Form No. 3372-376 Rev A

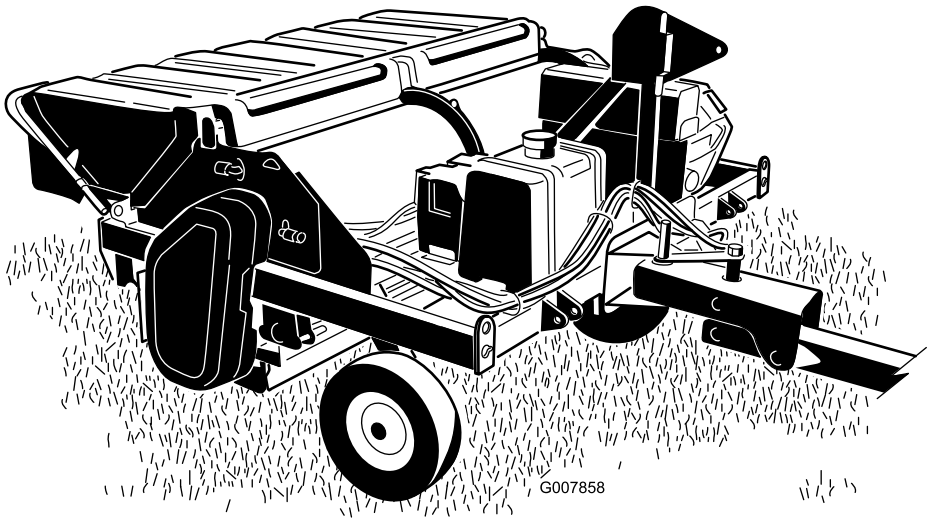
TORO®

Count on it.

Operator's Manual

ProCore® Processor

Model No. 09749—Serial No. 311000001 and Up



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

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.

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.

Introduction

This machine is intended to be used by professional, hired operators in commercial applications. The primary function of the machine is to sweep, process and disperse aeration cores in one operation.

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.

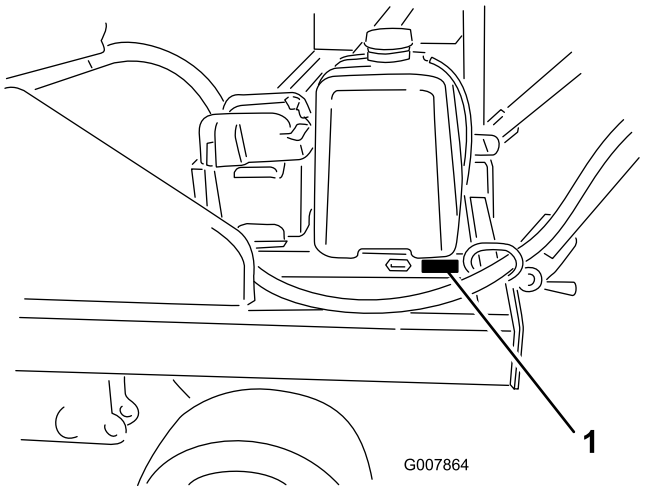


Figure 1

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 other words to highlight information. **Important** calls attention to special mechanical information and **Note** emphasizes general information worthy of special attention.

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Contact us at www.Toro.com.
Printed in the USA.

Contents

Safety

Hazard control and accident prevention are dependent upon the awareness, concern, and proper training of the personnel involved in the operation, transport, maintenance, and storage of the machine. Improper use or maintenance of the machine can result in injury or death. To reduce the potential for injury or death, comply with the following safety instructions.

Supervisor's Responsibilities

- Ensure operators are thoroughly trained and familiar with the Operator's Manual and all decals on the machine.
- Establish your own special procedures and work rules for unusual operating conditions (e.g., slopes too steep for machine operation, adverse weather conditions, etc.).

Before Operating

- Read, understand and follow the instructions in the Operator's Manual and on the machine before starting. Become familiar with all controls and know how to stop quickly. You may contact Toro directly at www.Toro.com for product and accessory information, help finding a dealer, or to register your product.
- NEVER allow children to operate the machine. NEVER allow adults to operate the machine without proper instruction. Only trained operators who have read this manual should operate this machine.
- NEVER operate the machine while under the influence of drugs or alcohol.
- Become familiar with the controls and know how to stop the engine quickly.
- Keep all shields, safety devices, and decals in place. If a shield, safety device, or decal becomes damaged, malfunctioning, or illegible, repair or replace it before operation is commenced. Also tighten loose nuts and bolts to ensure machine is in safe operating condition.
- Always wear substantial shoes. Do not operate machine while wearing sandals, tennis shoes, or sneakers or when barefoot. Do not wear loose-fitting clothing that could get caught in moving parts and possibly cause injury. Wearing safety glasses, safety shoes, long pants, and a helmet is advisable and required by some local ordinances and insurance regulations.
- Use extra care when handling gasoline and other fuels. They are flammable and vapors are explosive.
  - Use only an approved container
  - Never refuel or drain the machine indoors.
  - Never remove gas cap or add fuel with engine running. Allow engine to cool before refueling. Do not smoke.
- Do not alter this equipment in any manner which may cause hazardous conditions.

While Operating

- Rotating parts can cause serious personal injury. Keep hands, feet, hair, and clothing away from all moving parts to prevent injury. NEVER operate the machine with covers, shrouds, or guards removed.
- **DON'T TAKE AN INJURY RISK!** When a person or pet appears unexpectedly in or near the operating area, **STOP THE CORE PROCESSOR.** Careless operation, combined with terrain angles, ricochets, or missing or damaged guards, can lead to thrown object injuries. Do not resume operation until area is cleared.
- NEVER carry passengers.
- When going uphill or downhill, do not stop or start suddenly.
- Stay alert for holes in the terrain or other hidden hazards. To avoid tipping or loss of control, do not drive close to a ditch, creek, or drop off.
- If the tow vehicle engine stalls or the machine loses headway and cannot make it to the top of a slope, do not turn machine around. Always back slowly straight down the slope
- Using the machine demands attention. Failure to operate machine safety may result in an accident, tip over of the machine, and possible serious injury or death. Drive carefully. To prevent tipping or loss of control:
  - Operate only in daylight or when there is good artificial light.
  - Drive slowly.
  - Watch for holes or other hazards.
  - Use care when backing machine.
  - Do not drive close to a sand trap, ditch, creek, or other hazard.
  - Reduce speed when making sharp turns.
  - Avoid turning the core processor on a hill side or embankment.
  - Avoid sudden stops and starts.

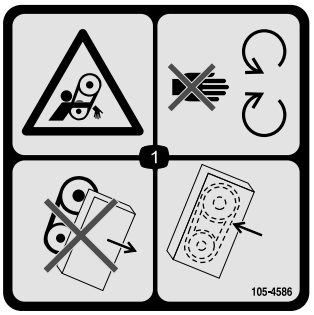
  - Do not go from reverse to forward or forward to reverse without first coming to a complete stop.
  - Do not attempt sharp turns or abrupt maneuvers or other unsafe driving actions that may cause loss of control.
  - Watch out for traffic when near or crossing roads. Always yield the right-of-way.
- Operator must be skilled and trained in how to drive on hillsides. Failure to use caution on slopes or hills may cause loss of control, possibly resulting in personal injury or death.
- Do not run the engine in a confined area without adequate ventilation. Exhaust fumes are hazardous and could possibly be deadly.
- Lightning can cause severe injury or death. If lightning is seen or thunder is heard in the area, do not operate the machine; seek shelter.
- When using a Workman as a tow vehicle, it is recommended to put 500 pounds of weight into the vehicle bed when operating on any slopes.

Maintenance

- Let engine cool before storing and do not store near flame.
- Do not store fuel near flames or drain indoors.
- Park machine on level ground. Never allow untrained personnel to service machine.
- Use jack stands to support components when required. Performing maintenance on machine not properly supported may cause machine to fall and could cause injury.
- Carefully release pressure from components with stored energy.
- Disconnect battery or remove spark plug wires before making any repairs. Disconnect the negative terminal first and the positive last. Reconnect positive first and negative last.
- Remove the key from the ignition switch to prevent accidental starting of the engine when servicing, adjusting, or storing the machine.
- To reduce a potential fire hazard, keep the engine free of excessive grease, grass, leaves, and accumulations of dirt. Never wash a warm engine or any electrical parts with water.
- Be sure that the machine is in safe operating condition by keeping nuts, bolts, and screws tight. Check the chopper shaft bearing mounting bolts and nuts frequently to be sure that they are tightened to specification.
- If the engine must be running to perform a maintenance adjustment, keep hands, feet, clothing, and other parts of the body away from the chopper and other moving parts.
- Do not overspeed the engine by changing the governor settings. To be sure of safety and accuracy, have an Authorized Toro Distributor check the maximum engine speed with a tachometer.
- The engine must be shut off before checking the oil or adding oil to the crankcase.
- 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 spark and flames. Unplug charger before connecting or disconnecting from battery. Wear protective clothing and use insulated tools.
- Keep all parts in good working condition and all hardware tightened. Replace all worn or damaged decals.
- Use only Toro approved attachments. Warranty may be voided if used with unapproved attachments.
- Hydraulic fluid escaping under pressure can penetrate skin and do serious damage. Keep body and hands away from pin hole leaks or nozzles that eject high pressure hydraulic fluid. Use cardboard or paper to find hydraulic leaks. Fluid accidentally injected into the skin must be surgically removed within a few hours by a doctor familiar with this form of injury or gangrene may result.
- Perform only those maintenance instructions described in this manual. If major repairs are ever needed or assistance desired, contact an Authorized TORO Distributor.
- Make sure all hydraulic line connectors are tight, and all hydraulic hoses and lines are in good condition before applying pressure to the system.
- 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 machine's operation, performance, or durability, or its use may result in injury or death. Such use could void product warranty of The Toro Company.

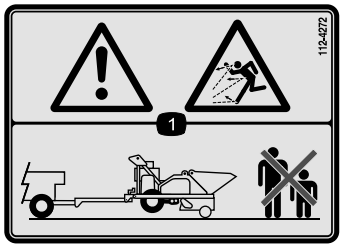
Safety and Instructional Decals

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 lost.



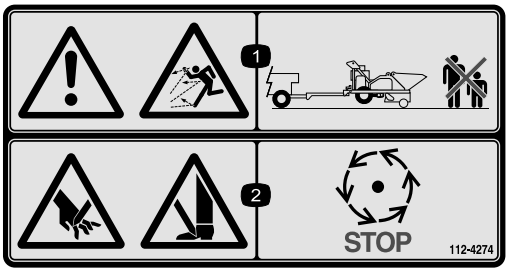
105-4586

1. Entanglement hazard, belt—stay away from moving parts. Do not operate the machine with the shields or guards removed; keep the shields and guards in place.



112-4272

1. Warning; thrown object hazard, bystanders—keep bystanders away from the machine.



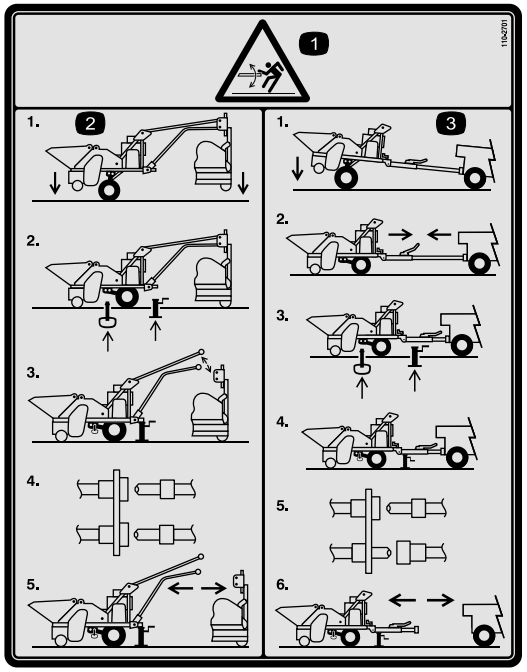
112-4274

1. Warning; thrown object hazard, bystanders—keep bystanders away from the machine.
2. Cutting hazard, hand and foot—wait for moving parts to stop.

CALIFORNIA SPARK ARRESTER WARNING

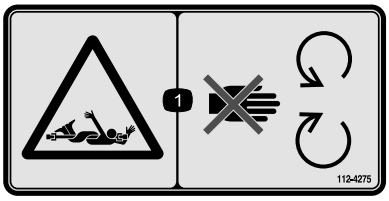
Operation of this equipment may create sparks that can start fires around dry vegetation. A spark arrester may be required. The operator should contact local fire agencies for laws or regulations relating to fire prevention requirements. 117-2718

117–2718



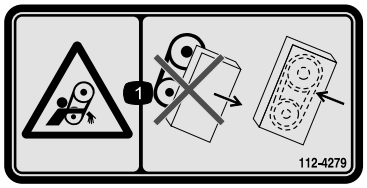
110-2701

1. Warning—stored energy hazard.
2. To disconnect the machine linked to an aerator, lower processor and aerator to the ground, engage the storage pin in the front hole and support the machine with a jackstand, disconnect the mechanical linkage from the aerator, disconnect the hydraulic lines, before driving away.
3. To disconnect the machine linked to a tow vehicle, lower processor to the ground, retract the tongue, engage the storage pin in the front hole and support the machine with a jackstand, disconnect the mechanical linkage from the tow vehicle, disconnect the hydraulic lines, before driving away.



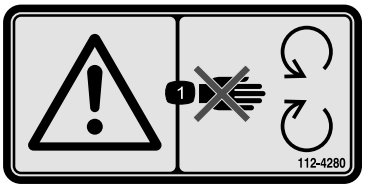
112-4275

1. Entanglement hazard, shaft—stay away from moving parts.



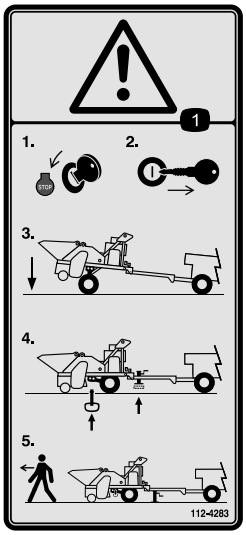
112-4279

1. Entanglement hazard, belt—keep all guards in place.



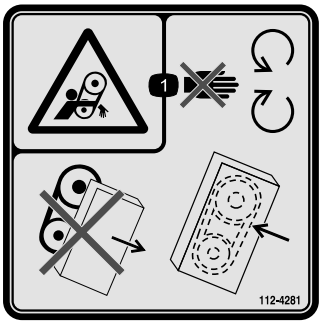
112-4280

1. Warning—stay away from moving parts.



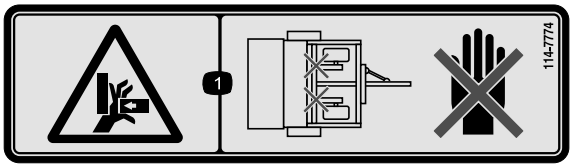
112-4283

1. Warning—stop the engine, remove the key, lower the machine, engage the storage pin in the front hole and use the jackstand before leaving the machine.



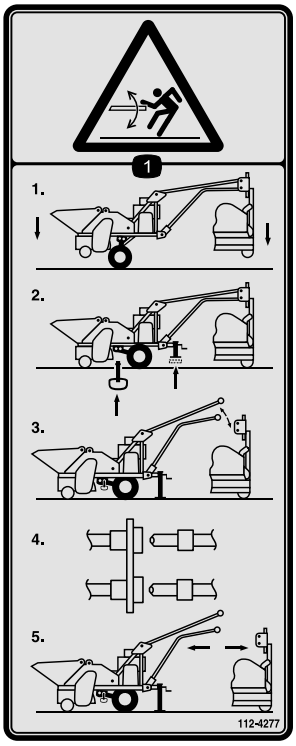
112-4281

1. Entanglement hazard, belt—stay away from moving parts; do not operate with guards removed; keep all guards in place.



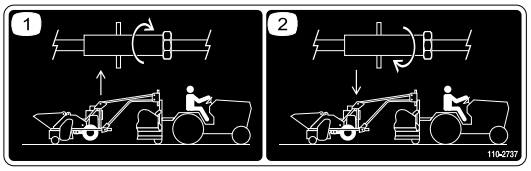
114-7774

1. Crushing hazard, hand—pinch point; keep hands away.



112-4277

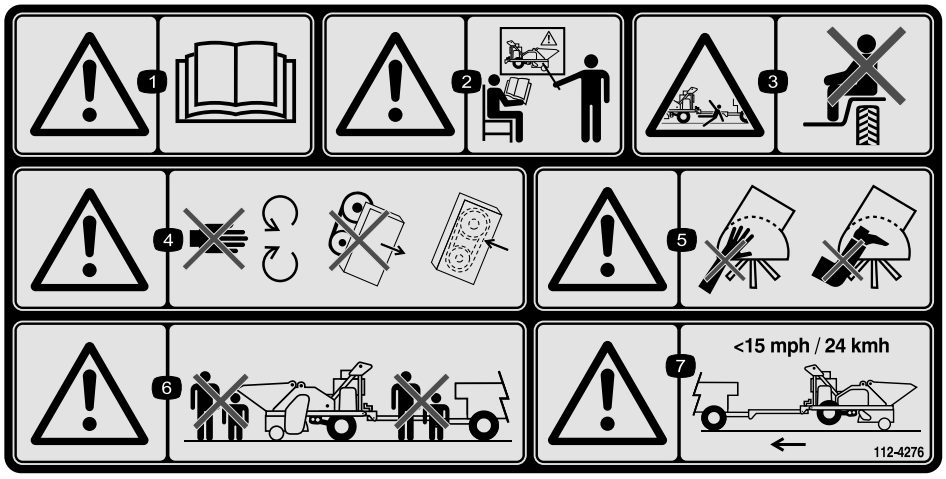
1. Stored energy hazard—to disconnect the machine linked to an aerator, lower processor and aerator to the ground, engage the storage pin in the front hole and support the machine with a jackstand, disconnect the mechanical linkage from the aerator, disconnect the hydraulic lines, before driving away.



