FORM NO. 3319–594GB

TORO®

MODEL NO. 70084 – 8900001 & UP

OPERATOR'S MANUAL

WHEEL HORSE RECYCLER® RIDER

12.5–32 REAR ENGINE RIDER

TABLE OF CONTENTS

MODEL AND SERIAL NUMBER LOCATION

Model and serial numbers identify the rider and major attachments. Always refer to these numbers when consulting your dealer or factory about service, parts or other information. If the model and serial numbers are removed during repair operations, they should always be replaced.

The model serial number is located on top right side of rider, near the rear wheel.

The engine identification numbers are on the engine shroud and show your rider engine model, specification or type, and serial numbers.

For your convenience and ready reference, enter the rider and engine numbers below.

Rider Model and Serial No:

Model No: _____

Serial No: _____

Engine Identification No:

Model No: _____

Type or Specification No: _____

Serial No: _____

OWNER REGISTRATION AND WARRANTY

Service and warranty assurance are as important to Toro Wheel Horse as it is to you. To simplify warranty service at an Authorized Toro Wheel Horse Dealer, Toro Wheel Horse requires factory registration. We supply a registration card with each new rider and attachment. **Either you or your dealer must supply the required information and mail the card to Toro Wheel Horse.**

Toro Wheel Horse Limited Warranty Statement is on a "hang tag" attached to each product. This statement describes what items are covered by the Toro Wheel Horse Limited Warranty, your rights and obligations, and procedure to obtain warranty service. Please familiarize yourself with the warranty statement. **We want you to be satisfied with your Toro Wheel Horse rider; please don't hesitate to contact us for assistance.**

These symbols mark important instructions relating to your personal safety. To avoid possibility of injury, read and follow such instructions carefully.

DANGER *This symbol warns of extreme immediate hazards which will result in severe personal injury or death if proper precautions are not taken.*

CAUTION *This symbol warns of a hazard or unsafe practice which can result in personal injury or death if proper precautions are not taken.*

When manual refers to left or right side of vehicle, it means your left or right when sitting in driver's seat.

SAFETY

Training

1. Read the instructions carefully. Be familiar with the controls and the proper use of the equipment.
2. Never allow children or people unfamiliar with these instructions to use the lawnmower. Local regulations may restrict the age of the operator.
3. Never mow while people, especially children, or pets are nearby.
4. Keep in mind that the operator or user is responsible for accidents or hazards occurring to other people or their property.
5. Do not carry passengers.
6. All drivers should seek and obtain professional and practical instruction. Such instruction should emphasize:
    - the need for care and concentration when working with ride-on machines;
    - control of a ride-on machine sliding on a slope will not be regained by the application of the brake. The main reasons for loss of control are:
        - insufficient wheel grip;
        - being driven too fast;
        - inadequate braking;
        - the type of machine is unsuitable for its task;
        - lack of awareness of the effects of ground conditions, especially slopes;

Preparation

1. While mowing, always wear substantial footwear and long trousers. Do not operate the equipment when barefoot or wearing open sandals.
2. Thoroughly inspect the area where the equipment is to be used and remove all objects which may be thrown by the machine.
3. WARNING – Petrol is highly flammable.
    - 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 petrol while the engine is running or when the engine is hot.
    - If petrol is spilled, do not attempt to start the engine but move the machine away from the are of spillage and avoid creating any source of ignition until petrol vapors have dissipated.
    - Replace all fuel tanks and container caps securely.
4. Replace faulty silencers.
5. Before using, always visually inspect to see that the blades, blade bolts and cutter assembly are not worn or damaged. Replace worn or damaged blades and bolts in sets to preserve balance.
6. On multi–bladed machines, take care as rotating one blade can cause other blades to rotate.

Operation

1. Do not operate the engine in a confined space where dangerous carbon monoxide fumes can collect.
2. Mow only in daylight or in good artificial light.
3. Before attempting to start the engine, disengage all blade attachment clutches and shift into neutral.
4. Do not use on slopes of more than:
    - Never mow side hills over 5°
    - Never mow uphill over 10°
    - Never mow downhill over 15°

Note: Slope angle is calculated as in 5.4.2.3.2.

5. 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 bumps and hollows and other hidden hazards;
    - never mow across the face of the slope, unless the lawnmower is designed for this purpose.

6. Use care when pulling loads or using heavy equipment.
   - Use only approved drawbar hitch points.
   - Limit loads to those you can safely control.
   - Do not turn sharply. Use care when reversing.
   - Use counterweight(s) or wheel weights when suggested in the instruction handbook.
7. Watch out for traffic when crossing or near roadways.
8. Stop the blades rotating before crossing surfaces other than grass.
9. When using any attachments, never direct discharge of material toward bystanders nor allow anyone near the machine while in operation.
10. Never operate the lawnmower with defective guards, shields or without safety protective devices in place.
11. Do not change the engine governor settings or overspeed the engine. Operating the engine at excessive speeds may increase the hazard of personal injury.
12. Before leaving the operator's position:
    - disengage the power take-off and lower the attachments;
    - change into neutral and set the parking brake;
    - stop the engine and remove the key.
13. Disengage drive to attachments, stop the engine, and disconnect the spark plug wire(s) or remove the ignition key
    - before cleaning blockages or unclogging chute;
    - before checking, cleaning or working on the lawnmower;
    - after striking a foreign object. Inspect the lawnmower for damage and make repairs before restarting and operating the equipment;
    - if the machine starts to vibrate abnormally (check immediately).
14. Disengage drive to attachments when transporting or not in use.
15. Stop the engine and disengage drive to attachment
    - before refuelling;
    - before removing the grass catcher;
    - before making height adjustment unless adjustment can be made from the operator's position.
16. 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.

Maintenance and Storage

1. Keep all nuts, bolts and screws tight to be sure the equipment is in safe working condition.
2. Never store the equipment with petrol in the tank inside a building where fumes may reach an open flame or spark.
3. Allow the engine to cool before storing in any enclosure.
4. To reduce the fire hazard, keep the engine, silencer, battery compartment and petrol storage area free of grass, leaves, or excessive grease.
5. Check the grass catcher frequently for wear or deterioration.
6. Replace worn or damaged parts for safety.
7. If the fuel tank has to be drained, this should be done outdoors.
8. On multi-bladed machines, take care as rotating one blade can cause other blades to rotate.
9. When machine is to be parked, stored or left unattended, lower the cutting means unless a positive mechanical lock is used.

Sound Pressure Level

This unit has an equivalent continuous A-weighted sound pressure at the operator ear of: 87 dB(A), based on measurements of identical machines per ANSI B71.5-1984 procedures.

Sound Power Level

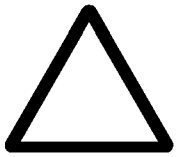
This unit has a sound power level of: 100 dB(A) / 1 pW, based on measurements of identical machines per procedures outlined in Directive 79/113/EEC and amendments. The test surface consisted of a surface of coconut mat surrounded by 2" grass.

Vibration Level

This unit has a maximum vibration level of hand-arm 4.5 m/sec^2 and whole body 0.25 m/sec^2 based on measurement of identical machines per ISO 5349.

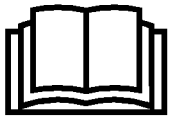
SYMBOL GLOSSARY

Safety alert triangle–symbol within triangle indicates a hazard



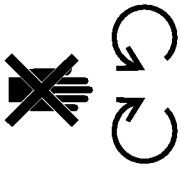
Safety alert symbol

Read operator's manual



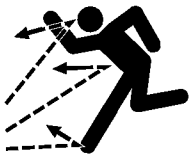
Rotating blade can cut off toes or fingers. Stay clear of blade as long as engine is running

Do not open or remove safety shields while engine is running

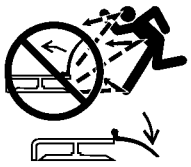


Dismemberment–Rear engine mower in rearward motion

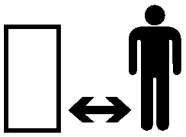
Thrown or flying objects–Whole body exposure



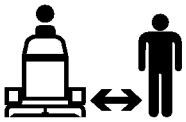
Thrown or flying objects–Rotary side-mounted mower. Keep deflector shield in place



Stay a safe distance from the machine



Stay a safe distance from the machine

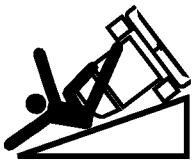


Machine rollover side hill

Machine rollover up hill

Machine rollover down hill

Machine rollover ROPS



Machine travel direction–combined

SYMBOL GLOSSARY

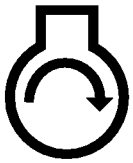
Fast

Slow

Decreasing/Increasing

On/Run

Engine start



Engine stop

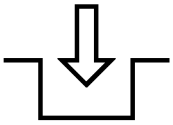
Choke

Brake system

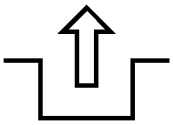
Parking brake

Clutch

Engage



Disengage



Reverse

R

Neutral

N

First gear

1

Second gear

2

Third gear up to maximum # of forward gears

3

Cutting element–basic symbol

Cutting element–height adjustment

Low

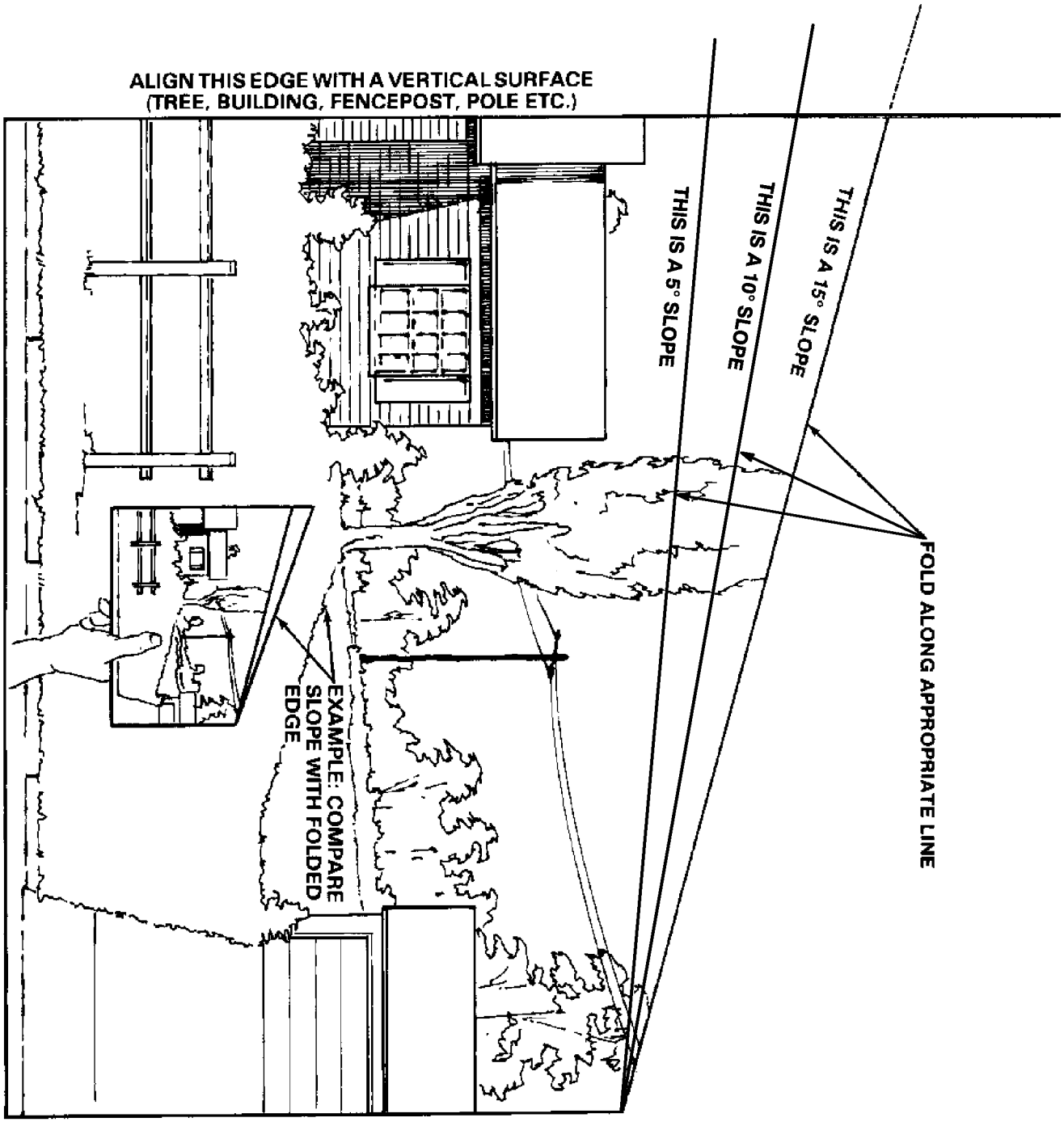
L

High

H

SLOPE CHART

Read all safety instructions.



