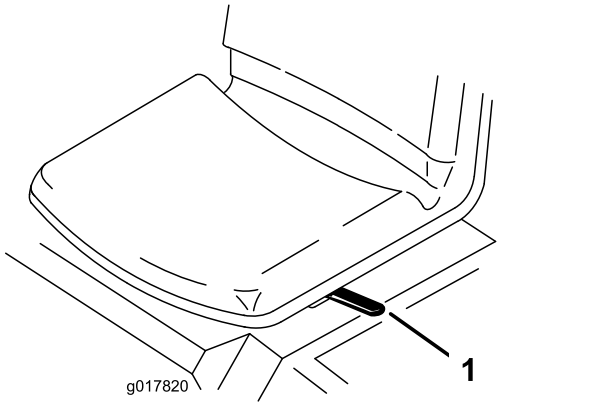

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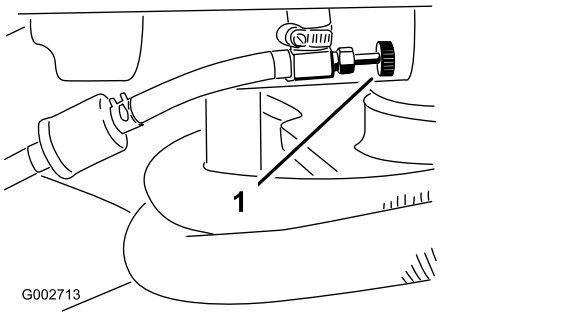
Figure 11

1. Seat-adjustment lever

Fuel-Shutoff Valve

Close the fuel-shutoff valve (Figure 12) when storing the machine or transporting it on a trailer.



g002713

Figure 12

1. Fuel-shutoff valve

Specifications

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

Width without attachment	148 cm (58 inches)
Width with rake, Model 08751	191 cm (75 inches)
Length without attachment	164 cm (64-1/2 inches)
Height	115 cm (45-1/4 inches)
Wheelbase	109 cm (42-3/4 inches)
Net weight Model 08703 Model 08705	 452 kg (996 lb) 461 kg (1,017 lb)

Attachments/Accessories

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

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

Operation

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.

Read and follow the rollover protection instructions and warnings.

To avoid loss of control and possibility of rollover:

- **Do not operate near drop-offs 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.

The use of protective equipment for eyes, ears, hands, feet, and head is recommended.

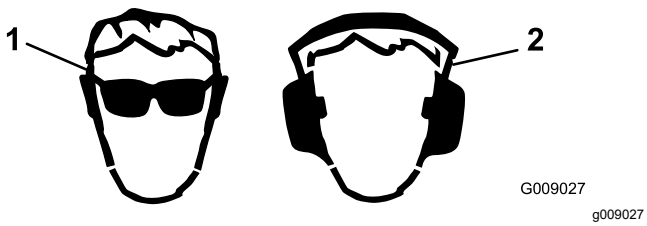


Figure 13

1. Wear safety glasses.
2. Wear hearing protection.

Checking the Level of the Engine Oil

Service Interval: After the first 20 hours
Before each use or daily

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

The crankcase capacity is approximately 1.66 L (1-3/4 US qt) with the filter.

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

- API classification level: SL or higher
- Preferred oil: SAE 30—above 4 degrees C (40 degrees F)

1. Position the machine on a level surface.
2. Pivot the seat forward.
3. Pull out the dipstick (Figure 14) and wipe it with a clean rag.

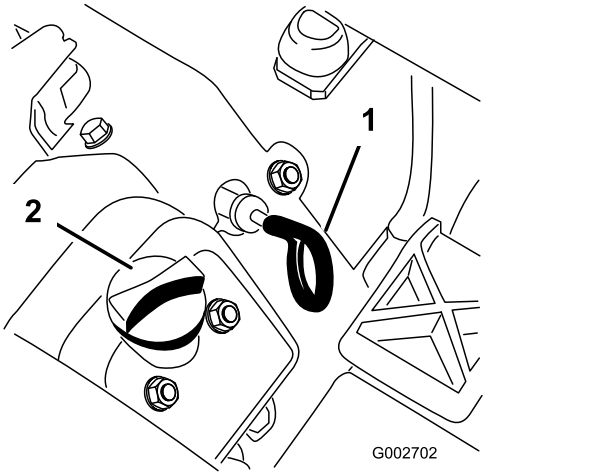


Figure 14

1. Dipstick
2. Oil-fill cap

4. Insert the dipstick into the tube and make sure that it is fully seated. Remove the dipstick from the tube and check the oil level. If the oil level is low, remove the filler cap from the valve cover and add enough oil to raise the level to the Full mark on the dipstick.

   Important: **Be sure to keep the oil level between the upper and lower limits on the oil gauge. Engine failure may occur as a result of overfilling or underfilling the engine oil.**

5. Install the dipstick firmly in place.

   Important: **The dipstick must be fully seated in the tube to provide proper sealing of the engine crankcase. Failure to seal the crankcase may result in engine damage.**

6. Pivot the seat down.

Important: **Check the oil level every 8 operating hours or daily. Initially, change the oil after the first 20 hours of operation; thereafter, under normal conditions, change the oil and filter every 100 hours. However, change the oil more frequently when the engine is operated in extremely dusty or dirty conditions.**

Filling the Fuel Tank

- **Fuel-tank capacity:** 25 L (5-1/2 US gallons).
- **Recommended fuel:**
  - For best results, use only clean, fresh (less than 30 days old), unleaded gasoline with an octane rating of 87 or higher ((R+M)/2 rating method).
  - Ethanol: Gasoline with up to 10% ethanol (gasohol) or 15% MTBE (methyl tertiary butyl ether) by volume is acceptable. Ethanol and MTBE are not the same. Gasoline with 15% ethanol (E15) by volume is not approved for use. Never use gasoline that contains more than 10% ethanol by volume, such as E15 (contains 15% ethanol), E20 (contains 20% ethanol), or E85 (contains up to 85% ethanol). Using unapproved gasoline may cause performance problems and/or engine damage which may not be covered under warranty.
  - Do not use gasoline containing methanol.
  - Do not store fuel either in the fuel tank or fuel containers over the winter unless a fuel stabilizer is used.
  - Do not add oil to gasoline.

Important: **Do not use fuel additives other than a fuel stabilizer/conditioner. Do not use fuel stabilizers with an alcohol base such as ethanol, methanol, or isopropanol.**

⚠ DANGER

In certain conditions, gasoline is extremely flammable and highly explosive. A fire or explosion from gasoline can burn you and others and can damage property.

- **Fill the fuel tank outdoors, in an open area, when the engine is cold. Wipe up any gasoline that spills.**
- **Never fill the fuel tank inside an enclosed trailer.**
- **Do not fill the fuel tank completely full. Add gasoline to the fuel tank until the level is 6 to 13 mm (1/4 to 1/2 inch) below the bottom of the filler neck. This empty space in the tank allows gasoline to expand.**
- **Never smoke when handling gasoline, and stay away from an open flame or where gasoline fumes may be ignited by a spark.**
- **Store gasoline in an approved container and keep it out of the reach of children. Do not buy more than a 30-day supply of gasoline.**
- **Do not operate without entire exhaust system in place and in proper working condition.**

⚠ DANGER

In certain conditions during fueling, static electricity can cause a spark, which can ignite the fuel vapors. A fire or explosion from fuel can burn you and others and can damage property.

- **Always place fuel containers on the ground away from your vehicle before filling.**
- **Do not fill fuel containers inside a vehicle or on a truck or trailer bed because interior carpets or plastic truck-bed liners may insulate the container and slow the loss of any static charge.**
- **When practical, remove fuel-powered equipment from the truck or trailer and fuel the equipment with its wheels on the ground.**
- **If this is not possible, then refuel such equipment on a truck or trailer from a portable container, rather than from a fuel-dispenser nozzle.**
- **If a fuel dispenser must be used, keep the nozzle in contact with the rim of the fuel tank or container opening at all times until fueling is complete.**

⚠ WARNING

Gasoline is harmful or fatal if swallowed. Long-term exposure to vapors can cause serious injury and illness.

