



Greensmaster® Flex 21

Greensmaster Walk-Behind Mower

Model No. 04021—210000001 and Up (Traction Unit)

Model No. 04200—210000001 and Up (Cutting Unit)

Operator's Manual



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.

Ce système d'allumage par étincelle de véhicule est conforme à la norme NMB-002 du Canada.

Contents

	Page
Introduction	3
Safety	4
Safe Operating Practices	4
Toro Mower Safety	6
Sound Pressure Level	7
Sound Power Level	7
Vibration Level	7
Safety and Instruction Decals	7
Specifications	9
General Specifications	9
Dimensions	10
Optional Equipment	10
Setup	11
Loose Parts Chart	11
Installing the Handle	11
Adjusting the Handle	12
Installing the Transport Wheels	12
Before Operating	13
Adding Engine Oil	13
Filling the Fuel Tank	13
Checking the Transmission Fluid	14
Separating Cutting Unit from Traction Unit	14
Leveling the Rear Roller to the Reel	15
Adjusting the Bedknife to the Reel	16
Adjusting the Height of Cut	16
Adjusting the Cut-Off Bar	17
Installing the Grass Basket	17
Checking the Interlock Switch Operation	18

	Page
Operation	18
Think Safety First	18
Controls	18
Starting and Stopping	19
Transport Operation	20
Preparing to Mow	20
Mowing Operation	20
Maintenance	22
Recommended Maintenance Schedule	22
Daily Maintenance Checklist	23
Engine Oil	24
Servicing the Air Cleaner	24
Replacing the Spark Plug	25
Cleaning the Fuel Filter	25
Changing the Transmission Fluid	25
Adjusting the Belts	26
Adjusting the Traction Control	29
Adjusting the Service/Parking Brake	29
Adjusting the Reel Control	29
Servicing the Interlock Switch	30
Servicing the Bedbar	30
Backlapping the Reel	31
The Toro General Commercial Products Warranty ..	32

Introduction

Read this manual carefully to learn how to operate and maintain your product properly. The information in this manual can help you and others avoid injury and product damage. Although Toro designs and produces safe products, you are responsible for operating the product properly and safely.

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. Figures 1 & 2 illustrate the location of the model and serial numbers on the product.

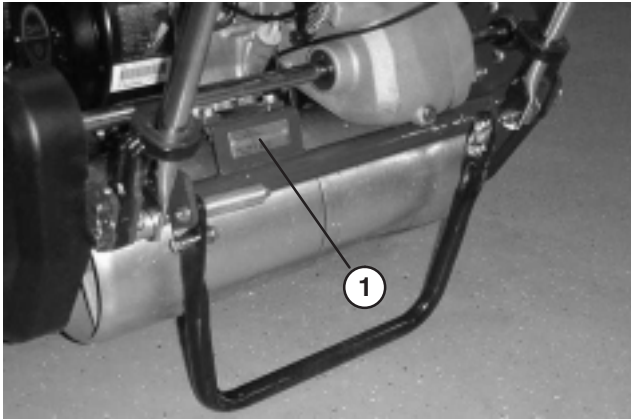


Figure 1

1. Location of the model and serial numbers—Traction unit

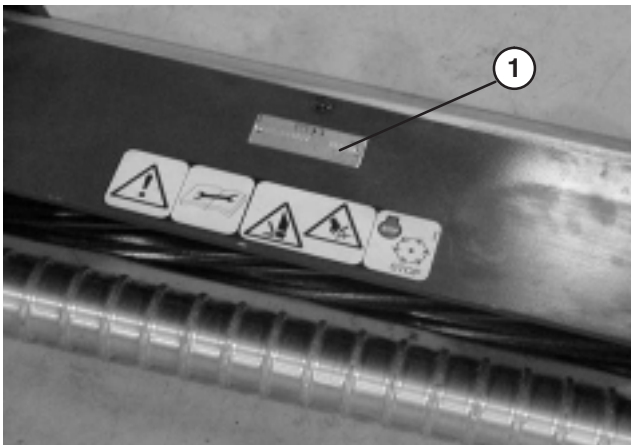


Figure 2

1. Location of the model and serial numbers—Cutting unit

Write the product model and serial numbers in the space below:

Traction unit

Model No. _____

Serial No. _____

Cutting unit

Model No. _____

Serial No. _____

This manual identifies potential hazards and has special safety messages that help you and others avoid personal injury and even death. ***Danger***, ***Warning***, and ***Caution*** are signal words used to identify the level of hazard. However, regardless of the hazard, be extremely careful.

Danger signals an extreme hazard that *will* cause serious injury or death if you do not follow the recommended precautions.


Warning signals a hazard that *may* cause serious injury or death if you do not follow the recommended precautions.

Caution signals a hazard that may cause minor or moderate injury if you do not follow the recommended precautions.

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

Safety

This machine meets or exceeds CEN standard EN 836:1997, ISO standard 5395:1990, and ANSI B71.4-1999 specifications in effect at the time of production when the Operator Presence Kit, Part No. 105-5333 is installed.

Improper use or maintenance by the operator or owner can result in injury. To reduce the potential for injury, comply with these safety instructions and always pay attention to the safety alert  symbol, which means CAUTION, WARNING, or DANGER—"personal safety instruction." Failure to comply with the instruction may result in personal injury or death.

Safe Operating Practices

The following instructions are from the CEN standard EN 836:1997, ISO standard 5395:1990, and ANSI B71.4-1999.

Training

- Read the Operator's Manual and other training material carefully. Be familiar with the controls, safety signs, and the proper use of the equipment.
- Never allow children or people unfamiliar with these instructions to use or service the mower. Local regulations may restrict the age of the operator.
- Never mow while people, especially children, or pets are nearby.
- Keep in mind that the operator or user is responsible for accidents or hazards occurring to other people or their property.
- The owner/user can prevent and is responsible for accidents or injuries occurring to himself or herself, other people, or property.

Preparation

- While mowing, always wear substantial footwear, long trousers, hard hat, safety glasses, and ear protection. Long hair, loose clothing, or jewelry may get tangled in moving parts. Do not operate the equipment when barefoot or wearing open sandals.
- Thoroughly inspect the area where the equipment is to be used and remove all objects which may be thrown by the machine.
- **Warning**—Fuel is highly flammable. Take the following precautions:
 - Store fuel in containers specifically designed for this purpose.

- Refuel outdoors only and do not smoke while refuelling.
- Add fuel before starting the engine. Never remove the cap of the fuel tank or add fuel while the engine is running or when the engine is hot.
- If fuel is spilled, do not attempt to start the engine but move the machine away from the area of spillage and avoid creating any source of ignition until fuel vapors have dissipated.
- Replace all fuel tanks and container caps securely.
- Replace faulty silencers.
- Evaluate the terrain to determine what accessories and attachments are needed to properly and safely perform the job. Only use accessories and attachments approved by the manufacturer.
- Check that operator's presence controls, safety switches and shields are attached and functioning properly. Do not operate unless they are functioning properly.

Operation

- Do not operate the engine in a confined space where dangerous carbon monoxide fumes can collect.
- Mow only in daylight or in good artificial light.
- Before attempting to start the engine, disengage all blade attachment clutches, shift into neutral, and engage the parking brake.
- Do not use on slopes of more than
 - 5° when mowing on side hills;
 - 10° when mowing uphill;
 - 15° when mowing downhill.
- Remember there is no such thing as a safe slope. Travel on grass slopes requires particular care. To guard against overturning:
 - do not stop or start suddenly when going up or downhill;
 - engage clutch slowly, always keep machine in gear, especially when travelling downhill;
 - machine speeds should be kept low on slopes and during tight turns;
 - stay alert for humps and hollows and other hidden hazards;
 - never mow across the face of the slope, unless the mower is designed for this purpose.
- Stay alert for holes in the terrain and other hidden hazards.

- Watch out for traffic when crossing or near roadways.
- Stop the blades rotating before crossing surfaces other than grass.
- When using any attachments, never direct discharge of material toward bystanders nor allow anyone near the machine while in operation.
- Never operate the machine with damaged guards, shields, or without safety protective devices in place. Be sure all interlocks are attached, adjusted properly, and functioning properly.
- Do not change the engine governor settings or overspeed the engine. Operating the engine at excessive speed may increase the hazard of personal injury.
- Before leaving the operator's position:
 - stop on level ground;
 - disengage the power take-off and lower the attachments;
 - change into neutral and set the parking brake;
 - stop the engine.
- Disengage drive to attachments when transporting or not in use.
- Stop the engine and disengage drive to attachment
 - before refuelling;
 - before removing the grass catcher/catchers;
 - before making height adjustment unless adjustment can be made from the operator's position.
 - before clearing blockages;
 - before checking, cleaning or working on the mower;
 - after striking a foreign object or if an abnormal vibration occurs. Inspect the mower for damage and make repairs before restarting and operating the equipment.
- Reduce the throttle setting during engine run-out and, if the engine is provided with a shut-off valve, turn the fuel off at the conclusion of mowing.
- Keep hands and feet away from the cutting unit.
- Slow down and use caution when making turns and crossing roads and sidewalks. Stop reels if not mowing.
- Do not operate the mower under the influence of alcohol or drugs
- Use care when loading or unloading the machine into a trailer or truck

- Use care when approaching blind corners, shrubs, trees, or other objects that may obscure vision.

Maintenance and Storage

- Keep all nuts, bolts and screws tight to be sure the equipment is in safe working condition.
- Never store the equipment with fuel in the tank inside a building where fumes may reach an open flame or spark.
- Allow the engine to cool before storing in any enclosure.
- To reduce the fire hazard, keep the engine, silencer, battery compartment and fuel storage area free of grass, leaves, or excessive grease.
- Check the grass catcher frequently for wear or deterioration.
- Keep all parts in good working condition and all hardware and hydraulic fittings tightened. Replace all worn or damaged parts and decals.
- If the fuel tank has to be drained, do this outdoors.
- Be careful during adjustment of the machine to prevent entrapment of the fingers between moving blades and fixed parts of the machine.
- Disengage drives, disengage the cutting unit, set parking brake, stop engine and disconnect spark plug wire. Wait for all movement to stop before adjusting, cleaning or repairing.
- Clean grass and debris from cutting unit, drives, mufflers, and engine to help prevent fires. Clean up oil or fuel spillage.
- Carefully release pressure from components with stored energy.
- Disconnect battery and remove spark plug wire before making any repairs. Disconnect the negative terminal first and the positive last. Reconnect positive first and negative last.
- Use care when checking the reel. Wear gloves and use caution when servicing them.
- Keep hands and feet away from moving parts. If possible, do not make adjustments with the engine running.

Toro Mower Safety

The following list contains safety information specific to Toro products or other safety information that you must know that is not included in the CEN, ISO, or ANSI standard.

This product is capable of amputating hands and feet and throwing objects. Always follow all safety instructions to avoid serious injury or death.

Use of this product for purposes other than its intended use could prove dangerous to user and bystanders.

- Know how to stop the engine quickly.
- Do not operate the machine while wearing tennis shoes or sneakers.
- Wearing safety shoes and long pants is advisable and required by some local ordinances and insurance regulations.
- Handle gasoline carefully. Wipe up any spills.
- Check the safety interlock switches daily for proper operation. If a switch should fail, replace the switch before operating the machine. After every two years, replace all interlock switches in the safety system, **regardless** if they are working properly or not.
- Always stand behind the handle when starting and operating the machine.
- To start and stop the engine:
 - A. Open fuel shut-off valve.
 - B. Verify that the traction and reel drive control levers on handle are in Neutral position.
 - C. Move on/off switch to ON position, set choke to full choke position (cold start) and throttle to half throttle.
 - D. Pull starter cord to start engine.
 - E. Move throttle to Slow and on/off switch to Off position to stop engine.
- To transport mower from one area to another:
 - F. Install transport wheels.
 - G. Disengage reel drive.
 - H. Start engine.
 - I. Press down on handle to raise front of mower and engage traction drive.
- Before beginning mowing operation:
 - J. Disengage traction drive.
 - K. Stop engine.