110-2737

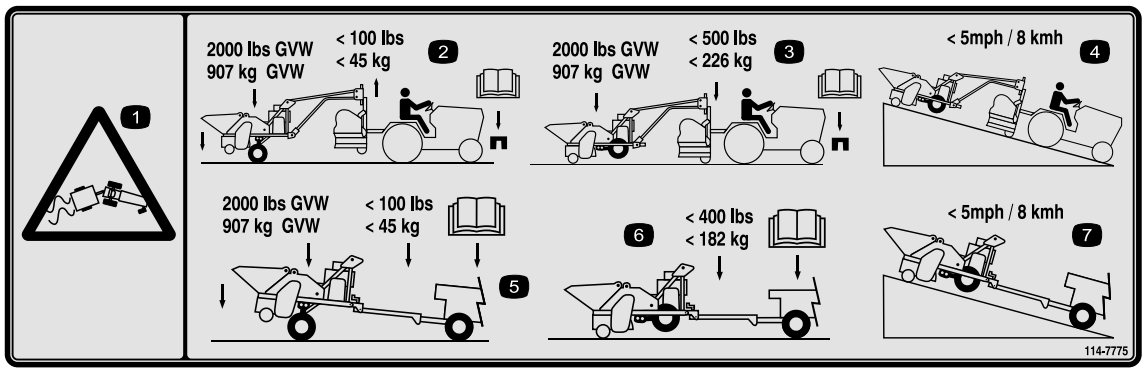
On One Pass Hitch, Model 09753

1. Rotation direction to raise the machine.
2. Rotation direction to lower the machine.



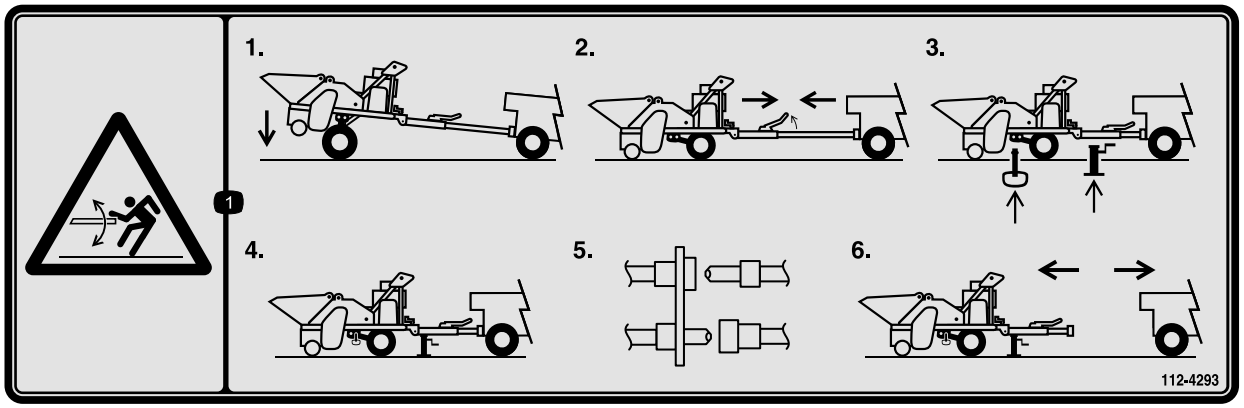
112-4276

1. Warning—read the *Operator's Manual.*
2. Warning—do not operate this machine unless you are trained.
3. Falling, crushing hazard, bystanders—no riders on machine.
4. Warning—stay away from moving parts; do not operate with guards removed, keep all guards in place.
5. Warning—keep hands and feet out of the sweeper brush.
6. Warning—keep bystanders away from the machine.
7. Warning—do not exceed 15 mph (24km/h) when transporting the machine.



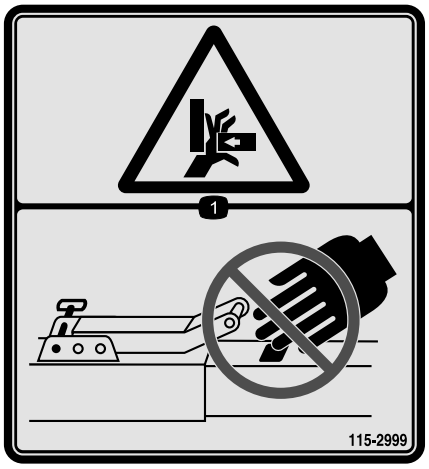
114-7775

1. Warning—sliding and loss of control hazard.
2. A core processor linked to an aerator and being towed has a gross vehicle weight of 2000 lb (907 kg) and a negative tongue weight of less than 100 lb (45 kg), read the tractor *Operator's Manual* to choose the correct weight kit.
3. A core processor linked to an aerator in operation has a gross vehicle weight of 2000 lb (907 kg) and a positive tongue weight of less than 500 lb (226 kg), read the tractor *Operator's Manual* to choose the correct weight kit.
4. Do not exceed 5 mph (8 kmh) on slopes when towing the core processor linked to an aerator.
5. A core processor linked to a tow vehicle has a gross vehicle weight of 2000 lb (907 kg) and a positive tongue weight of less than 100 lb (45 kg), read the *Operator's Manual* to choose the correct weight kit.
6. A core processor linked to a tow vehicle has a positive tongue weight of less than 400 lb (182 kg), read the tow vehicle*Operator's Manual* to choose the correct weight kit.
7. Do not exceed 5 mph (8 kmh) on slopes when towing the core processor linked to directly to a vehicle.



112-4293

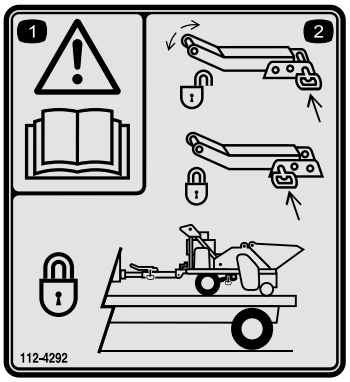
1. Stored energy hazard—lower processor to the ground, release tension by move the tow vehicle closer to the machine, engage the storage pin in the front hole and support the machine with a jackstand, disconnect the mechanical linkage from the workman, disconnect the hydraulic lines, before driving away.



115-2999

On Tow Hitch, Model 09750

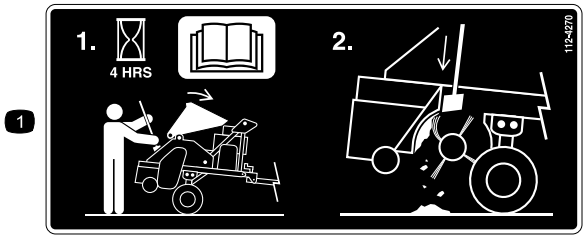
1. Crushing hazard, hand—pinch point; keep hands away.



112-4292

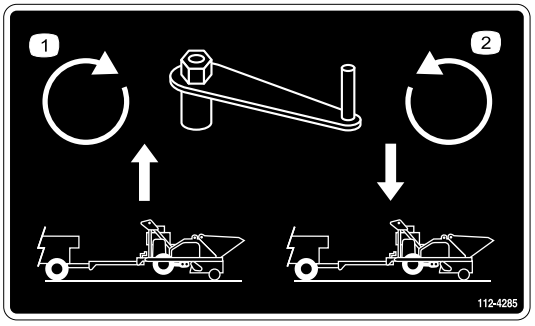
On Tow Hitch, Model 09750

1. Warning—read the *Operator's Manual.*
2. Move the pin out of the arm to unlock the tow hitch; move the pin into the arm to lock the tow hitch; lock the tow hitch whenever transporting the machine.



112-4270

1. Check the brush housing every 4 hours; read the *Operator's Manual*; raise brush cover and clean the brush housing.



112-4285

On Tow Hitch, Model 09750

1. Turn the crank clockwise to raise the machine.
2. Turn the crank counter clockwise to lower the machine.

Setup

Loose Parts

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

Procedure	Description	Qty.	Use
1	Electrolyte (not supplied)	A/R	Charge the battery
2	Petroleum jelly (not supplied)	A/R	Install the battery
3	Jack stand Jack stand tube	1 1	Mount the jack stand
5	Hitch pin (included with the one pass hitch) Lynch pin (included with the one pass hitch) Hitch pin (included with the one pass hitch) Lynch pin (included with the one pass hitch) Cable tie	1 1 2 2 5	Mount the core processor to the tow vehicle
6	No parts required	–	Disconnect the core processor from the tow vehicle
7	Hitch pin (included with the tow hitch) Lynch pin (included with the tow hitch) Cable tie	1 1 12	Mount the core processor to the Workman Vehicle
8	No parts required	–	Disconnect the core processor from the Workman Vehicle
9	No parts required	–	Adjust the brush height
10	No parts required	–	Level the core processor

Media and Additional Parts

Description	Qty.	Use
Belt Tensioner Tool	1	Use to tension belts
Allen Wrench and Torque Gauge	1	Use to adjust bearings
Operator's Manual	1	Read prior to operating the machine
Engine Operator's Manual	1	Use for reference to engine operation
Parts Catalog	1	Use for reference to part numbers
Certificate of Conformity	1	CE compliance
Operator Training Material	1	View prior to operating the machine

Important: Refer to the Product Overview Section for Special Operating Instructions for the Workman and other utility tow vehicles (tractors).

1

Remove, Activate and Charge Battery

Parts needed for this procedure:

A/R	Electrolyte (not supplied)

Procedure

1. 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.**

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.

2. Remove the strap securing the battery cover to the battery box (Figure 3).

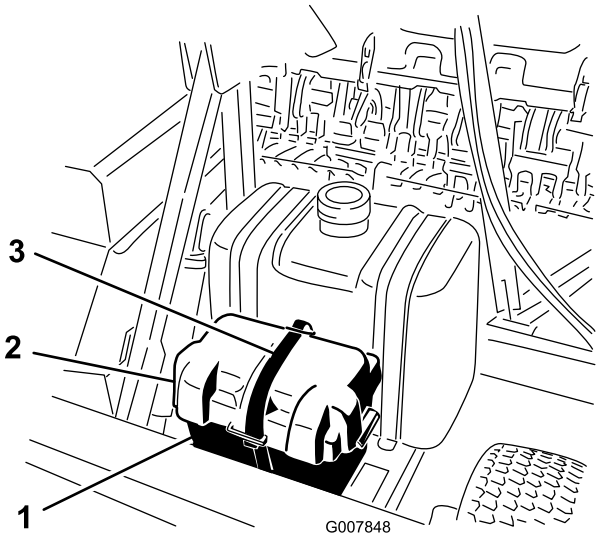


Figure 3

1. Battery box
2. Battery cover
3. Strap

3. Remove the cover and lift the battery out of the battery box.
4. Clean the top of the battery and remove the vent caps (Figure 4).

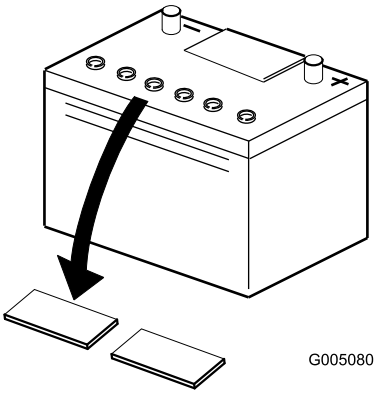


Figure 4

5. Carefully fill each cell with electrolyte until the plates are covered with about 1/4 inch (6 mm) of fluid (Figure 5).

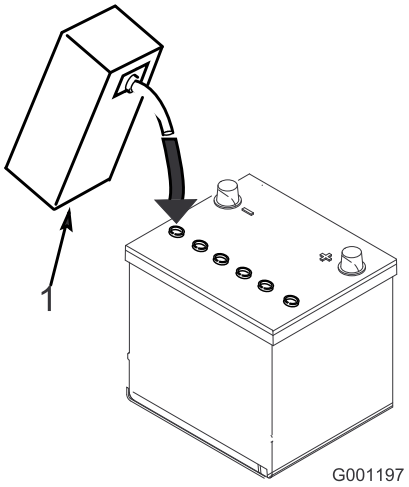


Figure 5

1. Electrolyte

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

6. Replace the vent caps.
7. Connect a 3 to 4 amp battery charger to the battery posts (Figure 6). Charge the battery at a rate of 3 to 4 amperes for 4 to 8 hours.

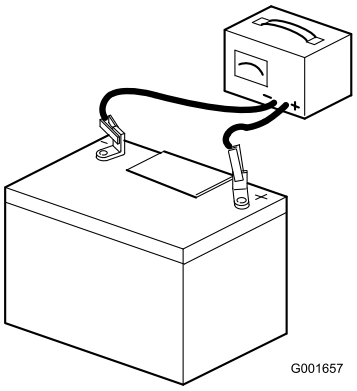


Figure 6

⚠ WARNING

Charging the battery produces gasses that can explode.

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

8. When the battery is charged, disconnect the charger from the electrical outlet and the battery posts. Allow the battery to sit for 5 to 10 minutes before proceeding to the next step.

2

Install the Battery

Parts needed for this procedure:

A/R	Petroleum jelly (not supplied)

Procedure

1. Slide the battery into the battery box with the terminals to the rear.

⚠ WARNING

Battery terminals or metal tools could short against metal processor 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 tractor.**
- **Do not allow metal tools to short between try terminals and metal parts of the tractor.**

2. Attach the negative cable (black cable) to the negative (-) terminal of the battery.

⚠ WARNING

Incorrect battery cable routing could damage the processor 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.**

3. Attach the positive cable (red cable) to the positive (+) terminal.
4. Coat the terminals and mounting fasteners with petroleum jelly to prevent corrosion.
5. Install the battery cover and secure with the strap.

3

Mount the Jack Stand

Parts needed for this procedure:

1	Jack stand
1	Jack stand tube

Procedure

Remove the bolt and nut securing the tow bar to the front of the core processor (Figure 7). Remove the tow bar.

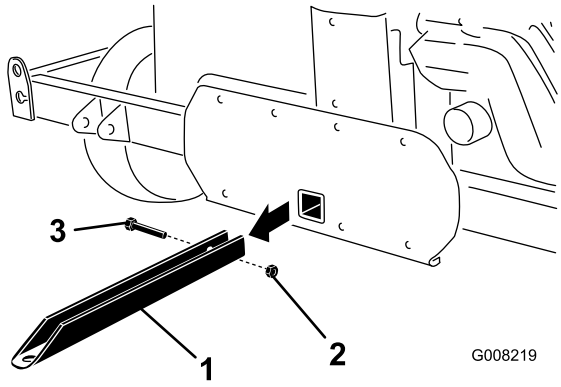


Figure 7

1. Tow bar
2. Bolt
3. Nut

1. **One Pass Operation**
2. Insert the jack stand tube into the tow bar mounting hole (Figure 8).

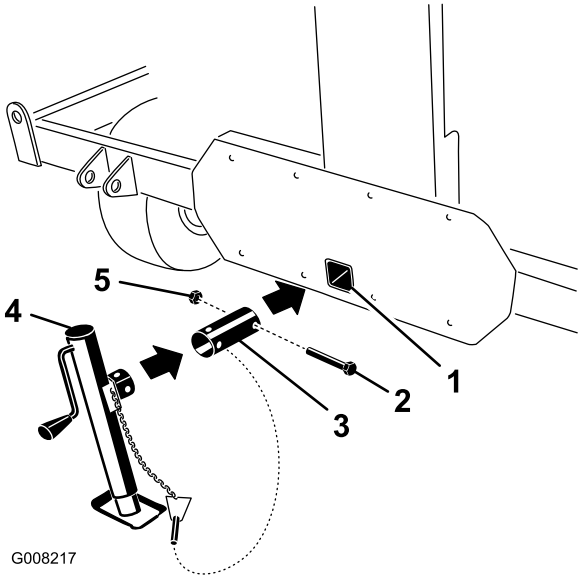


Figure 8

1. Tow bar mounting hole
2. Bolt
3. Jack stand tube
4. Jack stand
5. Nut

3. Rotate the tube until the holes line up with the holes in the core processor.
4. Using the bolt and nut previously removed, secure the tube to the core processor (Figure 8).
5. Slide the jack stand onto the jack tube, align the mounting holes and secure with the lynch pin (Figure 8 & Figure 9).