SPECIFICATIONS

ENGINE:

Briggs & Stratton – I\C Quiet Series, electric start with alternator, 4-cycle engine. Crankcase capacity is 48 oz. (1.42 l) and fuel tank capacity is 5 quarts (4.731 l). The correct spark plug is a Champion RJ-19 LM or equivalent resistor type. Recommended spark plug air gap is 0.030 in. (0.762 mm).

MOWER HOUSING:

Full floating, front to rear, side to side. 13 gauge (2.28 mm) stamped steel housing with right side discharge. Deck diameter is 31.75 inches (.806 m). Cast spindle housing with shaft is supported by two double–seal ball bearings. Blade spindle pulley is driven by an "A" section V-belt from the engine crankshaft.

CUTTER BLADE:

Single blade is 31.35 inches (0.796 m) long, made of one-piece hardened carbon steel.

BLADE TIP SPEED:

12,370 ft./min. (68.07 m/s) @ 2400 engine rpm.

HEIGHT–OF–CUT RANGE:

Height–of–cut is adjustable to one of six approximate settings from 1 inch to 3–1/2 inches (25 to 89 mm).

TRANSMISSION:

The transmission is fully enclosed, permanently lubricated with five speeds forward and one reverse.

WHEELS AND TIRES:

The front 11 x 4.00-5 and the rear 15 x 6.00-6 tubeless, pneumatic turf tires are installed on demountable stamped steel wheels.

GROUND SPEED @ 2400 ENGINE RPM:

1st gear:	0.98 mph (1.58 km/hr)
2nd gear:	1.60 mph (2.57 km/hr)
3rd gear:	2.04 mph (3.28 km/hr)
4th gear:	2.66 mph (4.28 km/hr)
5th gear:	3.41 mph (5.49 km/hr)
Rev. gear:	1.18 mph (1.90 km/hr)

STEERING:

4–spoke, dished steering wheel on pinion and sector gear to tie rods controlling wheels 5.1:1 reduction. Turning diameter is approximately 3.3 ft. (1 m).

ENGINE CONTROLS:

The throttle control has CHOKE, OPERATE, HOT RESTART and IDLE positions. The key switch has OFF, RUN and START positions. Both controls are mounted in a convenient position.

TRANSMISSION CONTROL:

Hand–operated lever on the operator's right side with an in–line shifting pattern.

TRACTION CLUTCH:

A foot–operated pedal on the left side. Depressing the pedal disengages the idler pulley.

BRAKE PEDAL:

A foot–operated pedal on the right side. Depressing the pedal engages the caliper on 2-1/2 inch (64 mm) diameter disc.

PARKING BRAKE CONTROL:

A hand–operated lever on the rear of the steering tower which locks the brake pedal and/or clutch pedal.

CUTTER BLADE CONTROL:

A hand–operated lever to the operator's right releases the blade brake and engages the clutch.

HEIGHT-OF-CUT CONTROL LEVER:

A hand–operated lever to the operator's left. Height–of–cut selection is variable in six increments.

GENERAL DIMENSIONS:

Wheel Base:	45 in (1.14 m)
Tread Width:	30 in (0.76 m) front outside to outside
Length:	60 in (1.52 m)
Height:	38 in (0.97 m)
Width:	40 in (1.02 m)
Weight:	370 lb (167.8 kg)

OPTIONAL ACCESSORIES ATTACHMENTS:

Easy Empty Grass Catcher, Model #79095
Twin Bagger, Model #79085
Recycler Kit, Model #59167

SET-UP INSTRUCTIONS

INSTALL THE FRONT WHEELS

Note: Grease the axle shafts before installing wheels.

1. Install the wheel onto the axle.

2. Mount the flat washer onto the axle, insert the cotter pin and open the pin ends with pliers (Fig. 1).

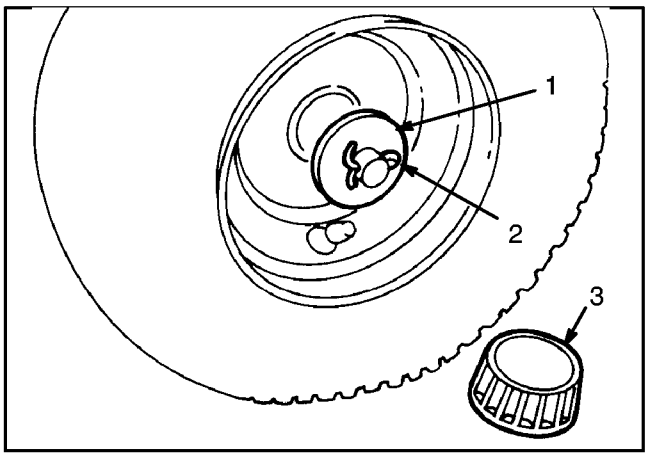


Figure 1

1. Flat washer
2. Cotter pin
3. Hub cap

3. Install the hub caps.

4. Repeat steps 1-3 on the opposite side.

5. Check the front and rear tires for 12 psi (82.7 kPa) inflation.

6. Lubricate both front wheels w/No. 2 general purpose grease. Pump the grease gun until grease comes through the bearings. Wipe up any excess grease.

INSTALL THE STEERING WHEEL ASSEMBLY

1. Position the wheels in the straight−ahead direction and slide the steering shaft cover over the steering shaft.

2. Slip the steering wheel over the shaft and line the steering wheel mount hole with the shaft mounting hole (Fig. 2). The TORO logo should be readable from the operator's position.

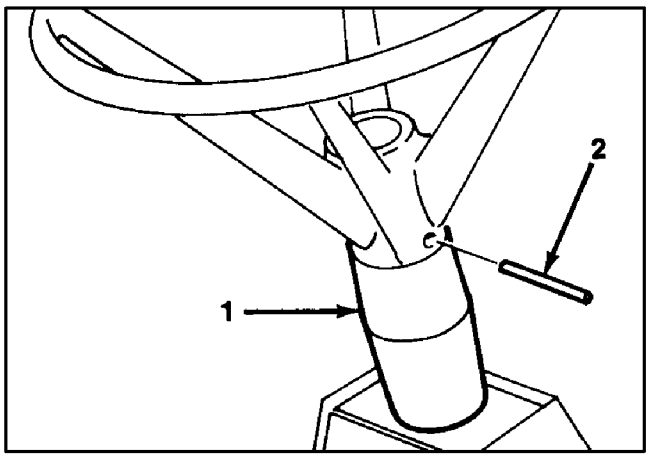


Figure 2

1. Steering shaft cover
2. Roll pin

3. Insert a drift punch partially through the holes to maintain alignment and insert the roll pin from the opposite side.

4. Drive the roll pin in until it is flush with the outside of the wheel (Fig. 2).

SET-UP INSTRUCTIONS

INSTALL THE SEAT

1. Thread (4) seat spacers into the bottom of the seat (Fig. 3).

2. Position the seat onto the seat base, inserting the seat switch cable through the slot and the spacer studs through the mounting holes (Fig. 3).

3. Slide the wire clamp over the seat switch wire (Fig. 3).

4. Using the left front spacer stud, loosely secure the wire clamp and seat to the seat base with a locknut (Fig. 3).

5. Mount the seat to the seat base with the (3) remaining locknuts.

Note: The seat may be adjusted for operator comfort by positioning it as desired in seat base slots.

6. Tighten all locknuts.

7. Insert the seat switch connector into the wire harness connector.

8. Secure the wire harness to the front of the seat base with the wire tie.

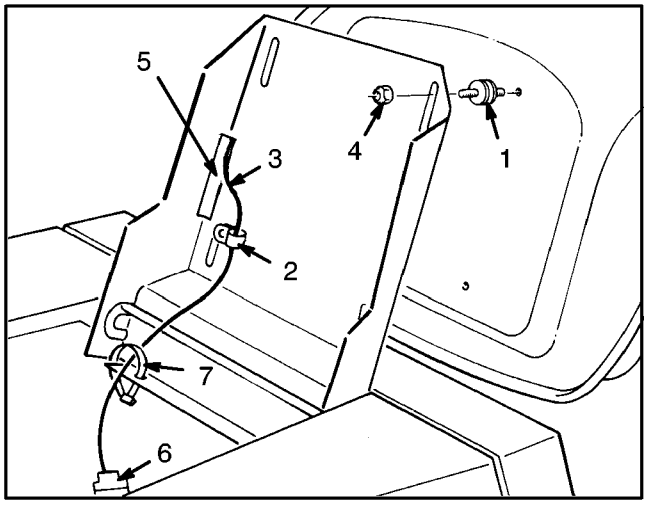


Figure 3

1. *Seat spacers*
2. *Wire clamp*
3. *Seat switch wire*
4. *Locknut*
5. *Seat switch slot*
6. *Seat switch connector*
7. *Wire tie*

CONTROLS

Gear Shift (Fig. 4)

The transmission has five forward speeds, neutral and reverse. The gear shift lever is located at the operator's right side. An interlock switch prevents engine from being started when transmission is in gear.

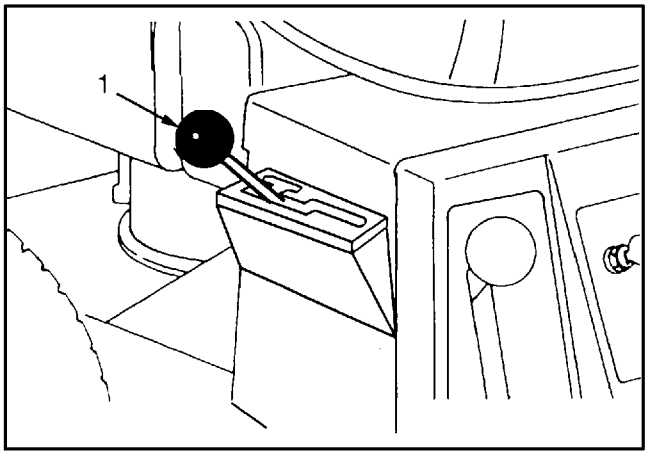


Figure 4

1. *Gear shift*

Clutch Pedal (Fig. 5)

The clutch pedal is used with the gear shift. Depress the clutch pedal fully when shifting gears and whenever the brake is used.

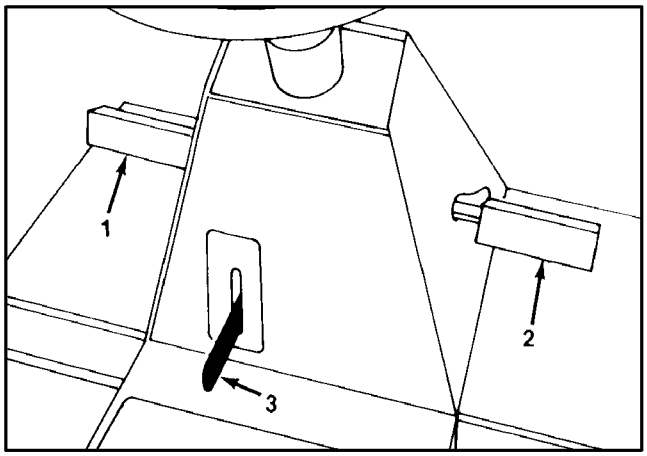


Figure 5

1. *Clutch pedal*
2. *Brake pedal*
3. *Parking brake*

CONTROLS

Brake Pedal (Fig. 5)

The brake pedal must be depressed to slow down or stop the rider. When depressed, a caliper engages the brake disc. Remember to depress the clutch pedal when using brake.