L. Remove transport wheels.

M. Start engine

N. Engage reel drive.

- Using the machine demands attention. To prevent loss of control:
 - Do not drive close to sand traps, ditches, creeks, or other hazards.
 - Reduce speed when making sharp turns. Avoid sudden stops and starts.
 - When near or crossing roads, always yield the right-of-way.
 - Apply the service brakes when going downhill to keep forward speed slow and to maintain control of the machine.
- The grass basket must be in place during operation of the reels or thatchers for maximum safety. Shut the engine off before emptying the baskets.
- Do not touch the engine, muffler, or exhaust pipe while the engine is running or soon after it has stopped because these areas could be hot enough to cause burns.
- Stay clear of the rotating screen at the side of the engine to prevent direct contact with your body or clothing.
- When a person or pet appears unexpectedly in or near the mowing area, **stop mowing**. Careless operation, combined with terrain angles, ricochets, or improperly positioned guards can lead to thrown object injuries. Do not resume mowing until the area is cleared.

Maintenance and Storage

- Check all fuel lines for tightness and wear on a regular basis. Tighten or repair them as needed.
- If the engine must be running to perform a maintenance adjustment, keep hands, feet, clothing, and any parts of the body away from the cutting unit, attachments, and any moving parts, especially the screen at the side of the engine. Keep everyone away.
- To ensure safety and accuracy, have an Authorized Toro Distributor check the maximum engine speed with a tachometer. Maximum governed engine speed should be 3600 RPM.
- If major repairs are ever needed or if assistance is desired, contact an Authorized Toro Distributor.
- Use only Toro-approved attachments and replacement parts. The warranty may be voided if used with unapproved attachments.

Sound Pressure Level

This unit has an equivalent continuous A-weighted sound pressure at the operator ear of: 84 dB(A), based on measurements of identical machines per procedures outlined in Directive 98/37/EC and amendments.

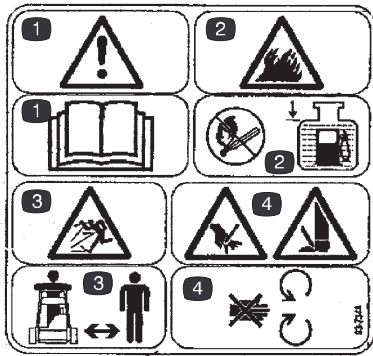
Sound Power Level

This unit has a guaranteed sound power level of: 95 dBA/1 pW, based on measurements of identical machines per Directive 2000/14/EC and amendments.

Safety and Instruction Decals

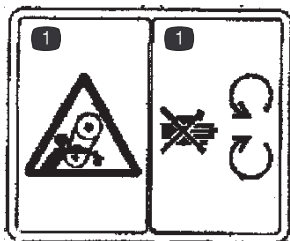


Safety decals and instructions are easily visible to the operator and are located near any area of potential danger. Replace any decal that is damaged or lost.



Part No. 93-7348

1. Danger—read the operator's manual.
2. Fire or open flame—sparks, flame, and smoking prohibited. Fill the fuel tank no higher than to the bottom of the filler neck.
3. Thrown object hazard—keep bystanders away.
4. Cutting hazard to fingers, hands, and feet—do not open or remove safety shields while engine is running.

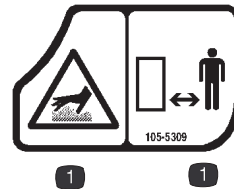


Part No. 93-9356

1. Entanglement hazard—stay away from moving parts.

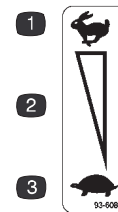
Vibration Level

This unit has a hand-arm vibration level of 4.50 m/s², based on measurements of identical machines per ISO 5349 procedures.



Part No. 105-5309

1. Hot surface hazard—stay away.



Part No. 93-6085

1. Fast
2. Variable speed
3. Slow



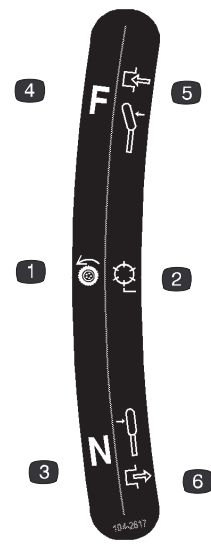
Part No. 93-9886

1. Use unleaded fuel only.



Part No. 104-2618

- | | |
|-----------------------------|--------------------------|
| 1. Parking brake | 3. Parking brake—engaged |
| 2. Parking brake—disengaged | |



Part No. 104-2617

- | | |
|-------------------|---------------------|
| 1. Traction drive | 4. Forward |
| 2. Reel drive | 5. Lever—engaged |
| 3. Neutral | 6. Lever—disengaged |

⚠ WARNING

ESTA MAQUINA PUEDE SER RIESGOSA SI SE USA EN UNA MANERA INAPROPIADA. OPERADORES DEBEN ESTAR MUY BIEN ENTRENADOS EN LA MANERA APROPIADA DE OPERAR LA MAQUINA.

TO MINIMIZE THE RISK OF ACCIDENTS, INJURY OR DEATH:

- READ OPERATOR'S MANUAL
- KEEP PEOPLE AND PETS A SAFE DISTANCE AWAY.
- KEEP ALL GUARDS AND COVERS IN PLACE.
- OPERATOR MUST BE SKILLED AND TRAINED

1



TO GET A REPLACEMENT MANUAL, SEND MODEL AND SERIAL NUMBERS TO:
THE TORO COMPANY, 8111 LYNDALE AVE. S.
BLOOMINGTON, MN 55420-1196.

Part No. 104-2621

1. Read operator's manual



Part No. 93-8064

- | | |
|---|---|
| 1. Danger—read the operator's manual before performing maintenance. | 2. Cutting hazard to hands, fingers, and feet—stop the engine before going near rotating reels. |
|---|---|



Part No. 105-2411

1. Transmission oil

Specifications

General Specifications

Engine	Kawasaki, 4-cycle, 3.7 (2.7 kw) air cooled OHV engine, 3600 RPM, 7.57 cu in. (124 cc) displacement, cast iron cylinder sleeve; electronic ignition with integral lighting coil; maximum noise suppression muffler; 83 dB(A) at operator's ear
Fuel capacity	2.64 qt. (2.5 l); regular grade unleaded gasoline
Traction/implement drive	Integral gearbox assembly directly mounted to the engine. The traction drive consists of a constant mesh planetary gear reduction incorporating a wet bath band-type clutch and brake driving a Peerless differential assembly integrated into the gearbox assembly. The implement drive is a constant mesh gear driven countershaft with integral cone wet clutch.
Ground speed	Mowing speed: 1.3 to 3.5 MPH (2.1 to 5.6 km/h) Transport speed: 5.3 MPH (8.5 km/h) maximum
Traction drum	Dual cast aluminum, 7.5 in. (19 cm) diameter tapered on outer 1/3 of length
Controls	Engine mounted on/off switch, recoil starter, and choke; handle mounted throttle lever, dual function traction/reel control lever, service/parking brake lever; safety devices include neutral interlock system, service/parking brake, enclosed
Handle	Loop style; 1 in. (2.5 cm) diameter with easy pull pin height adjustment, operator selected
Optional Transport tires	Two quick detachable pneumatic tires; 3.00/3.25 x 6, 3.25 in. (8.25 cm) tread width; 15 psi (1.03 bars) tire pressure
Reel construction	5 in. (12.7 cm) diameter, 11 high strength, low alloy steel blades, through hardened, impact resistant
Suspension	Semi-floating cutting unit separable from drive unit pivoting around reel centerline (pitch axis) and pivoting around bedknife centerline side to side (roll axis)
Width of cut	21 in. (53.3 cm)
Height of cut	1/16 to 19/64 in. (1.5 to 7.5 mm) with Micro-Cut bedknife
Clip frequency	11 blade (standard): .16 in. (4.1 mm) 11 blade w/clip kit: .14 or .21 in. (3.5 or 6.4 mm)
Bedknife/bedbar	Dual screw adjustment to reel; bedknife is high carbon through-hardened steel; micro-cut bedknife standard
Grass basket	Molded polyethylene with integrated graphics highlighting overlap guidelines; vented for high efficiency collection
Rollers	Front roller: aluminum Wiehle, 2.5 in. (6.35 cm) diameter, .20 spacing, with sealed bearings and multi-lip seals standard Rear roller: aluminum full roller, 2 in. (5.1 cm) diameter with sealed bearings and multi-lip seals standard
Dry weight	250 lb. (114 kg) with aluminum Wiehle roller, kickstand and grass basket; without transport tires and groomer

Dimensions

Width	35–1/4"
Height	40"
Length	54"

Optional Equipment

Transport Wheel Kit	Model No. 04122
Light Kit	Model No. 04058
Grooming Reel Kit	Model No. 04201
11 Blade Cutting Unit	Model No. 04200
Wiehle Roller (.92 spacing)	Part No. 99-6215
Tournament Bedknife	Part No. 93-4263
1/8 in. Bedknife	Part No. 93-4264
Clip Kit	Part No. 105–5325
Hour Meter Kit	Part No. 105–5350
Spark Arrester Kit	Part No. 98-3426
High Altitude Jet (for altitudes of 3000 to 6000 ft.)	Part No. 98-8735
High Altitude Jet (for altitudes above 6000 ft.)	Part No. 98-8736
Extended Micro–cut	Part No. 104–7720
Operator Presence Kit	Part No. 105–5333
8 Blade Reel Assembly	Part No. 105–2400
Full Roller	Part No. 104–9796

Setup

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

Loose Parts Chart

Note: Use this chart as a checklist to ensure all parts necessary for assembly have been shipped. If any of these parts are missing, total setup cannot be completed.

Description	Qty.	Use
Grass basket	1	Install on the machine.
Operator's manual	1	Read before operating the machine.
Engine operator's manual	1	Read before operating the machine.
Parts catalog	1	
Operator video	1	View before operating the machine
Certificate of compliance	1	
Registration cards	2	Fill out and return to Toro.

Installing the Handle

1. Remove the flange lock nut from the capscrew and pivot pin on each side of the mower (Fig. 3).

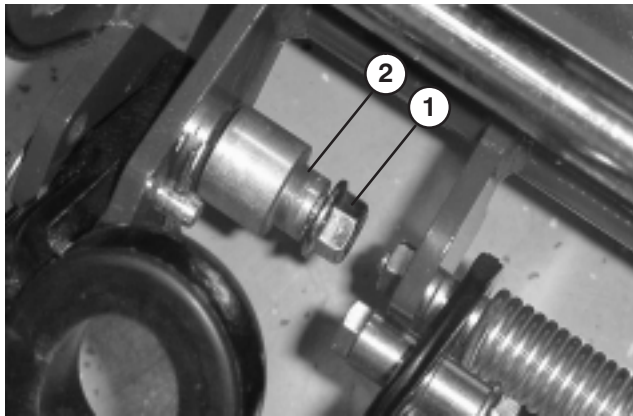


Figure 3

1. Flange lock nut
2. Pivot pin

2. Insert the handle ends through the slots in the handle support arms (Fig. 4).
3. Squeeze the handle ends inward and install them on the step of the pivot pin (Fig. 4).

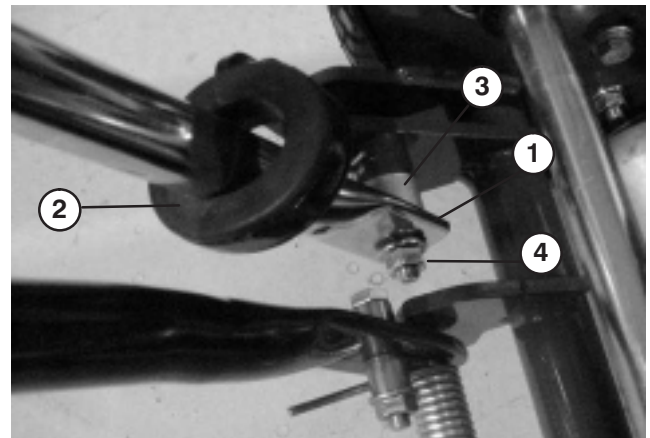


Figure 4

1. Left handle end
 2. Support arm
 3. Pivot pin
 4. Locknut
4. Secure the handle to the capscrew and pivot pin with the flange lock nut (Fig. 4).
 5. Locate cable tie loosely securing throttle cable to wire harness. Position cable tie approximately one inch behind transmission and tighten cable tie.