- **Avoid prolonged breathing of vapors.**
- **Keep face away from nozzle and gas tank or conditioner opening.**
- **Keep gas away from eyes and skin.**

1. Clean the area around the fuel-tank cap (Figure 15).
2. Remove the fuel-tank cap.
3. Fill the tank to about 25 mm (1 inch) below the top of the tank (bottom of the filler neck). **Do not overfill**.

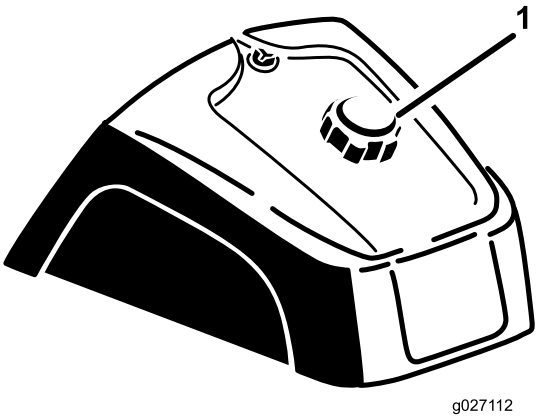


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Figure 15

1. Fuel-tank cap

4. Install the cap.
5. Wipe up any fuel that may have spilled to prevent a fire hazard.

   Important: **Never use methanol, gasoline containing methanol, or gasohol containing more than 10% ethanol because the fuel system could be damaged. Do not mix oil with gasoline.**

Checking the Level of the Hydraulic Fluid

Service Interval: Before each use or daily

The reservoir is filled at the factory with approximately 18.9 L (5 US gallons) of high-quality hydraulic fluid. The best time to check the hydraulic oil is when the fluid is cold. The machine should be in its transport configuration. If the oil level is below the Add mark on the dipstick, add oil to bring the oil level to the middle of the acceptable range. **Do not overfill the reservoir.** If the oil level is between the Full and the Add marks, no oil addition is required. **Check the level of the hydraulic fluid before you first start the engine and daily thereafter.**

The recommended replacement fluid is as follows:

Toro Premium All Season Hydraulic Fluid (available in 19 L (5 gallon) containers or 208 L (55 gallon) drums—see the parts documentation or your Toro distributor for part numbers)

Recommended Hydraulic Fluid: Toro Premium All Season Hydraulic Fluid

Alternative fluids: If the Toro fluid is not available, other conventional, petroleum-based fluids may be used, provided that they meet all of the following material properties and industry specifications. Check with your oil supplier to see whether the oil meets these specifications.

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

High Viscosity Index/Low Pour Point Anti-wear Hydraulic Fluid, ISO VG 46 Multigrade	
Material Properties:	
Viscosity, ASTM D445	cSt @ 40°C (104°F) 44 to 48 cSt @ 100°C (212°F) 7.9 to 9.1
Viscosity Index ASTM D2270	140 or higher
Pour Point, ASTM D97	-37°C to -45°C (-34°F to -49°F)
FZG, Fail stage	11 or better
Water content (new fluid):	500 ppm (maximum)
Industry Specifications:	
Vickers I-286-S, Vickers M-2950-S, Denison HF-0, Vickers 35 VQ 25 (Eaton ATS373-C)	

The proper hydraulic fluids must be specified for mobile machinery (as opposed to industrial plant usage), multiweight-type, with ZnDTP or ZDDP anti-wear additive package (not an ashless-type fluid).

Important: **Many hydraulic fluids are almost colorless, making it difficult to spot leaks. A red dye additive for the hydraulic system oil is available in 20 ml (2/3 fl oz) bottles. 1 bottle is sufficient for 15 to 22 L (4 to 6 US gallons) of hydraulic oil. Order part 44-2500 from your Authorized Toro Distributor.**

Synthetic, Biodegradable Hydraulic Fluid

(available in 19 L (5 gallon) containers or 208 L (55 gallon) drums—see the parts documentation or your Toro distributor for part numbers)

This high-quality, synthetic, biodegradable fluid has been tested and found compatible for this Toro model. Other brands of synthetic fluid may have seal compatibility problems and Toro cannot assume responsibility for unauthorized substitutions.

Note: This synthetic fluid is not compatible with the Toro Biodegradable Fluid previously sold. See your Toro Distributor for more information.

Alternative fluids:

- Mobil EAL Envirosyn H 46 (US)
- Mobil EAL Hydraulic Oil 46 (international)

1. Position the machine on a level surface, lower the attachment, and stop the engine.
2. Clean the area around the hydraulic-reservoir cap to prevent debris from entering the tank (Figure 16).

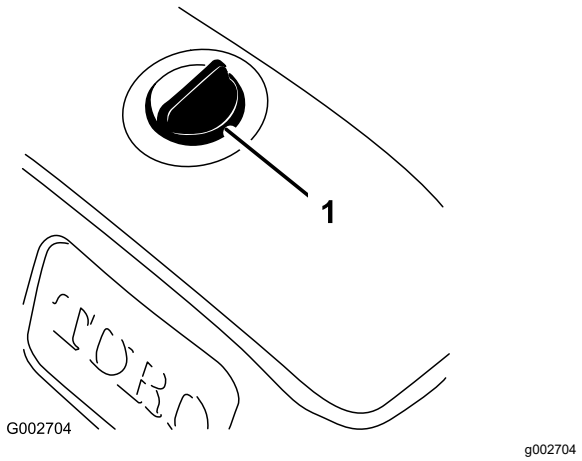

Figure 16

1. Hydraulic-reservoir cap

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

   Note: The fluid level must be between the upper and lower marks (necked-down area) on the dipstick (Figure 17).

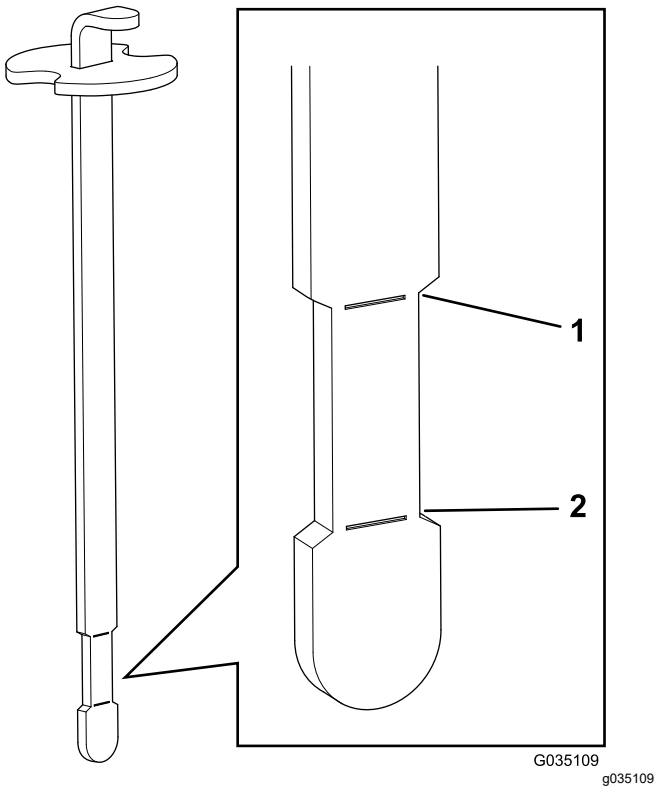

Figure 17

1. Upper limit
2. Lower limit

6. If the fluid level is low, slowly fill the reservoir with the appropriate hydraulic fluid until the level reaches the necked-down area on the dipstick.

   Note: Do not overfill the reservoir.

7. Install the reservoir cap.

   Important: **To prevent system contamination, clean the tops of the containers of hydraulic fluid before puncturing them. Ensure that the pour spout and the funnel are clean.**

Checking the Tire Pressure

Service Interval: Before each use or daily

Check the tire pressure before operating the machine (Figure 18). The correct air pressure in the front and rear tires is as follows:

- Treaded tires: 70 kPa (10 psi)

  Note: If additional traction is required for blade operation, reduce the pressure to 55 kPa (8 psi).