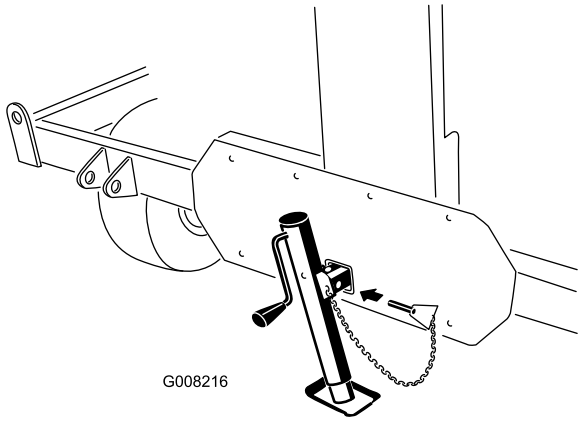


Figure 9

Workman Tow Hitch

1. On the side of the tow hitch, slide the jack onto the jack tube (Figure 10).

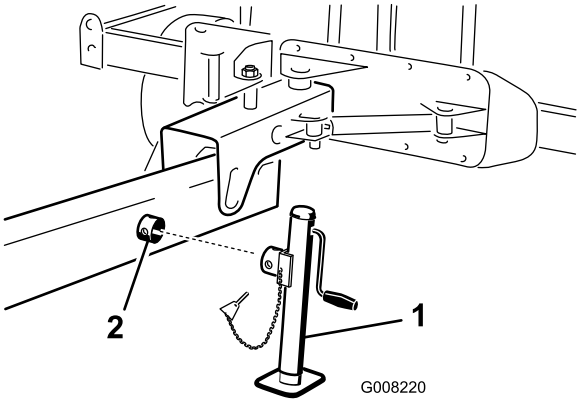


Figure 10

1. Jack stand
2. Jack stand tube

2. Rotate the jack stand to align the holes and secure with the lynch pin (Figure 10).

4

Using the Storage Pins

No Parts Required

Procedure

The storage pins (Figure 11) are to be inserted into the front or rear holes of the core processor.

Front Hole Position

When the storage pins are inserted into the front holes, the core processor can safely be disconnected and removed from the tow vehicle (Figure 11).

Rear Hole Position

Insert the storage pins into the rear holes, after the core processor is connected to the tow vehicle (Figure 11).

Important: The core processor can only be operated when the pins are in the rear position

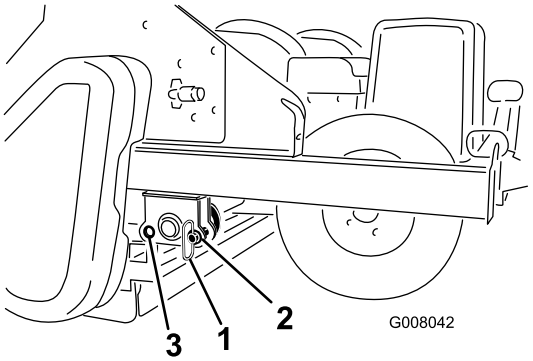


Figure 11

1. Storage pin
2. Front hole (Core processor disconnected from tow vehicle)
3. Rear hole (Core processor connected to tow vehicle)

5

Mounting the Core Processor for One Pass Operation

Parts needed for this procedure:

1	Hitch pin (included with the one pass hitch)
1	Lynch pin (included with the one pass hitch)
2	Hitch pin (included with the one pass hitch)
2	Lynch pin (included with the one pass hitch)
5	Cable tie

Procedure

The core processor must be equipped with the One Pass Hitch Kit, Model No. 09753 before it can be mounted to the aerator.

1. Make sure the processor brush is set for correct height of cut.
2. Using a tie down or rope, secure the tow-arm hitch plate to the frame hitch pivot while raising the tow-arm for installation (Figure 12).

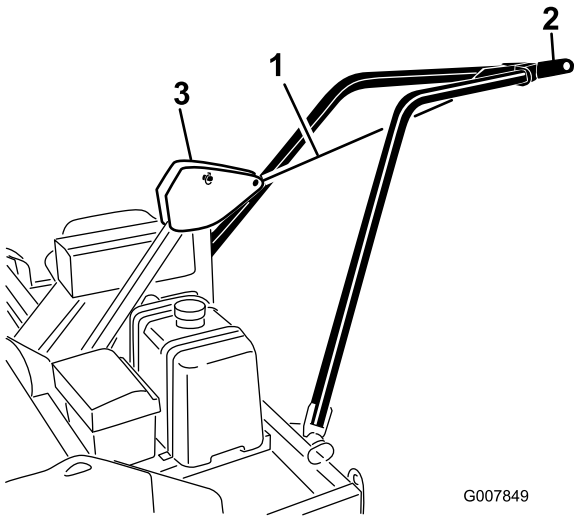


Figure 12

1. Tie down or rope
2. Tow arm hitch plate
3. Frame hitch pivot

3. Back the tractor/aerator into position in front of the core processor.
4. Remove the tie down or rope and lower the tow arm hitch plate into the aerator hitch pivot (Figure 13).

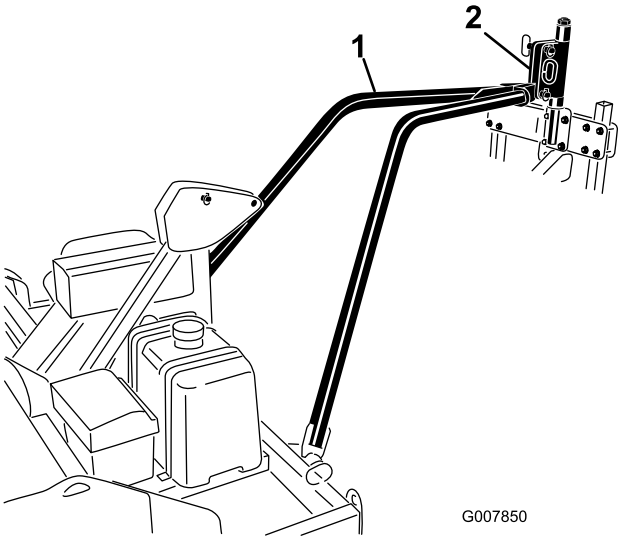


Figure 13

1. Tow arm hitch plate
2. Aerator hitch pivot

5. Align the hole in the tow arm hitch plate with the lower holes in the aerator hitch pivot Figure 14). Secure the tow arm hitch plate to the aerator hitch pivot with a hitch pin and lynch pin.
6. Lower the aerator to the ground
7. Secure the pitch control link to the top holes in the aerator hitch pivot and the frame hitch pivot with hitch pins and lynch pins (Figure 14).
   - Connect the control link to the front holes in the frame hitch pivot when operating ProCore 864 and 880 aerators.
   - Connect the control link to the rear holes in the frame hitch pivot when operating a ProCore 660 aerator.

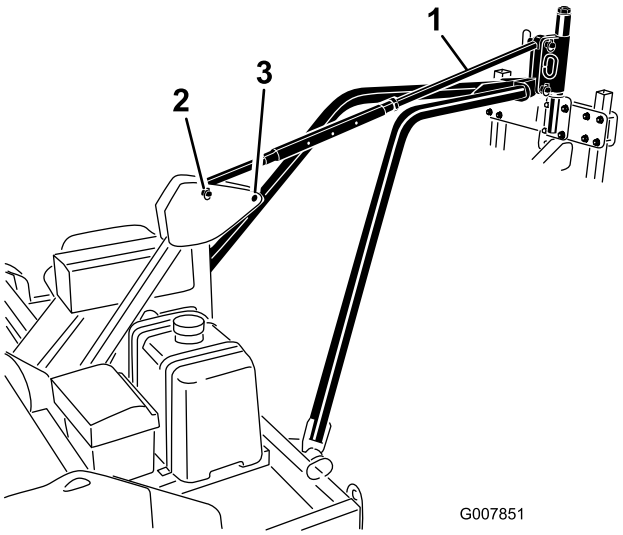


Figure 14

1. Pitch control link
2. Front mounting holes (ProCore 880 & 864 Aerators)
3. Rear mounting holes (ProCore Aerator)

8. Route the hydraulic hoses to the tractor and connect to the quick couplers. Make sure the hydraulic hoses are properly connected to the processor and the tractor.
9. Route the control harness to the tractor operators position.
10. Secure the hydraulic hoses and the wire harness to the tow-arms with cable ties.

    Important: When turning the tractor to the right or left, make sure the hydraulic hoses or control harness do not become disconnected or damaged.

11. Operate the core processor and check the hydraulic fluid level in the tow vehicle. Replenish as required.
12. Remove the storage pins from the front hole position and insert into the rear hole position during operation (Figure 15).

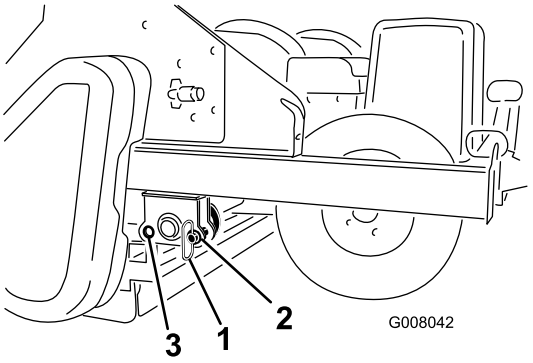


Figure 15

1. Storage pin
2. Front hole (Core processor disconnected from tow vehicle)
3. Rear hole (Core processor connected to tow vehicle)

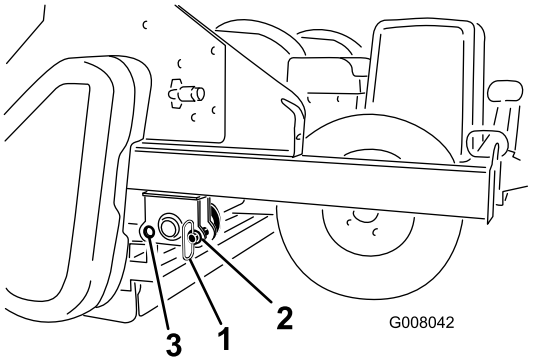


Figure 16

1. Storage pin
2. Front hole (Core processor disconnected from tow vehicle)
3. Rear hole (Core processor connected to tow vehicle)

Important: When changing tow vehicles or tractors, make sure the hydraulic fluids are compatible with the core processors. If the fluids are not compatible, any fluid remaining in the core processor must be removed.

6

Disconnecting the Core Processor from the Tow Vehicle

No Parts Required

Procedure

1. Remove the storage pins from the rear hole position (Figure 16).
2. Slowly lower the processor until it comes to rest on the rear roller and tires. Install the storage pins into the front hole position (Figure 16).
3. After the storage pins are installed, turn off the tow vehicle.
4. Lower the jack to the ground to stabilize the machine (Figure 17).

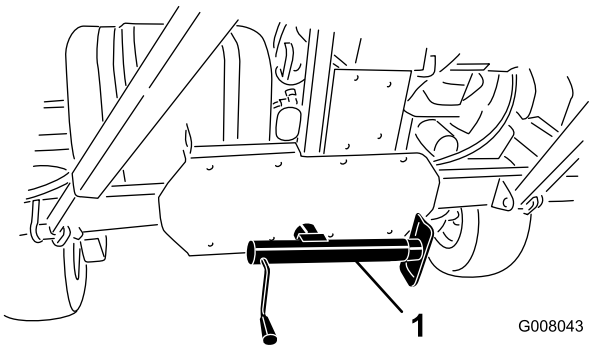


Figure 17

1. Jack

5. Move the hydraulic lift lever back and forth to remove pressure from hydraulic lines.
6. Disconnect the hydraulic hoses from the tractor.
7. Remove the remote control from the vehicle.
8. Wind the hoses and cable onto the harness mount for storage.
9. Remove the lynch pin and hitch pins securing the pitch control link. Remove pitch control link.

   Note: The aerator may have to be slightly raised to remove the hitch pins.
10. Remove the lynch pin and hitch pins securing the tow-arms to the aerator.

    Note: The aerator may have to be slightly raised to remove the hitch pins.

7

Mounting the Core Processor to the Workman Vehicle

Parts needed for this procedure:

1	Hitch pin (included with the tow hitch)
1	Lynch pin (included with the tow hitch)
12	Cable tie

Procedure

The core processor must be equipped with the Tow Hitch Kit, Model No. 09750 before it can be mounted to the vehicle.

1. Back the vehicle into position in front of the core processor. Make sure the processor brush is set for correct height of cut.
2. Adjust the processor hitch tongue to the same level as the vehicle hitch (Figure 18). The core processor frame should be level with the ground when it is on the rear roller.
3. Connect processor hitch to vehicle hitch with a hitch pin and lynch pin (Figure 18).

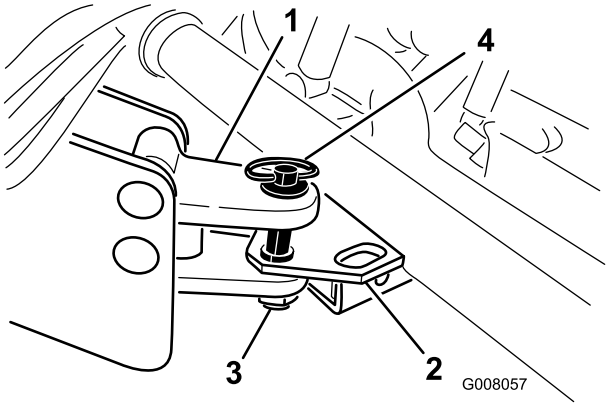


Figure 18

1. Processor hitch
2. Tow vehicle hitch
3. Lynch pin
4. Hitch pin

4. Raise the jack and secure it in the storage position (Figure 19).

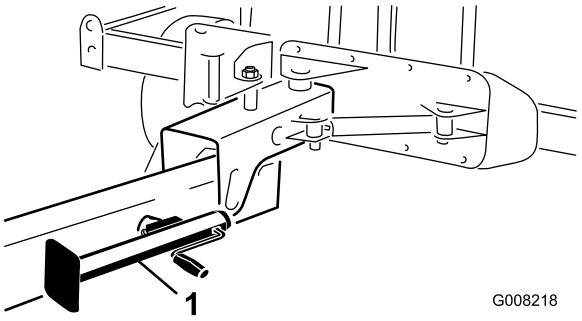


Figure 19

1. Jack

5. Connect the hydraulic hoses to the vehicle quick couplers. Make sure the hydraulic hoses are properly connected to the processor and the vehicle.
6. Route the control harness over the bed of the vehicle to the operators position.

   Important: Make sure the hoses and control harness are not kinked and that they bend freely during operation.

7. Remove the storage pins from the front hole position and insert into the rear hole position during operation (Figure 20).

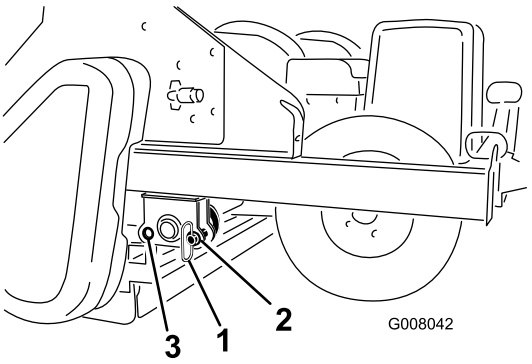


Figure 20

1. Storage pin
2. Front hole (Core processor disconnected from tow vehicle)
3. Rear hole (Core processor connected to tow vehicle)

8. To extend the tow hitch proceed as follows:
   - Make sure the latch handle pin is in the unlocked (rear) position (Figure 21).

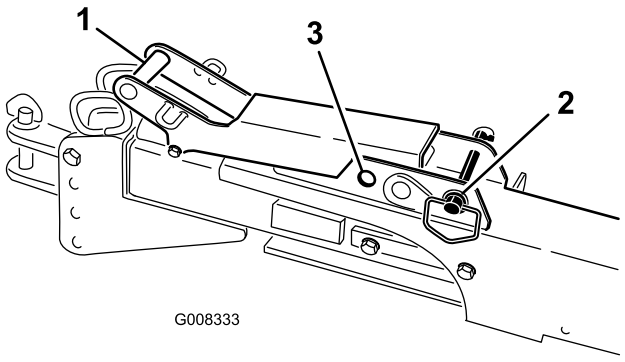


Figure 21

1. Latch handle
2. Latch handle pin in the unlocked position
3. Locked position

- Lift up on the latch handle (Figure 22).
- Slowly drive the vehicle forward until the hitch assembly locks into place (Figure 22).