Adjusting the Handle

1. Remove hairpin cotters from ring pins on each side of mower (Fig. 5).

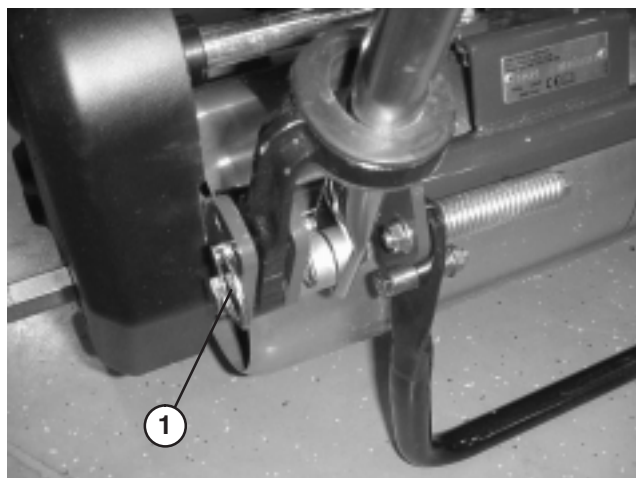


Figure 5

1. Ring pins
-
2. While supporting handle, remove ring pins from each side and raise or lower handle to desired operating position (Fig. 5).
 3. Reinstall ring pins and hair pin cotters.

Installing the Transport Wheels

1. Push kick stand down with foot and pull up on handle to support mower on kick stand.
2. Apply Anti-Seize lubricant to the exposed ends of axles and slide wheel onto axle (Fig. 6).

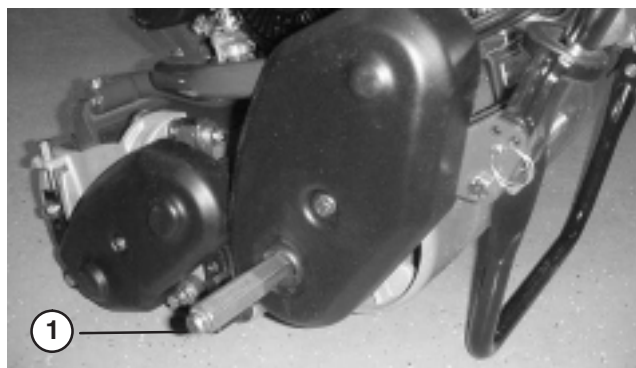


Figure 6

1. Left axle shaft
-

3. Pivot wheel locking clip away from center of wheel allowing wheel to slide farther onto axle (Fig. 7).
4. Rotate wheel back and forth until it slides completely onto axle and locking clip is secured in groove on axle shaft.

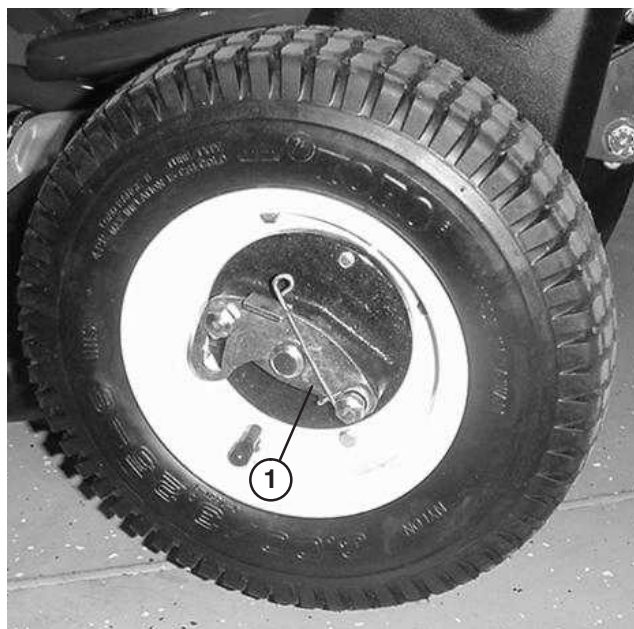


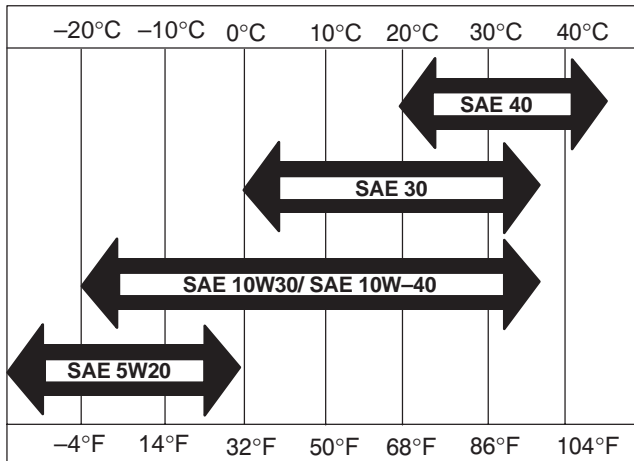
Figure 7

1. Locking clip
-
5. Repeat procedure on opposite side of machine.
 6. Tires to be inflated to 12–15 psi.

Before Operating

Adding Engine Oil

Crankcase must be filled with approximately 20 fluid ounces of proper viscosity oil before starting. The engine uses any high-quality oil having the American Petroleum Institute — API — “service classification” SF, SG, SH or SJ. Oil viscosity — weight — must be selected according to ambient temperature. Temperature/viscosity recommendations are:



Note: Using multi-grade oils (5W-20, 10W-30, and 10W-40) will increase oil consumption. Check the oil level more frequently when using them.

1. Position mower so the engine is level and clean around oil level gauge (Fig. 8).

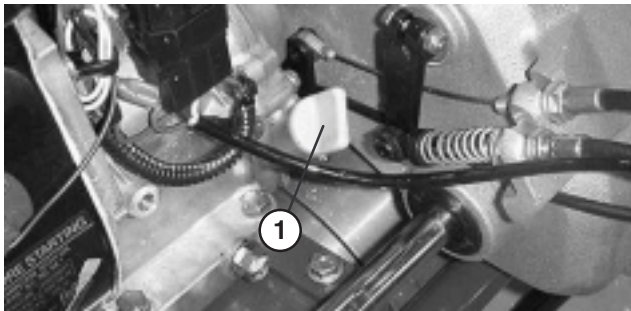


Figure 8

1. Oil level gauge

2. Remove gauge by rotating counterclockwise.

3. Wipe gauge clean and insert it into filler port. Then remove and check level of oil. Do not screw into port. If level is low, add only enough oil to raise level to bottom of filler opening. Recheck level of oil. Do not overfill.

Note: The Toro Company recommends that the oil level be checked each time mower is used or after every 5 operating hours. Initially, change oil after the first 20 hours of operation; thereafter, change oil after every 50 hours of operation. More frequent oil changes are required in dusty or dirty conditions.

Filling the Fuel Tank

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

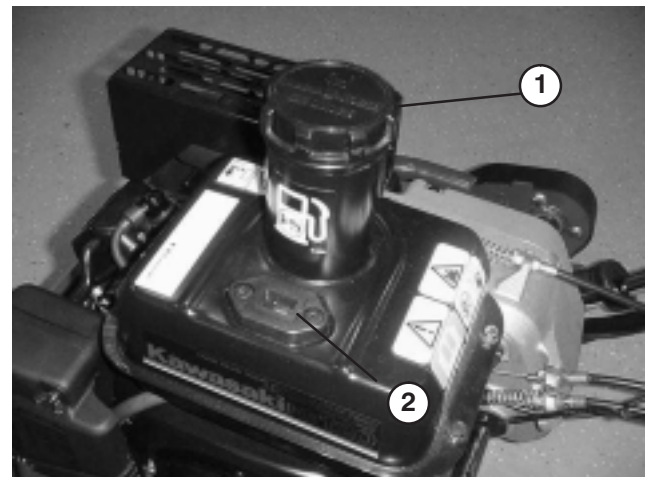


Figure 9

1. Fuel tank cap
2. Fuel gauge



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.



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.
- Do not fill the fuel tank completely full. Add gasoline to the fuel tank until the level is 1/4 to 1/2 in. (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.
- 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.

1. Clean around fuel tank cap and remove cap from tank (Fig. 9). Using unleaded gasoline, fill fuel tank no higher than to bottom of filter screen. **Do not overfill.**
2. Install fuel tank cap and wipe up any spilled gasoline.

Checking the Transmission Fluid

The transmission is filled at the factory with approximately 94 fluid ounces of Dexron III automatic transmission fluid. **Check fluid level before the engine is first started and every 50 hours thereafter.**

Note: The seals used in the transmission are internally lubricated with grease. During initial operation of mower, slight weeping of grease from these seals will occur. Wipe off excess grease.

Important Use only Dexron III or equivalent transmission fluids. Other fluids could cause system damage.

1. Place the mower on its drums on a level surface.
2. Remove the check/fill plug from the right-hand side of the transmission (Fig. 10). The oil level should come to the bottom of the fill hole. If it does not, add enough of the proper oil type until the level reaches the bottom of the fill hole.

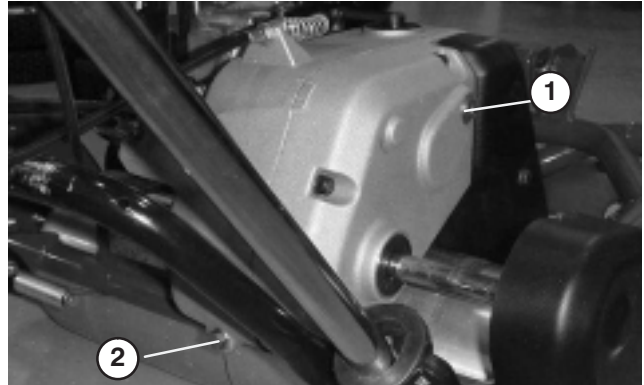


Figure 10

1. Check/fill plug
2. Drain plug

3. Install the plug.

Separating the Cutting Unit from the Traction Unit

1. Place the mower on its drums on a level surface.
2. Lower kick stand. Insert a 1/4" dia. pin or equivalent into frame hole above kick stand mounting bolt (Fig. 11).

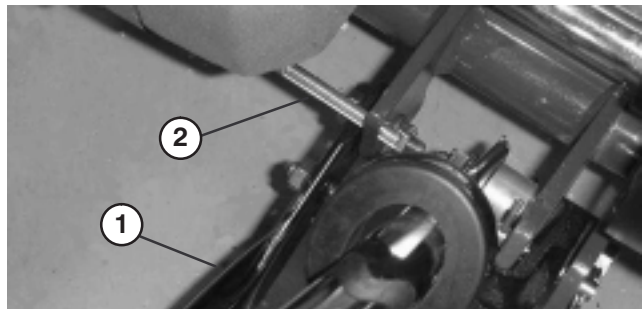


Figure 11

1. Kick stand
2. 1/4" Pin

3. Remove grass basket.
4. Remove (2) capscrews securing cutting unit pivot arms to traction unit frame tube (Fig. 12).

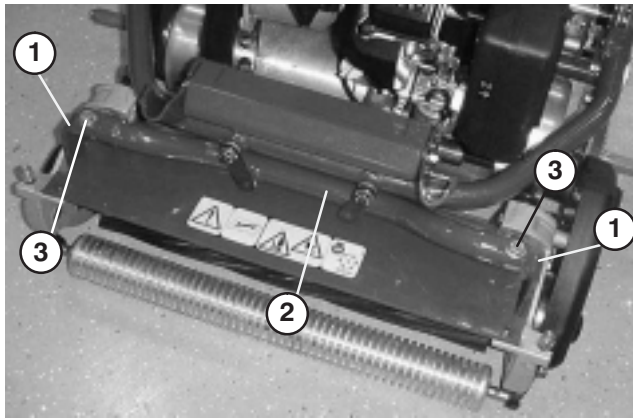


Figure 12

- | | |
|-----------------------------|--------------|
| 1. Cutting unit pivot arms | 3. Capscrews |
| 2. Traction unit frame tube | |

5. Rotate pivot arms forward (Fig. 12) and rest traction unit on restrained kickstand.
6. Pull cutting unit forward about 2 in. (51 mm) and then to the right to disengage the transmission coupling (Fig. 12).