- Smooth tires: 55 to 70 kPa (8 to 10 psi)

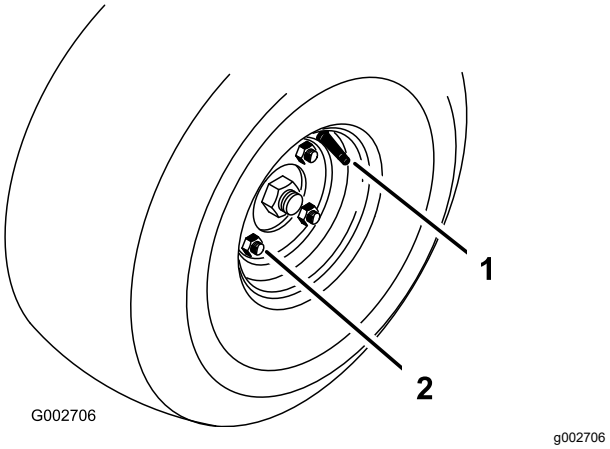

Figure 18

1. Valve stem
2. Lug nut

Torquing the Wheel Lug Nuts

Service Interval: After the first 8 hours

Every 100 hours

Torque the lugs nuts to 61 to 75 N-m (45 to 55 ft-lb).

Starting and Stopping the Engine

1. Remove your foot from the traction pedal, make sure that the pedal is in the NEUTRAL position, and engage the parking brake.
2. Push the choke lever forward to the ON position (when starting a cold engine) and the throttle lever to the SLOW position.

   Important: **When operating the machine in temperatures less than 0°C (32°F) allow the machine time to warm up before using it. This prevents damage to the hydrostat and the traction loop.**

3. Insert the key into the ignition switch and rotate it clockwise to start the engine. Release the key when the engine starts.

   Note: Regulate the choke to keep the engine running smoothly.

   Important: **To prevent overheating of the starter motor, do not engage the starter longer than 10 seconds. After 10 seconds of continuous cranking, wait 60 seconds before engaging the starter motor again.**

4. To stop the engine, move the throttle control to the SLOW position and rotate the ignition key to OFF.

Note: Remove the key from the switch to prevent accidental starting.

5. Close the fuel-shutoff valve before storing the machine.

⚠ CAUTION

Inspecting the machine while the engine is running could result in injury.

Shut the engine off and wait for all moving parts to stop before checking for oil leaks, loose parts, and other malfunctions.

Checking the Interlock System

⚠ CAUTION

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

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

The purpose of the interlock system is to prevent the engine from cranking or starting unless the traction pedal is in the NEUTRAL position. Also, the engine should stop if the traction pedal is moved either forward or reverse without an operator in the seat.

1. Position the machine in a wide-open area free of debris and bystanders. Stop the engine.
2. Sit on the seat and engage the parking brake.
3. Press the traction pedal in forward and reverse while trying to start the engine.

   Note: If the engine cranks, there may be a malfunction in the interlock system. Repair it immediately.

   If the engine does not crank, the system is operating correctly.
4. Stay seated on the seat, with the traction pedal in the NEUTRAL position and the parking brake set, and start the engine.
5. Rise off the seat and slowly press the traction pedal.

   Note: The engine should stop in 1 to 3 seconds. Correct the problem if the system does not operate properly.

Towing the Machine

In case of emergency, you can tow the machine for a short distance. However, we do not recommend this as a standard procedure.

Important: **Do not tow the machine faster than 1.6 km/h (1 mph), because the drive system may be damaged. If the machine must be moved more than 50 meters (55 yards), transport it on a truck or a trailer. The tires may lock up if you tow the machine too fast. If this occurs, stop towing the machine and wait for the traction circuit pressure to stabilize before resuming towing at a slower speed.**

Breaking in the Machine

New engines take time to develop full power. Drive systems have more friction when they are new, placing additional load on the engine.

Allow the first 8 hours of operating time for the break-in period.

Since the first hours of operation are critical to future dependability of the machine, monitor the functions and performance closely so that you can notice and correct minor difficulties, which could lead to major problems. Inspect the machine frequently during the break-in period, for signs of oil leakage, loose fasteners, or any other malfunction.

Becoming Familiar with the Machine

Refer to the attachment *Operator's Manual* for specific operating instructions for the attachment.

Practice driving the machine, because its operating characteristics are different than some utility vehicles. 2 points to consider when operating the vehicle are transmission speed and engine speed.

To maintain somewhat constant engine speed, press the traction pedal slowly. This allows the engine to keep up with the ground speed of the vehicle. By contrast, pushing down quickly on the traction pedal reduces the engine speed; as a result, there will not be enough torque-power to move the vehicle. Therefore, to transfer maximum power to the wheels, move the throttle to FAST and slightly press the traction pedal. By comparison, maximum ground speed with no load results when the throttle is in the FAST position and the traction pedal is slowly but fully pressed. Always keep the engine speed high enough to deliver maximum torque-power to the wheels.

⚠ CAUTION

Operating the machine demands attention to prevent tipping or loss of control.

- **Use care when entering and leaving sand traps.**
- **Use extreme caution around ditches, creeks, or other hazards.**
- **Use caution when operating the machine on a steep slope.**
- **Reduce your speed when making sharp turns or when turning on hillsides.**
- **Avoid sudden stops and starts.**
- **Do not go from reverse to full forward without first coming to a complete stop.**

Note: If the attachment adapter becomes stuck to the traction unit adapter, insert a pry bar or a screwdriver into the pry slot to disengage the parts (Figure 19).

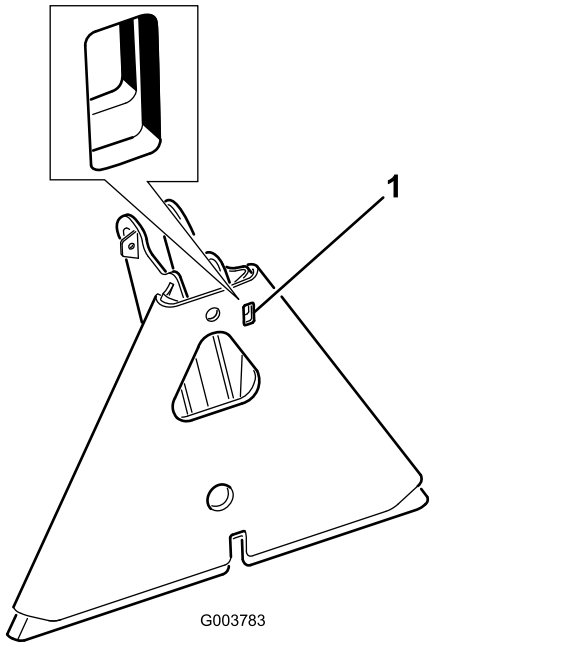

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Figure 19

1. Pry slot

Maintenance

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

⚠ CAUTION

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

Remove the key from the ignition before you do any maintenance.

Recommended Maintenance Schedule(s)

Maintenance Service Interval	Maintenance Procedure
After the first 8 hours	• Torque the wheel lug nuts. • Change the hydraulic filter.
After the first 20 hours	• Check the level of the engine oil. • Change the engine oil and filter.
Before each use or daily	• Check the level of the engine oil. • Check the level of the hydraulic fluid. • Check the tire pressure. • Check the condition of the hydraulic lines and hoses. • Inspect and clean the machine. • Check the safety interlock operation.
Every 25 hours	• Check the cable connections and the level of the battery fluid.
Every 100 hours	• Torque the wheel lug nuts. • Grease the machine. • Change the engine oil and filter.
Every 200 hours	• Service the air cleaner (earlier in extremely dusty, dirty conditions). • Replace the air filter.
Every 400 hours	• Change the hydraulic fluid and filter. • Clean the oil cooler.
Every 800 hours	• Replace the spark plugs. • Replace the fuel filter. • Decarbon the combustion chamber. • Adjust the valves and torque head bolts. • Check the engine speed (at idle and full throttle). • Drain and clean the fuel tank.
Every 1,500 hours	• Replace moving hoses. • Replace the neutral and seat interlock switches.