Note: Lock the hitch assembly in the extended position by moving the latch handle pin to the forward (locked) position (Figure 21).

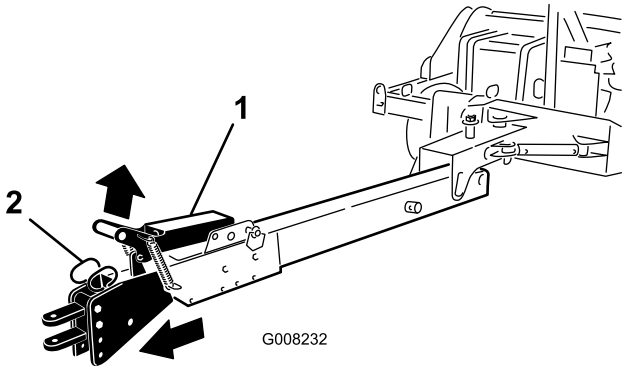


Figure 22

1. Latch handle
2. Hitch assembly

9. Operate the core processor and check the hydraulic fluid level in the vehicle. Replenish as required.

8

Disconnecting the Core Processor from the Workman Vehicle

No Parts Required

Procedure

1. Remove the storage pins from the rear hole position (Figure 23).
2. Slowly lower the processor until it comes to rest on the rear roller and tires. Install the storage pins in the front hole position (Figure 23).
3. After the storage pins are installed, turn off the tractor.

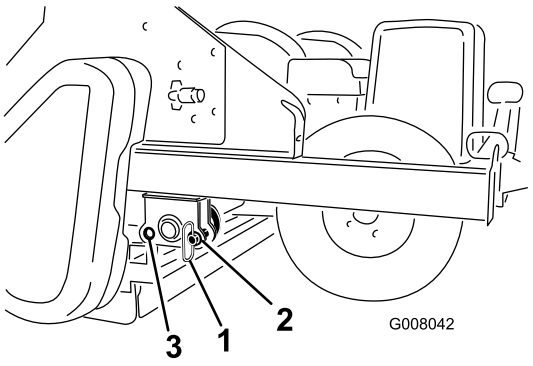


Figure 23

1. Storage pin
2. Front hole (Core processor disconnected from tow vehicle)
3. Rear hole (Core processor connected to tow vehicle)

4. Disconnect the hydraulic hoses.
5. Remove the remote control from the vehicle.
6. Wind the hoses and cable onto the harness mount for storage.
7. To retract the tow hitch, lift up on the latch handle and slowly back up the vehicle until the hitch assembly locks into place (Figure 22).
8. Lower the jack to the ground to stabilize the machine Figure 24).

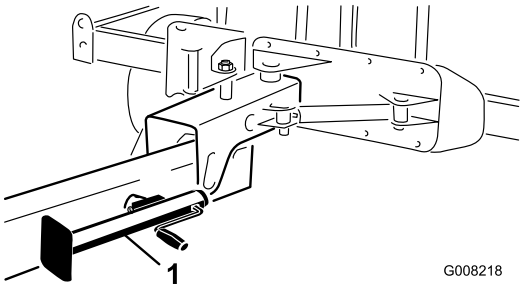


Figure 24

1. Jack

Important: Make sure the tongue assembly is retracted before disconnecting the processor hitch tongue from the vehicle hitch.

9. Remove the lynch pin and hitch pin securing the processor hitch tongue to the vehicle hitch.

9

Adjusting the Brush Height

No Parts Required

Procedure

Refer to Adjusting the Brush Height in the Operation Section.

10

Leveling the Core Processor

No Parts Required

Procedure

Refer to Leveling the Core Processor in the Operation Section.

Product Overview

Controls

Brush/Chopper

Note: There are no controls to turn the Brush/Chopper On or OFF. The chopper/brush will engage when the engine RPM is increased and disengage when the throttle is moved to low idle or when the engine is stopped.

Lift/Offset Controls

The lift/offset functions run off the tow vehicle hydraulic system. Refer to the tow vehicle operator manual for hydraulic system control information.

Note: The lift/offset control will only function when the core processor engine switch is in the "ON" position.

Lift/offset switch

The lift/offset switch (Figure 25) allows tow vehicle hydraulic system to operate in the lift or offset mode.

Engine Stop Switch

Press the switch to stop the engine (Figure 25).

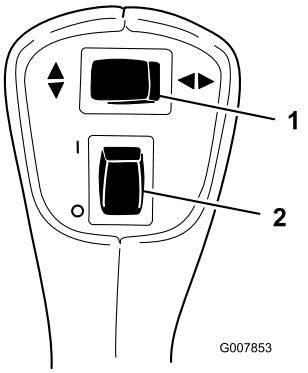


Figure 25

1. Lift/offset switch
2. Engine stop switch

Important: If you need to stop in a hurry, the first thing to do is lift the aerator. If you stop the tractor before you lift the aerator, turf damage will occur.

Choke Control

To start a cold engine, pull choke control lever (Figure 26) out to the ON position.

Ignition Switch

The ignition switch (Figure 26) which is used to start and stop the engine, has three positions: OFF, RUN and START. Rotate 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 engine off, move throttle control to SLOW position and wait for the engine to decelerate before moving the key counterclockwise to the OFF position.

Throttle Control

The throttle (Figure 26) is used to operate engine at various speeds. Moving throttle lever to FAST position increases engine speed. To decrease engine speed, move lever to SLOW position. Always run the engine at full throttle.

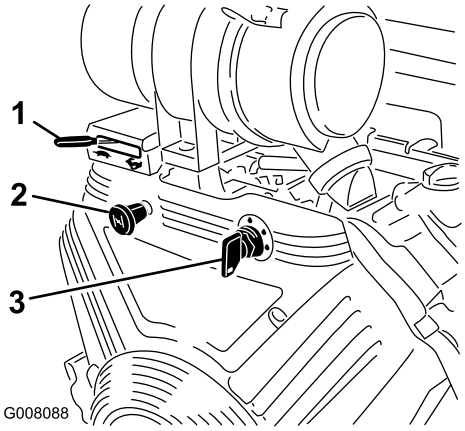


Figure 26

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

Hour Meter

The hour meter (Figure 27) indicates the total hours of machine operation.

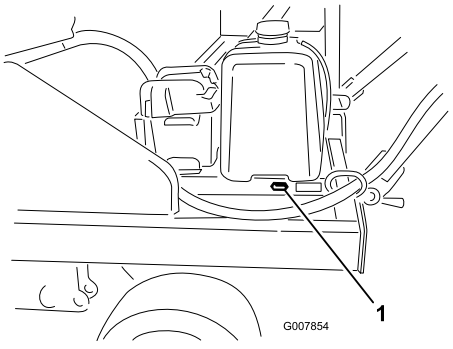


Figure 27

1. Hour meter

Specifications

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

Overall width	88 inches (224 cm)
Brush width	70 inches (178 cm)
Chopper width	70 inches (178 cm)
Length with out tow hitch	70 inches (178 cm)
Length with 3 point tow hitch	133 inches (338 cm)
Length with offset hitch	159 inches (404 cm)
Transport height ground clearance	12 inches (30 cm)
Wheel base width	69 inches (175 cm)
Net weight	1990 lb. (903 kg)

Special Instructions for Workman and other utility tow vehicles (tractors)

- The Toro ProCore Processor can be towed by most utility tractors equipped with hydraulics producing 7 to 8 GPM @ 2000 p.s.i. The tractor must have adequate brakes and drawbar hitch capacity to handle a 2000 lb (907 kg) trailer. Refer to Tractor Operator's Manual for towing instruction and precautions
- The Workman vehicle must be equipped with remote hydraulics producing 3 to 4 GPM @ 2000 psi and the Heavy Duty Drawbar (Model 44212 or 44213). (The 4 wheel drive model is the best for hilly or bermed approaches to greens). Also, it is recommended that 500 lb of additional weight be added to the Workman bed.

Tow Vehicle	Minimum GPM	Maximum GPM	Relief Pressure
Workman Vehicle	3	4	2000 psi
Tractor	7	8	2000 psi

Important: Do Not attempt pulling the core processor with the standard Workman hitch. It is only rated to 1500 lb and may bend or damage the cross tube axle support or rear spring shackles. Always use the Heavy Duty. Drawbar Kit Model 44212 or Heavy Duty. Frame Drawbar Model 44213.

- The Core Processor is not equipped with trailer brakes. Maximum transport speed must not exceed 15 mph.

Attachments/Accessories

A selection of Toro approved attachments and accessories are 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.

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.

Adding Fuel

Use **unleaded** regular gasoline suitable for automotive use (85 pump octane minimum). Leaded regular gasoline may be used if unleaded regular is not available.

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.

⚠ 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 1/4 to 1/2 inch (6 to 13 mm) 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. Never 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 be released causing a spark which can ignite the gasoline vapors. A fire or explosion from gasoline can burn you and others and can damage property.

- **Always place gasoline containers on the ground away from your vehicle before filling.**
- **Do not fill gasoline 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 gas-powered equipment from the truck or trailer and refuel 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 gasoline dispenser nozzle.**
- **If a gasoline dispenser nozzle 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.**

Using Stabilizer/Conditioner

Use a fuel stabilizer/conditioner in the machine to provide the following benefits:

- Keeps gasoline fresh during storage of 90 days or less. For longer storage it is recommended that the fuel tank be drained.
- Cleans the engine while it runs
- Eliminates gum-like varnish buildup in the fuel system, which causes hard starting

Important: Do not use fuel additives containing methanol or ethanol.

Add the correct amount of gas stabilizer/conditioner to the gas.

Note: A fuel stabilizer/conditioner is most effective when mixed with fresh gasoline. To minimize the chance of varnish deposits in the fuel system, use fuel stabilizer at all times.

Filling the Fuel Tank

1. Shut the engine off and set the parking brake.
2. Clean around each fuel tank cap (Figure 28) and remove the cap.

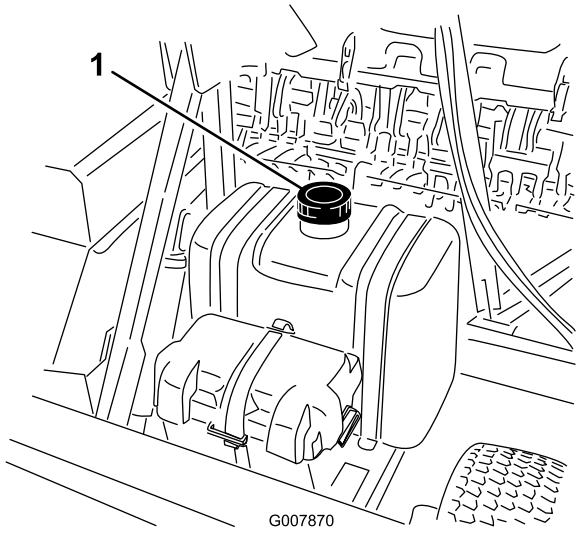


Figure 28

1. Fuel tank cap

3. Add unleaded regular gasoline to both fuel tanks, until the level is 1/4 to 1/2 inch (6 mm to 13 mm) below the bottom of the filler neck.

   This space in the tank allows gasoline to expand. Do not fill the fuel tanks completely full.
4. Install fuel tank caps securely.
5. Wipe up any gasoline that may have spilled.

Checking the Engine Oil Level

Before you start the engine and use the machine, check the oil level in the engine crankcase; refer to Servicing the Engine Oil.

Hydraulic Fluid

Important: When changing tow vehicles or tractors, make sure the hydraulic fluid are compatible with the core processors. If the fluids are not compatible, any fluid remaining in the core processor must be removed.

Adjusting the Brush Height

The core processor should be adjusted so the brush tips slightly touch the surface but do not penetrate the turf. If the brush tips do penetrate the turf, improper processing and turf damage could result.

1. Position the core processor on a level surface.
2. Loosen the locknut on height adjustment key (Figure 29) so it can be pulled out approximately 1/2 inch.

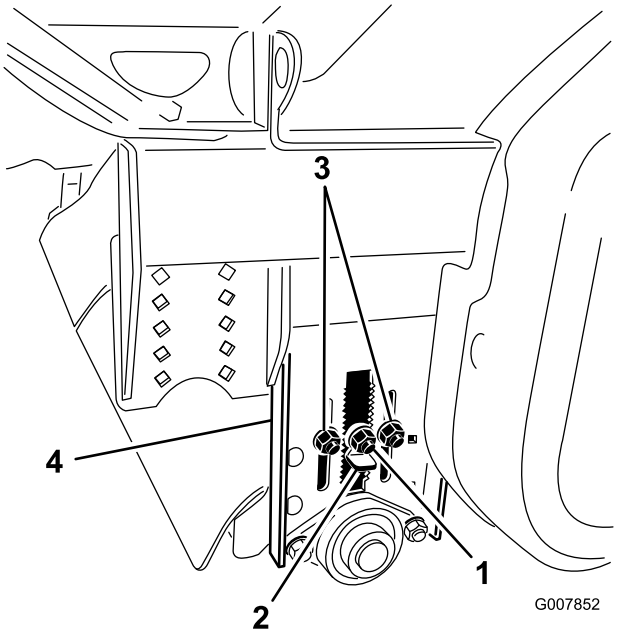


Figure 29

1. Locknut
2. Height adjusting key
3. Roller height adjusting nuts
4. Roller height adjusting plate

3. Loosen the roller height adjustment locknuts (Figure 29).
4. Pull out the height adjustor key and move the rear roller up or down by sliding the roller height adjusting plate to the desired height (Figure 29).

   Note: Each notch on the height adjusting plate represents 1/4" rear roller adjustment.
5. Tighten the locknuts securing the adjustment.
6. Repeat the procedure the opposite end of the brush. Make sure the adjustments are the same.

Leveling the Core Processor

1. Before leveling the Core Processor, make sure the pickup brush and the rear roller height are adjusted to the correct height of cut (Figure 30). If the Core Processor is equipped with a new brush, the rear roller adjustment table can be referenced to set the rear roller for proper grass height of cut.

   Note: At the factory the rear roller is set at 1/8 inch brush clearance from the ground.

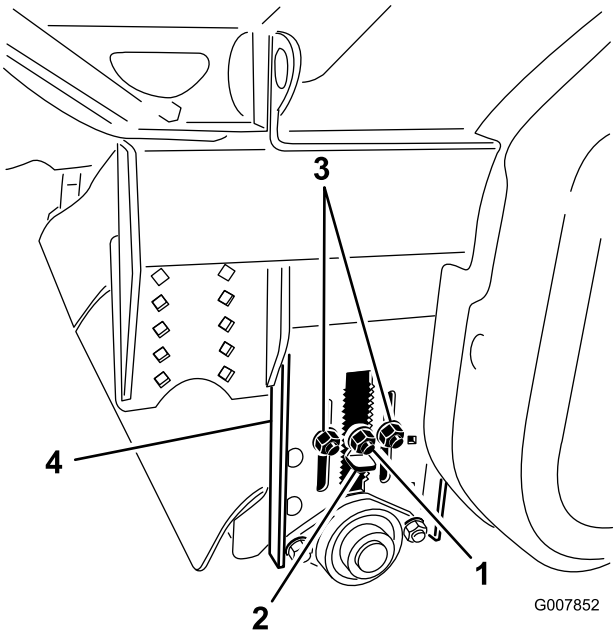


Figure 30

1. Locknut
2. Height adjusting key
3. Roller height adjusting nuts
4. Roller height adjusting plate

   Note: The table has made accommodations for one inch of brush wear. Replace the brush if worn more than one inch.

2. Adjust the rear roller so the brush is set at height of grass or lower. Adjust the roller as follows:

   - Before making any adjustments, check the brush height on a hard surface so you can determine which direction you may have to adjust the rear roller.
   - Loosen the three bolts on each roller side plate.
   - Loosen the center nut so the adjustment key can be pulled out. Hold rear roller up, pull adjustment key out and move roller to desired height. Both sides must be at the same height.

     Note: Each notch is 1/4 inch of adjustment

   - After rear roller is adjusted check Core Processor frame to be sure it is parallel to the ground. Recheck brush height.

     Note: You may have to readjust the rear roller if you can not get the main frame parallel to the ground.