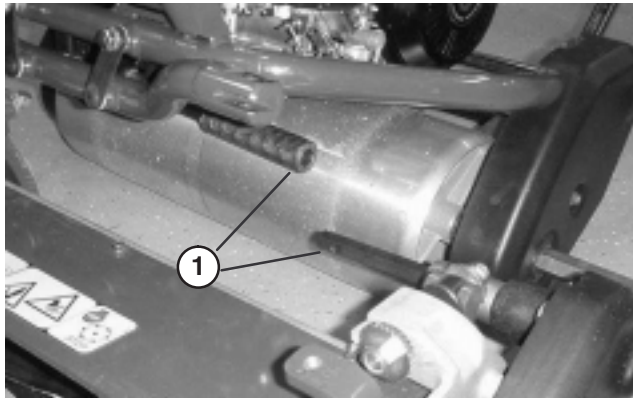


Figure 13

- | | |
|--------------------------|----|
| 1. Transmission coupling | 2. |
|--------------------------|----|

7. Reverse procedure to install cutting unit.

Leveling the Rear Roller to the Reel

1. Position cutting unit on a flat, level surface preferably a precision ground surface plate.
2. Place a 1/4 in. (6.4 mm) or thicker plate under the reel blades and against front edge of bedknife.

Note: Be sure the plate covers the full length of the reel blades and three blades contact.

3. Firmly press down on cutting unit and maintain pressure on rear roller. Try inserting a piece of paper under each end of the roller. If the gap is greater than the piece of paper, on either end, an adjustment may be required, proceed to step 4.
4. Loosen locknuts securing right rear roller bracket to cutting unit sideplate (Fig. 14).

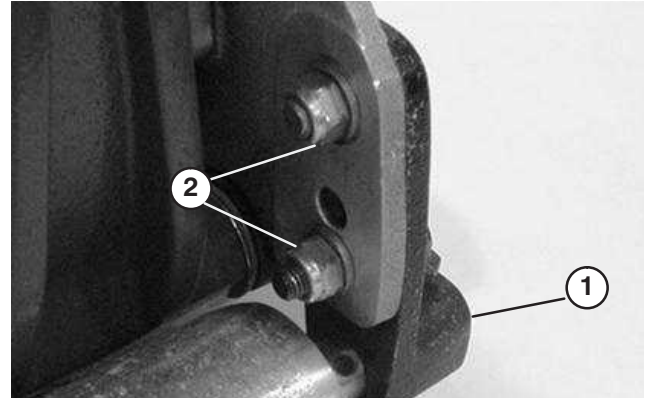


Figure 14

- | | |
|------------------------------|-------------|
| 1. Right rear roller bracket | 2. Locknuts |
|------------------------------|-------------|

5. While holding reel securely on plate and maintaining pressure on rear roller, rotate lower right roller mounting bolt (Fig. 15). This mounting bolt has an offset, which when rotated, acts as an eccentric (cam) to raise or lower the roller. There is an I.D. dot which denotes the offset of the bolt. Dot indicates in which direction right end of roller moves when bolt is turned and should always be in the rear half of the arc as shown in figure 15.

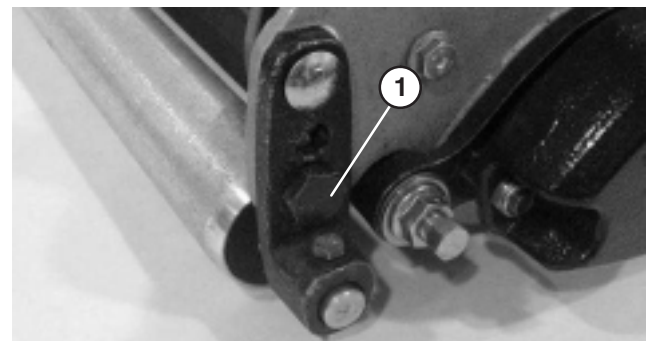


Figure 15

- | |
|-------------------|
| 1. Eccentric bolt |
|-------------------|

Note: If additional adjustment is required, replace the screw on the left-hand bracket with another eccentric bolt, Part No. 105-3833. Ensure both rear roller brackets are in the same hole.

6. To verify if roller is level, try inserting a piece of paper under each end of roller.

7. When roller is level, tighten nuts securely.

Adjusting the Bedknife to the Reel

Bedknife to reel adjustment is accomplished by loosening or tightening bedbar adjusting screws, located on top of mower.

1. Position machine on a flat, level work surface. Make sure reel contact is removed by turning bedbar adjusting screws counterclockwise (Fig. 16).



Figure 16

1. Bedbar adjusting screw

2. Tilt mower on back to expose bedknife and reel.
3. At one end of reel, insert a long strip of newspaper between reel and bedknife (Fig. 17). While slowly rotating reel forward, turn bedbar adjusting screw clockwise (on same end of reel, one click at a time, until paper is pinched lightly, when inserted from the front, parallel to the bedknife. A slight drag will be noted as the paper is pulled (Fig. 16).



Figure 17

Note: Each time adjusting screw is rotated one click clockwise, bedknife moves .0007 in. closer to reel. **Do not overtighten the adjusting screws.**

4. Check for light contact at other end of reel using paper and adjust as required.
5. After adjustment is accomplished, check to see if reel can pinch paper when inserted from the front and cut paper when inserted at a right angle to the bedknife (Fig. 17). It should be possible to cut paper with minimum contact between the bedknife and the reel blades. Should excessive reel drag be evident it will be either necessary to backlap or regrind the cutting unit to achieve the sharp edges needed for precision cutting (see Toro reel sharpening manual).

Adjusting the Height of Cut

1. Adjust rear roller brackets (Fig. 18) to upper or lower position depending on desired height of cut range.
 - The upper position (factory setting) is used when height of cut settings range from 1/16 to 5/32".
 - The lower position is used when height of cut settings range from 1/8" to 19/64".
2. Verify that rear roller is level and that bedknife to reel contact is correct. Tip mower on back to expose front and rear rollers and bedknife.
3. Loosen locknuts securing height-of-cut arms to cutting unit side plates (Fig. 18).

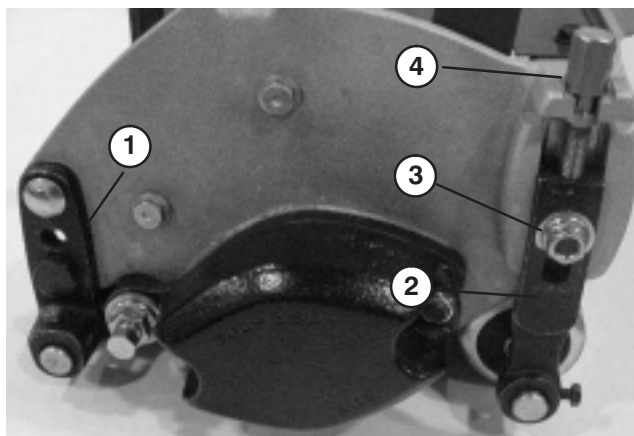


Figure 18

- | | |
|------------------------|--------------------|
| 1. Rear roller bracket | 3. Locknut |
| 2. Height-of-cut arm | 4. Adjusting screw |

- Loosen nut on gauge bar (Fig. 19) and set adjusting screw to desired height-of-cut. Distance between bottom of screw head and face of bar is height-of-cut.

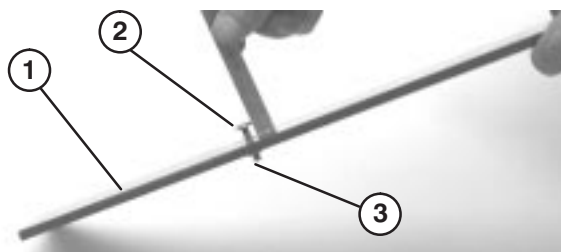


Figure 19

- Gauge bar
- Height adjusting screw
- Nut

- Hook screw head on cutting edge of bedknife and rest rear end of bar on rear roller (Fig. 20).

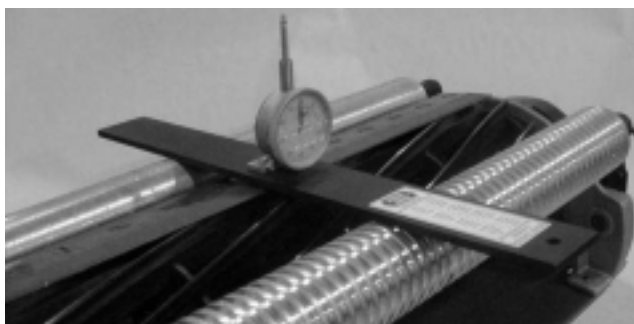


Figure 20

- Rotate adjusting screw until roller contacts front of gauge bar. Adjust both ends of roller until entire roller is parallel to the bedknife.

Important When set properly, the rear and front rollers will contact the gauge bar and the screw will be snug against the bedknife. This ensures that the height-of-cut is identical at both ends of the bedknife.

- Tighten nuts to secure adjustment.

Adjusting the Cut-Off Bar

Adjust cut-off bar to assure clippings are cleanly discharged from the reel area:

- Loosen screws securing top bar (Fig. 21) to cutting unit.

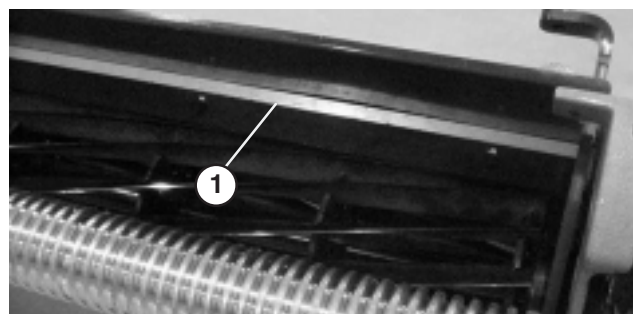


Figure 21

- Cut-off bar

- Insert .060 inch feeler gauge between top of reel and bar and tighten screws. Ensure bar and reel are equal distance apart across complete reel.

Note: The bar is adjustable to compensate for changes in turf conditions. The bar should be adjusted closer to reel when turf is extremely dry. By contrast, adjust bar further away from reel when turf conditions are wet. The bar should be parallel to reel to ensure optimum performance and should be adjusted whenever reel is sharpened on a reel grinder.

Installing the Grass Basket

Grasp basket by top lip and slide basket frame into the receivers (Fig. 22).

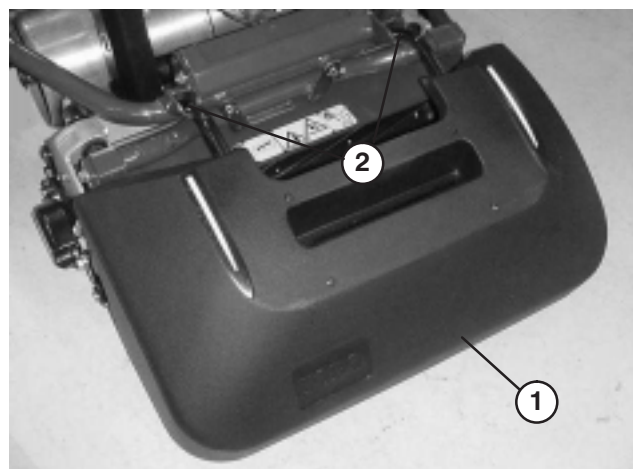


Figure 22

- Grass basket
- Basket receivers

Checking the Interlock Switch Operation



Caution



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

- Do not tamper with the interlock switches.
- Check the operation of the interlock switches daily and replace any damaged switches before operating the machine.
- Replace switches every two years regardless of whether they are operating properly or not.