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

Daily Maintenance Checklist

Duplicate this page for routine use.

Maintenance Check Item	For the week of:						
	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
Check the safety interlock operation.							
Check the steering operation.							
Check the fuel level.							
Check the level of the engine oil.							
Check the condition of the air filter .							
Clean the cooling fins on the engine.							
Check unusual engine noises.							
Check unusual operating noises.							
Check the level of the hydraulic fluid .							
Check the hydraulic hoses for damage.							
Check for fluid leaks.							
Check the tire pressure.							
Check the instrument operation.							
Touch-up damaged paint.							

Notation for Areas of Concern		
Inspection performed by:		
Item	Date	Information

Pre-Maintenance Procedures

Important: **The fasteners on the covers of this machine are designed to remain on the cover after removal. Loosen all of the fasteners on each cover a few turns so that the cover is loose but still attached, then go back and loosen them until the cover comes free. This will prevent you from accidentally stripping the bolts free of the retainers.**

Jacking the Machine

⚠ WARNING

Mechanical or hydraulic jacks may fail to support the machine and cause serious injury.

Use jack stands when supporting the machine.

The jacking points are as follows:

- Left or right side—under the rear wheel motor or the frame (Figure 20).

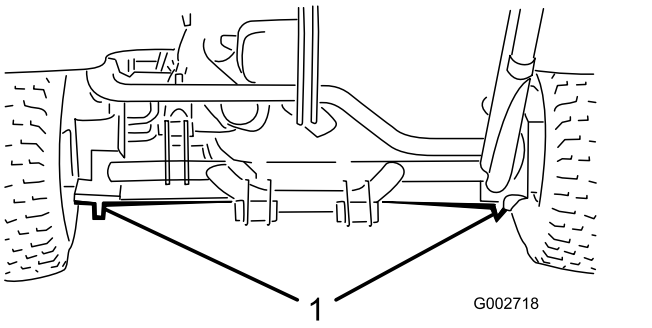

Figure 20

1. Rear jacking points

- Front—under the frame behind the front wheel (Figure 21).

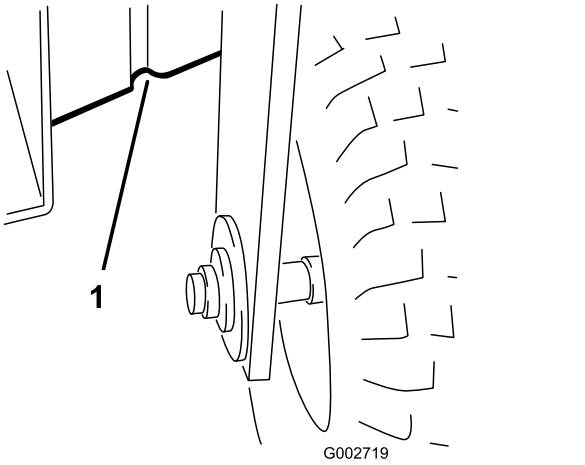

Figure 21

1. Front jacking points

Lubrication

The machine has grease fittings that must be lubricated regularly with number 2 general-purpose lithium grease after every 100 hours of operation.

Lubricate the following bearings and bushings:

- Front wheel bearing (1) (Figure 22)

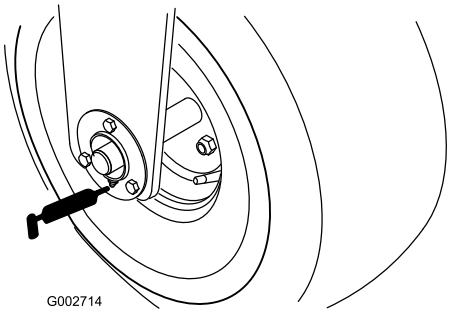

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Figure 22

- Traction-pedal pivot (1) (Figure 23)

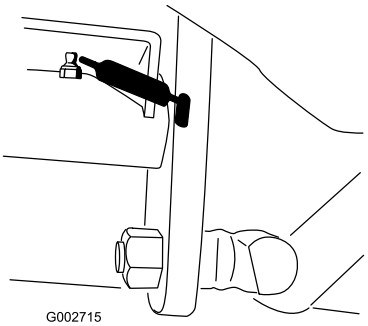

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Figure 23

- Rear hitch (5) (Figure 24)

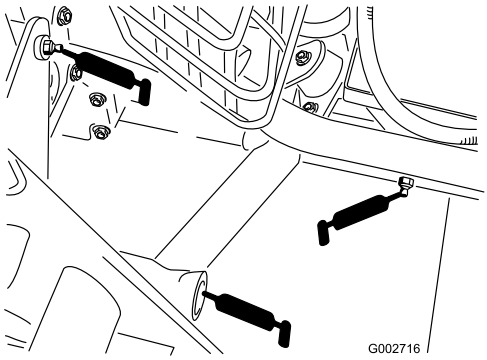

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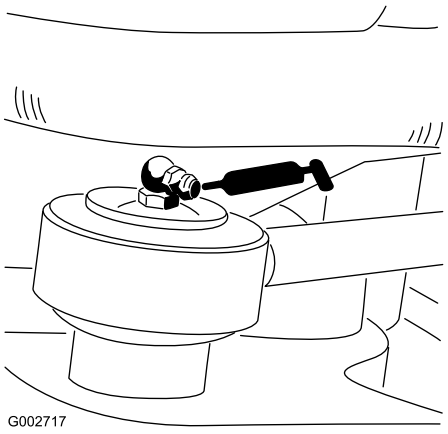
Figure 24

- Steering cylinder rod end (1) (Model 08705 only) (Figure 25)



g002717

Figure 25

- Steering pivot (Figure 26)

  Note: The flush fitting on the steering pivot (Figure 26) requires a grease gun nozzle adapter. Order Toro Part No. 107–1998 from your Authorized Toro Distributor.

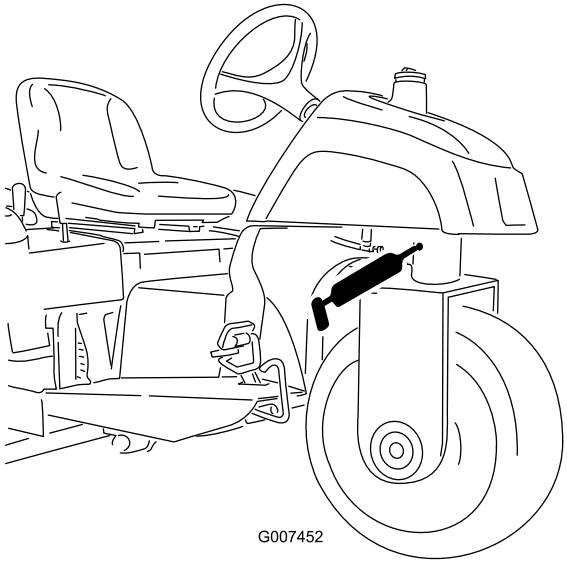


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Figure 26

Greasing the Machine

Service Interval: Every 100 hours

1. Wipe the grease fitting clean so that foreign matter cannot be forced into the bearing or bushing.
2. Pump grease into the bearing or bushing.
3. Wipe up excess grease.

Engine Maintenance

Changing the Engine Oil and Filter

Service Interval: After the first 20 hours

Every 100 hours

1. Park the machine on a level surface and turn the engine off.
2. Remove the drain plug (Figure 27) and let oil flow into a drain pan. When the oil stops, install the drain plug.