Note: Avoid depressing the brake pedal while the clutch is engaged, otherwise premature brake wear will occur. Do not rest your foot on the pedal while mowing.

Parking Brake (Fig. 5)

The parking brake must be used with the brake pedal. When depressed, the end of the parking brake lever holds the brake pedal in a depressed position and a caliper engages the brake disc at the side of transmission.

Deck Engagement Lever (Fig. 6)

The deck engagement lever engages and disengages the cutter blade. An interlock switch prevents the engine from starting when the control is in the ENGAGE position. The engine will start only when the control is in the DISENGAGE position.

Ignition Switch (Fig. 6)

The ignition switch has three positions: OFF, ON and START. The key automatically returns to the ON position from the START position when released after the engine starts.

Height−of−Cut Control (Fig. 6)

Varies the cutting height from approx. 1 to 3−1/2 inches (25 to 89 mm) in six increments.

Throttle Control (Fig. 6)

The throttle control connects to and operates the carburetor−mounted throttle and choke. Control has four positions: IDLE, OPERATE, HOT RESTART and CHOKE. Push the control slightly to the left and upward to obtain the CHOKE position.

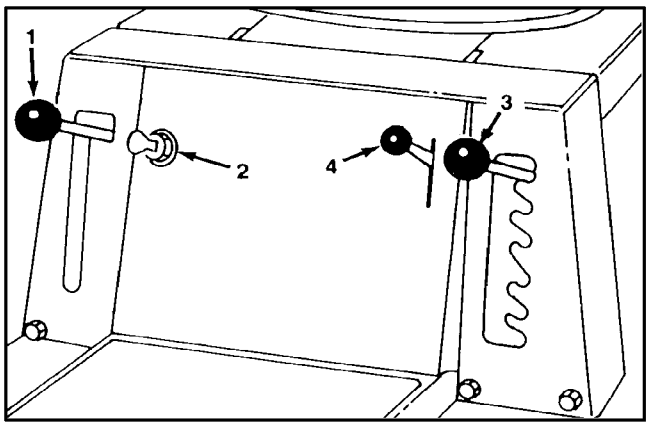


Figure 6

1. Deck engagement lever
2. Ignition switch
3. Height of cut control
4. Throttle control

ACTIVATING AND CHARGING THE BATTERY

The battery must be removed from the machine so it can be filled with electrolyte and charged. Bulk electrolyte with 1.260 specific gravity must be purchased from a local battery supply outlet. Remove the battery and activate it as follows:

1. Tip the seat forward exposing the battery.

2. Remove the wing nut securing the battery hold downs to the rider chassis. (Fig. 7).

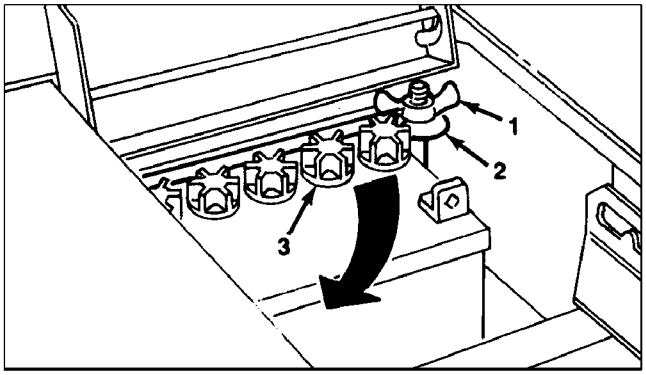


Figure 7

1. Wing nut
2. Battery hold downs
3. Filler cap

3. Lift up on top of the battery hold down and pivot the battery rearward.

4. Remove the battery from the chassis and set it aside.

5. Remove the filler caps from the battery and slowly fill each cell until electrolyte is at the LOWER fill line.

6. Leave filler caps off and connect a 3-4 amp battery charger to the battery posts. Charge the battery at a rate of 4 amperes or less for 4 hours (12 volt).

7. After the battery is charged, disconnect the charger from the electrical outlet and battery posts.

8. Slowly add electrolyte to each cell until the level is just below the UPPER fill line. Reinstall the filler caps. Once the battery is in service, distilled water only should be added; never add more electrolyte.

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

9. Install the battery with the terminal posts toward the rear of the machine and vent tube on left side of battery, through the hole in the frame (Fig. 8).

10. Reinstall the battery hold downs.

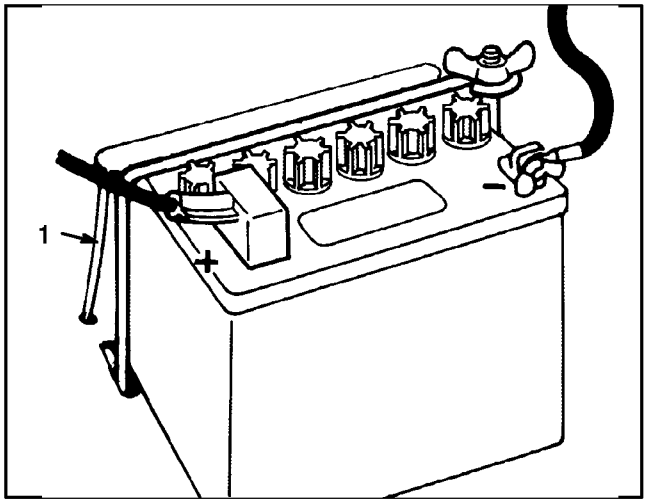


Figure 8

1. Vent tube

WARNING

Be sure the battery hold downs do not touch the battery posts during reinstallation of the battery. Contact between battery hold downs and posts could result in personal injury and/or damage to the electrical system.

11. Install the red positive cable (rubber boot over end) to the positive (+) terminal and the negative cable (black) to the negative (–) terminal of the battery and secure them with capscrews and wing nuts. Slide the rubber boot over the positive terminal to prevent possible contact (Fig. 8).

BEFORE OPERATING

FILL THE CRANKCASE WITH OIL

The rider is shipped from the factory without oil in the crankcase. Crankcase capacity is approximately 48 ounces (1.421).

1. Place the rider on a level surface.

2. Unscrew and remove the dipstick from the oil fill tube (Fig. 9).

3. Insert a funnel into the tube and slowly add engine oil into the crankcase. Use a high−quality detergent oil classified "For Service SG". Oil viscosity (weight) must be selected according to anticipated ambient temperature.

A. Above +40° F (4° C) — Use SAE 30 or 10W−30.

B. 0° to +40° F (−18° C to 4° C) — Use 10W−30.

C. Below 0° (−18° C) — Use 5W−20 or 5W−30.

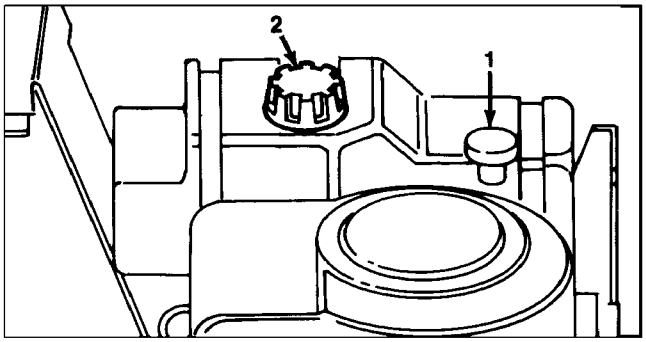


Figure 9

1. Dipstick *2. Fuel tank cap*

Note: Avoid premature engine failure by ensuring the funnel used is clean so contaminants are not introduced into the crankcase. Wipe any oil spilled so it will not cause dirt to collect on the engine.

4. Ensure the oil level is to the full mark on the dipstick when it is fully installed. Do not overfill or engine damage may result.

5. Insert the dipstick and turn it clockwise to secure it in the fill tube.

Note: Check the oil level every 5 operating hours or each time rider is used. Initially, drain the oil and replace it after the first 5 hours of operation to remove the contaminants produced by normal engine break-in; thereafter, under normal conditions, change the oil after every 25 hours operation. Change the oil more often when the engine is operated in dusty or dirty conditions.

BEFORE OPERATING

FILL THE FUEL TANK WITH GASOLINE

The TORO Company strongly recommends the use of clean, fresh *Unleaded* regular gasoline in TORO gasoline powered products. Unleaded gasoline burns cleaner, extends engine life, and promotes good starting by reducing the build-up of combustion chamber deposits. Leaded gasoline can be used if unleaded is not available.

TORO also recommends that TORO Stabilizer/ Conditioner be used regularly in all TORO gasoline powered products during operation and storage seasons. TORO Stabilizer/Conditioner cleans the engine during operation and prevents gum−like varnish deposits from forming in the engine during storage.

Note: NEVER USE **METHANOL**, GASOLINE CONTAINING **METHANOL**, GASOHOL CONTAINING MORE THAN 10% ETHANOL, PREMIUM GASOLINE OR WHITE GAS BECAUSE ENGINE FUEL SYSTEM DAMAGE COULD RESULT.

DO NOT USE FUEL ADDITIVES OTHER THAN THOSE MANUFACTURED FOR FUEL STABILIZATION DURING STORAGE SUCH AS TORO STABILIZER/CONDITIONER OR A SIMILAR PRODUCT. TORO STABILIZER/CONDITIONER IS A PETROLEUM DISTILLATE BASED STABILIZER/CONDITIONER. TORO DOES NOT RECOMMEND STABILIZERS WITH AN ALCOHOL BASE SUCH AS ETHANOL, METHANOL OR ISOPROPYL. STABILIZERS SHOULD NOT BE USED TO TRY TO ENHANCE THE POWER OR PERFORMANCE OF MACHINE.

DANGER

- **Because gasoline is flammable, caution must be used when storing or handling it.**
- **Do not fill the fuel tank while the engine is running, hot or when the machine is in an enclosed area. Vapors may build up and be ignited by a spark or flame source many feet away.**
- **DO NOT SMOKE while filling the fuel tank to prevent the possibility of an explosion.**
- **Always fill the fuel tank outside and wipe up any spilled gasoline before starting the engine. Use a funnel or spout to prevent spilling gasoline, and fill the tank to about 1/2 inch (13 mm) below the filler neck.**
- **Store gasoline in a cool, well-ventilated place; never in an enclosed area such as a hot storage shed.**
- **To ensure volatility, do not buy more than a 30−day supply of gasoline.**
- **Gasoline is a fuel for internal combustion engines; therefore, do not use it for any other purpose.**
- **Since many children like the smell of gas, keep it out of their reach because the fumes are explosive and dangerous to inhale.**

1. Clean the area around the fuel tank cap so foreign matter cannot enter the tank when the cap is removed (Fig. 9).

2. Remove the cap from the fuel tank and fill the tank with unleaded gasoline to within 1/2 inch (13 mm) from the top of the tank. Then reinstall the fuel tank cap.

3. Wipe up any gasoline that may have spilled.

CHECK TIRE PRESSURE

Check and ensure the tires are inflated to 12 psi (82.7 kPa) before operating the machine.

STARTING AND STOPPING INSTRUCTIONS

IMPORTANT: The starter motor will not crank unless the deck engagement lever is DISENGAGED and shift lever is in NEUTRAL.

START AND OPERATE MACHINE

1. Sit on the seat, shift into neutral (N), move the deck engagement lever to DISENGAGE.

2. Move the throttle control to CHOKE and turn ignition key to START. When the engine starts, release the key and move the throttle control between OPERATE and IDLE.

3. Select the desired height-of-cut and move the deck engagement lever to ENGAGE.

4. Release the parking brake (if necessary), depress the clutch pedal and shift into gear. Release the clutch pedal slowly and smoothly.

TO STOP

1. Depress the brake and clutch pedals, move the throttle control lever to IDLE, move the deck engagement lever to DISENGAGE, and turn the ignition key to OFF.