1. Push kick stand down with foot and pull up on handle to support mower on kick stand.
2. Place traction lever into Engage position and engine controls in starting position.
3. Attempt to start engine. Engine should not start. If engine starts, the interlock switch needs service. Correct problem before operating. Refer to Servicing Interlock Switch, page 30.

Operation

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

Think Safety First

Please carefully read all of the safety instructions and decals in the safety section. Knowing this information could help you or bystanders avoid injury.

Controls

Throttle Control

The throttle control (Fig. 23) is located on rear right side of control panel. Lever connects to and operates throttle linkage to carburetor. Engine speed can be varied from 2400 RPM to 3600 RPM.

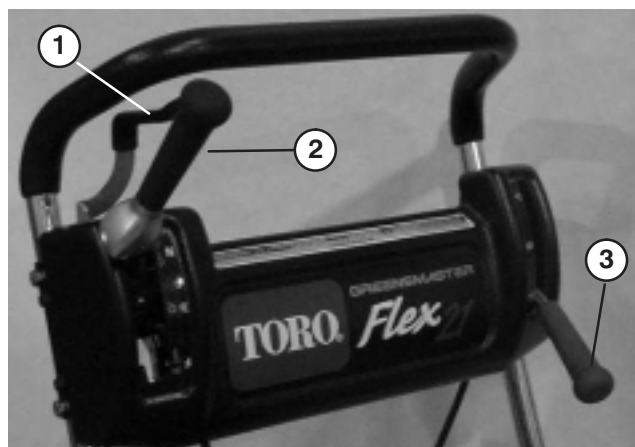


Figure 23

1. Throttle control
2. Traction & reel drive engagement lever
3. Service/parking brake

Traction and Reel Drive Engagement Lever

The traction and reel drive engagement lever (Fig. 23) is located on front right side of control panel. Traction lever has two positions: Neutral and Forward. Pushing lever forward engages traction drive.

The reel drive lever has two positions: Engage and Disengage. Move top of lever to the left to engage reel or back to neutral to disengage reel.

Service/Parking Brake

The service/parking brake (Fig. 23) is located on left front side of control panel. Use brake to slow or stop machine. The brake can also be used as a parking brake. Pulling the lever back over center will set the parking brake. Brake must be released before traction drive is engaged.

Operator Presence Control

The optional operator presence control must be engaged before engaging the traction lever or the engine will stop.

Choke Lever

The choke lever (Fig. 24) is located on left front of engine. Lever has two positions: Run and Choke. Move lever to Choke position when starting a cold engine. After engine starts move lever to Run position.

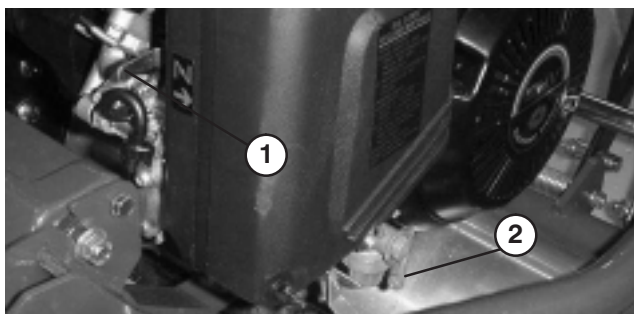


Figure 24

1. Choke lever 2. Fuel shut-off valve

Fuel Shut-Off Valve

The fuel shut-off valve (Fig. 24) is located on left front of engine. Valve has two positions: Closed and Open. Move lever to closed position when storing or transporting machine. Open valve before starting engine.

Recoil Starter

Pull recoil starter handle (Fig. 25) to start engine.

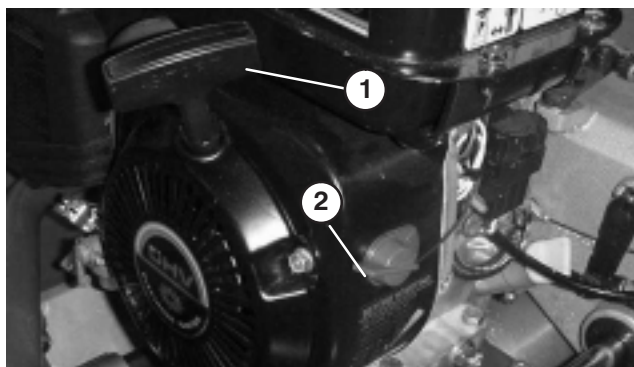


Figure 25

1. Recoil starter 2. On/off switch

On/Off Switch

The on/off switch (Fig. 25) is located on rear of engine. Move switch to On position to start engine and Off to stop engine.

Kickstand

The kickstand (Fig. 26) is mounted to rear of machine and is used to raise rear of machine for installation or removal of transport wheels.

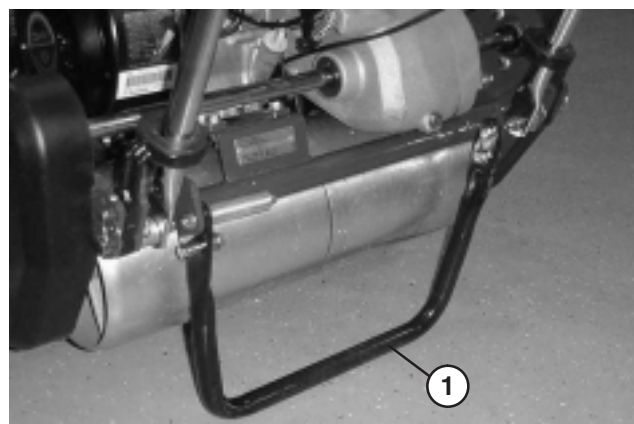


Figure 26

1. Kick stand

Starting and Stopping

Note: Make sure spark plug wire is installed on spark plug.

1. Make sure traction and reel drive levers are in Disengaged position.

Note: Engine will not start if traction lever is in the engaged position.

2. Open fuel shut-off valve on engine (Fig. 24).
3. Move on/off switch (Fig. 25) to On position.
4. Move throttle control (Fig. 23) to Fast position.
5. Move choke lever (Fig. 24) to half-open position when starting a cold engine. Choke may not be required when starting a warm engine.
6. Pull recoil starter handle out until positive engagement results, then pull vigorously to start engine. Open choke as engine warms up.

Important Do not pull recoil rope to its limit or let go of starter handle when rope is pulled out because rope may break or recoil assembly may be damaged.

7. To stop engine during operation, move traction and reel drive controls to Disengaged position, throttle control to Slow and on/off switch to Off.
8. Pull spark plug wire off spark plug to prevent the possibility of accidental starting before storing machine.
9. Close fuel shut-off valve before storing or transporting mower in a vehicle.

Transport Operation

1. Push kickstand down with foot and pull up on handle to raise rear of mower and install transport wheels.
2. To release kickstand, pull up on handle and lower rear of mower onto transport wheels.
3. Ensure traction and reel drive controls are in Disengage position and start engine.
4. Set throttle control to Slow, tip front of machine up gradually engage traction drive and slowly increase engine speed.
5. Adjust throttle to operate mower at desired ground speed and transport mower to desired destination.

Preparing to Mow

1. Return traction control lever to Disengage, throttle to Slow and stop engine.
2. Push kickstand down with foot and pull up on handle to raise wheels off the ground.
3. Remove transport wheels.
4. Release kickstand.

Mowing Operation

Proper use of the machine provides the smoothest turf cutting available.

Important Grass clippings act as a lubricant when mowing. Excessive operation of the cutting unit with the absence of grass clippings can damage the cutting unit.

Prior to Mowing

Be sure the mower is carefully adjusted and is set evenly on both sides of the reel. Improper mower adjustment is magnified in the appearance of the clipped turf. Remove all foreign objects from turf prior to mowing. Make sure everyone, especially children and pets, are clear of the work area.

Method of Mowing

The greens should be mowed in a straight back and forth direction across the green. Avoid circular mowing or turning the mower on greens areas since scuffing may occur. Turning the mower should be done off the green by raising the cutting reel (pushing the handle down) and turning on the traction drum. Mowing should be done at a normal walking pace. Fast speeds saves very little time and will result in an inferior mowing job.

To assist in maintaining a straight line across the green and to keep the machine an equal distance from the edge of the previous cut, use the alignment stripes on the basket (Fig. 27).

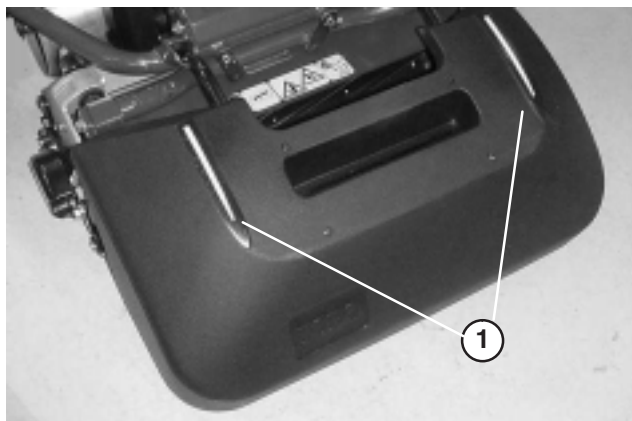


Figure 27

1. Alignment stripes

Control Operation

To operate the controls while mowing:

1. Start the engine, set the throttle at reduced speed, push down on handle to raise cutting unit, move traction lever to Engaged position and transport mower onto collar of green (Fig. 28).
2. Move traction lever to Disengaged position and Engage reel drive lever (Fig. 28).

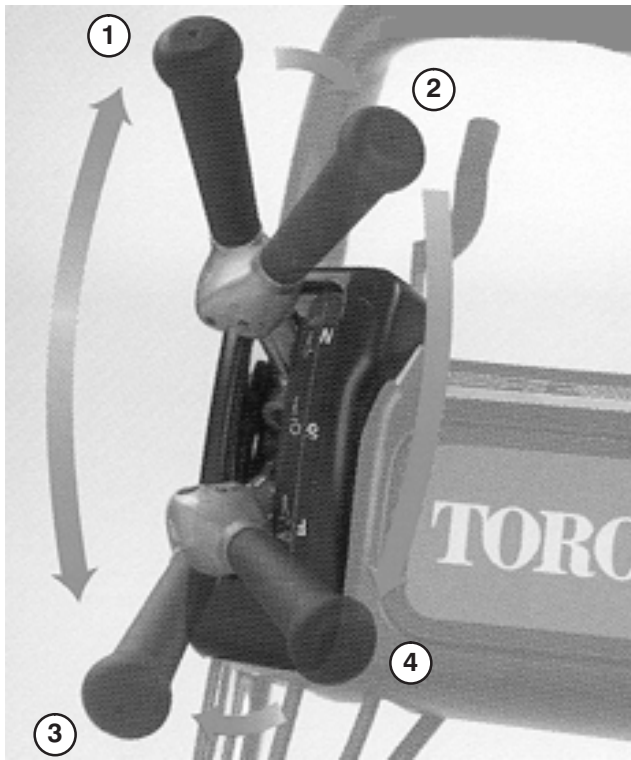


Figure 28

- | | |
|--|--|
| 1. Traction drive —neutral | 3. Traction drive—engaged (transport) |
| 2. Traction drive neutral & reel drive off | 4. Traction drive & reel drive engaged |

3. Move traction lever to Engaged position, increase throttle speed until the mower is traveling at the desired ground speed, drive the mower out onto the green area, lower the front of the mower down and commence operation (Fig. 28).

After Mowing

1. Drive off green, move reel drive and traction control levers to Disengage and stop the engine.
2. Empty the grass catcher of clippings, install grass catcher and commence transport operation; refer to Transport Operation, page 20.