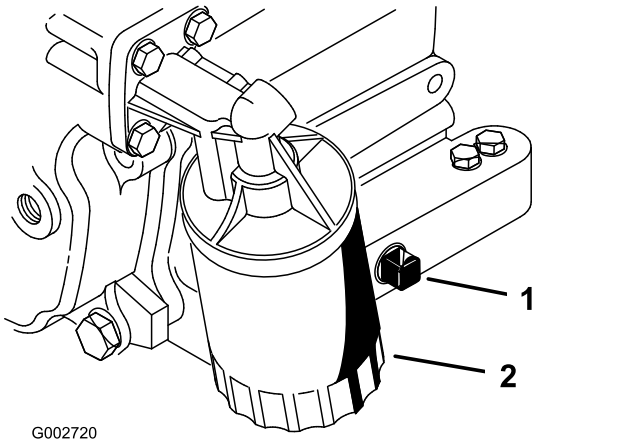

Figure 27

1. Drain plug
2. Oil filter

3. Remove the oil filter (Figure 27).
4. Apply a light coat of clean oil to the new filter gasket.
5. Screw the filter on by hand until the gasket contacts the filter adapter; then tighten 1/2 to 3/4 turn further.

   Important: **Do not overtighten the filter.**
6. Add oil to the crankcase; refer to Checking the Level of the Engine Oil (page 17).
7. Dispose of the used oil properly.

Servicing the Air Cleaner

Service Interval: Every 200 hours

- Check the body of the air cleaner for damage that could cause an air leak. Replace any damaged components. Check the whole intake system for leaks, damage, or loose hose clamps.
- Do not change the air filter before it is necessary; doing so only increases the chance of dirt entering the engine when you remove the filter.
- Be sure that the cover is seated correctly and seals with the body of the air cleaner.

Replacing the Air Filter

Service Interval: Every 200 hours

1. Release the latches securing the air-cleaner cover to the air-cleaner body (Figure 28).

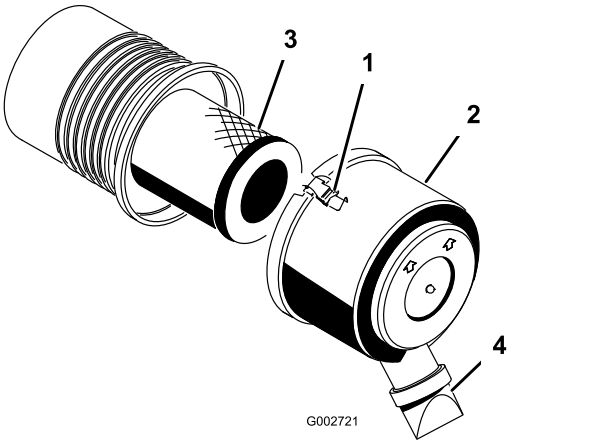

Figure 28

1. Latch
2. Dust cap
3. Air filter
4. Dirt-ejection port

2. Remove the cover from the air-cleaner body.
3. Before removing the filter, use low-pressure air (40 psi, clean and dry) to help remove large accumulations of debris packed between the outside of the primary filter and the canister.

   Important: **Avoid using high-pressure air, which could force dirt through the filter into the intake tract. This cleaning process prevents debris from migrating into the intake when the primary filter is removed.**
4. Remove and replace the filter.

   Note: Inspect the new filter for shipping damage, checking the sealing end of the filter and the body. Do not use a damaged element. Insert the new filter by applying pressure to the outer rim of the element to seat it in the canister. Do not apply pressure to the flexible center of the filter.

   Note: Cleaning the used element is not recommended due to the possibility of damaging the filter media.
5. Clean the dirt-ejection port located in the removable cover.
6. Remove the rubber outlet valve from the cover, clean the cavity, and replace the outlet valve.
7. Install the cover, orienting the rubber outlet valve in a downward position—between approximately 5 o'clock to 7 o'clock when viewed from the end.
8. Secure the latches.

Replacing the Spark Plugs

Service Interval: Every 800 hours

Type: Champion RC14YC (or equivalent)

Air Gap: 0.76 mm (0.030 inch)

Note: The spark plugs usually lasts a long time; however, you should remove and check them whenever the engine malfunctions.

1. Clean the area around each spark plug so that foreign matter cannot fall into the cylinder when the spark plug is removed.
2. Pull the spark-plug wires off the spark plugs and remove the plugs from the cylinder head.
3. Check the condition of the side electrode, center electrode, and the insulator to ensure that there is no damage.

   Important: **A cracked, fouled, dirty, or otherwise malfunctioning spark plug must be replaced. Do not sand-blast, scrape, or clean the electrodes by using a wire brush because grit may eventually release from the plug and fall into the cylinder. The result is usually a damaged engine.**
4. Set the air gap between the center electrode and side electrodes to 0.76 mm (0.030 inch); refer to Figure 29. Install the correctly gapped spark plug with the gasket seal, and tighten the plug to 23 N-m (200 in-lb). If a torque wrench is not used, tighten the plug firmly.

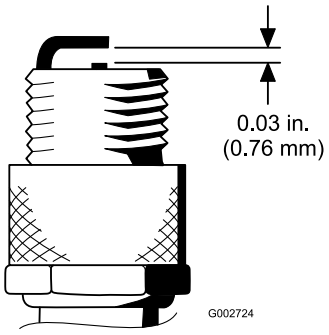

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Figure 29

Fuel System Maintenance

Replacing the Fuel Filter

Service Interval: Every 800 hours

An in-line filter is incorporated into the fuel line. Use the following procedures when replacement becomes necessary:

1. Close the fuel-shutoff valve, loosen the hose clamp on the carburetor side of the filter, and remove the fuel line from the filter (Figure 30).

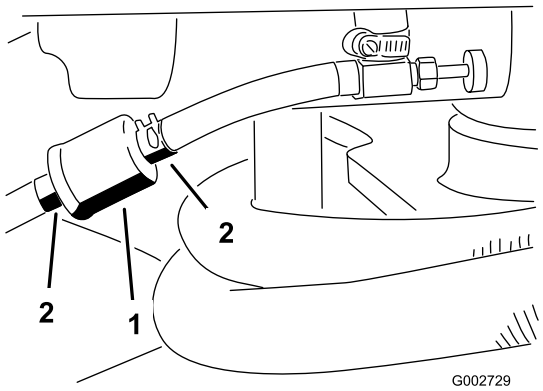

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Figure 30

1. Fuel filter
2. Hose clamps

2. Place a drain pan under the filter, loosen the remaining hose clamp, and remove the filter.
3. Install the new filter with the arrow on the filter body pointing away from the fuel tank (toward the carburetor).
4. Slide the hose clamps onto the ends of the fuel lines.
5. Push the fuel lines onto the fuel filter and secure them with the hose clamps.

   Note: Be sure that the arrow on the side of the filter points toward the carburetor.

Electrical System Maintenance

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.

Jump Starting the Machine

If you need to jump start the machine, you can use the alternative positive post (located on the starter solenoid) instead of the positive battery post (Figure 31).

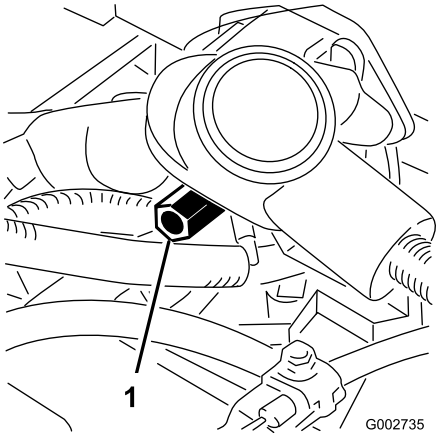

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Figure 31

1. Alternative positive battery post

Replacing Fuses

The fuse block (Figure 32) is located under the seat.

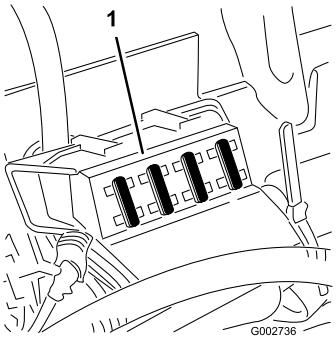

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Figure 32

1. Fuse block

Maintaining the Battery

Service Interval: Every 25 hours

The level of the battery electrolyte must be properly maintained and the top of the battery kept clean. If the machine is stored in a location where temperatures are extremely high, the battery will run down more rapidly than if the machine is stored in a location where temperatures are cool.