2. Shift the transmission to neutral and engage the parking brake.

3. Remove the key from the ignition switch. Wait for all moving parts to stop before getting off the seat.

OPERATING INSTRUCTIONS

BREAK-IN

The engine requires no special break-in other than changing the oil after the first five hours of operation. Operate the transmission in all gears to ensure that drive system is functioning correctly. After the first five hours of operation, check the condition of the belts and drive chain.

USING THE PARKING BRAKE

CAUTION

If the engine stalls or must be stopped while operating on a hill or slope, the engine must be shut off and parking brake engaged.

1. Depress brake pedal fully and shift the transmission to neutral.

2. Move the parking brake control upward and release the brake pedal.

3. To release the parking brake, depress the brake pedal, and the parking brake will return to its disengaged position. Release brake pedal slowly.

ADJUSTING HEIGHT-OF-CUT

The height-of-cut may be set in one of six positions from approximately 1 to 3-1/2 inches (25 to 89 mm).

1. Ensure the deck engagement lever is in the DISENGAGE position.

2. Move the height-of-cut control to the desired setting.

3. To engage the blade for cutting, move the deck engagement lever to ENGAGE.

GRASS DEFLECTOR

WARNING

The grass deflector and toe bar is a safety device that routes discharged material down toward the turf; therefore, NEVER remove the deflector from the mower housing. If the deflector is ever damaged, replace it. Without the deflector or complete grass catcher assembly mounted in place, discharged material could cause personal injury or blade contact could occur.

OPERATING PROCEDURE

1. Move deck engagement lever to the DISENGAGE position.

2. Start the engine: refer to Starting/Stopping Instructions, page GB-14.

IMPORTANT: When the rider is used for the first time, operate the transmission in all gears to ensure that the drive system is functioning correctly, and become familiar with the controls and operating characteristics. Never shift while the machine is moving or without first depressing the clutch pedal; otherwise, transmission damage could result.

WARNING

To avoid loss of control, always come to a complete stop before shifting gears, and slow down when turning, backing and changing direction. Look behind the machine to ensure the area is clear before backing.

3. Depress the clutch pedal and shift the transmission into 1st gear. Then release the pedal slowly until the traction drive engages.

IMPORTANT: To avoid a jerky start and putting a heavy load on the transmission, release the clutch pedal slowly. If shifting into reverse gear is difficult, jog the clutch pedal in and out to get the gears to mesh. Do not force the gear shift because damage may result. Should you encounter a jerking or grabbing condition during operation, contact your local Authorized TORO Service Dealer for assistance.

4. To engage the blade for cutting, move the height−of−cut control to the desired setting. Place the throttle in the OPERATE position. Then move the deck engagement lever to ENGAGE.

5. To stop the engine, in sequence depress the clutch and brake pedals, move the throttle control to IDLE, the deck engagement lever to DISENGAGE, the gear shift into neutral, the throttle to IDLE, engage the parking brake and turn the key to OFF after letting the engine idle for a short time.

OPERATING INSTRUCTIONS

RECYCLER® MOWER TIPS

Even with the Recycler® mower, you may encounter conditions where it is not possible to hide all of the finely cut clippings or leaves all of the time down in the grass. Follow these instructions for the best cutting results and lawn appearance:

- Maintain a **sharp blade** throughout the cutting season. Periodically file down nicks on blade.
- Clean any residue from the underside of mower housing, kickers, and plug after each use.
- When cutting grass over 6" tall, you may want to cut the lawn twice to hide clippings down in the grass.
- Only about 1/3 of the grass blade should be cut. If long grass must be cut, you may need to use a higher height-of-cut setting and a slower speed; then recut the grass at a more normal setting. If grass is too long and leaves clumps on top of lawn, mower may plug and cause engine to stall.
- Alternate mowing direction. This helps disperse clippings over lawn for even fertilization.

If the finished cut lawn appearance is unsatisfactory, try one or more of the following:

- Sharpen the blade.
- Use a slower speed while mowing.
- Raise the height-of-cut setting on your mower.
- Cut your grass more frequently.
- Overlap cutting swaths instead of cutting a full swath with each pass.
- Mow across the marginal areas a second time.
- Check cutting unit level side-to-side.

TIPS FOR CUTTING LEAVES

You can cut up leaves in the fall instead of bagging. If you decide to bag, the Recycler® mower reduces the number of leaf bags you will need by finely chopping up the leaves before they are bagged. Some leaf particles will be injected back down into the soil. When spring arrives, the leaf particles will have decomposed and returned valuable nutrients to the soil.

- Ensure leaves are dry.
- When cutting is complete, always be sure that 50% of the lawn shows through the cut leaf cover. This may require one or more passes over the leaves.
- For light leaf coverage, position all wheels at the same height-of-cut setting.
- If there are more than five inches of leaves on lawn, raise the height-of-cut setting on your mower. This makes it easier to feed leaves under mower deck.
- If you cut up a lot of oak leaves, you might want to add lime to your grass in the spring. Lime reduces the acidity of oak leaves.

MAINTENANCE

MAINTENANCE INTERVAL CHART

Service Operation	5 Hours	25 Hours	Storage Service	Spring Service	2 Years	Notes
Change Oil (Initial)	X					
Change Oil (Periodic)		X	X			
Check Safety Interlock	X	X		X	X	Before each use.
Check Cutter Blade	X	X	X			
Check Brake	X	X	X	X		
Grease Front Axle Spindles, Wheel Bearings, and Rear Axles		X	X			More often in dusty, dirty, conditions.
Lubricate Pivot Points		X	X			
Service Air Cleaner		X	X			
Check Spark Plug		X	X	X		
Check Blade Drive Belt			X			
Check Traction Drive Belt			X			More often in dusty, dirty, conditions.
Drain Gasoline			X			
Clean Outside of Engine		X	X			
Clean Mower Housing	X		X			
Paint Chipped Surfaces			X			

CAUTION

To prevent accidental engine starting while performing maintenance, shut the engine off and remove the key from the ignition switch. Also, pull the wire off the spark plug (Fig. 10). Make sure the wire does not contact the plug accidentally.

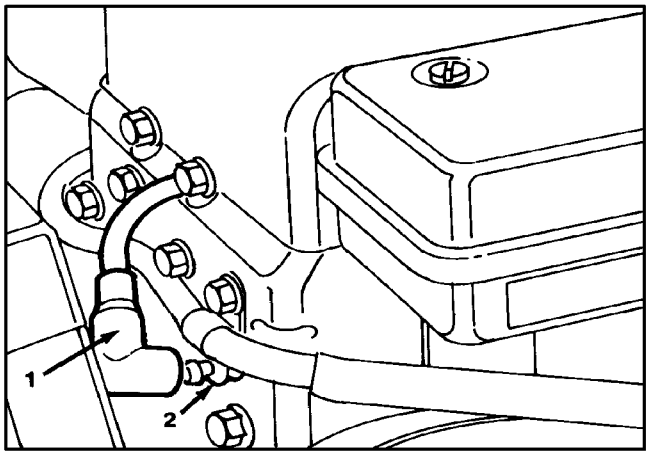


Figure 10

1. Spark plug wire *2. Spark plug*

GREASE THE FRONT AXLE SPINDLES, FRONT WHEELS, AND REAR AXLES

The spindles, axles, and wheels must be lubricated after every 25 hours of operation; however, lubricate them more frequently when conditions are dusty or sandy.

1. Wipe (4) grease fittings on the spindles and wheels (Fig. 11) with a clean rag. If there is paint on the front of the fittings, scrape it off.

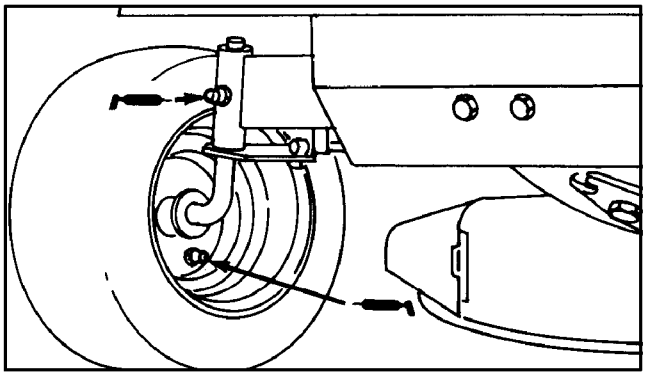


Figure 11

2. Lubricate both axle spindles w/No. 2 general purpose grease (Fig. 11). Continue to pump grease until it oozes out the spindle. Wipe up any excess grease.

3. Lubricate both front wheels w/No. 2 general purpose grease (Fig. 11). Pump the grease gun until grease oozes. Wipe up any excess grease.

4. Lubricate rear axles with one or two pumps of No. 2 general purpose grease. The grease fittings are just inside the rear tires on the bottom of the transmission (Fig. 12).

LUBRICATE PIVOT POINTS

The mechanical pivot points on the rider must be lubricated after every 25 hours of operation; however, lubricate more often when conditions are dusty or sandy.

IMPORTANT: To lubricate all the mechanical pivot points, the rider must be tipped on its rear end. However, before tipping the rider, drain all gasoline from the fuel tank and oil from crankcase. Also remove the battery so acid does not spill onto the rider.

1. Drain gasoline from fuel tank: refer to Draining Gasoline From The Fuel Tank, page GB-21.

2. Drain oil from crankcase: refer to Check/Change The Crankcase Oil, step 2, page GB-19.

3. Remove the battery from the chassis: refer to Activating And Charging The Battery, page GB-11.

4. Shift the transmission into 1st gear and engage parking brake.

5. Tip rider up and onto its rear end.

6. Remove mower housing from the rider chassis: refer to Removing/Installing The Cutting Unit, steps 1-5, page GB-25.

7. Lubricate the pivot points in the steering, drive, brake, clutch, and deck engagement linkage with light oil (Fig. 12). Also lubricate the mower housing (Fig. 13). Wipe up any excess oil.

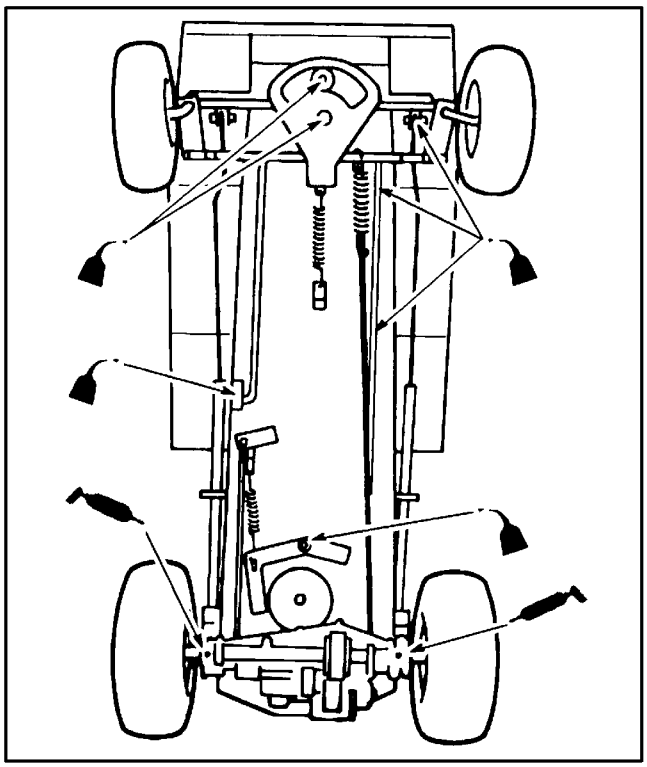


Figure 12

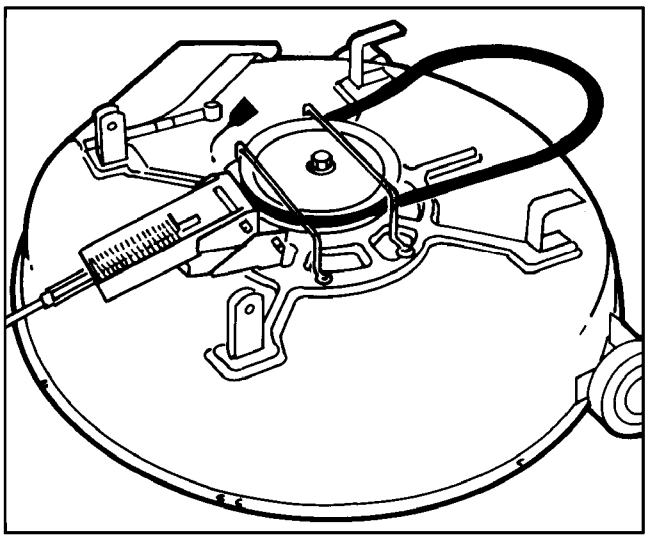


Figure 13

8. Reinstall the mower housing onto the rider chassis: refer to Removing/Installing The Cutting Unit, page GB-25.

9. Tip the rider back to its normal operating position.

10. Fill the crankcase with oil: refer to Fill The Crankcase With Oil, page GB-12.

11. Fill the fuel tank with gasoline: refer to Fill The Fuel Tank With Gasoline, page GB-13.

12. Reinstall the battery: refer to Activating And Charging The Battery, steps 9–11, page GB-11.

CHECK/CHANGE THE CRANKCASE OIL

1. Check the oil level before starting the engine and after every 5 hours of operation. Maintain the oil level at the FULL mark on the dipstick.