Rear Roller Adjustment Table		
Open Notches	**New Brush Height (Inches)**	**Height of Cut (Inches)**
18	3–5/8	3–3/4 to 3
17	3–3/8	
16	3–1/8	
15	2–7/8	3 to 2–1/4
14	2–5/8	
13	2–3/8	
12	2–1/8	2–1/4 to 1–1/2
11	1–7/8	
10	1–5/8	
9	1–3/8	1–1/2 to 3/4
8	1–1/8	
7	7/8	
6	5/8	3/4 to 0
5	3/8	
4	1/8	
3	–1/8	Brush Wear
2	—3/8	
1	—5/8	
0	—7/8	

3. Lower the processor onto the rear roller by raising the lift wheels.

4. Make sure that the main frame is parallel to the ground. Check to see if the main frame is parallel to the ground with a level. If the main frame is not parallel to the ground, proceed as follows:

   One Pass Hitch

   - If the front of the frame is lower, lengthen the connecting link.
   - If the front of the frame is higher, shorten the connecting link.

     Note: If the connecting link is difficult to rotate, lower the transport wheels on the Core Processor to relieve some of the pressure on the connecting link.

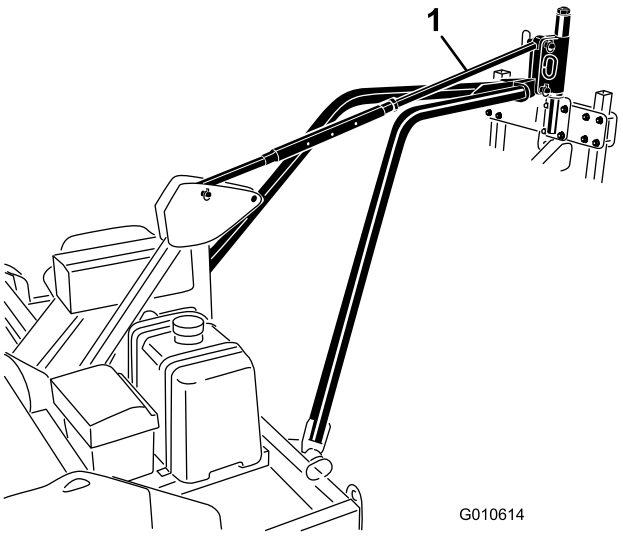


Figure 31

1. Connecting link

Tow Hitch

- If the front of the frame is lower, turn the leveling crank clockwise to raise the frame.
- If the front of the frame is higher, turn the leveling crank counter clockwise to lower the frame.

Note: When turning the leveling crank, make sure it does not contact the hydraulic hoses. When done leveling, make sure the crank is positioned to the **left** side of the tow hitch so it does not interfere with the hoses.

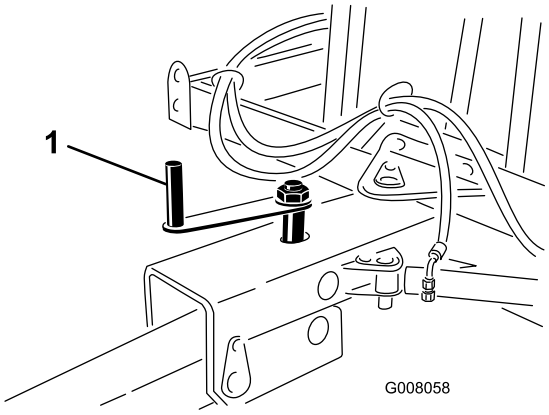


Figure 32

1. Leveling crank

Note: If the leveling crank is difficult to turn, lower the transport wheels on the Core Processor to relieve some of the pressure on the crank.

Adjusting the Brush Height in the Field

When operating the core processor, the frame should be level to the ground or the front of the frame should be slightly higher. Adjust he brush downward until it just begins to pick up cores.

With the One Pass Hitch, lower the brush by adjusting the connecting link until the brush collects all of the cores. Shortening the connecting link will lower the brush, while lengthening the link will raise the brush.

With the Tow Hitch, lower the brush by adjusting the leveling crank until the brush collects all of the cores. Rotating the leveling crank counter clockwise will raise the brush, while rotating the leveling crank clockwise will lower the brush.

Note: Be careful not to engage the brush too far into the grass as it can cause premature wear or damage to the brush and turf damage.

Adjusting the Roller Scraper

The roller scraper (Figure 33) should be adjusted so there is 1/16" clearance between the scraper and the roller. Loosen the roller scraper adjusting fasteners, position roller as desired and tighten fasteners.

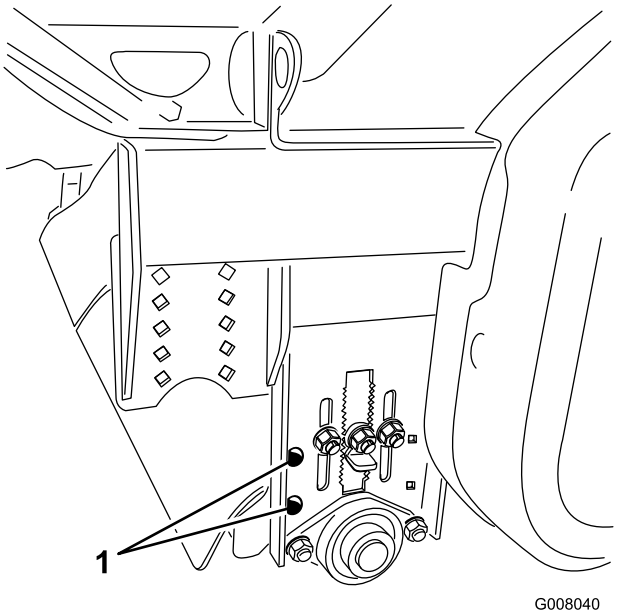


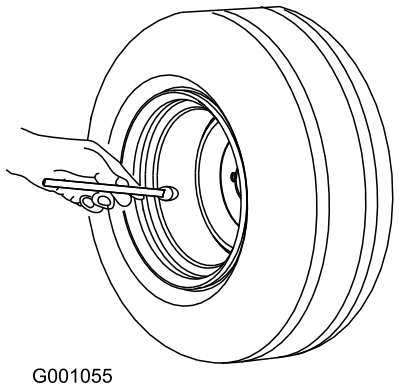
Figure 33

1. Roller scraper adjusting fasteners

Checking the Tire Pressure

Check the tire pressure (Figure 34).

The correct tire pressure is 36 psi.



G001055

Figure 34

Checking the Torque of the Wheel Nuts

Service Interval: After the first 8 hours

Check the torque of the wheel nuts initially and after the first 10 hours of operation.

⚠ WARNING

Failure to maintain proper torque could result in failure or loss of wheel and could result in personal injury. Torque wheel lug nuts to 45-55 ft. lb.

Starting Instructions

⚠ WARNING

ROTATING PARTS CAN CAUSE SERIOUS PERSONAL INJURY

- **Keep hands and feet away from core processor reel while machine is running.**
- **Keep hands, feet, hair, and clothing away from all moving parts to prevent injury.**
- **NEVER operate the machine with covers, shrouds, or guards removed.**

Note: Before starting the unit, make sure the chopper rotates freely.

1. Move throttle lever midway between SLOW and FAST position.
2. Move choke lever to ON position.

   Note: Choke may not be required when starting a warm engine.
3. Insert key into ignition switch and rotate it clockwise to start the engine. Release key when engine starts. Regulate the choke to keep engine running smoothly.

   Important: To prevent overheating of the starter motor, do not engage starter longer than 10 seconds. After 10 seconds of continuous cranking, wait 60 seconds before engaging starter motor again.
4. Move throttle lever to FULL engine speed.

   Note: Do not allow the core processor to stand still while engaged as turf damage may occur.

Stopping Instructions

Note: When operating in the one pass configuration, always lift the aerator from the ground before stopping the core processor.

1. Before stopping the core processor, run the chopper rotator for one to two minutes to clear excess soil.
2. Move throttle lever to SLOW position and wait for the engine to decelerate before moving the ignition switch to the OFF position.
3. Remove the key from the ignition switch to prevent accidental starting.

   Important: To stop operation in an emergency, move the remote control switch to OFF position.

Operating the Core Processor

- Make sure the core processor is clean, especially the brush and chopper housings.
- Set the brush height slightly higher above height of cut-Example: height of cut equals 3/4 inch then brush setting is 7/8 inch.
- Start the core processor first. Start at low RPM.
- Once the engine is started, increase the RPM slowly to full RPM.
- Always operate the core processor at full RPM.

Note: If soil builds up on the inside of the brush or chopper housing, scrape clean using the scraper, located at the front of the machine.

One Pass Operation

- Starting

  Put tractor in gear and start tractor moving.

  Lower the core processor to the ground.

  Engage the PTO to the tractor.

  Lower the aerator to the ground

- Stopping

  Lift the aerator from the ground

  Disengage the PTO to the tractor

  Lift the core processor from the ground

  Stop the tractor

Note: Only raise the aerator and the Core Processor enough to disengage the operation.

Note: The Core Processor may not have to be raised if there is adequate turf for turning.

Tow Hitch Operation

The recommended maximum towing speed is 3 MPH (1st gear low range high idle for the Workman Vehicle)

1. To avoid driving over the cores, offset the Core Processor before moving forward.
2. Lower the Core Processor to start processing.
3. At the end of the pass, raise the Core Processor.

Note: The Core Processor may not have to be raised if there is adequate turf for turning.

Operating Tips

The core processor will leave a variety of finished results depending on the conditions. In general, if the conditions are good for aeration, they will be good for processing. Soil moisture, surface moisture or dew, soil composition and amount of soil processed all can affect the finished appearance.

The amount of soil processed can be influenced by the tine size, hole depth and hole spacing of the aerator. Smaller tine size and wider spacing will leave less soil on the surface and require less post processing. Some soil moisture is necessary for good aeration.

Proper height adjustment is relatively easy to attain but critical to a successful operation. The brush should be set at or slightly above the height of cut of the turf to be processed. Fine tune the brush height using the top link on the one pass system, or adjustment handle on the tow hitch. If the brush is too aggressive, the processor will use excessive horsepower and prematurely wear the brush. If the brush is not aggressive enough, some cores will be missed.

Finalize your height adjustment on a remote area of the property before using on critical areas.

Before starting operation, survey area to determine the best direction to work.

Always try to make a long, continuous run with a slight overlap on the return run.

Note: To maintain a straight line when operating, sight an object in the foreground.

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

While Operating

⚠ DANGER

TIP OVER CAN CAUSE SERIOUS INJURY OR DEATH.

- **NEVER operate on steep slopes.**
- **Operate on slopes up and down, never across the face.**
- **When going uphill or downhill, do not stop or start suddenly.**
- **Stay alert for holes in the terrain or other hidden hazards. To avoid tipping or loss of control, do not drive close to a ditch, creek or drop off.**
- **If machine stops going uphill, disengage aerator and back slowly downhill. Do not attempt to turn.**
- **Check the condition of the processor tip after the completion of each fairway or sports field. Replace any broken or loose tips.**

Transporting

When moving from one work area to another, proceed as follows;

- Insert the storage pins in the rear hole position.
- Make sure to raise the Core Processor.
- Do not exceed 15 MPH.
- If using the tow hitch, reposition the core processor behind the vehicle, retract the tow hitch and move the latch handle pin to the locked position (Figure 35).

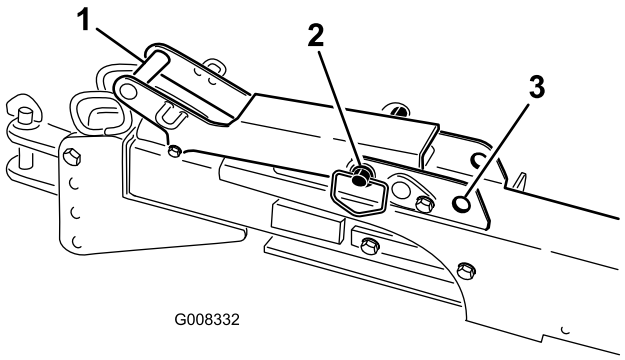


Figure 35

1. Latch handle
2. Latch handle pin in the locked position
3. Unlocked position

Soil Moisture

Soil moisture levels beyond the saturation point will make processing difficult. Surface Moisture will tend to mix with the processed material and will create some build up and clumping on the rear discharge area and rear roller scraper. When possible, drier cores process better. Be aware that in wet conditions, build up will occur in the brush housing that will require thorough cleanout (See chart-Figure 36).

Soil Moisture Chart

This chart is to be used as a guideline for determining soil moisture. Core processing in conditions that fall into the shaded area of the chart may give less than desirable results.

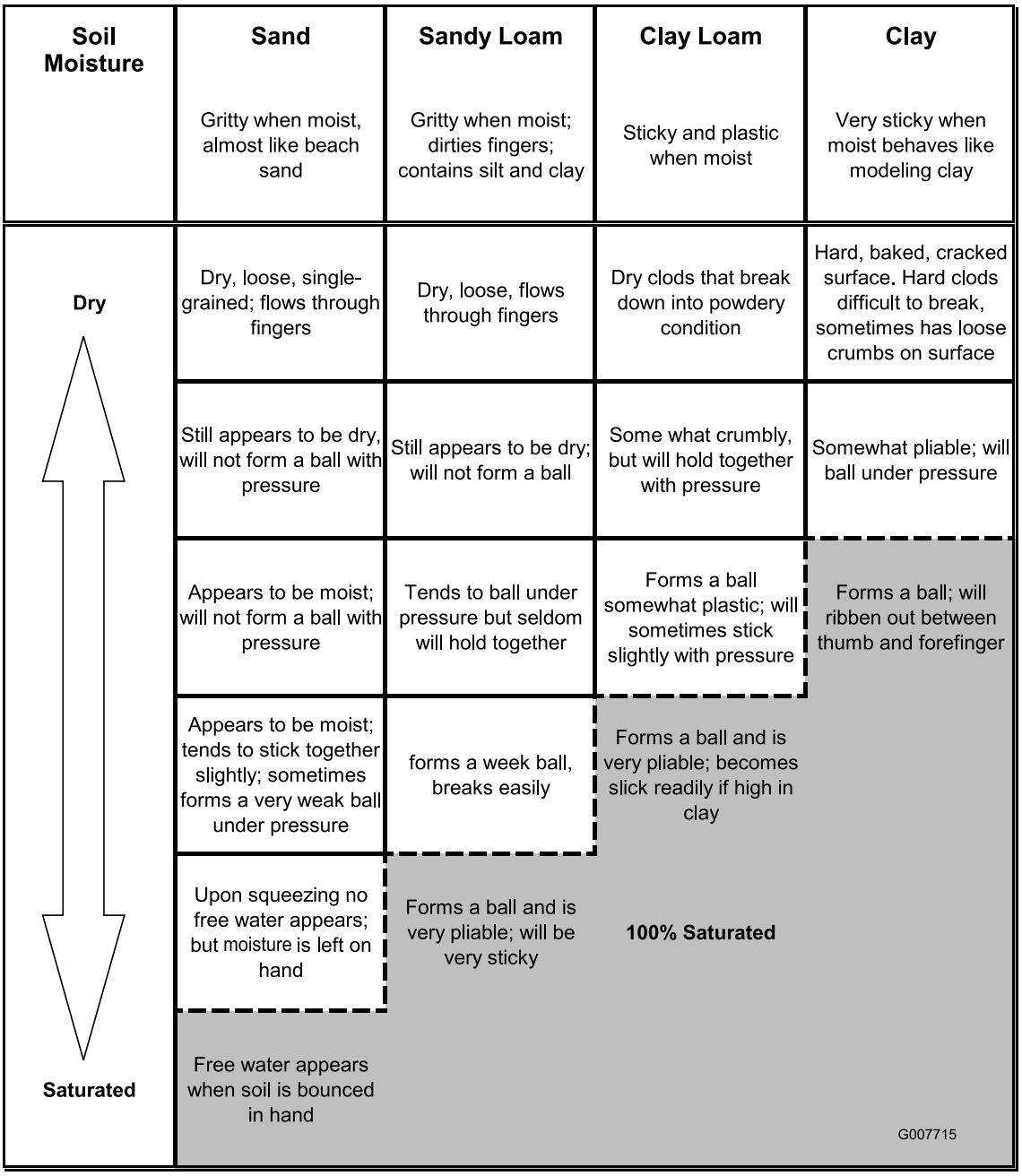


Figure 36

Inspecting and Cleaning the Brush/Chopper Housing

Service Interval: Every 4 hours Clean the brush/chopper housing more often in high soil moisture conditions.

The brush/chopper housings will build up with mud more rapidly when used in grass longer than one inch height of cut, clay and loam soil or in early morning dew. If the brush housing is not cleaned, premature wear to the brush will occur. With proper maintenance the brush should last approximately 100 hours.

To clean the housings, proceed as follows:

1. Raise the processor onto the transport wheels.
2. Loosen and remove the rear cover mounting bolts. Pivot the cover forward.
3. Using the scraper, located at the front of the machine, thoroughly clean the housing of mud.
4. Pivot the cover down and secure with the mounting bolts.