⚠ DANGER

Battery electrolyte contains sulfuric acid, which is a deadly poison and causes severe burns.

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

Keep the top of the battery clean by washing it periodically with a brush dipped in ammonia or baking-soda solution. Flush the top surface with water after cleaning. Do not remove the fill cap while cleaning.

The battery cables must be tight on the terminals to provide good electrical contact.

⚠ 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.**

If corrosion occurs at the battery terminals, disconnect the cables, negative (-) cable first, and scrape the clamps and terminals separately. Connect the cables, positive (+) cable first, and coat the terminals with petroleum jelly.

- Check the electrolyte level every 25 operating hours, or if the machine is in storage, every 30 days.
- Maintain the cell level with distilled or demineralized water. Do not fill the cells above the fill line.

Drive System Maintenance

Adjusting the Traction Drive for Neutral

If the machine moves when the traction pedal is in the neutral position, adjust the traction cam.

1. Park the machine on a level surface and turn the engine off.
2. Loosen the 2 screws securing the center shroud to the machine and remove the shroud (Figure 33).

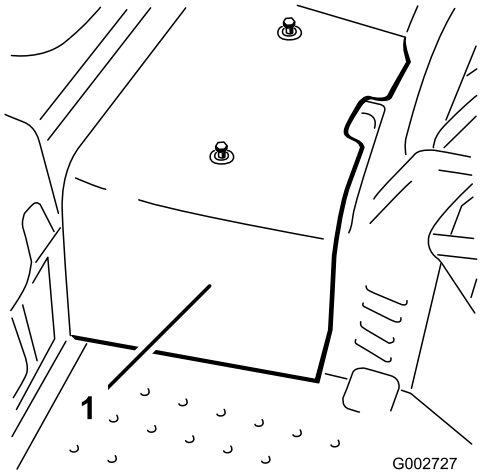

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Figure 33

1. Center shroud

3. Raise the front wheel and 1 rear wheel off the floor and place support blocks under the frame.

⚠ WARNING

The front wheel *and* 1 rear wheel must be raised off the ground, or else the machine will move during the adjustment. This could cause the machine to fall and injure someone under the machine.

Make sure that the machine is adequately supported, with the front wheel *and* 1 rear wheel raised off the ground.

4. Loosen the locknut on the traction-adjustment cam (Figure 34).

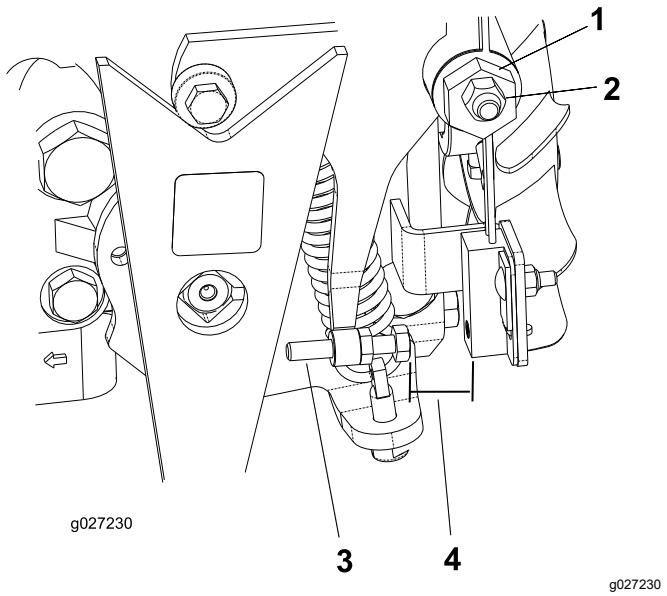

Figure 34

1. Traction-adjustment cam
2. Locknut
3. Screw
4. Gap

⚠ WARNING

The engine must be running so that you can perform the final adjustment of the traction-adjustment cam. Contact with moving parts or hot surfaces may cause personal injury.

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

5. Start the engine and rotate the cam hex (Figure 34) in both directions to determine the midpoint of the neutral span.
6. Tighten the locknut securing the adjustment.
7. Stop the engine.
8. Install the center shroud.
9. Remove the jack stands and lower the machine to the shop floor.
10. Test drive the machine to make sure that it does not move when the traction pedal is in neutral.

Adjusting the Traction Interlock Switch

1. Adjust the transmission for neutral; refer to Adjusting the Traction Drive for Neutral (page 31).
2. Activate the pump lever to ensure that all parts are operating freely and seated properly.
3. Adjust the screw until the air gap is 0.8 to 2.3 mm (0.030 to 0.090 inch); refer to Figure 34.
4. Check for proper operation.

Adjusting the Transport Speed

Obtaining Maximum Transport Speed

The traction pedal is adjusted for maximum transport speed and reverse at the factory, but an adjustment may be required if the pedal reaches full stroke before the pump lever reaches full stroke, or if a decrease in transport speed is desired.

To obtain maximum transport speed, press down on the traction pedal. If the pedal contacts the stop (Figure 35) before the pump lever reaches full stroke, adjust it:

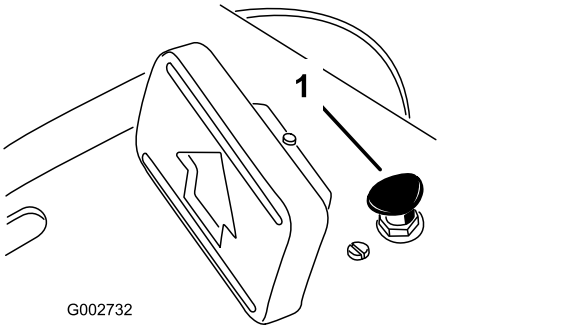

Figure 35

1. Pedal stop

1. Park the machine on a level surface, turn the engine off, and engage the parking brake.
2. Loosen the nut securing the pedal stop.
3. Tighten the pedal stop until it does not contact the traction pedal.
4. Continue applying a light load on the transport pedal and adjust the pedal stop so that it just contacts or a gap of 2.5 mm (0.100 inch) is attained between the pedal rod and the stop.
5. Tighten the nuts.

Reducing the Transport Speed

1. Park the machine on a level surface, turn the engine off, and engage the parking brake.
2. Loosen the nut securing the pedal stop.
3. Thread the pedal stop out until the desired transport speed is attained.
4. Tighten the nut securing the pedal stop.

Adjusting the Lift Lever

Adjust the detent plate of the lift lever (Figure 37) if the attachment does not float properly (follow ground contour) during operation.

1. Park the machine on a level surface, turn the engine off, set the parking brake, and block the wheels.
2. Remove the 4 screws securing the control panel to the frame (Figure 36).

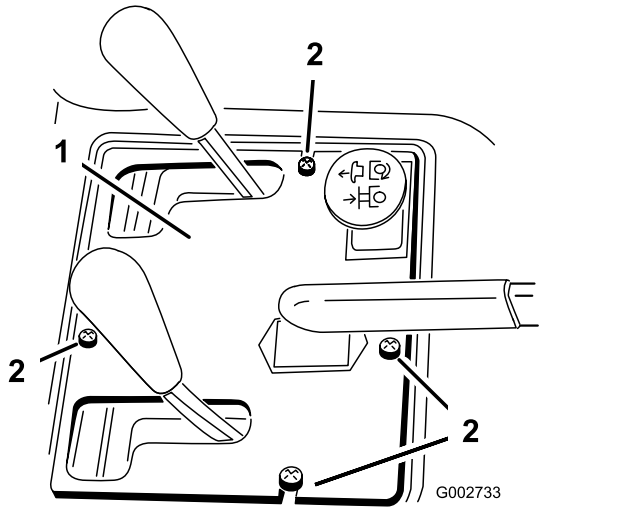

Figure 36

1. Control panel
2. Screws

3. Loosen the 2 bolts securing the detent plate to the fender and the frame.

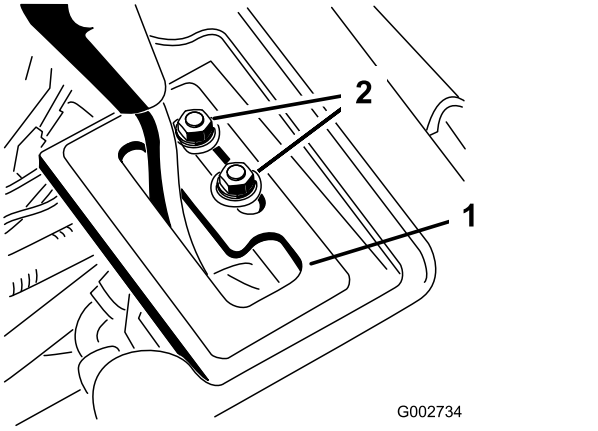

Figure 37

1. Detent plate
2. Mounting bolts

⚠ WARNING

The engine must be running so that you can adjust the detent plate. Contact with moving parts or hot surfaces may cause personal injury.