To check the oil level:

A. Position the rider on a level surface.

B. Clean the area around the oil dipstick so foreign matter cannot enter the filler hole when the dipstick is removed.

C. Unscrew the dipstick and wipe oil off.

D. Screw the dipstick fully into the filler neck; then remove it and check the oil level on the dipstick. If the level is low, add only enough oil to raise the level to the FULL mark. Do not overfill or engine damage may result.

E. Screw the dipstick back into the filler neck.

2. Change oil after the first 5 hours of operation and every 25 hours thereafter. Change oil more often when operating conditions are extremely dusty or dirty.

To change oil:

A. Position the rider on a level surface. Start and run the engine to warm the oil.

B. Turn the engine off and place the drain pan below the drain plug (Fig.14). Remove the drain plug, and allow all oil to flow into the drain pan. Reinstall the drain plug after oil stops flowing.

Note: To remove the drain plug, use an 11/16–inch socket or wrench.

C. Unscrew the dipstick and add oil to the crankcase. Refer to Fill The Crankcase With Oil, page GB-12. Capacity of the crankcase is 48 oz. (1.42 l). **DO NOT OVERFILL** or engine damage may result.

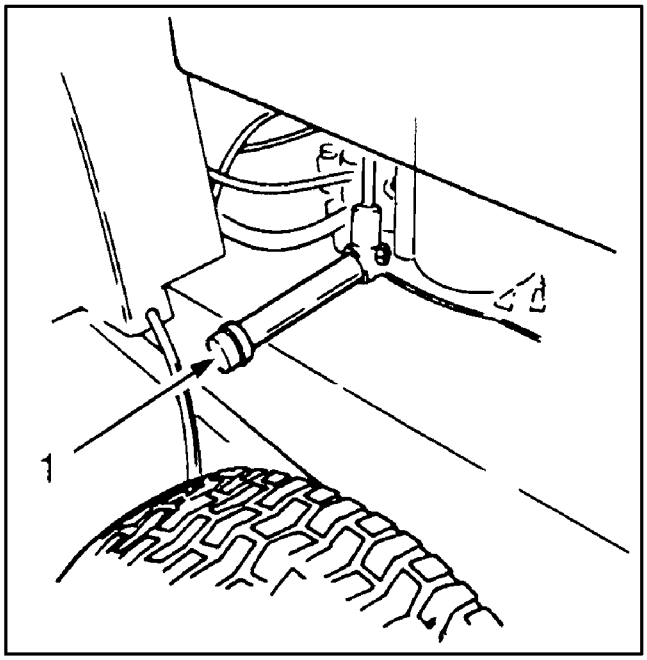


Figure 14

1. Drain plug

MAINTENANCE

SERVICING THE AIR CLEANER

The air cleaner element must be cleaned after every 25 hours of operation if the engine is operated in clean air conditions. However, the element must be cleaned every few hours if operating conditions are extremely dusty or sandy.

1. Remove the wire from the spark plug (Fig. 10).

2. Remove the knob and air cleaner cover (Fig. 15).

3. Every 25 hours the foam pre−cleaner should be cleaned (Fig. 15). Remove foam pre−cleaner by sliding it off the paper cartridge (Fig. 15).

   A. Wash the foam pre−cleaner in liquid soap and warm water. Rinse thoroughly in clear water.

   B. Wrap the foam pre−cleaner in cloth and squeeze it dry.

   C. Saturate the foam in engine oil. Squeeze it to remove excess oil.

4. The paper air cleaner cartridge should be replaced every 100 hours. Remove one nut from the top of the paper cartridge (Fig. 15).

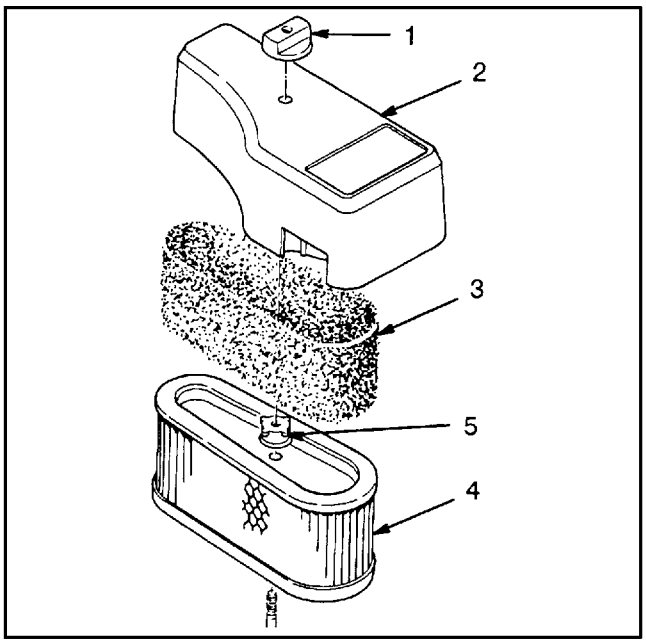


Figure 15

1. Knob
2. Air cleaner cover
3. Foam pre−cleaner
4. Paper cartridge
5. Nut

5. Clean the air cleaner body carefully to prevent dirt from entering carburetor. Remove and discard the paper cartridge.

6. Insert a new paper cartridge into the air cleaner body. Reassemble the air cleaner.

IMPORTANT: Petroleum solvents, such as kerosene, are not to be used to clean the paper cartridge. They may cause deterioration of the cartridge. DO NOT OIL THE CARTRIDGE. DO NOT USE PRESSURIZED AIR TO CLEAN THE CARTRIDGE.

IMPORTANT: Always operate the engine with the air cleaner element in place or engine damage will result.

REPLACING THE SPARK PLUG

Since the air gap between the center and side electrodes of the spark plug increases gradually during normal operation of the engine, check condition of electrodes after every 25 operating hours. The recommended air gap is 0.030 of an inch (0.762 mm). The correct spark plug to use is Champion RJ−19 LM.

Note: The spark plug usually lasts a long time; however, the plug should be removed and checked whenever the engine malfunctions.

1. Clean the area around the spark plug so foreign matter cannot fall into the cylinder when the spark plug is removed.

2. Pull the wire off the spark plug and remove the plug from the cylinder head (Fig. 16).

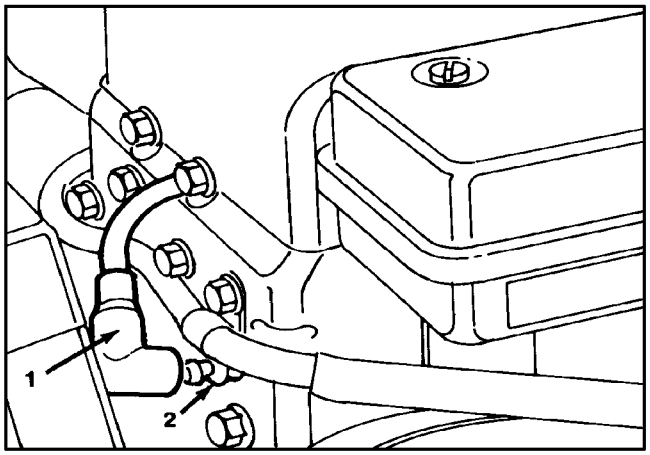


Figure 16

1. Spark plug wire
2. Spark plug

3. Check the condition of the side electrode, center electrode, and center electrode insulator to ensure there is no damage.

IMPORTANT: A cracked, fouled, dirty or defective spark plug must be replaced. Do not sand blast, scrape, or clean electrodes by using a wire brush because grit may eventually release from the plug and fall into the cylinder. The result is usually a damaged engine.

4. Set the air gap between the center and side electrodes at 0.030 of an inch (0.762 mm) (Fig. 17). Install correctly gapped spark plug w/gasket seal, and tighten the plug to 15 ft-lb (20.4 Nm).

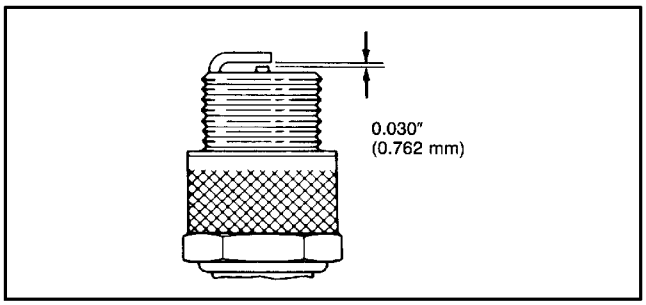


Figure 17

5. Push the wire onto spark plug but do not leave key in the ignition. This will prevent accidental starting when the mower is being stored between use periods. Keep the key in a memorable place so it does not become lost.

DRAINING GASOLINE FROM THE FUEL TANK

CAUTION

Since gasoline is highly flammable, drain it outdoors and make sure the engine is cool to prevent a potential fire hazard. Wipe up any gasoline that may have spilled. Do not drain gasoline near any open flame or where gasoline fumes may be ignited by a spark. Do not smoke a cigar, cigarette or pipe when handling gasoline.

IMPORTANT: When the rider is tipped, all gasoline must be drained from the fuel tank.

1. Clean the area around the fuel tank cap so foreign matter cannot enter the filler hole when the cap is removed. Next, remove the cap from the fuel tank.

2. Using a pump-type syphon, drain gasoline into a clean gas can.

Note: There is no other recommended way to drain gasoline from the fuel tank, other than by using a pump-type syphon. An inexpensive syphon can be purchased at a hardware store.

ADJUSTING THE THROTTLE/CHOKE CONTROL

To ensure that the choke and carburetor-mounted throttle are operating properly, the throttle control must be adjusted correctly. Hard starting may be an indication of an incorrect adjustment. If the throttle control is ever replaced, an adjustment is also necessary. Before the carburetor is adjusted, make sure that the throttle control is operating properly.

1. Move the throttle control lever to the OPERATE detent position.

2. The throttle lever should be just touching the choke link (Fig. 18); if they are not in this position, an adjustment is necessary:

A. Place remote control lever in the OPERATE position.

B. Loosen the throttle cable clamp screw (Fig. 18) and move the control cable casing and wire until the throttle lever touches the choke link.