Inspection and Cleanup After Operation

When operation has been completed, thoroughly clean and wash the machine. Use the wash-out ports (Figure 37) or spray the chopper area. Start the machine and increase speed until Chopper rotator is engaged. Stand to one side at rear of machine and spray water into spinning chopper until clean. After cleaning, it is recommended that the machine be inspected for possible damage to mechanical components. These procedures will assure that the machine will perform satisfactorily during next operation.

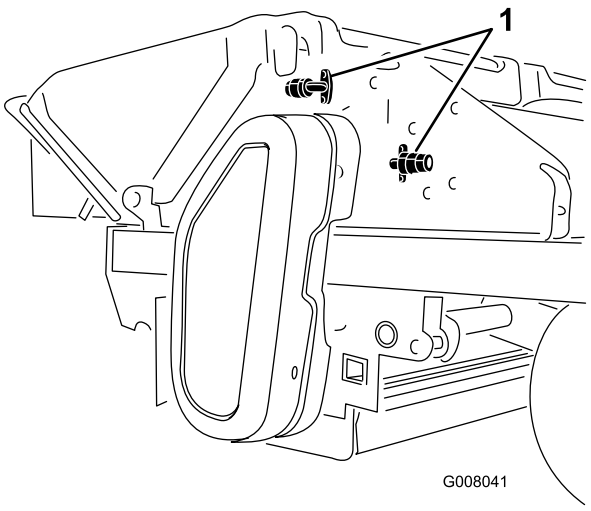


Figure 37

1. Wash-out ports

⚠ CAUTION

When cleaning the chopper area, stand clear of the output chute to avoid being stuck by thrown objects.

Inspect the Chopper Tips

Upon completion of each fairway or sports field, inspect the chopper tips for damage and replace any retaining bolts which may have been sheared.

Note: The chopper tips have been designed so that if an item such as a rock is picked up, one of the retaining bolts will shear thus preventing damage to critical components.

To remove a sheared bolt end from the chopper tip, proceed as follows:

1. Remove the non sheared bolt securing the chopper tip to the blade (Figure 38). Remove the chopper tip from the blade.

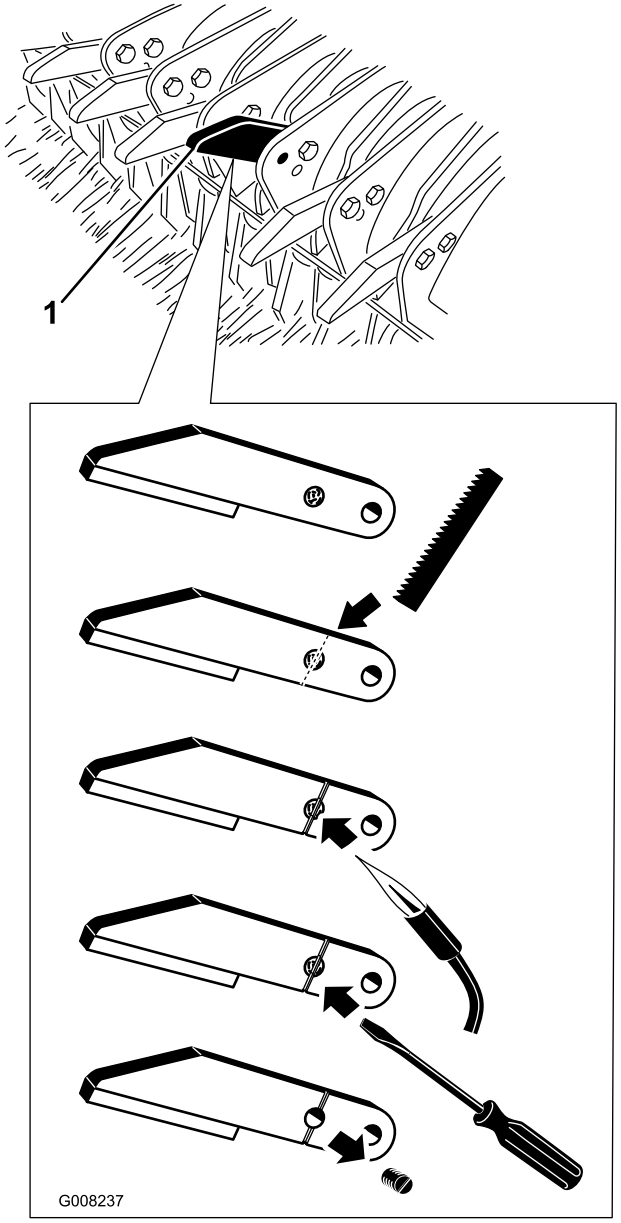


Figure 38

1. Chopper tip

2. Using a hack saw, cut a slot in the sheared end of the bolt and into the chopper tip (Figure 38). Make sure the slot is deep enough to engage a straight bladed screw driver.
3. After completing the slot, heat the sheared bolt with a torch to soften the Loctite (Figure 38).
4. Once the Loctite is softened, thread the sheared bolt out of chopper tip (Figure 38).
5. When installing used or new chopper tips, always use new bolts with a patch lock feature or treat the bolt threads with Loctite.

High Altitude Operation

When operating in high altitudes the carburetor jets may have to be changed to obtain optimum engine performance. Use the chart below to determine which carburetor jet is required for the operating altitude. Order the carburetor jets from your Briggs and Stratton Dealer.

Carburetor Jet Size		
Altitude	Left Carburetor Jet	Right Carburetor Jet
Standard 900 feet	150	156
5000 feet	146	152
6500 feet	144	150
9000 feet	140	146

Maintenance

Recommended Maintenance Schedule(s)

Maintenance Service Interval	Maintenance Procedure
After the first 8 hours	• Check the torque of the wheel nuts • Change the engine oil • Check condition and tension of belts
Before each use or daily	• Check the engine oil level. • Clean the engine screen and the oil cooler. • Check the hydraulic lines and hoses. • Check chopper tips • Check brush wear • Clean brush/chopper housing
Every 4 hours	• Inspect and clean the brush/chopper housings Clean the brush/chopper housing more often in high soil moisture conditions.
Every 50 hours	• Grease the bearings and bushings • Check condition and tension of belts
Every 100 hours	• Change the engine oil. • Check the battery electrolyte level • Clean the engine
Every 200 hours	• Check and/or replace the primary air filter. • Replace the oil filter. • Check the spark plugs.
Every 600 hours	• Replace the safety air filter. • Replace the fuel filter

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 engine oil and fuel level.							
Check the air cleaner							
Check unusual operating noises.							
Check hydraulic hoses for damage.							
Check for fluid leaks.							
Check the tire pressure.							
Check the instrument operation.							
Lubricate all grease fittings.[1]							
Touch-up damaged paint.							

1. Lubricate the chopper, rear roller and rotating corner bearings immediately after every washing, regardless of the interval listed.

Premaintenance 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.

Lubrication

Greasing Bearings and Bushings

Service Interval: Every 50 hours

The core processor has (18) grease fittings that must be lubricated regularly with No. 2 General Purpose Lithium Base Grease. Lubricate the chopper, rear roller and rotating corner bearings immediately after every washing.

1. Lubricate the following grease fittings:
    - Tow frame, Qty 2 (Figure 40)
    - Lift cylinder, Qty. 2 (Figure 39 & Figure 42)
    - Lift axle, Qty. 2 (Figure 39)
    - Jack shaft, Qty. 2 (Figure 42)
    - Chopper assembly, Qty. 2 (Figure 43 & Figure 41)
    - Rotating corner, Qty. 2 (Figure 43 & Figure 41)
    - Pickup brush, Qty. 2 (Figure 43 & Figure 41)
    - Rear roller, Qty. 2 (Figure 41)

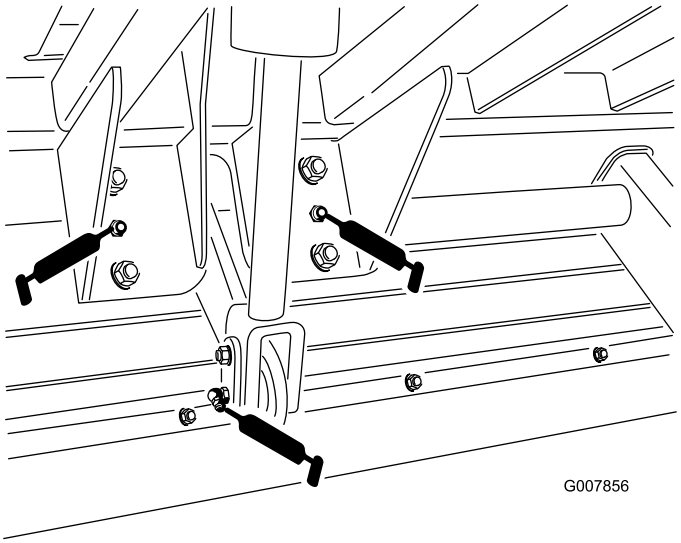


Figure 39

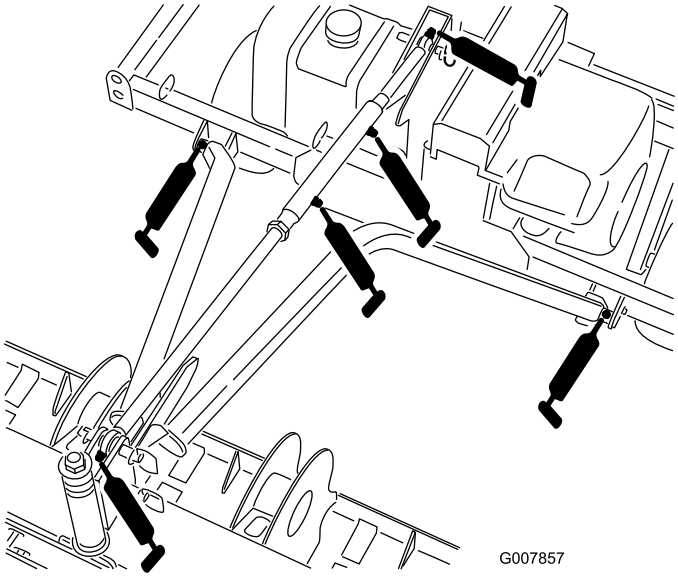


Figure 40

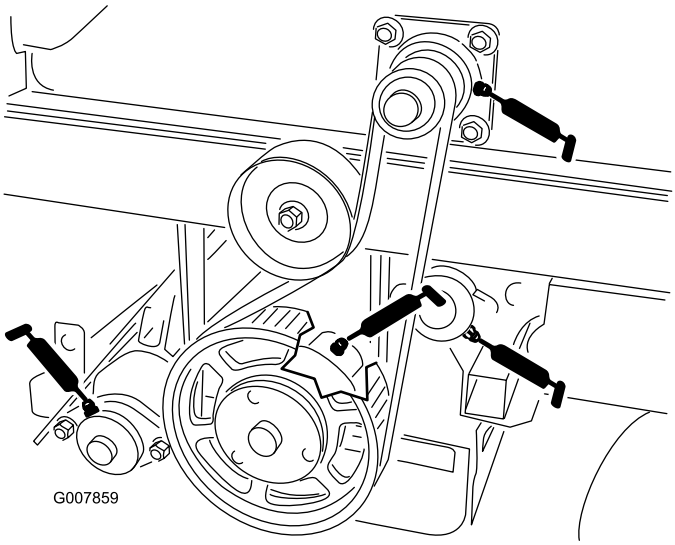


Figure 41

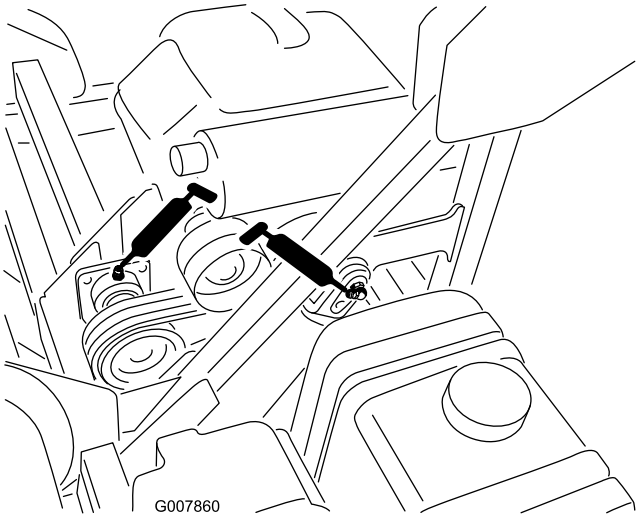


Figure 42

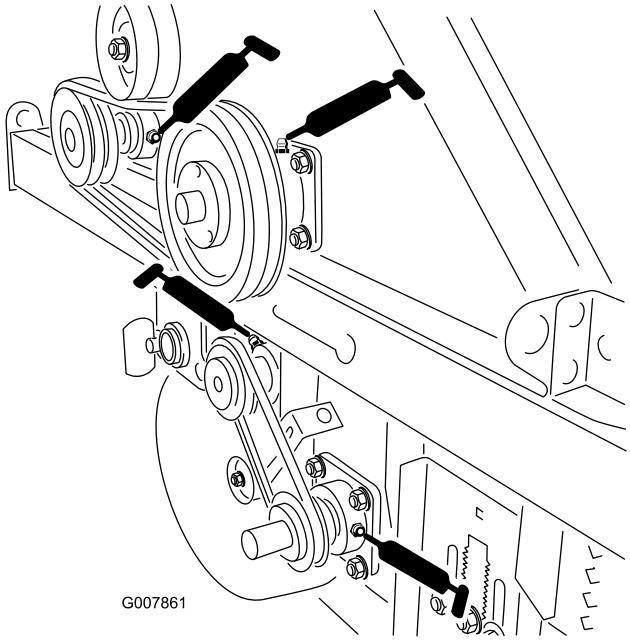


Figure 43

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

Engine Maintenance

Servicing the Air Cleaner

Check the air cleaner housing for damage which could cause an air leak. Replace if damaged. Check the whole intake system for leaks, damage or loose hose clamps

Service the air cleaner filter only when the service indicator (Figure 44) requires it. Changing the air filter before it is necessary only increases the chance of dirt entering the engine when the filter is removed.

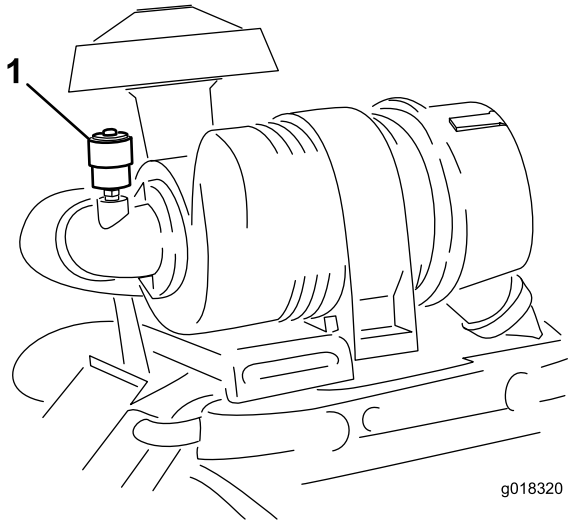


Figure 44

1. Air cleaner indicator

Removing the Air Filters

1. Stop the engine, remove the key, and wait for all moving parts to stop before leaving the operating position.
2. Pull the latch outward and rotate the air cleaner cover counterclockwise (Figure 45).
3. Remove the air cleaner cover from the air cleaner housing (Figure 45).

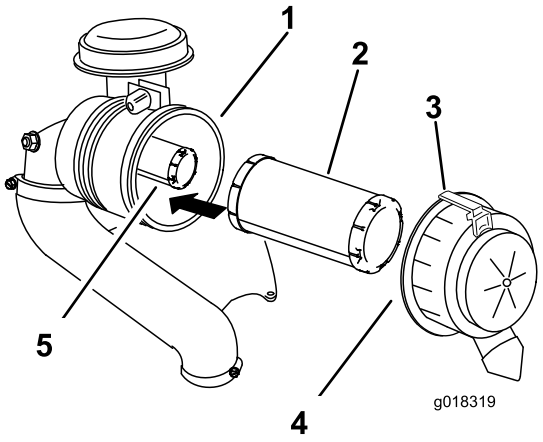


Figure 45

1. Air cleaner housing
2. Primary filter
3. Latch
4. Air cleaner cover
5. Safety filter

4. Clean the inside of the air cleaner cover with compressed air.
5. Gently slide the primary filter out of the air cleaner housing (Figure 45).

   Note: Avoid knocking the filter into the side of the housing.
6. Remove the safety filter only if you intend to replace it.