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

4. Start the engine.
5. With the engine running and the lift lever in the Float position, slide the detent plate until the lift cylinder can be extended and retracted by hand.
6. Tighten both mounting screws to secure the adjustment.

Adjusting the Engine Controls

Adjusting the Throttle Control

Proper throttle operation is dependent upon proper adjustment of the throttle control. Before adjusting the carburetor, ensure that the throttle control is operating properly.

1. Pivot the seat upward.
2. Loosen the throttle cable-clamp screw securing the cable to the engine (Figure 38).

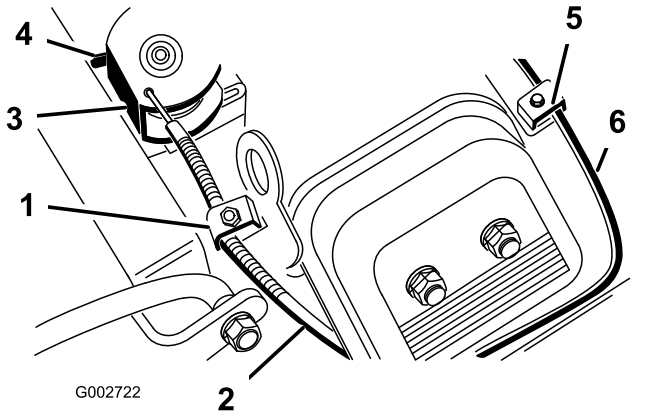

Figure 38

1. Throttle cable-clamp screw
2. Throttle cable
3. Swivel
4. Stop
5. Choke cable-clamp screw
6. Choke cable

3. Move the remote throttle-control lever forward to the Fast position.

4. Pull firmly on the throttle cable until the back of the swivel contacts the stop (Figure 38).
5. Tighten the cable clamp screw and check the engine speed:
   - High idle: 3400 ± 50 rpm
   - Low idle: 1750 ± 100 rpm

Adjusting the Choke Control

1. Pivot the seat upward.
2. Loosen the choke cable-clamp screw securing the cable to the engine (Figure 38).
3. Move the remote choke-control lever forward to the Closed position.
4. Pull firmly on the choke cable (Figure 38) until the choke butterfly is completely closed; then tighten the cable-clamp screw.

Adjusting the Engine-Governor Speed Control

Important: **Before you adjust the engine-governor speed control, ensure that the throttle and choke controls are adjusted properly.**

⚠ WARNING

The engine must be running during adjustment of the engine-governor speed control. Contact with moving parts or hot surfaces may cause personal injury.

- **Ensure that the traction pedal is in neutral and engage the parking brake before performing this procedure.**
- **Keep hands, feet, clothing, and other body parts away from any rotating parts, the muffler, and other hot surfaces.**

Note: To adjust the low idle, use all the following steps. If only the high idle is to be adjusted, proceed directly to step 5.

1. Start the engine and let it run at half throttle for approximately 5 minutes to warm up.
2. Move the throttle control to the Slow setting. Adjust the idle stop screw counterclockwise until it no longer contacts the throttle lever.
3. Bend the governed idle spring anchor tang (Figure 39) to attain an idle speed of 1725 ± 50 rpm.

   Note: Check the speed with a tachometer.

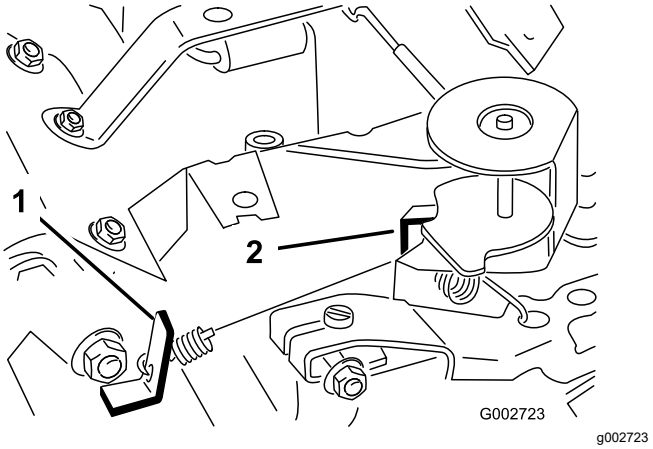

Figure 39

Shown with carb adapter removed

1. Governed idle spring anchor tang
2. High-speed spring anchor tang

4. Adjust the idle stop screw until the idle speed is increased 25 to 50 rpm over the idle speed set in step 3.

   Note: The final idle speed must be 1750± 100 rpm.
5. Move the throttle control to the Fast position.
6. Bend the high-speed spring anchor tang (Figure 39) to attain a high speed of 3400 ± 50 rpm.

Hydraulic System Maintenance

Changing the Hydraulic Fluid and Filter

Service Interval: After the first 8 hours—Change the hydraulic filter.

Every 400 hours—Change the hydraulic fluid and filter.

Use a genuine Toro filter for replacement.

1. Park the machine on a level surface and turn the engine off.
2. Loosen the 2 screws securing the center shroud to the machine and remove the shroud (Figure 40).

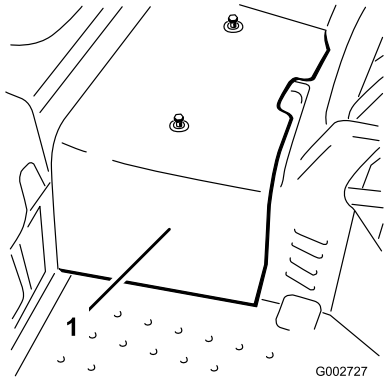

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Figure 40

1. Center shroud

3. Place a drain pan under the hydraulic filter, which is located on the left side of the machine (Figure 41).

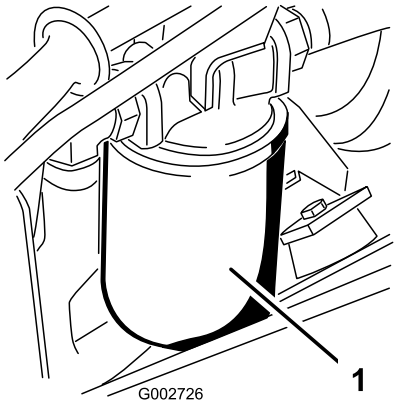

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Figure 41

1. Hydraulic filter

4. Clean the area around the filter mounting area. Place a drain pan under filter. Slowly loosen, but do not remove, the hydraulic filter until oil flows past the gasket and drips down the side of the filter.

   Note: If the machine is equipped with a remote hydraulics kit, the suction hose can be removed from the pump to drain the hydraulic fluid.

5. Remove the filter when the fluid flow slows.
6. Lubricate the sealing gasket on the replacement filter with hydraulic fluid and turn it on by hand until the gasket contacts the filter head. Then tighten it 3/4 turn further.

   Note: The filter should now be sealed.