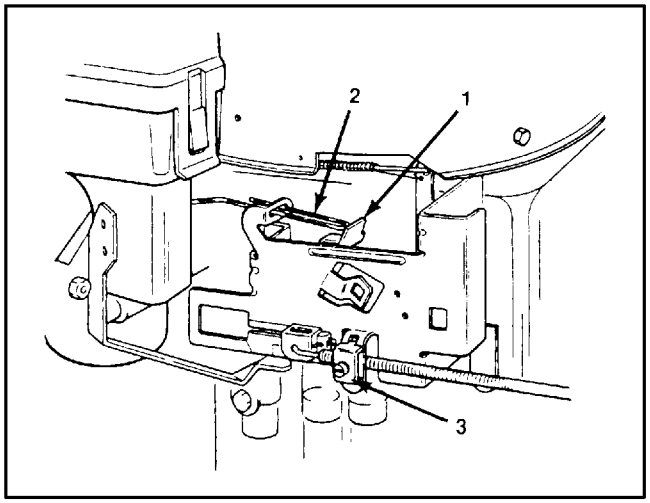


Figure 18

1. Throttle lever
2. Choke link
3. Throttle cable clamp

C. Tighten the cable clamp screw. Move the control to IDLE, then back to OPERATE to ensure correct adjustment. Repeat this procedure if necessary.

ADJUSTING CARBURETOR

The carburetor has been set at the factory, but an occasional adjustment may be required. However, do not make unnecessary carburetor adjustments because factory settings are usually correct. An adjustment may be required to compensate for differences in fuel, temperature and altitude.

IMPORTANT: Before the carburetor is adjusted, the throttle control must be checked for proper operation: refer to Adjusting The Throttle/Choke Control, page GB-21.

1. Gently turn the idle mixture valve clockwise until it ***just*** closes (Fig. 19). Turning the valve in too far may cause damage.

2. Open the idle mixture valve one turn counterclockwise. This initial adjustment will permit the engine to be started and warmed up (approximately 5 minutes) before final adjustment.

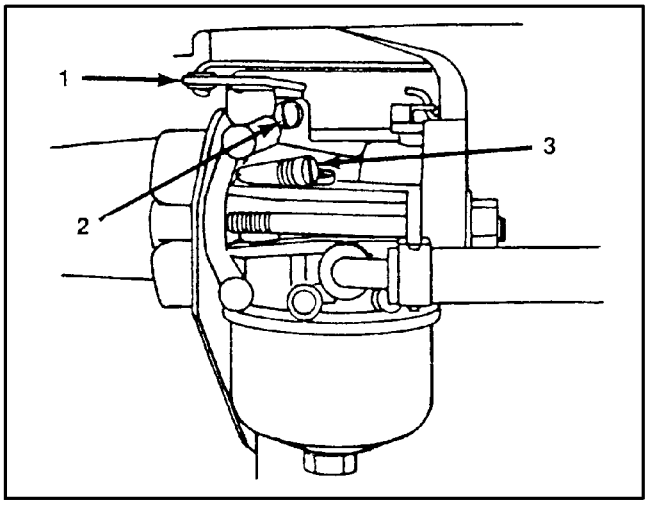


Figure 19

1. ***Throttle***
2. ***Idle speed adjusting screw***
3. ***Idle mixture valve***

WARNING

The engine must be running so final adjustment of the carburetor can be performed. To guard against possible personal injury, move the blade control into the DISENGAGE detent, shift into neutral, and engage the parking brake. Keep hands, feet, face, and other body parts away from the cutter blade, underside of the mower housing and the discharge area.

3. Start the engine and move the throttle control to the HIGH SPEED position.

4. Turn the throttle (Fig. 19) counterclockwise and hold against idle speed adjusting screw (Fig. 19) while turning the idle speed adjusting screw to obtain 1750 rpm.

5. While still holding the throttle against the idle speed adjusting screw, turn the idle mixture valve in (lean) and out (rich) slowly until the engine idles smoothly. Recheck the idle rpm and readjust if required.

6. Release the throttle. The engine should accelerate smoothly. If it does not, the carburetor should be readjusted, usually to a slightly richer mixture.

7. After the carburetor is adjusted, shut the engine off. If the mower will not be used immediately, remove the key from the switch to prevent accidental starting.

SERVICING THE CUTTER BLADE

1. Make sure the engine is shut off and remove the wire from the spark plug.

IMPORTANT: To remove the blade from the spindle shaft, the rider must be tipped on its rear end. However, before the rider is tipped, drain all gasoline from fuel tank and oil from crankcase. Also remove the battery so acid does not spill onto the rider. (ALL BAGGING ATTACHMENTS MUST BE REMOVED BEFORE TIPPING THE UNIT.)

2. Drain gasoline from the fuel tank: refer to Draining Gasoline From The Fuel Tank, page GB-21.

3. Drain the oil from the crankcase: refer to Check/Change The Crankcase Oil, page GB-19.

4. Remove the battery from chassis: refer to Activating And Charging The Battery, page GB-11.

5. Shift the transmission into 1st gear and engage the parking brake. Tip the rider onto its rear end.

6. Grasp the end of the blade using a rag or thickly padded glove; then remove the blade bolt, washer, blade stiffener and blade (Fig. 20).

Note: Since the blade bolt is tightened to 45-60 ft-lb (61-81 Nm) at the factory, it may be difficult to remove the bolt. If the bolt cannot be removed, contact an Authorized TORO Service Dealer or a "service station" for assistance.

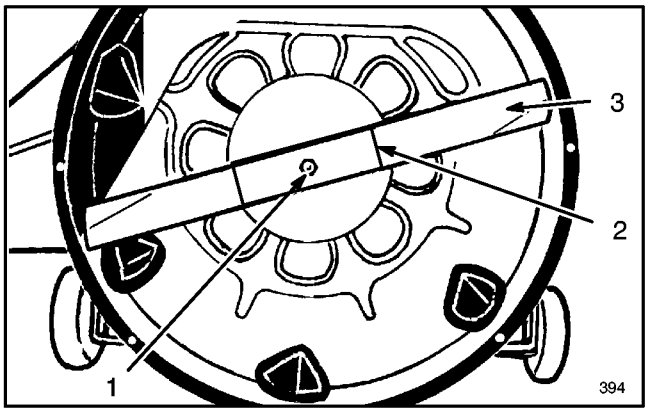


Figure 20

1. *Blade bolt & washer*
2. *Blade stiffener*
3. *Blade*

7. Using a file, sharpen the cutting edge at both ends of the blade (Fig. 21).

CAUTION

Check the cutter blade every time rider is tipped on end. If the blade bolt holding blade is loose, tighten it to 45-60 ft-lb (61-81 Nm). If blade or sail (Fig. 21) at end of blade is worn, eroded, or cracked, replace it. Replace the blade if it is bent. Always use genuine TORO replacement blades to ensure safety and best performance. NEVER USE WILL-FIT REPLACEMENT BLADES.

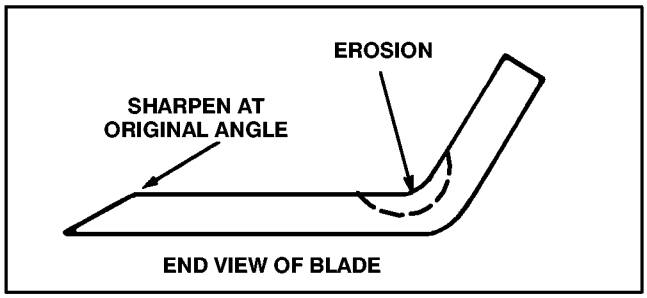


Figure 21

IMPORTANT: Sharpen the top side of the blade and maintain the original cutting angle to assure a sharp cutting edge. The blade will remain balanced if same amount of material is removed from both cutting edges.

8. Check blade balance by putting it on a blade balancer. (An inexpensive balancer can be purchased at a hardware store.) A balanced blade will stay in a horizontal position on the balancer. By contrast, a blade that is not balanced will settle to the heavy side. If the blade is not balanced, file more material off the cutting edge on the heavy side of the blade. Continue to file and check the blade until it is balanced.

9. In sequence, install the blade, the blade stiffener, washer and blade bolt (Fig. 20). Install the concave side of the curved washer against the blade. Tighten the blade bolt to 45-60 ft-lb (61-81 Nm).

IMPORTANT: Make sure the cutting edge of the blade is away from the mower housing, check 360°.

10. Tip the rider back to its normal operating position.

11. Fill the crankcase with oil: refer to Fill The Crankcase With Oil, page GB-12.

12. Fill the fuel tank with gasoline: refer to Fill The Fuel Tank With Gasoline, page GB-13.

13. Install the battery: refer to Activating And Charging The Battery, page GB-11.

WASHING UNDERSIDE OF MOWER

After each use wash the underside of the mower to prevent grass build-up for improved mulch action and clipping dispersal.

1. Park the machine on a hard level surface, disengage the power take off (PTO) and turn the ignition key to "OFF" to stop the engine.

2. Attach hose coupling to the end of the mower washout fitting, turn water on high (Fig. 22).

3. Lower the mower to the lowest height-of-cut.

4. Sit on the seat and start the engine. Engage power take off (PTO) and let mower run for one to three minutes.

5. Disengage the blade, power take off (PTO) and turn the ignition key to "OFF" to stop the engine. Wait for all moving parts to stop.

6. Turn the water off, remove hose coupling from the washout fitting.

Note: If the mower is not clean after one washing, soak and let stand for 30 minutes. Then repeat process again.

7. Run mower again for one to three minutes to remove excess water.

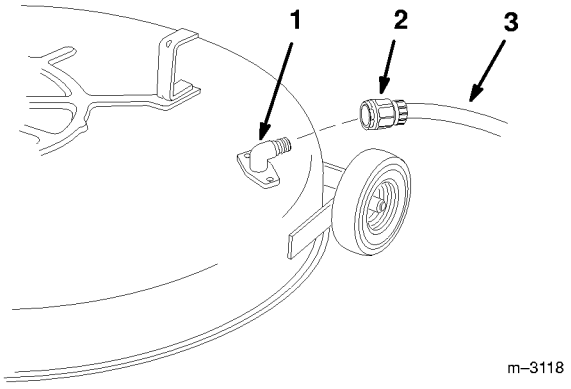


Figure 22

1. Washout fitting
2. Coupling (not supplied)
3. Hose

WARNING

POTENTIAL HAZARD

- **A broken or missing washout fitting could expose you and others to thrown objects or blade contact.**

WHAT CAN HAPPEN

- **Contact with thrown debris or blade contact will cause injury or death.**

HOW TO AVOID THE HAZARD

- **Replace broken or missing washout fitting immediately, before using mower again.**
- **Plug any hole(s) in mower with bolts and locknuts.**
- **Never put your hands or feet under the mower or through openings in the mower.**

REMOVING/INSTALLING THE CUTTING UNIT

1. Lock the parking brake and turn the front wheels to a full turn position to allow more clearance for the cutting unit.

2. Set the height-of-cut control to the lowest setting. Loosen the belt guides near the engine pulley and rotate them out of the way. Remove the belt from the engine pulley (Fig. 23).

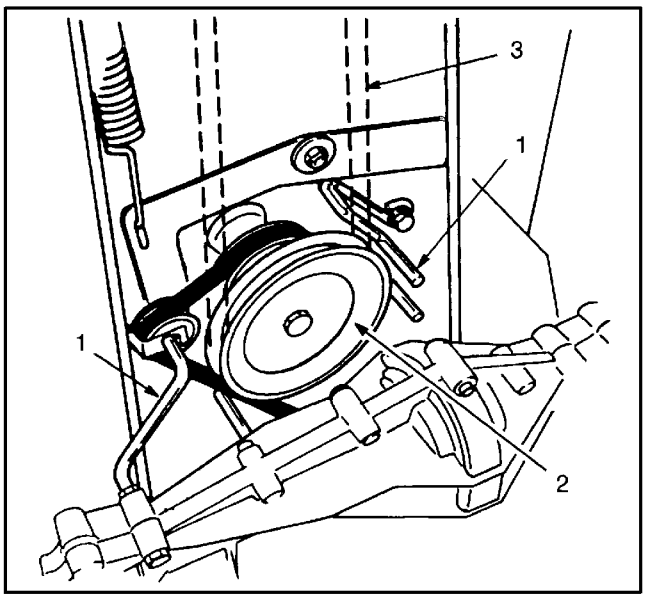


Figure 23

1. *Belt guides*
2. *Engine pulley*
3. *Blade drive belt (removed)*

3. Remove the cotter pin from the adjustment rod and pull it from the pivot tube arm (Fig. 24).

4. Remove the cotter pins from clevis pins on the front hanger brackets. Hold the front of the cutting unit in place with one hand, to prevent falling, and remove the clevis pins to lower the cutting unit to the ground. Pull the rear hanger brackets off the pins on rear suspension arms. Set the height-of-cut control to the highest position and slide the cutting unit from under rider.