Maintenance

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

Recommended Maintenance Schedule

Maintenance Service Interval	Maintenance Procedure
After first 20 hours	<ul style="list-style-type: none">• Change the engine oil.• Clean the fuel filter.
After first 50 hours	<ul style="list-style-type: none">• Change the transmission fluid.
Every 25 hours	<ul style="list-style-type: none">• Service the air filter pre-cleaner.• Check for loose fasteners.
Every 50 hours	<ul style="list-style-type: none">• Clean the fuel filter and sediment bowl.• Change the engine oil.• Check the transmission fluid level.
Every 100 hours	<ul style="list-style-type: none">• Check the cut-off bar adjustment.• Service the air cleaner filter.• Check the gear case oil level.
Every 200 hours	<ul style="list-style-type: none">• Clean the combustion chamber.• Replace the spark plug.• Adjust the valves and torque the head bolts.
Every 2 years	<ul style="list-style-type: none">• Replace safety interlock switch.• Change the transmission fluid.

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

Daily Maintenance Checklist

Duplicate this page for routine use.

Maintenance Check Item	For the week of:						
	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
Check the safety interlock operation.							
Check the parking brake operation.							
Check that pivot joints operate freely.							
Check the fuel level.							
Check the engine oil level.							
Check the air filter.							
Clean the engine cooling fins.							
Check for unusual engine noises.							
Check for unusual operating noises.							
Check the reel-to-bedknife adjustment.							
Check the height-of-cut adjustment.							
Touch up damaged paint.							

Notation for Areas of Concern

Inspection performed by:		
Item	Date	Information
1		
2		
3		
4		
5		
6		
7		
8		

Engine Oil

Check the engine oil level each time the mower is used or after every 5 operating hours. Change the oil after the first 20 operating hours and every 50 hours thereafter. More frequent oil changes are required in dusty or dirty conditions.

Checking the Oil Level

1. Position mower so the engine is level and clean around oil level gauge (Fig. 29).

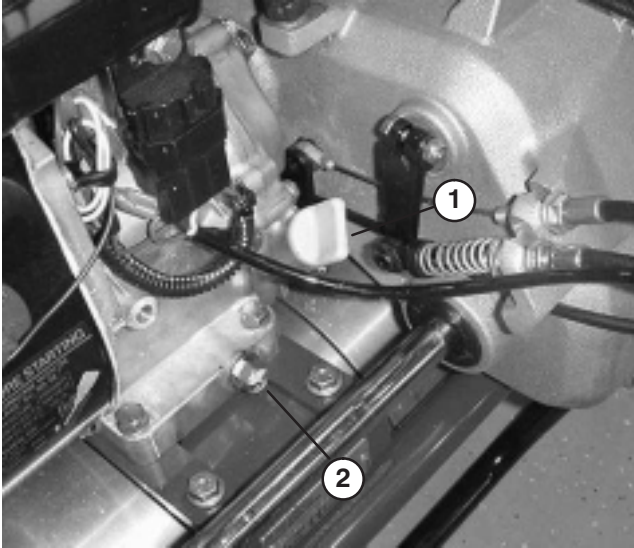


Figure 29

1. Oil level gauge
2. Drain plug

2. Remove oil level gauge by rotating it counterclockwise.
3. Wipe oil level gauge clean and insert it into filler port. Do not screw into port. Then remove and check level of oil. If level is low, add only enough oil to raise level to bottom of filler opening. Recheck level of oil. Do not overfill.
4. Reinstall oil level gauge and wipe up any spilled oil.

Changing the Oil

1. Start and run engine for a few minutes to warm the engine oil.
2. Place a drain pan at rear of machine under drain plug (Fig. 29). Remove drain plug.

3. Push down on handle to tip mower and engine backward, allowing more oil to run into drain pan.
4. Install drain plug and refill crankcase with proper oil; refer to Checking the Oil Level, page 24.

Servicing the Air Cleaner

Normally, clean air cleaner after every 25 operating hours. More frequent cleaning is required when mower is operated in dusty or dirty conditions.

1. Make sure wire is off spark plug.
2. Remove wing nuts securing air cleaner cover to air cleaner and remove cover. Clean cover thoroughly (Fig. 30).

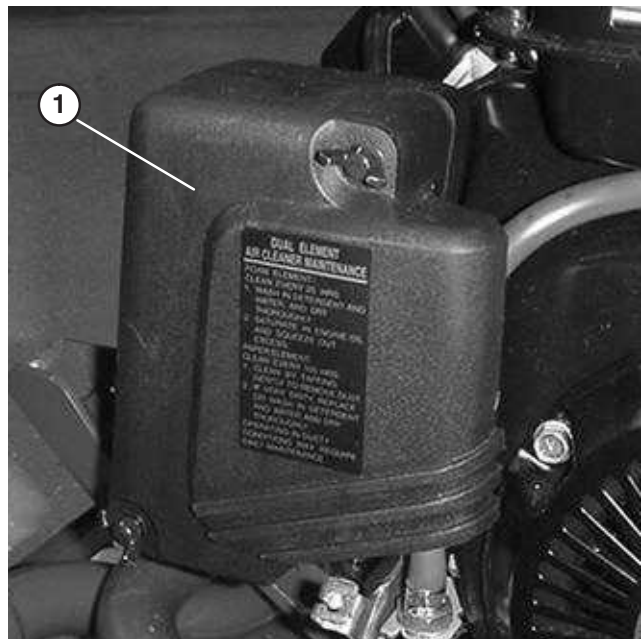


Figure 30

1. Air cleaner cover
3. If foam element is dirty, remove it from paper element (Fig. 31). Clean thoroughly.
 - A. Wash foam element in a solution of liquid soap and warm water. Squeeze to remove dirt, but do not twist because foam may tear.
 - B. Dry by wrapping in a clean rag. Squeeze rag and foam element to dry.
 - C. Saturate element with clean engine oil. Squeeze element to remove excess oil and to distribute oil thoroughly. An oil damp element is desirable.

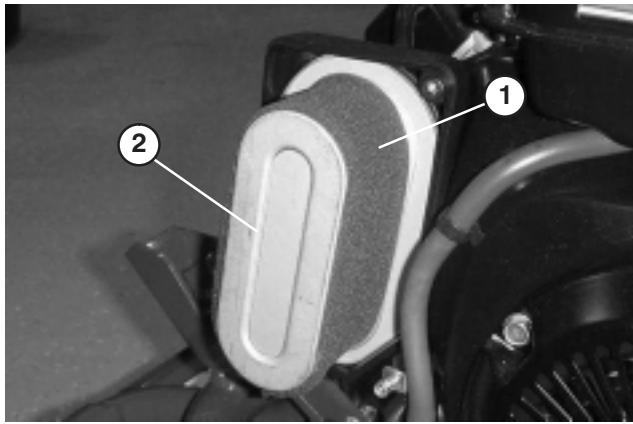


Figure 31

1. Foam element
2. Paper element

4. When servicing foam element, check condition of paper element. Clean or replace as required.
5. Install foam element, paper element, and air cleaner cover.

Important Do not operate the engine without the air cleaner element because extreme engine wear and damage will likely result.

Replacing the Spark Plug

Use an **NGK BPR 5ES** spark plug or equivalent. Correct air gap is 0.028–0.032 in. Remove plug after every 100 operating hours and check its condition.

1. Pull wire off spark plug (Fig. 32).
2. Clean around spark plug and remove plug from cylinder head.

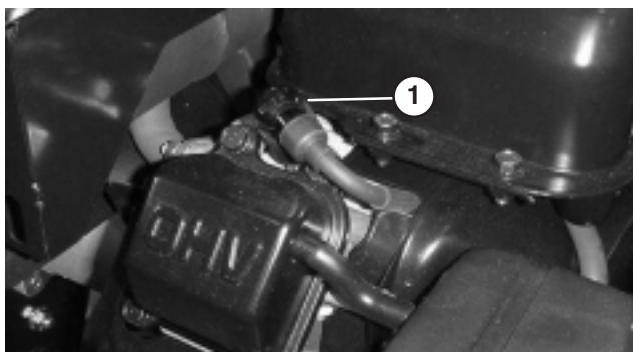


Figure 32

1. Spark plug wire

Important Replace a cracked, fouled, or dirty spark plug. Do not sand blast, scrape, or clean electrodes because engine damaged could result from grit entering the cylinder.

3. Set air gap at 0.028–0.032 in. (Fig. 33). Install correctly gapped spark plug and tighten firmly to 17 ft.-lb.

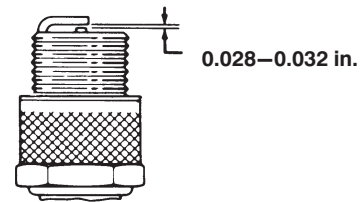


Figure 33

Cleaning the Fuel Filter

Initially, clean fuel filter after the first 20 hours of operation; thereafter clean after every 50 hours operation.

1. Close fuel shut off valve and unscrew bowl from filter body (Fig. 34).

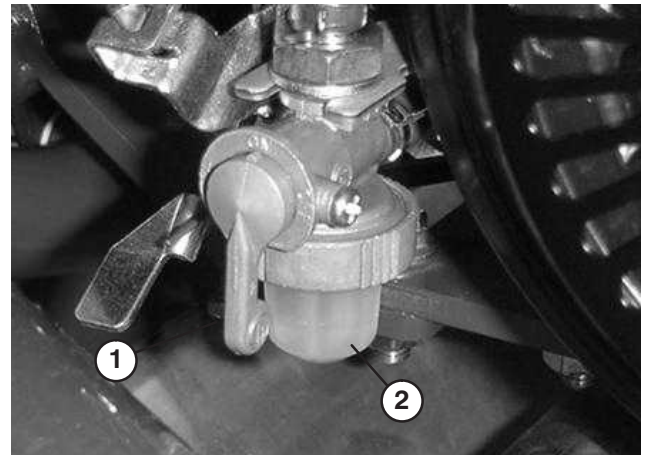


Figure 34

1. Shut-off valve
2. Bowl

2. Clean bowl and filter in clean gasoline and install.

Changing the Transmission Fluid

The fluid level in the transmission should be checked at 50 hour intervals; refer to Checking the Transmission Fluid, page 14. Change the transmission fluid after the first 50 hours of operation and every 2 years thereafter.

Important Use only Dexron III or equivalent transmission fluids. Other fluids could cause system damage.

1. Place a drain pan at the rear of the machine.

2. Remove the drain plug from the rear of the transmission (Fig. 35).

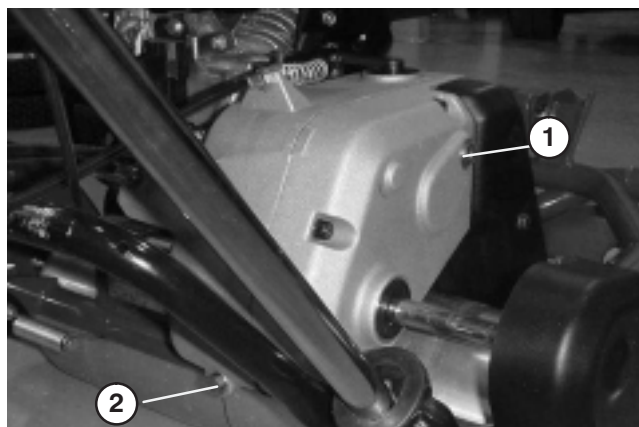


Figure 35

1. Check/fill plug
2. Drain plug

3. Push down on the handle and tip the machine back. Remove the check/fill plug from the right-hand side of the transmission (Fig. 35).
4. When the fluid is drained, install the drain plug.
5. Place the mower on its drums on a level surface.
6. Fill the transmission with approximately 94 fluid ounces of the proper type of transmission fluid until the level reaches the bottom of the check/fill hole; refer to Checking the Transmission Fluid, page 14, for proper oil type.
7. Install the check/fill plug.

Adjusting the Belts

Make sure belts are properly tensioned to assure proper operation of the machine and unnecessary wear. Check belts frequently.