   Important: Never attempt to clean the safety filter. If the safety filter is dirty, then the primary filter is damaged. Replace both filters.
7. Inspect the primary filter for damage by looking into the filter while shining a bright light on the outside of the filter. Holes in the filter will appear as bright spots. If the filter is damaged, discard it.

Servicing the Primary Air Filter

Service Interval: Every 200 hours

- If the primary air filter is dirty, bent, or damaged, replace it.
- Do not clean the primary air filter.

Servicing the Safety Air Filter

Service Interval: Every 600 hours

Important: Never attempt to clean the safety air filter. If the safety air filter is dirty, then the primary air filter is damaged. Replace both filters.

Installing the Filters

Important: To prevent engine damage, always operate the engine with both air filters and cover installed.

1. If installing new filters, check each filter for shipping damage. Do not use a damaged filter.
2. If the safety filter is being replaced, carefully slide it into the filter body (Figure 45).
3. Carefully slide the primary filter over the safety filter (Figure 45).

   Note: Ensure that the primary filter is fully seated by pushing on its outer rim while installing it.

   Important: Do not press on the soft inside area of the filter.
4. Clean the dirt ejection port located in the removable cover. Remove the rubber outlet valve from the cover, clean the cavity and replace the outlet valve.
5. Install the air cleaner cover with the side indicated as **up** facing upward and secure the latch (Figure 45).
6. Reset the indicator Figure 44) if it shows red.

Servicing the Engine Oil

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

Oil Type: Detergent oil (API service SG, SH, SJ or higher)

Crankcase Capacity: w/filter, 67 oz. (2 l)

Viscosity: See the table below.

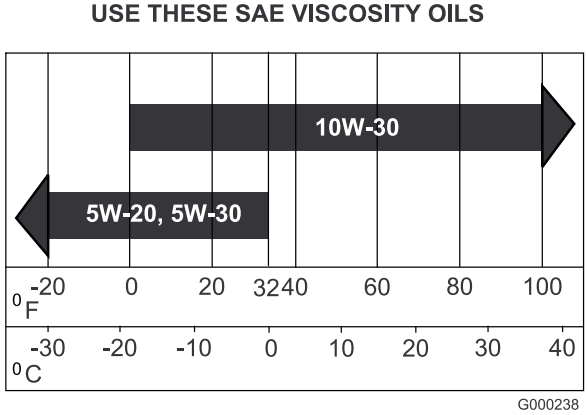


Figure 46

Checking the Engine Oil Level

Service Interval: Before each use or daily

Note: The best time to check the engine oil is when the engine is cool before it has been started for the day. If it

has already been run, allow the oil to drain back down to the sump for at least 10 minutes before checking. If the oil level is at or below the "add" mark on the dipstick, add oil to bring the oil level to the "full" mark. DO NOT OVERFILL. If the oil level is between the "full" and "add" marks, no oil addition is required.

1. Park the machine on a level surface.
2. Turn the ignition key to off, and remove the key.
3. Wait for all moving parts to stop before leaving the operating position.
4. Clean around the oil dipstick (Figure 47) so that dirt cannot fall into the filler hole and damage the engine.

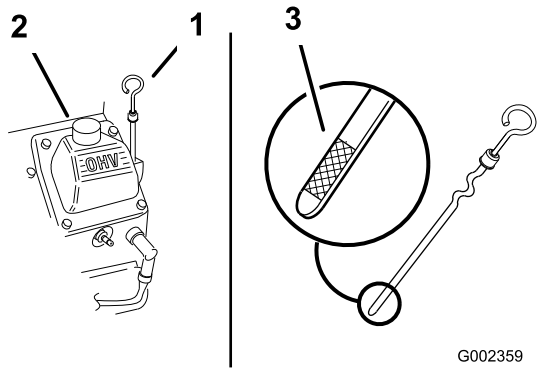


Figure 47

1. Oil dipstick
2. Filler tube

5. Remove the oil dipstick and wipe the end clean (Figure 47).
6. Slide the oil dipstick fully into the filler tube (Figure 47).
7. Pull the dipstick out and look at the end. If the oil level is low, slowly pour only enough oil into the filler tube to raise the level to the FULL mark.

Important: Do not overfill the crankcase with oil and run the engine; engine damage can result.

Changing the Oil

Service Interval: After the first 8 hours

Every 100 hours

1. Start the engine and let it run five minutes. This warms the oil so it drains better.
2. Park the machine so that the drain side is slightly lower than the opposite side to ensure the oil drains completely.
3. Stop the engine, remove the key, and wait for all moving parts to stop before leaving the operating position.
4. Place a pan below the drain plug (Figure 48).
5. Remove the oil drain plug allowing the oil to drain into the pan.
6. When oil has drained completely, install the drain plug.

Note: Dispose of the used oil at a recycling center.

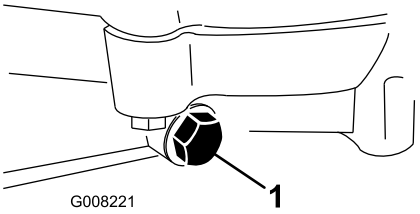


Figure 48

1. Oil drain plug

7. Slowly pour approximately 80% of the specified oil into the filler tube (Figure 47).
8. Check the oil level; refer to Checking the Engine Oil Level.
9. Slowly add the additional oil to bring it to the **Full** mark.

Changing the Oil Filter

Service Interval: Every 200 hours

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

1. Drain the oil from the engine; refer to Changing the Engine Oil.
2. Remove the old filter and wipe the filler adapter gasket surface (Figure 49).

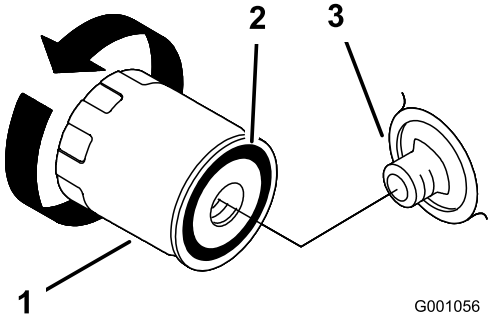


Figure 49

1. Oil filter
2. Adapter gasket
3. Adapter

3. Pour new oil in through the center hole of the filter. Fill it up to the bottom of the threads inside.
4. Allow the filter material to absorb the new oil for 1 to 2 minutes.

5. Apply a thin coat of new oil to the rubber gasket on the replacement filter (Figure 49).
6. Install the replacement oil filter to the filter adapter, turn the oil filter clockwise until the rubber gasket contacts the filter adapter, then tighten the filter an additional 2/3 to 1 turn (Figure 49).
7. Fill the crankcase with the proper type of new oil; refer to Servicing the Engine Oil.
8. Run the engine for about 3 minutes, stop the engine, and check for oil leaks around the oil filter.
9. Check the engine oil level and add oil if needed.

Servicing the Spark Plugs

Ensure that the air gap between the center and side electrodes is correct before installing the spark plug. Use a spark plug wrench for removing and installing the spark plugs and a gapping tool/feeler gauge to check and adjust the air gap. Install a new spark plugs if necessary.

Type: Champion® RC12YC, Champion® Platinum 3071 or equivalent

Air Gap: 0.030 inch (0.76 mm)

Checking the Spark Plugs

Service Interval: Every 200 hours

1. Look at the center of the spark plugs (Figure 50). If you see light brown or gray on the insulator, the engine is operating properly. A black coating on the insulator usually means that the air cleaner is dirty.

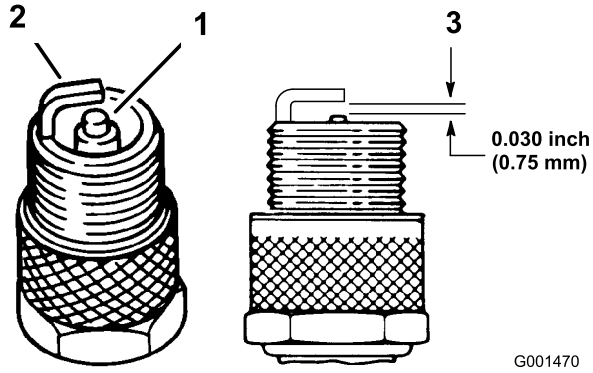


Figure 50

1. Center electrode insulator
2. Side electrode
3. Air gap (not to scale)

Important: Always replace the spark plugs when it has a black coating, worn electrodes, an oily film, or cracks.

2. Check the gap between the center and side electrodes (Figure 50). Bend the side electrode (Figure 50) if the gap is not correct.

Removing the Spark Plugs

1. Stop the engine, remove the key, and wait for all moving parts to stop before leaving the operating position.
2. Disconnect the wires from the spark plugs (Figure 51).

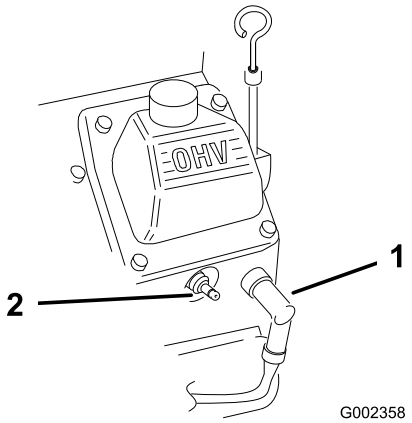


Figure 51

1. Spark-plug wire
2. Spark plug

3. Clean around the spark plugs to prevent dirt from falling into the engine and potentially causing damage.
4. Remove the spark plugs and the metal washers.

Installing the Spark Plugs

1. Install the spark plugs and the metal washer. Ensure that the air gap is set correctly.
2. Tighten the spark plugs to 18 to 22 ft-lb (24.4 to 29.8 N-m).
3. Connect the wires to the spark plugs (Figure 50).

Fuel System Maintenance

Replace Fuel Filter

Service Interval: Every 600 hours

1. Stop the engine, remove the key, and wait for all moving parts to stop before leaving the operating position.
2. Allow the machine to cool down.
3. Loosen the hose clamps and slide them away from the filter (Figure 52).

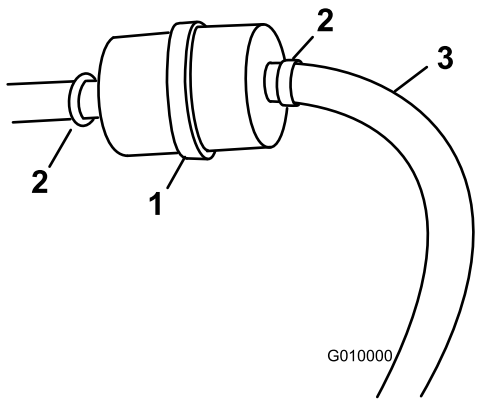


Figure 52

1. Fuel filter
2. Hose clamp
3. Fuel line

4. Remove the filter from the fuel lines.
5. Install a new filter to the hoses and secure the hose clamps (Figure 52).

Servicing the Fuel Tank

⚠ 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.

- **Drain gasoline from the fuel tank when the engine is cold. Do this outdoors in an open area. Wipe up any gasoline that spills.**
- **Never smoke when draining gasoline, and stay away from an open flame or where a spark may ignite the gasoline fumes.**

1. Park the machine on a level surface to ensure that the fuel tanks drain completely.
2. Stop the engine and remove the key.
3. Loosen the hose clamp at the fuel filter and slide it up the fuel line away from the fuel filter (Figure 52).
4. Disconnect the fuel line from the fuel filter (Figure 52).

   Note: Allow gasoline to drain into a fuel container can or drain pan (Figure 52).

   Note: This is the best time to install a new fuel filter because the fuel tank is empty.
5. Install the fuel line onto the fuel filter. Slide the hose clamp close to the fuel filter to secure the fuel line (Figure 52).

Electrical System Maintenance

Battery Care

Service Interval: Every 100 hours

- Battery electrolyte level 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 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.**

- Keep top of battery clean by washing periodically with a brush dipped in ammonia or bicarbonate of soda solution. Flush the top surface with water after cleaning. Do not remove the fill cap while cleaning.
- Battery cables must be tight on terminals to provide good electrical contact.

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 corrosion occurs at terminals, disconnect cables, negative (-) cable first and scrape clamps and terminals separately. Reconnect cables, positive (+) cable first and coat terminals with petroleum jelly.
- Check the electrolyte level every 25 operating hours or, if machine is in storage, every 30 days.
- Maintain cell level with distilled or demineralized water. Do not fill cells above fill line.
- If machine will be stored for more than 30 days, remove the battery and charge it fully. Either store it on the shelf on the machine. Leave the cables disconnected if stored on the machine. Store the battery in a cool atmosphere to avoid quick deterioration of the charge in the battery. To prevent battery from freezing, make sure it is fully charged. The specific gravity of a fully charged battery is 1.250.

⚠ WARNING

Charging the battery produces gasses that can explode.

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

⚠ WARNING

Battery terminals or metal tools could short against metal tractor 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 tractor.**
- **Do not allow metal tools to short between the battery terminals and metal parts of the tractor.**

Cooling System Maintenance

Cleaning the Engine Screen and the Oil Cooler

Service Interval: Before each use or daily

Before each use, check and clean the engine screen and oil cooler. Remove any build up of grass, dirt or other debris from the oil cooler screen and engine screen (Figure 53).

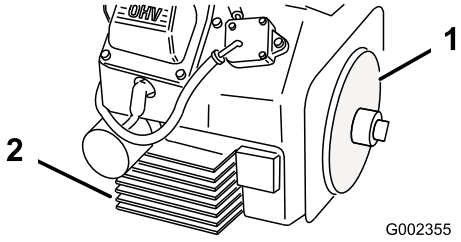


Figure 53

1. Engine screen
2. Oil cooler

Cleaning the Engine

Service Interval: Every 100 hours

Using low pressure compressed air (20 psi or less), clean around the carburetor, the governor levers and the linkage. This will make sure adequate cooling to the engine and will reduce the possibility of overheating and mechanical damage.

Belt Maintenance

Adjusting the Belts

Service Interval: After the first 8 hours
Every 50 hours

Check the belts for cracks, frayed edges, burn marks or any other damage. Replace damaged belts. Check the condition and tension of the belts as required:

Engine Clutch to Jack shaft Belt

To check the belt proceed as follows:

1. Remove the belt cover (Figure 54).

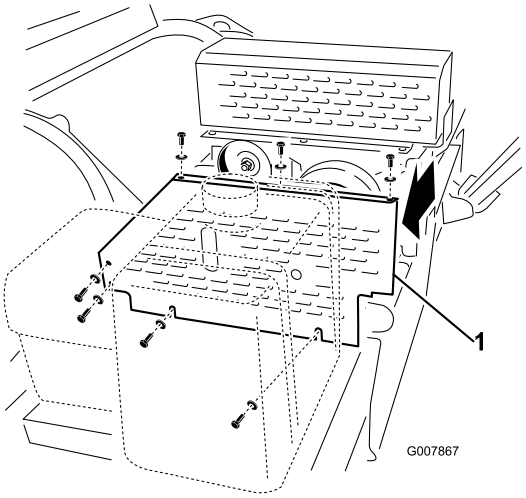


Figure 54

1. Engine clutch to jack shaft belt cover

2. Check the condition of the belt (Figure 55).

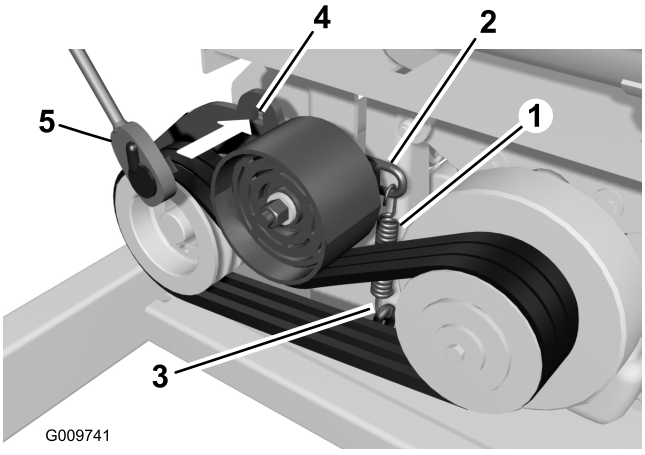


Figure 55

1. Extension spring
2. Belt
3. Eye bolt
4. Square hole
5. Socket wrench
6. Idler pulley

3. To release the belt tension, proceed as follows:

A. Loosen the lower nut on the eye bolt and thread it to the end of the bolt (Figure 56).

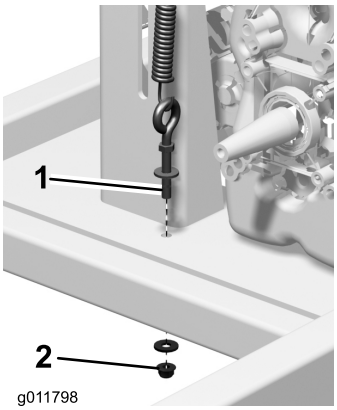


Figure 56

1. Eye bolt
2. Lower nut

B. Insert a socket wrench into the square hole in the idler arm and rotate the wrench upward (Figure 55).

Important: Do not rotate the wrench upward too far because damage to the idler arm extension spring may occur. If the spring stretches to more than 3.50 inches, replace the spring. Measure the spring from inside loop to inside loop as shown in Figure 57.