5. Reinstall in reverse order.

Note: Set belt guides 1/32"–1/16" (1–2 mm) away from pulleys.

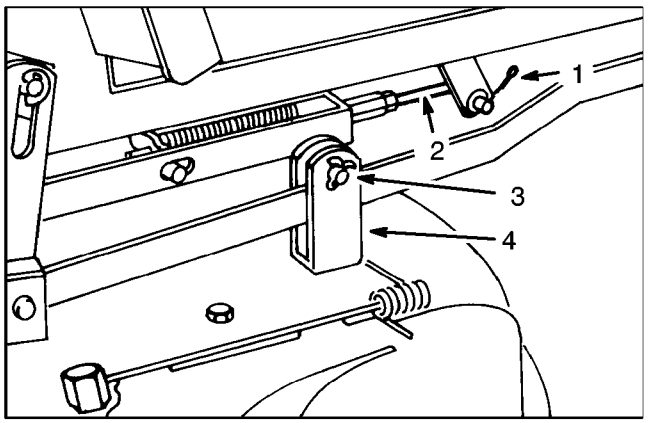


Figure 24

1. *Cotter pin*
2. *Adjustment rod*
3. *Cotter pin and clevis pin*
4. *Front hanger bracket*

REPLACING THE BLADE DRIVE BELT

1. Lock the parking brake and remove the wire from the spark plug.

2. Remove the cutting unit: refer to Removing/Installing The Cutting Unit, page GB-25.

3. Loosen and remove (1) mounting screw securing each belt guide to the cutting unit. Pivot the belt guides away from the spindle pulley and remove the belt. Visually inspect the belt for wear or damage (Fig. 23).

4. Install a new belt if needed and reinstall the belt guides.

5. Reinstall the cutting unit: refer to Removing/Installing The Cutting Unit, page GB-25.

MAINTENANCE

ADJUSTING THE BLADE DRIVE BELT

1. Set the height-of-cut lever in the lowest setting and the deck engagement lever to ENGAGE.

2. Remove the cotter pin from the adjustment rod (Fig. 24).

3. Rotate the adjustment rod until there is 0.060 inch (1.5 mm) or less between the end of the slot in the engagement bracket and the outer diameter of the pin (Fig. 25). It should not bottom in slot.

Note: The adjustment rod is a left−hand thread.

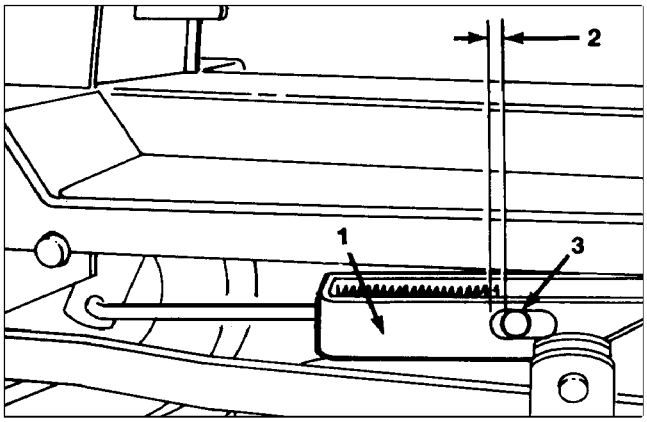


Figure 25

1. *Engagement bracket*
2. *0.060 inch max. (1.5 mm)*
3. *Pin*

REPLACING THE TRACTION DRIVE BELT

1. Remove the cutting unit: refer to Removing/Installing The Cutting Unit, page GB-25.

2. Remove the belt guides from the transmission pulley. Loosen and rotate the belt guides at the engine pulley out of the way. Loosen the locknut and remove the belt retainer from the idler pulley.

Note: To make belt removal easier, set and lock parking brake.

3. Remove traction drive belt and inspect it for damage or wear (Fig. 26). If needed, install a new belt.

4. Install belt guides by the transmission pulley (Fig. 26). Also install belt retainer on idler pulley and tighten the locknut.

Note: Set belt guides 1/32"−1/16" (1−2 mm) away from pulleys.

IMPORTANT: The idler pulley retainer must be installed at an 80° to 90° angle to the idler mounting bracket (Fig. 27). Otherwise, the rider may move slightly when the clutch is pushed down.

5. Reinstall the cutting unit: refer to Removing/Installing The Cutting Unit page GB-25.

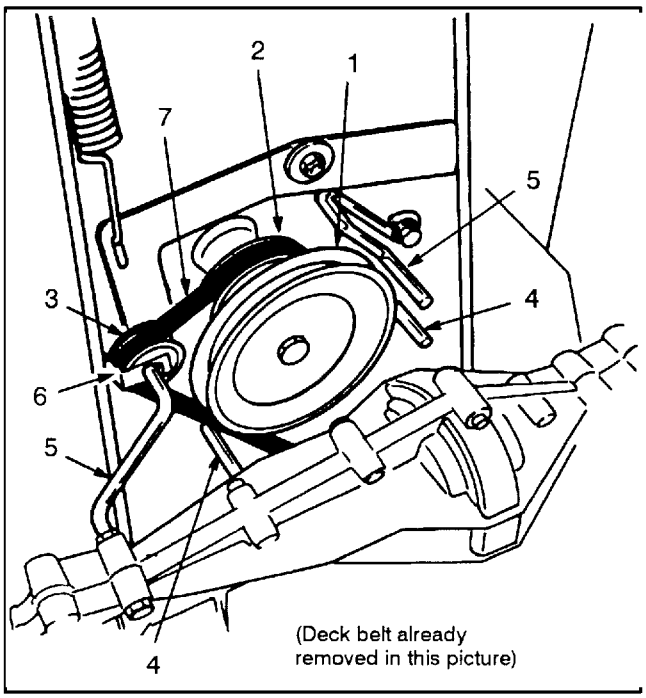


Figure 26

1. *Engine pulley*
2. *Transmission pulley*
3. *Idler pulley*
4. *Transaxle pulley belt guides*
5. *Engine pulley belt guides*
6. *Belt retainer and locknut*
7. *Drive belt*

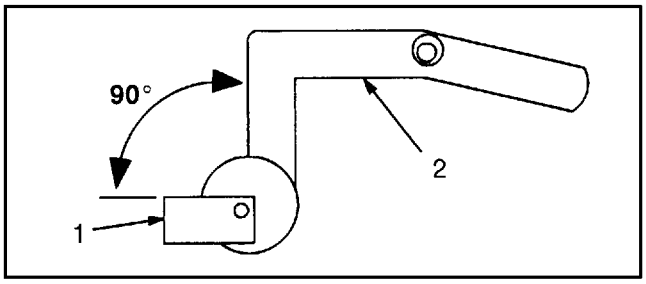


Figure 27

1. *Idler pulley retainer*
2. *Mounting bracket*

ADJUSTING FRONT WHEEL ALIGNMENT

1. To align the front wheels, remove ball stud from steering arm. Loosen the jam nut and turn the tie rod end until the center line distance across the front of the wheels (d') is .06 inch (1.5 mm) to 0.25 inch (6.3 mm) less than the center line distance across the rear of the front wheels (d") (Figs. 28 and 29).

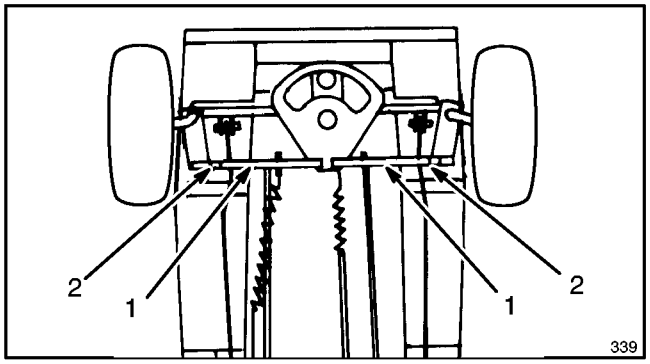


Figure 28

1. *Tie rod (only one adjustable)*
2. *Jam nut*

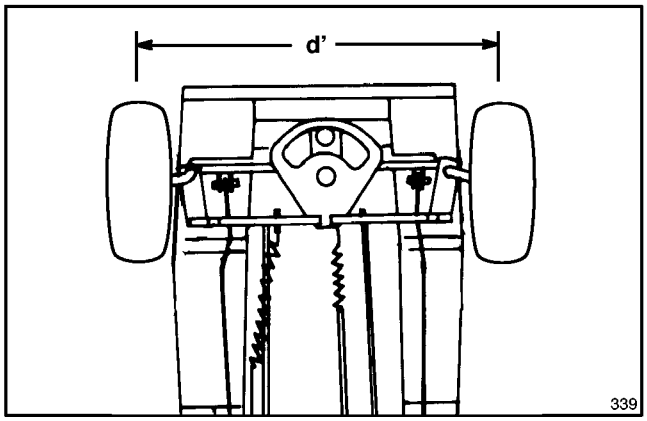


Figure 29

2. Retighten the jam nuts.

MAINTENANCE

ADJUSTING THE BRAKE

Adjust the brake pucks if the parking brake does not hold or the braking power is not sufficient when the brake pedal is depressed.

1. Shut off the engine and remove the wire from the spark plug.

2. Raise the seat or remove the left side panel from the rider.

3. Tighten the locknut approximately 1/4 turn clockwise (Fig. 30).

4. Check operation of the brake by setting the parking brake and pushing the rider: wheels should not turn. If wheels turn tighten nut again.

5. Release parking brake and no brake drag should be evident on the brake. If drag is evident, rotate the locknut 1/8 turn counter-clockwise or until there is no contact.

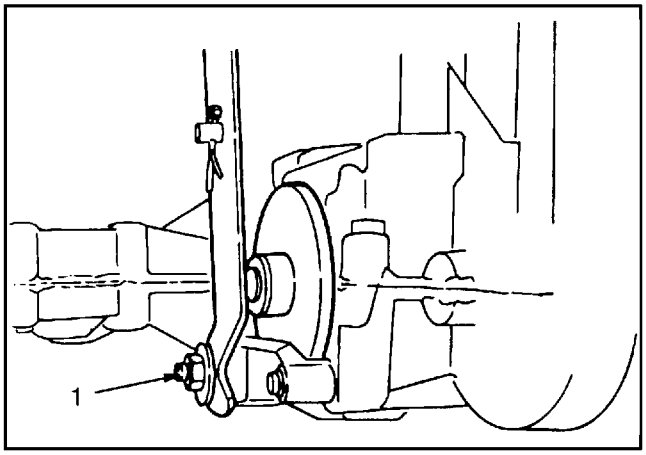


Figure 30

1. Locknut

LEVELING CUTTING UNIT

If the mower doesn't cut level from side–to–side and the cutting blade is not bent, level the cutting unit as follows:

1. Place the rider on a level surface, lock the parking brake, shut off the engine and remove the key from the ignition switch.

2. Raise the seat or remove the left side panel from the rider.

3. Place the height-of-cut lever in the number 3 position and position the cutter blade at a right angle to the direction of rider travel.

4. Measure the blade tip height at one end of blade, rotate the blade 180° and measure same blade tip at the opposite side of rider. The measurements should be within 1/8 inch (3 mm) of one another.

5. If the blade tip height is not within 1/8 inch (3 mm), level the cutting unit by loosening height-of-cut support bracket capscrews and raising or lowering the bracket (Fig. 31).