Reel Drive Belt (Reel)

1. Remove the belt cover mounting fasteners and belt cover to expose belt (Fig. 36).

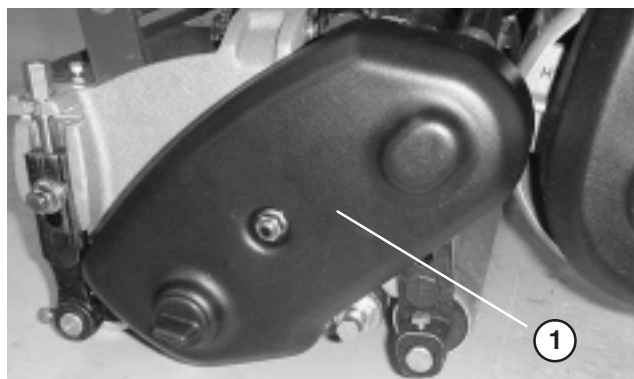


Figure 36

1. Belt cover

2. Check tension by depressing belt (Fig. 37) at mid span of pulleys with 4 ± 1 lb. of force. Belt should deflect $1/4$ in. If deflection is incorrect, proceed to next step.

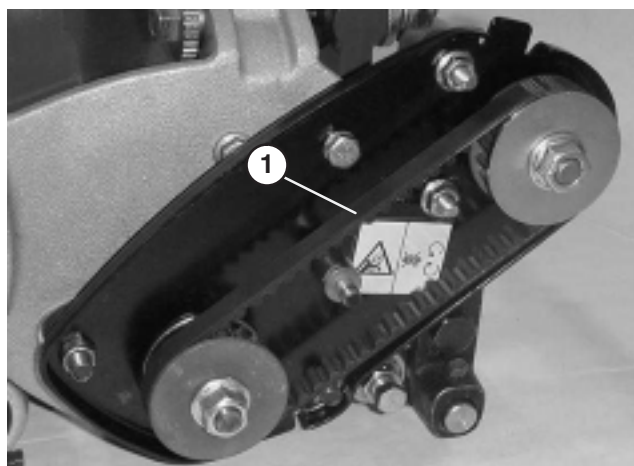


Figure 37

1. Reel drive belt

3. To adjust belt tension:

- A. Loosen the bearing housing mounting nuts (Fig. 38).

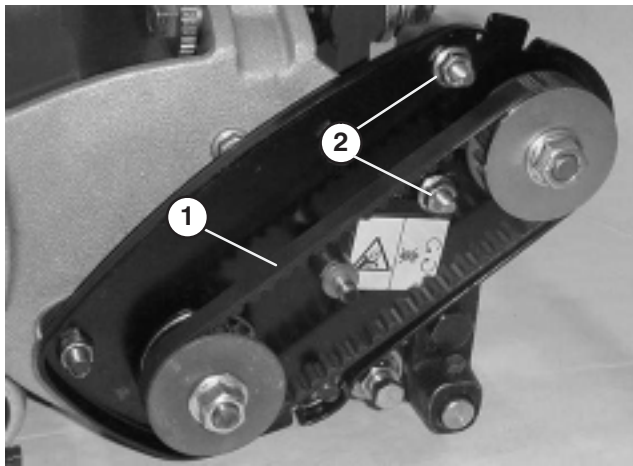


Figure 38

1. Reel drive belt
2. Bearing housing mounting nuts

B. Using a 3/8 in. drive torque wrench, rotate the bearing housing with 35–40 in.-lb. of torque to set belt tension (Fig. 39)

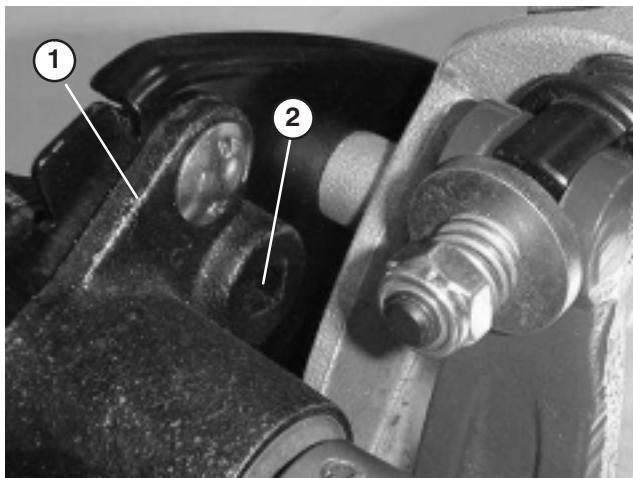


Figure 39

1. Bearing housing
2. 3/8" Torque wrench here

C. Tighten the bearing housing mounting nuts (Fig. 38). **Do not over-tension belt.**

D. Install belt cover.

Reel Drive Belt (Transmission coupler)

1. Remove the belt cover mounting fasteners and belt cover to expose belt (Fig. 40).

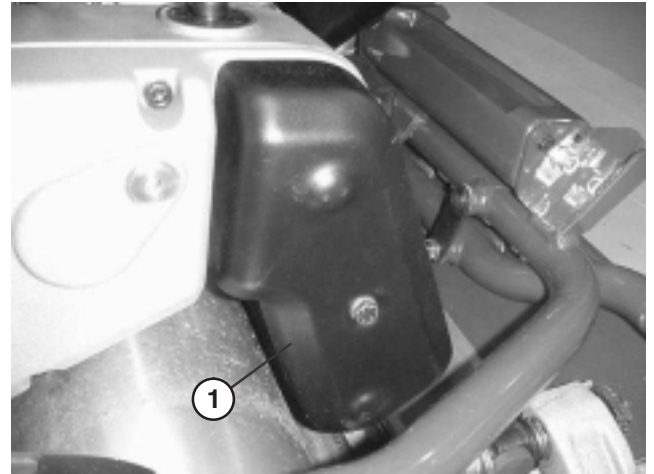


Figure 40

1. Belt cover

2. Check tension by depressing belt (Fig. 41) at mid span of pulleys with 4 ± 1 lb. of force. Belt should deflect 1/4 in. If deflection is incorrect, proceed to next step.

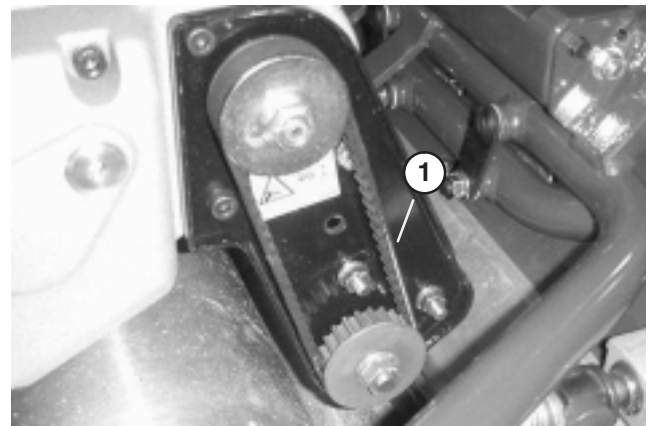


Figure 41

1. Reel drive belt

3. To adjust belt tension:

- A. Loosen the bearing housing mounting nuts (Fig. 38).

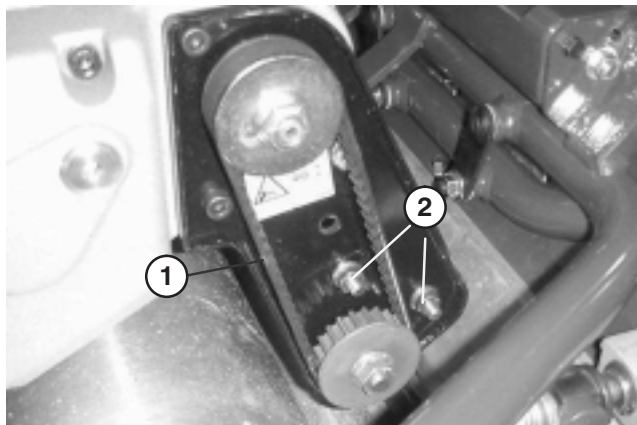


Figure 42

1. Reel drive belt 2. Bearing housing mounting nuts

- B. Using a 3/8 in. drive torque wrench, rotate the bearing housing with 35–40 in.-lb. of torque to set belt tension (Fig. 39).

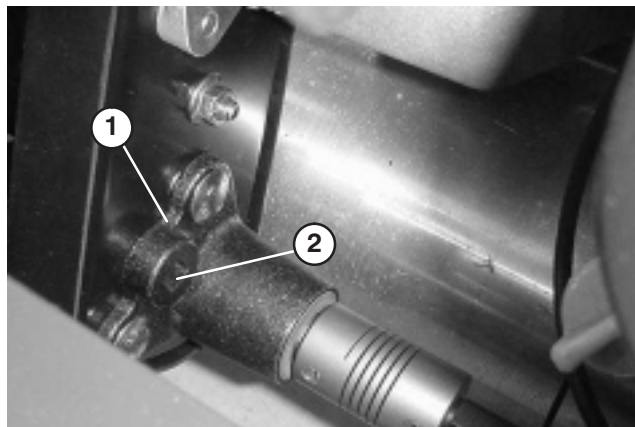


Figure 43

1. Bearing housing 2. 3/8" Torque wrench here

- C. Tighten the bearing housing mounting nuts (Fig. 38). **Do not over-tension belt.**
D. Install belt cover.

Traction Drive Belt

1. Remove belt cover mounting fasteners and belt cover to expose belt (Fig. 44).

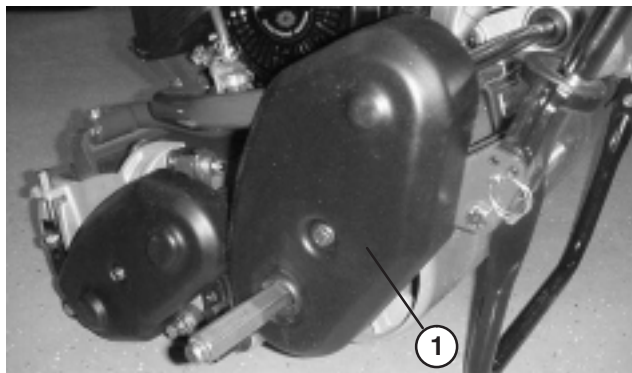


Figure 44

1. Traction drive belt cover

2. Check tension by depressing belt (Fig. 45) at mid span of pulleys with 4 ± 1 lb. of force. Belt should deflect 1/4 in. If deflection is incorrect, proceed to next step.

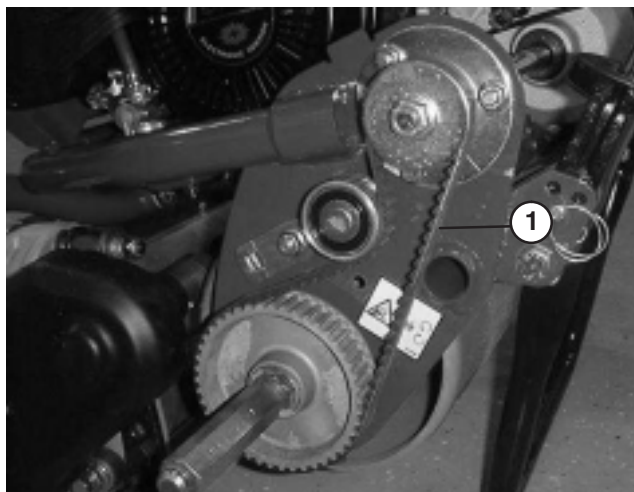


Figure 45

1. Traction drive belt

3. To adjust belt tension:

- A. On back side of side plate, loosen the capscrew securing the idler bracket to the side plate (Fig. 46).