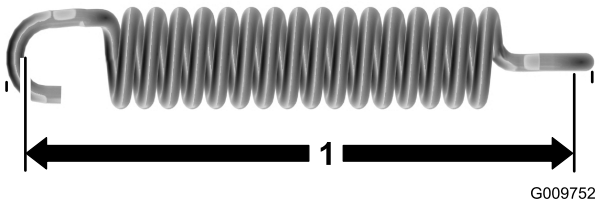


Figure 57

1. 3.50 inches

4. To increase the spring tension thus increasing the belt tension, shorten the eye bolt height by loosening the top eye bolt nut and tightening the lower nut (Figure 55 & Figure 58).

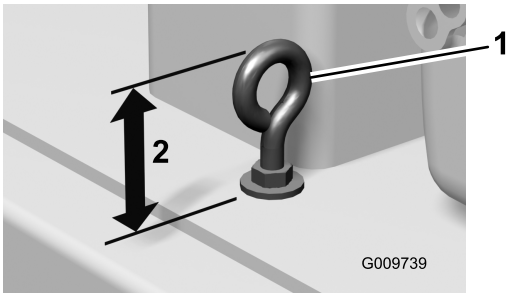


Figure 58

1. Eye bolt
2. Eye bolt height

5. Install the belt cover.

Jack shaft to Chopper Belt

To check the belt tension proceed as follows:

1. Remove the belt cover (Figure 59).

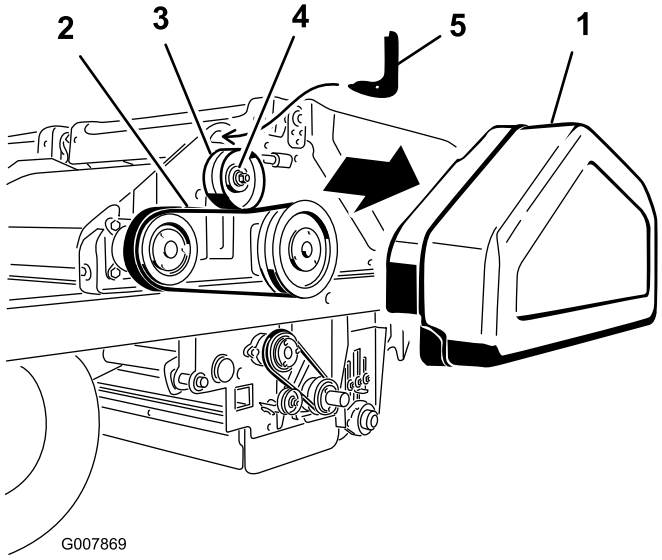


Figure 59

1. Jack shaft to chopper belt cover
2. Jack shaft to chopper belt
3. Idler pulley
4. Nut
5. Belt tensioning tool

2. Loosen the nut on the idler pulley (Figure 59).
3. Insert the hook end of belt tensioning tool into the hole above the idle pulley (Figure 59). Rest the curved bottom of the tool on the idler pulley.
4. Insert the drive of a 1/2 inch torque wrench into the hole in the belt tensioning tool (Figure 59).
5. Rotate the tool toward you until the torque of 50 inch-pounds in achieved, then, while holding the torque, tighten the idler pulley nut (Figure 59).
6. Remove the torque wrench and tensioning tool.
7. Install the belt cover.

Chopper to Brush Belt

To adjust or reinstall the belt, proceed as follows:

1. Remove the belt cover (Figure 60).

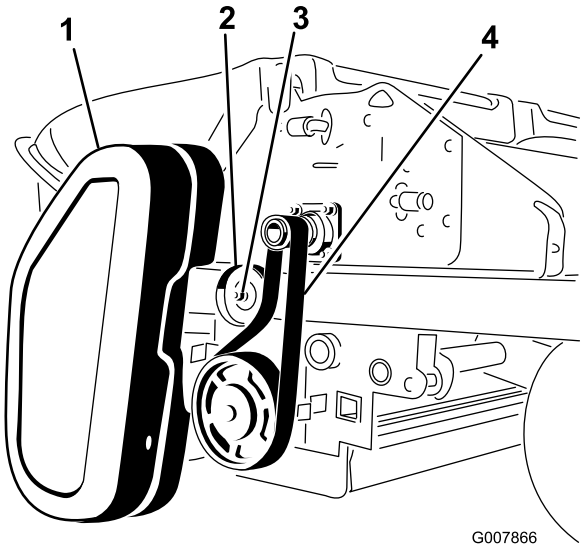


Figure 60

1. Chopper to brush belt cover
2. Idler pulley
3. Nut
4. Chopper to brush belt

2. Loosen the nut on the idler pulley (Figure 60).
3. Slide the belt off the chopper shaft and brush pulley (Figure 60).
4. Rotate the brush pulley until a brush row is aligned with the rotating corner (Figure 61).

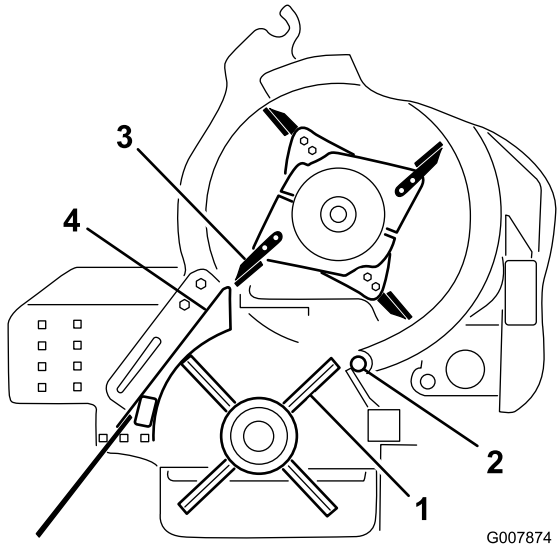


Figure 61

1. Brush row
2. Rotating corner
3. Blade tip
4. Brush housing

5. Rotate the chopper until a blade tip is aligned with the outside of the brush housing (Figure 61).
6. Carefully slide the belt onto the chopper shaft. Do not rotate the chopper shaft.
7. While tensioning the right side of the belt, slide the bottom of the belt into the grooves of the brush pulley. Do not rotate the brush pulley.
8. While pushing the idler pulley into the belt, tighten the nut on the idler pulley.

Brush to Rotating Corner Belt

To tension the belt proceed as follows:

1. Remove the belt cover (Figure 62)
2. Loosen the nut on the idler pulley (Figure 62).

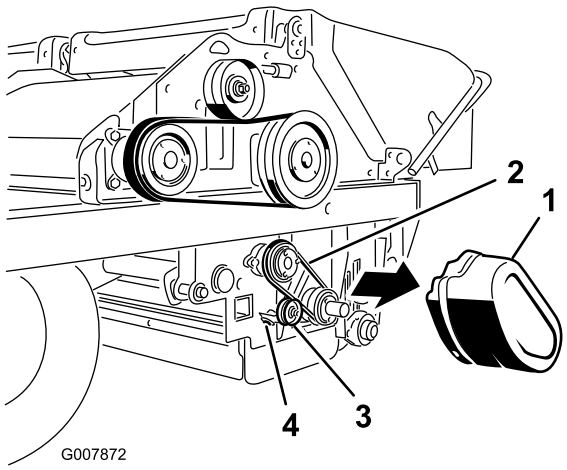


Figure 62

1. Brush to rotating corner belt cover
2. Brush to rotating corner belt
3. Idler pulley
4. Nut

3. Push the idler pulley into the belt and tighten the idler pulley nut Figure 62).
4. Install the belt cover.

Hydraulic System Maintenance

Checking the Hydraulic Lines and Hoses

⚠ WARNING

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

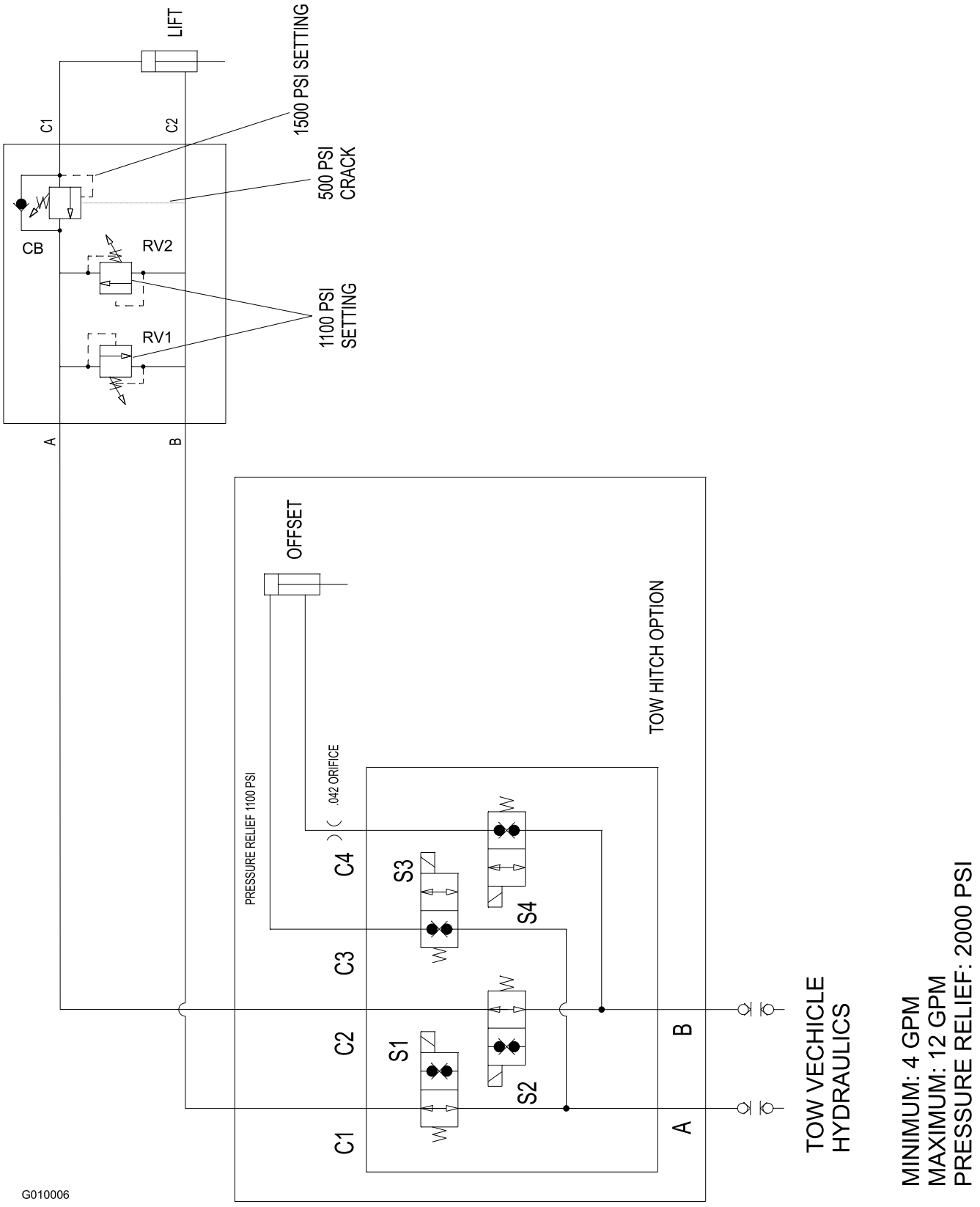
- **Make sure all hydraulic fluid hoses and lines are in good condition and all hydraulic connections and fittings are tight before applying pressure to the hydraulic system.**
- **Keep your body and hands away from pin hole leaks or nozzles that eject high pressure hydraulic fluid.**
- **Use cardboard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

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.

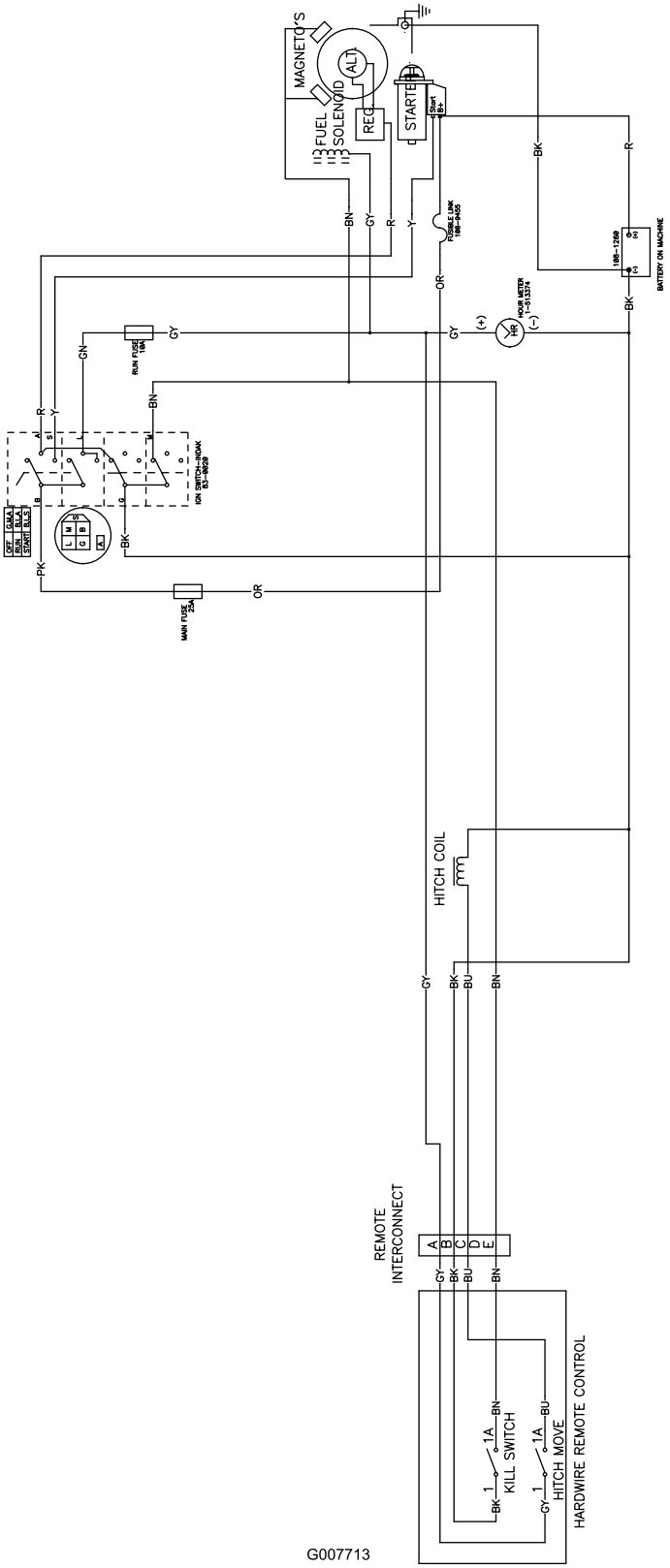
Storage

1. Wash the brush housing and chopper with water. Start the machine and increase speed until Chopper rotator is engaged. Stand to one side at rear of machine and spray water into spinning chopper until clean.
2. Check all fasteners. Tighten as necessary.
3. Grease all grease fittings. Wipe off excess lubricant.
4. Check the condition of the brush and blades. Replace as required.
5. Service the air cleaner; refer to Servicing the Air Cleaner.
6. Grease and oil the machine; refer to Greasing and Lubrication.
7. Change the crankcase oil; refer to Servicing the Engine Oil.
8. Check the tire pressure; refer to Checking the Tire .
9. Charge the battery; refer to Servicing the Battery.
10. Before disconnecting from the tow vehicle, lower the core processor to the ground, install the storage pins in the front holes and then remove the hydraulic and mechanical connections. This will ensure that the core processor remains stable when disconnecting from the tow vehicle.

Schematics



Hydraulic (Rev. F)



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Electrical (Rev. B)

Notes:

The Toro Total Coverage Guarantee

A Limited Warranty

Conditions and Products Covered

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

Instructions for Obtaining Warranty Service

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

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

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

Owner Responsibilities

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

Items and Conditions Not Covered

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

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

Parts

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

Deep Cycle and Lithium-Ion Battery Warranty:

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

Maintenance is at Owner’s Expense

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

General Conditions

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

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

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

Note regarding engine warranty:

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

Countries Other than the United States or Canada

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

374-0253 Rev B