6. Ensure the blade tip height is within 1/8 inch (3 mm) and retighten the capscrews.

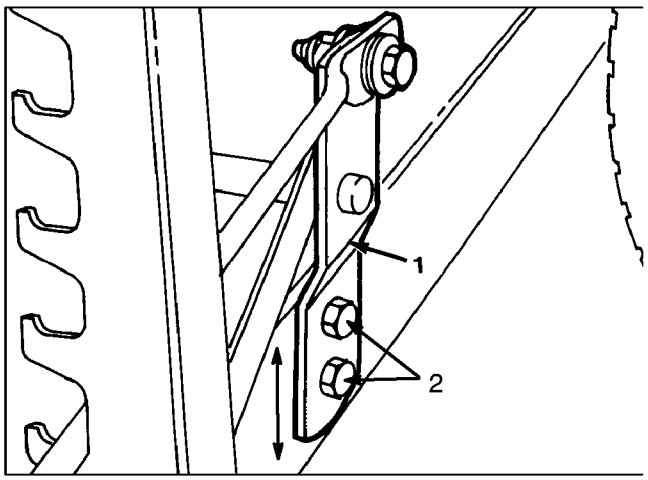


Figure 31

1. Height–of–cut support bracket
2. Capscrews

ADJUSTING THE GEAR SHIFT NEUTRAL POSITION

An adjustment to the gear shift guide may be required if the gear shift will not go into the neutral position.

1. Remove cotter pin from rod on right side of transaxle as viewed from the rear of the unit (Fig. 32).

2. Lift rod out of bracket hole (Fig. 32).

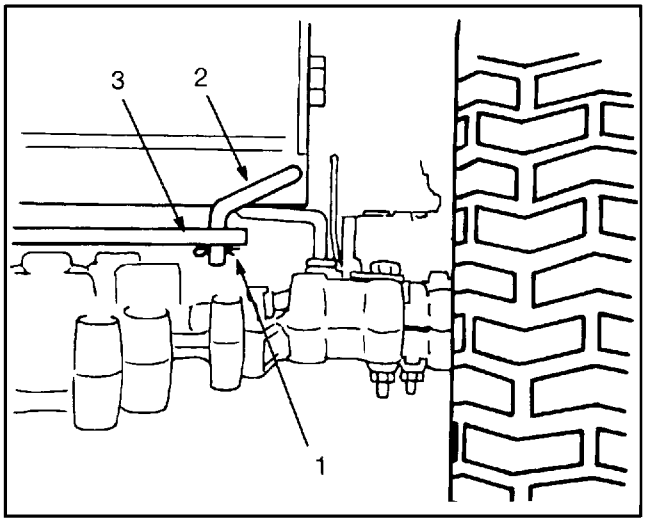


Figure 32

1. Cotter pin
2. Rod
3. Bracket

3. Rotate rod one complete turn clockwise and reinsert rod into hole in bracket.

4. Move gear shift selector into REVERSE position, then to NEUTRAL, then to first gear and then back to NEUTRAL.

5. Try rolling the rider backward and forward. If wheels turn freely and gear shift selector lines up with the NEUTRAL mark on the gear shift guide, the adjustment is correct.

6. If adjustment is not correct, remove rod from hole in bracket again. Rotate rod two turns counterclockwise and reinstall rod in hole in bracket.

7. Check adjustment again by repeating step 5.

8. When adjustment is correct, reinstall cotter pin in rod.

CHECKING THE SAFETY INTERLOCK SYSTEM

The interlock switches in the electrical system prevent the engine from starting unless the gear shift is in neutral and the deck engagement lever is disengaged. Also, the engine will stop — because of a seat switch — if the operator gets off the seat when the deck engagement lever is engaged or the gear shift is in gear. To ensure the interlock system is operating correctly, check it before each use of the rider.

1. Move the gear shift into neutral.

2. Move the deck engagement lever into ENGAGE. Sit on the seat and turn the ignition key to START. The engine should not crank; if it does, the interlock system is malfunctioning and it must be repaired by an Authorized TORO Service Dealer. If the engine does not crank, proceed to step 3.

3. Move the deck engagement lever into DISENGAGE. Sit on the seat, depress the brake and clutch pedals, engage the parking brake and shift into gear. Turn the ignition key to START. The engine should not crank; if it does, the interlock system is malfunctioning and must be repaired by an Authorized TORO Service Dealer. If engine does not crank, proceed to step 4.

4. Sit on the seat, move the gear shift into neutral, the deck engagement lever into DISENGAGE and ensure the parking brake is engaged. Turn the ignition key to START. The engine should start and continue to run. Then engage the deck engagement lever and carefully raise off the seat: the engine should stop. If the engine does not stop running, shut off the engine and have the interlock system repaired by an Authorized TORO Service Dealer. If the engine shuts off when you raised off the seat, the interlock system is functioning correctly and the rider can be operated safely.

WARNING

Do not operate the rider if the interlock system is malfunctioning because it is a safety device, designed to protect the operator.

MAINTENANCE

PREPARING MOWER FOR STORAGE

1. For long−term storage, either drain gasoline from the fuel tank or use a fuel additive before storing. To drain gasoline, refer to Draining Gasoline From The Fuel Tank, page GB-21. After fuel is drained, start the engine and let it idle until all fuel is consumed and engine stops. Repeat the starting procedure two more times to ensure all gas is removed from the engine. If gasoline is not drained, gum−like varnish deposits will form and cause poor engine operation, even starting problems.

Fuel can be left in the gas tank only if a fuel additive, such as TORO Stabilizer/Conditioner, is added to gasoline before storing. TORO Stabilizer/Conditioner is a petroleum distillate based conditioner/stabilizer. TORO does not recommend stabilizers with an alcohol base, such as ethanol, methanol or isopropyl. Use fuel additives in recommended quantities as specified on container.

Under normal conditions, fuel additives remain effective in the fuel for 6−8 months.

2. Remove the wire from the spark plug and clean the area around the plug so foreign matter cannot fall into cylinder when the plug is removed. Next, remove the plug from the cylinder head and pour two tablespoons of engine oil into the spark plug hole. Rotate engine by hand to distribute oil on the inside of the cylinder. Then reinstall the spark plug and tighten it to 15 ft-lb (20.4 Nm). If a torque wrench is not used, tighten plug firmly. DO NOT REINSTALL THE WIRE ON THE SPARK PLUG.

3. Drain oil from the crankcase: refer to Check/Change The Crankcase Oil, page GB-19. However, do not fill the crankcase with oil at this time.

4. Remove the battery from the chassis: refer to Activating And Charging The Battery, page GB-11. Remove corrosion from the battery terminal and wipe any grease and dirt off the battery case. Check the level of electrolyte. If the level is low, add distilled water to the affected cell. Fill only to the UPPER fill line on the side of the battery. Reinstall the filler caps.

5. Clean dirt and chaff from the outside of cylinder, cylinder head fins, and blower housing. Also, remove grass clippings, dirt, and grime from the external parts of rider, engine, shrouding, and the top of mower housing.

6. Clean the underside of the mower housing: refer to Cleaning The Underside Of The Mower Housing, page NO TAG.

7. Check the condition of blade: refer to Servicing The Cutter Blade, page GB-23.

8. Check and tighten all cap screws, bolts, screws, nuts, and mating parts. If any part is damaged, repair or replace it.

9. Lubricate wheels and spindles with grease: refer to Grease The Front Axle Spindles, Front Wheels, and Rear Axles, page GB-18.

10. Remove dust and dirt from the air cleaner element: refer to Servicing The Air Cleaner, page GB-20.

11. Touch up all rusted or chipped paint surfaces. Make sure to sand the affected area before painting.

Note: TORO Re-Kote “touch-up” paint is available from any Authorized TORO Service Dealer.

12. Fill the crankcase with oil: refer to Fill The Crankcase With Oil, page GB-12.

13. Install the battery: refer to Activating And Charging The Battery, page GB-11. Charge battery for 48 hours to ensure full charge.

14. Store the rider in a clean, dry garage or storage area. Remove the key from the ignition switch and keep it in a memorable place. Cover the rider to protect it and keep it clean.

TROUBLESHOOTING

Problem	Possible Causes	Corrective Action
Engine does not start, starts hard, loses power, or fails to keep running.	1. Gas tank is empty.	1. Fill fuel tank with gasoline.
	2. Battery is dead.	2. Charge the battery.
	3. Transmission is in gear.	3. Shift transmission into neutral.
	4. Deck engagement lever is in ENGAGE.	4. Move deck engagement lever into DISENGAGE.
	5. Spark plug is loose.	5. Tighten plug to 15 ft-lb (20.4 Nm).
	6. Wire is loose or disconnected from spark plug.	6. Install wire on spark plug.
	7. Spark plug gap is incorrect.	7. Set gap between electrodes at 0.030 of an inch (0.76 mm).
	8. Spark plug is pitted, fouled, or defective in some other way.	8. Install new, correctly gapped spark plug.
	9. Wrong spark plug is used.	9. Install correct spark plug.
	10. Electrical connections are loose.	10. Check electrical system to assure good contact.
	11. Carburetor is adjusted incorrectly.	11. Adjust the carburetor.
	12. Air cleaner is dirty.	12. Clean the air cleaner element.
	13. Vent hole in fuel tank cap is plugged.	13. Clean or replace the fuel cap.
	14. Dirt, water, or stale fuel in fuel system.	14. Have rider serviced by an Authorized TORO Service Dealer.
	15. Module or switch is defective.	15. Have rider serviced by an Authorized TORO Service Dealer.
Engine does not idle or idles poorly.	1. Air cleaner is dirty.	1. Clean air cleaner element.
	2. Idle speed is too low.	2. Adjust the carburetor.
	3. Dirt, water, or stale fuel is in the fuel system.	3. Have rider serviced by an Authorized TORO Service Dealer.
	4. Spark plug is pitted, fouled or defective in some other way.	4. Install new, correctly gapped spark plug.
Engine loses power.	1. Oil level in crankcase is low.	1. Add oil to crank case.
	2. Cooling fins and air passages under engine blower housing are plugged.	2. Remove obstruction from cooling fins and air passages.
	3. Engine load is excessive.	3. Shift into lower gear to reduce load.
	4. Air cleaner is dirty.	4. Clean air cleaner element.
	5. Dirt, water, or stale fuel is in fuel system.	5. Have rider serviced by an Authorized TORO Service Dealer.
	6. Carburetor is adjusted incorrectly.	6. Adjust the carburetor.
	7. Spark plug is pitted, fouled or defective in some other way.	7. Install new, correctly gapped spark plug.

TROUBLESHOOTING

Problem	Possible Causes	Corrective Action
Engine over heats.	1. Cooling fins and air passages under engine blower housing are plugged. 2. Carburetor is adjusted incorrectly. 3. Oil level in crankcase is low. 4. Engine load is excessive.	1. Remove obstruction from cooling fins and air passages. 2. Adjust the carburetor. 3. Add oil to crankcase. 4. Shift into lower gear to reduce load.
Rider vibrates abnormally.	1. Engine mounting bolts are loose. 2. Differential axle is misaligned. 3. Loose PTO pulley, idler pulley or blade pulley. 4. Cutter blade is unbalanced. 5. Blade bolt holding blade is loose. 6. Drive pulley is damaged.	1. Tighten engine mounting bolts. 2. Adjust the drive chain, which includes the differential axle. 3. Tighten the appropriate pulley. 4. Install new cutter blade. 5. Tighten bolt to 45-60 ft-lb (61-81 Nm). 6. Replace drive pulley.
Blade does not rotate.	1. Blade drive belt is worn, loose or broken. 2. Blade drive belt is off pulley.	1. Install new blade drive belt. 2. Install blade drive belt and check idler pulley and belt guides for correct position.
Rider does not drive.	1. Traction belt is worn, loose or broken. 2. Traction drive belt is off pulley. 3. Drive chain is off sprockets. 4. Transmission does not shift gear. 5. Traction idler is adjusted incorrectly.	1. Install new traction drive belt. 2. Install traction drive belt. 3. Install and adjust drive chain. 4. Have rider serviced by Authorized TORO Service Dealer. 5. Adjust traction drive belt.

MAINTENANCE RECORD

Date	Hours Used	Oil Change	Air Cleaner Service	Lubrication	Sharpen Blade	Winter Storage	Spring Service	Spark Plug Gap


TORO