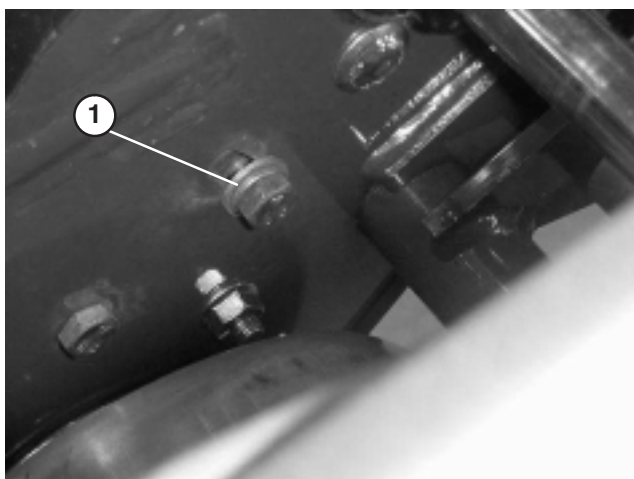


Figure 46

1. Idler bracket cap screw

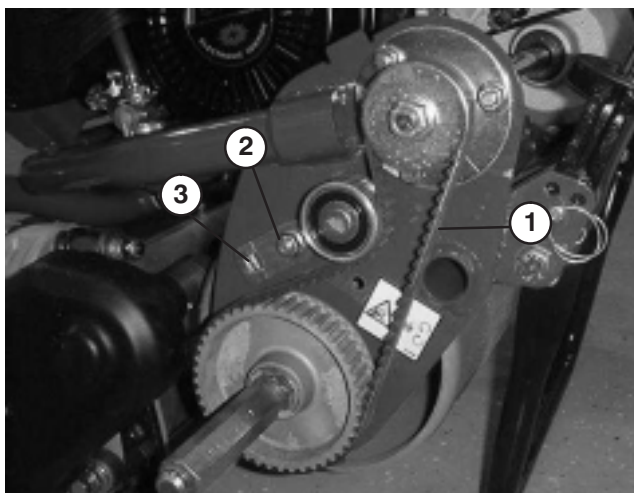


Figure 47

1. Traction drive belt
2. Torque here

B. Using a 3/8 in. drive torque wrench, rotate the idler bracket with 35–40 in.-lb. of torque to set belt tension (Fig. 47). Tighten the idler bracket mounting cap screw. **Do not over-tension belt.**

C. Install belt cover.

Adjusting the Traction Control

If traction control does not engage or it slips during operation, an adjustment is required.

1. Move traction control to Disengaged position.
2. To increase cable tension, loosen front cable jam nut and tighten back cable jam nut (Fig. 48) until a force of 12–16 lb. is required to engage traction control. Force to be measured at control knob.

3. Tighten front cable jam nut.
4. Check control operation.

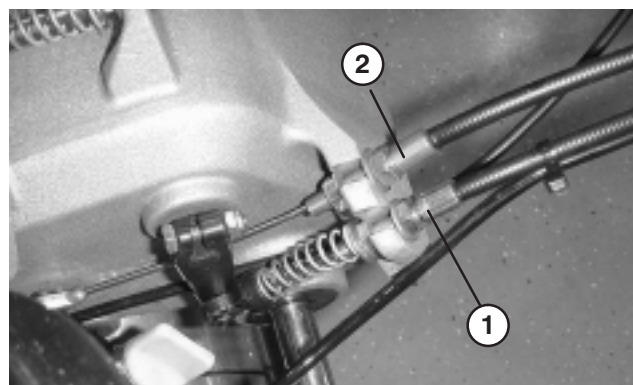


Figure 48

1. Traction cable
2. Service/parking brake cable

Adjusting the Service/Parking Brake

If service/park brake slips when operated, an adjustment is required.

1. Move service/parking brake lever to Off position.
2. To increase cable tension, loosen front cable jam nut and tighten back cable jam nut (Fig. 48) until a force of 6–9 lb. is required to engage brake. Force to be measured at lever knob. Do not over adjust, or brake band may drag.

Adjusting the Reel Control

If reel control does not engage or it slips during operation, an adjustment is required.

1. Make sure traction control is properly adjusted; refer to Adjusting the Traction Control, page 29.
2. To increase cable tension, loosen front cable jam nut and tighten back cable jam nut (Fig. 49) (located on top of gear box) until the reel cable force adds 7 to 10 lbs. of additional handle force measured at the control knob.

Note: If traction control handle force is 12 lbs., the combined traction and reel force should be 19 to 22 lbs.

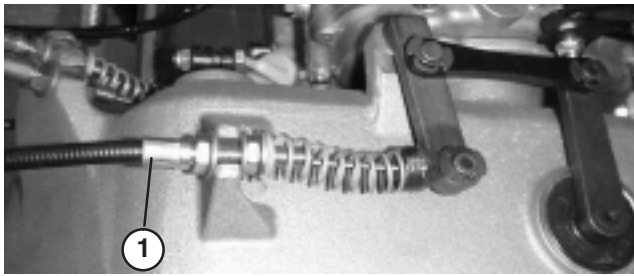


Figure 49

1. Reel control cable

3. Tighten front cable jam nut.
4. Check control operation.

Servicing the Interlock Switch

Use the following procedure should the switch need adjustment or replacement.

1. Make sure the engine is off and traction lever is Disengaged.
2. Engage traction lever until it contacts neutral stop (Fig. 50).

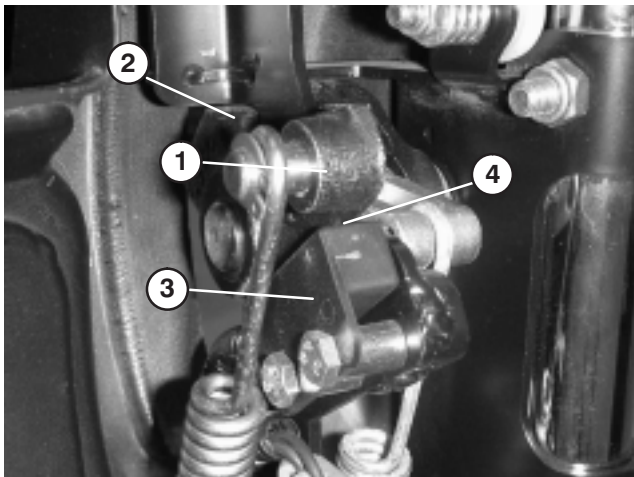


Figure 50

1. Traction lever
2. Neutral stop
3. Interlock switch
4. .032" Gap

3. Loosen interlock switch mounting fasteners (Fig. 50).
4. Place a .032" thick shim between the traction lever and the interlock switch (Fig. 50).
5. Tighten interlock switch mounting fasteners. Recheck gap. The traction lever must not contact the switch.
6. Engage traction lever and verify that the switch loses continuity. Replace if required.

Important Replace interlock switch every 2 years.

Servicing the Bedbar

Removing the Bedbar

1. Turn bedbar adjuster screw, counterclockwise, to back bedknife away from reel (Fig. 51).

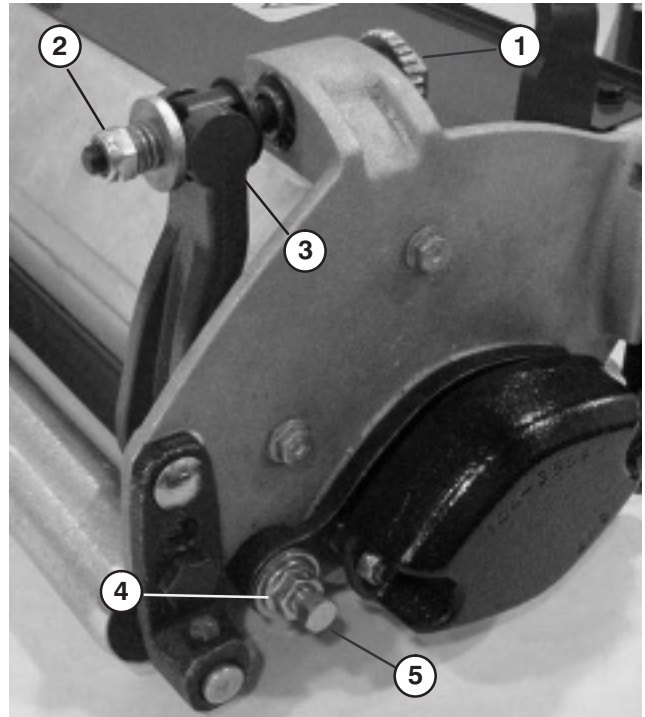


Figure 51

1. Bedbar adjusting screw
2. Spring tension nut
3. Bedbar
4. Jam nut
5. Bedbar bolt

2. Back out the spring tension nut, until the washer is no longer tensioned against the bedbar (Fig. 51).
3. On each side of the machine, loosen the jam nut securing the bedbar bolt (Fig. 51).
4. Remove each bedbar bolt allowing bedbar to be pulled downward and removed from machine. Account for 2 nylon and 2 stamped steel washers on each end of bedbar (Fig. 51).

Assembling the Bedbar

1. Install bedbar, positioning mounting ears between washer and bedbar adjuster.
2. Secure bedbar to each side plate with bedbar bolts (jam nuts on bolts) and 8 washers. A nylon washer is to be positioned on each side of side plate boss. Place a steel washer outside each of the nylon washers. Torque bolts to 240–320 in.-lb. Tighten jam nuts until thrust washers just rotate freely.

3. Tighten spring tension nut until spring is collapsed, then back off 1/2 turn.
4. Adjust bedbar; refer to Adjusting the Bedknife to the Reel, page 16.

Backlapping the Reel

1. Remove plug from the reel drive cover on the left side of reel assembly (Fig. 52)

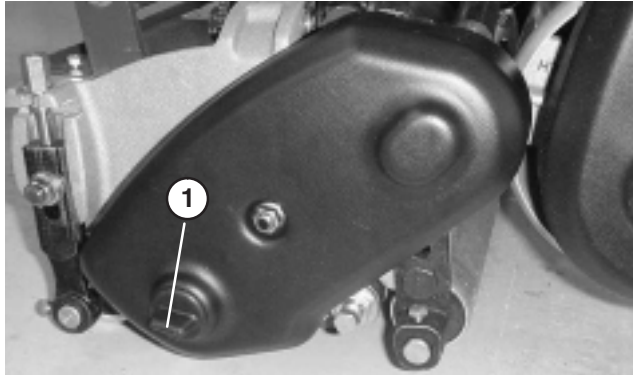


Figure 52

1. Reel drive cover plug
-

2. Insert a 18 mm socket onto hex flange nut on left end of reel shaft.
3. Backlap according to procedure in Toro Sharpening Reel and Rotary Mowers Manual, Form No. 80-300 PT.



Danger



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

- Stay away from the reel while backlapping.
- Never use a short handled paint brush for backlapping. Part No. 29-9100 Handle assembly complete or individual parts are available from your local Authorized Toro Distributor.

Note: For a better cutting edge, run a file across the front face of the bedknife when the lapping operation is completed. This will remove any burrs or rough edges that may have built up on the cutting edge.

4. Reinstall plug when backlap operation is completed.



The Toro General Commercial Products Warranty

A Two-Year Limited Warranty

Conditions and Products Covered

The Toro Company and its affiliate, Toro Warranty Company, pursuant to an agreement between them, jointly warrant your 1996 or newer Toro Commercial Product ("Product") purchased after January 1, 1997, to be free from defects in materials or workmanship for two years or 1500 operational hours*, whichever occurs first. Where a warrantable condition exists, we will repair the Product at no cost to you including diagnosis, labor, parts, and transportation. This warranty begins on the date the Product is delivered to the original retail purchaser.

* Product equipped with 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 800-982-2740
E-mail: commercial.service@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 express 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, modified, or unapproved accessories
- Product failures which result from failure to perform required maintenance and/or adjustments
- 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, blades, reels, bedknives, tines, spark plugs, castor wheels, tires, filters, belts, etc.

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. If all other remedies fail, you may contact us at Toro Warranty Company.

- Failures caused by outside influence. Items considered to be outside influence include, but are not limited to, weather, storage practices, contamination, use of unapproved coolants, lubricants, additives, or chemicals, etc.
- Normal "wear and tear" items. 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 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 factory remanufactured parts rather than new parts for some warranty repairs.

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 printed in your operator's manual or contained in the engine manufacturer's documentation for details.