7. Fill the hydraulic tank with hydraulic fluid until the level is up to the necked-down area of the dipstick. **Do not overfill the tank**. Refer to Checking the Level of the Hydraulic Fluid (page 19).
8. Start and run the engine. Operate the lift cylinder until it extends and retracts and forward and reverse wheel motion is achieved.
9. Stop the engine and check the fluid level in the reservoir; add fluid if necessary.
10. Check all connections for leaks.
11. Install the center shroud.
12. Dispose of the used oil properly.

Checking the Hydraulic Lines and Hoses

Service Interval: Before each use or daily

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

⚠ WARNING

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

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

Charging the Hydraulic System

Whenever a hydraulic component is repaired or replaced, change the hydraulic filter and charge the hydraulic system.

Make sure that the hydraulic reservoir and the filter are filled with fluid at all times when charging the hydraulic system.

1. Park the machine on a level surface and turn the engine off.
2. Loosen the 2 screws securing the center shroud to the machine and remove the shroud (Figure 42).

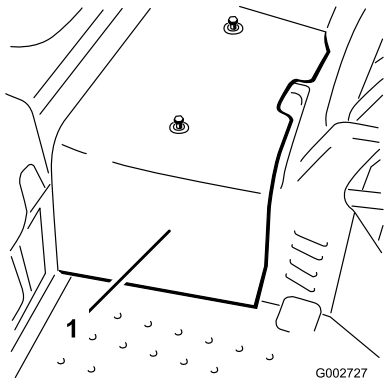

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Figure 42

1. Center shroud

3. Raise the front wheel and 1 of the rear wheels off the floor and place support blocks under the frame.

⚠ WARNING

The front wheel *and* 1 rear wheel must be raised off the ground, or else the machine will move during the adjustment. This could cause the machine to fall and injure someone under the machine.

Make sure that the machine is adequately supported, with the front wheel *and* 1 rear wheel raised off the ground.

4. Start the engine and set the throttle to allow the engine to run at approximately 1800 rpm.
5. Actuate the lift-valve lever until the lift-cylinder rod moves in and out several times. If the cylinder rod does not move after 10 to 15 seconds or the pump emits abnormal sounds, shut the engine off immediately and determine the cause or problem. Inspect for the following:
   - Loose filter or suction lines
   - Loose or faulty coupler on the pump
   - Blocked suction line
   - Faulty charge-relief valve
   - Faulty charge pump

   If the cylinder moves in 10 to 15 seconds, proceed to step 6.
6. Operate the traction pedal in forward and reverse. The wheels that are off the floor should rotate in the proper direction.
   - If the wheels rotate in the wrong direction, stop the engine, remove the lines from the rear of the pump, and reverse the locations.
   - If the wheels rotate in the proper direction, stop the engine and adjust the spring-adjusting pin locknut (Figure 43). Adjust the traction neutral position; refer to Adjusting the Traction Drive for Neutral (page 31).

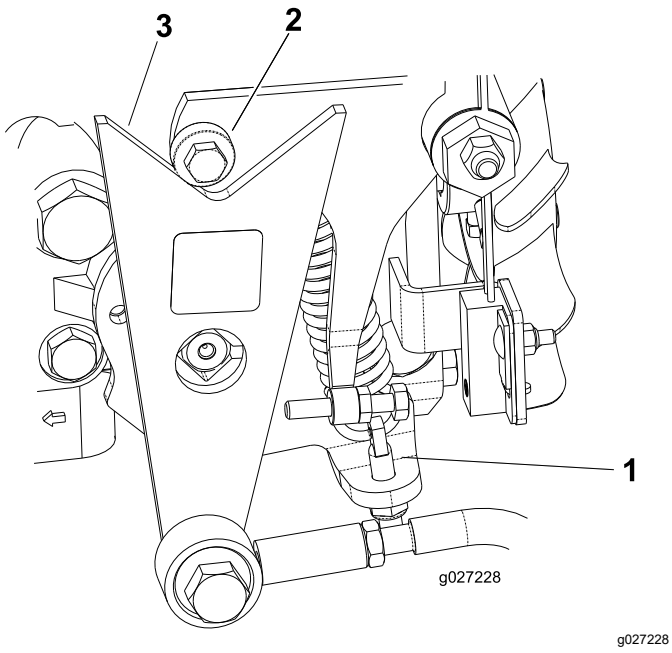

Figure 43

1. Spring-adjusting pin
2. Bearing
3. Cam

7. Check the adjustment of the traction interlock switch; refer to Adjusting the Traction Interlock Switch (page 32).
8. Install the center shroud.

Cleaning

Inspecting and Cleaning the Machine

Service Interval: Before each use or daily

At the completion of operation, thoroughly wash the machine with a garden hose—without a nozzle—so that excessive water pressure does not cause contamination and damage to the seals and bearings.

Make sure that the cooling fins and the area around the cooling-air intake are kept free of debris.

Important: **Cleaning the oil cooler with water promotes premature corrosion and damage to components, and compacts debris; refer to Cleaning the Oil Cooler (page 37).**

After cleaning, inspect the machine for possible hydraulic-fluid leaks, damage, or wear to hydraulic and mechanical components.

Cleaning the Oil Cooler

Service Interval: Every 400 hours

1. Remove the lower shield (Figure 44).

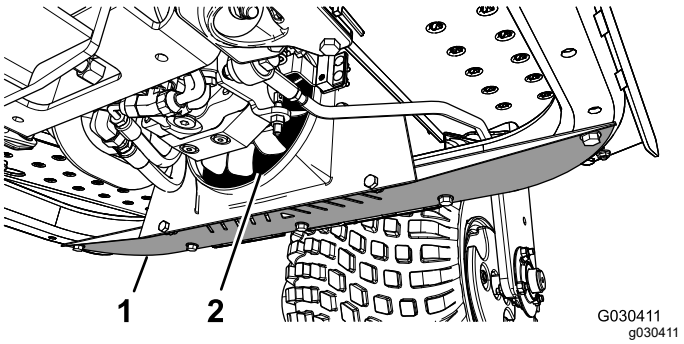

Figure 44

1. Shield
2. Oil cooler

2. Using a wand, blow compressed air in between the fan blades (Figure 44) to force material out from the direction that it entered.
3. Install the shield.

Storage

Preparing the Machine

1. Thoroughly clean the machine, the attachments, and the engine.
2. Check the tire pressure.
3. Check all fasteners for looseness; tighten as necessary.
4. Grease or oil all grease fittings and pivot points. Wipe off any excess lubricant.
5. Lightly sand and use touch-up paint on painted areas that are scratched, chipped, or rusted.
6. Service the battery and cables as follows:
   A. Remove the battery terminals from the battery posts.
   B. Clean the battery, terminals, and posts with a wire brush and a baking-soda solution.
   C. Coat the cable terminals and battery posts with Grafo 112X skin-over grease (Toro Part 505-47) or petroleum jelly to prevent corrosion.
   D. Slowly recharge the battery for 24 hours every 60 days to prevent lead sulfation of the battery.

      Note: The specific gravity of a fully charged battery is 1.250.

   Note: 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.

Preparing the Engine

1. Change the engine oil and filter. Refer to Changing the Engine Oil and Filter (page 28).
2. Start the engine and run it at idle speed for 2 minutes.
3. Thoroughly clean and service the air-cleaner assembly. Refer to Servicing the Air Cleaner (page 28).
4. Seal the air-cleaner inlet and the exhaust outlet with weatherproof masking tape.
5. Check the oil-filler cap and the fuel-tank cap to ensure that they are securely in place.

The Toro Warranty

A Two-Year Limited Warranty

Conditions and Products Covered

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

Instructions for Obtaining Warranty Service

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

Toro Commercial Products Service Department
Toro Warranty Company
8111 Lyndale Avenue South
Bloomington, MN 55420-1196

952–888–8801 or 800–952–2740
E-mail: commercial.warranty@toro.com

Owner Responsibilities

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

Items and Conditions Not Covered

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

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

Parts

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

Deep Cycle and Lithium-Ion Battery Warranty:

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

Maintenance is at Owner’s Expense

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

General Conditions

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

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

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

Note regarding engine warranty:

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

Countries Other than the United States or Canada

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

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Count on it.